

4.8 NOISE

A noise analysis was prepared by David Dubbink Associates (March, 2010) and submitted with the application material for this project, and is included as Appendix E of this EIR. The analysis and discussions in this section of the EIR are based in part on this analysis, and on an independent review and update of some results to reflect updated traffic projections performed by URS Corporation.

4.8.1 Existing Conditions

Units and Standards Used in Noise Assessment

Chapter 1 of the County Noise Element (San Luis Obispo County 1992) provides background information regarding the effects of noise and provides other general information on how noise is defined and measured. David Dubbink Associates (2010) also includes a discussion of noise fundamentals and a thorough review of noise measurement descriptors and standards. The following discussion presents a brief summary of this background information.

Noise levels are measured in a logarithmic scale (with units of decibels) in a way that duplicates the frequency sensitivity of the human hear (the “A” scale), with the abbreviation of dBA. Typically, noise levels in rural and suburban areas range from low values in the range of 35 to 45 dBA, up to 65 to 75 dBA that may be associated with locations near highways or arterial roadways. Normal human speech becomes inaudible when background noise levels are around 60 to 65 dBA. Noise levels in close proximity to machinery such as lawn mowers or heavy trucks or earth moving equipment, may reach 95 to 100 dBA.

Often noise levels vary over short periods of time and it is necessary to use a single dBA value to represent such changing noise levels. The single value, which may be measured or computed to represent the same amount of acoustic energy transmitted by a varying noise level, is called the Equivalent Noise Level (Leq) and must always be associated with the defined time period over which it applies. It is common to express Leq values for one-hour time periods, but shorter and longer periods might also be specified.

Many standards and guidelines for acceptable noise levels are based on 24-hour periods. For these types of standards the hourly Leq values are determined for different portions of the day, and then “penalty” dBA values are added to the noise levels during the evening and/or nighttime periods to account for the added nuisance of noise during these periods. Two common noise descriptors of this type are the Day-Night Average Noise Level (Ldn) and the Community Noise Equivalent Level (CNEL). The Ldn includes a 10 dBA addition during the nighttime hours (10:00 p.m. to 7:00 a.m.). The calculation of Ldn is done as follows:

$$Ldn = 10\log[(15/24)(10^{Ld/10}) + (9/24)(10^{(Ln+10)/10})]$$

Where:

Ldn = Day-Night Average Noise Level, dBA

Ld = Equivalent Noise Level during Daytime, 15 hours from 7:00 a.m. to 10:00 p.m.

Ln = Equivalent Noise Level during Nighttime, 9 hours from 10:00 p.m. to 7:00 a.m.

The CNEL is similar, but also includes a 5 dBA addition during the evening hours (7:00 p.m. to 10:00 p.m.).

Most noise levels are measured or computed to show their value at a standardized distance from the noise source – commonly 50 feet. Whenever a source noise level is measured or cited, the distance to the source should always be specified or clearly known. As the distance to the receiver location becomes greater, the noise level decreases in a logarithmic fashion. For a doubling of the distance from a point noise source, the dBA value of the noise will decrease by 6 dBA. For a perfect line source, the decrease amounts to only 3 dBA for each doubling of distance. Depending on their traffic volume and geometry, roadways are treated as either a line source or as something between a point and a line source, with the rate of decrease usually estimated as either 3.0 dBA (line source) or 3.5 to 4.5 dBA (between a line and a point source) for each doubling distance.

Existing Noise Levels – Project Vicinity

The project site is located in a rural area about three miles northeast of Santa Margarita, in the Las Pilitas Planning Area. The dominant noise source in the area is traffic along SR 58 and other roadways in the vicinity. Operations at the Hanson Aggregate Santa Margarita quarry, about one mile to the northwest of the proposed site, are also audible if local roadway noise does not overshadow them. Existing roadway noise levels were determined using the Federal Highway Administration Traffic Noise Model (TNM 2.5, Lau et al 2004), and traffic data from Caltrans (2012). In the project vicinity, SR 58 causes daytime hourly Leq values of about 61 dBA at a distance of 50 feet from its centerline. The nighttime hourly Leq along the highway at 50 feet is 55.4 dBA. Combining these two values using the definition of the Day-Night Average Noise Level (Ldn) presented above gives a result of 63.1 dBA at 50 feet from the center of SR 58. The Ldn values drop to 60 dBA at a distance of 80 feet from the roadway, assuming that there is no intervening topography or other features that would interfere with noise propagation.

Noise levels at various distances from the highway are summarized below in Table 4.8-1. In the project vicinity, these values are likely to be high estimates since they do not account for any losses in noise due to intervening ridgelines. The steep topography through which SR 58 passes in the project vicinity frequently blocks noise from some segments of the highway, so resulting noise levels at some residences are lower than the estimated values.

**TABLE 4.8-1
SR 58 NOISE LEVELS IN
PROJECT VICINITY**

Ldn (dBA)	Distance (Feet from Centerline of Highway)
63.1	50
60	80
55	173
50	373
45	803

There are several residences within one mile of the proposed quarry site and these were identified as appropriate receiver locations for estimates of the noise levels produced by the project. Residences in the project vicinity identified by Dubbink and Associates (2010) are shown in Figure 4.8-1. There are other residences in the general vicinity—two residences on the Oster property and others along the east side of SR 58 farther south of the project site and along Parkhill Road to the east. The residential locations chosen for the analysis, however, are the closest off-site residences most likely to be affected by noise from the project. Table 4.8-2 below identifies the residential locations, and lists the distance from each to nearby roads and to the closest point of the proposed quarry. None of the residences are located immediately adjacent to SR 58, and the estimated roadway noise levels (as Ldn) are all below 60 dBA. The estimated roadway noise levels in Table 4.8-1 (in Ldn) are also generally consistent with the roadway noise contours shown for this area by Dubbink and Associates (2010: Figure 9), which are in terms of the daytime Leq values. Dubbink Associates (2010:11) note that peak hour Leq values are generally equivalent to 24-hour Ldn values.

The Hanson Quarry is the only other major noise source in the vicinity of the project. Dubbink and Associates (2010:Figure 9) show that the operations at the Hanson Quarry cause noise levels to exceed 60 dBA within a distance of about 900 feet from the outer edge of the existing quarry. Noise from quarry operations is generally point source in nature, and drops off rapidly with distance. Residence number 1 (from Table 4.8-2) is the nearest to the Hanson Quarry, at a distance of about 2,500 feet from the closest point of regular operations. At this distance, the Hanson Quarry operations are expected to produce Leq values around 51 dBA. Specific operations may be higher or lower than this value, but the overall average represented by this Leq would be audible but not overly intrusive.

Existing Noise Levels – Santa Margarita Area

Residential locations along the length of SR 58 from the project site through Santa Margarita are also considered as noise-sensitive uses that might be affected by truck traffic noise associated with the project. There are about 18 residences located along Estrada Avenue and

**DRAFT EIR OSTER/LAS PILITAS QUARRY
NOISE**

**TABLE 4.8-2
RESIDENCES IN THE PROJECT VICINITY**

Location (Fig. 4.8-1)	APN	Distance from Nearest Roadway	Estimated Existing Ldn	Distance from Nearest Edge of quarry
1	070-154-032	180 feet (SR 58 to the southeast)	54.7 dBA	1,600 feet (entrance area to the northeast)
2	070-154-009	150 feet (SR 58 to the northwest)	55.9 dBA	1,280 feet (entrance area to the northeast)
3	070-154-024	1,235 feet (SR 58 to the northwest)	42.2 dBA	1,820 feet (entrance area to the north)
4	070-142-017	690 feet (SR 58 to the northwest) 206 feet (Parkhill Road to the east)	46.0 dBA	1,690 feet (eastern edge of Phase 1A)
5	070-142-032	182 feet (SR 58 to the northwest) 130 feet (Parkhill Road to the southwest)	54.7 dBA	1,310 feet (eastern edge of Phase 3A)

the portion of J Street that is SR 58 near the eastern edge of the community. Santa Margarita Elementary School is also located in the vicinity of SR 58 and H Street, a noise sensitive use. Most of the downtown portion of Santa Margarita consists of commercial and industrial uses, but there are also about another 18 residences located along SR 58 from Estrada Avenue westward to US Highway 101. These residences along SR 58 are affected by highway traffic noise, and also by noise from railroad operations along the Union Pacific Railroad (UPRR) tracks. Figure 4.8-2 shows the locations of SR 58 through Santa Margarita and residential uses along the route, and the locations of four typical residences (R6 through R9) that are used to evaluate traffic noise impacts in Section 4.8.3 below.

