NOISE ASSESSMENT

Harbison Canyon
PDS2022-TPM-21316, PDS2022-ER-21-14-001
APN: 513-101-11-00
County of San Diego

Lead Agency:

County of San Diego
Planning and Development Services
5510 Overland Avenue #110
San Diego, CA 92123

Prepared by:

Jeremy Louden
Ldn Consulting, Inc.
23811 Washington Ave, C110-333
Murrieta CA 92562
760-473-1253

Prepared For:

Nagham Sabah
1233 Pfeifer Lane
El Cajon, CA 92020

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GLOSSARY OF COMMON TERMS

Sound Pressure Level (SPL): a ratio of one sound pressure to a reference pressure (L_{ref}) of 20 µPa. Because of the dynamic range of the human ear, the ratio is calculated logarithmically by 20 log (L/L_{ref}).

A-weighted Sound Pressure Level (dBA): Some frequencies of noise are more noticeable than others. To compensate for this fact, different sound frequencies are weighted more.

Minimum Sound Level (L_{min}): Minimum SPL or the lowest SPL measured over the time interval using the A-weighted network and slow time weighting.

Maximum Sound Level (L_{max}): Maximum SPL or the highest SPL measured over the time interval the A-weighted network and slow time weighting.

Equivalent sound level (L_{eq}): the true equivalent sound level measured over the run time. Leq is the A-weighted steady sound level that contains the same total acoustical energy as the actual fluctuating sound level.

Day Night Sound Level (LDN): Representing the Day/Night sound level, this measurement is a 24 –hour average sound level where 10 dB is added to all the readings that occur between 10 pm and 7 am. This is primarily used in community noise regulations where there is a 10 dB "Penalty" for nighttime noise. Typically, LDN's are measured using A weighting.

Community Noise Exposure Level (CNEL): The accumulated exposure to sound measured in a 24-hour sampling interval and artificially boosted during certain hours. For CNEL, samples taken between 7 pm and 10 pm are boosted by 5 dB; samples taken between 10 pm and 7 am are boosted by 10 dB.

Octave Band: An octave band is defined as a frequency band whose upper band-edge frequency is twice the lower band frequency.

Third-Octave Band: A third-octave band is defined as a frequency band whose upper band-edge frequency is 1.26 times the lower band frequency.

Response Time (F,S,I): The response time is a standardized exponential time weighting of the input signal according to fast (F), slow (S) or impulse (I) time response relationships. Time response can be described with a time constant. The time constants for fast, slow and impulse responses are 1.0 seconds, 0.125 seconds and 0.35 milliseconds, respectively.

EXECUTIVE SUMMARY

This noise study has been completed to determine the noise impacts associated with the development of the proposed residential project. The project known as "Harbison Canyon TPM" proposes a subdivision that will create 4 single-family lots, three new lots and a remainder lot with an existing single-family dwelling on parcel 4, on approximately 12.37 acres (APN 513-101-11-00). Access would be provided by adjacent Harbison Canyon Road to the east. The project is generally located south of Interstate 8 (I-8) and north of Dehesa Road in the unincorporated area of the Crest-Dehesa Community Planning Area in San Diego County.

- On-Site Noise Analysis

  It was determined from the analysis that the single family NSLU's adjacent to the roadways will comply with the County of San Diego 60 dBA CNEL exterior noise standard without mitigation measures. Additionally, since the building façades at the single-family dwellings will comply with the General Plan Noise Element Standard, of 60 dBA CNEL, an interior noise study is not required.

- Off-Site Noise Analysis

  The Project does not create a direct impact of more than 3 dBA CNEL on any roadway segment and no cumulative noise increase of 3 dBA CNEL or more was found. Therefore, the proposed Project's direct and cumulative contributions to off-site roadway noise increases will not cause any significant impacts to any existing or future noise sensitive land uses.

- Construction Noise Analysis

  If all the equipment was working in the same area, at an average distance of over 90-feet the point source noise attenuation from the site preparation activities and the nearest property line is -5.1 dBA. This would result in an anticipated worst case eight-hour average combined noise level of less than 75 dBA at the property line. Given this and the spatial separation of the equipment over the site, the noise levels from the grading are anticipated to comply with the County of San Diego's 75 dBA standard per Section 36.409 of the Noise Ordinance at all Project property lines.

  No blasting or rock crushing is anticipated. Therefore, no impulsive noise sources are expected and the Project will comply with Section 36.410 of the County Noise Ordinance.

1.0 INTRODUCTION

1.1 Project Description

This noise study was completed to determine the noise impacts associated with the development of the proposed Harbison Canyon TPM Residential Project. The project is located at 33° 47′ 30″ N and 116° 50′ 48″ W, south of Interstate 8 (I-8) and north of Dehesa Road in the unincorporated area of the Crest-Dehesa Community Planning Area in San Diego County. The general location of the project is shown on the Vicinity Map, Figure 1-A.

The proposed project is approximately 12.37 acres. The recently adopted County of San Diego General Plan Update Land Use designation for this site is SR-1. The project proposes to divide the existing parcel into four (4) single-family lots, three new lots and a remainder lot with an existing single-family dwelling on parcel 4. There is one existing single-family residential home to remain on the remainder parcel. The site plan for the proposed project used for this analysis is shown in Figure 1-B.

