Appendix G

Noise and Vibration Study Report

One San Pedro Specific Plan Project
Los Angeles, California

Draft
Noise and Vibration Study Report

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List of Abbreviated Terms

°F	degrees Fahrenheit
ADT	Average Daily Traffic
ANSI	American National Standard Institute
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNEL	Community Noise Equivalent Level
dB	decibel
dBA	A-weighted decibels
EIR	Environmental Impact Report
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
Hz	Hertz
HACLA	Housing Authority of the City of Los Angeles
IEC	International Electrotechnical Commission
in/sec	Inches per second
kHz	kilohertz
LADOT	Los Angeles Department of Transportation
LAMC	Los Angeles Municipal Code
LAPD	Los Angeles Police Department
L_{dn}	Day-Night Level
L_{eq}	Equivalent average sound level
$L_{eq}(h)$	hourly equivalent sound level
L_{max}	Maximum sound level
L_n	Statistical sound level
µPa	micro-Pascal
mph	miles per hour
NAC	Noise abatement criteria
NEPA	National Environmental Policy Act
NLR	Noise level reduction
OSHA	Occupational Safety and Health Administration
OPR	State of California Office of Planning and Research
OSP	One San Pedro

PPA	Peak particle acceleration
PPV	Peak particle velocity
SLM	sound level meter
SPL	sound pressure level
STC	Sound Transmission Class
TNM	FHWA Traffic Noise Model
U.S. EPA	United States Environmental Protection Agency
VdB	Vibration decibel

Chapter 1 Introduction

The Housing Authority of the City of Los Angeles (HACLA) proposes to redevelop the Rancho San Pedro public housing complex in the community of San Pedro in the southwestern-most portion of the City of Los Angeles. The proposed project would be constructed on two sites. These include the approximately 20-acre One San Pedro Specific Plan Site (OSP Specific Plan Site) and an approximately 0.6-acre site located at 319-327 North Harbor Boulevard (327 Harbor Site). The OSP Specific Plan Site and the 327 Harbor Site are collectively referred to as "the project site." Figure 1-1 shows the project location.

1.1 Purpose of the Noise and Vibration Study

Under the requirements of the California Environmental Quality Act (CEQA), an Environmental Impact Report (EIR) is being prepared for the proposed project. The purpose of this noise and vibration technical report is to inform the EIR of potential noise impacts on the project environment during construction and operation of the proposed project.

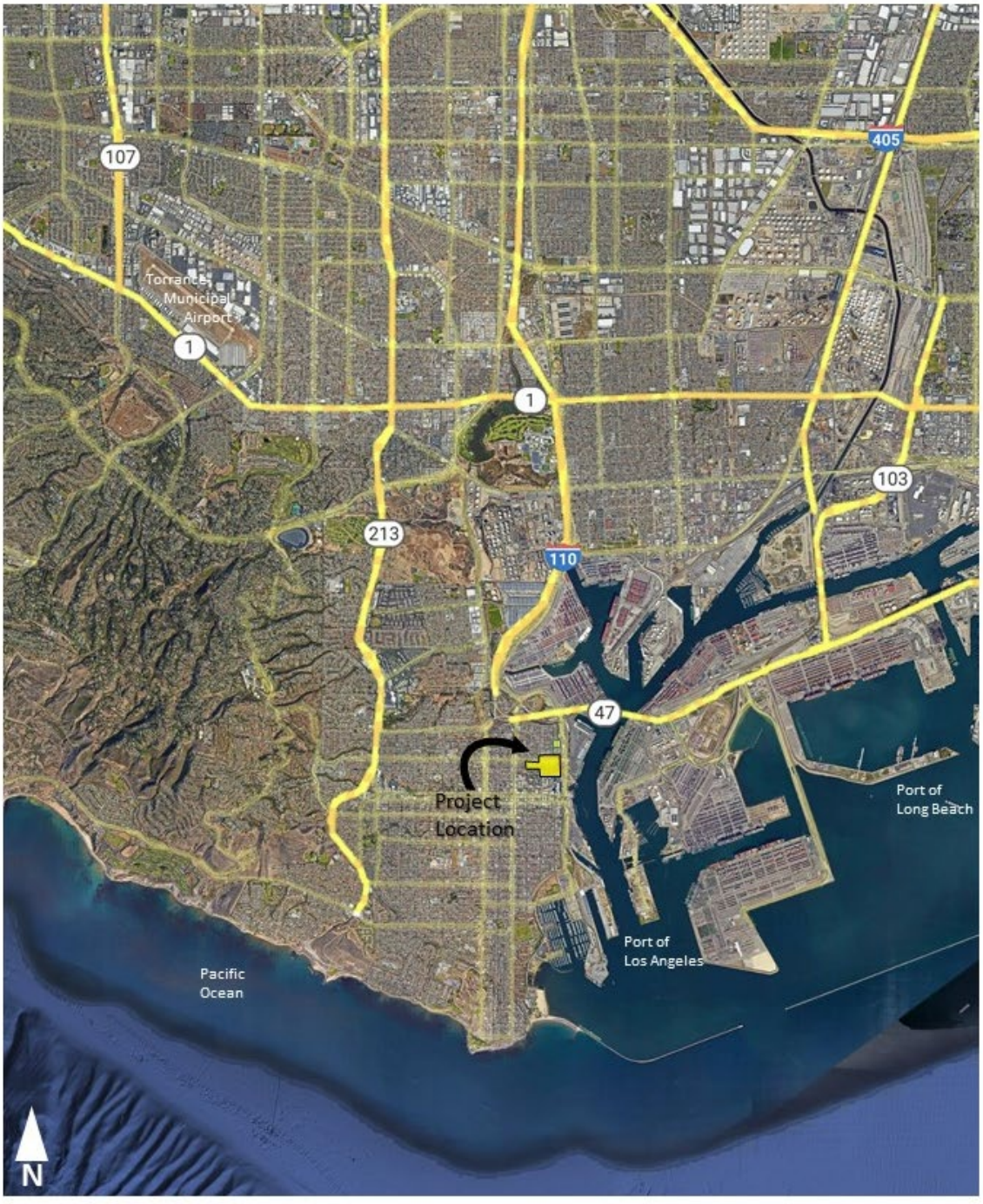
The noise and vibration study evaluates existing ambient noise conditions at representative noise-sensitive land uses in the vicinity of the project through identification of noise sources in the project area and on-site noise measurements, and evaluates potential construction and operational noise and vibration impacts of the proposed project relative to existing noise exposure and the applicable local noise criteria.

The report quantifies existing noise levels in the project area through onsite noise measurements and modeling of traffic noise, compares the existing traffic noise levels with future (2037) predicted noise levels under No Build and Build conditions, and determines whether the proposed project would result in operational traffic noise level increases that may cause future noise levels to exceed the applicable local (City of Los Angeles) noise criteria. The report also identifies stationary noise sources associated with the proposed project and evaluates their potential noise impacts.

In terms of temporary construction effects, the report presents typical noise and vibration levels from construction activities, predicted noise and vibration levels that may be expected from project construction at sensitive locations nearest to the project site, and whether such levels exceed the applicable criteria.

For the locations where significant noise and vibration impacts are identified, mitigation measures are evaluated to determine whether such measures would be practical and effective in reducing noise and vibration impacts to less than significant.

Figure 1-1
Project Vicinity Map
One San Pedro Specific Plan Project



Chapter 2 Project Description

2.1 Project Location

The proposed project would be constructed on two sites in the community of San Pedro in the southwestern-most portion of the City of Los Angeles. These include the approximately 20-acre OSP Specific Plan Site and an approximately 0.6-acre site located at 319-327 North Harbor Boulevard (327 Harbor Site). The OSP Specific Plan Site and the 327 Harbor Site are collectively referred to as "the project site." Figure 2-1 shows the project site in its neighborhood context.

The approximately 20-acre OSP Specific Plan Site is located at 275 West First Street in the community of San Pedro in the southwestern-most portion of the City of Los Angeles. The OSP Specific Plan Site is relatively flat and encompasses approximately nine city blocks between Santa Cruz Street, Palos Verdes Street, Beacon Street, Harbor Boulevard, First Street, Second Street, Third Street, Mesa Street, and Centre Street. The OSP Specific Plan Site is denoted by Assessor Parcel Numbers (APNs) 7449-018-900 through -902, 7449-017-900 through -902, 7455-027-929 through -931, and 7455-017-900.

The approximately 0.6-acre 327 Harbor Site is located approximately one block to the north of the OSP Specific Plan Site at the southwestern intersection of Harbor Boulevard and O'Farrell Street. The 327 Harbor Site slopes gently toward the east and is denoted by APNs 7449-014-013 and -014.

2.2 Proposed Project

The proposed project involves the development and occupation of 47 residential units on the 327 Harbor Site and the adoption of the OSP Specific Plan to guide redevelopment of the OSP Specific Plan Site. The project includes the phased demolition of existing structures on the OSP Specific Plan Site and the construction of up to 1,553 residential units on the OSP Specific Plan Site and 47 units on the 327 Harbor Site, as well as 85,000 square feet (sf) of Neighborhood Serving Uses and 45,000 sf of commercial retail uses on the OSP Specific Plan Site.

Proposed development on the 327 Harbor Site would take place first and include construction of a new 66,210-sf, 47-unit affordable multi-family residential building with a courtyard. The proposed building would be four stories and would include apartment units over an at-grade parking garage with a total of 45 parking spaces. The at-grade parking structure would be accessible to vehicles from O'Farrell Street. The housing constructed on the 327 Harbor Site would be replacement units for existing residences on the OSP Specific Plan Site.

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Figure 2-1
Proposed One San Pedro Specific Plan Project

TECH Noise & Vibration

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The OSP Specific Plan includes three Phases, as shown in Figure 2-1. The proposed project would involve the phased demolition of existing structures on the OSP Specific Plan Site and the construction of residential, Neighborhood Serving, and commercial retail uses within the three Phases. In addition to the 478 units to replace the existing Rancho San Pedro affordable housing units, the proposed residential units at the OSP Specific Plan Site would include a mixture of additional multi-bedroom affordable housing units, permanent supportive housing units, senior affordable housing units, market-rate rental units, affordable homeownership units, and market-rate homeownership units.

The 85,000 sf of Neighborhood Serving Uses would be primarily for the benefit of the residents of the project and/or residents of the immediate neighborhood and are typically required for the needs of the future residents. These uses include, but are not limited to, a property management office, community rooms, social service offices, social hall, workforce development office, health clinic, wellness center, business incubator, nonprofit offices, and municipal offices. Neighborhood Serving Uses also include small-scale retail not exceeding 3,000 sf that would provide goods and services to future residents to meet typical needs, such as dry cleaners, flower shops, small convenience stores, and bakeries.

The 45,000-sf commercial retail component of the project would include businesses larger than 3,000 sf that serve local neighborhood needs, such as restaurants, grocery stores, and pharmacies. Parking on the site would include a mix of street parking and one- to two-level underground parking structures beneath the proposed buildings. The proposed project would generate an anticipated net increase of approximately 2,602 residents and 314 employees on the OSP Specific Plan Site.

In addition, the proposed project would include a variety of public open space amenities, including a linear park along Palos Verdes Street, a community center, a youth sports field, a promenade along Second Street from Palos Verdes Street to Harbor Boulevard, and several courtyards and plazas interspersed throughout the proposed buildings. In total, approximately 5.3 acres of public open space would be provided on the OSP Specific Plan Site.

