APPENDIX J

Noise Analysis and Supplemental Memorandum

FAIRVIEW CORNERS RESIDENTIAL PROJECT
ENVIRONMENTAL NOISE ASSESSMENT
SAN BENITO COUNTY, CALIFORNIA

September 21, 2010

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Fairview Corners LLC.

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INTRODUCTION

This report presents the results of the environmental noise assessment of the proposed Fairview Corners Residential Project. The Project proposes development consisting of up to 220 dwelling units, and open space/walk path/park in unincorporated San Benito County, California north of Airline Highway and east of Fairview Road. The Setting section of the report presents a discussion of the fundamentals of environmental acoustics to assist those unfamiliar with acoustical terminology. A description of applicable state and local guidelines is presented to establish the significance criteria used in the noise impact assessment. The results of the noise measurements made in the site vicinity are then summarized. The Impact and Mitigation Measures section identifies project impacts including the compatibility of the proposed use with the on-site noise environment. Where future noise levels exceed the applicable significance thresholds, a significant noise impact is identified. Mitigation is presented to achieve a compatible development with respect to the noise environment.

SETTING

Fundamentals of Environmental Acoustics

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its *pitch* or its loudness. *Pitch* is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. *Loudness* is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. *A decibel (dB)* is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms are defined in Table 1.

There are several methods of characterizing sound. The most common in California is the *A-weighted sound level or dBA.* This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table 2. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called L_{eq}. The most common averaging period is hourly, but L_{eq} can describe any series of noise events of arbitrary duration.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

Since the sensitivity to noise increases during the evening and at night -- because excessive noise interferes with the ability to sleep -- 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The *Community Noise Equivalent Level, CNEL,* is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 pm - 10:00 pm) and a 10 dB addition to nocturnal (10:00 pm - 7:00 am) noise levels. The *Day/Night Average Sound Level,* L_{dn}, is essentially the same as CNEL, with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

TABLE 1 Definitions of Acoustical Terms Used in this Report

Term	Definitions
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, Leq	The average A-weighted noise level during the measurement period.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 pm to 10:00 pm and after addition of 10 decibels to sound levels measured in the night between 10:00 pm and 7:00 am.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Handbook of Acoustical Measurements and Noise Control, Harris, 1998.

TABLE 2 Typical Noise Levels in the Environment

Common Outdoor Noise Source	Noise Level (dBA)	Common Indoor Noise Source
	110 dBA	Rock band
Jet fly-over at 1,000 feet		
	100 dBA	
Gas lawn mower at 3 feet		
	90 dBA	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80 dBA	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	70 dBA	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60 dBA	
		Large business office
Quiet urban daytime	50 dBA	Dishwasher in next room
Quiet urban nighttime	40 dBA	Theater, large conference room
Quiet suburban nighttime		
	30 dBA	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	20 dBA	
		Broadcast/recording studio
	10 dBA	
	0 dBA	

Source: Technical Noise Supplement (TeNS), Caltrans, November 2009.

Regulatory Background

The State of California and San Benito County establish guidelines, plans, and policies designed to limit noise exposure at noise sensitive land uses. These include the State CEQA Guidelines, Appendix G, and the County of San Benito General Plan, and the California Building Code.

State CEQA Guidelines. The California Environmental Quality Act (CEQA) has established guidelines to evaluate the significance of environmental noise impacts attributable to a proposed project. A significant noise impact would be identified if a project results in:

(1) Exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or Noise Ordinance, or applicable standards of other agencies.
(2) Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels.
(3) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
(4) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
(5) For a project located within an airport land use plan or, where such a plan has not been adopted within two miles of a public airport or public use airport, exposure of people residing or working in the project area to excessive noise levels.
(6) For a project within the vicinity of a private airstrip, exposure of people residing or working in the project area to excessive noise levels.

Items 1, 3, and 4 would be applicable to the proposed project. Item 2 is not applicable because the project is not located near sources of groundborne vibration (e.g., railroads) and would not generate perceptible groundborne vibration at off-site locations during construction or operation of the project. Items 5 and 6 are not applicable because the project site is not located within the vicinity of a public or private airport. Items 2, 5, and 6 are not carried forward in the analysis.

County of San Benito General Plan. The County of San Benito is currently updating their General Plan. Since the update is not complete, the current General Plan is used in this assessment. San Benito County's revised 1984 Plan identifies noise and land use compatibility standards for various land uses. The County's goal is to, "…protect the health, safety and welfare of San Benito County residents through the elimination of annoying or harmful noise levels." Figure 10, Land Use Compatibility for Community Noise Environments, of the Noise Element indicates that residential uses are considered "Clearly Acceptable" up to 60 dBA L_{dn} and "Normally Acceptable" up to 65 dBA L_{dn}.

2007 California Building Code. Multi-family housing in the State of California is subject to the environmental noise limits set forth in the 2007 California Building Code (Chapter 12, Appendix Section 1207.11.2). The noise limit is a maximum interior noise level of 45 dBA L_{dn}. Where exterior noise levels exceed 60 dBA $L_{dn,}$ a report must be submitted with the building plans describing the noise control measures that have been incorporated into the design of the project to meet the noise limit.