1.2 Environmental Settings & Existing Conditions

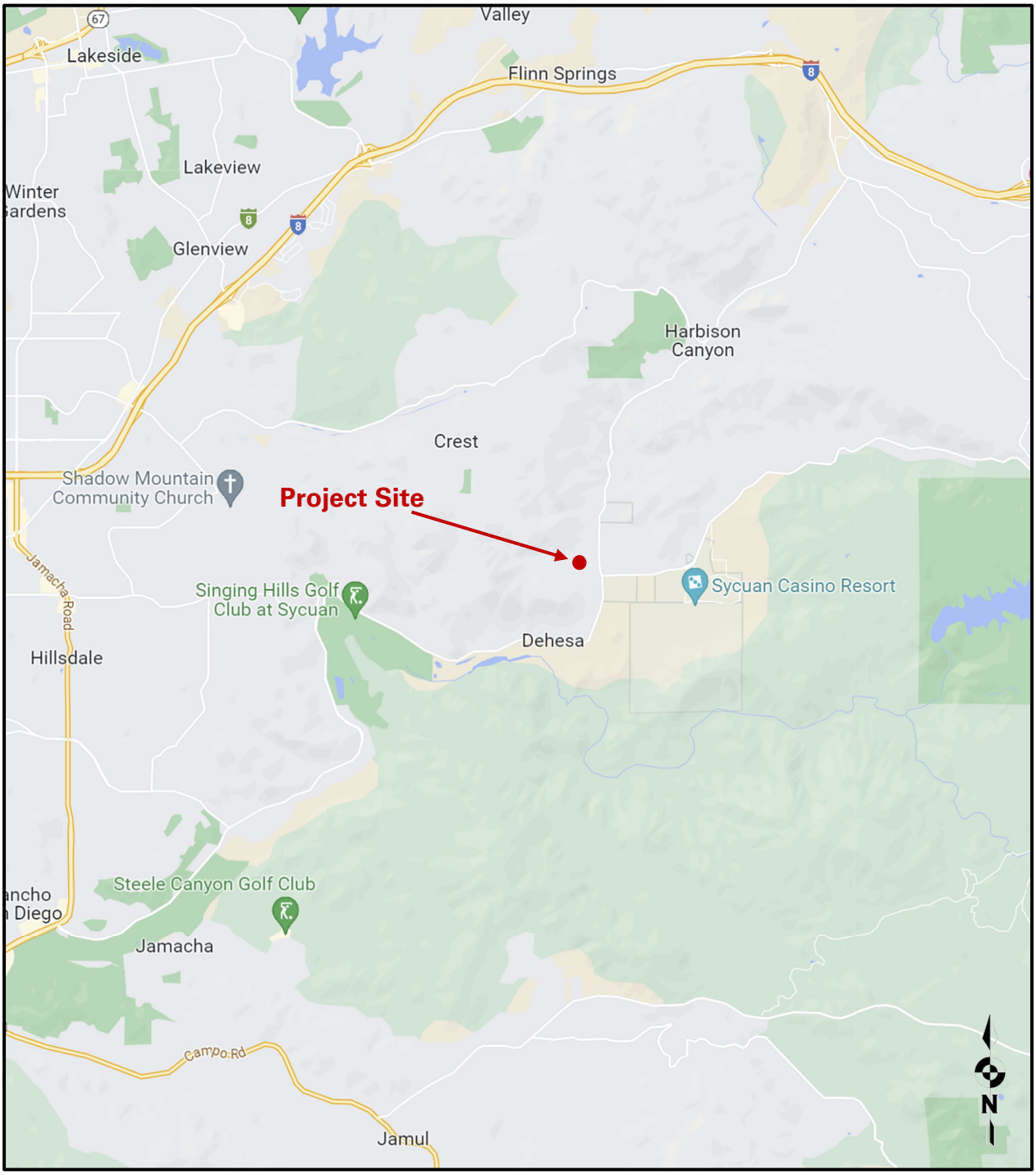
a) Settings & Locations

Access to the site would be taken from Harbison Canyon Road via Alpine Boulevard to the north. The community is served by two major roadways connecting the area to the City of Alpine to the east and the City of El Cajon and the County of San Diego to the west. Existing land uses surrounding the site are primarily single-family residential with retail uses across Harbison Canyon Road to the east.