The SR 58 segments along Estrada Avenue and J Street eastward carry an average daily traffic (ADT) volume of about 2,900 vehicles. The Ldn at 50 feet from the center of these roadways is 59.5 dBA. In most cases, the roadway width, shoulders, and typical yard setbacks provide sufficient distance so that houses along this route have Ldn values from existing roadway noise that are generally less than 60 dBA.

In the downtown or village area of Santa Margarita, there are several residences located along the north side of SR 58 – at the western end of the village (apartments, and single family residences) and at the eastern end (single family residences). The distances from the residences to the center of the highway generally vary from 60 to 80 feet, although a few are somewhat less. Given the 7,200 ADT along this segment of SR 58, and assuming the 35 MPH speed through most of the central village area, the existing roadway Ldn values at most of these residences would range from 60.5 dBA to 62.4 dBA. Near the eastern end, a few residences (represented by location R8 in Figure 4.8-2) are closer to the roadway, and the Ldn value here is 63.3 dBA. At the far western end of the downtown area, the posted speed limit is 45 mph. Older apartments on the north side of SR 58 at this location are located about

60 feet from the centerline of the road. With the higher traffic speeds here, the Ldn at the front of these residences is 65.1 dBA.

The noise contours shown for this area (downtown Santa Margarita) in the County Noise Element (San Luis Obispo County 1992: page A-15) indicate Ldn values that are higher than the above results – generally ranging above 65 dBA. This is because in the Noise Element, the UPRR tracks are a more dominant noise source than roadway traffic in this area. The estimates of railroad noise are based on the operation of 10 freight trains and 4 passenger trains per day (San Luis Obispo County 1992: page E-1). Current (2012) operations along this portion of the UPRR tracks amount to two Amtrak trains per day and an average of one to two freight operations per day. Even at the reduced level of operations under the current conditions, the railroad Ldn values at the residences on the north side of SR 58 in Santa Margarita are in the 60 to 65 dBA range. Overall, this railroad noise when presented as an Ldn value would be similar to, or only slightly greater than, the roadway noise from SR 58 through the community.

4.8.2 San Luis Obispo County Plans and Policies

County Noise Element and Ordinance Standards

Several policies in the General Plan Noise Element (San Luis Obispo County 1992) relate to noise standards used in the County. Those standards are presented here, before reviewing the related policies. There are two sets of noise criteria: 1) standards that apply to residential or other noise-sensitive uses that are exposed to general transportation noise (roadways, railroads, aircraft), and 2) standards that regulate the allowable noise generation from uses within a property that may affect nearby properties.

The first set of standards—related to noise from roadways affecting existing or proposed noise-sensitive uses—is found in the Noise Element, and is presented below in Table 4.8-3. For this EIR, the most applicable standard is the 60 dBA Ldn (or CNEL) exterior limit for residential areas. Based on the column heading in the table, the 60 dBA Ldn standard is intended to be applied in portions of the exterior that are used as outdoor living areas. For a screening procedure in this EIR, Ldn values are calculated for the shortest distance between the roadway centerline and the nearest point of the residence. As explained in footnote 3 of the table, where this limit cannot be met the land use may still be considered acceptable as long as the Ldn for interior living spaces does not exceed 45 dBA. Normal wood frame construction in buildings will typically provide an exterior-to-interior noise reduction of 24-27 dBA (U.S EPA 1974:Table B-4). From a practical viewpoint, this means that the maximum exterior Ldn value considered acceptable for residential uses is about 65 dBA as noted in footnote 3, although somewhat higher exterior noise levels are also sometimes acceptable (see San Luis Obispo County 1992 Noise Element: Figure 3-1).

**DRAFT EIR OSTER/LAS PILITAS QUARRY
NOISE**

**TABLE 4.8-3
SAN LUIS OBISPO COUNTY MAXIMUM ALLOWABLE NOISE EXPOSURE –
TRANSPORTATION NOISE SOURCES**

Land Use	Outdoor Activity Areas ¹	Indoor Spaces	
	Ldn/CNEL, dB	Ldn/CNEL, dB	Leq, dB ²
Residential (except temporary dwellings and residential accessory uses)	60 ³	45	--
Bed and Breakfast Facilities, Hotels and Motels	60 ³	45	--
Hospitals, Nursing and Personal Care	60 ³	45	--
Public Assembly and entertainment (except Meeting Halls)	--	--	35
Offices	60 ³	--	45
Churches, Meeting Halls	--	--	45
Schools – Preschool to Secondary, College and University, Specialized Education and training Libraries and Museums	--	--	45
Outdoor Sports and Recreation	70	--	--

Source: General Plan Noise Element (San Luis Obispo County 1992: Table 3-1).

- ¹ Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use.
- ² As determined for a typical worst-case hour during periods of use.
- ³ For other than residential uses, where an outdoor activity area is not proposed, the standard shall not apply. Where it is not possible to reduce noise in outdoor activity areas to 60 dB Ldn/CNEL or less using a practical application of the best available noise reduction measures, an exterior noise level of up to 65 dB CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

The second set of standards relates to noise generated by uses within a property, and how they affect adjacent or nearby properties. These standards are also found in the Noise Element (San Luis Obispo County 1992: Table 3-2), and are presented here in Table 4.8-4.

**TABLE 4.8-4
SAN LUIS OBISPO COUNTY MAXIMUM ALLOWABLE
NOISE EXPOSURE – STATIONARY NOISE SOURCES¹**

Noise Standard	Daytime	Nighttime ²
	(7:00 a.m. to 10:00 p.m.)	(10:00 p.m. to 7:00 a.m.)
Hourly Leq, dB	50	45
Maximum level, dB	70	65
Maximum level, dB-Impulsive Noise	65	60

Source: General Plan Noise Element (San Luis Obispo County 1992: Table 3-2).

- ¹ As determined at the property line of the receiving land use. When determining the effectiveness of noise mitigation measures, the standards may be applied on the receptor side of noise barriers or other property line noise mitigation measures.
- ² Applies only where the receiving land use operates or is occupied during nighttime hours.

**DRAFT EIR OSTER/LAS PILITAS QUARRY
NOISE**

The stationary source noise standards above are incorporated into the County Land Use Ordinance, in Section 22.10.120 of the County Code. Remaining provisions of this portion of the County Code are summarized as follows:

22.10.120 Noise Standards

A. Exceptions to noise standards. The standards of this Section are not applicable to noise from the following sources.

3. Safety signals, warning devices, and emergency pressure relief valves;
4. Noise sources associated with construction, provided such activities do not take place before 7 a.m. or after 9 p.m. on any day except Saturday or Sunday, or before 8 a.m. or after 5 p.m. on Saturday or Sunday;

[Exceptions 5–9 apply to other uses.]

B. Exterior noise level standards

1. [Sets forth the standards in Table 4.8-4 above.]
2. In the event the measured ambient noise level exceeds the applicable exterior noise level standard in Subsection B.1, the applicable standard shall be adjusted so as to equal the ambient noise level plus one dB.

C. Interior noise level standards [Interior standards are applicable when both generator and receiver locations are residential; therefore, they do not apply to this project.]