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Chapter 3 Fundamentals of Noise and Vibration

The following is a brief discussion of fundamental noise and vibration concepts.

3.1 Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receptor, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors that affect the propagation path to the receptor determine the sound level and the characteristics of the noise perceived by the receptor. The field of acoustics deals primarily with the propagation and control of sound and vibration.

3.2 Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

3.3 Sound-Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micropascals (μPa). One μPa is approximately one hundred billionth (0.00000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 μPa. Because of this huge range of values, sound is rarely expressed in terms of μPa. Instead, a logarithmic scale is used to describe sound-pressure level (SPL) in terms of decibels (dB). The threshold of hearing for young people is about 0 dB, which corresponds to 20 μPa.

3.4 Addition of Decibels

Because decibels are logarithmic units, SPL cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3 dB increase.

In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB. Rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level 5 dB louder than one source.

3.5 A-Weighted Decibels

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz, and perceive sounds within that range better than sounds of the same amplitude in higher or lower frequencies. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an "A-weighted" sound level (expressed in units of dBA) can be computed based on this information.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments regarding the relative loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Other weighting networks have been devised to address high noise levels or other special problems (e.g., B-, C-, and D-scales), but these scales are rarely used in conjunction with environmental noise. Noise levels for environmental noise reports are typically reported in terms of A-weighted decibels, or dBA. Table 3-1 describes typical A-weighted noise levels for various noise sources.

3.6 Human Response to Changes in Noise Levels

As discussed above, a doubling of sound energy results in a 3 dB increase in sound. However, assuming a sound-level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different from what is measured.

Table 3-1. Typical A-Weighted Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	— 70 —	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	— 60 —	
		Large business office
Quiet urban daytime	— 50 —	Dishwasher in next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night, concert
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Source: Caltrans 2013a.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1 dB changes in sound levels when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency range (1,000–8,000 Hz). In typical noisy environments, changes in noise of 1 to 2 dB are generally not perceptible. However, it is widely accepted that:

- People are able to begin to detect sound level increases of 3 dB in typical noisy environments.
- A 5 dB increase is generally perceived as a distinctly noticeable increase.
- A 10 dB increase is generally perceived as a doubling of loudness.

Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a roadway), resulting in a 3 dB increase in sound, would generally be perceived as barely detectable.

3.7 Noise Descriptors

Noise in our daily environment fluctuates over time. Some fluctuations are minor, but some are substantial. Some noise levels occur in regular patterns, but others are random. Some noise levels fluctuate rapidly, but others change slowly. Some noise levels vary widely, but others are relatively constant. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors most commonly used in environmental noise analysis.

- **Equivalent Sound Level (L_{eq}):** L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound that actually occurs during the same period. The one-hour A-weighted equivalent sound level (L_{eq}[h]) is the energy average of A-weighted sound levels occurring during a one-hour period.
- **Minimum Sound Level (L_{min}):** L_{min} is the lowest instantaneous sound level measured during a specified period.
- **Maximum Sound Level (L_{max}):** L_{max} is the highest instantaneous sound level measured during a specified period.
- **Day-Night Level (L_{dn}):** L_{dn} is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10 dB penalty applied to A-weighted sound levels occurring during nighttime hours between 10 p.m. and 7 a.m.
- **Community Noise Equivalent Level (CNEL):** Similar to L_{dn}, CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10 dB penalty applied to A-weighted sound levels occurring during the nighttime hours between 10 p.m. and 7 a.m. and a 5 dB penalty applied to the A-weighted sound levels occurring during evening hours between 7 p.m. and 10 p.m.
- **Statistical Noise Level (L_n):** The noise level that is exceeded "n" percent of the time during the measurement period. For example, L_{90} is the level that is exceeded 90 percent of the time.

3.8 Sound Propagation

When sound propagates over a distance, it changes in level and frequency content. The manner in which noise reduces with distance depends on the factors below.

3.8.1 Geometric Spreading

Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and, hence, can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source.

3.8.2 Ground Absorption

The propagation path of noise from a highway to a receptor is usually very close to the ground. Noise attenuation from ground absorption and reflective-wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 feet. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receptor, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receptor, such as soft dirt, grass, or scattered bushes and trees), an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance.

3.8.3 Atmospheric Effects

Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) from the highway because of atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors, such as air temperature, humidity, and turbulence, can also have significant effects.

3.8.4 Shielding by Natural or Human-made Features

A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receptor specifically to reduce noise. A barrier that breaks the line of sight between a source and a receptor will typically result in at least 5 dB of noise reduction. Taller barriers provide increased

noise reduction. Vegetation between the highway and receptor is rarely effective in reducing noise because it does not create a solid barrier.

3.9 Vibration

When the ground is subject to vibration from a source, such as heavy construction machinery, a disturbance propagates away from the vibration source. The ground vibration waves created are similar to those that propagate in water when a stone is dropped into the water.

When the ground is subject to vibratory impact, vibration waves propagate outward from the source of impact. These waves encounter an increasingly large volume of material in the ground as they travel outward, and the energy density in each wave decreases with distance from the source. This decrease in energy density and the associated decrease in displacement amplitude is called spreading loss (or vibration attenuation).

The quantities that are used to describe vibratory motion include displacement, velocity, and acceleration. In describing vibration in the ground and in structures, the concepts of particle displacement, velocity, and acceleration are used to describe how the ground or structure responds to excitation. Vibratory motion is commonly described by identifying the peak particle velocity (PPV) or peak particle acceleration (PPA). Velocity is measured in inches per second (in/sec) or millimeters per second (mm/sec).

Soil and subsurface conditions are known to have a strong influence on the levels of ground-borne vibration. Among the most important factors are the stiffness and internal damping of the soil and the depth to bedrock. Experience with ground-borne vibration is that vibration propagation is more efficient in stiff clay soils, and shallow rock seems to concentrate the vibration energy close to the surface and can result in ground-borne vibration problems at large distances from the source. Factors such as layering of the soil and depth to water table can have significant effects on the propagation of ground-borne vibration.

When the ground surfaces of the excitation source and the receiver are at different elevations, much of the vibration energy carried through waves causing surface displacement of the ground dissipates. This results in weaker vibratory motion at the receiver than if the receiver were at the same elevation as the source.

In residential areas, the background vibration velocity level is usually around 50 VdB (approximately 0.0013 in/sec PPV). This level is well below the vibration velocity level threshold of perception for humans, which is approximately 65 VdB. A vibration velocity level of 75 VdB is considered to be the approximate dividing line between barely perceptible and distinctly perceptible levels for many people (FTA, 2018).

Chapter 4 Federal, State, and Local Noise Regulations and Policies

4.1 Federal Regulations

4.1.1 Noise Control Act of 1972

Under the authority of the Noise Control Act of 1972, the United States Environmental Protection Agency (U.S. EPA) established noise emission criteria and testing methods published in Parts 201 through 205 of Title 40 of the Code of Federal Regulations (CFR) that apply to some transportation equipment (e.g., interstate rail carriers, medium trucks, and heavy trucks) and construction equipment. In 1974, U.S. EPA issued guidance levels for the protection of public health and welfare in residential areas of an outdoor Ldn of 55 dBA and an indoor Ldn of 45 dBA (EPA 1974). These guidance levels are not standards or regulations and were developed without consideration of technical or economic feasibility. There are no federal noise standards that directly regulate environmental noise related to the construction or operation of the project. Moreover, the federal noise standards are not reflective of urban environments that range by land use, density, proximity to commercial or industrial centers, etc. As such, for purposes of determining acceptable sound levels to determine and evaluate intrusive noise sources and increases, this report utilizes the City of Los Angeles Noise Regulations, discussed below.

4.1.2 Federal Transit Administration Vibration Standards

There are no federal vibration standards or regulations adopted by any agency that are applicable to evaluating vibration impacts from land use development projects such as the proposed project. However, the Federal Transit Administration (FTA) has adopted vibration criteria for use in evaluating vibration impacts from construction activities (FTA 2018). The vibration damage criteria adopted by the FTA are shown in Table 4-1.

Table 4-1. Construction Vibration Damage Criteria

Building Category	PPV (in/sec)
I. Reinforced-concrete, steel, or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12
PPV = peak particle velocity; in/sec = inches per second Source: FTA, 2018.	

The FTA has also adopted standards associated with human annoyance for determining the groundborne vibration and noise impacts from ground-borne noise on the following three off-site land-use categories: Vibration Category 1 – High Sensitivity, Vibration Category 2 – Residential, and Vibration Category 3 – Institutional (FTA 2018). The FTA defines Category 1 as buildings where vibration would interfere with operations within the building, including vibration-sensitive research and manufacturing facilities, hospitals with vibration-sensitive equipment, and university research operations. Vibration-sensitive equipment includes, but is not limited to, electron microscopes, high-resolution lithographic equipment, and normal optical microscopes. Category 2 refers to all residential land uses and any buildings where people sleep, such as hotels and hospitals. Category 3 refers to institutional land uses such as schools, churches, other institutions, and quiet offices that do not have vibration-sensitive equipment but that still potentially involve activities that could be disturbed by vibration. The vibration thresholds associated with human annoyance for these three land-use categories are shown in Table 4-2. No thresholds have been adopted or recommended for commercial or office uses.

Table 4-2. Groundborne Vibration Sensitivity Criteria

Building Category	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]
Category 1: High Sensitivity. Buildings where vibration would interfere with interior operations (e.g., vibration-sensitive research and manufacturing facilities, hospitals with vibration-sensitive equipment, and research operations).	65 VdB	65 VdB	65 VdB
Category 2: Residential uses and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB
Category 3: Institutional land uses, such as schools, churches, other institutions, and quiet offices that do not have vibration-sensitive equipment, but still have the potential for activity interference.	75 VdB	78 VdB	83 VdB
VdB= vibration velocity 1 More than 70 vibration events of the same source per day. 2 Between 30 and 70 vibration events of the same source per day. 3 Fewer than 30 vibration events of the same kind per day. Source: FTA, 2018			

4.1.3 Occupational Safety and Health Act of 1970

Under the Occupational Safety and Health Act of 1970 (29 United States Code [USC] Sections1919 et seq.), the Occupational Safety and Health Administration (OSHA) has adopted regulations designed to protect workers against the effects of occupational noise exposure. These regulations list permissible noise level exposure as a function of the amount of time during which the worker is exposed. The regulations further specify a hearing conservation program that involves monitoring noise to which workers are exposed, ensuring that workers are made aware of overexposure to noise, and periodically testing the workers' hearing to detect any degradation (U.S. Department of Labor 1970).

4.1.4 Department of Housing and Urban Development

The federal Department of Housing and Urban Development (HUD) sets environmental criteria and standards in Title 24 of the Code of Federal Regulations (CFR), Part 51. New construction proposed in areas that exceed 65 dBA Ldn must incorporate noise attenuation features to maintain interior noise levels at 45 dBA Ldn. Development in areas exceeding 65 dBA Ldn requires further attenuation features. In general, the HUD regulations match the California state regulations discussed below. Common outdoor use areas and private outdoor use areas would be subjected to the exterior noise limit standard or 65 dBA Ldn.