Existing Noise Environment

The project site is located in unincorporated San Benito County north of Airline Highway and east of Fairview Road. Land uses in the vicinity include the Ridgemark Golf and Country Club to the south, the Cielo Vista Subdivision to the west, open grassland to the east (Figure 1 shows residences along Harbern Way), and five-acre ranchettes to the north.

A noise monitoring survey was made from March 21, 2008 to March 26, 2008 to quantify the existing noise environment at the project site and in it's vicinity. The noise monitoring survey included one 24-hour noise measurements (LT-1). Noise levels at the project site and at nearby sensitive land uses predominantly result from traffic along Airline Highway and Fairview Road. Measurement locations and the site vicinity are shown in Figure 1.

Noise measurement site LT-1 was located approximately 33 feet from the centerline of Fairview Road, south of Cielo Vista Drive. Hourly average noise levels typically ranged from 68 to 70 dBA L_{eq} during the day, and from 54 to 68 dBA L_{eq} at night. The calculated day-night average noise level at this location ranged from 70 to 72 dBA L_{dn}. The daily trend in noise levels are shown in Appendix 1.

Figure 1: Measurement Locations and Site Vicinity

IMPACTS AND MITIGATION MEASURES

Significance Criteria

- A significant impact would be identified if noise-sensitive receivers proposed by the project would be exposed to noise levels exceeding the County's established guidelines for "Normally Acceptable" noise and land use compatibility (65 dBA L_{dn} or less). Satisfactory interior noise levels are defined as 45 dBA L_{dn} or less.

- According to CEQA, a significant noise impact would result if noise levels increase substantially over a permanent basis at existing noise-sensitive land uses (e.g., residences) as a result of the project. A "substantial increase" would be an increase of 3 dBA L_{dn} or greater at noise-sensitive land uses where noise levels already exceed 65 dBA L_{dn}, or 5 dBA L_{dn} or greater where the noise level would remain below 65 dBA L_{dn}.

- Significant noise impacts would result from construction if noise levels are sufficiently high to interfere with speech, sleep, or normal residential activities. Construction-related hourly average noise levels received at noise-sensitive land uses exceeding 60 dBA $L_{eq(hr)}$, and at least 5 dBA $L_{eq(hr)}$ above the ambient, would be considered significant if the construction activities substantially increased the noise environment for more than 12 months.

Impact: **Exposure of Persons to Excessive Noise Levels.**
The project would develop residential uses in a noise environment exceeding the "normally acceptable" noise and land use compatibility guidelines. **This is a significant impact.**

The proposed project proposes up to 220 dwelling units on the site. The Specific Plan for the project area also allows for neighborhood commercial uses and multi-family housing, although none are proposed as part of this residential project. Best assumptions would put future commercial uses near the intersection of Fairview Road and the Cielo Vista Drive extension. Additional noise studies may be necessary to evaluate any potential impacts on a project by project level once specific development is proposed.

Exterior Noise Environment

The Federal Highway Administration's Traffic Noise Model (TNM) was used to calculate future traffic noise levels at the site. Cumulative traffic conditions, based on the volumes presented in the traffic analysis for the Fairview Corners Residential Project[1], were input into the model to calculate the future noise environment expected at the site. Future traffic noise levels are calculated to be 67 dBA L_{dn} at a distance of 100 feet from the center of Fairview Road. Future

[1] Fairview Corners Draft Transportation Impact Analysis, Hexagon Transportation Consultants, Inc, July 21, 2010.

noise levels at a distance of 70 feet from the centerline of the Cielo Vista Extension were calculated to be 57 dBA L_{dn}.

Noise-sensitive uses proposed within 100 feet of the center of Fairview Road would include the first row of residences located along the western boundary of the site. This analysis assumes that the backyards of the single-family houses would adjoin Fairview Road. Noise levels in outdoor use areas that are affected by roadway noise are required to be maintained at or below 65 dBA L_{dn} to be considered normally acceptable for residential uses. The day-night average noise level in the outdoor use areas of residential units adjoining Fairview Road would be approximately 67 dBA L_{dn} and would exceed the County's exterior noise standards by 2 dBA L_{dn}. This is a significant impact.

Single-family residential uses are proposed approximately 70 feet from the center of the Cielo Vista Extension would be exposed to day-night average noise levels of approximately 57 dBA L_{dn}. Future noise levels in the rear yards of these residences would meet the County's exterior noise standard.

A noise barrier would be required to reduce noise levels in the rear yards of homes adjacent to Fairview Road. Preliminary barrier calculations indicate that a six-foot noise barrier, relative to the residential pad elevation, would be required to reduce exterior noise levels at residential outdoor use areas proposed adjacent to Fairview Road to "normally acceptable" levels. Table 3 summarizes the future exterior noise levels of homes along Fairview Road assuming noise barrier heights ranging between 6 feet and 10 feet. A preliminary barrier design is shown in Appendix 2.