b) Existing Noise Conditions

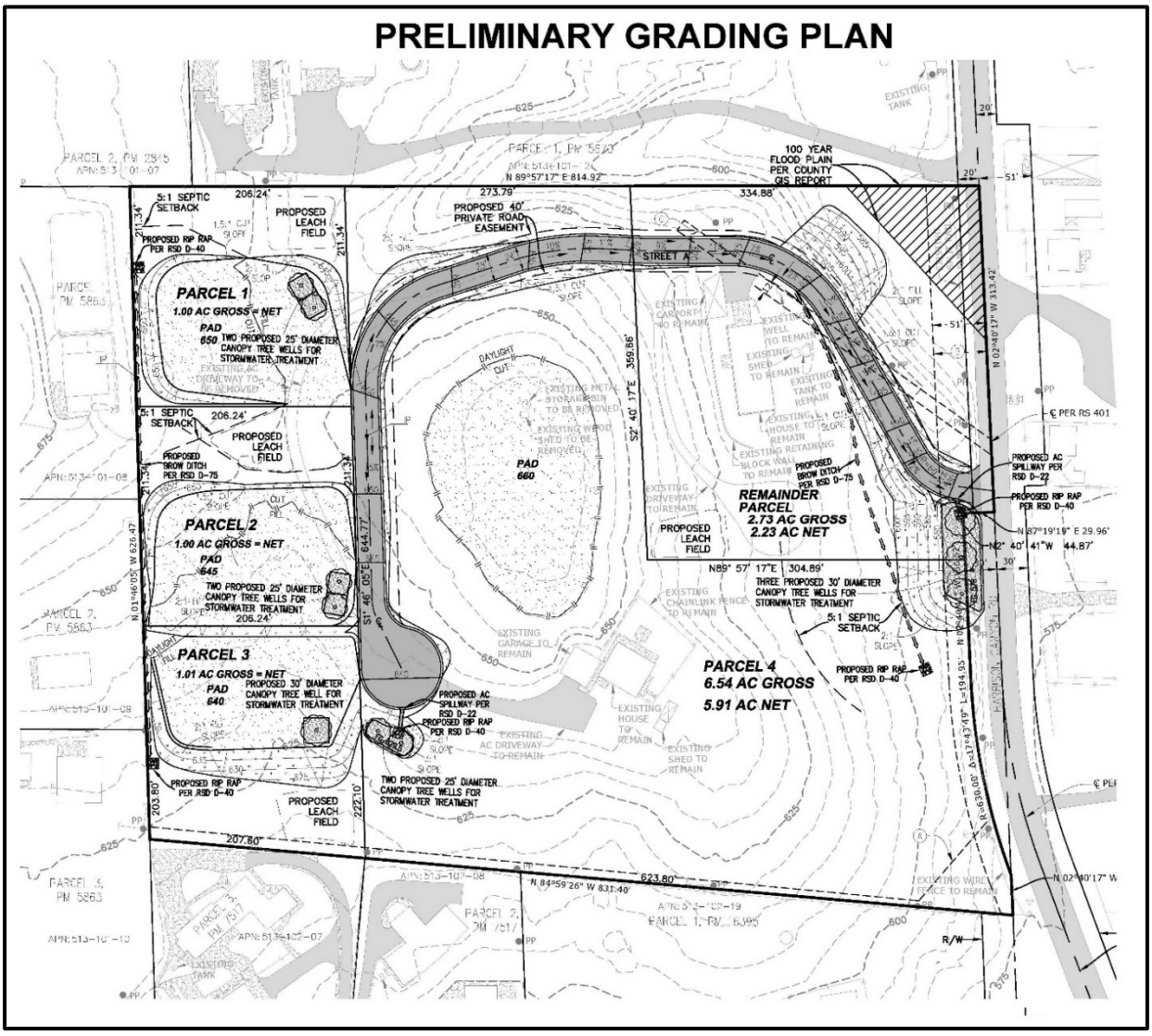
The project is located adjacent to Harbison Canyon Road which is classified as a Local Collector in the County of San Diego's Circulation Element. Existing noise occurs mainly from traffic traveling along Harbison Canyon Road.

Figure 1-A: Project Vicinity Map



Source: (Google, 2023)

Figure 1-B: Proposed Project Site Plan



Source: (Walsh Engineering, 2023)

1.3 Methodology and Equipment

a) Noise Measuring Methodology and Procedures

To determine the existing noise environment and to assess potential noise impacts, measurements were taken at one location on the project having a view of Harbison Canyon Road. The noise measurements were recorded on November 7, 2023 by Ldn Consulting between approximately 9:15 a.m. and 9:30 a.m.

Noise measurements were taken using a Larson-Davis Model LxT Type 1 meter. The meter was programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meter and microphone was mounted on a tripod, five feet above the ground and equipped with a windscreen during all measurements. The meter was calibrated with a Larson-Davis Model CAL 200.

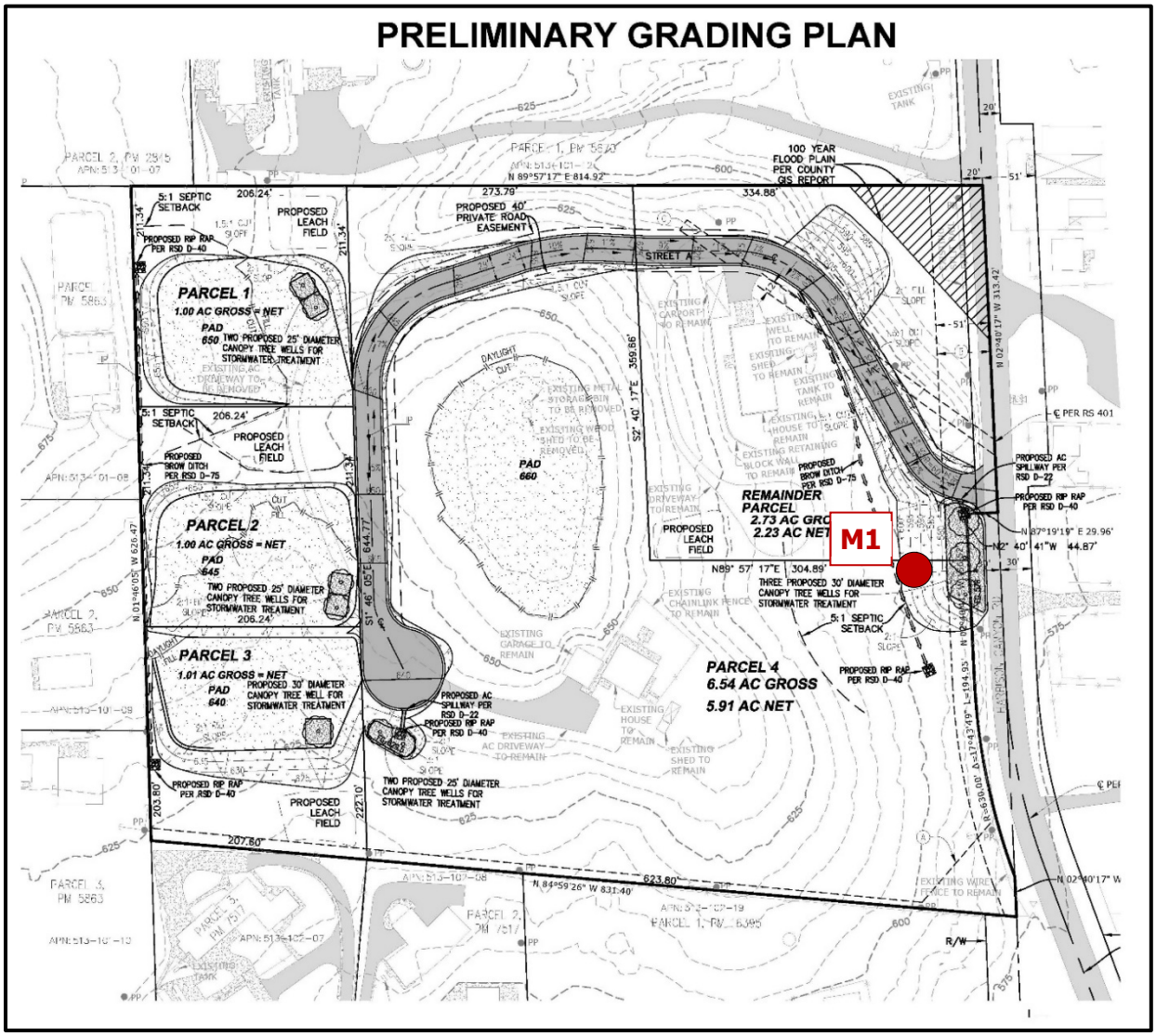
The noise measurement location was determined based on-site access and noise impact potential to the proposed residences. Monitoring location 1 (M1) was located along Harbison Canyon Road. The noise monitoring location is provided graphically in Figure 1-C on the following page.