22.10.170 – Vibration

A. Vibration standards. [This section sets vibration standards in terms of “detrimental earth-borne vibrations” perceptible at points of determination based on the receiving land use. Numerical standards are not specified. This section also applies to land use conducted in or within one-half mile of an urban or village reserve line. The nearest such urban reserve line is the easternmost extent of the Santa Margarita Community, which is over two miles to the southwest in a straight line from the quarry site; therefore, this section does not apply to the proposed quarry.]

B. Exceptions to standards. The vibration standards of this Section do not apply to:

1. Vibrations from construction, the demolition of structures, surface mining activities or geological exploration between 7:00 a.m. and 9:00 p.m.

The first standard discussed above (related to noise from transportation sources) will be used to evaluate the effects of the project-generated truck traffic on existing noise-sensitive uses. The second set of standards will be applied to noise from the quarry operations and how it may affect existing residences in the project vicinity.

The County qualitative vibration standard does not apply to the project, both because of its type (surface mine) and because of its location (greater than one-half mile from village reserve line). This section, however, does include an evaluation of potential vibration effects based on procedures and standards from other agencies.

Table 4.8-5 below summarizes applicable General Plan policies, and presents a preliminary determination regarding the consistency of the proposed quarry and CUP with these policies. The final determination of policy consistency must be made by the County Planning Commission or Board of Supervisors.

4.8.3 Regulatory Setting

Federal

The US Environmental Protection Agency has established maximum noise level standards for a variety of vehicles and equipment. These standards are found starting at 40 CFR Part 201. For on-highway medium and heavy duty trucks, the applicable standards are in Part 205, and require that all such vehicles manufactured after January 1, 1988, have a maximum noise level of no more than 80 dBA at 50 feet under specified conditions of acceleration and other measurement procedures.

The Federal Department of Transportation has standards and guidelines for federally funded transportation projects such as highways, rail transit, and airports. The regulations and procedures related to highways are found at 23 CCR Part 772, which applies to programs of the Federal Highway Administration (FHWA). FHWA also publishes the Transportation Noise Model, which was used in the estimates of traffic noise for this project. The noise abatement criteria for residential areas used in federal projects is based on the highest one-hour Leq, and is 67 dBA. Other standards and procedures are defined in the regulations to establish a uniform review system and approach to mitigating traffic noise impacts.

Federal regulations implementing the Occupational Safety and Health Act (OSHA) are found at 29 CFR 1910.95. These regulations are intended to protect workers from adverse health effects of occupational noise exposure. They provide numerical limits, in terms of allowable noise levels and time periods, and require monitoring and a hearing conservation program and other measures to address exposures to high noise levels. Relative to the proposed quarry project, these standards and procedures apply to workers such as heavy equipment operators at the quarry, or others who might be exposed regularly to high noise levels on-site. The basic OSHA noise exposure limits are summarized in Table 4.8-6 below. The regulations

**DRAFT EIR OSTER/LAS PILITAS QUARRY
NOISE**

**TABLE 4.8-5
CONSISTENCY WITH NOISE POLICIES**

Source	Policy Statement	Discussion	Preliminary Determination
Noise Element Policy 3.3.1	The noise standards in this chapter represent the maximum acceptable noise levels. New development should minimize noise exposure and noise generation.	Provides general guidance for interpretation of standards.	Potentially consistent.
Noise Element Policy 3.3.2	New development of noise-sensitive land uses (see Section 1.5 – Definitions) shall not be permitted in areas exposed to existing or projected future levels of noise from transportation noise sources which exceed 60 dBLdn ...unless the project design includes effective mitigation measures...	Does not apply to this project.	Not applicable.
Noise Element Policy 3.3.3	Noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed the levels specified in Table 3-1 within the outdoor activity areas [or] interior spaces of existing noise sensitive land uses.	Project will contribute to transportation noise sources. EIR includes appropriate analysis.	Potentially consistent.
Noise Element Policy 3.3.4	New development of noise-sensitive land uses shall not be permitted where the noise level due to existing stationary noise sources will exceed the noise level standards of Table 3-2, unless effective noise mitigation measures have been incorporated into the design...	Does not apply to this project.	Not applicable.
Noise Element Policy 3.3.5 a)	Noise from agricultural operations...is not required to be mitigated.	Does not apply to this project.	Not applicable.
Noise Element Policy 3.3.5 b)	Noise levels shall be reduced to or below the noise level standards in Table 3-2 where the stationary noise source will expose an existing noise-sensitive land use ... to noise levels which exceed the standards in Table 3-2.	Analysis in EIR indicates potential impact.	Quarry noise – potentially consistent, after implementation of mitigation. Blasting noise may not be consistent.
Noise Element Policy 3.3.5 c)	Noise levels shall be reduced to or below the noise level standards in Table 3-2 where the stationary noise source will expose vacant land in the ... Rural Lands ... land use categories to noise levels which exceed the standards in Table 3-2.	If the vacant lands immediately surrounding the Proposed Project are not likely to be developed with noise sensitive land uses within the foreseeable future, the Director of Planning and Building may	Quarry operations – potentially consistent, after implementation of mitigation. Blasting noise

**DRAFT EIR OSTER/LAS PILITAS QUARRY
NOISE**

**TABLE 4.8-5 (CONTINUED)
CONSISTENCY WITH NOISE POLICIES**

Source	Policy Statement	Discussion	Preliminary Determination
		waive this policy. See Policy 4.5 below.	may not be consistent.
Noise Element Policy 3.3.5 (d)	For new proposed resource extraction ... noise sources ... where such noise sources will expose <u>existing</u> noise-sensitive land uses ... to noise levels which exceed the standards in Table 3-2, <u>best available control technologies</u> shall be used to minimize noise levels. The noise levels shall in no case exceed the noise level standards in Table 3-2.	Analysis in EIR indicates potential impact, and identifies control technologies.	Quarry noise – potentially consistent, after implementation of mitigation. Blasting noise may not be consistent.
Noise Element Policy 3.3.6	San Luis Obispo County shall consider implementing mitigation measures where ... new development may result in cumulative increases of noise upon noise-sensitive land uses.	EIR analysis includes cumulative traffic effects.	Potentially consistent.
Noise Element Implementation Measure 4.1	New public and private development proposals shall be reviewed to determine conformance with the policies of this Noise Element.	The EIR and project review process accomplishes this measure.	Consistent.
Noise Element Implementation Measure 4.2	When mitigation must be applied...the following measures shall be considered and preference shall be given...to... a) site layout, including setbacks, open space separation and shielding of noise-sensitive uses. (b) acoustical treatment of buildings and c) structural measures.	Site layout – relying on adequate setback distances and retention of topographic features for acoustic shielding – are the most feasible mitigation measures, and are identified in this EIR.	Potentially consistent.
Noise Element Implementation Measure 4.3	Mitigation of railroad noise.	Not applicable to this project.	Not applicable.
Noise Element Implementation Measure 4.4	Acoustical analysis required at time of application; content requirements specified.	Acoustic study submitted with application and this EIR section complies with this measure.	Consistent.
Noise Element Implementation Measure 4.5	Where mitigation in accordance with the policies and standards of this Noise Element is not feasible, the review authority may adjust or waive such policies and standards the minimum amount necessary to enable reasonable use of the property, provided that noise levels are then mitigated to the maximum extent feasible. The decision of the	EIR analysis identifies mitigation measures to minimize effects at residential locations. Mitigation will be adequate for compliance with applicable Land Use Ordinance standards. Blasting noise and other noise may remain	Potentially consistent.

