

NOISE IMPACT ANALYSIS

DIAMOND RANCH HIGH SCHOOL SOLAR FARM

PROJECT

CITY OF POMONA

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ACRONYMS AND ABBREVIATIONS

ANSI	American National Standards Institute
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
City	City of Pomona
CNEL	Community Noise Equivalent Level
dB	Decibel
dBA	A-weighted decibels
DOT	Department of Transportation
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
EPA	Environmental Protection Agency
Hz	Hertz
Ldn	Day-night average noise level
Leq	Equivalent sound level
Lmax	Maximum noise level
ONAC	Federal Office of Noise Abatement and Control
OSB	Oriented Strand Board
OSHA	Occupational Safety and Health Administration
PPV	Peak particle velocity
RMS	Root mean square
SEL	Single Event Level or Sound Exposure Level
VdB	Vibration velocity level in decibels

1.0 INTRODUCTION

1.1 Purpose of Analysis and Study Objectives

This Noise Impact Analysis has been prepared to determine the noise impacts associated with the proposed Diamond Ranch High School Solar Farm project (proposed project). The following is provided in this report:

- A description of the study area and the proposed project;
- Information regarding the fundamentals of noise;
- Information regarding the fundamentals of vibration;
- A description of the local noise guidelines and standards;
- An evaluation of the current noise environment;
- An analysis of the potential short-term construction-related noise impacts from the proposed project; and,
- An analysis of long-term operations-related noise impacts from the proposed project.

1.2 Site Location and Study Area

The project site is located on the northern portion of the Diamond Ranch High School (DRHS) campus that is located at 100 Diamond Ranch Road in the City of Pomona (City). The project site was rough graded during construction of DRHS in the mid 1990s and has since remained undeveloped. The project site is bounded by State Route 60 (SR 60) and single-family homes to the north, vacant land and Phillips Ranch Road to the east, the DRHS ball fields to the south, and vacant land to the west. The project study area is shown in Figure 1.

Sensitive Receptors in Project Vicinity

The nearest sensitive receptors to the project site are the single-family homes located on the north side of SR 60 that are as near 500 feet north of the project site. There are also multi-family homes located on the east side of Phillips Ranch Road that are as near as 1,000 feet east of the proposed driveway to the project site.

1.3 Proposed Project Description

The project consists of the installation and operation of a ground-mounted solar photovoltaic (PV) power generating system, supporting structures, inverter modules, pad mounted transformers, access roads and fencing, and on-site switchgear. The proposed site plan is shown in Figure 2.

A 2.8-megawatt direct current (MW DC) solar power system and a 480-volt switchgear station would be constructed in the main development footprint, located north of the DRHS campus, of the project site. A total of 4,284 PV panels would be installed on ground-mounted racks. The panels would have a maximum length of 13 feet 9 inches and tilted at a 20-degree angle. They would have a maximum height of 6 feet 7 inches above the final grade. The panels would be mounted on a racking system supported by piles and positioned to face south, toward the DRHS campus. Piles which would support the racks would have a maximum depth of 8 feet. A prefabricated, compact switchgear station would be installed south of the

arrays. The switchgear would be 12 feet 6 inches by 6 feet 6 inches and 8 feet in height. It would control, protect, and isolate the electrical systems and would be made up of circuit breakers, fuses, and switches that are mounted in a metal enclosure.

An underground 12-kilovolt (kV) circuit would be installed from the switchgear station to a new 20-foot by 22-foot meter station proposed near Diamond Ranch Road. From the meter station, underground interconnect cables would be installed to existing Southern California Edison (SCE) electrical utility vaults on the south side of Diamond Ranch Road, located generally across an existing driveway apron, which would be expanded as a result of the project.

The project would include 26-foot-wide service roads within the project site to provide vehicle access to maintain the panels. A main east-west road would be constructed on the south side of the solar farm, and three north-south “finger” roads would be installed between the solar panels. The service roads would be accessed from the driveway apron on Diamond Ranch Road, east of the existing tennis courts. Parking would be available along the east-west internal road and near the driveway apron. Perimeter fencing would be installed around the solar farm; gated access would be from the driveway apron.

The renewable energy generated by the project would be distributed to the existing SCE 12-kV distribution line located beneath Diamond Ranch Road and exported to SCE’s grid to offset electricity use at 20 District-owned properties. Project implementation would not require additional improvements at any off-site District properties or impact student enrollment at DRHS or other schools.

The proposed improvements would require intermittent maintenance and cleaning of the panels, including washing of the panels. Maintenance activities would occur up to twice a year and be scheduled to avoid potential conflict with school activities and operations. Maintenance would include washing panels with water and a biodegradable detergent; trimming and/or removing vegetation to prevent shading of the panels and potential damage of the system; and removing trash from the site.

The entire project site would be graded. Approximately 38,000 cubic yards of soil would be cut and approximately 10,100 cubic yards of soil would fill the low-lying areas. The site would be designed with a 1 percent slope toward the southwest corner of the site to direct stormwater runoff an existing concrete channel, located immediately off-site. Once the proposed arrays are installed, a 0.75-inch layer of crushed gravel would be placed over the entire project site.

Construction would begin in the first quarter of 2026 and last 12 months. Construction staging and laydown would occur with the development footprint, including in the dirt area at the project site entrance near Diamond Ranch Road. Construction activities would be scheduled to minimize disruptions to campus programs.

1.4 Standard Noise Regulatory Conditions

The proposed project will be required to comply with the following regulatory conditions from the City of Pomona and State of California.

City of Pomona Residential Noise Standards

The following lists the City of Pomona Municipal Code regulations that are applicable to the proposed project.

Section 18-305(3) Construction Noise Standards

Section 18-305(3) of the City's Municipal Code exempts construction noise from the City noise ordinance that occurs between 7:00 a.m. and 8:00 p.m. on weekdays and Saturdays from the City's noise standards, provided the noise level created by such activities do not exceed the noise standard of 65 dBA plus the limits specified in section 18-311(b) as measured on residential property and any vibration does not endanger the public health, welfare and safety.

Section 18-309 Vibration Standards

Section 18-309 of the Municipal Code restricts the creation of vibration that is perceptible on any nearby property. Section 18-309 of the Municipal Code defines the threshold of perception to be more than 0.05 inch per second RMS vertical Velocity.

Section 18-311(a) Exterior Noise Standards

Section 18-311(a) of the City's Municipal Code limits noise created onsite at the nearby single-family properties to 50 dBA between 10:00 p.m. and 7:00 a.m. and 60 dBA between 7:00 a.m. and 10:00 p.m..

State of California Rules

The following lists the State of California rules that are applicable to all industrial projects in the State.

California Vehicle Code Section 27200-27207 – On-Road Vehicle Noise

California Vehicle Code Section 27200-27207 provides noise limits for vehicles operated in California. For vehicles over 10,000 pounds noise is limited to 88 dB for vehicles manufactured before 1973, 86 dB for vehicles manufactured before 1975, 83 dB for vehicles manufactured before 1988, and 80 dB for vehicles manufactured after 1987. All measurements are based at 50 feet from the vehicle.

California Vehicle Section 38365-38380 – Off-Road Vehicle Noise

California Vehicle Code Section 38365-38380 provides noise limits for off-highway motor vehicles operated in California. 92 dBA for vehicles manufactured before 1973, 88 dBA for vehicles manufactured before 1975, 86 dBA for vehicles manufactured before 1986, and 82 dBA for vehicles manufactured after December 31, 1985. All measurements are based at 50 feet from the vehicle.

1.5 Summary of Analysis Results

The following is a summary of the proposed project's impacts with regard to the State CEQA Guidelines noise checklist questions.

Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less than significant impact.

Generation of excessive groundborne vibration or groundborne noise levels?

Less than significant impact.

For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No impact.

1.6 Mitigation Measures for the Proposed Project

This analysis found that through adherence to the noise and vibration regulations detailed in Section 1.4 above were adequate to limit all noise and vibration impacts to less than significant levels. No mitigation measures are required for the proposed project with respect to noise and vibration impacts.



SOURCE: Google Maps.



Figure 1
Project Location Map



Figure 2
Proposed Site Plan

2.0 NOISE FUNDAMENTALS

Noise is defined as unwanted sound. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Sound is produced by the vibration of sound pressure waves in the air. Sound pressure levels are used to measure the intensity of sound and are described in terms of decibels. The decibel (dB) is a logarithmic unit which expresses the ratio of the sound pressure level being measured to a standard reference level. A-weighted decibels (dBA) approximate the subjective response of the human ear to a broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear.

2.1 Noise Descriptors

Noise Equivalent sound levels are not measured directly, but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (Leq) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. The peak traffic hour Leq is the noise metric used by California Department of Transportation (Caltrans) for all traffic noise impact analyses.

The Day-Night Average Level (Ldn) is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of ten decibels to sound levels at night between 10 p.m. and 7 a.m. While the Community Noise Equivalent Level (CNEL) is similar to the Ldn, except that it has another addition of 4.77 decibels to sound levels during the evening hours between 7 p.m. and 10 p.m. These additions are made to the sound levels at these time periods because during the evening and nighttime hours, when compared to daytime hours, there is a decrease in the ambient noise levels, which creates an increased sensitivity to sounds. For this reason the sound appears louder in the evening and nighttime hours and is weighted accordingly. The City of Pomona relies on the CNEL noise standard to assess transportation-related impacts on noise sensitive land uses.

