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RECEIVED

December 15, 2012

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Napa County Planning, Building  
& Environmental Services

Raymond Vineyards and Cellar  
849 Zinfandel Lane  
St. Helena, CA 94574

ATTENTION: Tom Blackwood, Director of Operations, Raymond Vineyard  
RE: Use Permit Application P11-00156

SUBJECT: Acoustical Study of Environmental Noise Issues

Dear Mr. Blackwood:

**Overview**

The applicants, Raymond Vineyard and Cellar (Raymond), have submitted an application to the County to increase production, daily visitation levels and their approved marketing program. During the June 20, 2012 public hearing, some neighbors on Zinfandel Lane and on Mountain View Avenue raised general noise from the winery as a concern. These concerns revolved around potential noise due to outdoor marketing events and the use of "Jake" brakes from trucks using Zinfandel Lane and neighboring residential streets. As a consequence, county staff requested that an acoustical analysis be undertaken. The results of this analysis are reported herein. Recommendations based upon this analysis are also included.

**Noise Environment in the Vicinity of Raymond Vineyards and Cellar**

Raymond is surrounded by vineyard on a parcel east of Highway 29 and to the south of Zinfandel Lane. This site and the surrounding area are best classified as being "rural" in nature. The background noise levels in the vicinity of the winery are attributable to the continuous traffic along Hwy 29. Locally, traffic on Zinfandel Lane is intermittent, but louder for residences along Zinfandel due to the close proximity of the street, and the high speed of the traffic.

A residential neighborhood is located to the north of Zinfandel Lane and to the west of Victoria Drive which includes Mountain View Avenue, Garden Avenue and Walnut Drive of which Zinfandel Lane dwellings comprise the closest residences to the project site. Any noise level estimated to exist at the Zinfandel residences, therefore, would be greater than for any of the other residences north of there due to shielding provided by the existing residences and increased distance from the winery.

Background Noise Levels – Background noise levels were measured in the vicinity of the residences on Zinfandel Lane for various times of the day and evening. These continuous sound levels, mostly due to Hwy 29 traffic, were found to be in the mid to low 40 dBA range during the day, and from 35 dBA to 40 dBA in the time period between 7 p.m. and 10 p.m. (“Evening”). Noise levels at Zinfandel residences due to auto traffic on Zinfandel Lane were measured to be in the range of 70 dBA to 78 dBA.

**Summary of Background Noise Levels  
Typical of Vicinity @ 800 Zinfandel Lane**

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7 a.m. – 7 p.m.	40 – 45 dBA
7 p.m. – 10 p.m.	35 – 40 dBA
10 p.m. – 7 a.m.	30 – 35 dBA (estimate)

The discussion below will place these background noise levels in their proper context relative to the important issues of the audibility and potential annoyance from events due to marketing activities at the winery.

**Issue of Audibility, Potential Annoyance and Noise Impact relative to Background Noise Levels at the Receiver**

The perception of a sound source is dependent on the sound level of the source at the receiver relative to the background noise level over or within which the source is heard. Therefore, by example, a sound source of a given sound level may not be heard in a noisy urban environment, but may be easily heard in a quiet rural environment. This means that the analysis of a source as potential “noise” at a receiver depends on the background noise levels in which it is heard. This also means that at a given source sound level, the quieter the environment (rural in this case) the greater distance a sound can be heard.

Audibility versus Annoyance of Sound in a Noise Environment – Noise sources of modulated and/or tonal character, such as music and speech, can be heard (are audible or noticeable) at levels down to 5 dBA below the background noise levels. While a sound may be audible, it is not necessarily found to be annoying at low levels. Further, sound sources are considered to be acceptable by most people when the source levels are below and up to 5dBA above the background. Source noise levels which are continuously above the background by 5 dBA or greater may be found to be annoying.

