

***ENVIRONMENTAL NOISE ASSESSMENT  
RUDD WINES  
WESTSIDE ROAD TASTING ROOM AND WINERY  
USE PERMIT APPLICATION PLP14-0031  
4603 WESTSIDE ROAD  
SONOMA COUNTY, CALIFORNIA***

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## Introduction

This report has been prepared in response to the Notice of Project Status letter issued by Sonoma County Permit and Resource Management Department (PRMD), dated July 31, 2014. The PRMD letter requested an assessment of noise resulting from operations at the proposed Rudd Wines Tasting Room and Winery with regard to the Sonoma County General Plan's Table NE-2 noise limits. The proposed project would convert an existing building at 4603 Westside Road into a small tasting room and add a new 7,465 square foot production building and 1,800 square foot tasting room over four construction phases to achieve a production capacity of 10,000 cases.

The project as proposed is expected to have 16 employees between winery, vineyard, and tasting room operations. The tasting room is expected to serve a peak of 200 and an average of 139 guests on a daily basis.

The project proposal includes 12 agricultural promotional (special) events per year (six with an attendance of a maximum 80 guests, three with an attendance of a maximum 100 guests, and three with an attendance of a maximum 150 guests) and thirteen industry-wide events, such as Winter Wineland and Barrel Tasting. In addition, the project proposal also includes smaller Wine Maker Dinners / Lunches with maximum 40 guests (not defined as events in the Project Description Letter prepared by the Applicant).

Amplified acoustic music is proposed outside of the tasting room on the south and east sides of the building. Non-amplified acoustic music is proposed on the covered porch located on the west side of the tasting room building. Music outdoors would end prior to 10:00 p.m.

The report first provides a brief discussion of the fundamentals of environmental noise to assist those who are not familiar with acoustical terminology or concepts, and provides a summary of the applicable regulatory criteria used in the assessment. Existing noise levels in the project vicinity are then described, and an evaluation of project-generated noise levels is made.

## Fundamentals of Environmental Noise

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 (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      Definition of Acoustical Terms Used in this Report**

<b>Term</b>	<b>Definition</b>
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 micro Pascals.
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, $L_{eq}$	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.
$L_{02}$ , $L_{08}$ , $L_{25}$ , $L_{50}$	The A-weighted noise levels that are exceeded 2%, 8%, 25%, and 50% 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 Activities	Noise Level (dBA)	Common Indoor Activities
	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), California Department of Transportation, November 2009.

## Regulatory Criteria

Goals, objectives, and policies, designed to protect noise-sensitive uses from exposure to excessive noise, are set forth in the Noise Element of the Sonoma County General Plan 2020. The following objectives and policies are applicable in the assessment of the proposed project:

**Objective NE-1.2:** Develop and implement measures to avoid exposure of people to excessive noise levels.

**Objective NE-1.3:** Protect the present noise environment and prevent intrusion of new noise sources which would substantially alter the noise environment.

**Policy NE-1a:** Designate areas within Sonoma County as noise impacted if they are exposed to existing or projected exterior noise levels exceeding 60 dB Ldn, 60 dB CNEL, or the performance standards of Table NE-2.

**Policy NE-1c:** Control non-transportation related noise from new projects. The total noise level resulting from new sources shall not exceed the standards in Table NE-2 (Table 3) of the recommended revised policies as measured at the exterior property line of any adjacent noise sensitive land use. Limit exceptions to the following:

(1) If the ambient noise level exceeds the standard in Table NE-2, adjust the standard to equal the ambient level, up to a maximum of 5 dBA above the standard, provided that no measurable increase (i.e. +/- 1.5 dBA) shall be allowed.

(2) Reduce the applicable standards in Table NE-2 by five dBA for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises, such as pile drivers and dog barking at kennels.

(3) Reduce the applicable standards in Table NE-2 by 5 decibels if the proposed use exceeds the ambient level by 10 or more decibels.

(4) For short-term noise sources, which are permitted to operate no more than six days per year, such as concerts or race events, the allowable noise exposures shown in Table NE-2 may be increased by 5 dB. These events shall be subject to a noise management plan including provisions for maximum noise level limits, noise monitoring, complaint response and allowable hours of operation. The plan shall address potential cumulative noise impacts from all events in the area.

(5) Noise levels may be measured at the location of the outdoor activity area of the noise sensitive land use, instead of at the exterior property line of the adjacent noise sensitive use where:

(a) The property on which the noise sensitive use is located has already been substantially developed pursuant to its existing zoning, and

(b) There is available open land on these noise sensitive lands for noise attenuation. This exception may not be used for vacant properties, which are zoned to allow noise sensitive uses.

**TABLE 3 Maximum Allowable Exterior Noise Exposures for Non-transportation Noise Sources (Table NE-2)**

Hourly Noise Metric <sup>1</sup> , dBA	Daytime 7 a.m. to 10 p.m.	Nighttime 10 p.m. to 7 a.m.
L <sub>50</sub> (30 minutes in any hour)	50	45
L <sub>25</sub> (15 minutes in any hour)	55	50
L <sub>08</sub> (5 minutes in any hour)	60	55
L <sub>02</sub> (1 minute in any hour)	65	60
<sup>1</sup> The sound level exceeded n% of the time in any hour. For example, the L <sub>50</sub> is the value exceeded 50% of the time or 30 minutes in any hour; this is the median noise level. The L <sub>02</sub> is the sound level exceeded 1 minute in any hour.		

### Existing Noise Environment

Ambient noise levels were measured at the project site by *Illingworth & Rodkin, Inc.* in September 2014. The noise monitoring survey included one long-term noise measurement (LT-1) near the north boundary of the site, adjacent to a single family residence (R1), and one short-term noise measurement (ST-1) along the west boundary of the site, between two single-family residences (R2 and R3). Figure 1 is a site plan showing the noise monitoring locations and nearby receptors.

Noise levels were measured at Site LT-1 from the afternoon of Thursday, September 11, 2014 to the morning of Tuesday, September 16, 2014 in order to quantify existing conditions at a location considered acoustically equivalent to the nearest residence to the project site (R1). Figure 2 summarizes the noise data collected over the duration of the measurement period. Figures 3 - Figure 8 display the measured noise data on a daily basis. Existing ambient day-night average noise levels at Site LT-1 ranged from 47 to 50 dBA L<sub>dn</sub>. The measured noise data are also summarized in terms of the metrics appropriate for the Sonoma County noise performance standards and for hourly L<sub>eq</sub> in Table 4. The average noise level is given for each L<sub>n</sub> descriptor throughout the daytime and nighttime periods.