2.2 Tone Noise

A pure tone noise is a noise produced at a single frequency and laboratory tests have shown that humans are more perceptible to changes in noise levels of a pure tone. For a noise source to contain a “pure tone,” there must be a significantly higher A-weighted sound energy in a given frequency band than in the neighboring bands, thereby causing the noise source to “stand out” against other noise sources. A pure tone occurs if the sound pressure level in the one-third octave band with the tone exceeds the average of the sound pressure levels of the two contiguous one-third octave bands by:

- 5 dB for center frequencies of 500 hertz (Hz) and above
- 8 dB for center frequencies between 160 and 400 Hz
- 15 dB for center frequencies of 125 Hz or less

2.3 Noise Propagation

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on whether the source is a point or line source as well as ground absorption, atmospheric effects and refraction, and shielding by natural and manmade features. Sound from point sources, such as air conditioning condensers, radiate uniformly outward as it travels away from

the source in a spherical pattern. The noise drop-off rate associated with this geometric spreading is 6 dBA per each doubling of the distance (dBA/DD). Transportation noise sources such as roadways are typically analyzed as line sources, since at any given moment the receiver may be impacted by noise from multiple vehicles at various locations along the roadway. Because of the geometry of a line source, the noise drop-off rate associated with the geometric spreading of a line source is 3 dBA/DD.

2.4 Ground Absorption

The sound drop-off rate is highly dependent on the conditions of the land between the noise source and receiver. To account for this ground-effect attenuation (absorption), two types of site conditions are commonly used in traffic noise models, soft-site and hard-site conditions. Soft-site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. For point sources, a drop-off rate of 7.5 dBA/DD is typically observed over soft ground with landscaping, as compared with a 6.0 dBA/DD drop-off rate over hard ground such as asphalt, concrete, stone and very hard packed earth. For line sources a 4.5 dBA/DD is typically observed for soft-site conditions compared to the 3.0 dBA/DD drop-off rate for hard-site conditions. Caltrans research has shown that the use of soft-site conditions is more appropriate for the application of the Federal Highway Administration (FHWA) traffic noise prediction model used in this analysis.

3.0 GROUND-BORNE VIBRATION FUNDAMENTALS

Ground-borne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of ground-borne vibrations typically only cause a nuisance to people, but at extreme vibration levels damage to buildings may occur. Although ground-borne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Ground-borne noise is an effect of ground-borne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

3.1 Vibration Descriptors

There are several different methods that are used to quantify vibration amplitude such as the maximum instantaneous peak in the vibrations velocity, which is known as the peak particle velocity (PPV) or the root mean square (rms) amplitude of the vibration velocity. Due to the typically small amplitudes of vibrations, vibration velocity is often expressed in decibels and is denoted as (L_v) and is based on the rms velocity amplitude. A commonly used abbreviation is “VdB”, which in this text, is when L_v is based on the reference quantity of 1 micro inch per second.

3.2 Vibration Perception

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Off-site sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible ground-borne noise or vibration.

3.3 Vibration Propagation

The propagation of ground-borne vibration is not as simple to model as airborne noise. This is due to the fact that noise in the air travels through a relatively uniform median, while ground-borne vibrations travel through the earth which may contain significant geological differences. There are three main types of vibration propagation; surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground’s surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a “push-pull” fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse or “side-to-side and perpendicular to the direction of propagation.”

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil but has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

4.0 REGULATORY SETTING

The project site is located in the City of Pomona. Noise regulations are addressed through the efforts of various federal, state, and local government agencies. The agencies responsible for regulating noise are discussed below.

4.1 Federal Regulations

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Promulgating noise emission standards for interstate commerce
- Assisting state and local abatement efforts
- Promoting noise education and research

The Federal Office of Noise Abatement and Control (ONAC) was initially tasked with implementing the Noise Control Act. However, the ONAC has since been eliminated, leaving the development of federal noise policies and programs to other federal agencies and interagency committees. For example, the Occupational Safety and Health Administration (OSHA) agency prohibits exposure of workers to excessive sound levels. The Department of Transportation (DOT) assumed a significant role in noise control through its various operating agencies. The Federal Aviation Administration (FAA) regulates noise of aircraft and airports. Surface transportation system noise is regulated by a host of agencies, including the Federal Transit Administration (FTA), which regulates transit noise, while freeways that are part of the interstate highway system are regulated by the Federal Highway Administration (FHWA). Finally, the federal government actively advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that “noise sensitive” uses are either prohibited from being sited adjacent to a highway or, alternately that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Although the proposed project is not under the jurisdiction of the FTA, the *Transit Noise and Vibration Assessment Manual* (FTA Manual), prepared by the FTA, September 2018, is the only guidance document that has defined what constitutes a significant noise impact from implementing a project. The FTA standards are based on extensive studies by the FTA and other governmental agencies on the human effects and reaction to noise and a summary of the FTA findings are provided below in Table A.

Table A – FTA Project Effects on Cumulative Noise Exposure

Existing Noise Exposure (dBA Leq or Ldn)	Allowable Noise Impact Exposure dBA Leq or Ldn		
	Project Only	Combined	Noise Exposure Increase
45	51	52	+7
50	53	55	+5
55	55	58	+3
60	57	62	+2
65	60	66	+1
70	64	71	+1
75	65	75	0

Source: Federal Transit Administration, 2018.

As shown in Table A, the allowable cumulative noise level increase created from a project would range from 0 to 7 dBA, which is based on the existing (ambient) noise levels in the project vicinity. The justification for the sliding scale, is that people already exposed to high levels of noise should be expected to tolerate only a small increase in the amount of noise in their community. In contrast, if the existing noise levels are quite low, it is reasonable to allow a greater change in the community noise for the equivalent difference in annoyance.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by transportation sources, the City is restricted to regulating noise generated by the transportation system through nuisance abatement ordinances and land use planning.

4.2 State Regulations

Noise Standards

California Department of Health Services Office of Noise Control

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regularity tools to control and abate noise for use by local agencies. One significant model is the “Land Use Compatibility for Community Noise Environments Matrix,” which allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise.

California Noise Insulation Standards

Title 24, Chapter 1, Article 4 of the California Administrative Code (California Noise Insulation Standards) requires noise insulation in new hotels, motels, apartment houses, and dwellings (other than single-family detached housing) that provides an annual average noise level of no more than 45 dBA CNEL. When such structures are located within a 60-dBA CNEL (or greater) noise contour, an acoustical analysis is required to ensure that interior levels do not exceed the 45-dBA CNEL annual threshold. In addition, Title 21, Chapter 6, Article 1 of the California Administrative Code requires that all habitable rooms, hospitals, convalescent homes, and places of worship shall have an interior CNEL of 45 dB or less due to aircraft noise.

Government Code Section 65302

Government Code Section 65302 mandates that the legislative body of each county and city in California adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable.

Vibration Standards

Title 14 of the California Administrative Code Section 15000 requires that all state and local agencies implement the California Environmental Quality Act (CEQA) Guidelines, which requires the analysis of exposure of persons to excessive groundborne vibration. However, no statute has been adopted by the state that quantifies the level at which excessive groundborne vibration occurs.

The *Transportation- and Construction Vibration Guidance Manual*, prepared by Caltrans, April 2020, provides practical guidance to Caltrans engineers, planners, and consultants who must address vibration

issues associated with the construction, operation, and maintenance of Caltrans projects. However, this manual is also used as a reference point by many lead agencies and CEQA practitioners throughout California, as it provides numeric thresholds for vibration impacts. Thresholds are established for continuous (construction-related) and transient (transportation-related) sources of vibration, which found that the human response becomes distinctly perceptible at 0.25 inch per second PPV for transient sources and 0.04 inch per second PPV for continuous sources. The Guidance Manual also provides thresholds for building damage, where vibration sources may start to create damage to older residential buildings at 0.3 inch per second PPV for continuous sources and 0.5 inch per second PPV for transient sources.

4.3 Local Regulations

The City of Pomona General Plan and Municipal Code establishes the following applicable policies related to noise and vibration.

City of Pomona General Plan

The City of Pomona General Plan Noise Element provides the following policies that are applicable to new industrial development:

Policy 7G.P1 As part of development review, use Figure 7-G.1 (Land Use Compatibility for Community Noise Environments) (see Figure 3, below) to determine acceptable uses and insulation requirements in noise-impacted areas.

Policy 7G.P3 Continue to restrict noise and require mitigation measures for any noise-emitting construction equipment or activity.

City of Pomona Municipal Code

The City of Pomona Municipal Code establishes the following applicable standards related to noise.

Section 18-305. Exemptions.

The following activities shall be exempted from this article:

- (3) Noise sources associated with or vibration created by construction, repair, remodeling or grading of any real property or during authorized seismic surveys, provided such activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a federal holiday, and provided the noise level created by such activities do not exceed the noise standards of 65 dB(A) plus the limits specified in Section 18-311(b) as measured on residential property and any vibration created does not endanger the public health, welfare and safety.

Section 18-309. Vibration.

Notwithstanding other sections of this article, it shall be unlawful for any person to create, maintain or cause any ground vibration which is perceptible without instruments at any point on any affected property adjoining the property on which the vibration source is located. For the purpose of this article, the perception threshold shall be presumed to be more than 0.05 inch per second RMS vertical velocity.

Section 18-311. Exterior Noise Standards.

- (a) The following noise standards, unless otherwise specifically indicated, shall apply to all property within a designated noise zone:

Table B – City of Pomona Municipal Code Exterior Noise Standards

Noise Zone ¹	Time Interval	Allowable Interior Noise Level
1	10:00 p.m. to 7:00 a.m.	50 dB(A)
	7:00 a.m. to 10:00 p.m.	60 dB(A)
2	10:00 p.m. to 7:00 a.m.	50 dB(A)
	7:00 a.m. to 10:00 p.m.	65 dB(A)
3	10:00 p.m. to 7:00 a.m.	60 dB(A)
	7:00 a.m. to 10:00 p.m.	65 dB(A)
4	Any	70 dB(A)
5	Any	70 dB(A)

Notes:

¹ Noise Zone 1 = Single-family residential properties; Noise Zone 2 = Multiple-family residential properties; Noise Zone 3 = Commercial properties; Noise Zone 4 = Industrial properties; and Noise Zone 5 = High Traffic Corridor.