The results of the noise level measurements are presented in Table 1-1. The noise measurement was monitored for a time period of roughly 15 minutes. The ambient Leq noise levels measured on the project site during the morning was found to be approximately 48 dBA Leq. The existing noise levels in the project area consisted primarily of traffic along Harbison Canyon Road.

Table 1-1: Existing Noise Levels

Location	Time	One Hour Noise Levels (dBA)					
		Leq	Lmin	Lmax	L10	L50	L90
M1	9:15–9:30 a.m.	47.9	38.1	66.8	51.9	44.0	40.1
Source: Ldn Consulting, Inc. November 7, 2023							

Figure 1-C: Noise Measurement Locations



b) Noise Modeling Software

The primary source of noise impacts to the project site will be from vehicular noise from adjacent Harbison Canyon Road and nearby Dehesa Road. The projected roadway noise levels from vehicular traffic were calculated using the methods in the Highway Noise Model published by the Federal Highway Administration (FHWA Highway Traffic Noise Prediction Model, FHWA-RD-77-108, December 1978). The FHWA Model uses the traffic volume, vehicle mix, speed, and roadway geometry to compute the equivalent noise level. A spreadsheet calculation was used which computes equivalent noise levels for each of the time periods used in the calculation of CNEL. Weighting these equivalent noise levels and summing them gives the CNEL for the traffic projections.

c) Noise Calculations and Factors

Noise is defined as unwanted or annoying sound which interferes with or disrupts normal activities. Exposure to high noise levels has been demonstrated to cause hearing loss. The individual human response to environmental noise is based on the sensitivity of that individual, the type of noise that occurs and when the noise occurs.

Sound is measured on a logarithmic scale consisting of sound pressure levels known as a decibel (dB). The sounds heard by humans typically do not consist of a single frequency but of a broadband of frequencies having different sound pressure levels. The method for evaluating all the frequencies of the sound is to apply an A-weighting to reflect how the human ear responds to the different sound levels at different frequencies. The A-weighted sound level adequately describes the instantaneous noise whereas the equivalent sound level depicted as Leq represents a steady sound level containing the same total acoustical energy as the actual fluctuating sound level over a given time interval.

The Community Noise Equivalent Level (CNEL) is the 24 hour A-weighted average for sound, with corrections for evening and nighttime hours. The corrections require an addition of 5 decibels to sound levels in the evening hours between 7 p.m. and 10 p.m. and an addition of 10 decibels to sound levels at nighttime hours between 10 p.m. and 7 a.m. These additions are made to account for the increased sensitivity during the evening and nighttime hours when sound appears louder.

A vehicle's noise level is from a combination of the noise produced by the engine, exhaust and tires. The cumulative traffic noise levels along a roadway segment are based on three primary factors: the amount of traffic, the travel speed of the traffic, and the vehicle mix ratio or number of medium and heavy trucks. The intensity of traffic noise is increased by higher traffic volumes, greater speeds and increased number of trucks.

Because mobile/traffic noise levels are calculated on a logarithmic scale, a doubling of the traffic noise or acoustical energy results in a noise level increase of 3 dBA. Therefore, the doubling of the traffic volume, without changing the vehicle speeds or mix ratio, results in a noise increase of 3 dBA. Mobile noise levels radiate in an almost oblique fashion from the source and drop off at a rate of 3 dBA for each doubling of distance under hard site conditions and at a rate of 4.5 dBA for soft site conditions. Hard site conditions consist of concrete, asphalt and hard pack dirt while soft site conditions exist in areas having slight grade changes, landscaped areas and vegetation. On the other hand, fixed/point sources radiate outward uniformly as sound travels away from the source. Their sound levels attenuate or drop off at a rate of 6 dBA for each doubling of distance.

The most effective noise reduction methods consist of controlling the noise at the source, blocking the noise transmission with barriers or relocating the receiver. Any or all of these methods may be required to reduce noise levels to an acceptable level.