4.2 State Regulations and Policies

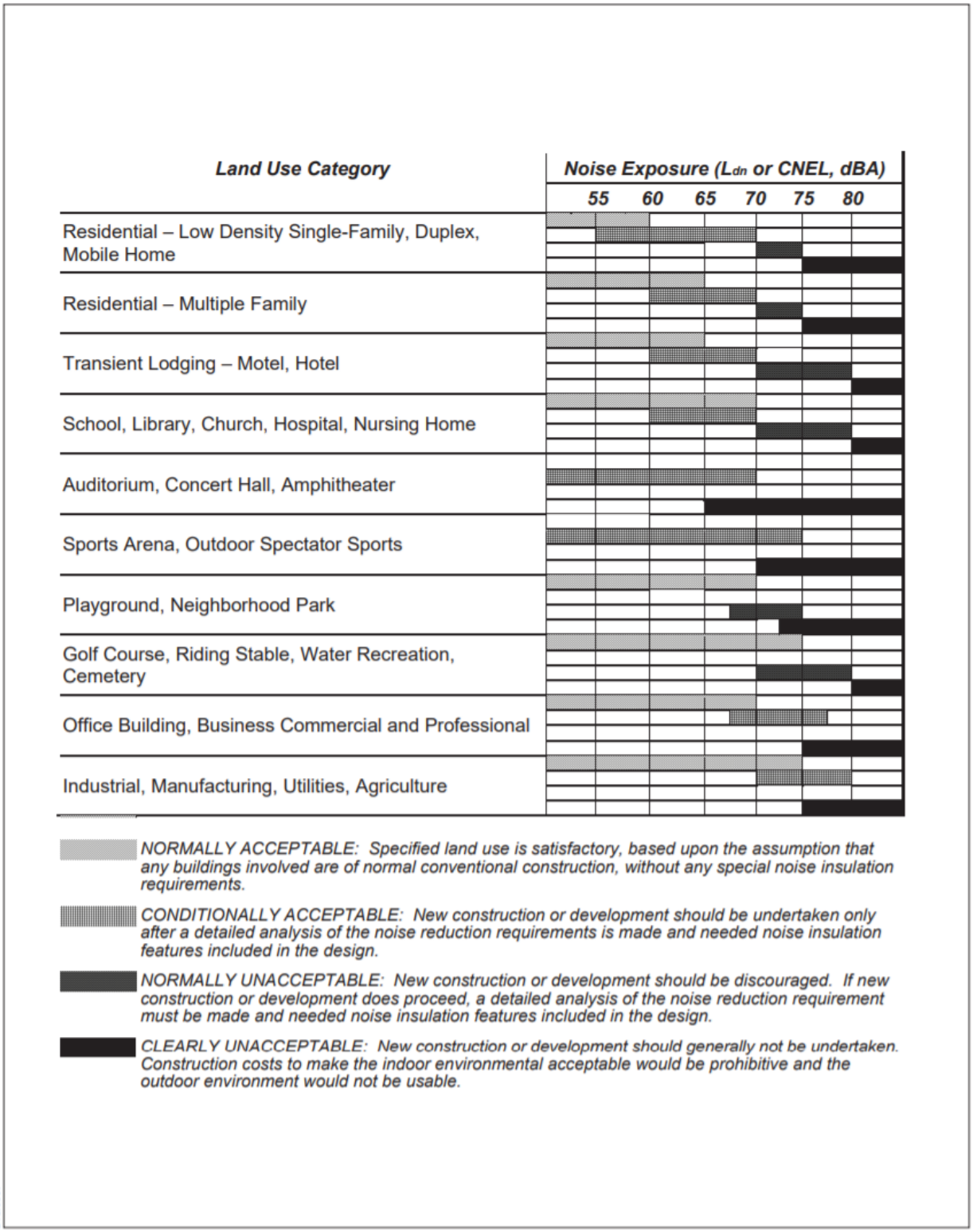
4.2.1 Office of Planning and Research Guidelines for Noise Compatible Land Use

The State of California has not adopted statewide standards for environmental noise, but the Governor's Office of Planning and Research (OPR) has established guidelines for evaluating the compatibility of various land uses as a function of community noise exposure, as presented in

Figure 4-1 (OPR 2017). The purpose of these guidelines is to maintain acceptable noise levels in a community setting for different land use types. Noise levels are divided into four general categories, which vary in range according to land use type: "normally acceptable," "conditionally acceptable," "normally unacceptable," and "clearly unacceptable." The City has developed its own compatibility guidelines in the Noise Element of the General Plan based in part on OPR Guidelines. California Government Code Section 65302 requires each county and city in the State to prepare and adopt a comprehensive long-range general plan for its physical development, with Section 65302(f) requiring a noise element to be included in the general plan. The noise element must: (1) identify and appraise noise problems in the community; (2) recognize Office of Noise Control guidelines; and (3) analyze and quantify current and projected noise levels.

The purpose of these guidelines is to maintain acceptable noise levels in a community setting for different land use types. Noise levels are divided into four general categories, which vary in range according to land use type: "normally acceptable," "conditionally acceptable," "normally unacceptable," and "clearly unacceptable." The City has developed its own compatibility guidelines in the Noise Element of the General Plan based in part on OPR Guidelines. California Government Code Section 65302 requires each county and city in the State to prepare and adopt a comprehensive long-range general plan for its physical development, with Section 65302(f) requiring a noise element to be included in the general plan. The noise element must identify and appraise noise problems in the community and analyze and quantify current and projected noise levels.

Figure 4-1
Guidelines for Noise Compatible Land Use



Source: OPR 2017

The State has also established noise insulation standards for new multi-family residential units, hotels, and motels. These requirements are collectively known as the California Noise Insulation Standards (Title 24 of the California Code of Regulations [CCR]). The noise insulation standards set forth an interior standard of 45 dBA CNEL in any habitable room. The standards require an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to exterior noise levels greater than 60 dBA CNEL. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

The State of California's noise insulation standards for nonresidential uses are codified in the California Code of Regulations, Title 24, Building Standards Administrative Code, Part 11, California Green Building Standards (CALGreen) Code. The CALGreen Code noise standards are applied to new or renovation construction projects in California to control interior noise levels resulting from exterior noise sources. Proposed Projects may use either the prescriptive method (CALGreen Code Section 5.507.4.1)[8] or the performance method (CALGreen Code Section 5.507.4.2)[9] to show compliance. Under the prescriptive method, a project must demonstrate transmission loss ratings for the wall and roof-ceiling assemblies and exterior windows when located within a noise environment of 65 dBA CNEL or higher. Under the performance method, a project must demonstrate that interior noise levels do not exceed 50 dBA L_{eq}(1hr).

4.3 Local Noise Regulations and Policies

4.3.1 City of Los Angeles General Plan Noise Element

The Noise Element of the City of Los Angeles (City) General Plan policies include the CNEL guidelines for land use compatibility and a number of goals, objectives, and policies for land use planning purposes. The overall purpose of the Noise Element is to guide policymakers in making land use determinations and in preparing noise ordinances that would limit exposure of citizens to excessive noise levels (City of Los Angeles, 1999). The following policies and objectives from the Noise Element apply to the project:

- Non-Airport Policy 5: Continue to enforce, as applicable, city, state, and federal regulations intended to abate or eliminate disturbances of the peace and other intrusive noise.
- Non-Airport Policy 6: When processing building permits, continue to require appropriate project design and/or insulation measures, in accordance with the California Noise Insulation Standards (Building Code Title 24, Section 3501 et seq.), or any amendments thereto or subsequent related regulations, so as to assure that interior noise levels will not exceed the minimum ambient noise levels, as set forth in the City's noise ordinance (LAMC

Section 111 et seq., and any other insulation related requirements) for a particular zone or noise sensitive use, as defined by the California Noise Insulation Standards.

- Land Use Development Policy 11: For a proposed development project that is deemed to have a potentially significant noise impact on noise sensitive uses, require mitigation measures, as appropriate, in accordance with California Environmental Quality Act and City procedures.
- Land Use Development Policy 12: When issuing discretionary permits for a proposed noise-sensitive use or subdivision of four or more detached single-family units and which use is determined to be potentially significantly impacted by existing or proposed noise sources, require mitigation measures, as appropriate, in accordance with procedures set forth in the California Environmental Quality Act so as to achieve an interior noise level CNEL of 45 dB, or less, in any habitable room as required by LAMC Section 91.
- Land Use Development Policy 13: Continue to plan, design and construct or oversee construction of public projects, and projects on City owned properties, so as to minimize potential noise impacts on noise sensitive uses and to maintain or reduce existing ambient noise levels.
- Land Use Development Policy 16: Use, as appropriate, the "Guidelines for Noise Compatible Land Use", or other measures that are acceptable to the City, to guide land use and zoning reclassification, subdivision, conditional use and use variance determinations and environmental assessment considerations, especially relative to sensitive uses within a CNEL of 65 dB airport noise exposure areas and within a line-of-sight of freeways, major highways, railroads or truck haul routes.

Exhibit I of the Noise Element also contains guidelines for noise compatible land uses (City of Los Angeles 1999). Table 4-3 summarizes these guidelines.

Table 4-3. City of Los Angeles Land Use Compatibility for Community Noise

Land Use	Normally Acceptable[1] (dBA, CNEL/L_{dn})	Conditionally Acceptable[2] (dBA, CNEL/L_{dn})	Normally Unacceptable[3] (dBA, CNEL/L_{dn})	Clearly Unacceptable[4] (dBA, CNEL/L_{dn})
Single-Family, Duplex, Mobile Homes	50-60	55-70	70-75	Above 75
Multifamily Homes	50-65	60-70	70-75	Above 75
Schools, Libraries, Churches, Hospitals, Nursing Homes	50-70	60-70	70-80	Above 80
Transient Loading – Motels, Hotels	50-65	60-70	70-80	Above 75
Auditoriums, Concert Halls, Amphitheaters	N/A	50-70	N/A	Above 70
Sports Arenas, Outdoor Spectator Sports	N/A	50-75	N/A	Above 75
Playgrounds, Neighborhood Parks	50-70	N/A	70-80	Above 80
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50-75	N/A	70-80	Above 80
Office Buildings, Business and Professional Commercial	50-70	67-77	Above 75	N/A
Industrial, Manufacturing, Utilities, Agriculture	50-75	70-80	Above 75	N/A

1. Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
2. 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. Outdoor environment will seem noisy.
3. Normally Unacceptable: New Construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made with needed noise insulation features included in the design. Outdoor areas must be shielded.
4. Clearly Unacceptable: New construction or development should generally not be undertaken. Construction posts to make indoor environment acceptable would be prohibitive and the outdoor environment would not be usable.

N/A: Not Applicable

Source: City of Los Angeles, 1999

4.3.2 Los Angeles Municipal Code

The City of Los Angeles Noise Regulations are provided in Chapter XI of the Los Angeles Municipal Code (LAMC). LAMC Section 111.02 provides procedures and criteria for the measurement of the sound level of "offending" noise sources. In accordance with the LAMC, a noise source that causes a noise level increase of 5 dBA over the existing average ambient noise level as measured at an adjacent property line creates a noise violation. This standard applies to radios, television sets, air conditioning, refrigeration, heating, pumping and filtering equipment, powered equipment intended for repetitive use in residential areas, and motor vehicles driven on-site. To account for people's increased tolerance for short-duration noise events, the Noise Regulations provide a 5 dBA allowance for a noise source that causes noise lasting more than 5 but less than 15 minutes in any one-hour period, and an additional 5 dBA allowance (for a total of 10 dBA) for a noise source that causes noise lasting 5 minutes or less in any one-hour period.

The LAMC provides that in cases where the actual ambient conditions are not known, the City's presumed daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) minimum ambient noise levels as defined in LAMC Section 111.03 should be used. The presumed ambient noise levels for these areas where the actual ambient conditions are not known as set forth in the LAMC Sections 111.03 are provided in Table 4-4. For example, for residential-zoned areas, the presumed ambient noise level is 50 dBA during the daytime and 40 dBA during the nighttime.