**DRAFT EIR OSTER/LAS PILITAS QUARRY
NOISE**

**TABLE 4.8-5 (CONTINUED)
CONSISTENCY WITH NOISE POLICIES**

Source	Policy Statement	Discussion	Preliminary Determination
	review authority may be appealed to the Board of Supervisors.	significant.	
Noise Element Implementation Measures 4.6 through 4.12	Relate to departmental implementation of acoustic analysis procedures, compliance conditions, review and update of the Noise Element.	These measures are implemented by the Planning and Building Department, and do not apply to any specific project.	Not applicable.
Noise Element Implementation Measure 4.13	The Acoustical Design Manual shall be made available to the public so that noise reduction measures can be incorporated into private projects consistent with the goals and policies of this Noise Element.	Other than references to site layout and design, noise reduction measures described in the Acoustical Design Manual all apply to new residential development in noise impacted areas, and do not apply to this project.	Potentially consistent.
Noise Element Implementation Measure 4.14	Mitigation measures to be considered when existing noise levels or cumulative increases in noise levels from new development significantly impact existing noise-sensitive land uses.	EIR analysis identifies mitigation measures.	Potentially consistent.
Noise Element Implementation Measure 4.15	Encourage alternative means of transportation.	Surface mining requires the use of heavy offroad equipment, and the use of on highway heavy trucks for deliveries. Alternate transportation modes are not applicable to this industry.	Not applicable.

also define procedures to combine exposures that occur in two or more separate periods during the day. Implementation of a Hearing Conservation Program is required whenever exposures exceed a time weighted average of 85 dBA or more during an eight-hour period.

For all motor vehicles (trucks and heavy equipment) used at off-highway job sites, federal regulations require backup or reverse signal alarms that are audible above the surrounding noise level (29 CFR 1626.601).

There are no specific federal laws related to allowable community noise levels. Residential projects that rely on federal Housing and Urban Development (HUD) financing, however, must meet exterior noise guidelines that are similar to those in the County Noise Element.

**TABLE 4.8-6
OSHA PERMISSIBLE NOISE
EXPOSURE STANDARDS**

Duration per Day, Hours	Sound Level dBA
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	110
¼ or less	115

HUD and other federal guidelines commonly use a 65 dBA CNEL as the maximum noise level compatible with residential uses.

California

The California Government Code (CA Gov Code 65302(f) (1)) requires the inclusion of a Noise Element within the General Plan, the contents of which are specified by the Governor's Office of Planning and Research as part of their General Plan Guidelines.

Caltrans prepares traffic noise analyses in a manner that implements the FHWA regulations at 23 CFR Part 772, described in the preceding subsection.

The California Department of Industrial Relations, division of Occupational Health and Safety (CalOSHA) implements the California occupational noise exposure requirements, which are essentially the same as those for the federal OSHA reviewed above. The applicable California regulations are found at 8 CCR 5095. In one respect, CalOSHA regulations are more stringent, or at least more specific, than federal regulations. For off-highway vehicles capable of hauling or carrying more than 2.5 cubic yards of material, automatic backup alarms must be provided that can be heard for at least 200 feet in all directions (8 CCR 1592(a)).

Local – San Luis Obispo County

The County General Plan Noise Element standards and County Code noise requirements are presented in detail above in Section 4.8.2 as an introduction to reviewing consistency with applicable policies in the County Noise Element. In summary, the evaluation criteria most applicable to the proposed quarry project and the truck traffic it would generate are:

DRAFT EIR OSTER/LAS PILITAS QUARRY NOISE

- For roadway noise: maximum of 60 dBA Ldn at residential locations (outdoor living areas)
- For point source project noise: 50 dBA daytime hourly Leq, (may be increased to ambient Leq + 1 dBA, per Section 22.10.120 B. 2. of the County Code), with a 70 dBA maximum

The County standards contain many other details, so Section 4.8.2 should be reviewed for a more complete discussion of these regulations.

4.8.4 Assessment Methodology

Much of the analysis of noise levels from the project was prepared by Dubbink and Associates (2010). URS staff reviewed this material during the preparation of this EIR, and for some issues additional measurements, calculations, and modeling work was performed.

A combination of noise measurements and modeling with the FHWA Transportation Noise Model (TNM 2.5, Lau et al 2004) was used to estimate current and future roadway noise levels with and without the project related truck traffic. Cumulative traffic noise levels were calculated based on a projection to 2030 using Caltrans historic data on traffic volumes from 2000 through 2010 for SR 58.

Project generated noise levels from general quarry operations—including excavation with heavy equipment, internal transport and stockpiling of material—were estimated based on field measurements of similar operations at the Hanson Quarry and by using the Wyle Laboratories NMSim model to account for the effects of topography and other factors in noise propagation (by Dubbink Associates 2010). These results were checked based on literature values for heavy equipment and procedures from the FHWA Roadway Construction Noise Model (FHWA 2006). A separate model, BNoise2, was used along with methods developed by the US Bureau of Mines to estimate blasting noise. Dubbink and Associates (2010: Appendix C) contains more information regarding the specific methods used for the original noise analysis. Appendix E of this EIR includes that report and additional data and assumptions used during the peer review and other modeling work done by URS for this section of the EIR.

4.8.5 Significance Criteria

With appropriate consideration of the significance criteria presented in Appendix G of the CEQA Guidelines, the County of San Luis Obispo has developed and adopted the following significance criteria to determine project effects for Noise within San Luis Obispo County. Accordingly, the Las Pilitas Quarry project will have a significant impact if it will:

- a. Expose people to noise levels that exceed the County Noise Element thresholds; and/or

- b. Generate increases in the ambient noise levels for adjoining areas; and/or
- c. Expose people to severe noise or vibration.

The first of these items relates best to traffic noise levels, which will be evaluated in terms of both project-specific and then cumulative effects. Criteria to define a significant impact will depend on the situation with the existing conditions. The fundamental roadway noise standard for residential use is 60 dBA Ldn, from the Noise Element Table 3-2 (which is shown in Table 4.8-3 above). If existing exterior noise levels already exceed this value, then higher levels may be allowed as long as the interior standard of 45 dBA Ldn can be met and there are appropriate exterior living areas that still meet the 60 dBA Ldn standard (see Policy 3.3.3 in the Noise Element).

The relative contribution of the project generated noise levels is also important. In most real world situations, people will not perceive an increase in noise levels any less than 3 dBA. For this reason, increases below 4 dBA are usually not considered substantial. Other noise characteristics may also be considered in evaluating the significance of a change in noise levels. Higher peaks for short periods of time may not alter average noise levels, but may also be intrusive. Noise that can be identified as from a specific source, such as heavy trucks, may also be perceived as more intrusive.

The second issue—increases in the ambient noise levels for adjoining areas—will be discussed based on the noise from onsite project operations and the resulting noise levels on nearby properties. Activities within the quarry will be subject to the County Noise Ordinance standards. The basic requirement is to not cause hourly Leq values to exceed 50 dBA, or cause maximum noise levels to exceed 70 dBA, at adjacent residential properties. The point of compliance for application of this standard is important. The County Code states that it is to be determined at the property line of the receiving land use (footnote 1 in Table 4.8-4 above). Noise Element Policy 3.3.5 c) also applies this standard to vacant land in the Rural Lands category which surrounds the project site. Where development has already occurred, it is reasonable to apply this standard at the locations of existing residences. When ambient noise levels already exceed the standard, then a project may not cause more than 1 dBA increase.

The third issue, related to severe noise levels and vibration, will be used to present the effects of blasting operations within the proposed quarry.

4.8.6 Project Impacts and Mitigation Measures

Truck Traffic Noise

The project will cause an increase in the Ldn due to roadway traffic in the project vicinity and in the Santa Margarita area amounting to approximately 2 dBA. This increase is

**DRAFT EIR OSTER/LAS PILITAS QUARRY
NOISE**

computed based on an addition of an average of 25 heavy truck trips per hour during the daytime. Along most segments of SR 58, where existing noise levels are below CNEL 60 dBA, this increase will not cause existing noise levels to exceed this threshold. For the two areas (described below) where residences are closer to the road and where existing CNEL values are already over 60 dBA, the project traffic will add slightly to these noise levels.