Table 3: Future Exterior L_{dn} Noise Levels (dBA) With Mitigation

Noise Source	No Barrier	6 foot	7 foot	8 foot	9 foot	10 foot
Fairview Road	67	60	58	57	56	55

Athletic fields and athletic facilities that will be part of the Gavilan College are proposed southeast of the project site. Planned athletic fields include a soccer field, softball and baseball diamonds, and a football field surrounded by a track and bleachers. The athletic fields would include lighting and would be expected to generate noise in the late evening hours. Actively used playfields could potentially be a significant source of community noise at receivers in the site vicinity. Noise would primarily result from players, spectators, and public address systems.

Noise levels resulting from the use from these athletic fields would be highest during highly attended football games. Most home football games are expected to occur on Saturday nights at 7:00 p.m. There would be five regularly scheduled home games and the possibility of an additional scrimmage game. The proposed bleachers would accommodate 2,000 to 5,000 spectators, however, average attendance is expected to range from 500 to 2,000 spectators.

A credible worst-case assessment of potential noise from sporting activities at the junior college campus was made using noise data from a high-school football game[2]. High-school sporting events are generally attended by more spectators than junior college events. Worst-case average noise levels resulting from a football game would be approximately 61 to 63 dBA L_{eq} at a distance of 465 feet from the center of the field and would include noise sources such as the cheering of the crowd, referee's whistles, the public address system, horns, bands, and other amplified music. Maximum noise levels generated by these individual sources would typically range from 60 to 74 dBA L_{max} at a distance of 465 feet. Noise levels generated by baseball, softball, track and field, and swimming events would be lower than those generated by football events.

The nearest noise-sensitive receiver is located about 620 feet northeast of the center of the football field. Worst-case average noise levels generated by a football game with about 500 spectators would range from about 51 to 53 dBA L_{eq} at the nearest residences, and maximum noise levels would range from about 50 to 64 dBA L_{max}. Worst-case average noise levels generated by a football game with about 2,000 spectators would range from about 57 to 59 dBA L_{eq} at the nearest residences. Maximum noise levels would range from about 56 to 70 dBA L_{max}. Noise levels generated by football would exceed ambient noise levels by 10 to 20 dBA L_{eq} at nearby residential land uses. Noise levels generated by the use of the soccer field, softball and baseball diamonds, and track would be less given expected attendance at such events.

Although the proposed project would substantially increase ambient noise levels during well attended football games, these events would occur on 5 nights a year or less for about 3 hours a night. This would be considered a less than significant impact.

Interior Noise Environment

Future noise levels at the project site would require that interior noise levels within single-family residential units not exceed 45 dBA L_{dn}. Residential units proposed along Fairview Road would be exposed to exterior noise levels of about 67 dBA L_{dn}. In buildings of typical construction, with the windows partially open, interior noise levels are approximately 15 dBA lower than exterior noise levels. With the windows closed, standard residential construction typically provides 20 to 25 decibels of exterior to interior noise reduction. Interior noise levels would exceed 45 dBA L_{dn} assuming standard construction with the windows open for ventilation at potential second story residences. This is a potentially significant impact.

Mitigation Measures:

The following mitigation measures would reduce the potentially significant impact to a less-than-significant level:

- A minimum six-foot noise barrier shall be constructed to reduce noise levels at outdoor use areas along Fairview Road. To be effective, the barriers should be constructed solidly over the entire surface and the base. Openings or gaps between barrier materials

[2] Santa Teresa High School Football Stadium Lighting Project, Illingworth & Rodkin, Inc., October 9, 2002.

or the ground decrease the reduction provided by a noise barrier. Suitable materials for barrier construction should have a minimum surface weight of 3 lbs./ft^2. (such as one-inch thick wood, masonry block, concrete, or metal). A preliminary barrier design is shown in Appendix 2. The final design of noise barriers shall be completed during project-level review when detailed site plans and grading plans are available.

- Project-specific acoustical analyses are required by the County of San Benito to ensure that interior noise levels will be reduced to 45 dBA L_{dn} or lower at second story residences. Building sound insulation requirements would need to include the provision of forced-air mechanical ventilation for second story residential units adjacent to Fairview Road, satisfactory to the local building official, so that windows could be kept closed to control noise. Results of project specific analyses, including the description of the necessary noise control treatments, will be submitted to the County along with the building plans and approved prior to issuance of a building permit. Feasible construction techniques such as these would adequately reduce interior noise levels to 45 dBA L_{dn} or lower.

Impact: **Off-Site Project-Generated Traffic Noise.** The proposed project traffic will generate an increase in volumes along area roadways. The calculated increase in traffic would not result in a substantial increase in traffic noise at nearby receivers. **This is a less-than-significant impact.**

Project generated traffic noise level increases were calculated by comparing project (existing plus project) to existing traffic volumes. A total of 19 intersections surrounding the project site were analyzed. A review of the project's traffic study indicates that the proposed project will generate a slight increase in vehicular traffic on the local roadway network. The addition of project traffic would increase noise levels by 1 dBA L_{dn} or less. A traffic noise increase of less than 3 dBA L_{dn} is not typically perceptible and is not considered substantial. This is a less-than-significant impact.