Source: City of Pomona Municipal Code Article 7 Section 18-311(a)

- (b) It shall be unlawful for any person at any location within the incorporated area of the city to create any noise or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person which causes the noise level, when measured on any other property, to exceed the following:
- (1) The noise standard for a cumulative period of more than 30 minutes in any hour;
 - (2) The noise standard plus five dB(A) for a cumulative period of more than 15 minutes in any hour;
 - (3) The noise standard plus ten dB(A) for a cumulative period of more than five minutes in any hour;
 - (4) The noise standard plus 15 dB(A) for a cumulative period of more than one minute in any hour;
- or
- (5) The noise standard plus 20 dB(A) for any period of time.
- (c) If the ambient noise level exceeds any of the noise limit categories in subsections (b)(1) through (4) of this section, the cumulative period applicable to such category shall be increased to reflect such ambient noise level. If the ambient noise level exceeds the noise limit category in subsection (b)(5) of this section, the maximum allowable noise level under such category shall be increased to reflect the maximum ambient noise level.
- (d) If the measurement location is on a boundary between two different noise zones, the lower noise level standard applicable to the noise zone shall apply.
- (e) If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient noise level can be determined, the measured noise level obtained while the source is in operation shall be compared directly to the allowable noise level standards as specified respective to the measurement location's designated land use and for the time of day the noise level is measured. The reasonableness of temporarily discontinuing the noise generation by an intruding noise source shall be determined by the chief of police for the purpose of establishing the existing ambient noise level at the measurement location.

Section 18-312 – Interior Noise Standards.

- (a) The following noise standard, unless otherwise specifically indicated, shall apply to all residential property within all noise zones:

Table C – City of Pomona Municipal Code Interior Noise Standards

Type of Land Use	Time Interval	Allowable Interior Noise Level in dB(A)
Residential	10:00 p.m. to 7:00 a.m.	40
	7:00 a.m. to 10:00 p.m.	50

Source: City of Pomona Municipal Code Article 7 Section 18-312(a)

Each of the noise limits specified shall be reduced by five dB(A) for impulse or simple tone noises or for noises consisting of speech or music; provided, however, that if the ambient noise level exceeds the resulting standard, the ambient shall be the standard.

- (b) It shall be unlawful for any person at any location within the incorporated area of the city to create any noise or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such a person which causes the noise level, when measured within any other residential dwelling unit in any noise zone, to exceed the following:
- (1) The noise standard for a cumulative period of more than five minutes in any hour;
 - (2) The noise standard plus five dB(A) for a cumulative period of more than one minute in any hour;
or
 - (3) The noise standard plus ten dB(A) for any period of time.
- (c) If the ambient noise level exceeds any of the limit categories in subsection (b)(1) or (2) of this section, the cumulative period applicable to such category shall be increased to reflect the maximum ambient noise level. If the ambient level exceeds the noise category in subsection (b)(3) of this section, the maximum allowable noise level under such category shall be increased to reflect the maximum ambient noise level.
- (d) If the measurement location is on a boundary between two different noise zones, the lower noise level standard applicable to the noise zone shall apply.
- (e) If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient noise level can be determined, the same procedures specified in section 18-311(e) shall be deemed proper to enforce this section.

FIG.7-G.1: COMMUNITY NOISE EXPOSURE

COMMUNITY NOISE EXPOSURE
Ldn or CNEL, dB

	55	60	65	70	75	80
<i>Residential - Low Density Single-Family, Duplex, Mobile Homes</i>						
<i>Residential - Multi-family</i>						
<i>Transient Lodging - Motels, Hotels</i>						
<i>Schools, Libraries, Churches, Hospitals, Nursing Homes</i>						
<i>Auditorium, Concert Halls, Amphitheaters</i>						
<i>Sports Arena, Outdoor Spectator Sports</i>						
<i>Playgrounds, Neighborhood Parks</i>						
<i>Golf Courses, Riding Stables, Water Recreation, Cemeteries</i>						
<i>Office Buildings, Business Commercial and Professional</i>						
<i>Industrial, Manufacturing Utilities, Agriculture</i>						

INTERPRETATION:



NORMALLY ACCEPTABLE
Specified land use is satisfactory, based upon the assumption that any building involved is of normal conventional construction, without any special noise insulation requirements.



CONDITIONALLY ACCEPTABLE
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.



NORMALLY UNACCEPTABLE
New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.



CLEARLY UNACCEPTABLE
New construction or development should generally not be undertaken.

SOURCE: City of Pomona, 2014.

5.0 EXISTING NOISE CONDITIONS

To determine the existing noise levels, noise measurements have been taken in the vicinity of the project site. The field survey noted that noise within the proposed project area is generally characterized by vehicle traffic on State Route 60, which is located adjacent to the north side of the project site. The following describes the measurement procedures, measurement locations, noise measurement results, and the modeling of the existing noise environment.

5.1 Noise Measurement Equipment

The noise measurements were taken using a Larson-Davis Model 831 Type 1 precision sound level meter programmed in “slow” mode to record noise levels in “A” weighted form as well as the frequency spectrum of the noise broken down into 1/3 octaves. The sound level meter and microphone were mounted on a tripod five feet above the ground and were equipped with a windscreen during all measurements. The sound level meter was calibrated before and after the monitoring using a Larson-Davis calibrator, Model CAL 200. The accuracy of the calibrator is maintained through a program established through the manufacturer and is traceable to the National Bureau of Standards. The noise level measurement equipment meets American National Standards Institute (ANSI) specifications for sound level meters (ANSI S1.4-2014 standard).

Noise Measurement Locations

The noise monitoring locations were selected in order to obtain the existing noise levels on the project site and at the nearest residential uses located to the north of the project site. Descriptions of the noise monitoring sites are provided below in Table D and are shown in Figure 4. Appendix A includes a photo index of the study area and noise level measurement locations.

Noise Measurement Timing and Climate

The noise measurements were recorded between 12:30 p.m. and 1:31 p.m. on Monday, May 19, 2025. During the noise measurements, the sky was clear (no clouds), the temperature was 82 degrees Fahrenheit, the humidity was 38 percent, barometric pressure was 29.00 inches of mercury, and the wind was blowing at an average rate of four miles per hour.

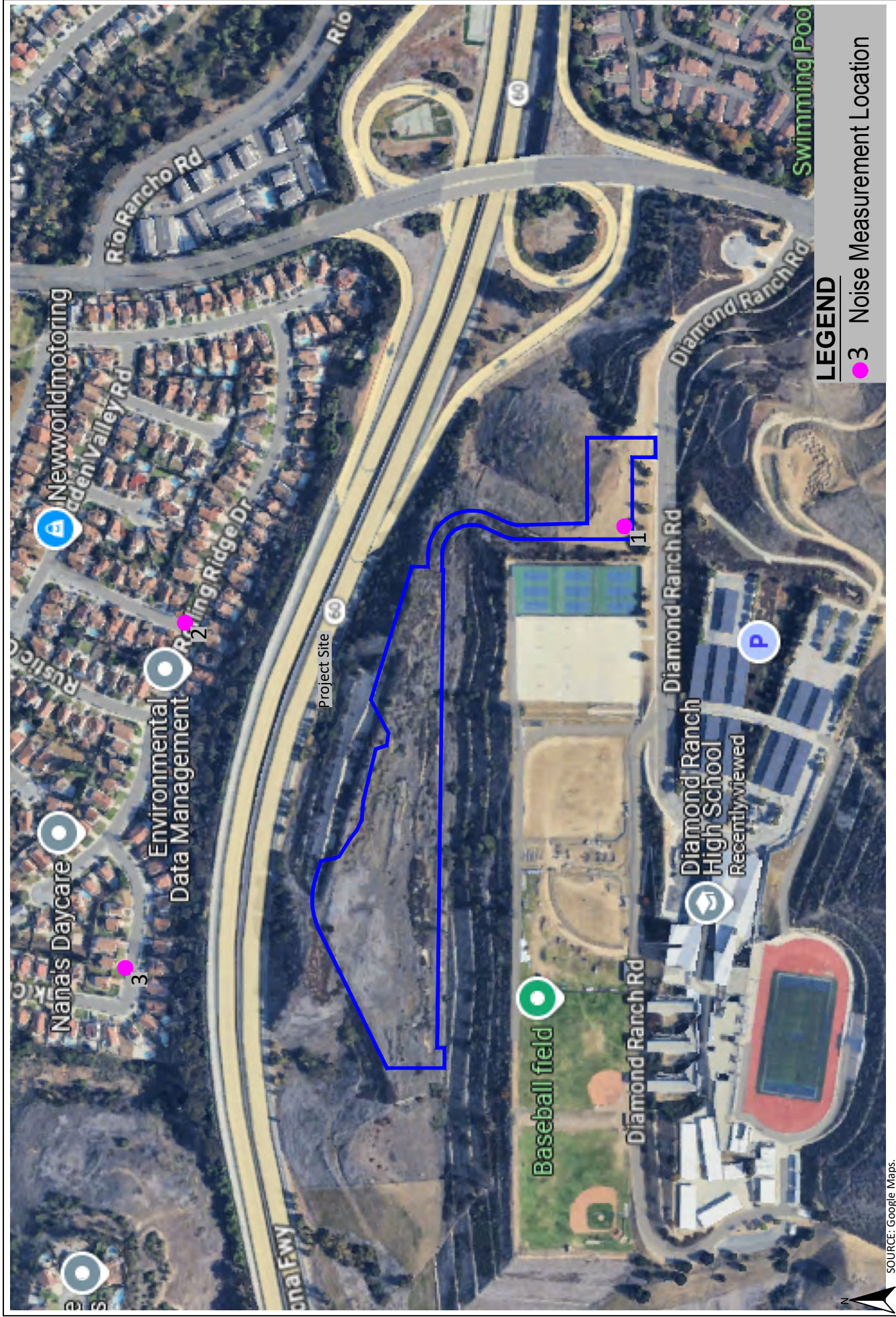
Noise Measurement Results

The results of the noise level measurements are presented in Table D and the noise monitoring data printouts are included in Appendix B.

