ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality
1 Willowbrook Court, Suite 120
Petaluma, California 94954
Tel: 707-794-0400 *Fax: 707-794-0405*
www.illingworthrodkin.com *illro@illingworthrodkin.com*

June 2, 2016

Ms. Barbara Hayes
180 Jones Road
Leicester, NC 28748
VIA Email: barbyhayes@gmail.com
CC: paul@hedgpetharchitects.com, sharpeplanner@comcast.net

SUBJECT: Environmental Noise Assessment
Senior Residential Project, 201 Farmers Lane, Santa Rosa, CA

Dear Ms. Hayes:
This report presents the results of the environmental noise assessment conducted for the Senior Residential Project proposed at 201 Farmers Lane in Santa Rosa, CA (see Figure 1). Local roadway traffic noise is the primary source of noise affecting the project site. This study evaluates the compatibility of the proposed multi-family residential uses proposed with noise environment at the project site. Included in the report is a summary of applicable noise and vibration regulations, the results of a noise monitoring survey, an evaluation of the site's existing and future noise exposure with respect to applicable standards, and recommendations to mitigate noise and vibration impacts on the proposed project. Persons not familiar with environmental noise analysis are referred to Appendix A for additional discussion.

Figure 1: Site & Vicinity

REGULATORY BACKGROUND

The City of Santa Rosa and State of California have established plans and policies designed to limit noise exposure at noise sensitive multi-residential land uses that are relevant to the proposed project. These plans and policies are contained in (1) the California Building Code and (2) the City of Santa Rosa General Plan.

1. 2013 California Building Code, Title 24, Part 2. The current (2013) California Building Code (CBC) does not place limits on interior noise levels attributable to exterior environmental noise sources. The July 1, 2015 Supplement to the 2013 California Building Code (CBC) corrects this omission, reinstating limits on interior noise levels attributable to exterior environmental noise sources which had been contained in all prior versions of the CBC dating back to 1974. In keeping with the provisions of the 2015 supplement, this report considers interior noise levels attributable to exterior environmental noise sources to be limited to a level not exceeding 45 dBA L_{dn} in any habitable room for new dwellings other than detached single-family dwellings.

2. City of Santa Rosa General Plan. The Noise and Safety Element of the City of Santa Rosa's General Plan identifies policies that are intended to guide the development of new projects with regard to exposure to or generation of noise. The policies support the City's goal of maintaining an acceptable community noise level. The following policies are applicable to the proposed project:

NS-B Maintain an acceptable community noise level to protect the health and comfort of people living, working and/or visiting in Santa Rosa, while maintaining a visually appealing community.

- Multi-family residential uses are considered to be normally acceptable in areas with a noise environment of L_{dn} of less than 65 dBA and conditionally acceptable in areas exposed to an L_{dn} of 60 to 70 dBA.

NS-B-1 Do not locate noise-sensitive uses in proximity to major noise sources, except residential is allowed near rail to promote future ridership.

NS-B-2 Encourage residential developers to provide buffers other than sound walls, where practical. Allow sound walls only when projected noise levels at a site exceed land use compatibility standards in Figure 12-1.

NS-B-3 Prevent new stationary and transportation noise sources from creating a nuisance in existing developed areas. Use a comprehensive program of noise prevention through planning and mitigation, and consider noise impacts as a crucial factor in project approval.

NS-B-4 Require new projects in the following categories to submit an acoustical study, prepared by a qualified acoustical consultant:

- All new projects that could generate noise whose impacts on other existing uses would be greater than those normally acceptable.
- All new projects proposed for areas with existing noise above 60 dBA L_{dn}. Mitigation shall be sufficient to reduce noise levels below 45 dBA L_{dn} in habitable rooms and 60 dBA L_{dn} in private and shared recreational facilities. Additions to existing housing units are exempt.

NS-B-5 Pursue measures to reduce noise impacts primarily through site planning. Engineering solutions for noise mitigation, such as sound walls, are the least desirable alternatives.

