Cherry Valley Public Storage Facility

Noise Impact Study

County of Riverside, CA

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1.0 Introduction

1.1 Purpose of Analysis and Study Objectives

The purpose of this noise impact study is to evaluate the potential noise impacts for the project study area and compare results to the County of Riverside and CEQA thresholds. The assessment was conducted and compared to the noise standards set forth by the Federal, State, and Local agencies. Consistent with the California Environmental Quality Act (CEQA) and CEQA Guidelines, a significant impact related to noise would occur if a proposed project is determined to result in:

The following is provided in this report:

- A description of the study area and the proposed project
- Information regarding the fundamentals of noise
- A description of the local noise guidelines and standards
- An analysis of traffic noise impacts to and from the project site
- An analysis of stationary noise impacts to and from the project site
- An analysis of construction noise impacts

1.2 Site Location and Study Area

The project site is located at 38692 Brookside Ave, in Riverside County, CA., as shown in Exhibit A. The site is located in the boundaries of the Pass Area Plan. Land uses surrounding the site include very low density residential to the north and southeast, commercial retail to the west, Beaumont High School to the east, and Brookside Elementary School to the south. Other sensitive land uses include residential uses further west and southwest.

1.3 Proposed Project Description

The Project proposes the demolition of an existing residential building and the construction of a new 109,885 square foot storage unit facility with 82,034 square feet of RV parking. Exhibit B demonstrates the site plan for the project.

This study assesses the stationary noise from the project site and compares the results to the applicable County noise limits. The site plan used for this is illustrated in Exhibit B.

Construction activities within the Project area will consist of site preparation, grading, building, paving, and architectural coating.

Exhibit A

Location Map

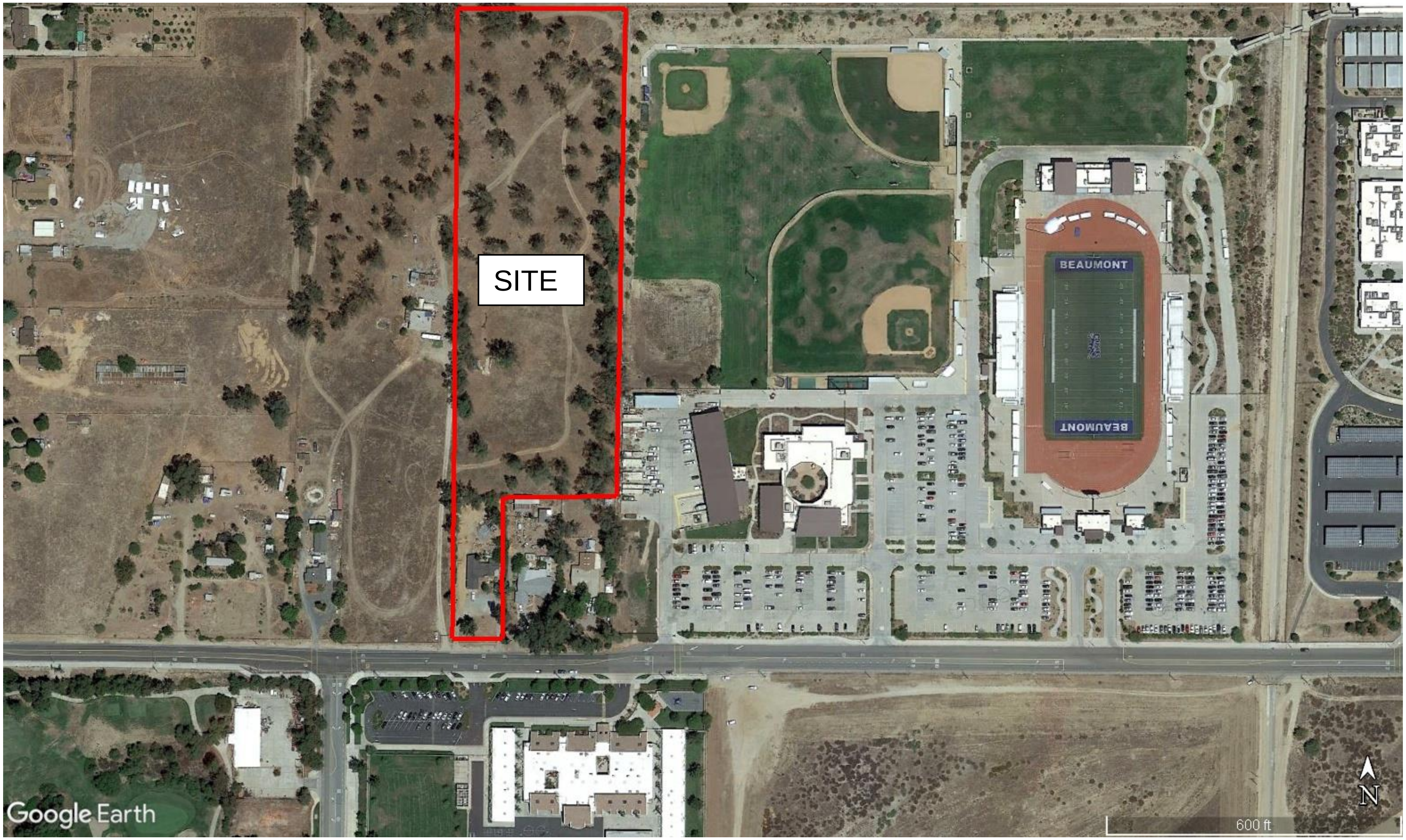


Exhibit B
Site Plan

Context Site Plan

0 40 120 Feet
Use Graphic Scale if this drawing is not printed on 30"x42" Paper

CUP Package May 31, 2023
22_1028

A New Mini-warehouse and RV Storage Facility for:

Cherry Valley Storage 38718 Brookside Avenue
Cherry Valley, CA 92223

James Goodman Architecture arclogica

Client: AMS Group, LLC
Civil Engineering: Strand Engineering
Landscape Architecture: Emerald Design

A-1.1

2.0 Fundamentals of Noise

This section of the report provides basic information about noise and presents some of the terms used within the report.

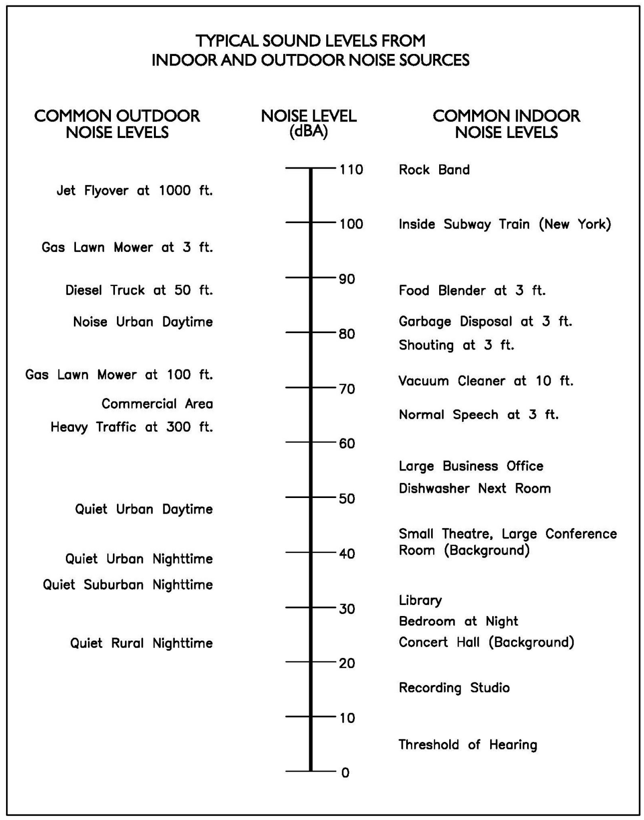
2.1 Sound, Noise and Acoustics

Sound is a disturbance created by a moving or vibrating source and is capable of being detected by the hearing organs. Sound may be thought of as mechanical energy of a moving object transmitted by pressure waves through a medium to a human ear. For traffic, or stationary noise, the medium of concern is air. *Noise* is defined as sound that is loud, unpleasant, unexpected, or unwanted.

2.2 Frequency and Hertz

A continuous sound is described by its *frequency* (pitch) and its *amplitude* (loudness). Frequency relates to the number of pressure oscillations per second. Low-frequency sounds are low in pitch (bass sounding) and high-frequency sounds are high in pitch (squeak). These oscillations per second (cycles) are commonly referred to as Hertz (Hz). The human ear can hear from the bass pitch starting out at 20 Hz all the way to the high pitch of 20,000 Hz.

Exhibit C: Typical A-Weighted Noise Levels



2.3 Sound Pressure Levels and Decibels

The *amplitude* of a sound determines it loudness. The loudness of sound increases or decreases as the amplitude increases or decreases. Sound pressure amplitude is measure in units of micro-Newton per square inch meter (N/m2), also called micro-Pascal (µPa). One µPa is approximately one hundred billionths (0.00000000001) of normal atmospheric pressure. Sound pressure level (SPL or L_p) is used to describe in logarithmic units the ratio of actual sound pressures to a reference pressure squared. These units are called decibels abbreviated dB. Exhibit C illustrates references sound levels for different noise sources.

2.4 Addition of Decibels

Because decibels are on a logarithmic scale, sound pressure levels cannot be added or subtracted by simple plus or minus addition. When two sounds or equal SPL are combined, they will produce an SPL 3 dB greater than the original single SPL. In other words, sound energy must be doubled to produce a 3 dB increase. If two sounds differ by approximately 10 dB, the higher sound level is the predominant sound.