Table 4.8-7 below summarizes existing roadway Ldn values, and the anticipated increases based on the addition of 25 truck trips per hour from the project during the daytime hours. The top portion of the table includes residential locations in the vicinity of the project, while the bottom portion of the table is representative of residential locations adjacent to SR 58 through Santa Margarita. In most cases, the nearest point of the residence will remain below an Ldn of 60 dBA. At locations R-6 and R-7, the residential neighborhood along the J Street and Estrada Avenue segment of SR 58, the Ldn value is expected to increase by almost 2 dBA. At R-6 along J Street the resulting Ldn value would be 59.6 dBA. In round numbers, this would raise the noise levels up to the applicable County standard. This increase, particularly since it would be associated with heavy truck traffic, may be perceived as significant. It will affect outdoor living areas exposed to traffic noise and the increase in heavy truck traffic may be perceived as objectionable. For this reason, the traffic noise increase at these locations is considered a significant impact.

**TABLE 4.8-7
ROADWAY LDN INCREASES DUE TO TRUCK TRAFFIC**

Residential Location	SR 58 Segment	Existing Ldn	Existing + Project Ldn	Screening Result <60 dBA	Exterior Living Area <60 dBA, and interior <45 dBA	Increase Caused by Project
Project Vicinity						
R1	East of W. Pozo Road	54.7	56.6	Yes	Yes, Yes	1.9
R2	East of W. Pozo Road	55.9	57.8	Yes	Yes, Yes	1.9
R3	East of W. Pozo Road	42.2	44.1	Yes	Yes, Yes	1.9
R4	East of W. Pozo Road	46.0	47.9	Yes	Yes, Yes	1.9
R5	East of W. Pozo Road	54.7	56.6	Yes	Yes, Yes	1.9
Santa Margarita Area						
R6	J Street, east of Estrada Ave.	57.7	59.6 ¹	Yes	Yes, Yes	1.9
R7	Estrada Avenue	55.5	57.4 ¹	Yes	Yes, Yes	1.9
R8	East end of Village	63.3	64.2	No	No, Yes	1.9
R9	West end of Village	65.1	65.8	No	No, Yes	0.7

¹ These traffic noise level increases are considered a significant impact as explained in the text.

**DRAFT EIR OSTER/LAS PILITAS QUARRY
NOISE**

The impact can be reduced through enforcement of speed limits for heavy trucks, and prohibition of the use of compression brakes in these areas, but truck traffic and noise will still be audible. The applicant has proposed several “Applicant Proposed Measures,” which are described in Section 4.14 Land Use in this EIR. These APMs include speed limits, a Traffic Control Management Plan, communications procedures, and other measures to reduce the incompatibility of the proposed quarry and truck operations with the surrounding community. These measures will have little effect on noise levels through the residential areas, but may help to inform residents and truck drivers alike about the noise issue and measures to reduce noise levels. The roadway geometry makes a noise wall through this neighborhood impractical, and there is no alternate truck route for the SR 58 corridor. Consequently, the traffic noise increases due to heavy trucks associated with the project along J Street and Estrada Avenue are considered a significant and not mitigable impact.

At two of the locations (R-8 and R-9), existing Ldn values already exceed 60 dBA. R-8 is a residence near the eastern end of the Santa Margarita Village and R-9 is at the apartments on the western end of the village. Noise levels at R-8 are between 60 and 65 dBA Ldn, and the Ldn at R-9 is just over 65 dBA. Unlike the quieter neighborhood along J Street, the heavier traffic volume through this downtown portion of Santa Margarita makes the noise of individual vehicles less distinct. Assuming standard wood frame construction for these structures, the interior Ldn values at these locations should remain below 45 dBA with the addition of project generated truck traffic, consistent with County standards. Therefore, the traffic noise levels at these locations through downtown Santa Margarita (R-8 and R-9) are considered less than significant.

The Santa Margarita Elementary School is located on H Street just over 600 feet from Estrada Avenue. At this distance from the truck route, the existing Ldn is 47.4 dBA, and with the addition of the project truck traffic the Ldn would increase to 48.2 dBA. Neither of these results would be considered a significant impact.

Description of Impact	Mitigation Measure	Residual Impact
<p>IMPACT NOISE-1: Truck Traffic Noise. The project will generate additional truck traffic, which may potentially increase noise levels along SR 58 by up to 1.9 dBA, with distinct low frequency noise associated with heavy trucks. At some locations the resulting noise levels will reach the County criteria of 60 dBA, which would be a potential significant impact.</p>	<p>MM NOISE-1: Truck Traffic Noise. The applicant/quarry operator shall advise all truck drivers exiting the facility regarding the noise sensitive residential uses along the truck route through Santa Margarita, and shall prohibit the use of compression brakes except under emergency conditions. Documentation in the form of notification copies shall be provided to the Planning and Building Department prior to the notice to proceed for Phase 1A of the quarry.</p> <p>NOTE: If Applicant Proposed Measure APM LU-1 is adopted, then MM-NOISE-1 would be incorporated into the Traffic Control Management Plan.</p>	<p>Significant and not mitigable.</p>

Quarry Operations Noise

During early phases of the proposed quarry, including the initial construction and quarrying through the completion of Phases 1A and 1B, it is likely that hourly Leq values caused by the quarry operations at some nearby residences will exceed the County daytime Leq standard of 50 dBA (or ambient plus 1 dBA). The predicted exceedances range from 3 to 7 dBA, and can be minimized through appropriate noise reduction procedures, monitoring and management. Even if the County Code standards are met, specific noises associated with the project may be audible to nearby residents and may cause some disruption. This is considered a potential significant impact that can be reduced, but not completely mitigated.

The operations will include the use of heavy equipment, including bulldozers, front-end loaders, rock drilling rigs, and periodic use of a portable rock processing plant that will include a crusher, sorter, and conveyor belts. Loading of trucks from stockpiles in the processing area will include dumping of rock by front-end loaders into the hoppers or beds of trucks. (Periodic blasting will also cause noise, but that is addressed separately below.)

The procedures used by Dubbink Associates (2010: Figures 9 and 10 and page 21) to estimate equipment noise levels involved the following steps:

- Measuring similar noise events from operations at the Hanson Quarry
- Identifying the likely worst case exposure by reviewing the grading plans for each phase of the proposed quarry
- Assuming a worst case equipment scenario by placing two of the loudest pieces of equipment at the worst case location – high quarry benches in Phase 1B
- Using model procedures to account for distance and shielding to compute resulting Leq values at the residences in question

The two sound sources placed at the highest Phase 1B benches to simulate a worst-case noise generation were rock crushing equipment (with a source noise of 86 dBA at 50 feet). Rock crushing equipment is not going to be placed on a high bench in the quarry, and all of the drill or excavation equipment likely to be used in this location has a slightly lower source noise. A different procedure was used by URS in preparing this EIR to estimate quarry equipment operations noise based on the FHWA Roadway Construction Noise Model (FHWA 2006). Source noise for various pieces of heavy equipment, in terms of the maximum noise level (Lmax) at 50 feet, was combined with data on the typical duty cycle of such equipment when in use to estimate Leq values. These estimates were done separately for each item in the project's mobile equipment inventory (see 2.3.2 of this EIR), and the estimates were summed as if all the equipment were operating in a small area. This source was then placed at different locations and the resulting Leq values at the nearby residences were calculated based on distance attenuation (6 dBA per doubling of distance). A direct

**DRAFT EIR OSTER/LAS PILITAS QUARRY
NOISE**

calculation of the reduction provided by topographic shielding was not performed, but the presence or absence of intervening topography was noted. Where a large ridgeline projects well into the line of sight between the source and receiver, a reduction of 10 dBA was assumed for this analysis. For other instances where the topographic barrier was smaller, a reduction of 5 dBA was used.

Equipment source noise values used in both of the procedures is summarized in Table 4.8-8.