NS-B-9 Encourage developers to incorporate acoustical site planning into their projects. Recommended measures include:

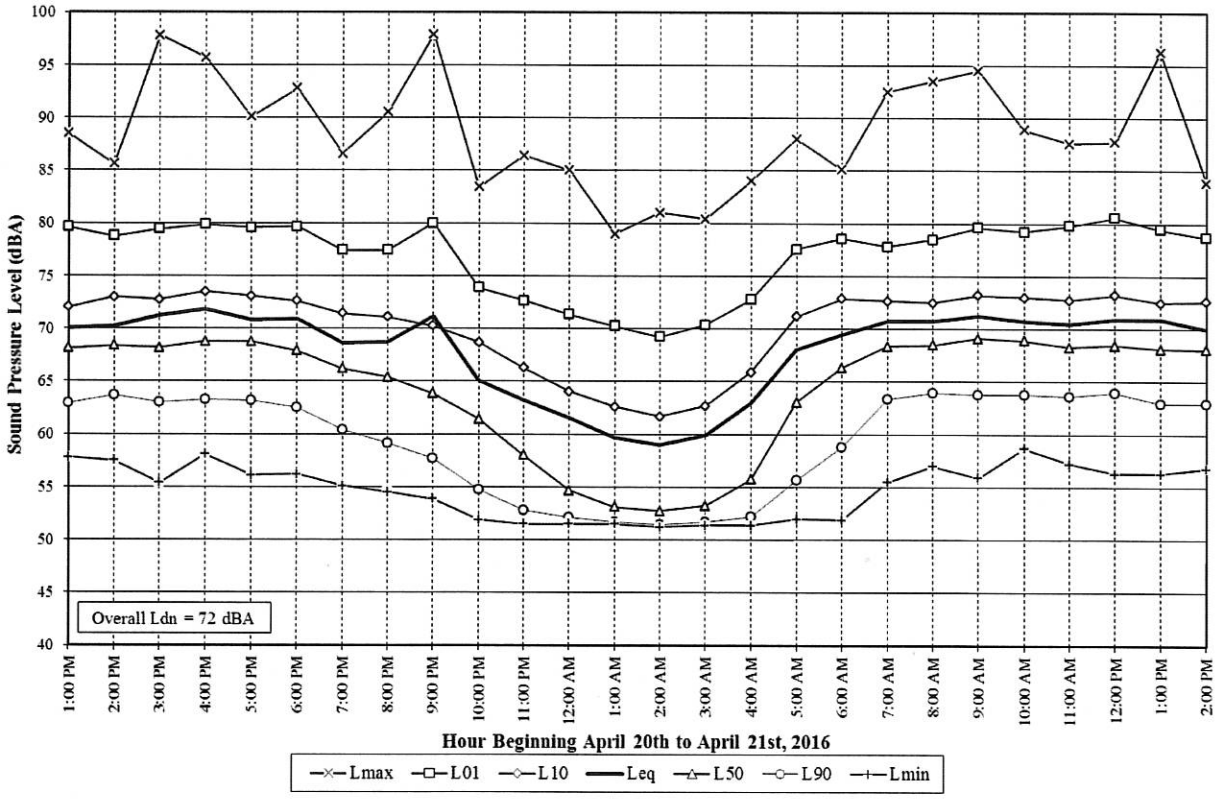
- Incorporating buffers and/or landscaped earth berms;
- Orienting windows and outdoor living areas away from unacceptable noise exposure;
- Using reduced-noise pavement (rubberized-asphalt);
- Incorporating traffic calming measures, alternative intersection designs, and lower speed limits; and
- Incorporating state-of-the-art structural sound attenuation and setbacks.

EXISTING NOISE ENVIRONMENT

The project site is bounded by Farmers Lane (Hwy 12) to the east, Santa Rosa Creek and 4th Street beyond to the north, single family homes with Gilbert Drive addresses to the west and a dental office parking area and apartment buildings to the south (see Figure 1). The primary, noise source affecting the project site is vehicular traffic on Farmers Lane (Hwy 12) and 4th Street, with noise from the adjacent residential uses, parking area, and creek contributing to the background noise environment. To evaluate the existing noise environment on the project site one short term (10 minute) and two long term (26 hour) noise measurements were conducted on the site between 1 p.m. on Wednesday, April 20th, 2016 and 3 p.m. on Thursday April 21st, 2016 to establish the daily trend in ambient noise levels on the site (see Figure 2, following).

The first long-term noise measurement (LT-1) was made about 15 feet above grade on a utility pole on the Farmers Lane frontage 50 feet from the roadway centerline at the approximate setback of the proposed 4 story building. The measured noise levels at site LT-1, including the energy equivalent noise level (L_{eq}), maximum (L_{max}), minimum (L_{min}), and the noise levels exceeded 10, 50 and 90 percent of the time (indicated as L_{10}, L_{50} and L_{90}) are shown on Chart 1. The L_{eq} noise level is typically considered the average noise level, while the L_1 is considered the intrusive level, the L_{50} is considered the median noise level and the L_{90} is considered the background or ambient noise level.