2.5 Human Response to Changes in Noise Levels

In general, the healthy human ear is most sensitive to sounds between 1,000 Hz and 5,000 Hz, (A-weighted scale) and it perceives a sound within that range as being more intense than a sound with a higher or lower frequency with the same magnitude. For purposes of this report as well as with most environmental documents, the A-scale weighting is typically reported in terms of A-weighted decibel (dBA). Typically, the human ear can barely perceive the change in noise level of 3 dB. A change in 5 dB is readily perceptible, and a change in 10 dB is perceived as being twice or half as loud. As previously discussed, a doubling of sound energy results in a 3 dB increase in sound, which means that a doubling of sound energy (e.g. doubling the volume of traffic on a highway) would result in a barely perceptible change in sound level.

2.6 Noise Descriptors

Noise in our daily environment fluctuates over time. Some noise levels occur in regular patterns, others are random. Some noise levels are constant while others are sporadic. Noise descriptors were created to describe the different time-varying noise levels.

A-Weighted Sound Level: The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear. A numerical method of rating human judgment of loudness.

Ambient Noise Level: The composite of noise from all sources, near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

Community Noise Equivalent Level (CNEL): The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of five (5) decibels to sound levels in the evening from 7:00 to 10:00 PM and after addition of ten (10) decibels to sound levels in the night before 7:00 AM and after 10:00 PM.

Decibel (dB): A unit for measuring the amplitude of a sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micro-pascals.

dB(A): A-weighted sound level (see definition above).

Equivalent Sound Level (LEQ): The sound level corresponding to a steady noise level over a given sample period with the same amount of acoustic energy as the actual time varying noise level. The energy average noise level during the sample period.

Habitable Room: Any room meeting the requirements of the Uniform Building Code or other applicable regulations which is intended to be used for sleeping, living, cooking or dining purposes, excluding such enclosed spaces as closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms and similar spaces.

L(n): The A-weighted sound level exceeded during a certain percentage of the sample time. For example, L10 in the sound level exceeded 10 percent of the sample time. Similarly, L50, L90 and L99, etc.

Noise: *A*ny unwanted sound or sound which is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying. The State Noise Control Act defines noise as "...excessive undesirable sound...".

Outdoor Living Area: Outdoor spaces that are associated with residential land uses typically used for passive recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, jacuzzi areas, etc. associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship which have a significant role in services or other noise-sensitive activities; and outdoor school facilities routinely used for educational purposes which may be adversely impacted by noise. Outdoor areas usually not included in this definition are: front yard areas, driveways, greenbelts, maintenance areas and storage areas associated with residential land uses; exterior areas at hospitals that are not used for patient activities; outdoor areas associated with places of worship and principally used for short-term social gatherings; and, outdoor areas associated with school facilities that are not typically associated with educational uses prone to adverse noise impacts (for example, school play yard areas).

Percent Noise Levels: See L(n).

Sound Level (Noise Level): The weighted sound pressure level obtained by use of a sound level meter having a standard frequency-filter for attenuating part of the sound spectrum.

Sound Level Meter: An instrument, including a microphone, an amplifier, an output meter, and frequency weighting networks for the measurement and determination of noise and sound levels.

Single Event Noise Exposure Level (SENEL): The dB(A) level which, if it lasted for one second, would produce the same A-weighted sound energy as the actual event.

2.7 Traffic Noise Prediction

Noise levels associated with traffic depends on a variety of factors: (1) volume of traffic, (2) speed of traffic, (3) auto, medium truck (2 axle) and heavy truck percentage (3 axle and greater), and sound propagation. The greater the volume of traffic, higher speeds and truck percentages equate to a louder volume in noise. A doubling of the Average Daily Traffic (ADT) along a roadway will increase noise levels by approximately 3 dB; reasons for this are discussed in the sections above.

2.8 Sound Propagation

As sound propagates from a source it spreads geometrically. Sound from a small, localized source (i.e., a point source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates at a rate of 6 dB per doubling of distance. The movement of vehicles down a roadway makes the source of the sound appear to propagate from a line (i.e., line source) rather than a point source. This line source results in the noise propagating from a roadway in a cylindrical spreading versus a spherical spreading that results from a point source. The sound level attenuates for a line source at a rate of 3 dB per doubling of distance.

As noise propagates from the source, it is affected by the ground and atmosphere. Noise models use hard site (reflective surfaces) and soft site (absorptive surfaces) to help calculate predicted noise levels. Hard site conditions assume no excessive ground absorption between the noise source and the receiver. Soft site conditions such as grass, soft dirt or landscaping attenuate noise at a rate of 1.5 dB per doubling of distance. When added to the geometric spreading, the excess ground attenuation results in an overall noise attenuation of 4.5 dB per doubling of distance for a line source and 7.5 dB per doubling of distance for a point source.

Research has demonstrated that atmospheric conditions can have a significant effect on noise levels when noise receivers are located 200 feet or more from a noise source. Wind, temperature, air humidity and turbulence can further impact have far sound can travel.

3.0 Ground-Bourne Vibration Fundamentals

3.1 Vibration Descriptors

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.

Several different methods are used to quantify vibration amplitude.

PPV – Known as the peak particle velocity (PPV) which is the maximum instantaneous peak in vibration velocity, typically given in inches per second.

RMS – Known as root mean squared (RMS) can be used to denote vibration amplitude

VdB – A commonly used abbreviation to describe the vibration level (VdB) for a vibration source.

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. Outdoor 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. To counter the effects of ground-borne vibration, the Federal Transit Administration (FTA) has published guidance relative to vibration impacts. According to the FTA, fragile buildings can be exposed to ground-borne vibration levels of 0.3 inches per second without experiencing structural damage.

3.3 Vibration Propagation

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 proposed project is located in Riverside County, California, and 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:

- Publicize noise emission standards for interstate commerce
- Assist state and local abatement efforts
- Promote noise education and research

The Federal Office of Noise Abatement and Control (ONAC) originally was tasked with implementing the Noise Control Act. However, it was eventually eliminated leaving other federal agencies and committees to develop noise policies and programs. Some examples of these agencies are as follows: The Department of Transportation (DOT) assumed a significant role in noise control through its various agencies. The Federal Aviation Agency (FAA) is responsible to regulate noise from aircraft and airports. The Federal Highway Administration (FHWA) is responsible to regulate noise from the interstate highway system. The Occupational Safety and Health Administration (OSHA) is responsible for the prohibition of excessive noise exposure to workers.

The federal government advocates that local jurisdiction use their land use regulatory authority to arrange new development in such a way that “noise sensitive” uses are either prohibited from being constructed adjacent to a highway or, or alternatively that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

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

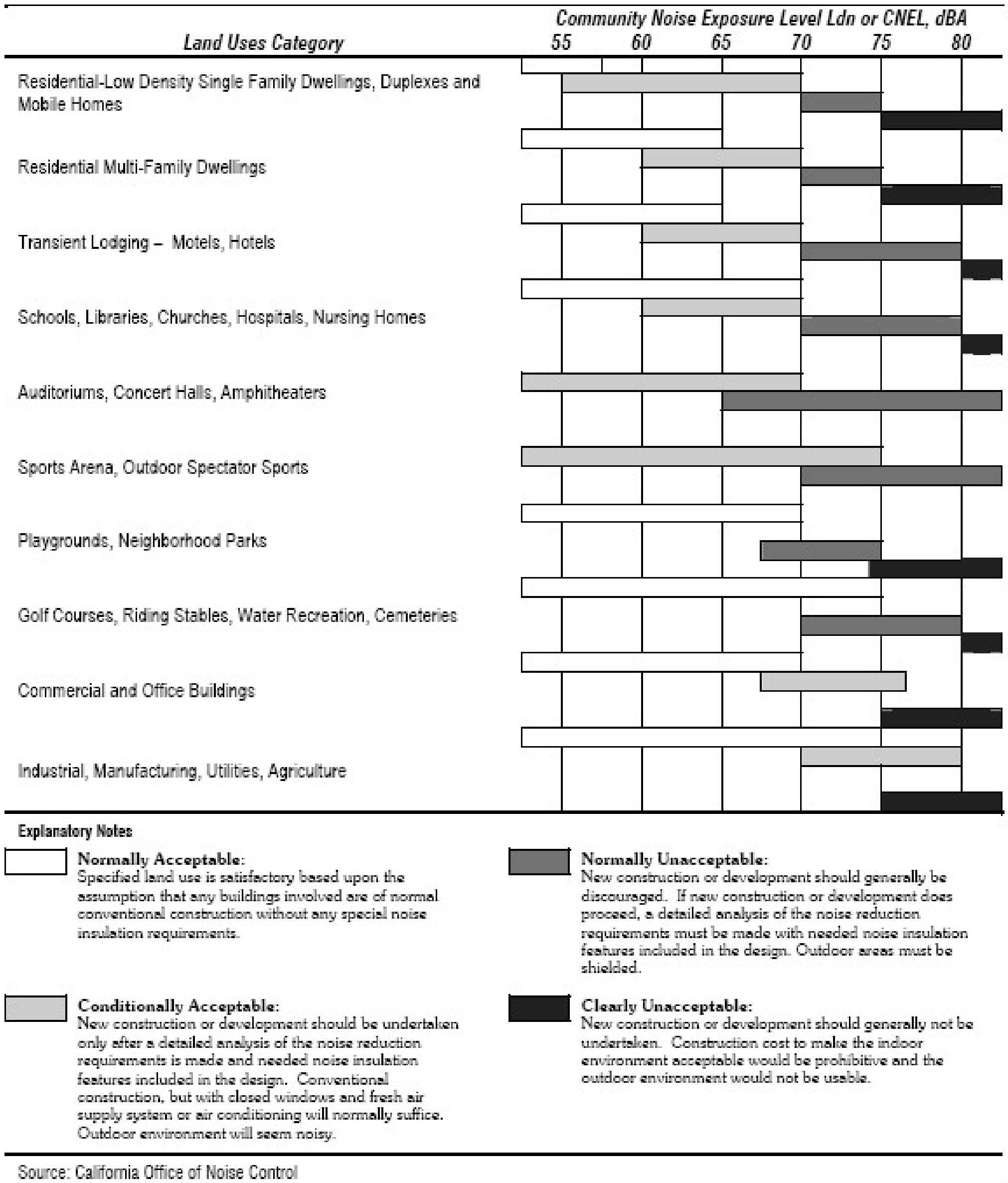
4.2 State Regulations

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.” The matrix allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise.