**TABLE 4.8-8
QUARRY EQUIPMENT SOURCE NOISE**

Item	No.	Lmax at 50 feet (dBA)	% Use	Hourly Leq at 50 feet (dBA)	Dubbink (2010:Table 2) Leq at 50 feet (dBA)
Loader	2	80	40%	79.0	78
Bulldozer	1	85	40%	81.0	
Excavator	1	85	40%	81.0	77
Rock Drill	1	85	20%	78.0	
Crusher Plant					86 (Jaw Crusher)

The same five residential locations in the project vicinity (as listed in Table 4.8-2 above) were used for the compliance points in evaluating the quarry operations noise. Dubbink Associates placed two noise sources at the upper western and eastern benches of Phase 1B representative of rock extraction and crushing operations (Dubbink Associates 2010: Figure 4, and page 21). The results from the Dubbink and Associates (2010: Table 4) are summarized in Table 4.8-9A below. The URS analysis is summarized Table 4.8-9B, and includes some features that vary from the Dubbink Associates analysis, as described in the following paragraphs.

**TABLE 4.8-9A
NOISE FROM QUARRY OPERATIONS
FROM DUBBINK ASSOCIATES (2010:TABLE 4)**

Location	Existing Leq (dBA)	Leq Standard (dBA)	Phase 1B Leq (dBA)	Exceed Standard?
R1	54	55	58	Yes (by 3 dBA)
R2	50	50	57	Yes (by 7 dBA)
R3	40	50	43	No
R4	44	50	46	No
R5	51	52	53	Yes

**TABLE 4.8-9B
NOISE FROM QUARRY OPERATIONS
(URS ANALYSIS)**

Location	Existing Daytime Leq (dBA)	Leq Standard (dBA)	Distance to Early Phase 1A	Early Phase 1A (dBA)	Exceed Standard?	Later Phase 1A (dBA)	Exceed Standard?
R1	52.3	53.3	1,900 ft.	55.0	Yes (1.7 dBA)	52.8	No
R2	53.5	54.5	1,500 ft.	57.4	Yes (2.9 dBA)	54.2	No
R3	39.8	50	2,000 ft.	50.0	No	47.0	No
R4	43.6	50	1,794 ft.	49.7	No	48.9	No
R5	52.3	53.3	1,740 ft.	49.9	No	49.7	No
Closest RL (south)	53.5	54.5	1,043 ft.	59.6	Yes (5.1 dBA)	56.3	Yes (1.8 dBA)
Closest RL (east)	53.0	54.0	910 ft.	50.8 ¹	No	55.7	Yes (1.7 dBA)

¹ Includes a 10 dBA reduction due to large intervening ridge.

During the initial construction of the access road and entrance to the quarry, heavy equipment noise will be audible at nearby residences, particularly residences R1 and R2. The County Code exempts construction noise during normal work hours (Section 22.10.120 A.4.), but construction noise levels of 55 and 57.4 dBA were estimated at R1 and R2. The initial construction of the quarry, however, will extend into Phase 1A as the flat area for the scale and scale house is created, and as the flat working area for processing, stockpiling, and loading is created north of the scale. This will be a longer term operation, extending up to five years or more. It is not reasonable to exempt this portion of the quarry from the noise standards as “construction.” To estimate noise from this area of quarrying, a point centered near the scale house was used (referenced as Early Phase 1A).

In reviewing grading plans for the quarry, URS also chose an upper bench in the central portion of Phase 1A to represent a worst case location for quarry operations equipment (as opposed to eastern and western upper benches in Phase 1B chosen by Dubbink Associates). The URS location was somewhat farther from the residences to the south, but had a more direct line of sight exposure to R2. The closest locations of vacant Rural Lands (RL) designation were also considered in the URS analysis, for the application of Noise Element Policy 3.3.5.c.

The Dubbink Associates results are presented in Table 4.8-9Aa, and the URS results are presented in Table 4.8-9B. Although the numerical results differ slightly, the conclusions in both approaches are the same: the project excavation and quarry activities may cause a

**DRAFT EIR OSTER/LAS PILITAS QUARRY
NOISE**

violation of the County Code Stationary Noise Source Standard at some of the nearby residences.

The nearest RL designated land to the south will be affected by Leq values in excess of the Leq standard based on 1 dBA in excess of current noise levels (54.5 dBA), during both the early (scale house) and later (upper bench) portions of Phase 1A mining. This land is part of the larger 39 acre parcel (070-154-024) that contains residence R3, which is located about 1,200 feet south of the property line in a canyon area, shielded from the quarry site by topography. Given the topography, it is unlikely that this parcel will be developed further, even though two primary residences are allowed in the RL designation. As the quarry works towards the north in Phase 1A, the nearest RL land is located across the property line to the east. A small triangular parcel of 3.4 acres (APN 070-142-016) is at this location east of the Oster property, and would be subject to Leq values above the standard based on existing noise levels at this location (54.0 dBA). This parcel has a single house on it, about 470 feet farther east, which is well shielded from the quarry site by the intervening ridge.

In addition to the regular noise of equipment, backup safety alarms associated with trucks and heavy offroad vehicles may also be heard from the project. Heavy equipment backup alarms consist of a repetitive tonal beep or horn, which can be heard at a distance of at least 200 feet (for vehicles with a haulage capacity of 2.5 cubic yards or more, 8 CCR 1592(a)). It is common for such alarms to emit sounds that are 5-10 dBA above background noise in order to be audible. Since they only sound for a few seconds every few minutes, backup alarms do not contribute significantly towards the hourly Leq values. They may contribute to maximum noise levels, however. For the same configuration of equipment locations and residential receiver locations discussed for Table 4.8-9B, estimates of alarm noise (which would be Lmax values) range from 56.9 to 60.5 dBA. Even though alarm systems are exempt from regulation by Section 22.10.120 A.3, these noise levels would be in compliance with the daytime Lmax standard of 70 dBA.

In summary, operational noise impacts are expected from the project due to the use of heavy equipment that will likely cause hourly Leq values at the nearest residences to exceed applicable County standards – either 50 dBA or ambient plus 1 dBA. Expected Leq values would all be between 55 and 60 dBA, and depending on location these would be from 3 to 7 dBA in excess of the applicable standard.

Several measures can be undertaken to ensure that the stationary source noise standard of 50 dBA for an hourly Leq (or ambient Leq plus 1 dBA, which ranges from 53.3 to 54.5 dBA depending on location) is met by the quarry operations. All equipment should be fitted with original manufacturer's mufflers or other noise reducing equipment, and no heavy equipment operation should occur during the nighttime hours (10:00 p.m. to 7:00 a.m. in the County Code Section 22.10.120). If possible, operations should be conducted in a fashion that minimizes the simultaneous operation of multiple pieces of heavy equipment. This measure

can reduce total noise levels by about 1–2 dBA. If multiple heavy equipment vehicles must be operated simultaneously, then stockpile and truck loading areas should be positioned so that the piles or other topographic barriers serve to intercept and block noise from truck loaders to offsite locations. If necessary, temporary noise barriers may be placed at locations that will shield at least some equipment. Such shielding and temporary barriers can typically provide an additional 5 dBA of noise reduction and more may be possible.

Alternative technologies are available to reduce noise levels from backup alarm systems. These include the use of broadband or white noise systems, which produce a multi-frequency “ssshhh” sound that is highly directional – aimed to be heard at the rear of the equipment but not off to the sides. Other systems use alarms with variable loudness so that in more quiet ambient conditions the alarms need not be as loud as in high traffic areas or in intensive construction zones. These types may be manually adjustable or may automatically adjust their loudness based on ambient noise levels. Both broadband alarms and adjustable alarm systems can reduce offsite noise impacts, but California regulations still require that such alarms on heavy equipment be audible for 200 feet in all directions.

Monitoring of operation noise levels should be planned to include either direct monitoring at nearby residences or monitoring at locations that will allow simple computation of noise levels at nearby residences. Contact information for possible noise complaints, and a response protocol, should be established and incorporated into the operations plans for the project. Choices of equipment operation and other measures, along with noise monitoring, can reduce noise levels and mitigate this impact.