County Standard which constitutes Noise Impact – Chapter 8.16 of the Napa County Code of Ordinances promulgates the Environmental Noise Standards that may not be exceeded before such noise is considered to be “detrimental to public health . . . and quality of life,” as well as being considered “disturbing, excessive,” etc. and therefore a public nuisance. Table 8.16.070 lists the maximum not to be exceeded noise level for “rural” receivers as  $L_{50} = 50$  dBA during “daytime hours” and 45 dBA during “nighttime hours.” Due to a correction to these values required in the case where the source of noise contains music or speech, the maximum allowed sound level in this case during all time periods of the 24-hour day, is  $L_{50} = 45$  dBA. [See Appendix for the technical definition of the statistically based  $L_{50}$  metric and other acoustical terminology.]

“Daytime” Hours versus “Nighttime” Hours – For purposes of describing acoustical noise impacts, the 24-hour day is divided between the legal definitions of “daytime” being between 7 a.m. and 10 p.m., and “nighttime” being 10 p.m. to 7 a.m.

## Noise Study and Analysis of Sound Sources from Raymond

### Marketing Events

There are two basic types of outdoor marketing events that are proposed. These are amplified music in conjunction with dining events, and speech presentations and auctions at tented dining or entertaining events held to the south of the winery’s private residence (also acting as a sound barrier). Each event type has its own acoustical characteristics.

Amplified Music in Dining Area – This activity would occur in conjunction with exterior dining and is presented as background entertainment during which time guests are conversing at the tables. The requirement that guests are able to communicate easily while dining also requires that the music and/or singing not be amplified at levels which hamper speech communication.

Sound levels for music and speech/singing in the dining vicinity are calculated to be at sound levels below  $L_{50} = 70$  dBA ✕

Speech Amplification in Tented Area behind Residence – Due to the use of a distributed sound system, and low background noise levels in the vicinity of the tent, sound levels for excellent speech communication at raised voice levels in the tented area are also calculated to be below  $L_{50} = 70$  dBA.

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### **Exterior Sound Levels in the Vicinity of Zinfandel Lane due to Outdoor Marketing Events**

Residences along Zinfandel Lane across from the winery are at a minimum distance from the nearest outdoor venue of approximately 1,500 ft. The decrease in sound levels due to this distance across planted vineyard is calculated to be at a minimum of -30 dBA to -40 dBA relative to the sound level assumed for the entertainment areas. Further attenuation of sound levels for the event types are given in the summary below.

Amplified Music in Dining Area – Exterior sound levels in the vicinity of Zinfandel Lane residences are calculated to be at or below  $L_{50} = 20$  to 25 dBA. These levels assume that the loudspeakers for the event are pointed away from Zinfandel Lane.

Speech Amplification in Tented Area – Due to the use of a distributed sound system, lower sound levels needed for speech communication, and the additional shielding of the winery residence, sound levels due to this use are calculated to be at  $L_{50} < 20$  dBA.

### **Sound Levels in Vicinity of Zinfandel Lane Residences versus Audibility and Potential Noise Impact**

Audibility and potential noise impact as defined by the County's noise standard are discussed below relative to the measured background noise levels in the vicinity of the Zinfandel Lane residences.

Amplified Music in Dining Area – Background noise levels are found to be in the range of 30 to 35 dBA during evening hours before 10 p.m. Sound levels due to amplified music are therefore found to be at least 5 to 15 dBA below the background noise levels. These sound levels will therefore not be audible. Possible exceptions to this are discussed below. Further, sound levels in the Zinfandel Lane vicinity are 20 to 25 dBA below the maximum of  $L_{50} = 45$  dBA allowed by the County's noise standard.

Speech Amplification at Tented Area – Sound levels due to these events are found to be more than 15 dBA below background noise levels. These sound levels will therefore not be audible. Possible exceptions to this are discussed below. Further, the sound levels in the Zinfandel Lane vicinity are more than 25 dBA below the maximum  $L_{50} = 45$  dBA allowed by the County's noise standard.

### Jake Brakes

The traffic study presented to the county commission in June 2012 indicated that there are 16 daily truck trips on typical weekdays and Saturdays. During the 6-week harvest period the number of daily truck trips increases. Given the fact that Zinfandel Lane is the home to wineries including the 12 million gallon Ranch, and is used by production and grape trucks traveling between Silverado Trail and Highway 29, it is understood that the proportion of the total truck traffic on Zinfandel Lane due to Raymond operations is of a low percentage. Therefore, any contribution to the noise environment due to the use of Jake Brakes only by Raymond trucks is small and reducing their use only by Raymond trucks would not reduce noise impact, if it exists. However, in an effort to address concerns raised on June 20, 2012, Raymond may still choose to require that trucks servicing the winery not use them.