Mitigation Measures: **None Required**

Impact: **Cumulative Traffic Noise.** The proposed project would not substantially contribute to cumulative noise levels anticipated with the build-out of the General Plan. **This is a less-than-significant impact**.

Cumulative traffic noise level increases were calculated by comparing cumulative plus project traffic volumes to cumulative no project volumes. The project's contribution to cumulative noise level increases would be less than 1 dBA L_{dn} in the long-term. This increase in noise would not be substantial. The project would not make a cumulatively considerable contribution to increased noise levels resulting from the build-out of the area.

Mitigation Measures: **None Required**

Impact: **Construction Noise.**

The project site is bordered by existing residential land uses to the north, west, and east. Noise generated by construction on the site would substantially increase noise levels at residential land uses in the vicinity of the site. **This is a potentially significant impact.**

Noise impacts resulting from construction depend on the noise generated by various pieces of construction equipment, the timing and duration of noise generating activities, and the distance between construction noise sources and noise sensitive receptors. Construction noise impacts primarily occur when construction activities occur during noise-sensitive times of the day (early morning, evening, or nighttime hours), the construction occurs in areas immediately adjoining noise sensitive land uses, or when construction noise lasts over extended periods of time. Where noise from construction activities exceeds 60 dBA L_{eq} and exceeds the ambient noise environment by at least 5 dBA L_{eq} at noise-sensitive uses in the project vicinity for a duration of one year or more, the impact would be considered significant.

Construction activities generate considerable amounts of noise. Construction-related noise levels are normally highest during the construction of project infrastructure. The infrastructure phase of construction requires heavy equipment that generates the highest noise levels. Typical hourly average construction generated noise levels are about 81 dBA to 88 dBA measured at a distance of 50 feet from the center of the site during busy construction periods (e.g., earth moving equipment, impact tools, etc.). The highest maximum noise levels generated by project construction would typically range from about 90 to 98 dBA at a distance of 50 feet from the noise source. Construction-related noise levels are normally less during building framing, finishing, and landscaping phases. There would be variations in construction noise levels on a day-to-day basis depending on the specific activities occurring at the site. Construction generated noise levels drop off at a rate of about 6 dBA per doubling of distance away from the source. Shielding by buildings or terrain often result in much lower construction noise levels at distant receptors.

Ambient daytime noise levels at the nearest receivers (approximately 100 feet west of the Fairview Road centerline) typically range from dBA 59 to 63 dBA L_{eq} during the day. Construction noise levels are anticipated to exceed 60 dBA L_{eq} and the ambient by 5 dBA or more when intense construction activities occur within about 700 feet of the nearest receivers to the north, west, and east. Construction activities occurring on the portions of the site nearest these receivers may result in noise levels exceeding 60 dBA L_{eq} and the ambient by 5 dBA L_{eq} or more.

The residential project is assumed to be constructed in two or more phases, and the initial two phases may be divided into additional phases of up to four per phase, for a maximum of eight phases. Each phase is anticipated to be implemented over a period of about two years, with project buildout occurring in 5 to 16 years. It is conceivable that a particular receiver or group of receivers would be subject to construction noise levels in excess of 60 dBA L_{eq} and the ambient by 5 dBA L_{eq} for a period of time exceeding one construction season.

To reduce noise levels generated by construction, the following standard construction noise control measures shall be included in the project:

- Restrict noise-generating activities at the construction site or in areas adjacent to the construction site to the hours of 7:00 a.m. to 7:00 p.m. daily.

- Equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.

- Unnecessary idling of internal combustion engines should be strictly prohibited.

- Locate stationary noise generating equipment such as air compressors or portable power generators as far as possible from sensitive receptors. Construct temporary noise barriers to screen stationary noise generating equipment when located near adjoining sensitive land uses. Temporary noise barriers could reduce construction noise levels by 5 dBA.

- Utilize "quiet" air compressors and other stationary noise sources where technology exists.

- Route all construction traffic to and from the project site via designated truck routes where possible. Prohibit construction related heavy truck traffic in residential areas where feasible.

- Control noise from construction workers' radios to a point that they are not audible at existing residences bordering the project site.

- The contractor shall prepare and submit to the County for approval a detailed construction plan identifying the schedule for major noise-generating construction activities.