The State of California has established noise insulation standards as outlined in Title 24 and the Uniform Building Code (UBC) which in some cases requires acoustical analyses to outline exterior noise levels and to ensure interior noise levels do not exceed the interior threshold. The State mandates that the legislative body of each county and city 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 as illustrated in Exhibit D and can be found in the City's General Plan Noise Element.

Exhibit D: Land Use Compatibility Guidelines



4.3 County of Riverside Noise Regulations

The County of Riverside outlines its noise regulations and standards within the Municipal Code and the Noise Element of the County of Riverside General Plan.

County of Riverside Municipal Code

CHAPTER 9.52 –Noise Regulations

9.52.010. - Intent

At certain levels, sound becomes noise and may jeopardize the health, safety, or general welfare of Riverside County residents and degrade their quality of life. Pursuant to its police power, the board of supervisors declares that noise shall be regulated in the manner described in this chapter. This chapter is intended to establish county-wide standards regulating noise. This chapter is not intended to establish thresholds of significance for the purpose of any analysis required by the California Environmental Quality Act and no such thresholds are established.
(Ord. 847 § 1, 2006)

9.52.020. - Exemptions

A. Sound emanating from the following sources is exempt from the provisions of this chapter:
B. Facilities owned or operated by or for a governmental agency;
C. Capital improvement projects of a governmental agency;
D. The maintenance or repair of public properties;
E. Public safety personnel in the course of executing their official duties, including, but not limited to, sworn peace officers, emergency personnel and public utility personnel. This exemption includes, without limitation, sound emanating from all equipment used by such personnel, whether stationary or mobile;
F. Public or private schools and school-sponsored activities;
G. Agricultural operations on land designated "Agriculture" in the Riverside County general plan, or land zoned A-l (light agriculture), A-P (light agriculture with poultry), A-2 (heavy agriculture), A-D (agriculture-dairy) or C/V (citrus/vineyard), provided such operations are carried out in a manner consistent with accepted industry standards. This exemption includes, without limitation, sound emanating from all equipment used during such operations, whether stationary or mobile;
H. Wind energy conversion systems (WECS), provided such systems comply with the WECS noise provisions of Riverside County Ordinance No. 348;
I. Private construction projects located one-quarter of a mile or more from an inhabited dwelling;
J. Private construction projects located within one-quarter of a mile from an inhabited dwelling, provided that:
   1. Construction does not occur between the hours of six p.m. and six a.m. during the months of June through September, and
   2. Construction does not occur between the hours of six p.m. and seven a.m. during the months of October through May;
K. Property maintenance, including, but not limited to, the operation of lawnmowers, leaf blowers, etc., provided such maintenance occurs between the hours of seven a.m. and eight p.m.;
L. Motor vehicles, other than off-highway vehicles. This exemption does not include sound emanating from motor vehicle sound systems;
M. Heating and air conditioning equipment;
   Safety, warning and alarm devices, including, but not limited to, house and car alarms, and other warning devices that are designed to protect the public health, safety, and welfare;

N. The discharge of firearms consistent with all state laws.

(Ord. 847 § 2, 2006)

County of Riverside – Noise Ordinance

No person shall create any sound, or allow the creation of any sound, on any property that causes the exterior sound level on any other occupied property to exceed the sound level standards set forth in Table 1.

Table 1: Sound Level Standards (dBA L_{max})

GENERAL PLAN FOUNDATION COMPONENT	GENERAL PLAN LAND USE DESIGNATION NAME	MAXIMUM DECIBEL LEVEL	
		7 am – 10 pm	10 pm – 7 am
Community Development	Residential	55	45
	Commercial	65	55
	Light Industrial	75	55
	Heavy Industrial	75	75
	Business Park/Public Facility	65	45
Rural Community	Residential	55	45
Rural	Rural Residential, Mountainous, Desert	45	45
Agriculture	Agriculture	45	45
Open Space	Conservation, Recreation, Watershed	45	45
	Mineral Resources	75	45

(Ord. 847 § 4, 2006)

County of Riverside General Plan

Goals, Policies, and Implementation Measures

Policies, goals and implementation program measures from the Noise Element that would mitigate potential impacts on noise include the following.

N 1.1 Protect noise-sensitive land uses from high levels of noise by restricting noise-producing land uses from these areas. If the noise-producing land use cannot be relocated, then noise buffers such as setbacks, landscaping, or block walls shall be used.

N 1.2 Guide noise-tolerant land uses into areas irrevocably committed to land uses that are noise-producing, such as transportation corridors or within the projected noise contours of any adjacent airports.

N 1.4 Determine if existing land uses will present noise compatibility issues with proposed projects by undertaking site surveys.

N 1.5 Prevent and mitigate the adverse impacts of excessive noise exposure on the residents, employees, visitors, and noise-sensitive uses of Riverside County.

N 1.6 Minimize noise spillover or encroachment from commercial and industrial land uses into adjoining residential neighborhoods or noise-sensitive uses.

N 1.7 Require proposed land uses, affected by unacceptably high noise levels, to have an acoustical specialist prepare a study of the noise problems and recommend structural and site design features that will adequately mitigate the noise problem.
N 2.2 Require a qualified acoustical specialist to prepare acoustical studies for proposed noise-sensitive projects within noise impacted areas to mitigate existing noise.
N 2.3 Mitigate exterior and interior noises to the levels listed in the table below to the extent feasible, for stationary sources.

Stationary Source Land Use Noise Standards[1]

Land Use	Interior Standards	Exterior Standards
Residential		
10:00 p.m. to 7:00 a.m.	40 L_{eq} (10 minute)	45 L_{eq} (10 minute)
7:00 a.m. to 10:00 p.m.	55 L_{eq} (10 minute)	65 L_{eq} (10 minute)

1 These are only preferred standards; final decision will be made by the Riverside County Planning Department and Office of Public Health.

N 3.2 Require acoustical studies and subsequent approval by the Planning Department and the Office of Industrial Hygiene, to help determine effective noise mitigation strategies in noise-producing areas.
N 3.3 Ensure compatibility between industrial development and adjacent land uses. To achieve compatibility, industrial development projects may be required to include noise mitigation measures to avoid or minimize project impacts on adjacent uses.
N 3.4 Identify point-source noise producers such as manufacturing plants, truck transfer stations, and commercial development by conducting a survey of individual sites.
N 3.5 Require that a noise analysis be conducted by an acoustical specialist for all proposed projects that are noise producers. Include recommendations for design mitigation if the project is to be located either within proximity of a noise-sensitive land use, or land designated for noise sensitive land uses.
N 3.6 Discourage projects that are incapable of successfully mitigating excessive noise.
N 4.1 Prohibit facility-related noise received by any sensitive use from exceeding the following worstcase noise levels:

a. 45 dBA-10-minute Leq between 10:00 p.m. and 7:00 a.m.
b. 65 dBA-10-minute Leq between 7:00 a.m. and 10:00 p.m.

N 4.2 Develop measures to control non-transportation noise impacts.
N 4.3 Ensure any use determined to be a potential generator of significant stationary noise impacts be properly analyzed and ensure that the recommended mitigation measures are implemented.
N 4.4 Require that detailed and independent acoustical studies be conducted for any new or renovated land uses or structures determined to be potential major stationary noise sources.
N 4.5 Encourage major stationary noise-generating sources throughout the County of Riverside to install additional noise buffering or reduction mechanisms within their facilities to reduce noise generation levels to the lowest extent practicable prior to the renewal of conditional use permits or business licenses or prior to the approval and/or issuance of new conditional use permits for said facilities.
N 4.7 Evaluate noise producers for the possibility of pure-tone producing noises. Mitigate any pure tones that may be emitted from a noise source.

N 4.8 Require that the parking structures, terminals, and loading docks of commercial or industrial land uses be designed to minimize the potential noise impacts of vehicles on the site as well as on adjacent land uses.

N 6.3 Require commercial or industrial truck delivery hours be limited when adjacent to noise-sensitive land uses unless there is no feasible alternative or there are overriding transportation benefits.

N 9.3 Require development that generates increased traffic and subsequent increases in the ambient noise level adjacent to noise-sensitive land uses to provide for appropriate mitigation measures.

N 9.4 Require that the loading and shipping facilities of commercial and industrial land uses, which abut residential parcels be located and designed to minimize the potential noise impacts upon residential parcels.

N 13.1 Minimize the impacts of construction noise on adjacent uses within acceptable practices.

N 13.2 Ensure that construction activities are regulated to establish hours of operation in order to prevent and/or mitigate the generation of excessive or adverse noise impacts on surrounding areas.