2.0 NOISE SENSITIVE LAND USES (NSLU)

2.1 Guidelines for the Determination of Significance

The County's General Plan Chapter 8 Noise Element uses the Noise Compatibility Guidelines listed in Table N-1 of the General Plan Noise Element (provided below) to determine the compatibility of land use when evaluating proposed development projects. The Noise Compatibility Guidelines indicate ranges of compatibility and are intended to be flexible enough to apply to a range of projects and environments. For example, a commercial project would be evaluated differently than a residential project in a rural area or a mixed-use project in a more densely developed area of the County.

TABLE N-1: NOISE COMPATIBILITY GUIDELINES (CNEL)

Table N-1 Noise Compatibility Guidelines

Land Use Category		Exterior Noise Level (CNEL)						
		55	60	65	70	75	80	
A	Residential—single family residences, mobile homes, senior housing, convalescent homes							
B	Residential—multi-family residences, mixed-use (commercial/residential)							
C	Transient lodging—motels, hotels, resorts							
D*	Schools, churches, hospitals, nursing homes, child care facilities							
E*	Passive recreational parks, nature preserves, contemplative spaces, cemeteries							
F*	Active parks, golf courses, athletic fields, outdoor spectator sports, water recreation							
G*	Office\professional, government, medical\dental, commercial, retail, laboratories							
H*	Industrial, manufacturing, utilities, agriculture, mining, stables, ranching, warehouse, maintenance/repair							

	ACCEPTABLE—Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal construction, without any special noise insulation requirements.
	CONDITIONALLY ACCEPTABLE—New construction or development should be undertaken only after a detailed noise analysis is conducted to determine if noise reduction measures are necessary to achieve acceptable levels for land use. Criteria for determining exterior and interior noise levels are listed in Table N-2, Noise Standards. If a project cannot mitigate noise to a level deemed Acceptable, the appropriate county decision-maker must determine that mitigation has been provided to the greatest extent practicable or that extraordinary circumstances exist.
	UNACCEPTABLE—New construction or development shall not be undertaken.

* Denotes facilities used for part of the day; therefore, an hourly standard would be used rather than CNEL (refer to Table N-2).

Note: For projects located within an Airport Influence Area of an adopted Airport Land Use Compatibility Plan (ALUCP), additional Noise Compatibility Criteria restrictions may apply as specified in the ALUCP.

A land use located in an area identified as "acceptable" indicates that standard construction methods would attenuate exterior noise to an acceptable indoor noise level and that people can carry out outdoor activities with minimal noise interference. Land uses that fall into the "conditionally acceptable" noise environment should have an acoustical study that considers the type of noise source, the sensitivity of the noise receptor, and the degree to which the noise source may interfere with sleep, speech, or other activities characteristic of the land use. For land uses indicated as "conditionally acceptable," structures must be able to attenuate the exterior noise to the indoor noise level as indicated in the Noise Standards listed in Table N-2 of the General Plan Noise Element (provided below). For land uses where the exterior noise levels fall within the "unacceptable" range, new construction generally should not be undertaken.

TABLE N-2: NOISE STANDARDS

Table N-2 Noise Standards[Note]
1. The exterior noise level (as defined in Item 3) standard for Category A shall be 60 CNEL, and the interior noise level standard for indoor habitable rooms shall be 45 CNEL.
2. The exterior noise level standard for Categories B and C shall be 65 CNEL, and the interior noise level standard for indoor habitable rooms shall be 45 CNEL.
3. The exterior noise level standard for Categories D and G shall be 65 CNEL and the interior noise level standard shall be 50 dBA L_{eq} (one hour average).
4. For single-family detached dwelling units, "exterior noise level" is defined as the noise level measured at an outdoor living area which adjoins and is on the same lot as the dwelling, and which contains at least the following minimum net lot area: *(i)* for lots less than 4,000 square feet in area, the exterior area shall include 400 square feet, *(ii)* for lots between 4,000 square feet to 10 acres in area, the exterior area shall include 10 percent of the lot area; *(iii)* for lots over 10 acres in area, the exterior area shall include 1 acre.
5. For all other residential land uses, "exterior noise level" is defined as noise measured at exterior areas which are provided for private or group usable open space purposes. "Private Usable Open Space" is defined as usable open space intended for use of occupants of one dwelling unit, normally including yards, decks, and balconies. When the noise limit for Private Usable Open Space cannot be met, then a Group Usable Open Space that meets the exterior noise level standard shall be provided. "Group Usable Open Space" is defined as usable open space intended for common use by occupants of a development, either privately owned and maintained or dedicated to a public agency, normally including swimming pools, recreation courts, patios, open landscaped areas, and greenbelts with pedestrian walkways and equestrian and bicycle trails, but not including off-street parking and loading areas or driveways.
6. For non-residential noise sensitive land uses, exterior noise level is defined as noise measured at the exterior area provided for public use.
7. For noise sensitive land uses where people normally do not sleep at night, the exterior and interior noise standard may be measured using either CNEL or the one-hour average noise level determined at the loudest hour during the period when the facility is normally occupied.
8. The exterior noise standard does not apply for land uses where no exterior use area is proposed or necessary, such as a library.
9. For Categories E and F the exterior noise level standard shall not exceed the limit defined as "Acceptable" in Table N-1 or an equivalent one-hour noise standard.

Note: Exterior Noise Level compatibility guidelines for Land Use Categories A-H are identified in Table N-1, Noise Compatibility Guidelines.

2.2 Potential Noise Impacts

a) Potential Build Out Noise Conditions

The Buildout scenario includes the future year 2030 traffic volume forecasts provided by the County's General Plan Update for 2030. The future traffic along Harbison Canyon Road is estimated to be 4,500 ADT in the year 2030. Harbison Canyon Road is considered 2 lane local collector in the County of San Diego Department of Public Works Public Road Standards with a posted speed limit of 40 MPH. To assess the peak hour traffic noise conditions, 10% of the ADT was utilized to predict the worst-case noise levels.