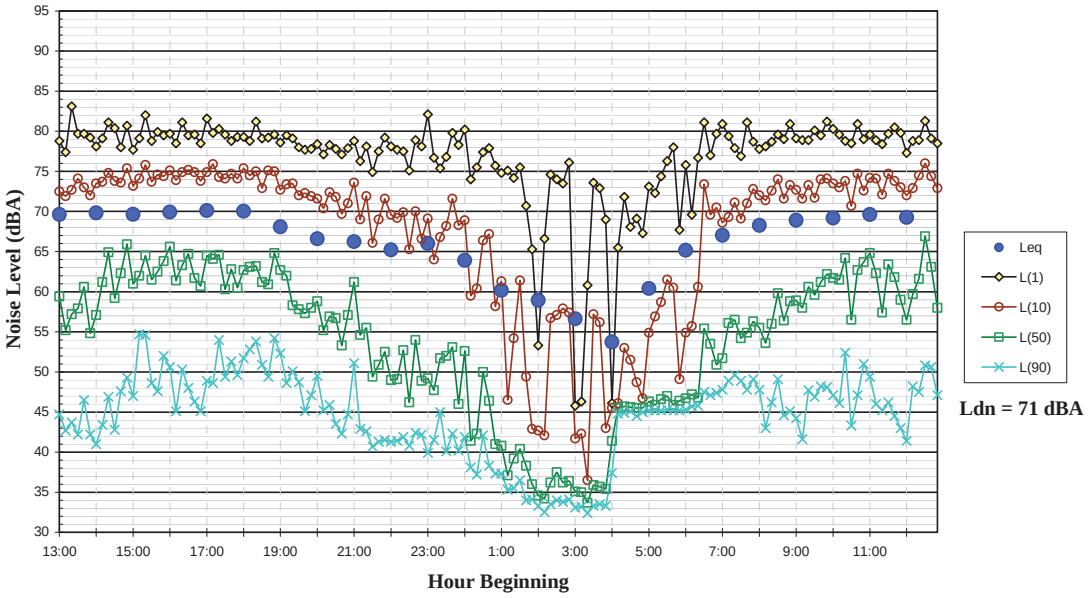
- Designate a "disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and will require that reasonable measures warranted to correct the problem be implemented. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.

Significance After Mitigation:

Although the above measures would reduce noise generated by the construction of the project, the impact would remain significant and unavoidable as a result of the extended period of time that adjacent receivers would be exposed to construction noise.

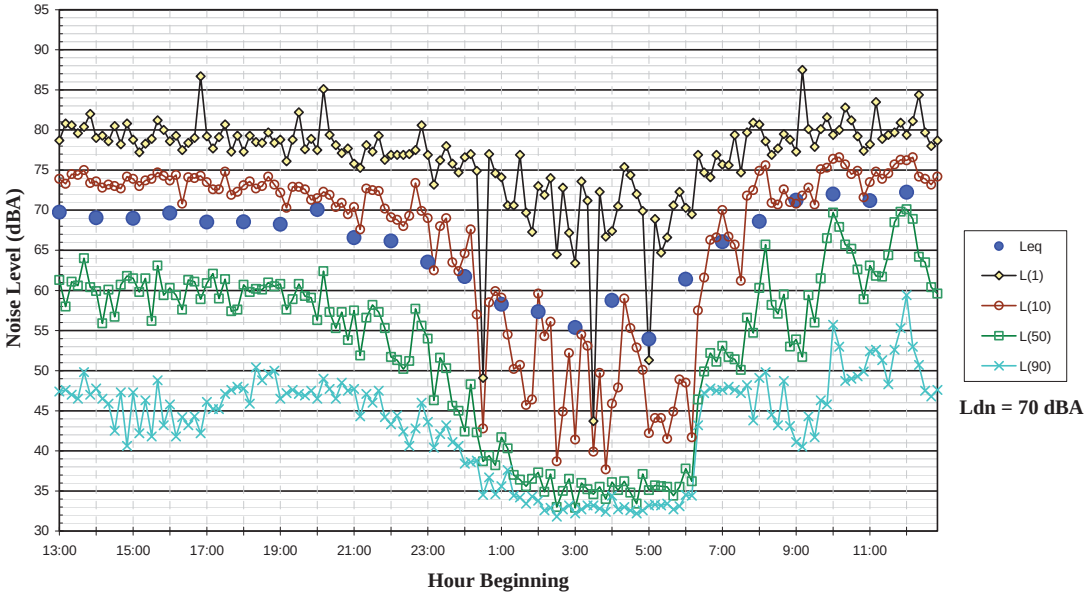
Appendix 1: Daily Trend in Noise Levels

Noise Levels at LT-1
~33 feet from the centerline of Fairview Road
March 21-22, 2008