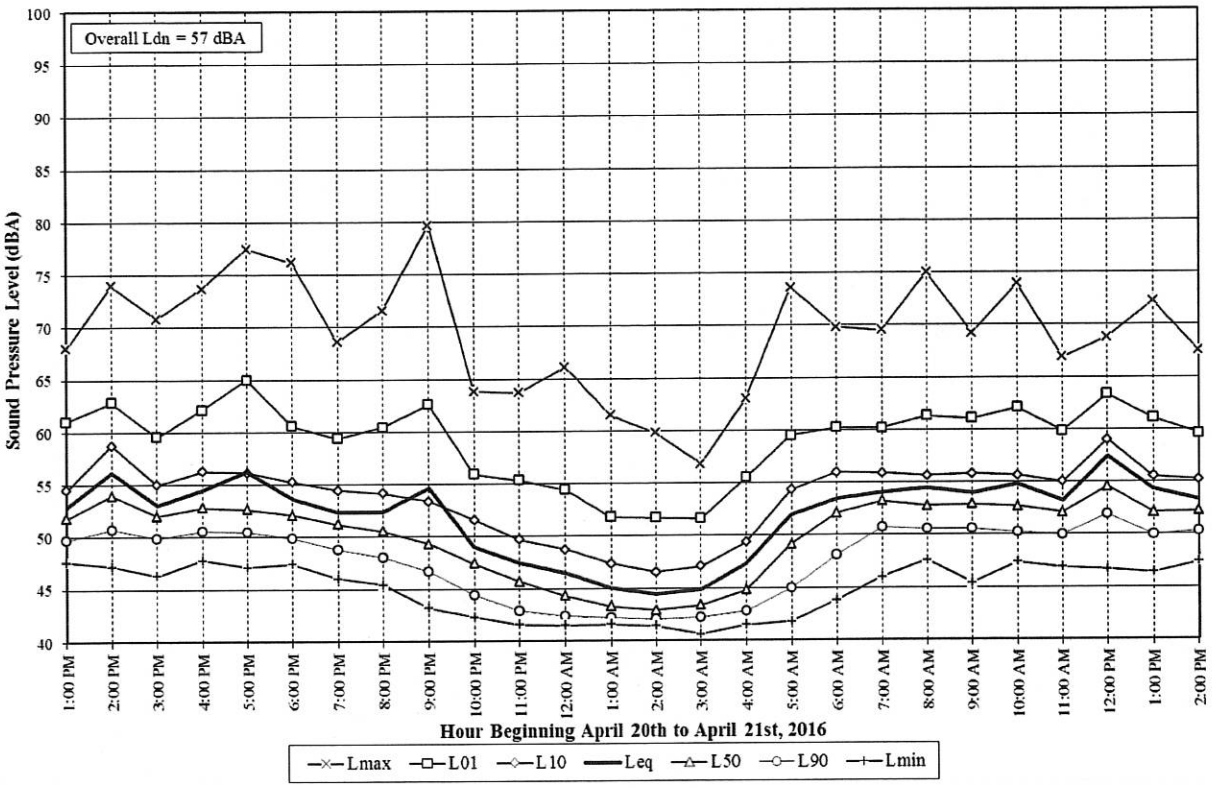
Chart 1: Measured Noise Levels at LT-1



A review of Chart 1 shows that the, daytime and nighttime hourly noise levels at this location ranged from 65 to 72 dBA L_{eq} and 59 to 69 dBA L_{eq}, respectively with maximum daytime and nighttime hourly noise levels ranging from 83 to 98 dBA and 79 to 88 dBA, respectively. The overall average day-night average noise level (L_{dn}) was 72 dBA.

The second long-term noise measurement (LT-2) was made about 5 feet above grade on the residential property line fence at the northern edge of the site, approximately 250 feet from the Farmers Lane centerline. The measured noise levels at site LT-1, including the energy equivalent noise level (L_{eq}), maximum (L_{max}), minimum (L_{min}), and the noise levels exceeded 10, 50 and 90 percent of the time (indicated as L_{10}, L_{50} and L_{90}) are shown on Chart 1. The L_{eq} noise level is typically considered the average noise level, while the L_1 is considered the intrusive level, the L_{50} is considered the median noise level and the L_{90} is considered the background or ambient noise level.

Chart 2: Measured Noise Levels at LT-2



A review of Chart 2 shows that the, daytime and nighttime hourly noise levels at this location ranged from 49 to 57 dBA L_{eq} and 44 to 54 dBA L_{eq}, respectively with maximum daytime and nighttime hourly noise levels ranging from 64 to 80 dBA and 57 to 74 dBA, respectively. The overall average day-night average noise level (L_{dn}) was 57 dBA.