**TABLE 4 Existing Noise Levels at LT-1**

Time Period	Average Hourly Noise Level, dBA				
	L <sub>50</sub>	L <sub>25</sub>	L <sub>08</sub>	L <sub>02</sub>	L <sub>eq</sub>
Daytime	42	45	48	51	44
Nighttime	39	40	43	46	41

A short-term noise measurement was made on the morning of Tuesday, September 16, 2014, at the west property boundary of the project site, to quantify existing ambient noise levels at two residential land uses in the vicinity (R2 and R3). The measured noise level at Site ST-1 was 40 dBA  $L_{eq}$ , which indicated that ambient noise levels at the nearest receptors to the west are approximately 5 dBA less than the noise levels measured at Site LT-1.

## Noise Assessment

### Source Noise Levels for Operations

Noise generated by the proposed project was assessed against the Table NE-2 guidelines as presented in the County's Noise Element. These guidelines establish daytime and nighttime noise level limits for noise events of varying durations. The primary noise producing activities associated with the project are vehicle traffic and parking lot activities, special events, maintenance and forklift operations, and seasonal production activities including crushing and bottling operations. To estimate the noise levels associated with project operations, some attention must be given to the temporal nature of the noise produced.

Automobile and light vehicle traffic accessing the tasting room and winery would primarily occur during the daytime hours. Vehicles accessing the parking areas, engine starts, and door slams would be the primary noise sources. These noises typically range from 53 dBA to 63 dBA  $L_{max}$  at 50 feet. The cumulative duration of noise from these intermittent sounds would be more than five minutes, but less than 15 minutes in any hour, therefore, the  $L_{08}$  would be the applicable regulatory threshold used in the analysis.

Table 5, below, lists typical noise levels generated by small to moderate sized special events at a distance of 50 feet from the source. The cumulative duration of noise from these fairly continuous sounds would be more than 30 minutes in any hour. Therefore, the  $L_{50}$  would be the applicable regulatory threshold. The cumulative duration of noise from the intermittent sounds attributable to wine tasting would not exceed 1 minute in any hour. As such, the noise attributable to wine tasting (voices as patrons enter or exit the tasting room) would not measurably contribute to the  $L_{02}$  in any one hour period and would not be regulated by the Table NE-2 noise limits. There are no sound issues associated with voices due to wine tasting and no additional mitigation is necessary. This item is not discussed further.

**TABLE 5 Typical Noise Source Levels for Special Events (A-Weighted  $L_{50}$  Levels)**

<b>Event or Activity</b>	<b>Typical Noise Level at 50 feet</b>
Amplified wedding (or similar type event) Music	72 dBA
Amplified Speech	71 dBA
Non-amplified Music	67 dBA
Films – Voices/Music	64 dBA
Raised Conversation	64 dBA



Maintenance and forklift operations would produce intermittent noise depending on the exact nature of the operation. Backup alarms (or beepers), which are repetitive and irritating by design, will also produce noise during these activities, and as with forklift operations themselves are expected to be intermittent by nature. Forklift use and associated backup alarms noise will be partially attenuated during crush related activities by structure of the production building. Based on experience with other winery operations, we estimate that non-attenuated  $L_{08}$  noise levels from these operations may reach levels of 66 dBA to 67 dBA at 50 feet.

On-site wine production is a potential source of environmental noise. Wine production activities would produce the following type and range of noise levels at a bench mark distance of 50 feet:

- Refrigeration equipment, as a maximum condition, is assumed operate under constant conditions day and night. Though the model, type and capacities of the cooling compressors for the facility are not specified, field measurements of such equipment shows that sound levels from such equipment can produce levels of between 50 dBA to 65 dBA at 50 feet, with  $L_{50}$  noise levels of 60 dBA at 50 feet.
- Air compressors, used for various processes in the facility, typically cycle on and off, based on the need for compressed air. Though the model, type and capacities of the cooling compressors for the facility are not specified, from field measurements of cooling compressors at other wineries, we expect this equipment to produce  $L_{50}$  sound levels of 62 dBA at 50 feet.
- Crush activities typically occur for about two weeks each year. The majority of the noise sources associated with the crush include the operation of hoppers, presses, destemmers, separators, crushers, air compressors, forklifts, conveyors, etc. Average noise levels resulting from the crush are typically constant on an hourly basis. Individual pieces of crush-specific equipment such as the separators and destemmers are relatively quiet with sound levels of around 50 dBA  $L_{eq}$  at about 50 feet, however the composite crush activities at a small sized winery, such as the proposed 10,000 case capacity facility, typically generate noise levels of about 64 dBA  $L_{eq}$ , at a distance of 50 feet from the center of operations. During the crush discrete maximum noise events, such as the setting of empty bins, may reach 70 to 80 dBA  $L_{max}$  or  $L_{02}$  at 50 feet from the center of operations.
- Bottling would be constant on an hourly basis although it is likely to occur for only a few weeks each year. Based on sound level measurements of mobile bottling lines at other wineries, we would expect bottling operations to produce  $L_{50}$  sound levels of 67 dBA at 50 feet in an open air, non-acoustically shielded environment.

## Vehicle Traffic Noise Assessment

The operation of the project would generate additional traffic along Westside Road and the driveway to the site located at 4603 Westside Road. Worst-case traffic noise levels would occur during site-specific special events when guests are expected to arrive and depart during roughly the same hours. This condition assumes a higher concentration of vehicle trips during an hour as opposed to industry-wide special events or wine-tasting related trips, which are normally distributed throughout the tasting room hours of operation. Traffic noise levels along the driveway were calculated for site-specific special events with 50 persons in attendance based on the following assumptions:

- 50 persons in attendance
- 2.5 persons per vehicle
- 20 one-way trips inbound at the beginning of the event
- 20 one-way trips outbound at the end of the event
- 8 one-way trips inbound/outbound for staff
- 15 mile per hour (mph) travel speed along project driveway

The property line of the nearest residential receptor (R1) is located approximately 400 feet from the center of the driveway serving the site. Traffic noise modeling results indicate that autos traveling along the project driveway would generate noise levels of approximately 23 dBA  $L_{08}$  at a distance of 400 feet assuming approximately 6 dBA of acoustical shielding provided by intervening terrain between the driveway and receptor position. The predicted noise level from site-specific special event traffic with 50 persons in attendance would be below ambient noise levels both day and night. The predicted noise level would be 37 dBA below the daytime noise level threshold of 60 dBA  $L_{08}$  and 32 dBA below the nighttime noise level threshold of 55 dBA  $L_{08}$ . Although more daily trips would be expected from the operation of the tasting room or industry-wide special events, the noise level in any hour would be expected to be less as the vehicle trips associated with these events would be distributed throughout the hours of operation as opposed to concentrated during periods immediately before and after site-specific special events.