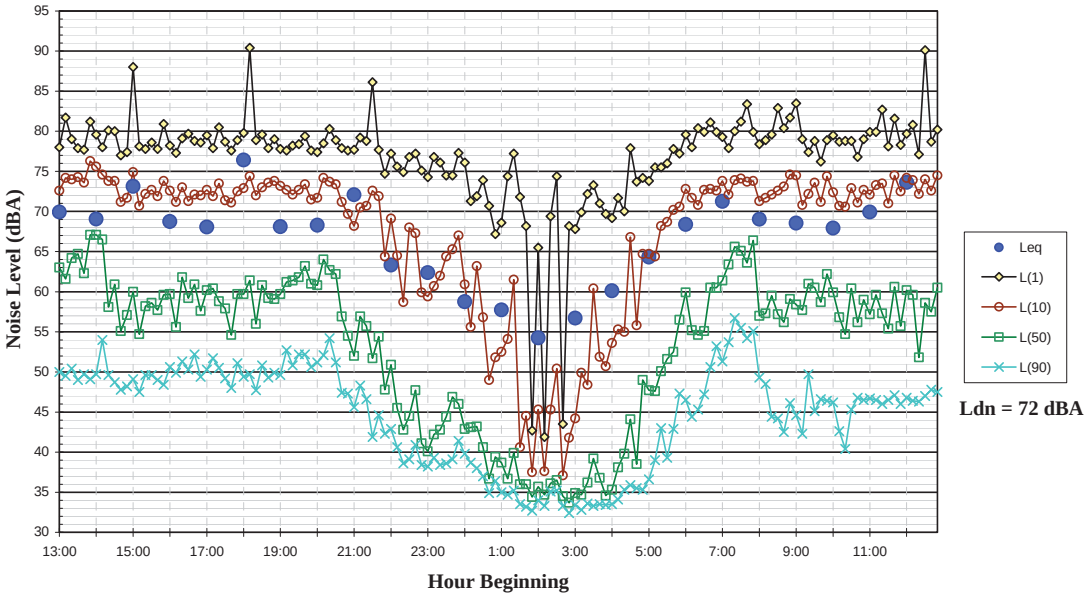
Ldn = 71 dBA

Noise Levels at LT-1
~33 feet from the centerline of Fairview Road
March 22-23, 2008



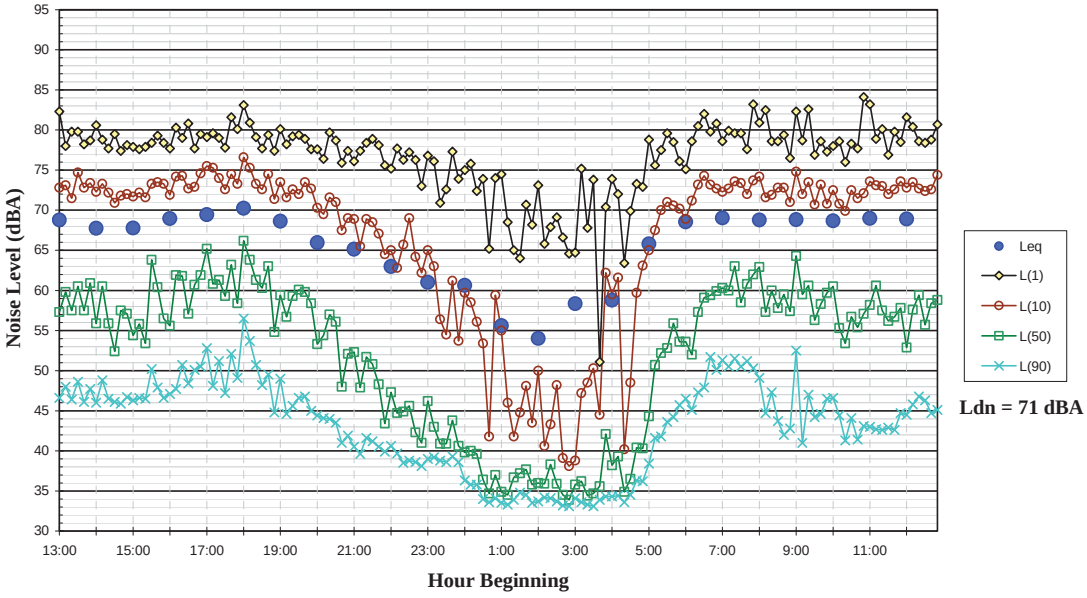
Ldn = 70 dBA

Noise Levels at LT-1
~33 feet from the centerline of Fairview Road
March 23-24, 2008