A short-term noise measurement was made simultaneously with the long-term measurements on a 10-minute basis near the eastern edge of the dental office parking area at a distance of 160 feet from the centerline of Farmers Lane at the approximate setback of the proposed 2 story building from the roadway between 3:10 and 3:20 pm on April 21st, 2016. This measurement position was partially shielded from Farmers Lane traffic by the structure of dental office building and is indicated at ST-1 in Figure 2. The measured L_{eq} noise level during this measurement was 17 dBA lower than the L_{eq} measured at positon LT-1 and within 1 dBA of the L_{eq} measured at long term position LT-2. Based on this finding the estimated L_{dn} level at this location is 56 dBA.

Based on the noise survey measurement results, under existing conditions the 65 dBA L_{dn} noise

contour due to Farmers Lane traffic is at a distance of 110 feet from the roadway centerline in the northern portion of the site (not shielded by the existing dental office), and at a distance of 100 feet from the roadway centerline in the southern portion of the site (shielded by the existing dental office). From this analysis it is also been found that the 60 dBA L_{dn} noise contour due to existing Farmers Lane traffic is at 175 feet from the roadway centerline in the northern portion of the site and 165 feet from the roadway centerline in the southern portion of the site.

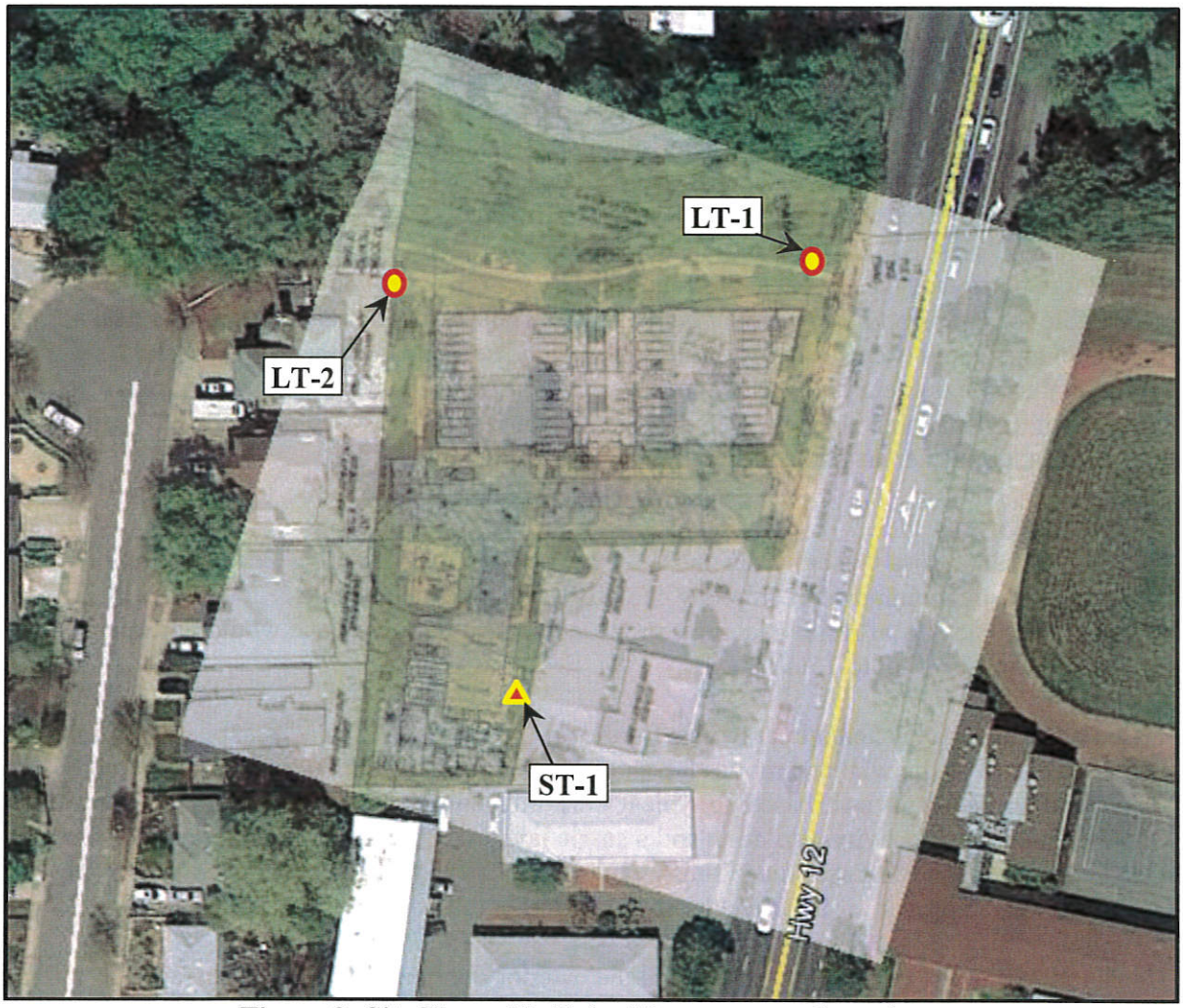


Figure 2: Site Plan with Noise Measurement Locations

FUTURE NOISE ENVIRONMENT

The future road traffic noise levels are likely to increase with future increased road traffic. Assuming an annual traffic growth rate of between 1% and 2% per year, noise levels on the site would be expected to increase by up to 2 dBA L_{dn} over the next 20 years. Under future conditions Farmers Lane will also be widened to 3 travel lanes past the site. With this alteration, the distance from the centerline of the roadway to the closest building façade would be unchanged at about 51 feet, but the distance from the centerline of the near travel lane would decrease from about 33 feet to about 21 feet. With this change in the proximity of roadway traffic, and the increase in noise due to future traffic volume growth, the noise levels at the closest building façade would be expected to increase by up to 3 dBA L_{dn} over the next 20 years.

This would result in a future L_{dn} of 75 dBA at the facades of the proposed 4 story building closest to Farmers Lane and building facades and surrounding ground level open space with views of Farmers Lane traffic within 145 feet of the roadway centerline exposed to an L_{dn} of 65 dBA or more. Additionally, under future conditions the facades and surrounding ground level open space of the proposed 2 story building would be exposed to levels of 60 dBA L_{dn} or less.

NOISE ASSESSMENT

EXTERIOR NOISE