Table 4-4. City of Los Angeles Presumed Ambient Noise Levels

Zone	Daytime Hours (7 a.m. to 10 p.m.) dBA (L_{eq})	Nighttime Hours (10 p.m. to 7 a.m.) dBA (L_{eq})
Residential (A1, A2, RA, RE, RS, RD, RW1, RW2, R1, R2, R3, R4, and R5)	50	40
Commercial (P, PB, CR, C1, C1.5, C2, C4, C5, and CM)	60	55
Manufacturing (M1, MR1 and MR2)	60	55
Heavy Manufacturing (M2 and M3)	65	65
dBA = A-weighted decibels; L_{eq} = equivalent noise level Source: LAMC Section 111.03		

LAMC Section 112.01 limits noise from amplified voice and music and prohibits the operation of such devices (e.g., radio, musical instrument, phonograph, television receiver, or other machine) or other sounds in such a manner as to disturb the peace, quiet, and comfort of neighbors. Specifically, noise from such uses or operation which is audible at a distance in excess of 150 feet from the property line of the noise source within a residential zone of the City or within 500 feet thereof, is prohibited.

LAMC Section 112.02 limits increases in noise levels from air conditioning, refrigeration, heating, pumping and filtering equipment. Such equipment may not be operated in such manner as to create any noise which would cause the noise level on the premises of any other occupied property, or, if a condominium, apartment house, duplex, or attached business, within any adjoining unit, to exceed the ambient noise level by more than 5 dB.

LAMC Section 112.05 sets a maximum noise level for construction equipment of 75 dBA at a distance of 50 feet when operated within 500 feet of a residential zone. Compliance with this standard shall not apply where compliance therewith is technically infeasible. LAMC Section 41.40 prohibits construction between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, 6:00 p.m. and 8:00 a.m. on Saturday, and at any time on Sunday (i.e., construction is allowed Monday through Friday between 7:00 a.m. to 9:00 p.m.; and Saturdays between 8:00 a.m. to 6:00 p.m.). In general, the City's Department of Building and Safety enforces Noise Ordinance provisions relative to equipment, and the Los Angeles Police Department (LAPD) enforces provisions relative to noise generated by people.

LAMC Section 113.01 prohibits collecting or disposing of rubbish or garbage, operating any refuse disposal truck, or collecting, loading, picking up, transferring, unloading, dumping, discarding, or disposing of any rubbish or garbage, as such terms are defined in LAMC Section 66.00, within 200 feet of any residential building between the hours of 9:00 p.m. and 6:00 a.m. of the following day, unless a permit therefore has been duly obtained beforehand from the Board of Police Commissioners.

Per LAMC Section 114.03 it is unlawful to load and unload vehicles and equipment which cause any impulsive sound, raucous or unnecessary noise within 200 feet of any residential building.

Section 91.1207.14.2 prohibits interior noise levels attributable to exterior sources from exceeding 45 dBA in any habitable room. The noise metric shall be either the day-night average sound level (Ldn) or the CNEL, consistent with the noise element of the local general plan.

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Chapter 5 Study Methods and Procedures

5.1 Significance Thresholds and Methodology

5.1.1 Significance Thresholds

In accordance with Appendix G of the CEQA Guidelines, noise/vibration impacts would be significant if the proposed project would:

1. 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;
2. Generate excessive groundborne vibration or groundborne noise levels;
3. 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?

For this analysis, the Appendix G Thresholds listed above are analyzed. However, the analysis considers the City of Los Angeles' 2006 CEQA Thresholds Guide, as appropriate, to assist in answering the Appendix G Thresholds. The City of Los Angeles CEQA Thresholds Guide are identified below:

Construction Noise

- Construction activities lasting more than one day would exceed existing ambient exterior sound levels by 10dBA (hourly L_{eq}) or more at a noise-sensitive use;
- Construction activities lasting more than 10 days in a three-month period would exceed existing ambient exterior noise levels by 5 dBA (hourly L_{eq}) or more at a noise-sensitive use; or
- Construction activities of any duration would exceed the ambient noise level by 5 dBA (hourly L_{eq}) at a noise-sensitive use between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, before 8:00 a.m. or after 6:00 p.m. on Saturday, or any time on Sunday.

Operational Noise

- The project causes the ambient noise levels measured at the property line of affected noise-sensitive uses to increase by 3 dBA in CNEL to or within the "normally unacceptable" or "clearly unacceptable" category;

- The proposed project causes the ambient noise levels measured at the property line of the affected noise-sensitive uses to increase by 5 dBA in CNEL or greater; or
- Project-related operational on-site noise sources, such as outdoor building mechanical/electrical equipment, outdoor activities, loading, trash compactor, or parking facilities, increase the ambient noise level (hourly L_{eq}) at the noise-sensitive uses by 5 dBA.

FTA Ground-Borne Vibration Standards and Guidelines

The city currently does not have significance criteria to assess vibration impacts during construction. Thus, FTA guidelines set forth in FTA's Transit Noise and Vibration Assessment, dated September 2018, are used to evaluate potential impacts related to construction vibration for both potential building damage and human annoyance. The FTA guidelines regarding construction vibration are the most current guidelines and are commonly used in evaluation of vibration impacts. Proposed project vibration impacts would be significant if:

- project construction activities cause ground-borne vibration levels to exceed 0.5 PPV at the nearest off-site reinforced-concrete, steel, or timber building;
- project construction activities cause ground-borne vibration levels to exceed 0.3 PPV at the nearest off-site engineered concrete and masonry building;
- project construction activities cause ground-borne vibration levels to exceed 0.2 PPV at the nearest off-site on-engineered timber and masonry building; or
- project construction activities cause ground-borne vibration levels to exceed 0.12 PPV at buildings extremely susceptible to vibration damage, such as historic buildings.

Based on FTA guidance, construction vibration impacts associated with human annoyance would be significant if the following were to occur (applicable to frequent events/70 or more vibration events per day):

- project construction activities cause ground-borne vibration levels to exceed a threshold of 72 VdB for frequent events at off-site sensitive uses, including neighboring residential uses.

5.2 Methods for Selecting Noise Measurement and Analysis Locations

The focus of this noise analysis is on assessment of potential noise impacts at noise-sensitive locations in the vicinity of the proposed project. Such locations include areas of frequent human use within properties in close proximity to the project.

Existing noise conditions throughout the project area are quantified through a combination of short-term noise measurements and analysis of traffic noise at representative locations along Harbor Boulevard, which is the major source of traffic noise within the project environs. See Figure 5-1 for the noise measurement locations. Additional non-measurement locations were also selected for noise modeling in order to assess potential future operational traffic noise impacts in the project area. Figure 6-1 shows the traffic noise analysis locations.

Other noise study locations include representative noise-sensitive locations where project construction would have the potential to result in significant noise and vibration impacts (as shown as locations C01 to C12 in Figure 7-1).

5.3 Field Measurement Procedures

Short-term field noise measurements were conducted using a Rion Model NL-52 sound-level meter (SLM) equipped with a Rion UC-59 ½" microphone. This sound levels meter is classified as a Type 1 (precision-grade) instrument, as defined in the American National Standard Institute (ANSI) specification S1.4-1984 and the International Electrotechnical Commission (IEC) publications 804 and 651. The meter was set to the "slow" time-response mode and A-weighting filter network. Field calibration of the SLM was checked before and after each measurement using a Rion Model NC-74 calibrator.

The following is a summary of the procedures that were used to collect the sound level data.

5.3.1 Short-Term Measurements

Short-term noise measurements were taken at 11 locations at exterior areas of residential locations, or nearby acoustically-equivalent locations, where residents typically spend most of their time during outdoor activities. Short-term noise monitoring was conducted at the selected measurement locations within the noise study area on July 19, 2022. The short-term noise measurement locations are shown in Figure 5-1 as locations ST01 through ST11. The short-term noise monitoring included two 15-minute measurements at each of the measurement locations. Sound levels collected during the measurement periods were measured with the digital integrating SLM and documented manually on field data sheets. Dominant noise sources observed and other relevant measurement conditions were also identified and logged manually on the field data sheets. The field data sheets and noise measurement photographs are included in Appendix B of this report.

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Figure 5-1
Noise Measurement Locations
One San Pedro Specific Plan Project

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At measurement sites ST01 and ST-10, where traffic noise measurements were conducted, traffic on nearby noise-generating roadways, including Harbor Boulevard and O'Farrell Street, was videotaped. The relevant traffic data from each of the two short-term measurements at these locations were later classified and counted using the video recordings obtained in the field. In order to input the traffic data into the Traffic Noise Model (TNM) files developed for the project, vehicles were classified as automobiles, medium-duty trucks, and heavy-duty trucks. An automobile is defined as a vehicle with two axles and four tires that is designed to carry primarily passengers. Small vans and light trucks are included in this category. Medium-duty trucks include all cargo vehicles with two axles and six tires. Heavy-duty trucks include all vehicles with three or more axles. Average vehicle speeds were estimated using vehicle speed data observed in the field during the noise measurement periods.

Temperature, wind speed, and humidity were recorded manually using a Kestrel Model 2500 portable weather station during the short-term monitoring.

5.4 Operations Noise Assessment

Potential noise impacts due to long-term operation of the project would be due to potential project-related changes in traffic noise on area roadways. The proposed project would also include stationary equipment, such as HVAC mechanical systems and trash compacting equipment, that may generate audible noise at nearby neighboring locations. Proposed recreational noise sources (i.e., youth sports field, skate park, bandshell, dog park, intermittent live entertainment) are evaluated based on their potential to violate municipal code standards and result in a significant increase in ambient noise levels.

Furthermore, certain parts of the proposed project will be located adjacent to Harbor Boulevard, which carries relatively high traffic volumes, and, therefore, would be exposed to future traffic noise levels that could exceed the applicable exterior and interior City noise criteria. At such locations, future traffic noise levels are analyzed at the exterior and interior locations of project buildings in close proximity to Harbor Boulevard, and mitigation measures are recommended where future residents would be exposed to traffic noise levels in excess of the City criteria.

Traffic noise levels were predicted using the FHWA TNM, version 2.5. This computer model is based on FHWA reports FHWA-PD-96-009 and FHWA-PD-96-010 (FHWA 1998a, 1998b). Key geometric inputs for the TNM were the locations of roadways, shielding features (e.g., topography and buildings), and receptors. Three-dimensional representations of these inputs were developed using geographic data from the project area. Three-dimensional coordinates were used to digitize the geometric inputs into TNM version 2.5.

To validate the accuracy of the noise model, TNM version 2.5 was used to compare measured traffic noise levels with modeled noise levels at the traffic noise measurement locations (sites ST01 and ST10). Counted traffic volumes during each of the two measurement periods were normalized to one-hour volumes. Modeled and measured sound levels at the traffic noise measurement location were then compared to determine the accuracy of the model and whether a calibration adjustment was necessary. The results of calibration modeling are described in Chapter 6 of this report.

For analysis of the highest noise hours and CNEL under existing traffic conditions, existing (2021) AM and PM hourly peak-hour traffic provided by the project traffic consultant (Fehr and Peers 2023) were used in the traffic noise model. The mix of vehicle types counted during the onsite noise measurements was conservatively determined to be 96 percent automobiles, 3.5 percent medium trucks, and 0.5 percent heavy trucks. This fleet mix distribution was applied to the AM and PM peak-hour volumes. Appendix A-2 shows the existing peak-hour traffic volumes used in this noise analysis.