Table D – Existing (Ambient) Noise Measurement Results

Site No.	Description	Primary Noise Source	Start Time of Measurement	Measured Noise Level	
				dBA Leq	dBA Lmax
1	Located on proposed access road to the solar farm, approximately 110 feet north of Diamond Ranch Road centerline	Vehicles on SR-60 and Diamond Ranch Road	12:30 p.m.	47.9	60.6
2	Located north of the project site in front of home at 2 Ravenhill Drive, approximately 30 feet east of Ravenhill Drive centerline and 40 feet north of Rolling Ridge Drive centerline	Vehicles on SR-60	12:57 p.m.	59.9	80.0
3	Located north of the project site in front of home at 58 Oak Cliff Drive, approximately 30 feet north of Oak Cliff Drive centerline.	Vehicles on SR-60 and landscaping equipment	1:16 p.m.	62.2	74.4

Notes: Noise measurements taken with a Larson-Davis Model 831 Type 1 precision sound level meter on Monday, May 19, 2025.



SOURCE: Google Maps.

Figure 4
Field Noise Monitoring Locations

6.0 MODELING PARAMETERS AND ASSUMPTIONS

6.1 Construction Noise

The noise impacts from construction of the proposed project have been analyzed through use of the FHWA’s Roadway Construction Noise Model (RCNM). The FHWA compiled noise measurement data regarding the noise generating characteristics of several different types of construction equipment used during the Central Artery/Tunnel project in Boston. Table E below provides a list of the construction equipment anticipated to be used for each phase of construction as detailed in the *Air Quality, Energy, and Greenhouse Gas Emissions Impact Analysis* (Air Quality Analysis), prepared by Vista Environmental, June 16, 2025.

Table E – Construction Equipment Noise Emissions and Usage Factors

Equipment Description	Number of Equipment	Acoustical Use Factor ¹ (percent)	Spec 721.560 Lmax at 50 feet ² (dBA, slow ³)	Actual Measured Lmax at 50 feet ⁴ (dBA, slow ³)
Phase 1: Site Preparation & Access Road Construction				
Grader	1	40	85	83
Rubber Tired Dozers	3	40	85	82
Backhoe	1	40	80	78
Front End Loader	1	40	80	79
Tractor	2	40	84	N/A
Phase 2: Grading				
Excavators	2	40	85	81
Grader	1	40	85	83
Rubber Tired Dozer	1	40	85	82
Scrapers	2	40	85	84
Front End Loader	1	40	80	79
Tractor	1	40	84	N/A
Phase 3: Electrical Infrastructure				
Excavators	2	40	85	81
Generator	1	50	82	81
Backhoe	1	40	80	78
Front End Loader	2	40	80	79
Tractor	2	40	84	N/A
Phase 4: PV System & Switch Stations Installation				
Air Compressor	1	40	80	78
Crane	1	16	85	81
Forklift (Gradall)	3	40	85	83
Generator	1	50	82	81
Backhoe	1	40	80	78
Front End Loader	1	40	80	79
Tractor	1	40	84	N/A
Welder	1	40	73	74
Phase 5: Placement of Gravel & Site Clean-Up				
Grader	1	40	85	83

Table E – Construction Equipment Noise Emissions and Usage Factors

Equipment Description	Number of Equipment	Acoustical Use Factor ¹ (percent)	Spec 721.560 Lmax at 50 feet ² (dBA, slow ³)	Actual Measured Lmax at 50 feet ⁴ (dBA, slow ³)
Backhoe	1	40	80	78
Front End Loaders	2	40	80	79
Tractor	2	40	84	N/A

Notes:

¹ Acoustical use factor is the percentage of time each piece of equipment is operational during a typical workday.

² Spec 721.560 is the equipment noise level utilized by the RCNM program.

³ The “slow” response averages sound levels over 1-second increments. A “fast” response averages sound levels over 0.125-second increments.

⁴ Actual Measured is the average noise level measured of each piece of equipment during the Central Artery/Tunnel project in Boston, Massachusetts primarily during the 1990s.

Source: Federal Highway Administration, 2006 and CalEEMod default equipment mix.

Table E also shows the associated measured noise emissions for each piece of equipment from the RCNM model and measured percentage of typical equipment use per day. Construction noise impacts to the nearby homes have been calculated according to the equipment noise levels and usage factors listed in Table E and through use of the RCNM. For each phase of construction, all construction equipment was analyzed based on being placed in the middle of the project site, which is based on the analysis methodology detailed in FTA Manual for a General Assessment. However, in order to provide a conservative analysis, all equipment was analyzed, instead of just the two noisiest pieces of equipment as detailed in the FTA Manual.

The project site is located on a plateau and the nearest homes to the north and east are much lower in elevation and do not have a direct of line sight view to the proposed construction activities. Caltrans research has found that a minimum of 5 dB of noise reduction is provided, when the direct line of sight between the noise source and receiver is blocked by a wall (or topography)¹. As such, 5 dB of shielding was added to the RCNM model for both receivers. The RCNM model printouts are provided in Appendix C.

6.2 Operational Noise

The operation of the proposed solar farm would generally consist of a passive use that does not create noise. However, the proposed switch stations would include transformers that are a known source of noise. According to Maddox Industries, a 7501 to 10,000 KVA rated transformer would create a noise level of 68 dBA at one meter².

The noise levels at the nearby homes were calculated based on the methodology provided in the FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108) that is described in the *Technical Noise Supplement to the Traffic Noise Analysis Protocol (TeNS)*, prepared by Caltrans, September 2013. The noise levels were calculated through use of standard geometric spreading of noise from a point source with a drop-off rate of 6 dB for each doubling of the distance and was calculated based on the following equation:

1 Obtained from: <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf>

2 Obtained from: <https://www.maddox.com/resources/articles/audible-sound-levels-in-liquid-filled-transformers>

$$dBA_2 = dBA_1 + 10\log_{10}[(D_1/D_2)]$$

where:

dBA_1 = noise level at distance D_1

dBA_2 = noise level at distance D_2

6.3 Vibration

Construction activity can result in varying degrees of ground vibration, depending on the equipment used on the site. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings in the vicinity of the construction site respond to these vibrations with varying results ranging from no perceptible effects at the low levels to slight damage at the highest levels. Table F gives approximate vibration levels for particular construction activities. The data in Table F provides a reasonable estimate for a wide range of soil conditions.

Table F – Vibration Source Levels for Construction Equipment

Equipment		Peak Particle Velocity (inches/second)	Approximate Vibration Level (L_v) at 25 feet
Pile driver (impact)	Upper range	1.518	112
	typical	0.644	104
Pile driver (sonic)	Upper range	0.734	105
	typical	0.170	93
Clam shovel drop (slurry wall)		0.202	94
Vibratory Roller		0.210	94
Hoe Ram		0.089	87
Large bulldozer		0.089	87
Caisson drill		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79
Small bulldozer		0.003	58

Source: Federal Transit Administration, 2018.

The construction-related vibration impacts have been calculated through the vibration levels shown above in Table F and through typical vibration propagation rates. The equipment assumptions were based on the equipment lists provided above in Table E.

7.0 IMPACT ANALYSIS

7.1 CEQA Thresholds of Significance

Consistent with the California Environmental Quality Act (CEQA) and the State CEQA Guidelines, a significant impact related to noise would occur if a proposed project is determined to result in:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Generation of excessive groundborne vibration or groundborne noise levels; or
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

7.2 Generation of Noise Levels in Excess of Standards

The proposed project would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. The following section calculates the potential noise emissions associated with the temporary construction activities and long-term operations of the proposed project and compares the noise levels to the City standards.

Construction-Related Noise

The construction activities for the proposed project are anticipated to include the following phases of construction: 1) Site Preparation and Access Road Construction, 2) Grading, 3) Electrical Infrastructure; 4) PV System and Switch Stations Installation, and 5) Placement of Gravel and Site Cleanup. Construction activities would primarily create noise impacts from worker and truck trips on the nearby roadways and from off-road equipment operating on the project site that have been analyzed separately below.

Construction-Related Roadway Noise Impacts

Vehicle noise is a combination of the noise produced by the engine, exhaust and tires. The level of traffic noise depends on three primary factors (1) the volume of traffic, (2) the speed of traffic, and (3) the number of trucks in the flow of traffic. The proposed project would not alter the speed limit on any existing roadway so the proposed project's potential offsite noise impacts have been focused on the noise impacts associated with the change of volume of traffic that would occur during construction of the proposed project.

Since neither the General Plan or Municipal Code defines what an increase in roadway noise would be considered significant, the noise increase threshold guidance provided by the Federal Transit Administration for a moderate impact that has been detailed above in Table A and shows that the project contribution to the noise environment can range between 1 and 7 dB, which is dependent on the existing noise levels.

The Air Quality Analysis (Vista Environmental, 2025) found that Phase 4 – PV System and Switch Stations Installation would generate the highest number of trips with up to 100 worker trips and 50 vendor truck

trips per day. It is anticipated that almost all of the trips would access the project site via SR-60 to Phillips Ranch Road to Diamond Ranch Road, where the only sensitive receptors along this route are on the east side of Phillips Ranch Road.