The property line of residential receptor R2 is located approximately 700 feet to the west of the driveway that serves the winery and tasting room. Traffic noise levels at this position are calculated to be approximately 24 dBA  $L_{08}$  as there is no acoustical shielding provided by intervening terrain between the driveway and receptor. The predicted noise level from site-specific special event traffic with 50 persons in attendance would be below ambient noise levels both day and night, as well as the  $L_{08}$  noise limits established for daytime and nighttime time periods. Driveway noise levels at R3 would be less than those predicted for R2 because of additional distance from the noise source and acoustical shielding provided by intervening terrain. Table 6 summarizes the results of the assessment of driveway noise attributable to site-specific special event traffic.

**TABLE 6 Site-Specific Special Event Driveway L<sub>08</sub> Noise Levels**

	<b>L<sub>08</sub></b> <b>(Noise Level Exceeded 5 Minutes in any Hour)</b>			
	<b>Daytime</b>		<b>Nighttime</b>	
Receptor	R1	R2	R1	R2
Unadjusted Table NE-2 Limit	60	60	55	55
Ambient Noise Levels	48	43	43	38
Driveway Noise Level	23	24	23	24
Operations Exceed Ambient by 10 dBA?	No	No	No	No
NE-2 Adjustment	0	0	0	0
Adjusted Table NE-2 Limit	60	60	55	55
Operations Exceed NE-2?	No	No	No	No

**Parking Lot Noise Assessment**

Regular noise sources occurring within the parking lot are calculated to generate L<sub>08</sub> noise levels of 30 dBA at R1 located at a distance of 400 feet from the nearest parking lot. The predicted noise level from activities within the parking lot attributable to site-specific special event traffic would be 30 dBA below the daytime noise level threshold of 60 dBA L<sub>08</sub> and 25 dBA below the nighttime noise level threshold of 55 dBA L<sub>08</sub>. Parking lot noise levels due to tasting room trips and industry-wide special event trips would be less as the parking lot sounds associated with the vehicle trips would be distributed throughout the hours of operation as opposed to concentrated during periods immediately before and after site-specific special events.

Parking lot noise levels are calculated to be approximately 32 dBA L<sub>08</sub> at the property line of R2. The predicted noise level would be below ambient noise levels both day and night, as well as the L<sub>08</sub> noise limits established for daytime and nighttime time periods. Driveway noise levels at R3 would be less than those predicted for R2 because of additional distance from the noise source and acoustical shielding provided by intervening terrain and the winery building. Table 7 summarizes the assessment of parking lot noise.

**TABLE 7 Parking Lot L<sub>08</sub> Noise Levels**

	<b>L<sub>08</sub></b> <b>(Noise Level Exceeded 5 Minutes in any Hour)</b>			
	<b>Daytime</b>		<b>Nighttime</b>	
Receptor	R1	R2	R1	R2
Unadjusted Table NE-2 Limit	60	60	55	55
Ambient Noise Levels	48	43	43	38
Parking Lot Noise Level	30	32	30	32
Operations Exceed Ambient by 10 dBA?	No	No	No	No
NE-2 Adjustment	0	0	0	0
Adjusted Table NE-2 Limit	60	60	55	55
Operations Exceed NE-2?	No	No	No	No

## Special Event Noise Assessment

Special events will take place at or near the tasting room or winery building, approximately 450 feet from R1 and 750 feet from R2. Amplified acoustic music is proposed outside of the tasting room on the south and east sides of the building. Special events with amplified music would be expected to generate noise levels of approximately 72 dBA  $L_{50}$  at a distance of 50 feet from the noise source assuming free-field conditions. Approximately 30 dBA of attenuation would be expected due to the distance between the source of the noise and the property line of R1, and the additional attenuation provided by intervening shielding due to project buildings and intervening terrain. Approximately 24 dBA of attenuation would also be expected at the property line of R2 due to distance alone. An additional 5 to 10 dBA of attenuation would be expected due to the shielding provided by project buildings. The predicted noise level would be 42 dBA  $L_{50}$  at the property line of R1 and 43 dBA  $L_{50}$  at the property line of R2. The predicted noise level at R1 and R2 would not exceed the daytime noise level threshold. Noise from special events at R3 would be less than those predicted for R1 and R2 because of additional distance from the noise source and acoustical shielding provided by intervening terrain and the winery building.

Non-amplified acoustic music is proposed on the covered porch located on the west side of the tasting room building. Special events with non-amplified music would be expected to generate noise levels of approximately 67 dBA  $L_{50}$  at a distance of 50 feet from the noise source assuming free-field conditions. Approximately 30 dBA of attenuation would be expected at the property line of R1. Approximately 24 dBA of attenuation would also be expected at the property line of R2. The predicted noise level would be 37 dBA  $L_{50}$  at the property line of R1 and 43 dBA  $L_{50}$  at the property line of R2. The predicted noise level at R1 and R2 would not exceed the daytime noise level threshold. Noise from special events with non-amplified music at R3 would be less than those predicted for R1 and R2 because of additional distance from the noise source and acoustical shielding provided by intervening terrain and the winery building. Table 8 summarizes the assessment of special event noise at the worst-case receptors to the north and west.

**TABLE 8 Special Event  $L_{50}$  Noise Levels**

	<b><math>L_{50}</math></b>			
	<b>(Noise Level Exceeded 30 Minutes in any Hour)</b>			
	<b>Daytime Amplified Music</b>		<b>Daytime Non-Amplified Music</b>	
Receptor	R1	R2	R1	R2
Unadjusted Table NE-2 Limit	50	50	50	50
Ambient Noise Levels	42	37	42	37
Special Event Noise Level	42	43	37	43
Operations Exceed Ambient by 10 dBA?	No	No	No	No
NE-2 Adjustment*	-5	-5	-5	-5
Adjusted Table NE-2 Limit	45	45	45	45
Operations Exceed NE-2?	No	No	No	No

\*The adjusted noise threshold assumes that the sound source would consist primarily of music.

### Maintenance and Forklift Operations Noise Assessment

Maintenance and forklift operations would primarily occur near the winery building, approximately 450 feet from R1 and 750 feet from R2.  $L_{08}$  noise levels from these operations are calculated to reach 42 dBA at the property line of R1 assuming the shielding provided by intervening terrain and 43 dBA at the property line of R2 due to attenuation with distance alone. Noise from maintenance and forklift operations at R3 would be less than those predicted for R2 because of additional distance from the noise source and acoustical shielding provided by intervening terrain and the winery building. The predicted noise levels at R1 and R2 would be 17 to 18 dBA below the daytime noise level threshold of 60 dBA  $L_{08}$  and 12 to 13 dBA below the nighttime noise level threshold of 55 dBA  $L_{08}$  at R1 and R2. Table 9 summarizes the assessment of noise produced by maintenance and forklift operations.