The City's General Plan noise standards consider outdoor use areas exposed to an L_{dn} of less than 65 dBA normally acceptable for multi-family residential use. Areas of the site beyond 145 feet from centerline of Farmers Lane with unobstructed view of roadway traffic and portions of the site within 110 feet with partially obstructed traffic views would be exposed to future levels of less than 65 dBA L_{dn}. In view of this, outdoor use of the entire southern portion of the site and a large portion of the central and northern portions of the site would be considered acceptable for multi-family residential outdoor use. Though outdoor areas of the site near Farmers Lane would exceed the City's General Plan noise standards, the project includes significant usable outdoor areas which meet the City's normally acceptable noise limits. Because of this available noise protected space, no noise mitigation will be needed to reduce noise in outdoor use areas at the project.

INTERIOR NOISE

The City of Santa Rosa General Plan and the State of California Building Code require interior noise levels to be maintained at or below 45 dBA L_{dn} to be considered acceptable for residential development. Façades of residential units proposed nearest Farmers Lane would be exposed to future noise levels of up to 75 dBA L_{dn}.

Based on a review of schematic drawings for the project residential facades appear to be finished in stucco. Though the wall assemblies have not yet been determined, they are expected to be wood stud framed walls and, based on typical California construction techniques, it is assumed that they will include cavity insulation and a single layer of gypsum board at the interior face. Considering this, and that the stucco finish would be full 7/8" thick stucco, the exterior wall assemblies at the project would have the sound isolation rating of would be STC 46[1].

Considering this exterior wall assembly and the exterior door and window percentages determined from the proposed plans, the exterior noise levels will be reduced within the residential interiors by between 26 to 27 dBA with closed standard thermal insulating windows and weather sealed doors. When these windows or doors are open the noise attenuation from exterior to interior is typically reduced by 10 to 12 dBA, such that for this project we would expect exterior to interior noise reduction to be between 14 to 17 dBA with open windows and/or doors.

Based on the exterior to interior attenuation with open windows, the interior noise standard of 45 dBA L_{dn} of may not be met with open windows in areas where the exterior noise levels exceed an L_{dn} of 59 dBA. Considering our future noise projections, exterior noise levels at the

[1] Based on laboratory test number W-50-71 published by the U.S. National Bureau of Standards.

easternmost rooms of the two story building and exterior noise levels at the southern, eastern and much of the northern façade of the 4 story building will be exposed to levels exceeding 59 dBA L_{dn}. Therefore, we recommend that the easternmost rooms of the two story building and all residences in the 4 story building be equipped with a mechanical ventilation system capable of providing adequate fresh air to the residence while allowing the windows to remain closed to control noise. In our experience a standard central air conditioning system or a central heating system equipped with a 'summer switch' which allows the fan to circulate air without furnace operation will provide a habitable interior environment.