For CNEL, PM peak-hour traffic volumes were multiplied by a factor of 12.5 to arrive at an assumed average daily traffic (ADT) volume. This factor is derived from existing hourly traffic count data along Harbor Boulevard obtained from the Los Angeles Department of Transportation (LADOT). Time distribution of traffic was also developed from the existing count data. Based on the hourly count data, 24-hour distribution of traffic that is used in the noise analysis is approximately 76 percent during daytime hours (7:00 a.m. to 7: p.m.), 11 percent during evening hours (7:00 p.m. to 10:00 p.m.), and 13 percent during nighttime (10:00 p.m. to 7:00 a.m.). Evening and nighttime traffic volumes were multiplied by factors of 3 and 10, respectively, to arrive at an equivalent 24-hour volume for calculating the CNEL.

Similarly, for future (2037) traffic conditions under the No Build and Build scenarios, AM and PM peak hour traffic data were obtained from the project traffic engineer. For CNEL calculations, the 24-hour distribution of traffic was applied to the estimated ADT, and the resultant traffic volumes were input into the noise model. Appendix A-3 and Appendix A-4 summarize the peak-hour traffic volumes for Future No Build and Build conditions, respectively. The TNM input and output data are attached in Appendix D of this report.

To predict future HVAC noise associated with the proposed project at neighboring residential land uses, proposed air conditioning equipment information were obtained from the project developer. Reference noise levels from the equipment were gathered from the equipment manufacturer, and a noise distance attenuation rate of 6 dBA per doubling of distance was applied to the reference equipment noise levels to predict noise levels from HVAC units at nearby residential land uses.

5.5 Construction Noise and Vibration Assessment

Noise levels due to construction of the proposed project are estimated based upon available reference noise level data from construction equipment (FHWA, 2006), applying a 6-dBA per doubling of distance attenuation factor based on distances between construction activities and nearest representative noise-sensitive receptor locations, and taking into account shielding effects of local physical features (i.e., buildings and/or terrain), where applicable. To determine effective distances between the selected receptors and construction activities, each construction stage area was divided into multiple grids where construction activities would occur. Construction equipment was placed at the center of each of the grids and their noise level was calculated at the receptor. Resultant noise levels from construction at each grid were then summed logarithmically to arrive at total construction noise level from each construction stage area.

For estimation of ground-borne vibration levels at the nearest structures in the vicinity of the project site due to project construction, reference vibration levels were obtained from the FTA Transit Noise and Vibration Impact Assessment Manual (FTA 2018). Local ground vibration attenuation rate was based on the assumption of competent soil in the project area. Ground vibration attenuation rate was then applied to reference vibration levels from construction machinery to predict the levels of construction vibration at the nearest structures to the project site. Estimated construction vibration levels are compared with applicable building damage and human perceptibility criteria to determine project vibration impacts at neighboring receptors.

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Chapter 6 Existing Noise Environment

6.1 Existing Land Use

As shown in Figure 2-1, the OSP Specific Plan Site is generally bound by Santa Cruz Street to the north, Harbor Boulevard to the east, Third Street to the south, and Mesa Street to the west. Land uses surrounding the OSP Specific Plan Site are as follows:

- North: Single- and multi-family residential and commercial uses
- East: Harbor Boulevard, beyond which is industrial development and goods movement facilities associated with the Port of Los Angeles and Port of Long Beach, along with industrial, storage of church uses that are east of Beacon
- South: Residential, commercial, and public facilities uses
- West: Single- and multi-family residential uses

The 327 Harbor Site is bound by O'Farrell Street to the north, Harbor Boulevard to the east, a pet supply store and shopping plaza to the south, and Beacon Street to the west. Land uses surrounding the 327 Harbor Site are as follows:

- North: Commercial and office uses
- East: Harbor Boulevard, beyond which is industrial development associated with the Port of Los Angeles and Port of Long Beach
- South: Commercial uses
- West: Industrial and future multi-family residential development[1]

6.2 Existing Noise Setting

The project site is in an urbanized area with existing noise sources, including vehicular traffic on adjacent roadways, commercial activities, construction noise from developing properties in the area, industrial uses associated with the Port of Los Angeles, and other miscellaneous noise sources associated with typical urban environments. The existing noise setting is described further below.

[1] Multi-family residential uses are currently under construction at 345 North Beacon Street, west of the 327 North Harbor Site. Refer to Section 3, Environmental Setting, for cumulative projects.

The existing noise environment in the project area is characterized according to the short-term noise monitoring data collected in the field, as well as through traffic noise modeling of the existing AM and PM peak-hour traffic noise levels and CNEL values.

6.2.1 Short-Term Noise Measurements

Short-term noise measurements were conducted at a total of 11 locations in the project area on July 19, 2022. The short-term noise monitoring locations are shown as Sites ST01 through ST11 on Figure 5-1. Furthermore, simultaneous video recordings of traffic were obtained during the short-term noise measurements at Sites ST01 and ST10 near Harbor Boulevard, where traffic noise dominates the noise environment, in order to count the traffic during these measurements. The traffic counts are then used to calibrate the traffic noise model developed for the noise study. Field traffic count results are summarized in Appendix A-1 of this report.

Instrumentation utilized for the measurement of existing noise levels included a Rion NL-52 sound level meter equipped with a Rion UC-59 ½" microphone. The instrumentation was calibrated prior to and following each measurement with a Rion NC-74 acoustical calibrator to ensure the accuracy of the measurements. All measurement equipment complies with applicable specifications of the American National Standards Institute (ANSI) and the International Electrotechnical Commission (IEC) for the Type I (precision) sound level meters. The microphone was placed on a tripod at 5 feet above the local ground.

During short-term noise measurements, wind speeds ranged from 0 to 8 miles per hour (mph), temperatures ranged from 70 to 80 degrees Fahrenheit (°F), and relative humidity was between 50 to 70 percent.

These short-term noise measurements are deemed to be adequate to depict typical daytime noise levels (i.e., during times when project construction would occur) at each of the representative monitoring locations.

Table 6-1 summarizes the results of the short-term noise monitoring conducted in the project area. The table shows the measurement location address, start time, date, and duration; and the measured L_{eq}, L_{min}, L_{90}, and L_{max}. Appendix B includes the field data sheets completed during the noise fieldwork and the photographs of the noise monitors at each of the short-term noise monitoring locations.

As shown by the measurement data in Table 6-1, existing ambient noise levels in the project area are similar to background noise levels in a typical urban environment. In general, traffic on Harbor Boulevard dictates the noise environment at locations within one city block from this arterial roadway, including at the 327 Harbor Site and other residential and commercial uses along the roadway. Measured existing L_{eq} at these locations range between 60 to 66 dBA.

At project site locations farther west from Harbor Boulevard, existing noise sources include sparse local traffic movements, human activities such as lawn mowing, occasional distant aircraft overflights, barking dogs, and chirping birds. The average daytime sound levels (L_{eq}) at these locations are generally in the range of 51 to 59 dBA.

Table 6-1
Summary of Measured Short-term Noise Levels (dBA)
One San Pedro Specific Plan Project
Los Angeles, California

Measurement Location		Date	Start Time	Duration (minutes)	Measured Sound Level (dBA)			
					L_{eq}	L_{min}	L_{90}	L_{max}
ST01	209 Harbor Blvd.	7/19/2022	8:43 a.m.	15	65.8	52.8	55.8	75.5
			8:58 a.m.	15	66.3	52.1	53.9	75.5
ST02	360 3rd St., Units 55-60 (on 2nd St.)	7/19/2022	9:26 a.m.	15	51.6	41.1	42.1	73.3
			9:41 a.m.	15	54.1	42.8	44.8	74.9
ST03	108 S. Mesa St.	7/19/2022	10:04 a.m.	15	54.6	42.0	44.5	72.8
			10:19 a.m.	15	56.7	42.2	44.7	78.0
ST04	331 W. 1st St.	7/19/2022	10:43 a.m.	15	57.6	46.4	47.5	73.7
			10:58 a.m.	15	55.8	45.6	46.3	70.5
ST05	120 N. Centre St.	7/19/2022	11:26 a.m.	15	55.5	45.1	46.3	74.7
			11:41 a.m.	15	56.3	44.8	46.6	80.7
ST06	215 W. Santa Cruz St.	7/19/2022	2:56 p.m.	15	51.1	43.8	45.1	66.9
			3:11 p.m.	15	54.7	44.0	45.5	73.0
ST07	107-109 S. Palos Verdes St.	7/19/2022	1:02 p.m.	15	66.5	44.0	46.6	87.2
			1:17 p.m.	15	56.1	45.2	46.7	76.3
ST08	230 W. 3rd St.	7/19/2022	1:47 p.m.	15	59.3	47.2	49.4	77.2
			2:30 p.m.	15	59.4	47.7	48.3	84.5
ST09	201 N. Beacon St.	7/19/2022	4:44 p.m.	15	61.6	51.3	53.2	82.3
			4:59 p.m.	15	56.6	50.5	52.8	76.0
ST10	327 Harbor Blvd.	7/19/2022	5:25 p.m.	15	62.5	51.0	56.5	73.8
			5:40 p.m.	10	61.1	50.0	53.7	76.0
ST11	O'Farrell St @ Palos Verdes homes setback	7/19/2022	4:44 p.m.	15	57.9	52.2	53.7	69.2
			4:59 p.m.	15	67.7	52.5	54.4	90.2

Notes:
- Leq: Equivalent average sound level
- L90: Sound level exceeded 90% of the time
- Lmin: Minimum measured sound level
- Lmax: Maximum measured sound level

Source: A/E Tech LLC

6.3 Traffic Noise Model Calibration

FHWA TNM version 2.5 was used to develop a traffic noise model of the roadways in the project area. The model was utilized to compare measured traffic noise levels with modeled noise levels at short-term field measurement locations ST01 and ST10, using the traffic count data collected at the time of the noise measurements (see Appendix A-1). Table 6-2 compares measured and modeled noise levels at these measurement locations. Agreement (within 1 dB) was achieved between the measured and modeled results. Therefore, the noise model is used in this noise study without adjustment to evaluate traffic noise levels in the project area.

Table 6-2
Comparison of Measured and Modeled Traffic Noise Levels (dB)
One San Pedro Specific Plan Project

Measurement Site	Date	Start Time	Measured Sound Level (dBA)	Modeled Sound Level (dBA)	Measured minus Modeled (dBA)
ST01	7/19/2022	8:43 a.m.	65.8	66.0	-0.2
		8:58 a.m.	66.3	65.5	+0.8
ST10	7/19/2022	5:25 p.m.	62.5	63.4	-0.9
		5:40 p.m.	61.1	61.8	-0.7
Source: A/E Tech LLC					

6.4 Existing Traffic Noise Levels

Existing traffic noise levels were assessed at six locations throughout the project study area using noise model traffic inputs developed from a combination of traffic data provided by the project traffic consultant, traffic count data obtained from the LADOT, and onsite traffic counts. The selected noise analysis locations are summarized in Table 6-3 and shown as locations M01 through M08 in Figure 6-1. The traffic noise analysis locations were determined based on traffic data availability and represent typical residential locations along roadways in the project study area.

Quantification of existing noise levels is done in terms of the highest hourly traffic noise levels (i.e., AM and PM peak hour L_{eq}) and CNEL. The traffic data for the roadways used in the noise model for assessment of existing traffic noise levels are presented in Appendix A-2.