**TABLE 9 Maintenance and Forklift Operations  $L_{08}$  Noise Levels**

	<b><math>L_{08}</math> (Noise Level Exceeded 5 Minutes in any Hour)</b>			
	<b>Daytime</b>		<b>Nighttime</b>	
Receptor	R1	R2	R1	R2
Unadjusted Table NE-2 Limit	60	60	55	55
Ambient Noise Levels	48	43	43	38
Maintenance and Forklift Operations Noise Level	42	43	42	43
Operations Exceed Ambient by 10 dBA?	No	No	No	No
NE-2 Adjustment	0	0	0	0
Adjusted Table NE-2 Limit	60	60	55	55
Operations Exceed NE-2?	No	No	No	No

### Mechanical Equipment Noise Assessment

The winery production facility would likely include noise-generating mechanical equipment, such as air-cooled condensing units, pumps, and compressors, as well as less significant sources of noise, such as air-conditioning systems and exhaust fans. A mechanical enclosure is proposed south of the winery building and approximately 550 feet from R1 and 850 feet from R2. Based on these distances and the barrier effect of intervening structures and terrain, noise from mechanical equipment would be 37 dBA or less at the property lines of R1, R2, and R3. Table 10, following, summarizes the assessment of mechanical equipment noise.

**TABLE 10 Mechanical Equipment L<sub>50</sub> Noise Levels**

	<b>L<sub>50</sub></b> <b>(Noise Level Exceeded 30 Minutes in any Hour)</b>			
	<b>Daytime</b>		<b>Nighttime</b>	
Receptor	R1	R2	R1	R2
Unadjusted Table NE-2 Limit	50	50	45	45
Ambient Noise Levels	42	37	39	34
Mechanical Equipment Noise Level	35	37	35	37
Operations Exceed Ambient by 10 dBA?	No	No	No	No
NE-2 Adjustment	0	0	0	0
Adjusted Table NE-2 Limit	50	50	45	45
Operations Exceed NE-2?	No	No	No	No

Based on these findings, noise associated with mechanical equipment is not expected to exceed the daytime or nighttime NE-2 noise standard at any residential property in the site vicinity.

#### Seasonal Production Related Noise Assessment

Crush activities typically occur for a period of about six to eight weeks per year; however, such activities would not occur on a daily basis during this timeframe. Crush related activities are expected to occur under the covered crush pad located at the east end of the proposed winery building. Grapes would be harvested from vineyards on and off-site for processing. Grapes imported to the winery from off-site vineyards would be delivered via truck. Grape bins would be unloaded from trucks with a forklift and delivered to the crush pad. Grapes would then be crushed and pressed and the juice would be pumped into fermentation tanks installed within the production building.

As discussed previously, the majority of the noise sources associated with the crush include the operation of hoppers, presses, destemmers, separators, crushers, air compressors, forklifts, conveyors, etc. Average noise levels resulting from the crush are typically constant on an hourly basis, producing average noise levels of 64 dBA L<sub>eq</sub> or L<sub>50</sub> and discrete maximum noise events of 70 to 80 dBA L<sub>max</sub> or L<sub>02</sub> at 50 feet from the center of operations under unshielded conditions. Considering the proposed location of the winery building, crush activities could occur as close as 450 feet from R1 and 900 feet from R2. Based on these distances and the barrier effect of intervening terrain and structures, L<sub>50</sub> noise levels during crush at R1 would be 39 dBA, and L<sub>50</sub> noise levels during crush at R2 would be 34 dBA. Discrete maximum crush related noise would produce L<sub>02</sub> levels of 55 dBA at R1 and 50 dBA at R2. Tables 11a and 11b, following, summarize the assessment of crush related noise.

**TABLE 11a    Crushing Related L<sub>50</sub> Noise Levels**

	<b>L<sub>50</sub></b> <b>(Noise Level Exceeded 30 Minutes in any Hour)</b>			
	<b>Daytime</b>		<b>Nighttime</b>	
Receptor	R1	R2	R1	R2
Unadjusted Table NE-2 Limit	50	50	45	45
Ambient Noise Levels	42	37	39	34
Crushing Related Noise Level	39	34	39	34
Operations Exceed Ambient by 10 dBA?	No	No	No	No
NE-2 Adjustment	0	0	0	0
Adjusted Table NE-2 Limit	50	50	45	45
Operations Exceed NE-2?	No	No	No	No

**TABLE 11b    Crushing Related L<sub>02</sub> Noise Levels**

	<b>L<sub>02</sub></b> <b>(Noise Level Exceeded 1 Minute in any Hour)</b>			
	<b>Daytime</b>		<b>Nighttime</b>	
Receptor	R1	R2	R1	R2
Unadjusted Table NE-2 Limit	65	65	60	60
Ambient Noise Levels	51	46	46	41
Crushing Related Noise Level	55	50	55	50
Operations Exceed Ambient by 10 dBA?	No	No	No	No
NE-2 Adjustment	0	0	0	0
Adjusted Table NE-2 Limit	65	65	60	60
Operations Exceed NE-2?	No	No	No	No

A mobile bottling line (bottling truck) would be used to bottle wine on the north side of the proposed winery near the crush pad. Bottling operations produce L<sub>50</sub> sound levels of 67 dBA at 50 feet in an open air, non-acoustically shielded environment. Bottling activities could occur as close as 450 feet from R1 and 900 feet from R2. Based on these distances and the barrier effect of intervening terrain and structures, L<sub>50</sub> noise levels during bottling at the property lines of R1 and R2 would be 42 dBA. All other residences in the vicinity would be further from bottling activities. Table 12, following, summarizes the assessment of bottling related noise.

**TABLE 12    Bottling Related L<sub>50</sub> Noise Levels**

	<b>L<sub>50</sub></b> <b>(Noise Level Exceeded 30 Minutes in any Hour)</b>			
	<b>Daytime</b>		<b>Nighttime</b>	
Receptor	R1	R2	R1	R2
Unadjusted Table NE-2 Limit	50	50	45	45
Ambient Noise Levels	42	37	39	34
Bottling Related Noise Level	42	42	42	42
Operations Exceed Ambient by 10 dBA?	No	No	No	No
NE-2 Adjustment	0	0	0	0
Adjusted Table NE-2 Limit	50	50	45	45
Operations Exceed NE-2?	No	No	No	No