Allowing for the degree of exterior to interior noise attenuation with standard construction and closed with closed standard thermal insulating windows and weather sealed doors as discussed above (a 26 to 27 dBA reduction), where exterior noise levels are 70 dBA L_{dn} or less closed standard windows and doors will be sufficient to allow interior noise levels to be an L_{dn} of less than 45 dBA. Our preliminary traffic modeling indicates that the entire facades the two easternmost residences and portions of the second tier (adjacent) units on each floor of the four story building would be exposed to traffic noise levels exceeding 70 dBA L_{dn}. Considering this, the windows and doors in the easternmost residences with minimum respective sound ratings of 33 STC and 32 STC and the windows and doors in the second tier (adjacent) residences with a minimum respective sound ratings of 30 STC and 28 STC, will be required to meet the City and State interior noise standard of 45 dBA L_{dn}. Figure 3 shows the location of these residences and the minimum window and door sound ratings required. Closed standard thermal insulating windows and weather sealed doors will be sufficient to allow the City and State interior noise standard of 45 dBA L_{dn} to be met in all other residences in the four story building and all residences in the two story building.

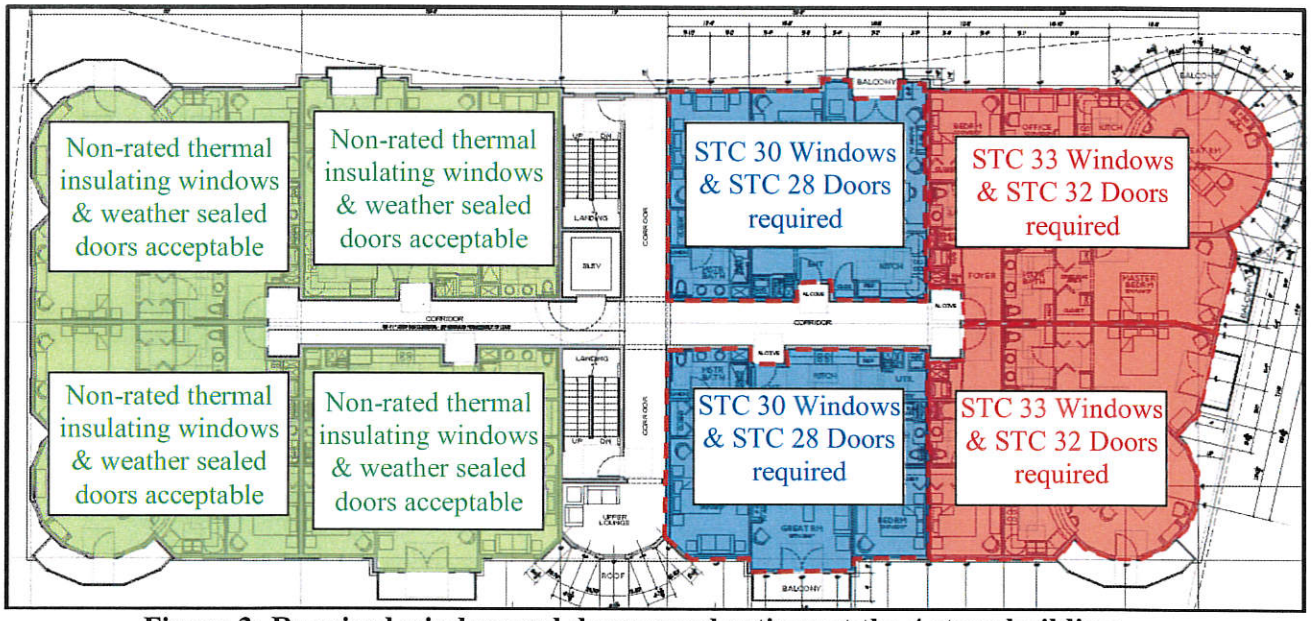


Figure 3: Required window and door sound ratings at the 4 story building

This concludes our environmental noise assessment conducted for the Senior Residential Project proposed at 201 Farmers Lane in Santa Rosa, CA. If you have any questions or comments regarding this analysis, please do not hesitate to call.

Sincerely,

Fred M. Svinth, INCE, Assoc, AIA
Senior Consultant, Principal
Illingworth & Rodkin, Inc.