Incorporation of the above measures into the project will reduce noise impacts. Based on the results in Tables 4.8-9A and 4.8-9B, noise reductions from equipment operations will have to range up to 3-7 dBA on an Leq basis in order to comply with the County Code Section 22.10.120. In order to achieve this level of noise reduction, it is likely that the project will have to include noise barriers in the form of permanent berms and stockpile designs and/or artificial barriers that can be placed around equipment operation areas. Even if the project complies with the requirements of Section 22.10.120, however, it may still cause some disturbance or adverse noise effects at the nearest residences during construction, from the perception of backup alarms, or from other disruptions such as loud dumping noises. The only way to avoid operational noise effects completely would be to prohibit this project and restrict all quarry projects to areas that are located at even greater distances from residential areas, about 3,000 feet. Since the hourly Leq values will be exceeded at surrounding sensitive receptors due to typical quarry operations, noise impacts are considered significant and not mitigable.

**DRAFT EIR OSTER/LAS PILITAS QUARRY
NOISE**

Description of Impact	Mitigation Measure	Residual Impact
<p>IMPACT NOISE-2: Quarry Operations Noise. During early phases of the proposed quarry, including the initial construction and quarrying through the completion of Phases 1A and 1B, the hourly Leq values caused by the quarry operations at some nearby residences will exceed the County daytime Leq standard of 50 dBA (or ambient plus 1 dBA).</p>	<p>MM NOISE-2a: Quarry Operations Noise/Maintenance. The applicant shall maintain all manufacturers' mufflers or other noise reducing equipment on all quarry vehicles and equipment.</p> <p>MM NOISE-2b: Quarry Operations Noise/Noise Management Plan. Prior to issuance of any permits for the start of construction, the applicant shall prepare and submit a noise management plan to specify measures for the control and monitoring of noise levels, to be approved by the Planning and Building Department and implemented by the operator throughout at least the completion of Phase 1A and 1B. Elements of the Noise Management Plan shall include:</p> <ul style="list-style-type: none"> • Descriptions of measures that may be used to reduce noise levels, which may include: <ul style="list-style-type: none"> ▪ The use of low noise emitting equipment ▪ Scheduling of operations to minimize the number of heavy equipment vehicles in use at one time ▪ Design of stockpile and loading areas to minimize the need for trucks to back up ▪ Use of adjustable back up alarms or similar measures to minimize noise from this source ▪ The design and placement of stockpiles to act as noise barriers ▪ The use of temporary noise barriers • Descriptions of monitoring points and times appropriate to obtain data to demonstrate compliance with the County Code (Section 22.10.120). <p>MM NOISE-2c: Quarry Operations Noise/Noise Complaint Procedures. The applicant shall provide the County Planning and Building Department with, and post at a visible location on the property, the name and contact information for a representative who will be available to respond to noise complaints. Procedures for responding to and resolving noise complaints shall also be incorporated into the operating plans for the quarry.</p>	<p>Significant and not mitigable.</p>

Blasting Noise and Vibration Effects

Different estimates of maximum noise levels (Lmax) from blasting operations associated with the quarry project range from a low of 62 to 64 dBA, up to around 80 dBA. Values above 70 dBA would be inconsistent with the County standard for Lmax values from a stationary source noise, and would be considered a significant impact. It is possible to reduce blasting noise and to provide measures that minimize its adverse effects, but it may not be possible to reduce the noise to below the applicable standard. This impact is, therefore, considered potentially significant and unavoidable.

Dubbink Associates (2010:17) estimates project blasting noise based on predictive equations and preliminary descriptions of the charge loading anticipated in the blasting plan for the

**DRAFT EIR OSTER/LAS PILITAS QUARRY
NOISE**

project (Gasch Associates 2009). Estimates were prepared for the same five residences discussed in above issues, and identified in Table 4.8-2 above. The results of the Dubbink Associates are summarized below in Table 4.8-10.

**TABLE 4.8-10
NOISE FROM BLASTING OPERATIONS**

Location	Distance (feet)	Lmax (dBA)
R1	1,920	78.7
R2	1,688	80.1
R3	1,822	79.3
R4	1,861	79.1
R5	1,920	78.7

These results were reviewed by URS during the preparation of this EIR, the input assumptions were confirmed, and similar results were obtained with independent calculations. Dubbink Associates (2010:14–15) also monitored a single blast conducted at the Hanson Quarry, which resulted in a noise level somewhat higher than predicted. A review of the data from that event by URS also indicates that it was atypical, and confirms that the approach used by Dubbink Associates relying on predictive equations is reasonable.

An alternative method of estimating blast noise is based on standard data in the FHWA Roadway Construction Noise Model (FHWA 2006: Table 3). For this estimate, a typical Lmax value at 50 feet of 94 dBA is used. With similar distances to the residential units in question, the computed Lmax noise levels ranged from 61.9 dBA to 64.5 dBA.

Dubbink Associates (2010:26) suggests that blasting noise should be evaluated based on the County Lmax standard for impulsive noise (see Table 4.8-4 above). This Lmax value of 65 dBA is less than the normal 70 dBA Lmax standard applied to other noise sources. The difference is due to the additional intrusiveness or annoyance associated with impulsive noises. The suggestion to use this more stringent standard is based on the general perception of hard rock blasting as being explosive in nature, and was influenced by observation of the Hanson Quarry blast that was atypical in its very percussive nature. Observations of blasting in other quarries, however and a general understanding of rock blasting argue that the normal Lmax standard of 70 dBA is more appropriate. This is because a quarry blast is not a single explosive event – it is a time delayed series of many small blasts extending over a time period of about two seconds. The sound is more like a wave crashing on a beach rather than like a bomb explosion. Even with the normal Lmax standard of 70 dBA, however, the Dubbink Associates prediction of noise levels indicate that the blasting noise from the worst case quarry bench areas would not meet the standard. It is possible that the predictive model used is overly conservative, and that the FHWA empirical value and results may be more

DRAFT EIR OSTER/LAS PILITAS QUARRY NOISE

accurate, in which case the predicted Lmax values would comply with the standard. Since the result is uncertain based on these two methods, the EIR conclusion will adopt the more conservative and assume that the impact will be significant.

This discussion does not consider the warning sirens or horns that are required in all blasting operations. Even though these warning devices may be exempt from compliance with the Noise Ordinance (per Section 22.10.120 (A) (3) of the County Land Use Ordinance), they still contribute to the overall noise impact.

Blasting noise could be reduced by using a series of fewer, smaller, and/or shallower holes in each blast, and then conducting blasting on a more frequent schedule. This might reduce the noise impact from a single blast but might also be more intrusive in the long run with more frequent events. There are other standard procedures used by agencies to help minimize the effects of blasting, and these should be required of the proposed quarry project. These methods include:

- Conduct blasting only during daytime periods, when ambient noise levels are generally at their highest.
- Provide notification materials to the public and all residences within areas likely to perceive the blast, with descriptive information about the blast and its effects and information about the warning signals and all-clear signals used. This may involve a meeting, direct mail information, public notices, or combination of methods.
- Use signals as described to notify residents and all persons in the area that blasting is imminent.
- Monitor and record the vibration and air overpressure (sound) effects of each blast.
- Respond to any complaints received.

These measures should be implemented with each blast event and will help to reduce the adverse effect of blast noise as much as possible, but cannot avoid the impact entirely.

Ground vibration effects from blasting and operation of heavy equipment were also reviewed, but are not expected to pose a significant effect. Significant vibration from these types of operations is limited to within a few hundred feet of the source, and all of the nearby residences are over 1,000 feet from where quarry operations are proposed. Gasch Associates (2009:14) predicted peak particle velocity (PPV) values for typical locations out to a distance of 1,000 feet – necessary to evaluate and protect structures within the Oster property where the quarry is located. Using the same method (which is also described by Caltrans (2004:52-53), the PPV was calculated for each of the five nearby residences in the vicinity. The resulting PPV values ranged from about 0.2 to 0.3 inches/second. While perceptible, these levels are considered very low and are not expected to cause any damage to normal structures

**DRAFT EIR OSTER/LAS PILITAS QUARRY
NOISE**

(Caltrans 2004:56-58), and are substantially lower than the typical standards cited in the blasting plan (Gasch Associates 2009:12). Therefore, ground vibration from the project operations and blasting is not expected to be a significant impact.