According to *City of Pomona General Plan Update Corridors Specific Plan Active Transportation Plan and Green Plan Draft Environmental Impact Report Volume I* (General Plan DEIR), prepared by Rincon Consultants, July 2013, Phillips Ranch Road south of Rio Rancho Road had 21,530 daily trips in 2012. In order for project-generated vehicular traffic to increase the noise level of Phillips Ranch Road in the vicinity of the project site, by 3 dB, the roadway traffic would have to double, and for the roadway noise levels to increase by 1.5 dB, the roadway traffic would have to increase by 50 percent. Since the proposed project would only result in a maximum of a 0.7 percent increase in traffic volumes on Phillips Ranch Road, the road noise increase from construction-related trips is anticipated to be negligible. Therefore, construction-related roadway noise impacts would be less than significant.

Off-Road Construction Equipment Noise Impacts

Noise impacts from construction activities associated with the proposed project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities. The nearest sensitive receptors to the project site are the single-family homes located on the north side of SR 60 that are as near 500 feet north of the project site. There are also multi-family homes located on the east side of Phillips Ranch Road that are as near as 1,000 feet east of the proposed driveway to the project site.

Section 18-305(3) of the City’s Municipal Code exempts construction noise provided: (1) That construction activities occur between 7:00 a.m. and 8:00 p.m. on weekdays and Saturdays from the City’s noise standards; and (2) Noise levels created by construction activities do not exceed 65 dBA at any nearby residential property.

Construction noise impacts to the nearby sensitive receptors have been calculated through use of the RCNM and the parameters and assumptions detailed in Section 6.1 of this report including Table E – Construction Equipment Noise Emissions and Usage Factors. The results are shown below in Table G and the RCNM printouts are provided in Appendix E.

Table G – Construction Noise Levels at the Nearby Homes

Construction Phase	Construction Noise Level (dBA Leq) at:	
	Homes to North ¹	Homes to East ²
Phase 1: Site Preparation & Access Road Construction	61	50
Phase 2: Grading	61	51
Phase 3: Electrical Infrastructure	60	49
Phase 4: PV System & Switch Stations Installation	61	50
Phase 5: Placement of Gravel & Site Clean-Up	60	49
Construction Noise Threshold³	65	65
Exceed Threshold?	No	No

Notes:

¹ The nearest homes to the north are located as near as 600 feet from the center of the project site.

² The nearest homes to the east are located as near as 2,000 feet from the center of the project site.

³ Construction Noise Threshold for nearby homes based on Section 18-305 of the Municipal Code.

Source: RCNM, Federal Highway Administration, 2006

Table G shows that the greatest noise impacts would occur during the grading phase of construction of the project, with noise levels as high as 61 dBA Leq at the nearest homes to the north and as high as 51 dBA Leq at the nearest homes to the east. Table G shows that none of the phases of construction would exceed the City's construction noise standard of 65 dBA at the homes to the west. Therefore, through adherence to the limitation of allowable construction times provided in Section 18-305(3) of the Municipal Code, construction-related noise levels would not exceed any standards established in the General Plan or Noise Ordinance nor would construction activities create a substantial temporary increase in ambient noise levels from construction of the proposed project. Impacts would be less than significant.

Operational-Related Noise

The proposed project would consist of the development of a solar farm. Potential noise impacts associated with the operations of the proposed project would be from project-generated vehicular traffic on the nearby roadways and from onsite activities, which have been analyzed separately below.

Roadway Vehicular Noise

Vehicle noise is a combination of the noise produced by the engine, exhaust and tires. The level of traffic noise depends on three primary factors (1) the volume of traffic, (2) the speed of traffic, and (3) the number of trucks in the flow of traffic. The proposed project does not propose any uses that would require a substantial number of truck trips and the proposed project would not alter the speed limit on any existing roadway so the proposed project's potential offsite noise impacts have been focused on the noise impacts associated with the change of volume of traffic that would occur with development of the proposed project.

Since neither the General Plan or Municipal Code defines what an increase in roadway noise would be considered significant, the noise increase threshold guidance provided by the Federal Transit Administration for a moderate impact that has been detailed above in Table A and shows that the project contribution to the noise environment can range between 0 and 7 dB, which is dependent on the existing noise levels.

According to the project applicant and as analyzed in the Air Quality Analysis (Vista Environmental, 2025), operation of the proposed project is anticipated to generate on average one worker would visit the site each day during operation of the project, which would result in the generation two daily trips from the operation of the project.

The construction-related roadway noise analysis, provided above found that the 150 daily trips generated by construction activities would result in a negligible increase to roadway noise. As such, the operation of the proposed project which would generate an average of two daily trips would also result in a negligible increase in roadway noise. Therefore, a less than significant roadway noise impact would occur from operation of the proposed project.

Onsite Noise Sources

The operation of the proposed solar farm would generally consist of a passive use that does not create noise. However, the proposed switch stations would include transformers that are a known source of noise. According to Maddox Industries, a 7501 to 10,000 KVA rated transformer would create a noise

level of 68 dBA at one meter³. Section 18-311(a) of the City’s Municipal Code limits noise created on the project site at the nearby single-family homes to 60 dBA between 7:00 a.m. to 10:00 p.m. and 50 dBA between 10:00 p.m. and 7:00 a.m..

In order to determine the noise impacts from the operation of the transformers at the nearby homes to the north and east of the project site, the noise levels were calculated through use of standard geometric spreading of noise from a point source with a drop-off rate of 6 dB for each doubling of the distance between the source and receiver and the results are shown in Table H.

Table H – Operational Noise Levels at the Nearby Homes

Noise Source	Homes to North		Homes to East	
	Distance - Source to Homes (feet)	Noise Level ¹ (dBA Leq)	Distance - Source to Homes (feet)	Noise Level ¹ (dBA Leq)
Transformers ²	800	20	980	19
City Residential Noise Standards (day/night)		60/50		60/50
Exceed City Noise Standard?		No/No		No/No

Notes:

¹ The calculated noise levels based on standard geometric spreading of noise of a 6 dB reduction per doubling of distance between source and receptor.

² Based on transformer noise rating of 68 dBA at one meter (3.28 feet).

Table H shows that the proposed project’s case operational noise from the operation of transformers on the project site would create noise levels of 20 dBA at the homes north of the project site and 19 dBA at the homes east of the project site. The worst-case operational noise level of 20 dBA at the nearby homes would be below both the City’s daytime noise standard of 60 dBA and nighttime noise standard of 50 dBA. It should also be noted that the operational noise levels would be below the lowest measured noise levels in the vicinity of the nearby homes that ranged between 59.9 and 62.2 dBA Leq (see Section 5.1, above). Therefore, operational onsite noise impacts would be less than significant

Level of Significance

Less than significant impact.

7.3 Generation of Excessive Groundborne Vibration

The proposed project would not expose persons to or generation of excessive groundborne vibration or groundborne noise levels. The following section analyzes the potential vibration impacts associated with the construction and operations of the proposed project.

Construction-Related Vibration Impacts

The construction activities for the proposed project are anticipated to include the following phases of construction: 1) Site Preparation and Access Road Construction, 2) Grading, 3) Electrical Infrastructure; 4) PV System and Switch Stations Installation, and 5) Placement of Gravel and Site Cleanup. Vibration impacts from construction activities associated with the proposed project would typically be created from

³ Obtained from: <https://www.maddox.com/resources/articles/audible-sound-levels-in-liquid-filled-transformers>

the operation of heavy off-road equipment. The nearest sensitive receptors to the project site are the single-family homes located on the north side of SR 60 that are as near 500 feet north of the project site.

Section 18-309 of the Municipal Code restricts the creation of vibration that is perceptible on any nearby property. Section 18-309 of the Municipal Code defines the threshold of perception to be more than 0.05 inch per second RMS vertical Velocity.

The primary source of vibration during construction would be from the operation of a bulldozer. From Table F above a large bulldozer would create a vibration level of 0.089 inch per second PPV or 0.022 inch per second RMS at 25 feet. Based on typical propagation rates, the vibration level at the nearest homes (500 feet away) would be 0.003 inch per second PPV or 0.0019 inch per second RMS. The vibration level at the nearest homes, would be well below the 0.05 inch per second RMS threshold detailed in Section 18-309 of the Municipal Code. Therefore, a less than significant vibration impact is anticipated from construction of the proposed project.

Operations-Related Vibration Impacts

The proposed project would consist of the operation of a solar farm. The on-going operation of the proposed project would not include the operation of any known vibration sources. Therefore, a less than significant vibration impact is anticipated from the operation of the proposed project.

Level of Significance

Less than significant impact.

7.4 Aircraft Noise

The proposed project would not expose people residing or working in the project area to excessive noise levels from aircraft. The nearest airport is Brackett Field Airport that is located approximately 4.6 miles north of the project site. The project site is located outside of the 60 dBA CNEL noise contours of Brackett Field Airport. No impacts would occur from aircraft noise.

Level of Significance

No impact.

8.0 REFERENCES

California Department of Transportation (Caltrans), *Technical Noise Supplement to the Traffic Noise Analytics Protocol*, September 2013.

California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, April 2020.

City of Pomona, *CODE City of Pomona, California*, September 23, 2020.

City of Pomona, *City of Pomona 2014 General Plan Update*, March 2014.

City of Pomona, *City of Pomona Green Plan*, November 2012.

Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, September 2018.

Rincon Consultants, *Pomona General Plan Update Corridors Specific Plan Active Transportation Plan and Green Plan Draft Environmental Impact Report Volume I*, July 2013.

U.S. Department of Transportation, *FHWA Roadway Construction Noise Model User's Guide*, January, 2006.