Figure 6-1
Traffic Noise Analysis Locations
Proposed One San Pedro Specific Plan Project

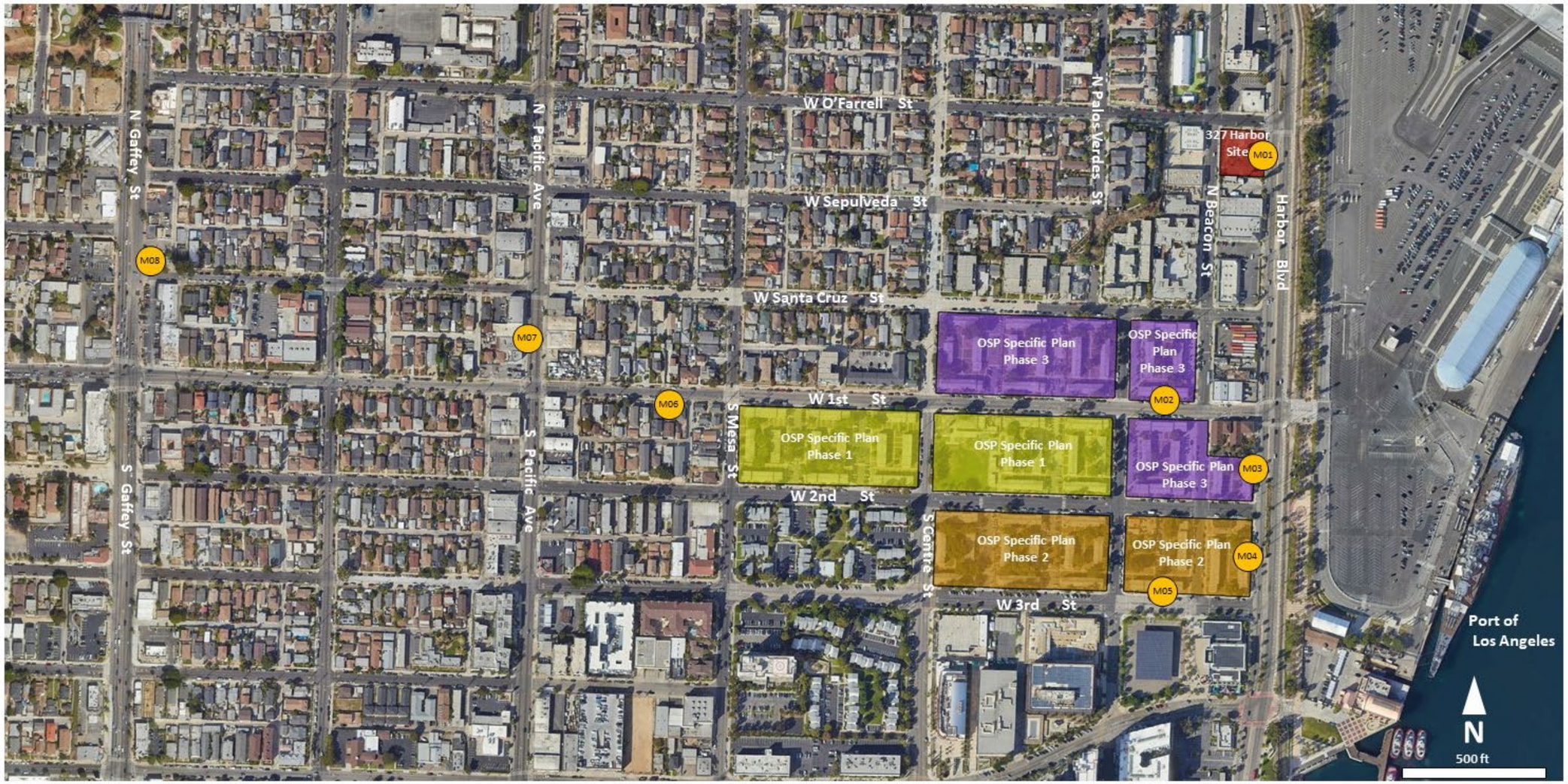

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Table 6-3
Traffic Noise Analysis Locations
One San Pedro Specific Plan Project

Modeling Location	Address	Land Use
M01	Future residential building at 327 Harbor Blvd.	RES
M02	Residential buildings along W. 1st St., west of Harbor Blvd.	RES
M03	Future residential building on Harbor Blvd., between 1st St. and 2nd St.	RES
M04	Future residential building on Harbor Blvd., between 2nd St. and 3rd St.	RES
M05	Residential buildings on W. 3rd St., west of Harbor Blvd.	RES
M06	Residential buildings along W. 1st St., east of Pacific Ave.	RES
M07	Commercial uses along Pacific Ave, between Santa Cruz St. and 1st St.	COM
M08	Commercial uses along Gaffey St, between Sepulveda St. and 1st St.	COM
Land Use: RES=Residential; COM=Commercial		

AM peak-hour, PM peak-hour, and CNEL values due to vehicular traffic at the analyzed traffic noise receptors under existing conditions are listed in in Table 6-4. As shown in Table 6-4, existing AM peak-hour traffic noise levels at exterior activity areas of nearby noise-sensitive properties are between 58 and 73 dBA $L_{eq}(h)$. Table 6-4 also shows that existing PM peak-hour traffic noise levels are between 58 and 71 dBA $L_{eq}(h)$.

Table 6-4
Existing (2021) Traffic Noise Levels
One San Pedro Specific Plan Project

Traffic Noise Analysis Location	Roadway Segment	Existing Noise Level, dBA		
		AM Peak-hour L_{eq}	PM Peak-hour L_{eq}	CNEL
M01	Harbor Blvd, south of O'Farrell St.	68	69	70
M02	1st St, west of Harbor Blvd	58	58	59
M03	Harbor Blvd, between 1st St and 2nd St	68	68	69
M04	Harbor Blvd, between 2nd St and 3rd St	68	68	69
M05	W. 3rd St, west of Harbor Blvd.	61	59	60
M06	W. 1st St, east of Pacific Ave.	62	61	62
M07	Pacific Ave, between Santa Cruz and 1st	67	68	68
M08	Gaffey St, between Sepulveda and 1st	73	71	72
Source: A/E Tech LLC				

Existing CNEL values at exterior of representative traffic noise receivers were also estimated using the results of the traffic noise model developed for the project area. As shown in Table 6-4, the existing CNEL values at the modeled receptor locations in the vicinity of the project site range between 59 dBA and 72 dBA. Existing exterior CNEL values at the locations along Harbor Boulevard are in the City's "conditionally acceptable" range (up to 70 dBA CNEL), while traffic noise levels at other locations along local access streets are in the "normally acceptable" range (see Table 4-4 for the City's land use compatibility for community noise).

Chapter 7 Future Noise and Vibration Environment and Project Impacts

Potential project noise effects on the surrounding environment are evaluated in terms of temporary construction noise and long-term effects resulting from the proposed project.

7.1 Construction Impacts

During construction of the project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. In accordance with the LAMC and consistent with the City of Los Angeles' 2006 CEQA Thresholds Guide, a noise source that causes a noise level increase of 5 dBA over the existing average ambient noise level as measured at an adjacent property line would result in a significant noise impact.

As noted in the Project Description section, proposed development on the 327 Harbor Site would take place first, followed by the phased demolition of existing structures on the three Phases of the OSP Specific Plan Site and their subsequent development (see Figure 2-1). Project construction would primarily occur Monday through Friday between the hours of 7:00 a.m. to 3:30 p.m., with occasional work on Saturdays or past 3:30 p.m. on weekdays.

Two types of short-term noise effects would occur during project construction. The first type would be from construction crew commutes, vendor deliveries, and the transport of construction equipment and materials to the project site, which would incrementally raise noise levels on access roads leading to the project site. The pieces of heavy equipment for grading and construction activities would be moved on site, would remain for the duration of each construction stage, and would not add to the daily traffic volume in the project vicinity.

The second type of short-term noise impact would be from onsite construction activities. Construction is performed in distinct steps, each of which has its own mix of equipment and consequently its own noise characteristics. These various sequential stages would change the character of the noise generated and the noise levels in the vicinity of the project site as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work stage.

7.1.1 Construction Equipment Noise

This section describes the potential noise impacts during project construction. Construction of the proposed project would occur in several stages. The 327 Harbor Site would be constructed

first, followed by site preparation of development of new buildings on the OSP Specific Plan Site over 11 distinct stages.

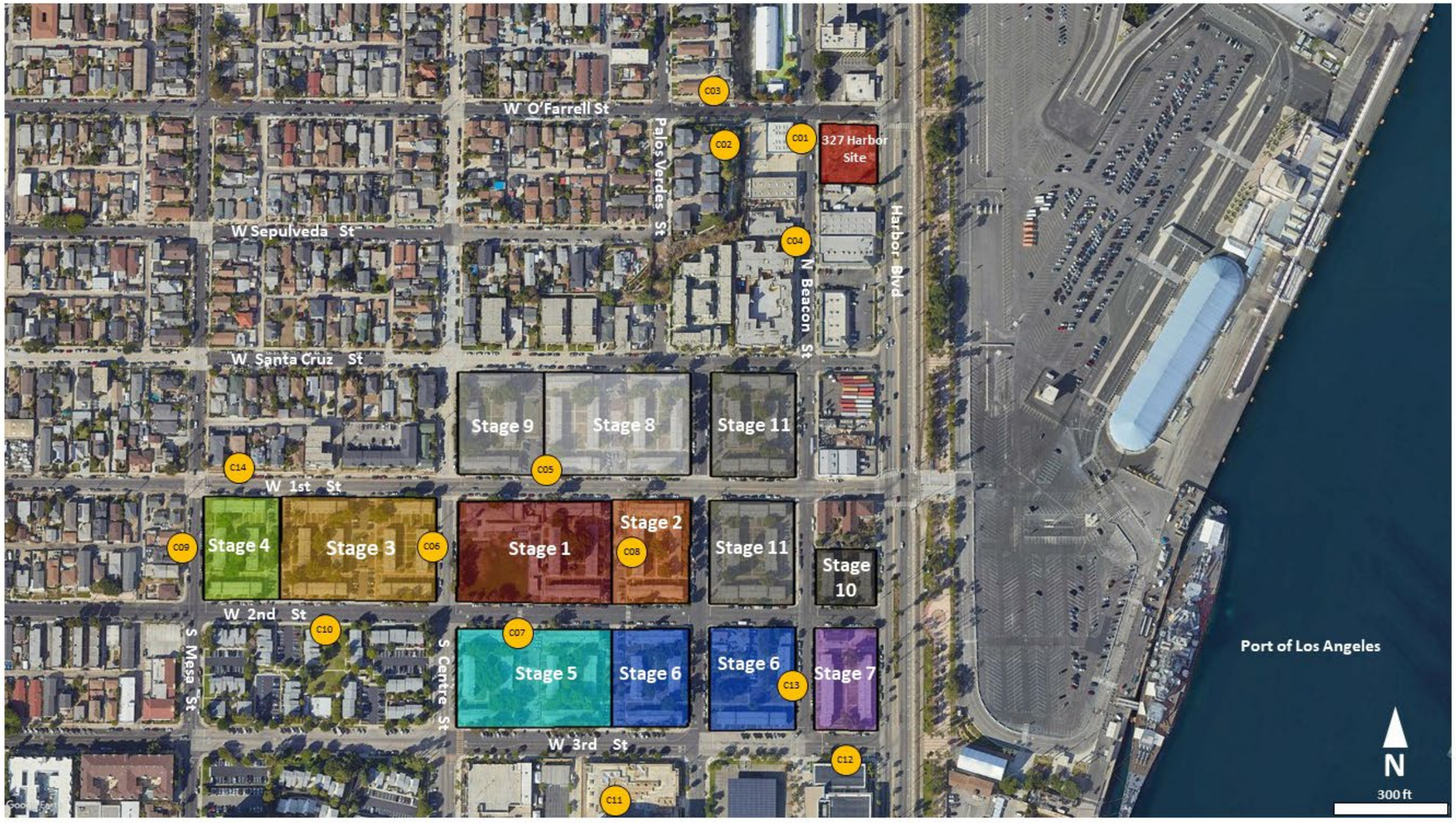
Figure 7-1 shows the 327 Site, anticipated construction stages of the three Phases of the OSP Specific Plan Site, and representative locations where construction noise levels are evaluated.