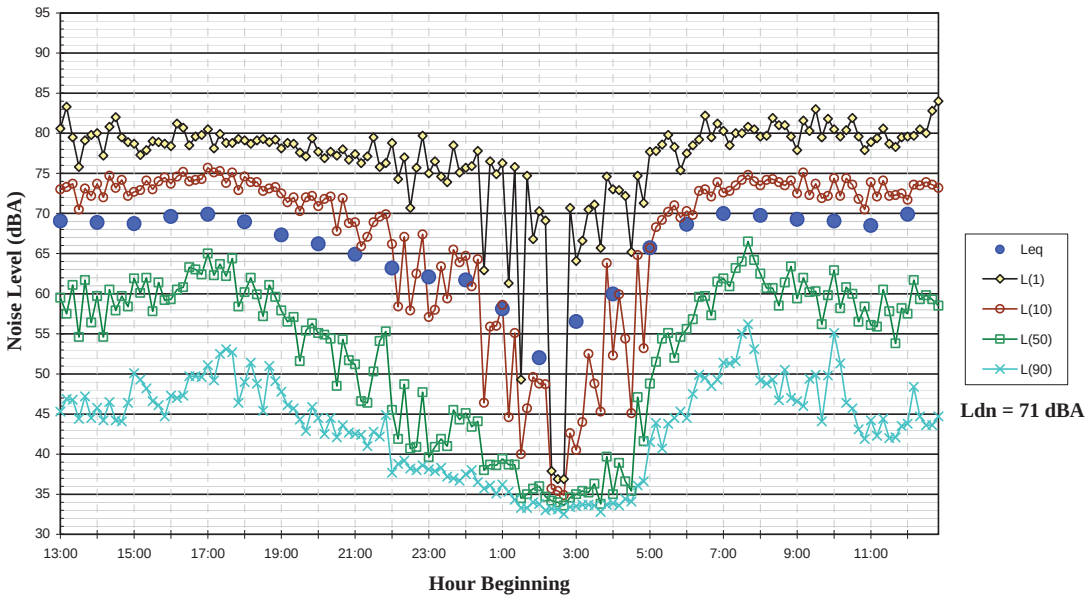
Ldn = 72 dBA

Noise Levels at LT-1
~33 feet from the centerline of Fairview Road
March 24-25, 2008



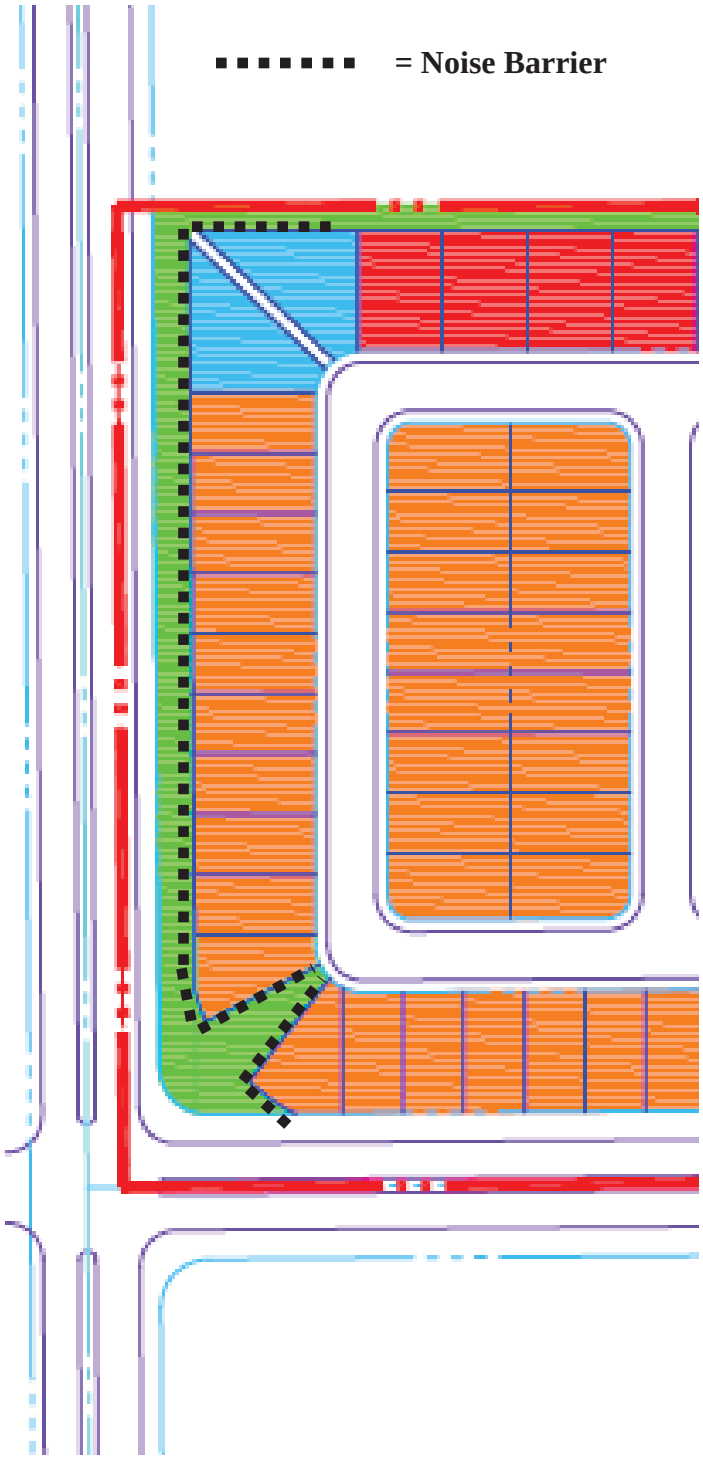
Ldn = 71 dBA

Noise Levels at LT-1
~33 feet from the centerline of Fairview Road
March 25-26, 2008



Ldn = 71 dBA

Appendix 2: Preliminary Noise Barrier Location for Receivers along Fairview Road



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MEMO

Date: May 26, 2011

To: Sally Rideout
EMC Planning Group, Inc.

From: Jared McDaniel
Illingworth and Rodkin, Inc.