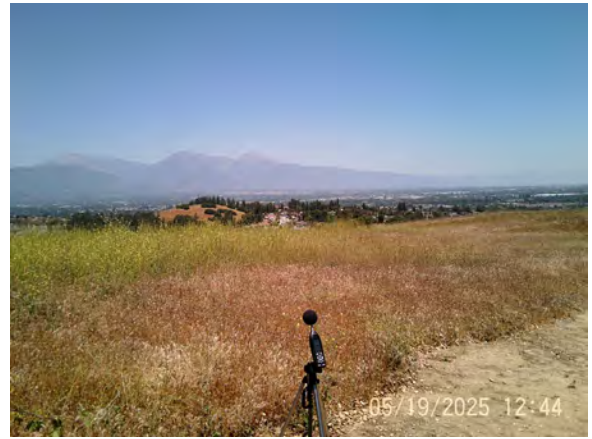
Vista Environmental, *Air Quality, Energy, and Greenhouse Gase Emissions Impact Analysis Diamond Ranch High School Solar Farm Project*, June 16, 2025.

APPENDIX A

Field Noise Measurements Photo Index



Noise Measurement Site 1 - looking north



Noise Measurement Site 1 - looking northeast



Noise Measurement Site 1 - looking east



Noise Measurement Site 1 - looking southeast



Noise Measurement Site 1 - looking south



Noise Measurement Site 1 - looking southwest



Noise Measurement Site 1 - looking west



Noise Measurement Site 1 - looking northwest



Noise Measurement Site 2 - looking north



Noise Measurement Site 2 - looking northeast



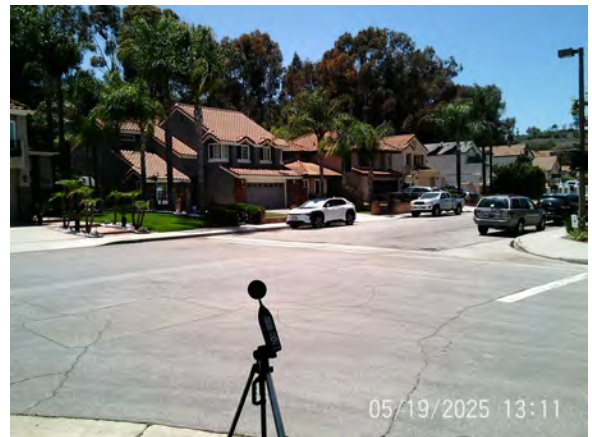
Noise Measurement Site 2 - looking east



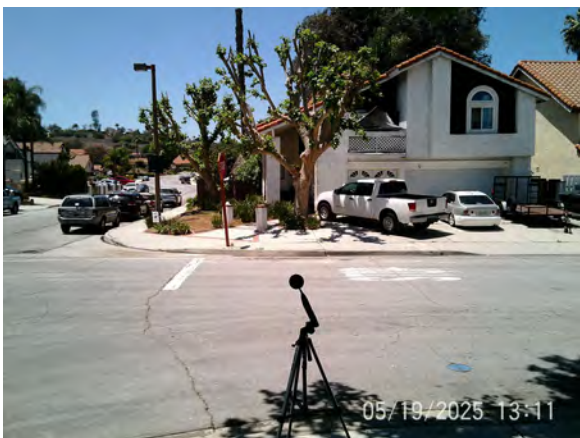
Noise Measurement Site 2 - looking southeast



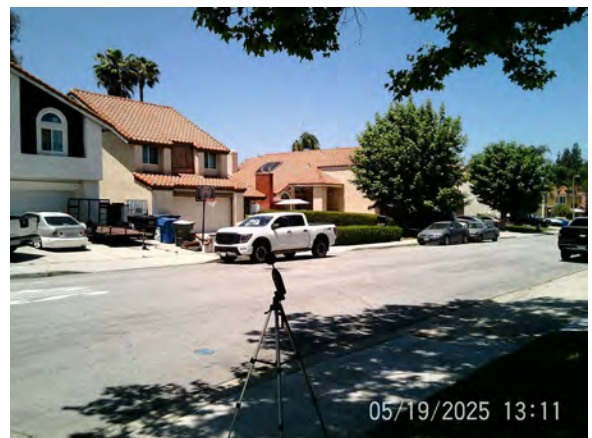
Noise Measurement Site 2 - looking south



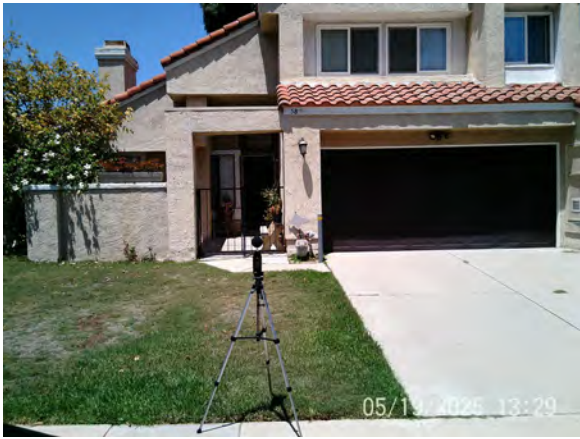
Noise Measurement Site 2 - looking southwest



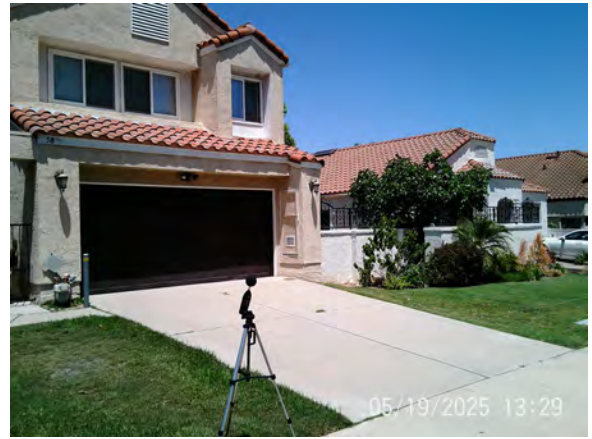
Noise Measurement Site 2 - looking west



Noise Measurement Site 2 - looking northwest



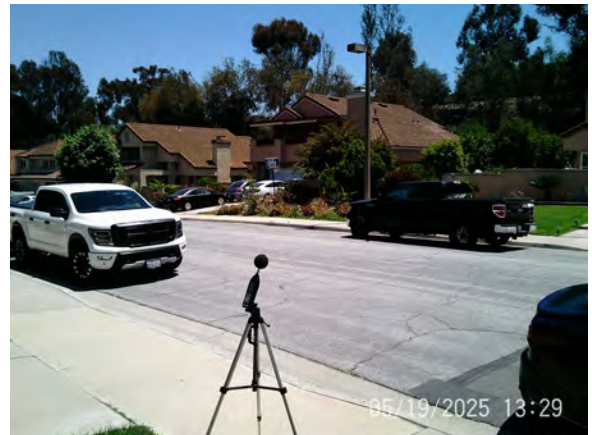
Noise Measurement Site 3 - looking north



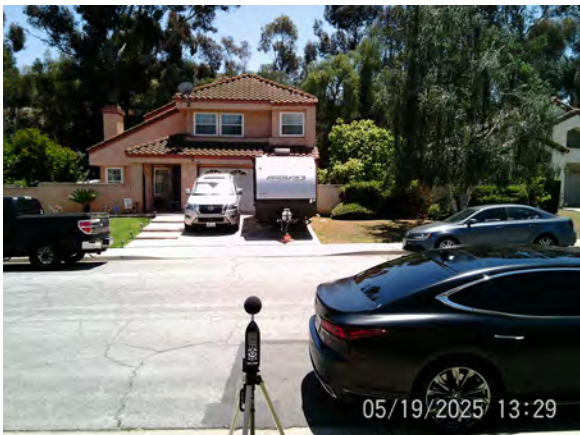
Noise Measurement Site 3 - looking northeast



Noise Measurement Site 3 - looking east



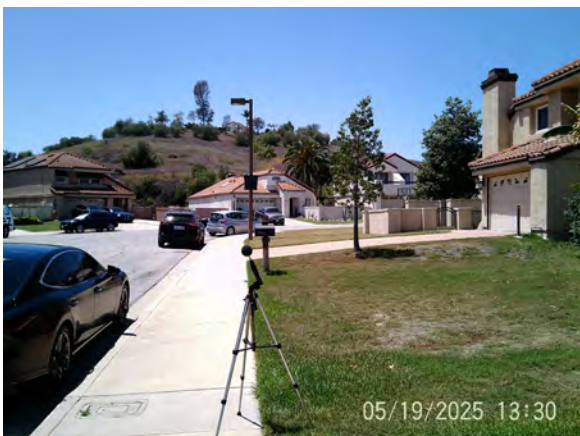
Noise Measurement Site 3 - looking southeast



Noise Measurement Site 3 - looking south



Noise Measurement Site 3 - looking southwest



Noise Measurement Site 3 - looking west



Noise Measurement Site 3 - looking northwest

APPENDIX B

Field Noise Measurements Printouts

Measurement Report

Report Summary

Meter's File Name	831_Data.001.s	Computer's File Name	831_0002509-20250519 123026-831_Data.001.lbin	
Meter	831 0002509	Firmware	2.403	
User	GT	Location	SE Portion of Project Site	
Job Description	Diamond Ranch High School Solar			
Note	On proposed driveway to Solar. Approx 110 ft north of Diamond Ranch RD CL			

Measurement

Start Time	2025-05-19 12:30:26	Duration	0:15:00.0		
End Time	2025-05-19 12:45:26	Run Time	0:15:00.0	Pause Time	0:00:00.0
Pre-Calibration	2025-05-19 12:28:07	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA _{eq}	47.9 dB		
LAE	77.4 dB	SEA	--- dB
EA	6.2 µPa²h		
LZ _{peak}	92.6 dB		2025-05-19 12:30:26
LAS _{max}	60.6 dB		2025-05-19 12:40:17
LAS _{min}	40.5 dB		2025-05-19 12:35:45
LA _{eq}	47.9 dB		
LC _{eq}	64.0 dB	LC _{eq} - LA _{eq}	16.1 dB
LAI _{eq}	51.1 dB	LAI _{eq} - LA _{eq}	3.2 dB