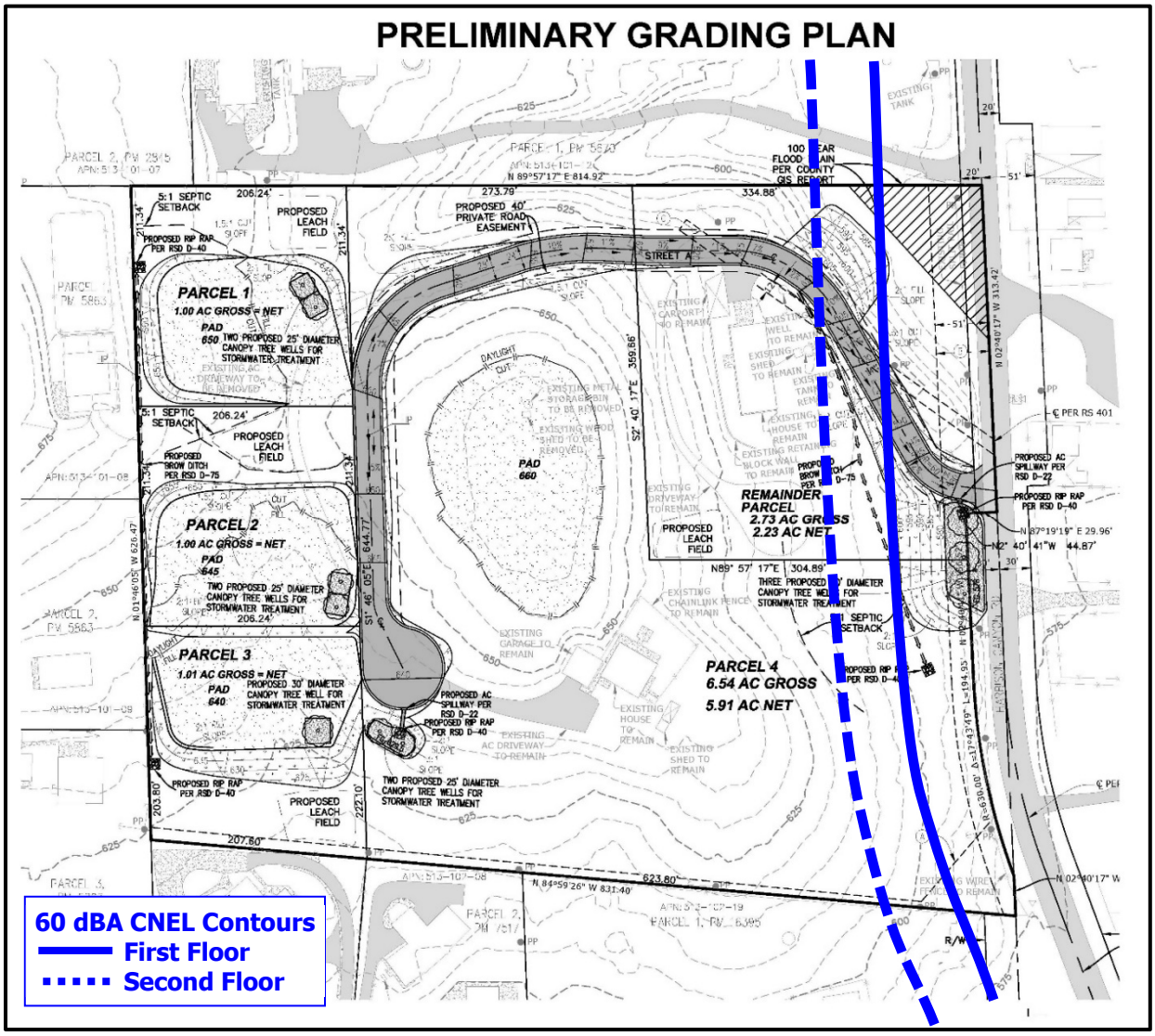
The future traffic noise model utilizes a typical vehicle mix for San Diego County of 95% Autos, 3% Medium Trucks and 2% Heavy Trucks for the roadway. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks and heavy trucks for input into the FHWA Model. Hard site conditions were used to develop and analyze the worst-case noise levels along the roadway segments.

b) Potential Noise Impact Identification

Noise contours are lines that when drawn from a noise source indicate a continuous or equivalent level of noise exposure. Noise contour lines are generally used as a planning tool to assess potential impacts and the need for additional analysis. The noise contour lines that may affect the project site were developed for the unshielded future Buildout conditions. No barriers or structures were included as part of the noise contour analysis. The Highway Noise Model published by the Federal Highway Administration was used to calculate the noise contours perpendicular as shown in Figure 2-B. Second floor areas were also modeled, using hard site conditions based upon Caltrans Protocol. Figure 2-A provides the location of the future first and second floor 60 dBA CNEL noise contours.

The worst-case first floor 60 dBA CNEL contour extends approximately 105-feet from the centerline of Harbison Canyon Road. The second floor 60 dBA CNEL contour extends approximately 152-feet from the centerline of Harbison Canyon Road. The contours show that noise sensitive land use (NSLU) areas will not exceed the County of San Diego 60 dBA CNEL exterior noise standard. Additionally, all building façades at the single-family dwellings will comply with the General Plan Noise Element Standard, of 60 dBA CNEL, therefore, an interior noise study is not required.