Table 7-1 is a listing of typical noise levels from commonly used equipment during construction of projects at a reference distance of 50 feet from the equipment. Typical noise levels at 50 feet from an active construction area could reach 90 dBA L_{max} during the noisiest construction stages.

Table 7-1
Reference Construction Equipment Noise Levels

Equipment Type	Actual L_{max} at 50 Feet (dBA)
Backhoe	78
Bulldozer	82
Compactor	83
Concrete Mixer	79
Concrete Pump	81
Concrete Saw	90
Crane, Mobile	81
Dump Truck	76
Excavator	81
Forklift	75
Grader	85
Loader	79
Pavement Breaker	90
Paver	77
Pump	81
Roller	80
Scraper	85
Sweeper	80
Tractor	84
Flatbed Truck	74
Welder	74
Source: Federal Highway Administration, 2006	

Figure 7-1
Construction Stages and Noise Analysis Locations
One San Pedro Specific Plan Project



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Typical construction equipment noise level data were obtained from the Roadway Construction Noise Model developed by the Federal Highway Administration (FHWA, 2006). The noise database utilized for estimating construction noise levels includes maximum noise level from each piece of machinery at a reference distance of 50 feet. To estimate construction noise levels during each construction stage, lists of equipment to be utilized during each stage were obtained from the project applicant and reference equipment noise levels and typical utilization rates were determined. Noise attenuation due to distance is assumed to be 6 dBA per doubling of distance from the equipment. Based on the locations of representative receptors and their distances to each construction site, construction noise levels in terms of L_{eq} were estimated at each location by applying the distance attenuation rate and applying estimated shielding factors due to intervening buildings.

327 Harbor Site

Construction noise levels at exterior areas of the representative neighboring noise-sensitive receptors in the vicinity of the 327 Harbor Site were estimated for each type of construction activity. Expected construction activities include site preparation, grading, utilities trenching, building construction, paving, and architectural finishing. Construction noise levels were evaluated using reference noise levels of equipment, types of number of equipment, equipment utilization rates, and estimated distances to each selected receptor for each type of construction activity. The selected construction noise receptors are shown as locations C01 through C04 on Figure 7-1 and briefly described below:

- C01: East property line of future multi-family residential use located at 345 North Beacon Street
- C02: East property line of multi-family residential unit at 326 North Palos Verdes Street
- C03: Exterior of multi-family residential building at 404 North Palos Verdes Street
- C04: Northeast corner of the multi-story residential building at 201 North Beacon Street

Calculated construction noise levels are shown in Appendix C. Table 7-2 summarizes estimated construction noise levels in the vicinity of the 327 Harbor Site during construction at the site in terms of hourly L_{eq}. The overall resultant noise level at each location (construction noise level plus existing noise level) is compared to a noise significance threshold equal to existing background noise level at the receptor plus 5 dBA. These noise levels are based on a conservative assumption of non-stop construction activities by multiple construction equipment in each area during a full construction day. Therefore, because of variations in intensity of construction activities, it is unlikely that such noise levels would be generated for the full scheduled duration of construction.

Project construction at the 327 Harbor Site would result in significant noise impacts at the immediate vicinity of the site during grading, utilities trenching, building construction, and paving activities at the site. However, it should be noted that there are no known outdoor activity areas at the receptors represented by C01 and C04. Additionally, construction noise levels at C02 and C03 only slightly exceed significance thresholds at these locations during grading and utilities trenching at the project site.

Table 7-2
Combined Construction and Existing Noise Levels (L_{eq}, dBA)
One San Pedro Specific Plan
327 Harbor Site

Receptor Location	Existing Sound Level	Significance Threshold	Estimated Construction Noise Level	Combined Construction + Existing Noise Level	Increase Above Existing Noise Level	Significant Noise Impact?
Site Preparation						
C01	60	65	63	65	+5	Yes
C02	58	63	51	59	+1	No
C03	58	63	49	59	+1	No
C04	57	62	54	59	+2	No
Grading						
C01	60	65	77	77	+17	Yes
C02	58	63	64	65	+7	Yes
C03	58	63	63	64	+6	Yes
C04	57	62	68	68	+11	Yes
Utilities Trenching						
C01	60	65	78	78	+18	Yes
C02	58	63	66	66	+8	Yes
C03	58	63	64	65	+7	Yes
C04	57	62	69	69	+12	Yes
Building Construction						
C01	60	65	70	71	+11	Yes
C02	58	63	58	61	+3	No
C03	58	63	56	60	+2	No
C04	57	62	61	63	+6	Yes
Paving						
C01	60	65	74	74	+14	Yes
C02	58	63	62	63	+5	Yes
C03	58	63	60	62	+4	No
C04	57	62	65	66	+9	Yes
Architectural Coating						
C01	60	65	63	65	+5	Yes
C02	58	63	51	59	+1	No
C03	58	63	49	59	+1	No
C04	57	62	54	59	+2	No
Source: A/E Tech LLC						

OSP Specific Plan Site

Construction of the OSP Specific Plan Site would occur in multiple stages across the three project Phases. Figure 7-1 shows the eleven (11) construction stage locations that would occur within the OSP Specific Plan Site site.

Each stage of construction would begin with demolition of existing buildings within the stage boundaries and continue with site preparation, grading, utilities trenching, building construction, paving, and architectural coatings. Construction noise levels in the project area were evaluated for three representative construction stages, namely Stage 1, Stage 4, and STage 7. These three construction stages were selected to represent a sufficient number of construction stages to reveal a pattern of increases over ambient noise levels due to construction activities at varying distances from the OSP Specific Plan Site. These three construction stages are most representative of construction noise that would be generated by buildout of the OSP Specific Plan Site over the 11 total construction stages.

Construction noise levels were modeled at 10 selected receptor locations that represent the closest receptors to each project Phase, as well as locations at farther distances. Receptor locations were selected based on their proximity to future construction activities and represent a combination of receptor locations that would capture construction noise levels at sensitive receptors of varying distances from each project Phase to provide for a reasonable worst-case assessment of construction noise impacts. Results from the short-term noise monitoring, summarized in Table 6-1, were used to calculate ambient noise levels at the selected receptor locations. It should also be noted that some of these receptor locations are existing Rancho San Pedro residences and future residences within earlier construction stages of the proposed project that could be impacted by construction noise during subsequent stages. The selected construction noise analysis locations are depicted on Figure 7-1 and described briefly below:

- C05: Exterior of multi-family residential building at 260 West 1st Street on the OSP Specific Plan Site. This is an existing receptor during Construction Stages 1 through 7 and a future receptor during Construction Stages 9 through 11.
- C06: Outside activity area of multi-family residential unit at 113 South Centre Street on the OSP Specific Plan Site. This is an existing receptor during Construction Stages 1 through 5 and a future receptor during Construction Stages 7 through 11.
- C07: Exterior of multi-family residential unit at 261 West 2nd Street on the OSP Specific Plan Site. This is an existing receptor during Construction Stages 1 through 4 and a future receptor during Construction Stages 6 through 11.

- C08: West exterior of the multi-family residential building at 128 South Arboles Court on the OSP Specific Plan Site. This would be a future receptor for all OSP Specific Plan Site construction stages, as it would be built during Construction Stage 2.
- C09: Outdoor activity area of single-family residential use at 119 South Mesa Street. This is an existing off-site receptor and would not be changed by the project.
- C10: North exterior of multi-family residential building at 360 West 3rd Street (facing 2nd Street). This is an existing of-site receptor and would not be changed by the project.
- C11: North exterior of the port of Los Angeles Administration Building at 425 South Palos Verdes Street. This is an existing off-site receptor and would not be changed by the project.
- C12: North exterior of the Port of Los Angeles Boys & Girls Club at 100 West 5th Street (south side of 3rd Street). This is an existing off-site receptor and would not be changed by the project.
- C13: East exterior of multi-family residential use located at 211 South Beacon Street on the OSP Specific Plan Site. This is an existing receptor during Construction Stages 1 through 5 and a future receptor during Construction Stages 7 through 11. This is an existing off-site receptor and would not be changed by the project.
- C14: South side of residential land use located at 380 West 1st Street.

Appendix C contains the construction noise calculation data for Construction Stages 1,4, and 7 at the above receptors, and Table 7-3, Table 7-4, and Table 7-5 summarize the construction noise impact evaluations of these three phases, respectively. Based on the estimated construction noise levels, it is apparent that the project construction would result in significant noise impacts at immediate adjoining existing and future residential uses next to each construction site and at other nearby residential locations with direct line-of-sight to the construction site.

At residential locations immediately adjacent to the OSP Specific Plan construction areas, including existing Rancho San Pedro residences, average construction noise levels (L_{eq}) could exceed the existing ambient noise levels by as much as 20 to 23 dBA, which would exceed the City's 5-dBA increase threshold of significance. At locations beyond the first rows of buildings immediately adjacent to the construction stages, where direct line-of-sight to construction activities are blocked by existing building structures, construction noise levels would generally be below the threshold of significance.