N 13.3 Condition subdivision approval adjacent to developed/occupied noise-sensitive land uses (see policy N 1.3) by requiring the developer to submit a construction-related noise mitigation plan to the County for review and approval prior to issuance of a grading permit. The plan must depict the location of construction equipment and how the noise from this equipment will be mitigated during construction of this project, through the use of such methods as: a. Temporary noise attenuation fences; b. Preferential location of equipment; and c. Use of current noise suppression technology and equipment.

N 13.4 Require that all construction equipment utilizes noise reduction features (e.g. mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.

N 14.5 Consider the issue of adjacent residential land uses when designing and configuring all new, nonresidential development. Design and configure on-site ingress and egress points that divert traffic away from nearby noise-sensitive land uses to the greatest degree practicable. (AI 106, 107)

N 14.8 Review all development applications for consistency with the standards and policies of the Noise Element of the General Plan.

N 16.2 Consider the following land uses sensitive to vibration:

- Hospitals;
- Residential areas;
- Concert halls;
- Libraries;
- Sensitive research operations;
- Schools; and
- Offices

N 19.5 Require new developments that have the potential to generate significant noise impacts to inform impacted users on the effects of these impacts during the environmental review process

5.0 Study Method and Procedure

The following section describes the noise modeling procedures and assumptions used for this assessment.

5.1 Noise Measurement Procedure and Criteria

Noise measurements are taken to determine the existing noise levels. A noise receiver or receptor is any location in the noise analysis in which noise might produce an impact. The following criteria are used to select measurement locations and receptors:

- Locations expected to receive the highest noise impacts, such as first row of houses
- Locations that are acoustically representative and equivalent of the area of concern
- Human land usage
- Sites clear of major obstruction and contamination

MD conducted the sound level measurements in accordance to Caltrans technical noise specifications and the City's noise ordinance. All measurements equipment meets American National Standards Institute (ANSI) specifications for sound level meters (S1.4-1983 identified in Chapter 19.68.020.AA). The following gives a brief description of the Caltrans Technical Noise Supplement procedures for sound level measurements:

- Microphones for sound level meters were placed 5-feet above the ground for all measurements
- Sound level meters were calibrated (Larson Davis CAL 200) before and after each measurement
- Following the calibration of equipment, a wind screen was placed over the microphone
- Frequency weighting was set on "A" and slow response
- Results of the long-term noise measurements were recorded on field data sheets
- During any short-term noise measurements any noise contaminations such as barking dogs, local traffic, lawn mowers, or aircraft fly-overs were noted
- Temperature and sky conditions were observed and documented

5.2 Noise Measurement Location

Noise monitoring locations were selected to obtain a baseline of the existing noise environment. Nearby sensitive receptors include residential uses 25 feet east of the site, commercial uses 45 feet west of the site, a high school 140 feet east of the site, and an elementary school 170 feet south of the site. One (1) long-term noise measurement was conducted at the nearest sensitive receptor (residential use to the east) and represents the ambient noise levels at all of the surrounding sensitive receptors. Appendix A includes photos, field sheet, and measured noise data. Exhibit E illustrates the location of the measurements.

5.3 Stationary Noise Modeling

SoundPLAN (SP) acoustical modeling software was utilized to model future worst-case stationary noise impacts to the adjacent land uses. SP is capable of evaluating multiple stationary noise source impacts at various receiver locations. SP's software utilizes algorithms (based on the inverse square law and reference equipment noise level data) to calculate noise level projections. The software allows the user to input specific noise sources, spectral content, sound barriers, building placement, topography, and sensitive receptor locations.

The future worst-case noise level projections were modeled using referenced sound level data for the various stationary on-site sources (parking spaces, and HVAC). The model assumes that the building facility has twelve parking spaces and one hundred and eight RV parking spaces.

Automobile and RV Parking was modeled with a reference noise level of .5 cars per hour coming and going from the parking spots.

Rooftop HVAC units were modeled as point sources with a reference sound power level of 77 dBA.

The SP model assumes that all noise sources are operating simultaneously (worst-case scenario), when in actuality the noise will be intermittent and lower in noise level.

Finally, the model is able to evaluate the noise attenuating effects of any existing or proposed 8 foot tall property line walls. Input and output calculations are provided in Appendix C.

Table 2: Reference Sound Level Measurements for SoundPlan Model

Source	Source Type	Reference Level (dBA)	Descriptor
Automobile Parking	Area (SP Parking Tool)	-	.5 cars per hr
HVAC	Point Source	77	Sound Power

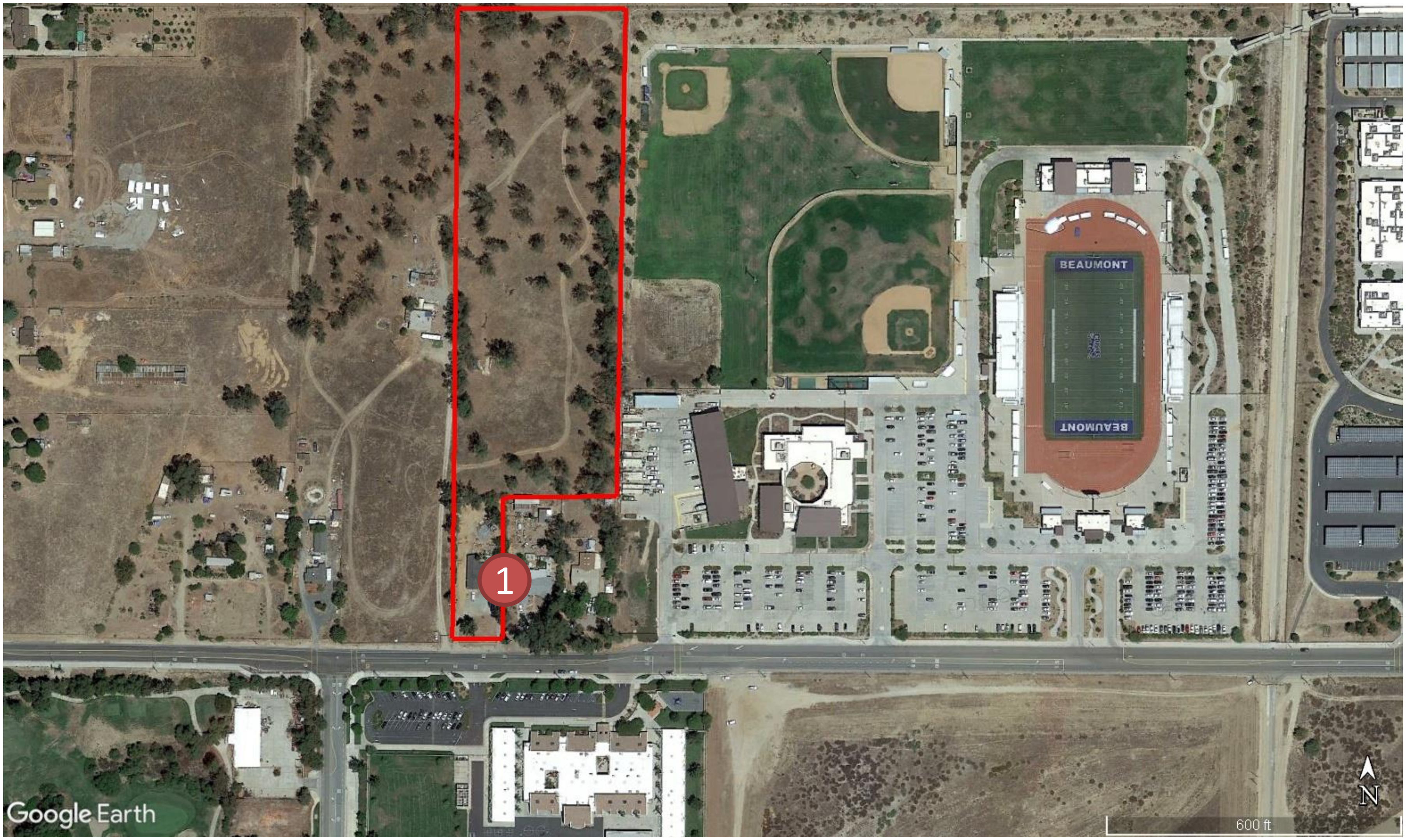
5.4 FHWA Roadway Construction Noise Model

The construction noise analysis utilizes the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RNCM), together with several key construction parameters. Key inputs include distance to the sensitive receiver, equipment usage, % usage factor, and baseline parameters for the project site.

The project was analyzed based on the different construction phases. Construction noise is expected to be loudest during the grading, concrete and building phases of construction. The construction noise calculation output worksheet is located in Appendix E. The following assumptions relevant to short-term construction noise impacts were used:

- It is estimated that construction will occur over a 18 month time period. Construction noise is expected to be the loudest during the grading, concrete, and building phases.

Exhibit E
Measurement Locations



6.0 Existing Noise Environment

One twenty four (24) hour ambient noise measurement was conducted near the project site approximately 156 feet from the centerline of Brookside Ave. The measurement measured the 1-hour Leq, Lmin, Lmax and other statistical data (e.g. L2, L8). The noise measurement was taken to determine the existing baseline noise conditions at surrounding sensitive receptors.

6.1 Long-Term Noise Measurement Results

The results of the long-term noise data taken are presented in Table 3.