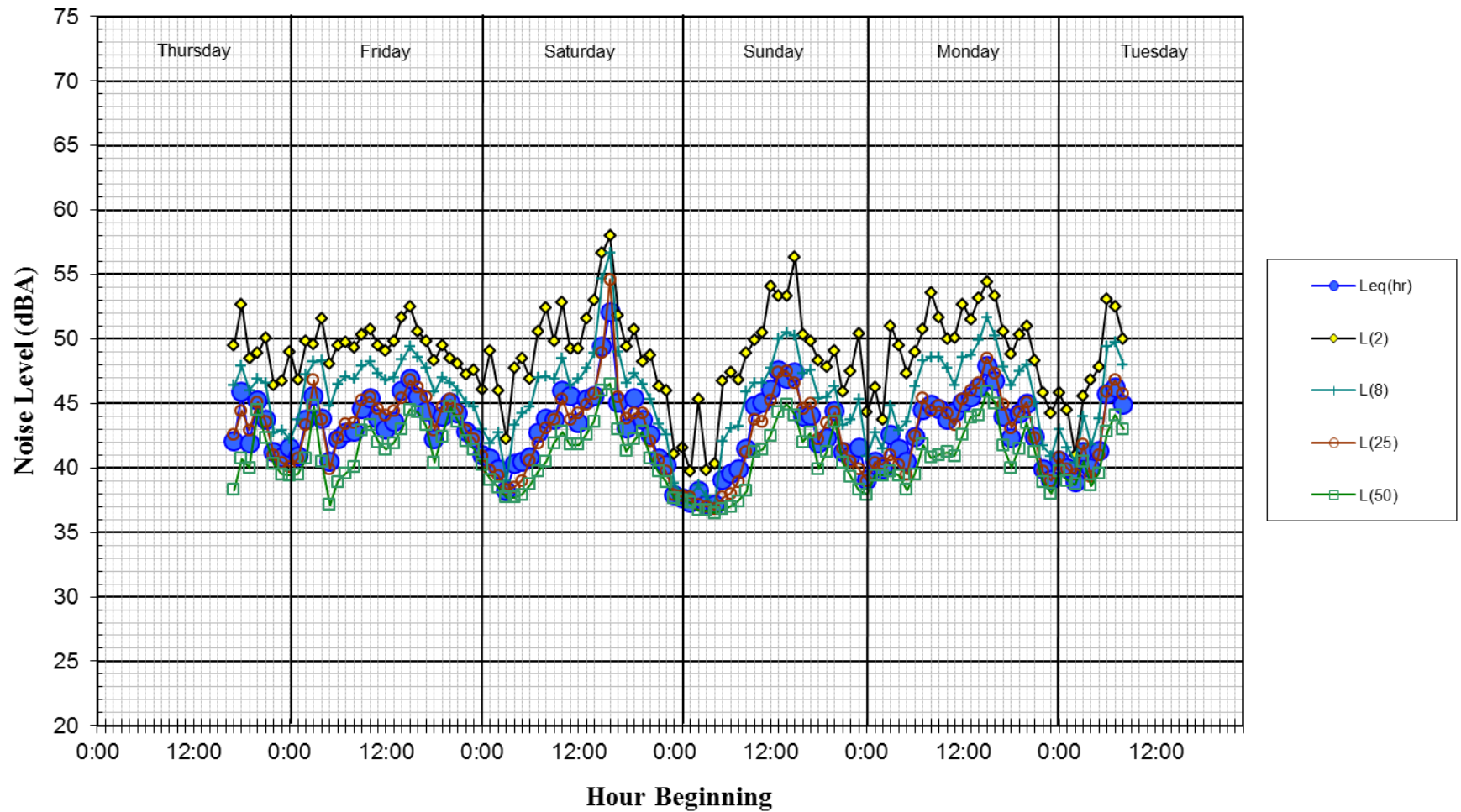
**SUMMARY/CONCLUSIONS**

Based on the above findings, noise associated with operations at the Rudd Wines Tasting Room and Winery is not expected to exceed the daytime or nighttime NE-2 noise standard at any residential property in the site vicinity. There would be no need for additional noise attenuation or operational controls in order to achieve compliance with the Table NE-2 noise limits.



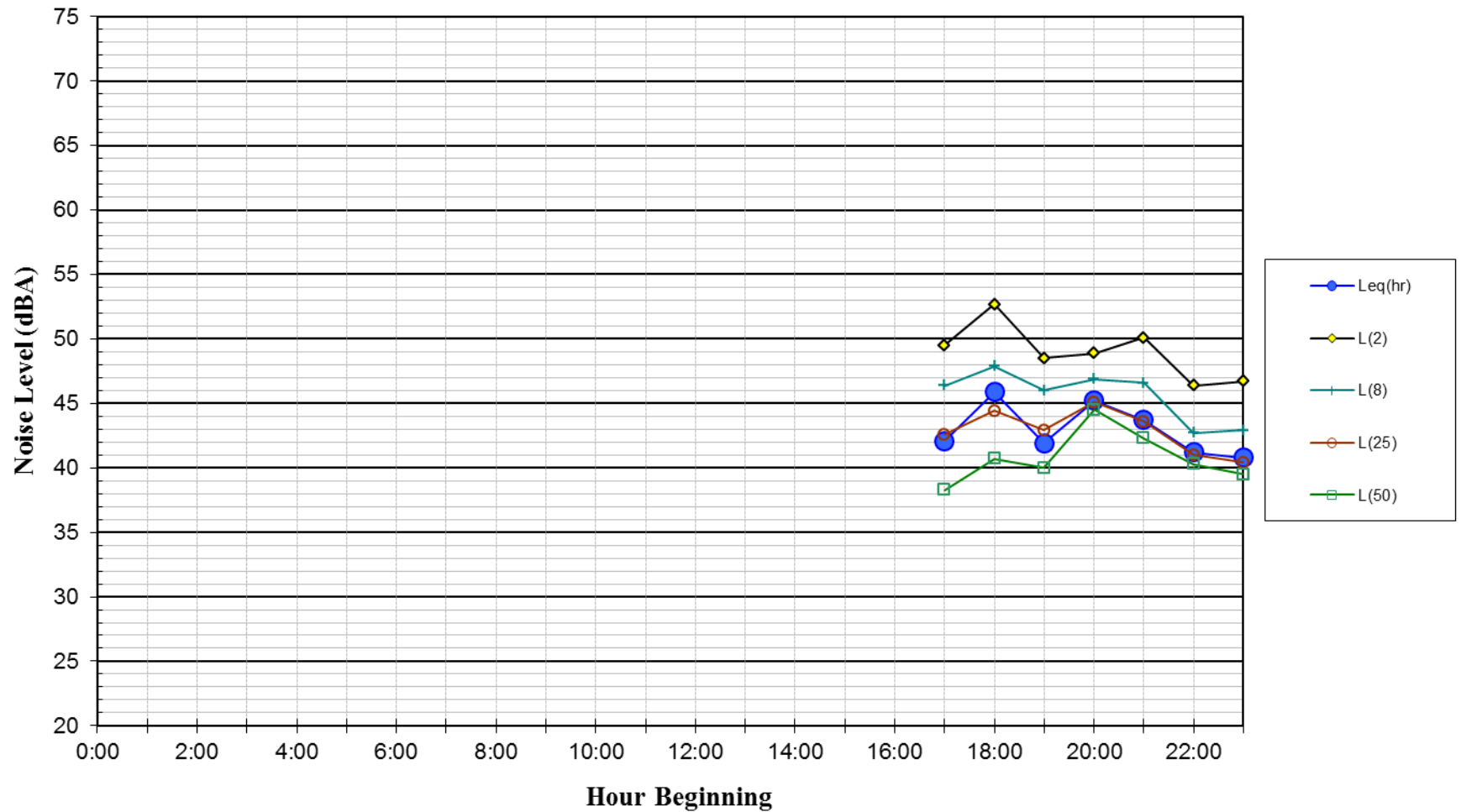
[illegible]