Appendix A: Fundamental Concepts of Environmental Acoustic

APPENDIX A:
FUNDAMENTAL CONCEPTS 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 may be caused by either 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 that are used to describe noise in a particular location. *A decibel (dB)* is a unit of measurement that 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, Ldn,* 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.

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, which is 20 micropascals (20 micronewtons per square meter).
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure.
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. All sound levels in this report are A-weighted, unless reported otherwise.
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.
Equivalent Noise Level, L_{eq}	The average A-weighted noise level during the measurement period.
Day/Night Noise Level, L_{dn}	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.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
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.

Definitions Of Acoustical Terms Table 1

ILLINGWORTH & RODKIN, INC./Acoustical Engineers

At a Given Distance From Noise Source	A-Weighted Sound Level in Decibels	Noise Environments	Subjective Impression
	140		
Civil Defense Siren (100')	130		Pain Threshold
Jet Takeoff (200')	120	Rock Music Concert	
	110		Very Loud
Diesel Pile Driver (100')	100	Boiler Room Printing Press Plant	
	90		
Freight Cars (50') Pneumatic Drill (50') Freeway (100')	80	In Kitchen With Garbage Disposal Running	Moderately Loud
Vacuum Cleaner (10')	70	Data Processing Center	
	60	Department Store	
Light Traffic (100') Large Transformer (200')	50	Private Business Office	Quiet
	40	Quiet Bedroom	
Soft Whisper (5')	30	Recording Studio	
	20		Threshold of Hearing
	10		
	0		

Typical Sound Levels Measured In The Environment And Industry — **Table 2**

ILLINGWORTH & RODKIN, INC./Acoustical Engineer

Effects of Noise

Sleep and Speech Interference: The thresholds for speech interference indoors are about 45 dBA if the noise is steady and above 55 dBA if the noise is fluctuating. Outdoors the thresholds are about 15 dBA higher. Steady noise of sufficient intensity; above 35 dBA, and fluctuating noise levels above about 45 dBA have been shown to affect sleep. Interior residential standards for multi-family dwellings are set by the State of California at 45 dBA Ldn. Typically, the highest steady traffic noise level during the daytime is about equal to the Ldn and nighttime levels are 10 dBA lower. The standard is designed for sleep and speech protection and most jurisdictions apply the same criterion for

all residential uses. Typical structural attenuation is 12-17 dBA with open windows. With closed windows in good condition, the noise attenuation factor is around 20 dBA for an older structure and 25 dBA for a newer dwelling. Sleep and speech interference is therefore possible when exterior noise levels are about 57-62 dBA Ldn with open windows and 65-70 dBA Ldn if the windows are closed. Levels of 55-60 dBA are common along collector streets and secondary arterials, while 65-70 dBA is a typical value for a primary/major arterial. Levels of 75-80 dBA are normal noise levels at the first row of development outside a freeway right-of-way. In order to achieve an acceptable interior noise environment, bedrooms facing secondary roadways need to be able to have their windows closed, those facing major roadways and freeways typically need special glass windows.

Annoyance: Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that the causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The Ldn as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. When measuring the percentage of the population highly annoyed, the threshold for ground vehicle noise is about 55 dBA Ldn. At an Ldn of about 60 dBA, approximately 2 percent of the population is highly annoyed. When the Ldn increases to 70 dBA, the percentage of the population highly annoyed increases to about 12 percent of the population. There is, therefore, an increase of about 1 percent per dBA between an Ldn of 60-70 dBA. Between an Ldn of 70-80 dBA, each decibel increase increases by about 2 percent the percentage of the population highly annoyed. People appear to respond more adversely to aircraft noise. When the Ldn is 60 dBA, approximately 10 percent of the population is believed to be highly annoyed. Each decibel increase to 70 dBA adds about 2 percentage points to the number of people highly annoyed. Above 70 dBA, each decibel increase results in about a 3 percent increase in the percentage of the population highly annoyed.

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality
1 Willowbrook Court, Suite 120
Petaluma, California 94954
Tel: 707-794-0400 *Fax: 707-794-0490*
www.illingworthrodkin.com *illro@illingworthrodkin.com*

April 8, 2016

Ms. Barbara Hayes
180 Jones Road
Leicester, NC 28748
VIA Email: barbyhayes@gmail.com
CC: paul@hedgpetharchitects.com, sharpeplanner@comcast.net

SUBJECT: Environmental Noise Assessment Proposal for Senior Residential Project 201 Farmers Lane, Santa Rosa CA

Dear Ms. Hayes;
At the request of your Architect, Paul Gilger and Planner, Steve Sharpe, Illingworth & Rodkin, Inc. (I&R) is pleased to submit this proposal to conduct a noise assessment of the proposed Senior Residential Project at 201 Farmers Lane in Santa Rosa, California. Based on a review of the preliminary project drawings and background information, and our familiarity with the City of Santa Rosa noise standards, we offer the following scope of work and fee estimate.