Subject: **Response to Noise Comments**

1. Noise associated with pumping facilities and ongoing agricultural operations surrounding the site are not anticipated to generate noise levels in excess of existing ambient noise levels generated by local traffic along Fairview Road. I & R has conducted numerous noise measurements of various types of pumps throughout the Bay Area and data in our files have shown that noise levels can range from about 60 to 70 dBA at 3 feet from the equipment. Sensitive receivers located at increased distances from these noise sources would experience much lower noise levels. Further, noises from these types of sources are intermittent in nature and do not occur frequently enough to significantly increase day-night average noise levels at adjacent residences.

2. Section 25.37.035 of the San Benito County Code of Ordinances contains acceptable noise standards for noise emanating from any source, as it affects surrounding properties. Residential land uses are acceptable up to 50 dBA $L_{eq\ (hr)}$ during the day and 40 dBA $L_{eq\ (hr)}$ at night. The proposed project would not introduce any significant source of noise that could exceed the County's Noise Ordinance at nearby sensitive receivers. Based on our experience and data in our files, noise in residential areas would be generated by vehicles circulating project roadways, engine starts, door slams, and by the sound of human voices and children playing. The sound of a passing car at 15 mph typically ranges from 55 dBA to 65 dBA at 25 feet. The noise of an engine start is similar. Door slams and peoples voices create noise levels lower than engine starts. Once temporary construction (exempt from Section 25.37.035) is completed, single-family residential land uses generate little, if any noise that would be audible at nearby sensitive receivers.

3. A construction impact would be identified when the noise from construction activities exceeds 60 dBA L_{eq} and exceeds the ambient noise environment by at least 5 dBA L_{eq} at

noise-sensitive uses in the project vicinity for a duration of one year or more. Worst-case hourly average construction source noise levels during busy construction periods would be 88 dBA L_{eq} measured at a distance of 50 feet. The noise level standard used was 60 dBA L_{eq} (Based on typical ambient noise levels measured at adjacent receivers). Therefore, 5 dBA L_{eq} above the ambient would be 65 dBA. The source level (88 dBA) is subtracted by the 5 dBA above standard level (65 dBA) to get the reduction needed (23 dBA reduction). This number is then divided by the drop-off rate for construction noise (construction noise uses a 6 dBA per doubling or 20 Log). 23/20 = 1.15. The final calculation projects a distance construction noise will be greater than 65 dBA L_{eq}. 10^1.15 X 50 (source distance) = 706.2687723 feet. We rounded and said within about 700 feet.

4. Active parks, ball fields, or sports complexes that have large numbers of participants or spectators can potentially be a significant source of community noise. Our experience with similar projects and data in our files show that for normal active park events such as soccer games, baseball games, dog parks, etc., average noise levels of about 55 to 60 dBA L_{eq} could be expected at a distance of 150 feet from the center of activities. Passive public parks (as proposed for this project) could contain one or more of the following amenities that are part of most neighborhood parks: tot lot/playground, open turf area, picnic tables with barbeques, pathways, open space, etc. Typical sounds from these types of parks include people's voices, kids playing, engine starts, door slams etc. Noise levels generated by passive parks are similar to those outlined in item 2 of this memo and would typically range from 55 to 65 dBA at 24 feet. It is not anticipated, given the activities outlined above, that noise from passive parks would cause any adverse noise impacts upon noise sensitive receptors in the area. .

5. In our discussion about exposure to campus-generated noise, the County's General Plan noise and land use compatibility standard was used to determine significance upon adjacent residential receivers.

6. The proposed project would not require the use of heavy equipment that would result in groundborne vibration that would cause damage to adjacent buildings (i.e., pile drivers). It is possible, however, that construction activities occurring along the perimeter of the site could intermittently produce perceptible vibration levels at adjacent residences (i.e., graders, Dozers, tractors, etc). These anticipated groundborne vibration levels generated by demolition or construction activities would not be expected to result in cosmetic or structural damage to adjacent building. Table 1 identifies vibration source levels for various pieces of construction equipment anticipated at the site with the exception of vibratory rollers and crack and seat operations, which are not scheduled for this type of project. Vibration levels at sensitive receivers located approximately 50 feet or further away from construction activities are not anticipated to be greater than 0.04 in/sec PPV. Vibration levels at adjacent buildings would not be considered significant given the intermittent and short duration of the phases that have the highest potential of producing vibration. By use of administrative controls such as notifying neighbors of scheduled construction activities and scheduling construction activities with the highest potential to produce perceptible vibration to hours with the least potential to affect nearby residences,

perceptible vibration can be kept to a minimum and as such would not result in a significant impact with respect to perception and construction vibration thresholds put forth in the Caltrans Transportation and Construction Induced Vibration Guidance Manual.

Table 1. Vibration Source Amplitudes for Construction Equipment.

Equipment	Reference PPV at 25 ft. (in/sec)
Vibratory roller	0.210
Large bulldozer	0.089
Caisson drilling	0.089
Loaded trucks	0.076
Jackhammer	0.035
Small bulldozer	0.003
Crack-and-seat operations	2.4

Sources: Federal Transit Administration 1995 (except Hanson 2001 for vibratory rollers) and Caltrans 2000 for crack-and seat-operations.

* Vibratory rollers and Crack-and-seat operations are not anticipated for this project.