Table 3: Long-Term Nosie Measurement Data (dBA)[1]

Date	Time	1-Hour dB(A)							
		L_{EQ}	L_{MAX}	L_{MIN}	L_2	L_8	L_{25}	L_{50}	L_{90}
5/31/2023	5PM-6PM	52.1	73.3	43.5	57.6	54.8	52.0	50.7	48.3
5/31/2023	6PM-7PM	50.4	71.6	41.8	55.9	53.1	50.3	49.0	46.6
5/31/2023	7PM-8PM	49.0	70.2	40.4	54.5	51.7	48.9	47.6	45.2
5/31/2023	8PM-9PM	47.9	69.1	39.3	53.4	50.6	47.8	46.5	44.1
5/31/2023	9PM-10PM	47.2	68.4	38.6	52.7	49.9	47.1	45.8	43.4
5/31/2023	10PM-11PM	46.2	67.4	37.6	51.7	48.9	46.1	44.8	42.4
5/31/2023	11PM-12AM	45.6	66.8	37.0	51.1	48.3	45.5	44.2	41.8
6/1/2023	12AM-1AM	44.1	65.3	35.5	49.6	46.8	44.0	42.7	40.3
6/1/2023	1AM-2AM	41.6	62.8	33.0	47.1	44.3	41.5	40.2	37.8
6/1/2023	2AM-3AM	40.4	61.6	31.8	45.9	43.1	40.3	39.0	36.6
6/1/2023	3AM-4AM	38.6	59.8	30.0	44.1	41.3	38.5	37.2	34.8
6/1/2023	4AM-5AM	39.6	60.8	31.0	45.1	42.3	39.5	38.2	35.8
6/1/2023	5AM-6AM	43.4	64.6	34.8	48.9	46.1	43.3	42.0	39.6
6/1/2023	6AM-7AM	49.8	71.0	41.2	55.3	52.5	49.7	48.4	46.0
6/1/2023	7AM-8AM	52.1	73.3	43.5	57.6	54.8	52.0	50.7	48.3
6/1/2023	8AM-9AM	50.2	71.4	41.6	55.7	52.9	50.1	48.8	46.4
6/1/2023	9AM-10AM	49.2	70.4	40.6	54.7	51.9	49.1	47.8	45.4
6/1/2023	10AM-11AM	49.1	70.3	40.5	54.6	51.8	49.0	47.7	45.3
6/1/2023	11AM-12PM	49.3	70.5	40.7	54.8	52.0	49.2	47.9	45.5
6/1/2023	12PM-1PM	49.4	70.6	40.8	54.9	52.1	49.3	48.0	45.6
6/1/2023	1PM-2PM	49.5	70.7	40.9	55.0	52.2	49.4	48.1	45.7
6/1/2023	2PM-3PM	49.8	71.0	41.2	55.3	52.5	49.7	48.4	46.0
6/1/2023	3PM-4PM	50.9	72.1	42.3	56.4	53.6	50.8	49.5	47.1
6/1/2023	4PM-5PM	52.5	73.7	43.9	58.0	55.2	52.4	51.1	48.7
CNEL		52.8							

Notes:
1. Long-term noise monitoring location (LT1) is illustrated in Exhibit E.
2. Quietest ambient noise measurement during operating hours highlighted in orange.

Noise data indicates the ambient noise measurements ranged between 47.2 dBA to 52.5 dBA near the project site. The quietest ambient noise level during operational hours measured 47.2 dBA. Additional field notes and photographs are provided in Appendix A.

For this evaluation, MD utilized the quietest hourly ambient noise level of 47.2 dBA Leq for the nearby sensitive land uses and has compared the project's projected noise levels during operational hours (7AM to 10PM) to the measured ambient.

7.0 Future Noise Environment Impacts and Mitigation

This assessment analyzes future noise impacts to and from the project compares the results to the County's Noise Standards. The analysis details the estimated exterior noise levels associated with traffic from adjacent roadways and from on-site stationary noise sources.

7.1 Future Exterior Noise

The following outlines the exterior noise levels associated with the proposed project.

7.1.1 Noise Impacts to Off-Site Receptors Due to Stationary Sources

Receptors that may be affected by project operational noise include the uses to the south and east. The worst-case stationary noise was modeled using SoundPLAN acoustical modeling software. The model utilizes SoundPLAN's sound level data for the driveway and parking specified within Section 5.4 of this report. Loading activity constitutes the project's maximum operational noise levels.

A total of four (4) receptor locations were modeled to evaluate the proposed project's operational noise impact to adjacent noise sensitive land uses. A receptor is denoted by a yellow dot in Exhibit F. The receptors are on the south and east property lines.

Project Operational Noise Levels

Exhibit F shows the "project only" operational noise levels at the property lines and/or sensitive receptor areas and illustrates how the noise will propagate at the site. Worst-case operational noise levels are anticipated to range between 37 to 45 dBA Leq at the receptors R1 – R4. The noise projections are below the County's daytime noise limits as given in Chapter 9.52 of the Code of Ordinances.

Project Plus Ambient Operational Noise Levels

Table 4 demonstrates the project plus ambient noise levels. Project plus ambient noise level projections are anticipated to range between 47 to 49 dBA Leq at the receptors R1 – R4.

Table 4: Worst-case Predicted Operational Noise Levels (dBA)

Receptor[1]	Floor	Existing Ambient Noise Level (dBA, Leq)[2]	Project Noise Level (dBA, Leq)[3]	Total Combined Noise Level (dBA, Leq)	Daytime (7AM - 10PM) Stationary Noise Limit (dBA, Leq)	Change in Noise Level as Result of Project
1	1	47	45	49	**45**	2
2	1		37	47	**65**	0
3	1		45	49	**45**	2
4	1		40	48	**65**	1

Notes:
1. Receptors 1 and 3 represent residential uses, Receptor 2 represents the high school, and Receptor 4 represents commercial uses.
2. See Appendix A for the ambient noise measurement.
3. See Exhibit G for the operational noise level projections at said receptors.

In addition, Table 4 provides the anticipated change in noise level as a result of the proposed project during daytime operable conditions. The project plus ambient noise level will increase the existing ambient level by 0 to 2 dB. Table 5 provides the characteristics associated with changes in noise levels.

Table 5: Change in Noise Level Characteristics[1]

Changes in Intensity Level, dBA	Changes in Apparent Loudness
1	Not perceptible
3	Just perceptible
5	Clearly noticeable
10	Twice (or half) as loud

https://www.fhwa.dot.gov/environMent/noise/regulations_and_guidance/polguide/polguide02.cfm

It takes a change of 3 dB for the human ear to perceive a difference. Therefore, the change in noise level would be "Not Perceptible" at the surrounding receptors. Thus, the change in noise level will be less than significant.

7.1.2 Noise Impacts to On/Off-Site Receptors Due to Project Generated Traffic.

Traffic along the subject roadways would need to double in average daily traffic volumes to see a 3 dBA increase in noise level. The proposed project generates less than 50 peak hour trips and less than 250 daily trips. Therefore, Because the proposed project includes less than 208,000 sf of warehouse use, it is screened out from a VMT analysis and is presumed to have a less than significant transportation impact. Because the proposed project would meet the project-type exemption and it would not generate 50 or more peak-hour trips, an LOS analysis is not required. (*LSA Trip Generation and Vehicle Miles Traveled Analysis for the Cherry Valley Storage Project, May 17, 2003*).

Since the project generates a nominal amount of traffic relative to the existing ADTs, the project's traffic noise level increase would be nominal and therefore less than significant.