SCOPE OF WORK

Illingworth & Rodkin, Inc. would complete the following tasks in the assessment:

1. **Quantify Existing Noise Levels.** We will visit the project site to conduct a survey of on-site noise produced by Farmers Lane & 4th Street traffic and other local area noise sources. This noise monitoring survey will include long-term and short-term noise measurements as needed to quantify existing noise levels throughout the site generated by traffic and local noise sources.
2. **Predict Future Noise Exposure.** Based on the results of our noise measurement survey and future traffic projections from the Santa Rosa General Plan or other available sources, we will predict the future noise conditions at the proposed residential facades and exterior use areas.
3. **Assess Noise Levels and Develop Mitigation.** Based on the above analysis, the future site noise exposure at residential facades and exterior use areas will be assessed relative to the noise and land use compatibility standards presented in the City of Santa Rosa General Plan and the State Building Code, and the need for special acoustical construction will be identified in area with high noise exposures. If noise levels on the site are found to exceed those considered acceptable for residential development at building interiors or exterior use

areas, we will evaluate noise control measures for the site. Where noise levels exceed acceptable levels at residential facades, we will evaluate the need for, and provide recommendations for sound rated construction, such as walls, windows, doors, and ventilation systems, to achieve an acceptable interior noise environment within the proposed residences. If needed, we will determine the preliminary heights and lengths of noise barriers necessary to reduce the noise in exterior use areas to a satisfactory level.

4. **Deliverable.** The results of our study and recommendations for any noise mitigation will be submitted to you as a draft report. Following your review and comments, we will submit a final report to you in a format suitable for submission to the City of Santa Rosa. This report will include maps and/or figures to indicate noise measurement locations and the location and extent of noise barriers or other exterior sound reduction measures.

SCHEDULE

Assuming the weather cooperates (i.e. rain will cause a delay), we can schedule environmental noise measurements within two working weeks of receipt of your authorization to proceed, and issue a draft report within two working weeks following the completion of the fieldwork.

FEE ESTIMATE

Illingworth & Rodkin's 2016 professional fees are based on the following hourly rate schedule:

Senior Consultant	$185/hour
Consultant	$155/hour
Staff Consultant	$135/hour
Tech. Support	$85/hour

We will complete the above scope of work for a fee of $4,700. Attachment A lists our insurance coverage. Additional services may be provided at the Client's request for I&R's hourly fees in effect at the time efforts are undertaken, or for negotiated fees for fixed scope(s) of work. Fees are invoiced monthly. The client agrees to pay I&R upon receipt of funds from the project owner or at a time not greater than 60 days from receipt of I&R's invoice, unless due to errors or omissions on the part of I&R.

This proposal is valid for 30 days. If the contents of this proposal are satisfactory, please sign below in the space provided and return a copy to us as our authorization to proceed. Thank you for the opportunity to submit this proposal, we look forward to working with you.

Sincerely,

Fred M. Svinth, INCE, Assoc. AIA
Senior Consultant, Principal
ILLINGWORTH & RODKIN, INC.
Attachment A

Agreed to and Accepted By

Name: _____
Date: _____

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality
1 Willowbrook Court, Suite 120
Petaluma, California 94954
Tel: 707-794-0400 *Fax: 707-794-0490*
www.illingworthrodkin.com *illro@illingworthrodkin.com*

ATTACHMENT A

INSURANCE COVERAGE

GENERAL LIABILITY in the amount of $2,000,000 combined single limit/$4,000,000 aggregate.

WORKERS COMPENSATION covering our own employees in the amount of $3,000,000 per occurrence.

AUTO (OWNED) covering personal injury or death and property damage in the amount of $1,000,000 per claim.

AUTO (NON OWNED) covering personal injury or death and property damage in the amount of $2,000,000 per claim.

PROFESSIONAL LIABILITY in the amount of $1,000,000 per claim.

> Limitation of Liability. To the maximum extent permitted by law, Illingworth & Rodkin, Inc. requests that the Client agrees to limit Illingworth & Rodkin, Inc.' s liability for Client damages to the sum of $250,000 or our fee, whichever is greater. This limitation shall apply regardless of the cause or legal theory asserted.

Certificates of insurance will be issued upon request.