Exceedances

	Count	Duration
LAS > 65.0 dB	0	0:00:00.0
LAS > 85.0 dB	0	0:00:00.0
LZpk > 135.0 dB	0	0:00:00.0
LZpk > 137.0 dB	0	0:00:00.0
LZpk > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight		
47.9 dB	47.9 dB	---		
LDEN	LDay	LEve	LNight	
47.9 dB	47.9 dB	---	---	

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	47.9 dB		64.0 dB		71.3 dB	
$LS_{(max)}$	60.6 dB	2025-05-19 12:40:17	71.9 dB	2025-05-19 12:44:43	82.6 dB	2025-05-19 12:37:31
$LF_{(max)}$	65.4 dB	2025-05-19 12:42:42	73.3 dB	2025-05-19 12:44:43	87.2 dB	2025-05-19 12:35:15
$LI_{(max)}$	70.1 dB	2025-05-19 12:42:42	74.0 dB	2025-05-19 12:44:43	90.5 dB	2025-05-19 12:30:26
$LS_{(min)}$	40.5 dB	2025-05-19 12:35:45	59.1 dB	2025-05-19 12:31:33	64.9 dB	2025-05-19 12:31:38
$LF_{(min)}$	39.8 dB	2025-05-19 12:35:44	56.6 dB	2025-05-19 12:35:41	61.9 dB	2025-05-19 12:31:38
$LI_{(min)}$	40.3 dB	2025-05-19 12:35:44	60.4 dB	2025-05-19 12:33:30	66.6 dB	2025-05-19 12:31:38
$L_{Peak(max)}$	87.9 dB	2025-05-19 12:43:58	87.1 dB	2025-05-19 12:43:58	92.6 dB	2025-05-19 12:30:26

Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	54.0 dB
LAS 10.0	51.8 dB
LAS 33.3	46.4 dB
LAS 50.0	44.2 dB
LAS 66.6	43.1 dB
LAS 90.0	41.7 dB

Measurement Report

Report Summary

Meter's File Name 831_Data.002.s Computer's File Name 831_0002509-20250519 125753-831_Data.002.lbin
Meter 831 0002509 Firmware 2.403
User GT Location NE of Project Site
Job Description Diamond Ranch High School Solar
Note In front of home at 2 Ravenhill Drive. Approx 30 ft east of Ravenhill Dr CL and 40 ft north of Rolling Ridge Dr CL

Measurement

Start Time 2025-05-19 12:57:53 Duration 0:15:00.0
End Time 2025-05-19 13:12:53 Run Time 0:15:00.0 Pause Time 0:00:00.0
Pre-Calibration 2025-05-19 12:28:05 Post-Calibration None Calibration Deviation ---

Results

Overall Metrics

LA_{eq} 59.9 dB
 LAE 89.4 dB SEA --- dB
EA 97.7 μPa^2h
 LZ_{peak} 98.2 dB 2025-05-19 13:09:48
 LAS_{max} 80.0 dB 2025-05-19 13:09:48
 LAS_{min} 54.3 dB 2025-05-19 13:03:12
 LA_{eq} 59.9 dB
 LC_{eq} 70.5 dB $LC_{eq} - LA_{eq}$ 10.6 dB
 LAI_{eq} 62.0 dB $LAI_{eq} - LA_{eq}$ 2.1 dB

Exceedances

	Count	Duration
LAS > 65.0 dB	4	0:00:24.0
LAS > 85.0 dB	0	0:00:00.0
LZpk > 135.0 dB	0	0:00:00.0
LZpk > 137.0 dB	0	0:00:00.0
LZpk > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight		
59.9 dB	59.9 dB	---		
LDEN	LDay	LEve	LNight	
59.9 dB	59.9 dB	---	---	---

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	59.9 dB		70.5 dB		75.7 dB	
LS _(max)	80.0 dB	2025-05-19 13:09:48	85.7 dB	2025-05-19 13:02:31	86.4 dB	2025-05-19 13:02:31
LF _(max)	82.6 dB	2025-05-19 13:09:48	88.0 dB	2025-05-19 13:02:30	88.6 dB	2025-05-19 13:02:30
LI _(max)	84.3 dB	2025-05-19 13:09:48	88.9 dB	2025-05-19 13:02:30	91.0 dB	2025-05-19 12:57:53
LS _(min)	54.3 dB	2025-05-19 13:03:12	63.9 dB	2025-05-19 13:11:40	67.3 dB	2025-05-19 13:11:36
LF _(min)	53.8 dB	2025-05-19 13:03:10	61.8 dB	2025-05-19 13:11:39	65.2 dB	2025-05-19 13:11:39
LI _(min)	54.1 dB	2025-05-19 13:03:10	64.3 dB	2025-05-19 13:11:40	68.6 dB	2025-05-19 13:11:34
L _{Peak(max)}	95.4 dB	2025-05-19 13:09:48	98.0 dB	2025-05-19 13:09:48	98.2 dB	2025-05-19 13:09:48

Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	62.2 dB
LAS 10.0	60.5 dB
LAS 33.3	58.2 dB
LAS 50.0	57.4 dB
LAS 66.6	56.8 dB
LAS 90.0	55.8 dB

Measurement Report

Report Summary

Meter's File Name 831_Data.003.s Computer's File Name 831_0002509-20250519 131608-831_Data.003.ldbin
Meter 831 0002509 Firmware 2.403
User GT Location NE of Project Site
Job Description Diamond Ranch High School Solar
Note In front of home at 58 Oak Cliff Drive. Approx 30 ft north of Oak Cliff Dr CL

Measurement

Start Time 2025-05-19 13:16:08 Duration 0:15:00.0
End Time 2025-05-19 13:31:08 Run Time 0:15:00.0 Pause Time 0:00:00.0
Pre-Calibration 2025-05-19 12:28:05 Post-Calibration None Calibration Deviation ---

Results

Overall Metrics

LA_{eq} 62.2 dB
LAE 91.7 dB SEA --- dB
EA 166.0 µPa²h
LZ_{peak} 103.7 dB 2025-05-19 13:23:30
LAS_{max} 74.4 dB 2025-05-19 13:23:54
LAS_{min} 58.5 dB 2025-05-19 13:21:27
LA_{eq} 62.2 dB
LC_{eq} 71.0 dB LC_{eq} - LA_{eq} 8.8 dB
LAI_{eq} 62.8 dB LAI_{eq} - LA_{eq} 0.6 dB

Exceedances

	Count	Duration
LAS > 65.0 dB	2	0:00:35.3
LAS > 85.0 dB	0	0:00:00.0
LZpk > 135.0 dB	0	0:00:00.0
LZpk > 137.0 dB	0	0:00:00.0
LZpk > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight		
62.2 dB	62.2 dB	---		
LDEN	LDay	LEve	LNight	
62.2 dB	62.2 dB	---	---	---

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	62.2 dB		71.0 dB		79.3 dB	
L _{S(max)}	74.4 dB	2025-05-19 13:23:54	82.2 dB	2025-05-19 13:23:54	94.4 dB	2025-05-19 13:23:30
L _{F(max)}	75.7 dB	2025-05-19 13:23:54	83.8 dB	2025-05-19 13:23:54	100.1 dB	2025-05-19 13:23:30
L _{I(max)}	76.3 dB	2025-05-19 13:23:54	85.4 dB	2025-05-19 13:23:54	102.3 dB	2025-05-19 13:23:30
L _{S(min)}	58.5 dB	2025-05-19 13:21:27	66.2 dB	2025-05-19 13:24:11	70.4 dB	2025-05-19 13:21:44
L _{F(min)}	58.1 dB	2025-05-19 13:21:26	65.1 dB	2025-05-19 13:28:44	68.6 dB	2025-05-19 13:21:41
L _{I(min)}	58.3 dB	2025-05-19 13:21:26	66.5 dB	2025-05-19 13:20:43	71.0 dB	2025-05-19 13:21:42
L _{Peak(max)}	86.7 dB	2025-05-19 13:23:54	94.1 dB	2025-05-19 13:23:53	103.7 dB	2025-05-19 13:23:30

Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	63.8 dB
LAS 10.0	63.2 dB
LAS 33.3	62.2 dB
LAS 50.0	61.8 dB
LAS 66.6	61.4 dB
LAS 90.0	60.4 dB

APPENDIX C

RCNM Model Construction Noise Calculations

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 6/19/2025
 Case Description: Diamond Ranch HS Solar Farm - Phase 1

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Homes to North	Residential	59.9	59.9	59.9

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Grader	No	40	85		600	5
Dozer	No	40		81.7	600	5
Dozer	No	40		81.7	600	5
Dozer	No	40		81.7	600	5
Backhoe	No	40		77.6	600	5
Front End Loader	No	40		79.1	600	5
Tractor	No	40	84		600	5
Tractor	No	40	84		600	5

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)			
	*Lmax	Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq
Grader	58.4	54.4	N/A	N/A	N/A	N/A
Dozer	55.1	51.1	N/A	N/A	N/A	N/A
Dozer	55.1	51.1	N/A	N/A	N/A	N/A
Dozer	55.1	51.1	N/A	N/A	N/A	N/A
Backhoe	51.0	47.0	N/A	N/A	N/A	N/A
Front End Loader	52.5	48.5	N/A	N/A	N/A	N/A
Tractor	57.4	53.4	N/A	N/A	N/A	N/A
Tractor	57.4	53.4	N/A	N/A	N/A	N/A
Total	58	61	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 6/19/2025
 Case Description: Diamond Ranch HS Solar Farm - Phase 1

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Homes to East	Residential	59.9	59.9	59.9

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		2000	5
Dozer	No	40		81.7	2000	5
Dozer	No	40		81.7	2000	5
Dozer	No	40		81.7	2000	5
Backhoe	No	40		77.6	2000	5
Front End Loader	No	40		79.1	2000	5
Tractor	No	40	84		2000	5
Tractor	No	40	84		2000	5