Figure 2-A: Future Noise Contour Locations



Based on the exterior noise model for the roadway the worst-case exterior noise level is 64.8 dBA CNEL along Harbison Canyon Road at a distance of 50-feet from the centerline. The model does not take into account any noise reductions for existing or proposed structures, barriers or topographic features.

The nearest residential lot is located 290 feet or more from the centerline. Based on the increased distance, the noise level would be decreased at least 11.4 dBA CNEL to a worst-case exterior noise level of 53.4 dBA CNEL and an upper floor building façade noise level of 57.2 dBA CNEL. The modeling results are provided in Figure 2-B.

Figure 2-B: Future Noise Levels

Traffic Volumes, Mix and Speeds

	Autos	Med. Trucks	Heavy Trucks
Mix Ratio by Percent	95.0	3.0	2.0
Propagation Rule	Soft		

Roadway	**ADT**	**Speed MPH**	**CNEL @ 50 Feet**
Harbison	4,500	40	64.8

Noise Contours

	Distance (Feet)
1st Floor 60 dBA CNEL	105
2nd Floor 60 dBA CNEL	152

Noise Reduction due to Distance

	Distance	**Reduction**	**Resultant Level**	**Upper Floors**
Parcel 4	290	-11.45	53.4	57.2

2.3 Off-site Noise Impacts

To determine if direct or cumulative off-site noise level increases associated with the development of the proposed project would create noise impacts. The traffic volumes for the existing conditions were compared with the traffic volume increase of existing plus the proposed project. The project is estimated to only generate 48 daily trips (12 per lot). The existing average daily traffic (ADT) volumes on the area roadways are more than several hundred ADT. Typically, it requires a project to double (or add 100%) the traffic volumes to have a direct impact of 3 dBA CNEL or be a major contributor to the cumulative traffic volumes. The project will add less

than a 2% increase to the exiting roadway volumes and no direct or cumulative impacts are anticipated.

2.4 Conclusions

It was determined from the analysis that the single-family NSLU's adjacent to the roadways will comply with the County of San Diego 60 dBA CNEL exterior noise standard without mitigation measures. Additionally, since the building façades at the single family dwellings will comply with the General Plan Noise Element Standard, of 60 dBA CNEL, an interior noise study is not required.

The Project does not create a direct impact of more than 3 dBA CNEL on any roadway segment and no cumulative noise increase of 3 dBA CNEL or more was found. Therefore, the proposed Project's direct and cumulative contributions to off-site roadway noise increases will not cause any significant impacts to any existing or future noise sensitive land uses.

3.0 CONSTRUCTION ACTIVITIES

3.1 Guidelines for the Determination of Significance

Construction Noise: Noise generated by construction activities related to the project will exceed the standards listed in San Diego County Code Sections as follows.

SEC. 36.408: HOURS OF OPERATION OF CONSTRUCTION EQUIPMENT

Except for emergency work, it shall be unlawful for any person to operate or cause to be operated, construction equipment:

a. Between 7 p.m. and 7 a.m.

b. On a Sunday or a holiday. For purposes of this section, a holiday means January 1st, the last Monday in May, July 4th, the first Monday in September, December 25th and any day appointed by the President as a special national holiday or the Governor of the State as a special State holiday. A person may, however, operate construction equipment on a Sunday or holiday between the hours of 10 a.m. and 5 p.m. at the person's residence or for the purpose of constructing a residence for himself or herself, provided that the operation of construction equipment is not carried out for financial consideration or other consideration of any kind and does not violate the limitations in sections 36.409 and 36.410.

SEC. 36.409: SOUND LEVEL LIMITATIONS ON CONSTRUCTION EQUIPMENT

Except for emergency work, it shall be unlawful for any person to operate construction equipment or cause construction equipment to be operated, that exceeds an average sound level of 75 decibels for an eight-hour period, between 7 a.m. and 7 p.m., when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is being received.

SEC. 36.410: SOUND LEVEL LIMITATIONS ON IMPULSIVE NOISE

In addition to the general limitations on sound levels in section 36.404 and the limitations on construction equipment in section 36.409, the following additional sound level limitations shall apply:

(a) Except for emergency work or work on a public road project, no person shall produce or cause to be produced an impulsive noise that exceeds the maximum sound level shown in Table 36.410A (provided below), when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is received, for 25 percent of the minutes in the measurement period, as described in subsection (c) below. The maximum sound level depends on the use being made of the occupied property. The uses in Table 36.410A are as described in the County Zoning Ordinance.

TABLE 36.410A: MAXIMUM SOUND LEVEL (IMPULSIVE) MEASURED AT OCCUPIED PROPERTY IN DECIBELS (dBA)

OCCUPIED PROPERTY USE	DECIBELS (dBA)
Residential, village zoning or civic use	82
Agricultural, commercial or industrial use	85

(b) Except for emergency work, no person working on a public road project shall produce or cause to be produced an impulsive noise that exceeds the maximum sound level shown in Table 36.410B, when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is received, for 25 percent of the minutes in the measurement period, as described in subsection (c) below. The maximum sound level depends on the use being made of the occupied property. The uses in Table 36.410B are as described in the County Zoning Ordinance.

TABLE 36.410B: MAXIMUM SOUND LEVEL (IMPULSIVE) MEASURED AT OCCUPIED PROPERTY IN DECIBELS (dBA) FOR PUBLIC ROAD PROJECTS

OCCUPIED PROPERTY USE	dB(A)
Residential, village zoning or civic use	85
Agricultural, commercial or industrial use	90

(c) The minimum measurement period for any measurements conducted under this section shall be one hour. During the measurement period a measurement shall be conducted every minute from a fixed location on an occupied property. The measurements shall measure the maximum sound level during each minute of the measurement period. If the sound level caused by construction equipment or the producer of the impulsive noise exceeds the maximum sound level for any portion of any minute, it will be deemed that the maximum sound level was exceeded during that minute.