**Noise Levels at LT-1  
~ 175 feet from the Center of Westside Road  
September 11 - 16, 2014**



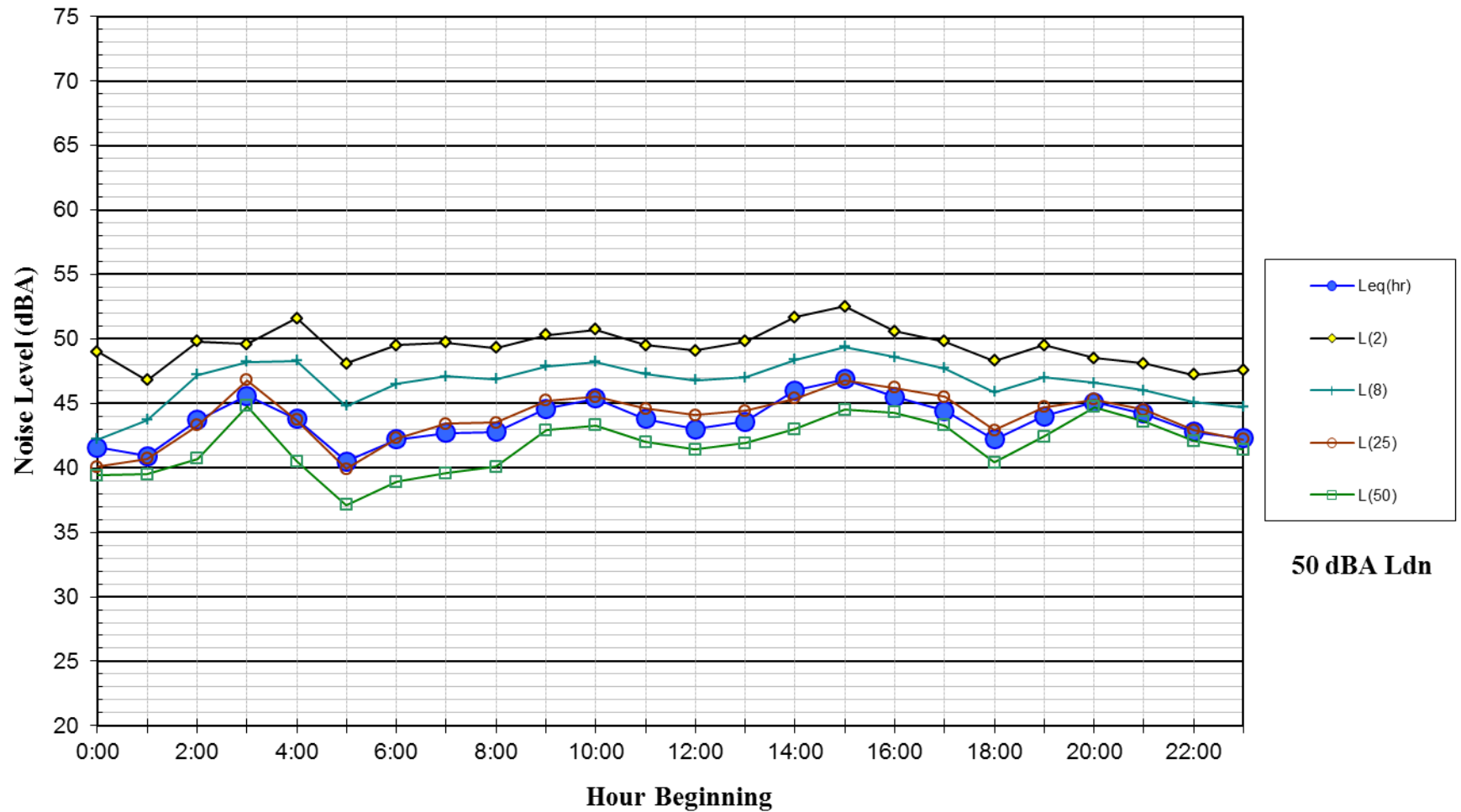
**Figure 2**

**Noise Levels at LT-1  
~ 175 feet from the Center of Westside Road  
Thursday, September 11, 2014**



**Figure 3**

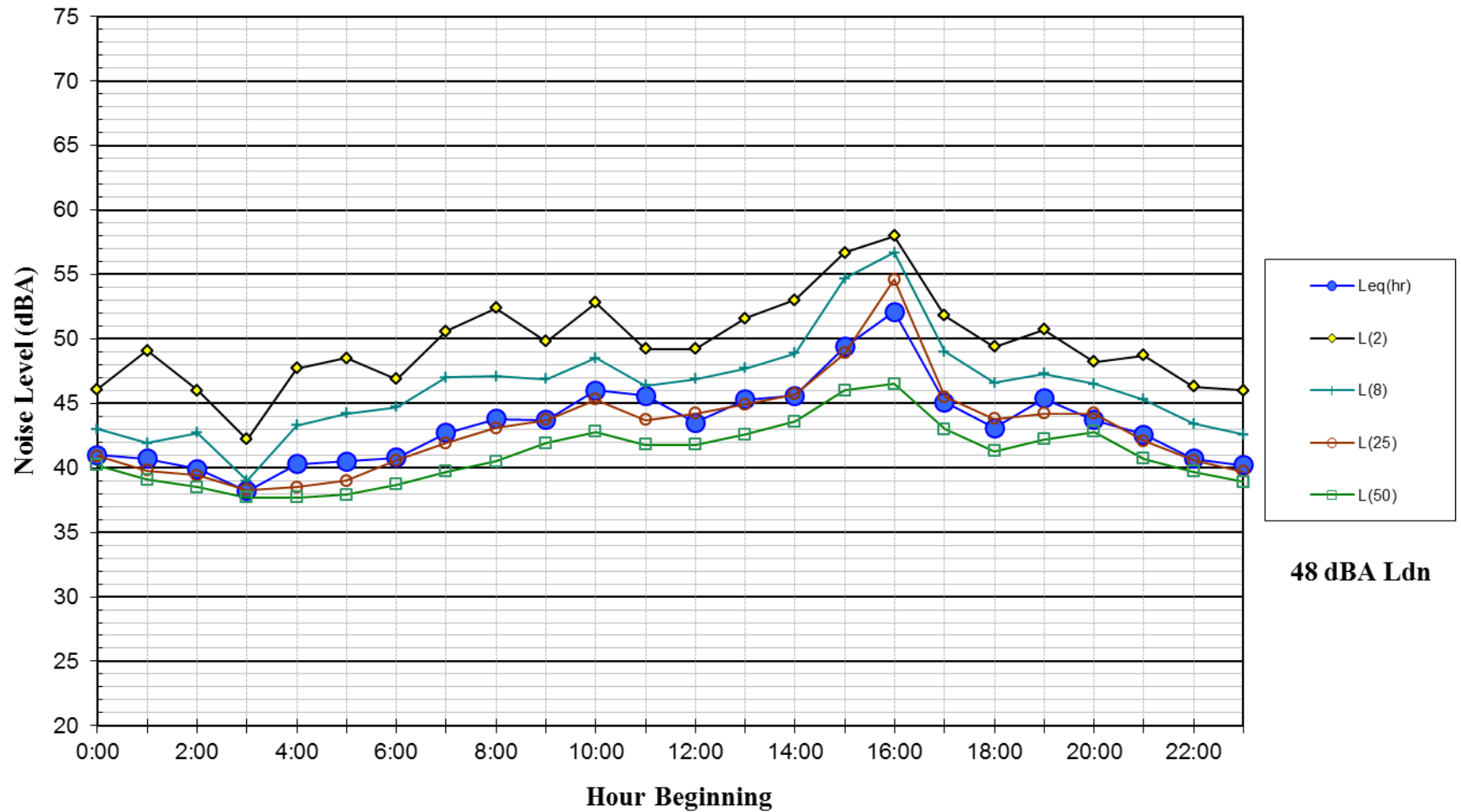
**Noise Levels at LT-1  
~ 175 feet from the Center of Westside Road  
Friday, September 12, 2014**