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Grader	48.0	44.0	N/A	N/A	N/A	N/A
Dozer	44.6	40.6	N/A	N/A	N/A	N/A
Dozer	44.6	40.6	N/A	N/A	N/A	N/A
Dozer	44.6	40.6	N/A	N/A	N/A	N/A
Backhoe	40.5	36.5	N/A	N/A	N/A	N/A
Front End Loader	42.1	38.1	N/A	N/A	N/A	N/A
Tractor	47.0	43.0	N/A	N/A	N/A	N/A
Tractor	47.0	43.0	N/A	N/A	N/A	N/A
Total	48	50	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 6/19/2025
 Case Description: Diamond Ranch HS Solar Farm - Phase 2

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Homes to North	Residential	59.9	59.9	59.9

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	600	5
Excavator	No	40		80.7	600	5
Grader	No	40	85		600	5
Dozer	No	40		81.7	600	5
Scraper	No	40		83.6	600	5
Scraper	No	40		83.6	600	5
Front End Loader	No	40		79.1	600	5
Tractor	No	40	84		600	5

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)			
	*Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq
Excavator	54.1	50.1	N/A	N/A	N/A	N/A
Excavator	54.1	50.1	N/A	N/A	N/A	N/A
Grader	58.4	54.4	N/A	N/A	N/A	N/A
Dozer	55.1	51.1	N/A	N/A	N/A	N/A
Scraper	57.0	53.0	N/A	N/A	N/A	N/A
Scraper	57.0	53.0	N/A	N/A	N/A	N/A
Front End Loader	52.5	48.5	N/A	N/A	N/A	N/A
Tractor	57.4	53.4	N/A	N/A	N/A	N/A
Total	58	61	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 6/19/2025
 Case Description: Diamond Ranch HS Solar Farm - Phase 2

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Homes to East	Residential	59.9	59.9	59.9

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	2000	5
Excavator	No	40		80.7	2000	5
Grader	No	40	85		2000	5
Dozer	No	40		81.7	2000	5
Scraper	No	40		83.6	2000	5
Scraper	No	40		83.6	2000	5
Front End Loader	No	40		79.1	2000	5
Tractor	No	40	84		2000	5

Equipment	Calculated (dBA)		Results Noise Limits (dBA)			
	*Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq
Excavator	43.7	39.7	N/A	N/A	N/A	N/A
Excavator	43.7	39.7	N/A	N/A	N/A	N/A
Grader	48.0	44.0	N/A	N/A	N/A	N/A
Dozer	44.6	40.6	N/A	N/A	N/A	N/A
Scraper	46.5	42.6	N/A	N/A	N/A	N/A
Scraper	46.5	42.6	N/A	N/A	N/A	N/A
Front End Loader	42.1	38.1	N/A	N/A	N/A	N/A
Tractor	47.0	43.0	N/A	N/A	N/A	N/A
Total	48	51	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 6/19/2025
 Case Description: Diamond Ranch HS Solar Farm - Phase 3

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Homes to North	Residential	59.9	59.9	59.9

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Excavator	No	40		80.7	600	5
Excavator	No	40		80.7	600	5
Generator	No	50		80.6	600	5
Backhoe	No	40		77.6	600	5
Front End Loader	No	40		79.1	600	5
Front End Loader	No	40		79.1	600	5
Tractor	No	40	84		600	5
Tractor	No	40	84		600	5

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)			
	*Lmax	Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq
Excavator	54.1	50.1	N/A	N/A	N/A	N/A
Excavator	54.1	50.1	N/A	N/A	N/A	N/A
Generator	54.0	51.0	N/A	N/A	N/A	N/A
Backhoe	51.0	47.0	N/A	N/A	N/A	N/A
Front End Loader	52.5	48.5	N/A	N/A	N/A	N/A
Front End Loader	52.5	48.5	N/A	N/A	N/A	N/A
Tractor	57.4	53.4	N/A	N/A	N/A	N/A
Tractor	57.4	53.4	N/A	N/A	N/A	N/A
Total	57	60	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 6/19/2025
 Case Description: Diamond Ranch HS Solar Farm - Phase 3

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Homes to East	Residential	59.9	59.9	59.9

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	2000	5
Excavator	No	40		80.7	2000	5
Generator	No	50		80.6	2000	5
Backhoe	No	40		77.6	2000	5
Front End Loader	No	40		79.1	2000	5
Front End Loader	No	40		79.1	2000	5
Tractor	No	40	84		2000	5
Tractor	No	40	84		2000	5

Equipment	Calculated (dBA)		Results Noise Limits (dBA)			
	*Lmax	Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq
Excavator	43.7	39.7	N/A	N/A	N/A	N/A
Excavator	43.7	39.7	N/A	N/A	N/A	N/A
Generator	43.6	40.6	N/A	N/A	N/A	N/A
Backhoe	40.5	36.5	N/A	N/A	N/A	N/A
Front End Loader	42.1	38.1	N/A	N/A	N/A	N/A
Front End Loader	42.1	38.1	N/A	N/A	N/A	N/A
Tractor	47.0	43.0	N/A	N/A	N/A	N/A
Tractor	47.0	43.0	N/A	N/A	N/A	N/A
Total	47	49	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 6/19/2025
 Case Description: Diamond Ranch HS Solar Farm - Phase 4

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Homes to North	Residential	59.9	59.9	59.9

Description	Impact Device	Usage(%)	Equipment Spec	Actual Lmax	Receptor Distance	Estimated Shielding
			(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	600	5
Crane	No	16		80.6	600	5
Gradall	No	40		83.4	600	5
Gradall	No	40		83.4	600	5
Gradall	No	40		83.4	600	5
Generator	No	50		80.6	600	5
Backhoe	No	40		77.6	600	5
Front End Loader	No	40		79.1	600	5
Tractor	No	40	84		600	5
Welder / Torch	No	40		74	600	5

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)			
	*Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq
Compressor (air)	51.1	47.1	N/A	N/A	N/A	N/A
Crane	54.0	46.0	N/A	N/A	N/A	N/A
Gradall	56.8	52.8	N/A	N/A	N/A	N/A
Gradall	56.8	52.8	N/A	N/A	N/A	N/A
Gradall	56.8	52.8	N/A	N/A	N/A	N/A
Generator	54.0	51.0	N/A	N/A	N/A	N/A
Backhoe	51.0	47.0	N/A	N/A	N/A	N/A
Front End Loader	52.5	48.5	N/A	N/A	N/A	N/A
Tractor	57.4	53.4	N/A	N/A	N/A	N/A
Welder / Torch	47.4	43.4	N/A	N/A	N/A	N/A
Total	57	61	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 6/19/2025
 Case Description: Diamond Ranch HS Solar Farm - Phase 4

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Homes to East	Residential	59.9	59.9	59.9

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	2000	5
Crane	No	16		80.6	2000	5
Gradall	No	40		83.4	2000	5
Gradall	No	40		83.4	2000	5
Gradall	No	40		83.4	2000	5
Generator	No	50		80.6	2000	5
Backhoe	No	40		77.6	2000	5
Front End Loader	No	40		79.1	2000	5
Tractor	No	40	84		2000	5
Welder / Torch	No	40		74.0	2000	5

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)			
	*Lmax	Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq
Compressor (air)	40.6	36.6	N/A	N/A	N/A	N/A
Crane	43.5	35.6	N/A	N/A	N/A	N/A
Gradall	46.4	42.4	N/A	N/A	N/A	N/A
Gradall	46.4	42.4	N/A	N/A	N/A	N/A
Gradall	46.4	42.4	N/A	N/A	N/A	N/A
Generator	43.6	40.6	N/A	N/A	N/A	N/A
Backhoe	40.5	36.5	N/A	N/A	N/A	N/A
Front End Loader	42.1	38.1	N/A	N/A	N/A	N/A
Tractor	47.0	43.0	N/A	N/A	N/A	N/A
Welder / Torch	37.0	33.0	N/A	N/A	N/A	N/A
Total	47	50	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 6/19/2025
 Case Description: Diamond Ranch HS Solar Farm - Phase 5

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Homes to North	Residential	59.9	59.9	59.9

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		600	5
Backhoe	No	40		77.6	600	5
Front End Loader	No	40		79.1	600	5
Front End Loader	No	40		79.1	600	5
Tractor	No	40	84		600	5
Tractor	No	40	84		600	5

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)			
	*Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq
Grader	58.4	54.4	N/A	N/A	N/A	N/A
Backhoe	51.0	47.0	N/A	N/A	N/A	N/A
Front End Loader	52.5	48.5	N/A	N/A	N/A	N/A
Front End Loader	52.5	48.5	N/A	N/A	N/A	N/A
Tractor	57.4	53.4	N/A	N/A	N/A	N/A
Tractor	57.4	53.4	N/A	N/A	N/A	N/A
Total	58	60	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 6/19/2025
 Case Description: Diamond Ranch HS Solar Farm - Phase 5

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Homes to East	Residential	59.9	59.9	59.9

Description	Impact Device	Usage(%)	Equipment Spec	Actual	Receptor	Estimated
			Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Grader	No	40	85		2000	5
Backhoe	No	40		77.6	2000	5
Front End Loader	No	40		79.1	2000	5
Front End Loader	No	40		79.1	2000	5
Tractor	No	40	84		2000	5
Tractor	No	40	84		2000	5

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Grader	48.0	44	N/A	N/A	N/A	N/A
Backhoe	40.5	36.5	N/A	N/A	N/A	N/A
Front End Loader	42.1	38.1	N/A	N/A	N/A	N/A
Front End Loader	42.1	38.1	N/A	N/A	N/A	N/A
Tractor	47.0	43.0	N/A	N/A	N/A	N/A
Tractor	47.0	43.0	N/A	N/A	N/A	N/A
Total	48	49	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.