### Other Acoustical Issues Relative to this Analysis

Possible Exceptions to the Audibility of Propagated Sound – Background noise levels fluctuate around an average which is approximated by the L<sub>50</sub> metric. The same is true for the sound levels being produced by the marketing events. They are sometime higher than the reported L<sub>50</sub> maximum value, and sometimes below the L<sub>50</sub> maximum. In fact, due to the L<sub>50</sub> metric chosen by the County to define noise impact, all reported L<sub>50</sub> sound levels are by definition exceeded 50% of the time. In this case, it is possible that, due to fluctuations in both background sound levels and source sound levels, sound from the source may at times be audible. At no time, however, will sound levels exceed the County's noise standard.

The Issue of "Unique Acoustics at this area of the Valley" – The physics of sound propagation through the atmosphere are the same everywhere in the world, and are governed in all places by certain factors such as temperature, wind and gradients in temperature as a function of elevation. [The meteorological phenomenon of temperature increase with elevation is known as a "temperature inversion."] Temperature inversions and certain wind patterns can cause an apparent amplification of sound propagation over "normal" circumstances. While these may occur from time to time, the opposite may also be true, further mitigating sound propagation relative to "normal" circumstances. Under no circumstances, even with "amplifying meteorological conditions," would any of the amplified sound events exceed the County's noise standard.

**Recommended Acoustical Requirements for Outdoor Marketing Events and Trucks**

Amplified Music and Entertainment in Dining Area – Require the following:

1. All loudspeakers on the stage to be oriented as pointing away from the direction of Zinfandel Lane.
2. Any distributed speakers used for these events to also point away from Zinfandel Lane.
3. Sub-woofer loudspeakers must not be used in any loudspeaker system.

Speech Amplification in Tented Area – Require the following:

1. Sound system must utilize a “distributed loudspeaker system.”
2. Distributed loudspeakers to be aimed toward the seating area only.

General Requirements

1. Restrict amplified events to hours up to 10 p.m. and no later.
2. All events must have an on-site manager to monitor sound system setup, usage and compliance with the other requirements.
3. Suggest Raymond require trucking servicing their winery to not use Jake Brakes when approaching the winery and/or the Hwy 29 intersection [although this will not significantly change the noise environment or any impact on Zinfandel residences].

Yours sincerely,

*Gerald R. Hyde*

Jerald R. Hyde, FASA, FIOA

Copy: Jeff Redding, Lisa Heisinger – VP Operations

**APPENDIX**

Raymond Vineyards and Cellar  
 Use Permit Application P11-00156

**Definitions of Acoustical Terms**

Term	Definition
A-Weighted Sound Level, dBA (LA)	The SPL in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes low frequency components of sound in a manner similar to the frequency response of the human ear and correlates well with subjective response to sound.
Noise	Unwanted or unhealthful sound.
L <sub>50</sub> , L <sub>90</sub>	The A-weighted sound levels that are exceeded 50% and 90% of the time during the measurement period.
Total Sound	The composite of sound from all sources near and far.
Ambient Sound	The sound level measured in the absence of an intrusive and/or extraneous noise.
Intrusive Noise	That noise from a source of specific origin which intrudes above or within the existing background sound level. The degree of intrusiveness of a sound depends upon its amplitude, duration, frequency, time of occurrence, and tonal or informational content as in contrast to the prevailing background sound level which exists in the absence of the intrusive noise.
Background Noise Level	The L <sub>A90</sub> of the ambient sound. It represents the ever present lower sound level due to distant sources which are individually indistinguishable, and in the absence of the Intrusive or Extraneous Noise.
Extraneous Noise	Specific or distinguishable intermittent sound from nearby sources such as mechanical devices, leaf blowers, pumps, vehicles, horns, sirens, barking, talking, shouting, birds, crickets, wind and other similar individual sources which don't normally exist on a continuous basis.