**50 dBA Ldn**

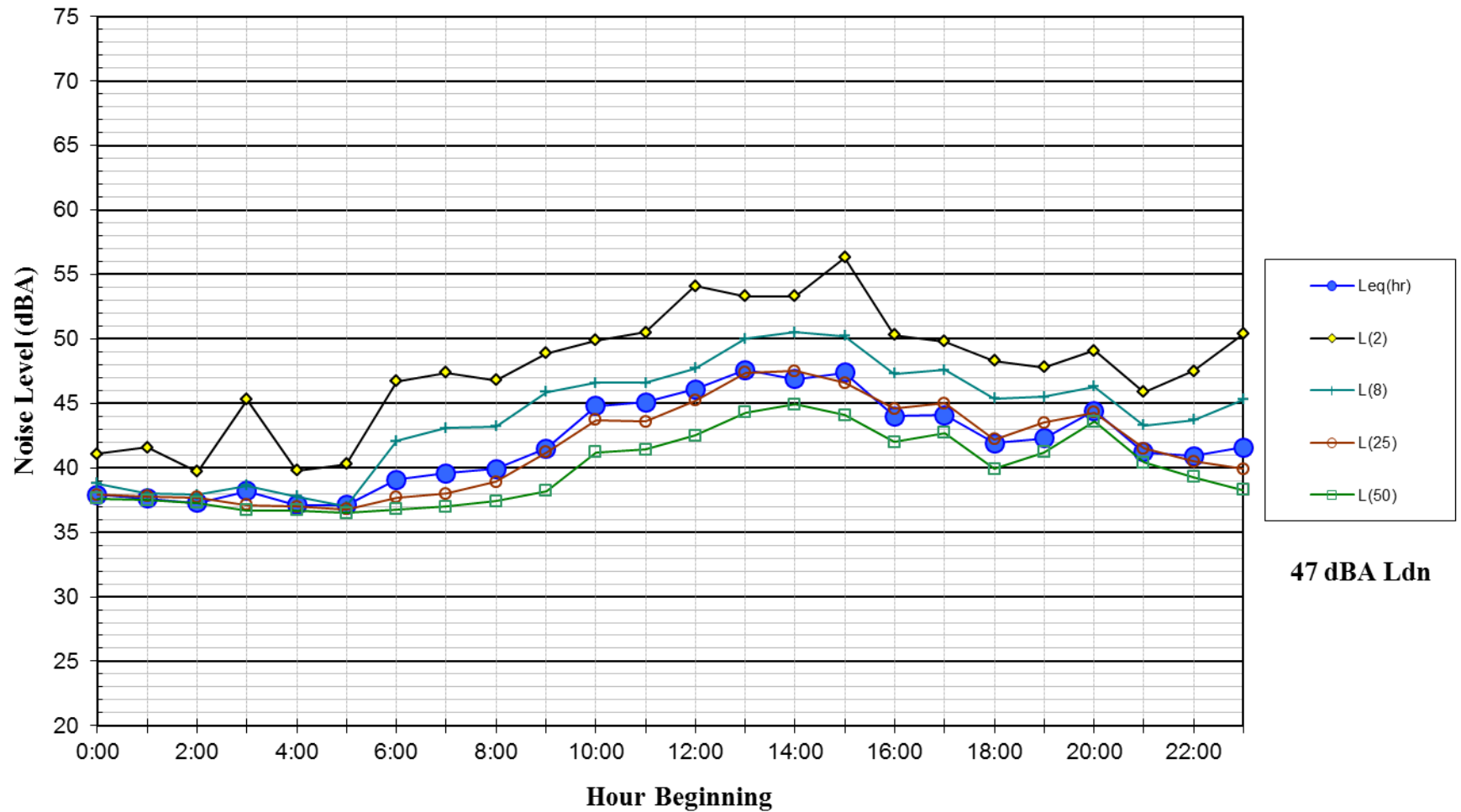
**Figure 4**

**Noise Levels at LT-1  
~ 175 feet from the Center of Westside Road  
Saturday, September 13, 2014**



**Figure 5**

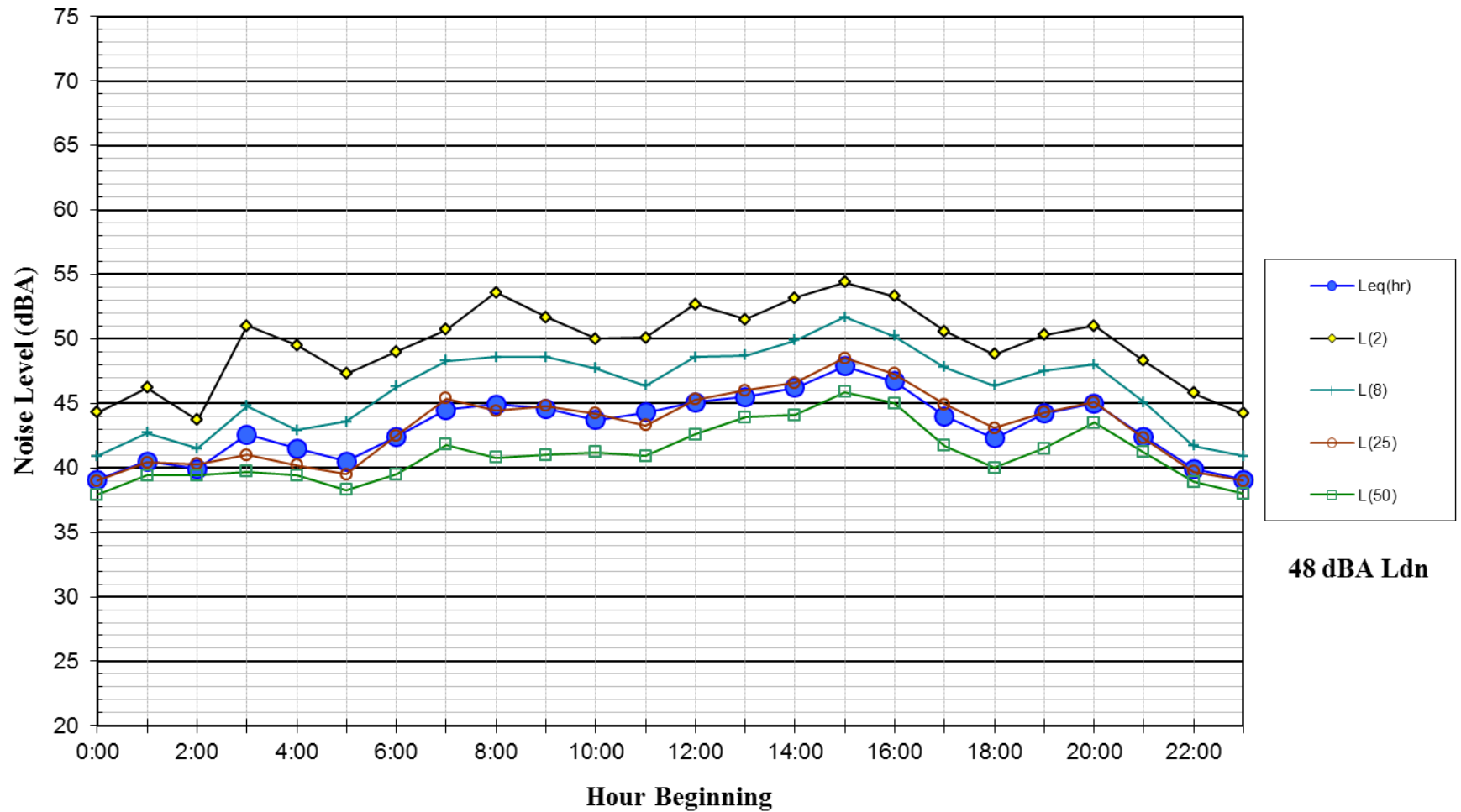
**Noise Levels at LT-1  
~ 175 feet from the Center of Westside Road  
Sunday, September 14, 2014**