Description of Impact	Mitigation Measure	Residual Impact
<p>IMPACT NOISE-3a: Blasting Noise. Quarry operations involving blasting may potentially cause a significant impact. During early phases of the proposed quarry blasting, L_{max} values at nearby residences are predicted to range from 62 dBA to 80 dBA, depending on the prediction method used.</p>	<p>MM NOISE-3a: Blasting Noise/Blasting and Public Notification Plan. Prior to the Notice to Proceed with quarrying in Phase 1A, the applicant shall provide, and the Planning and Building Department shall review and approve if acceptable, a Public Information and Notification Plan for blasting activities. The Plan shall describe the blasting and related activities, and specify a notification procedure so that nearby residences may be informed ahead of time regarding pending blast events. The warning and all clear signal system shall be described, and contact information provided for the purpose of obtaining further information or for lodging complaints. All blasting activities shall be conducted by a licensed blasting contractor in a manner consistent with the blasting plan prepared for the project, and shall be limited to daytime hours on normal working days. All blast events shall be monitored for air overpressure (sound levels) at points that will allow computation of resulting noise levels at nearby residences. Blast reports, including the results of ground vibration and air overpressure monitoring shall be retained at the quarry office and shall be submitted to the County Department of Planning and Building on request, and be available for inspection. Control measures and public information can reduce the effects of blasting noise but they cannot be fully mitigated.</p>	<p>Significant and not mitigable.</p>
<p>IMPACT NOISE-3b: Blasting Ground Vibration. The project will involve blasting and heavy equipment operation that may potentially induce vibration at nearby residences. Estimated peak particle velocities of 0.2–0.3 inches per second are considered very low and are not expected to cause damage to normal structures.</p>	<p>MM NOISE-3b: Blasting Ground Vibration. Since this effect is less than significant, no mitigation is required.</p>	<p>Less than significant.</p>

Cumulative Effects

The project is about one-half mile from the existing Hanson Santa Margarita Quarry. Both quarries are within the EX1 Extractive Resource Combining Designation, as shown on Figure 3-1. In this region, the EX1 Combining Designation is placed over the La Panza Granitics, a large area that is classified as MRZ-2 by the California State Geological Survey (1989:9), meaning it is a known aggregate resource area. Since this Combining Designation

is specifically intended to protect mineral resources, it is reasonable to expect that future quarries will be approved and constructed in this area.

Although the Hanson Santa Margarita Quarry is in the same general vicinity as the proposed project, it is located at a sufficient distance such that its noise effects are just barely audible along SR 58 and in the vicinity of the project (Dublink Associates 2010:13). The activities that occur at the Hanson quarry were considered as part of the baseline setting. Extension of the mining activities at the same production rates and using the same equipment would result in a continuation of the existing conditions. For this reason, the most important cumulative noise effects related to the project are those involving roadway traffic noise. The project is expected to have a lifetime of 25 years or more, and will continue to generate truck traffic on area roadways as the surrounding communities and traffic volumes grow.

For an assessment of cumulative traffic noise impacts, Dublink Associates (2010:Table 5) used the 2030 estimates of future traffic from the original project traffic report, and showed that the resulting increases in the peak hour Leq values was generally 1dBA to 2 dBA. The peak hour Leq values (considered equivalent to 24-hour Ldn values) at distances of 50 and 100 feet were, 65 and 60 dBA, respectively, without the project. When the project traffic was added, the result was a 1 dBA increase to 66 dBA and 61 dBA.

An alternate approach was used to confirm this result, by projecting SR 58 volumes out to 2030 based on historical Caltrans data back to 2000. The older range of data was used because in recent years there has been a decrease in ADT volumes on SR 58. The resulting projection indicates that the expected increase in Ldn values is 1.2 to 2.0 dBA – which is consistent with the 1–2 dBA increase predicted by Dublink Associates. In the vicinity of the proposed quarry, average daily traffic (ADT) volumes along SR 58 will grow but will remain below 3,000. Ldn values at the existing residential locations in the project vicinity will increase but will remain between 44 and 58 dBA. Increases due to the project generated heavy truck traffic will be about 2 dBA, so the resulting noise levels at all residential locations will remain within the applicable County standard of 60 dBA.

In Santa Margarita, however, the existing traffic conditions cause Ldn values at the east and west end of the village in excess of 60 dBA. These were shown as existing Ldn values for locations R8 and R9 in Table 4.8-7. Future traffic growth include potential build out and traffic associated with the Santa Margarita Ranch Agricultural Residential Cluster Subdivision, both with and without the proposed project, will cause Ldn values to increase and surpass 65 dBA as summarized in Table 4.8-11.

With these future noise levels, it will become increasingly difficult to provide exterior living areas with Ldn values below 60 dBA, and interior Ldn values may begin to exceed 45 dBA. This cumulative traffic noise impact is considered significant, and the project will contribute towards this impact.

**DRAFT EIR OSTER/LAS PILITAS QUARRY
NOISE**

**TABLE 4.8-11
CUMULATIVE TRAFFIC NOISE LEVELS IN SANTA MARGARITA**

Residential Location	2030 Traffic Ldn (dBA)	2030 Traffic + Project Ldn (dBA)
R8 (east end of village)	64.6	65.5
R9 (west end of village)	66.5	67.2

Given the proximity of existing residential uses to SR 58 passing through Santa Margarita, it is not feasible to construct a wall or other noise barrier between the roadway and still maintain access to those lots with driveways along the roadway. Such a construction project would also be inconsistent with the design guidelines for the Santa Margarita village. Project generated truck noise can be reduced with a requirement that all trucks using the quarry be required to maintain mufflers (MM Noise-2a), but the noise standards will still be exceeded at various locations within the community of Santa Margarita. Even without the proposed Oster/Las Pilitas Quarry project, this cumulative traffic noise impact would still occur. For these reasons, the cumulative traffic noise impact at these locations within Santa Margarita is considered significant and not mitigable.

This conclusion is consistent with that in the Santa Margarita Ranch Final EIR (San Luis Obispo County 2008;pages 4.8-12 through 4.8-17). The actual noise results in that earlier EIR were somewhat higher for several reasons, however. These included higher traffic volumes from 2008 compared to the actual lower volumes in 2010, the calculation of noise levels based on CNEL rather than Ldn (which is slightly lower), and the inclusion of traffic estimates from the Santa Margarita Ranch future development area.

In summary, due to its separation from the existing Hanson Santa Margarita Quarry the proposed quarry is not expected to contribute to cumulative operational impacts. It will, however, contribute towards cumulative traffic noise impacts. Cumulative traffic noise will remain less than significant in the project vicinity, but will be significant and not mitigable at residential locations along SR 58 in Santa Margarita.

Description of Impact	Mitigation Measure	Residual Impact
IMPACT NOISE-4: Cumulative Effects related to Operational Noise. Operational noise from the project, when added to existing operational noise from the Hanson Santa Margarita Quarry that may cause a significant impact.	MM NOISE-4: Cumulative Effects related to Noise. Since this effect is less than significant, no mitigation is required.	Less than significant
IMPACT NOISE-5: Cumulative Traffic Noise. Truck traffic from the project, when added to existing truck traffic from the Hanson Santa Margarita Quarry and traffic noise from other projects in the vicinity may cause a significant impact.	MM NOISE-5: Cumulative Traffic Noise. Mitigation Noise-1a and 1b serve as mitigation for Impact NOISE-5.	Significant and not mitigable.

Intentionally blank page.