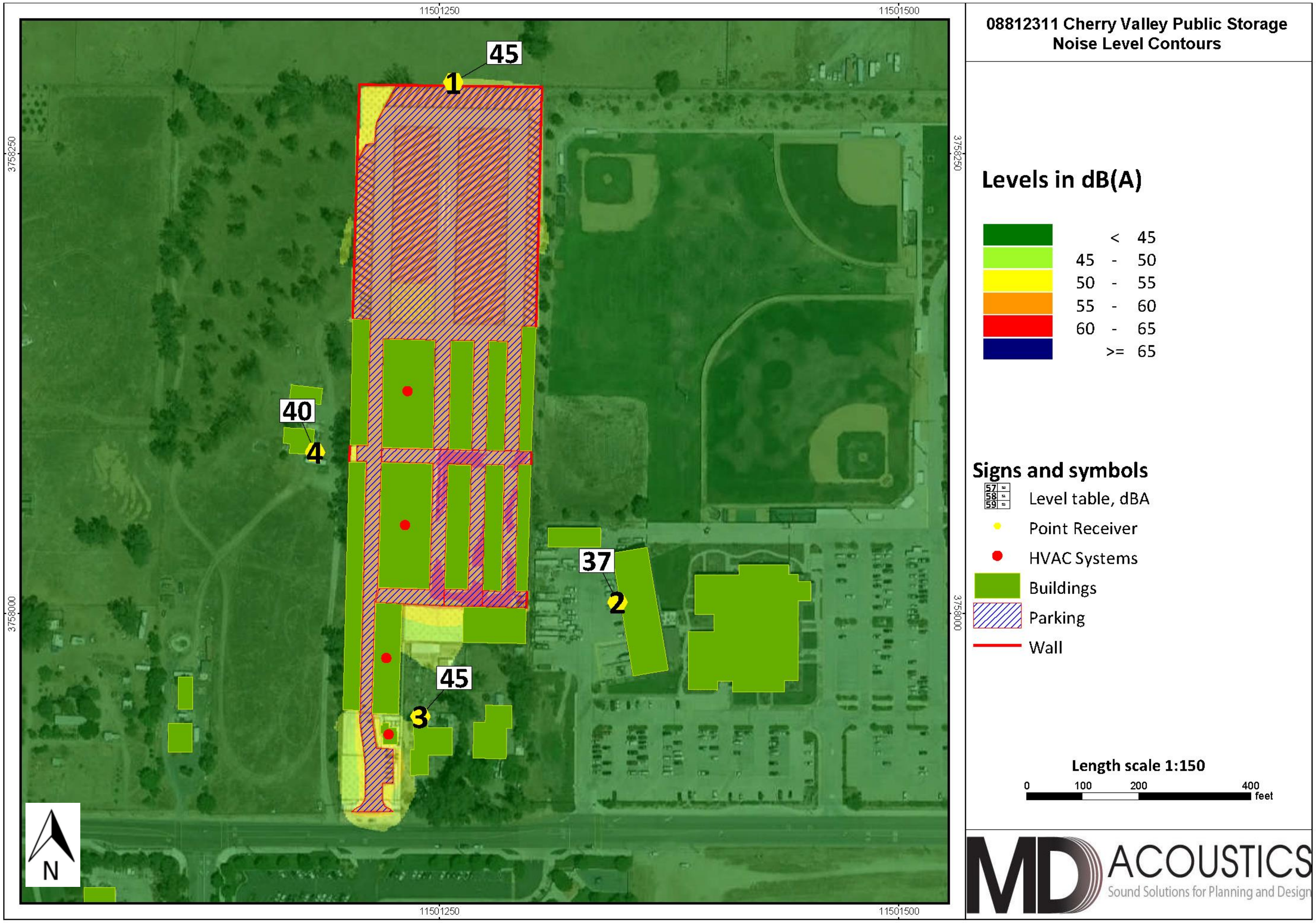
7.2 Noise Reduction Measures

The following noise reduction measure has been implemented into the plan:

- All roof-top exterior equipment will be shielded from view with solid parapets that are taller than the equipment constructed with material with a density of at least 4 lb/ft^2

Exhibit F

Operational Noise Levels



8.0 Construction Noise Impact

The degree of construction noise may vary for different areas of the project site and also vary depending on the construction activities. Noise levels associated with the construction will vary with the different phases of construction.

8.1 Construction Noise

The Environmental Protection Agency (EPA) has compiled data regarding the noise generated characteristics of typical construction activities. The data is presented in Table 6.

Table 6: Typical Construction Equipment Noise Levels[1]
Equipment Powered by Internal Combustion Engines

Type	Noise Levels (dBA) at 50 Feet
Earth Moving	
Compactors (Rollers)	73 - 76
Front Loaders	73 - 84
Backhoes	73 - 92
Tractors	75 - 95
Scrapers, Graders	78 - 92
Pavers	85 - 87
Trucks	81 - 94
Materials Handling	
Concrete Mixers	72 - 87
Concrete Pumps	81 - 83
Cranes (Movable)	72 - 86
Cranes (Derrick)	85 - 87
Stationary	
Pumps	68 - 71
Generators	71 - 83
Compressors	75 - 86

Impact Equipment

Type	Noise Levels (dBA) at 50 Feet
Saws	71 - 82
Vibrators	68 - 82

Notes:
[1] Referenced Noise Levels from the Environmental Protection Agency (EPA)

Construction noise is considered a short-term impact and would be considered significant if construction activities are taken outside the allowable times as described in the County of Riverside's Municipal Code Section 9.52.20. Construction is anticipated to occur during the permissible hours according to the County's Municipal Code. Construction noise will have a temporary or periodic increase in the ambient noise level above the existing within the project vicinity. Furthermore, noise reduction measures are provided to further reduce construction noise. The impact is considered less than significant however construction noise level projections are provided in Appendix E.

Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Noise levels will be loudest during grading phase. A likely worst-case construction noise scenario during site prep assumes the use of 3-dozers, and 4-backhoes, operating at 232 feet from the property boundary.

Unmitigated noise levels have the potential to reach 70 dBA L_{eq} at the nearest sensitive receptors during site prep. Noise levels for the other construction phases would be lower, approximately 61-70 dBA L_{eq}.

8.2 Construction Vibration

Construction activities can produce vibration that may be felt by adjacent land uses. The construction of the proposed project would not require the use of equipment such as pile drivers, which are known to generate substantial construction vibration levels. The primary vibration source during construction may be from a bulldozer. A large bulldozer has a vibration impact of 0.089 inches per second peak particle velocity (PPV) at 25 feet which is likely perceptible but below any risk to architectural damage.

The fundamental equation used to calculate vibration propagation through average soil conditions and distance is as follows:

$$PPV_{equipment} = PPV_{ref}\ (25/D_{rec})^n$$

Where: PPV_{ref} *= reference PPV at 25ft.*
D_{rec} *= distance from equipment to receiver in ft.*
n = 1.1 (the value related to the attenuation rate through ground)

The thresholds from the Caltrans Transportation and Construction Induced Vibration Guidance Manual in Table 7 (below) provides general thresholds and guidelines as to the vibration damage potential from vibratory impacts.

Table 7: Guideline Vibration Damage Potential Threshold Criteria

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Source: Table 19, Transportation and Construction Vibration Guidance Manual, Caltrans, Sept. 2013.
Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Table 8 gives approximate vibration levels for particular construction activities. This data provides a reasonable estimate for a wide range of soil conditions.

Table 8: Vibration Source Levels for Construction Equipment[1]

Equipment	Peak Particle Velocity (inches/second) at 25 feet	Approximate Vibration Level LV (dVB) at 25 feet
Pile driver (impact)	1.518 (upper range)	112
	0.644 (typical)	104
Pile driver (sonic)	0.734 upper range	105
	0.170 typical	93
Clam shovel drop (slurry wall)	0.202	94
Hydromill	0.008 in soil	66
(slurry wall)	0.017 in rock	75
Vibratory Roller	0.21	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

[1] Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration, May 2006.

At a distance of 25 feet, a large bulldozer would yield a worst-case 0.089 PPV (in/sec) which may be perceptible but is below any risk of damage. The impact is less than significant, and no mitigation is required.

8.3 Construction Noise Reduction Measures

Construction operations must follow the County's Noise Ordinance County of Riverside's Municipal Code Section 9.52.20, which states that construction, repair, or excavation work performed must occur within the permissible hours. To further ensure that construction activities do not disrupt the adjacent land uses, the following policies should be adhered to:

1. During construction, the contractor shall ensure all construction equipment is equipped with appropriate noise attenuating devices.

2. The contractor shall locate equipment staging areas that will create the greatest distance between construction-related noise/vibration sources and sensitive receptors nearest the project site during all project construction.

3. Idling equipment shall be turned off when not in use.

4. Equipment shall be maintained so that vehicles and their loads are secured from rattling and banging.

9.0 References

State of California General Plan Guidelines: 1998. Governor's Office of Planning and Research

LSA Trip Generation and Vehicle Miles Traveled Analysis for the Cherry Valley Storage Project, May 17, 2003

County of Riverside: Municipal Code Chapter 9.52-Noise Regulations

County of Riverside: General Plan Chapter 7-Noise Element

County of Riverside: The Pass Area Plan

Appendix A:
Field Measurement Data

MD ACOUSTICS
Sound Solutions for Planning and Design
www.mdacoustics.com

AZ Office
4960 S. Gilbert Rd, Ste 1-461
Chandler, AZ 85249

CA Office
1197 E Los Angeles Ave, C-256
Simi Valley, CA 93065

24-Hour Continuous Noise Measurement Datasheet

Project: Cherry Valley Public Storage
Site Address/Location: 38692 Brookside Avenue
Date: 5/31/2023 to 6/1/2023
Field Tech/Engineer: Jason Schuyler

Site Observations: Overcast, Mid 60s during the day and 40 degrees at night. At the time of arrival 3 kids on dirt bikes were zooming up and down the adj property.

General Location:
Sound Meter: Piccolo **SN:** P0222022803
Settings: A-weighted, slow, 1-min, 24-hour duration
Meteorological Con.: 73 degrees F, 2 to 5 mph wind, west to east diretion
Site ID: LT-1

Site Topo: Flat
Ground Type: Soft site, Open raw ground with a road

Noise Source(s) w/ Distance:
C/L of Brookside ave is 196 feet from meter

Figure 1: LT-1 Monitoring Location

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Chandler, AZ 85249

CA Office
1197 E Los Angeles Ave, C-256
Simi Valley, CA 93065

24-Hour Noise Measurement Datasheet - Cont.