**47 dBA Ldn**

**Figure 6**

**Noise Levels at LT-1  
~ 175 feet from the Center of Westside Road  
Monday, September 15, 2014**

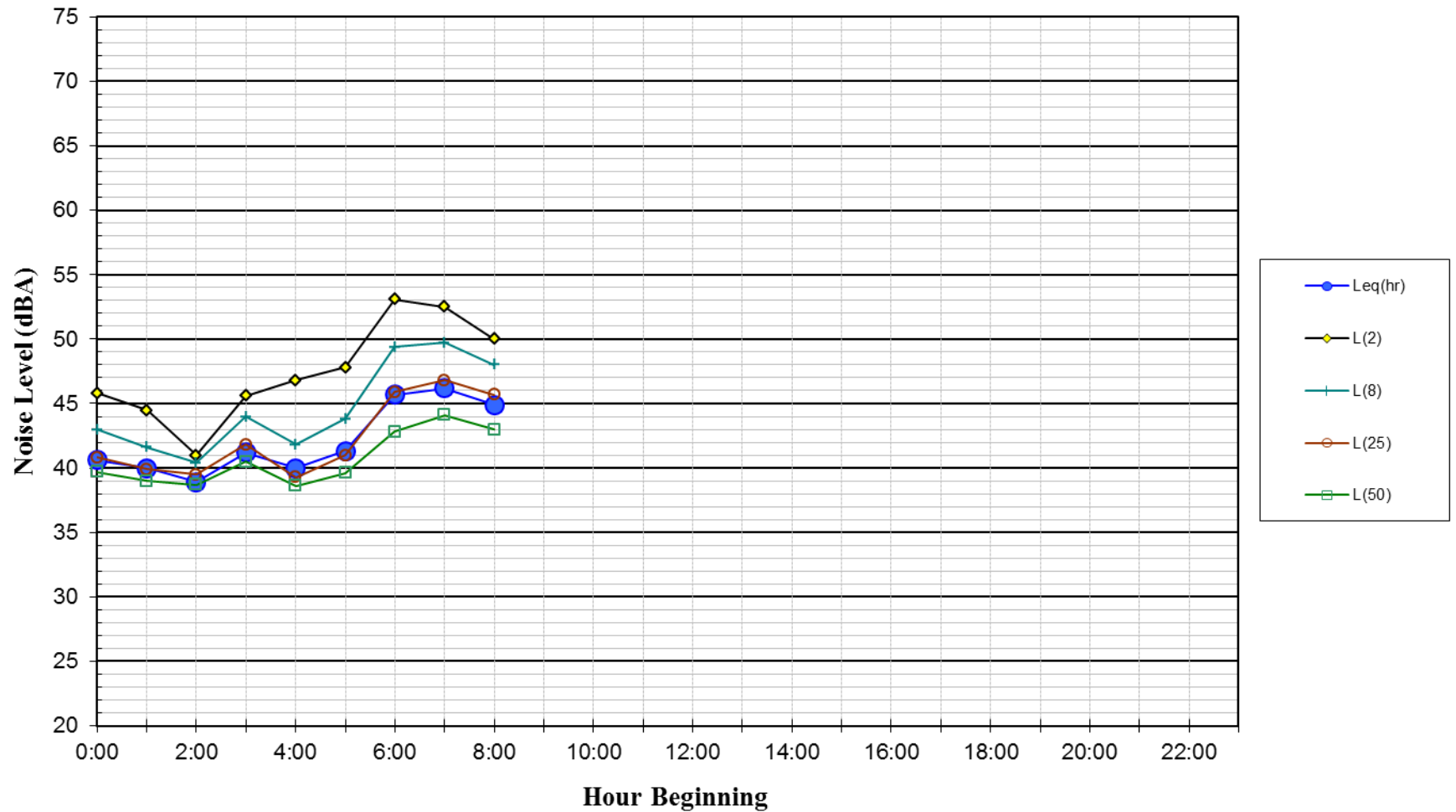


**48 dBA Ldn**

**Figure 7**



**Noise Levels at LT-1  
~ 175 feet from the Center of Westside Road  
Tuesday, September 16, 2014**



**Figure 8**