3.2 Potential Property Line Noise Impacts

Construction noise represents a short-term impact on the ambient noise levels. Noise generated by construction equipment includes haul trucks, water trucks, graders, dozers, loaders and scrapers can reach relatively high levels. Grading activities typically represent one of the highest potential sources for noise impacts. The most effective method of controlling construction noise is through local control of construction hours and by limiting the hours of construction to normal weekday working hours.

The U.S. Environmental Protection Agency (U.S. EPA) has compiled data regarding the noise generating characteristics of specific types of construction equipment. Noise levels generated by heavy construction equipment can range from 60 dBA to in excess of 100 dBA when measured at 50 feet. However, these noise levels diminish rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 75 dBA measured at 50 feet from the noise source to the receptor would be reduced to 69 dBA at 100 feet from the source to the receptor and reduced to 63 dBA at 200 feet from the source.

Using a point-source noise prediction model, calculations of the expected construction noise impacts were completed. The essential model input data for these performance equations include the source levels of each type of equipment, relative source to receiver horizontal and vertical separations, the amount of time the equipment is operating in a given day (also referred to as the duty-cycle) and any transmission loss from topography or barriers.

According to the Project engineer, the site will be graded in a single phase. Due to the limited project size and slope construction, the equipment needed for the development will consist of up to two tractors/loaders, one dozer, a compactor, and a water truck during the preparation and grading of each pad. A backhoe and cement truck are anticipated for the installation of utilities and driveways. These operations will not occur simultaneously. Based on the EPA noise emissions, empirical data and the amount of equipment needed, worst-case noise impacts from this construction equipment for site preparation would occur during the grading operations.

The grading equipment will be spread out over the project site from distances adjacent to the occupied property to distances of 400 feet or more away. Based upon the proposed site plan the majority of the grading operations will occur more than 90 feet from the property lines. At a distance of over 90 feet the point source noise attenuation from construction activities and the nearest property line is 5.1 dBA. As can be seen in Table 3-1, if all the equipment was operating as close as 90 feet from the same property line, which is not anticipated, the noise levels will comply with the County of San Diego's 75 dBA Leq standard at all project property lines.

No blasting or rock crushing is anticipated during the grading operations. Therefore, no impulsive noise sources are expected and the Project is anticipated to comply with Section 36.410 of the County Noise Ordinance and no further analysis is required.

Table 3-1: Construction Noise Levels

Construction Equipment	Quantity	Source Level @ 50-Feet (dBA Leq)	Duty Cycle (Hours/Day)	Cumulative Noise Level @ 50-Feet (dBA Leq)
Dozer – D8	1	74	8	74
Loader/Tractor	2	72	8	75
Water Truck	1	70	8	70
Roller/Compactor	1	74	8	74
			Cumulative Levels @ 50 Feet (dBA)	79.6
			Average Distance to Property Line from all equipment	90
			Noise Reduction Due to Distance	-5.1
			NEAREST PROPERTY LINE NOISE LEVEL	**74.5**

3.3 Conclusions

If all the equipment was working in the same area, at an average distance of over 90-feet the point source noise attenuation from the site preparation activities and the nearest property line is -5.1 dBA. This would result in an anticipated worst case eight-hour average combined noise level of less than 75 dBA at the property line. Given this and the spatial separation of the equipment over the site, the noise levels from the grading are anticipated to comply with the County of San Diego's 75 dBA standard per Section 36.409 of the Noise Ordinance at all Project property lines.

No blasting or rock crushing is anticipated. Therefore, no impulsive noise sources are expected and the Project will comply with Section 36.410 of the County Noise Ordinance.

4.0 SUMMARY OF PROJECT IMPACTS, MITIGATION & CONCLUSIONS

- On-Site Noise Analysis

  It was determined from the analysis that the single family NSLU's adjacent to the roadways will comply with the County of San Diego 60 dBA CNEL exterior noise standard without mitigation measures. Additionally, since the building façades at the single family dwellings will comply with the General Plan Noise Element Standard, of 60 dBA CNEL, an interior noise study is not required.

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  The Project does not create a direct impact of more than 3 dBA CNEL on any roadway segment and no cumulative noise increase of 3 dBA CNEL or more was found. Therefore, the proposed Project's direct and cumulative contributions to off-site roadway noise increases will not cause any significant impacts to any existing or future noise sensitive land uses.

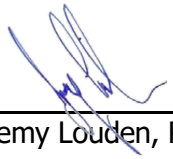
- Construction Noise Analysis

  If all the equipment was working in the same area, at an average distance of over 90-feet the point source noise attenuation from the site preparation activities and the nearest property line is -5.1 dBA. This would result in an anticipated worst case eight-hour average combined noise level of less than 75 dBA at the property line. Given this and the spatial separation of the equipment over the site, the noise levels from the grading are anticipated to comply with the County of San Diego's 75 dBA standard per Section 36.409 of the Noise Ordinance at all Project property lines.

  No blasting or rock crushing is anticipated. Therefore, no impulsive noise sources are expected and the Project will comply with Section 36.410 of the County Noise Ordinance.

5.0 CERTIFICATIONS

The contents of this report represent an accurate depiction of the future acoustical environment and impacts within and surrounding the residential development. The report was prepared by Jeremy Louden; a County approved CEQA Consultant for Acoustics.



Jeremy Louden, Principal
Ldn Consulting, Inc.
760-473-1253
jlouden@ldnconsulting.net

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