Project: Cherry Valley Public Storage **Day:** 1 of 1
Site Address/Location: 38692 Brookside Avenue
Site ID: LT-1

Date	Start	Stop	Leq	Lmax	Lmin	L2	L8	L25	L50	L90
5/31/2023	5:00 PM	6:00 PM	52.1	73.3	43.5	57.6	54.8	52.0	50.7	48.3
5/31/2023	6:00 PM	7:00 PM	50.4	71.6	41.8	55.9	53.1	50.3	49.0	46.6
5/31/2023	7:00 PM	8:00 PM	49.0	70.2	40.4	54.5	51.7	48.9	47.6	45.2
5/31/2023	8:00 PM	9:00 PM	47.9	69.1	39.3	53.4	50.6	47.8	46.5	44.1
5/31/2023	9:00 PM	10:00 PM	47.2	68.4	38.6	52.7	49.9	47.1	45.8	43.4
5/31/2023	10:00 PM	11:00 PM	46.2	67.4	37.6	51.7	48.9	46.1	44.8	42.4
5/31/2023	11:00 PM	12:00 AM	45.6	66.8	37.0	51.1	48.3	45.5	44.2	41.8
6/1/2023	12:00 AM	1:00 AM	44.1	65.3	35.5	49.6	46.8	44.0	42.7	40.3
6/1/2023	1:00 AM	2:00 AM	41.6	62.8	33.0	47.1	44.3	41.5	40.2	37.8
6/1/2023	2:00 AM	3:00 AM	40.4	61.6	31.8	45.9	43.1	40.3	39.0	36.6
6/1/2023	3:00 AM	4:00 AM	38.6	59.8	30.0	44.1	41.3	38.5	37.2	34.8
6/1/2023	4:00 AM	5:00 AM	39.6	60.8	31.0	45.1	42.3	39.5	38.2	35.8
6/1/2023	5:00 AM	6:00 AM	43.4	64.6	34.8	48.9	46.1	43.3	42.0	39.6
6/1/2023	6:00 AM	7:00 AM	49.8	71.0	41.2	55.3	52.5	49.7	48.4	46.0
6/1/2023	7:00 AM	8:00 AM	52.1	73.3	43.5	57.6	54.8	52.0	50.7	48.3
6/1/2023	8:00 AM	9:00 AM	50.2	71.4	41.6	55.7	52.9	50.1	48.8	46.4
6/1/2023	9:00 AM	10:00 AM	49.2	70.4	40.6	54.7	51.9	49.1	47.8	45.4
6/1/2023	10:00 AM	11:00 AM	49.1	70.3	40.5	54.6	51.8	49.0	47.7	45.3
6/1/2023	11:00 AM	12:00 PM	49.3	70.5	40.7	54.8	52.0	49.2	47.9	45.5
6/1/2023	12:00 PM	1:00 PM	49.4	70.6	40.8	54.9	52.1	49.3	48.0	45.6
6/1/2023	1:00 PM	2:00 PM	49.5	70.7	40.9	55.0	52.2	49.4	48.1	45.7
6/1/2023	2:00 PM	3:00 PM	49.8	71.0	41.2	55.3	52.5	49.7	48.4	46.0
6/1/2023	3:00 PM	4:00 PM	50.9	72.1	42.3	56.4	53.6	50.8	49.5	47.1
6/1/2023	4:00 PM	5:00 PM	52.5	73.7	43.9	58.0	55.2	52.4	51.1	48.7

CNEL: 52.8

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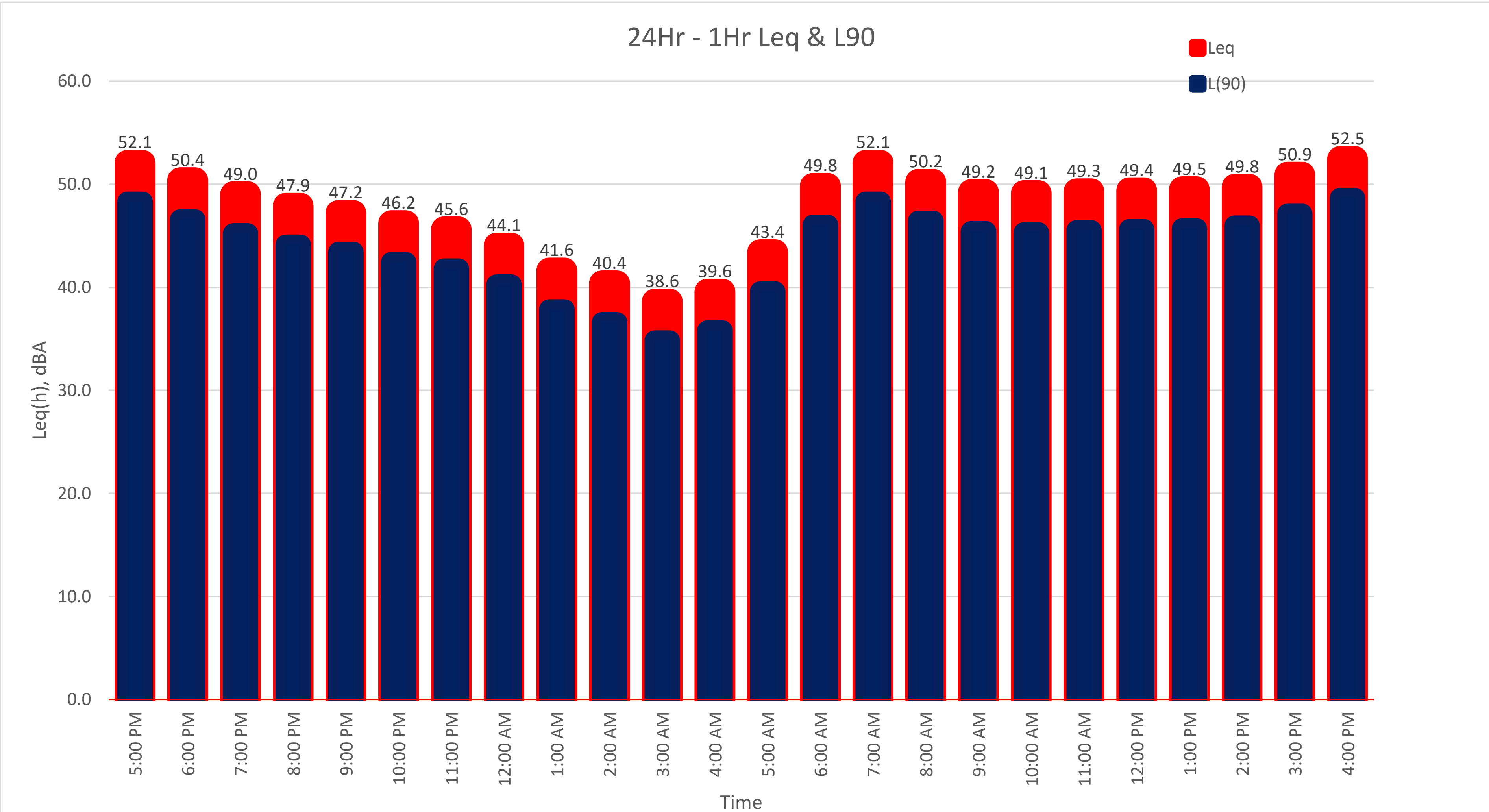
24-Hour Continuous Noise Measurement Datasheet - Cont.

Project: Cherry Valley Public Storage **Day:** 1 of 1

Site Address/Location: 38692 Brookside Avenue

Site ID: LT-1



Appendix B:

Manufacturers Field Sheet

Project: Sound Library

Job Number: 0000-2020-02

Site Address/Location:

Date:

Field Tech/Engineer: Carrier

Source/System: Carrier WeatherMaster 50hcA06 - 5 Ton

General Location:

Sound Meter: **SN:**

Settings:

Meteorological Cond.:

Site Observations:

Measurements are expressed in terms of sound power. Outdoor sound data is measure in accordance with AHRI.

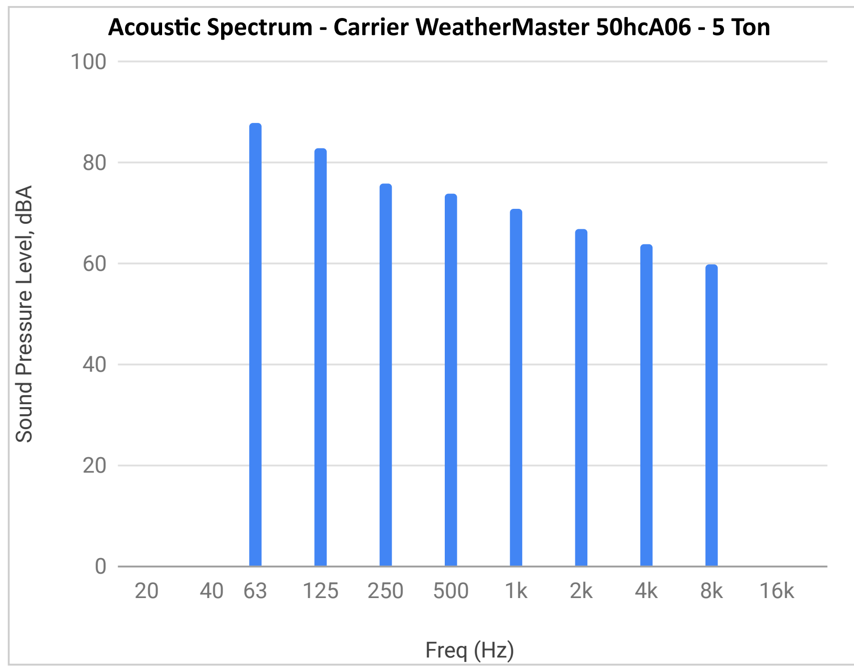
Leq	Lmin	Lmax
0.0	0.0	0.0

Ln 2	Ln 8	Ln 25	Ln 50	Ln 90	Ln 99
0.0	0.0	0.0	0.0	0.0	0.0

Table 1: Summary Measurement Data

Source/System	Overall Source	Overall	3rd Octave Band Data (dBA)																													
		dB(A)	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	12.5I	1.6k	2k	2.5k	3.15I	4k	5k	6.3k	8k	10k	12.5I	16k	20k
Carrier WeatherMaster 50hcA(	HVAC	77.0	0.0	0.0	0.0	0.0	0.0	88.0	0.0	0.0	83.0	0.0	0.0	76.0	0.0	0.0	74.0	0.0	0.0	71.0	0.0	0.0	67.0	0.0	0.0	64.0	0.0	0.0	60.0	0.0	0.0	0.0	0.0

Figure 1: Commercial Air Conditioner - Carrier WeatherMaster



Appendix C:

SoundPLAN Input and Output

Cherry Valley Storage Noise
Contribution spectra - Situation 1 - Per Plan - SP

Time slice	Sum dB(A)	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)	16kHz dB(A)
Receiver 1 Fl G dB(A) Ldn 48.5 dB(A)										
Ldn	48.5	36.8	45.7	36.4	39.7	38.8	37.6	31.9	20.7	2.6
Ldn	24.3	14.4	20.6	11.6	15.6	16.5	14.3	4.1	-23.0	
Ldn	7.6	-5.2	-1.5	-0.7	1.3	2.4	-1.4	-13.3		
Ldn	8.1	-4.6	-0.7	0.0	1.9	2.9	-1.7	-13.9		
Ldn	10.5	-2.9	1.6	2.4	4.4	5.3	1.1	-9.8	-30.0	
Ldn	17.3	1.0	6.2	7.9	11.0	12.8	9.7	0.7	-15.5	
Receiver 2 Fl G dB(A) Ldn 39.4 dB(A)										
Ldn	33.1	23.2	30.0	20.3	23.8	23.8	23.7	16.1	-6.9	
Ldn	37.1	25.7	33.8	23.7	27.8	28.5	27.9	21.8	4.9	-28.1
Ldn	29.5	5.5	11.3	14.5	20.3	25.3	25.1	18.4	5.2	-35.0
Ldn	26.9	6.9	11.9	15.6	19.6	22.4	21.5	14.2	-0.3	
Ldn	21.1	6.2	11.4	12.4	14.2	15.5	14.6	6.4	-9.4	
Ldn	17.6	3.5	8.2	9.2	11.5	12.6	8.9	-0.4	-16.5	
Receiver 3 Fl G dB(A) Ldn 45.6 dB(A)										
Ldn	39.6	28.6	35.6	24.1	28.4	31.7	32.6	26.5	15.5	-5.8
Ldn	42.9	25.6	34.3	26.0	33.9	36.4	38.1	33.8	20.7	-10.8
Ldn	33.6	19.1	23.4	22.7	25.9	28.5	27.4	21.7	12.4	-8.1
Ldn	37.0	16.7	22.8	25.1	29.3	32.3	31.5	26.1	16.7	-7.0
Ldn	28.7	7.0	13.5	15.5	21.4	24.6	23.1	16.0	3.3	-32.0
Ldn	23.7	2.9	8.9	10.9	14.9	19.7	18.8	10.5	-6.0	
Receiver 4 Fl G dB(A) Ldn 42.8 dB(A)										
Ldn	40.5	30.4	37.7	27.2	30.6	30.8	30.7	24.9	12.5	-10.1
Ldn	38.3	26.1	34.4	24.8	29.1	29.4	30.5	26.7	13.9	-14.0
Ldn	17.1	1.6	6.7	8.1	10.9	12.4	9.1	0.1	-15.7	
Ldn	19.5	4.0	8.7	9.5	13.3	15.1	11.8	2.9	-11.6	
Ldn	27.3	11.7	17.1	18.1	20.8	22.4	19.5	12.3	1.3	-26.4
Ldn	25.7	11.5	16.3	16.9	19.2	20.6	17.2	9.9	-0.7	-25.6

Cherry Valley Storage Noise
Contribution level - Situation 1 - Per Plan - SP

Source group	Source ty	Ldn dB(A)	A dB
Receiver 1 Fl G dB(A)	Ldn 48.5 dB(A)		
Default industrial noise	Point	17.2	0.0
Default industrial noise	Point	10.3	0.0
Default industrial noise	Point	7.8	0.0
Default industrial noise	Point	7.3	0.0
Default parking lot noise	PLot	48.5	0.0
Default parking lot noise	PLot	24.3	0.0
Receiver 2 Fl G dB(A)	Ldn 39.4 dB(A)		
Default industrial noise	Point	17.4	0.0
Default industrial noise	Point	20.9	0.0
Default industrial noise	Point	26.8	0.0
Default industrial noise	Point	29.4	0.0
Default parking lot noise	PLot	33.1	0.0
Default parking lot noise	PLot	37.1	0.0
Receiver 3 Fl G dB(A)	Ldn 45.6 dB(A)		
Default industrial noise	Point	23.6	0.0
Default industrial noise	Point	28.6	0.0
Default industrial noise	Point	36.9	0.0
Default industrial noise	Point	33.5	0.0
Default parking lot noise	PLot	39.6	0.0
Default parking lot noise	PLot	42.9	0.0
Receiver 4 Fl G dB(A)	Ldn 42.8 dB(A)		
Default industrial noise	Point	25.4	0.0
Default industrial noise	Point	27.1	0.0
Default industrial noise	Point	19.4	0.0
Default industrial noise	Point	16.9	0.0
Default parking lot noise	PLot	40.5	0.0
Default parking lot noise	PLot	38.3	0.0

Cherry Valley Storage Noise
Input data parking lots - Situation 1 - Per Plan - SP

Parking lot	PLT	f	Unit B0	erence val	Sep.Mtd.	NRT	KPA dB	KI dB	KD dB	KStrO	ne hist.
	Visitors and staff	1.0	1 parking bay	120			0.0	4.0	5.1	0.0	100%/ 24h
	Visitors and staff	1.0	1 parking bay	40			0.0	4.0	3.7	0.0	100%/ 24h

Cherry Valley Storage Noise
3rd octave spectra of the sources in dB(A) - Situation 1 - Per Plan - SP

Name	I or A	Li	R'w	L'w	Lw	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz	4kHz	5kHz	6.3kHz	8kHz	10kHz
	m,m²	dB(A)	dB	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
AC Unit				74.9	74.9	21.2	27.2	31.2	44	49.2	43.2	54.2	56.2	55.2	57.2	57.2	59.2	60.2	61.2	65.2	66.2	62.2	64.2	65.2	63.2	64.2	61.2	62.2	60.3	60.2	55.2	50.2
AC Unit				74.9	74.9	21.2	27.2	31.2	44	49.2	43.2	54.2	56.2	55.2	57.2	57.2	59.2	60.2	61.2	65.2	66.2	62.2	64.2	65.2	63.2	64.2	61.2	62.2	60.3	60.2	55.2	50.2
AC Unit				74.9	74.9	21.2	27.2	31.2	44	49.2	43.2	54.2	56.2	55.2	57.2	57.2	59.2	60.2	61.2	65.2	66.2	62.2	64.2	65.2	63.2	64.2	61.2	62.2	60.3	60.2	55.2	50.2
AC Unit				74.9	74.9	21.2	27.2	31.2	44	49.2	43.2	54.2	56.2	55.2	57.2	57.2	59.2	60.2	61.2	65.2	66.2	62.2	64.2	65.2	63.2	64.2	61.2	62.2	60.3	60.2	55.2	50.2
	16578.20			50.7	92.9					76.3			87.9			80.4			84.9			85.0			85.4			82.7			76.5	
	2877.30			52.2	86.7					70.1			81.7			74.2			78.7			78.8			79.2			76.5			70.3	

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Appendix D:

Construction Modeling Output

Receptor - Commercial to the West

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Edge of Site to Receptor, feet	Center of Site to Receptor, feet	Item Usage Percent[1]	Ground Factor[2]	Usage Factor	Receptor Item Lmax, dBA	Recptor. Item Leq, dBA
SITE PREP									
1. Tractors/Loaders/Backhoes	4	84	25	232	40	0.66	0.40	92.0	62.3
2. Rubber Tired Dozers	3	82	25	232	40	0.66	0.40	90.0	60.3
							Log Sum	92.0	70.0
GRADE									
1. Excavators	1	81	25	232	40	0.66	0.40	89.0	59.3
2. Graders	1	85	25	232	40	0.66	0.40	93.0	63.3
3. Rubber Tired Dozers	1	82	25	232	40	0.66	0.40	90.0	60.3
4. Tractors/Loaders/Backhoes	3	84	25	232	40	0.66	0.40	92.0	62.3
								93.0	69.6
BUILD									
1. Cranes	1	81	25	232	16	0.66	0.16	89.0	55.3
2. Forklifts	3	75	25	232	20	0.66	0.20	83.0	50.3
3. Generator Sets	1	81	25	232	50	0.66	0.50	89.0	60.3
4. Tractors/Loaders/Backhoes	3	84	25	232	40	0.66	0.40	92.0	62.3
5. Welders	1	74	25	232	40	0.66	0.40	82.0	52.3
								92.0	68.4
PAVE									
1. Pavers	2	77	25	232	50	0.66	0.50	85.0	56.3
2. Cement and Mortar Mixers	2	79	25	232	40	0.66	0.40	87.0	57.3
3. Rollers	2	80	25	232	20	0.66	0.20	88.0	55.3
								88.0	64.1
ARCH COAT									
1. Air Compressors	1	78	25	232	40	0	0.40	84.0	60.7
								84.0	60.7

[1]FHWA Construction Noise Handbook: Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

VIBRATION LEVEL IMPACT

Project:	Cherry Valley	Date: 9/27/23
Source:	Large Bulldozer	
Scenario:	Unmitigated	
Location:	Adjacent residences	
Address:	Riverside County	
PPV = PPVref(25/D)^n (in/sec)		

DATA INPUT

Equipment = Type	2	Large Bulldozer	INPUT SECTION IN BLUE
PPVref =	0.089	Reference PPV (in/sec) at 25 ft.	
D =	25.00	Distance from Equipment to Receiver (ft)	
n =	1.10	Vibration attenuation rate through the ground	

Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.

DATA OUT RESULTS

PPV =	**0.089**	IN/SEC	OUTPUT IN RED