Table 7-3
Combined Construction and Existing Noise Levels (L_{eq}, dBA)
One San Pedro Specific Plan Project
Construction Stage 1 Construction

Receptor Location	Existing Sound Level	Significance Threshold[1]	Estimated Construction Noise Level	Combined Construction + Existing Noise Level	Increase Above Existing Noise Level	Significant Noise Impact?
Demolition						
C05	56	61	76	76	+20	Yes
C06	56	61	73	73	+17	Yes
C07	52	57	75	75	+23	Yes
C08	56	61	75	76	+20	Yes
C09	55	60	49	56	+1	No
C10	52	57	66	66	+14	Yes
C11	59	64	51	60	+1	No
C12	60	65	49	60	-0-	No
C13	59	64	51	60	+1	No
C14	56	61	59	60	+4	No
Site Preparation						
C05	56	61	64	65	+9	Yes
C06	56	61	63	64	+8	Yes
C07	52	57	59	60	+8	Yes
C08	56	61	66	66	+10	Yes
C09	55	60	38	55	-0-	No
C10	52	57	55	57	+5	Yes
C11	59	64	40	59	-0-	No
C12	60	65	37	60	-0-	No
C13	59	64	40	59	-0-	No
C14	56	61	48	57	+1	No
Grading						
C05	56	61	78	78	+22	Yes
C06	56	61	76	76	+20	Yes
C07	52	57	77	77	+25	Yes
C08	56	61	78	78	+22	Yes
C09	55	60	51	56	+1	No
C10	52	57	68	68	+16	Yes
C11	59	64	53	60	+1	No
C12	60	65	50	60	-0-	No
C13	59	64	53	60	+1	No
C14	56	61	60	61	+4	No

Receptor Location	Existing Sound Level	Significance Threshold[1]	Estimated Construction Noise Level	Combined Construction + Existing Noise Level	Increase Above Existing Noise Level	Significant Noise Impact?
Utilities Trenching						
C05	56	61	77	77	+21	Yes
C06	56	61	76	76	+20	Yes
C07	52	57	78	78	+26	Yes
C08	56	61	78	78	+22	Yes
C09	55	60	50	56	+1	No
C10	52	57	67	67	+15	Yes
C11	59	64	52	60	+1	No
C12	60	65	50	60	-0-	No
C13	59	64	52	60	+1	No
C14	56	61	60	61	+5	Yes
Building Construction						
C05	56	61	69	69	+13	Yes
C06	56	61	68	68	+12	Yes
C07	52	57	66	66	+14	Yes
C08	56	61	70	70	+14	Yes
C09	55	60	42	55	-0-	No
C10	52	57	59	60	+8	Yes
C11	59	64	44	59	-0-	No
C12	60	65	41	60	-0-	No
C13	59	64	44	59	-0-	No
C14	56	61	51	57	+1	No
Paving						
C05	56	61	72	72	+16	Yes
C06	56	61	71	71	+15	Yes
C07	52	57	72	72	+20	Yes
C08	56	61	73	73	+17	Yes
C09	55	60	45	55	-0-	No
C10	52	57	62	63	+11	Yes
C11	59	64	47	59	-0-	No
C12	60	65	44	60	-0-	No
C13	59	64	47	59	-0-	No
C14	56	61	54	58	+2	No
Architectural Coating						
C05	56	61	68	68	+12	Yes
C06	56	61	67	67	+11	Yes
C07	52	57	68	68	+16	Yes
C08	56	61	69	69	+13	Yes
C09	55	60	41	55	-0-	No
C10	52	57	58	59	+7	Yes

Receptor Location	Existing Sound Level	Significance Threshold[1]	Estimated Construction Noise Level	Combined Construction + Existing Noise Level	Increase Above Existing Noise Level	Significant Noise Impact?
C11	59	64	44	59	-0-	No
C12	60	65	41	60	-0-	No
C13	59	64	43	59	-0-	No
C14	56	61	51	57	+1	No

1. Noise impact significance threshold is set at existing measured ambient noise level plus 5 dBA.

Source: A/E Tech LLC

Table 7-4
Combined Construction and Existing Noise Levels (L_{eq}, dBA)
One San Pedro Specific Plan Project
Construction Stage 4 Construction

Receptor Location	Existing Sound Level	Significance Threshold	Estimated Construction Noise Level	Combined Construction + Existing Noise Level	Increase Above Existing Noise Level	Significant Noise Impact?
Demolition						
C05	56	61	52	58	+2	No
C06	56	61	52	57	+1	No
C07	52	57	52	55	+3	No
C08	56	61	45	56	-0-	No
C09	55	60	75	75	+20	Yes
C10	52	57	68	68	+16	Yes
C11	59	64	44	59	-0-	No
C12	60	65	41	60	-0-	No
C13	59	64	42	59	-0-	No
C14	56	61	75	75	+19	Yes
Site Preparation						
C05	56	61	40	56	-0-	No
C06	56	61	43	56	-0-	No
C07	52	57	40	52	-0-	No
C08	56	61	34	56	-0-	No
C09	55	60	64	64	+9	Yes
C10	52	57	58	59	+7	Yes
C11	59	64	32	59	-0-	No
C12	60	65	30	60	-0-	No
C13	59	64	39	59	-0-	No
C14	56	61	64	65	+9	Yes

Receptor Location	Existing Sound Level	Significance Threshold	Estimated Construction Noise Level	Combined Construction + Existing Noise Level	Increase Above Existing Noise Level	Significant Noise Impact?
Grading						
C05	56	61	53	58	+2	No
C06	56	61	53	58	+2	No
C07	52	57	53	56	+4	No
C08	56	61	47	56	-0-	No
C09	55	60	77	77	+22	Yes
C10	52	57	70	70	+18	Yes
C11	59	64	45	59	-0-	No
C12	60	65	42	60	-0-	No
C13	59	64	43	59	-0-	No
C14	56	61	62	63	+7	Yes
Utilities Trenching						
C05	56	61	53	58	+2	No
C06	56	61	53	58	+2	No
C07	52	57	53	56	+4	No
C08	56	61	46	56	-0-	No
C09	55	60	76	76	+21	Yes
C10	52	57	69	69	+17	Yes
C11	59	64	45	59	-0-	No
C12	60	65	42	60	-0-	No
C13	59	64	43	59	-0-	No
C14	56	61	76	76	+20	Yes
Building Construction						
C05	56	61	46	56	-0-	No
C06	56	61	44	56	-0-	No
C07	52	57	45	53	+1	No
C08	56	61	38	56	-0-	No
C09	55	60	68	68	+13	Yes
C10	52	57	60	61	+9	Yes
C11	59	64	37	59	-0-	No
C12	60	65	34	60	-0-	No
C13	59	64	35	59	-0-	No
C14	56	61	67	67	+11	Yes
Paving						
C05	56	61	49	57	+1	No
C06	56	61	47	57	+1	No
C07	52	57	48	54	+2	No
C08	56	61	41	56	-0-	No
C09	55	60	71	71	+16	Yes
C10	52	57	63	63	+11	Yes

Receptor Location	Existing Sound Level	Significance Threshold	Estimated Construction Noise Level	Combined Construction + Existing Noise Level	Increase Above Existing Noise Level	Significant Noise Impact?
C11	59	64	40	59	-0-	No
C12	60	65	37	60	-0-	No
C13	59	64	38	59	-0-	No
C14	56	61	70	70	+14	Yes
Architectural Coating						
C05	56	61	45	56	-0-	No
C06	56	61	44	56	-0-	No
C07	52	57	44	53	+1	No
C08	56	61	38	56	-0-	No
C09	55	60	68	68	+13	Yes
C10	52	57	61	61	+9	Yes
C11	59	64	37	59	-0-	No
C12	60	65	34	60	-0-	No
C13	59	64	35	59	-0-	No
C14	56	61	68	68	+12	Yes

1. Noise impact significance threshold is set at existing measured ambient noise level plus 5 dBA.

Source: A/E Tech LLC

Table 7-5
Combined Construction and Existing Noise Levels (L_{eq}, dBA)
One San Pedro Specific Plan Project
Construction Stage 7 Construction

Receptor Location	Existing Sound Level	Significance Threshold	Estimated Construction Noise Level	Combined Construction + Existing Noise Level	Increase Above Existing Noise Level	Significant Noise Impact?
Demolition						
C05	56	61	45	56	-0-	No
C06	56	61	44	56	-0-	No
C07	52	57	51	55	+3	No
C08	56	61	49	57	+1	No
C09	55	60	41	55	-0-	No
C10	52	57	43	53	+1	No
C11	59	64	58	61	+2	No
C12	60	65	74	74	+14	Yes
C13	59	64	77	77	+18	Yes
C14	56	61	41	56	-0-	No
Site Preparation						
C05	56	61	34	56	-0-	No
C06	56	61	33	56	-0-	No
C07	52	57	39	52	-0-	No
C08	56	61	38	56	-0-	No
C09	55	60	29	55	-0-	No
C10	52	57	31	52	-0-	No
C11	59	64	45	59	-0-	No
C12	60	65	63	65	+5	No
C13	59	64	65	66	+7	Yes
C14	56	61	30	56	-0-	No
Grading						
C05	56	61	51	57	+1	No
C06	56	61	46	56	-0-	No
C07	52	57	52	55	+3	No
C08	56	61	51	57	+1	No
C09	55	60	42	55	-0-	No
C10	52	57	44	53	+1	No
C11	59	64	58	62	+3	No
C12	60	65	75	75	+15	Yes
C13	59	64	78	78	+19	Yes
C14	56	61	43	56	-0-	No

Receptor Location	Existing Sound Level	Significance Threshold	Estimated Construction Noise Level	Combined Construction + Existing Noise Level	Increase Above Existing Noise Level	Significant Noise Impact?
Utilities Trenching						
C05	56	61	46	56	-0-	No
C06	56	61	45	56	-0-	No
C07	52	57	52	55	+3	No
C08	56	61	51	57	+1	No
C09	55	60	41	55	-0-	No
C10	52	57	44	53	+1	No
C11	59	64	59	62	+3	No
C12	60	65	75	75	+15	Yes
C13	59	64	78	78	+19	Yes
C14	56	61	42	56	-0-	No
Building Construction						
C05	56	61	38	56	-0-	No
C06	56	61	37	56	-0-	No
C07	52	57	44	53	+1	No
C08	56	61	42	56	-0-	No
C09	55	60	33	55	-0-	No
C10	52	57	35	52	-0-	No
C11	59	64	51	60	+1	No
C12	60	65	66	67	+7	Yes
C13	59	64	69	70	+11	Yes
C14	56	61	34	56	-0-	No
Paving						
C05	56	61	41	56	-0-	No
C06	56	61	40	56	-0-	No
C07	52	57	47	53	+1	No
C08	56	61	45	56	-0-	No
C09	55	60	36	55	-0-	No
C10	52	57	38	52	-0-	No
C11	59	64	54	60	+1	No
C12	60	65	69	70	+10	Yes
C13	59	64	72	72	+13	Yes
C14	56	61	37	56	-0-	No
Architectural Coating						
C05	56	61	38	56	-0-	No
C06	56	61	37	56	-0-	No
C07	52	57	43	53	+1	No
C08	56	61	42	56	-0-	No
C09	55	60	33	55	-0-	No
C10	52	57	36	52	-0-	No

Receptor Location	Existing Sound Level	Significance Threshold	Estimated Construction Noise Level	Combined Construction + Existing Noise Level	Increase Above Existing Noise Level	Significant Noise Impact?
C11	59	64	50	59	-0-	No
C12	60	65	66	67	+7	Yes
C13	59	64	70	70	+11	Yes
C14	56	61	34	56	-0-	No
1. Noise impact significance threshold is set at existing measured ambient noise level plus 5 dBA. Source: A/E Tech LLC						

7.1.2 Construction Traffic Noise

During the construction of the proposed project, there would be additional traffic on area roadways due to worker vehicle trips, vendor deliveries, and haul trucks carrying materials to and from the project site. Construction-related traffic would potentially increase noise levels along area roadways and result in noise impacts. In order to assess the potential noise impacts of project traffic during construction, the following assumptions were applied for haul truck trips, vendor deliveries, and employee trips:

- Each truckload requires an inbound trip and an outbound trip.
- The daily number of truck trips was averaged over an 8-hour workday to obtain the number of peak hour truck trips (50 percent entering and 50 percent exiting).
- Each worker or vendor trip per day would consist of one inbound trip to the site and one outbound trip from the site.
- Worker trips would be one during the AM peak hour and one during the PM peak hour.
- The primary construction traffic route would be along Harbor Boulevard, 1st Street, and 3rd Street.

Potential increases in traffic noise exposure due to vehicle trips generated during construction stages with the highest traffic volumes were evaluated using existing traffic volumes on local roadways leading to the project site and adding the highest anticipated construction traffic volumes to the existing volumes. The traffic data were utilized in the TNM to evaluate the differences in hourly average traffic noise level (L_{eq}) between the existing and existing with construction AM peak-hour conditions. AM peak-hour was used for the analysis because it presents lower existing traffic volumes in the inbound direction (i.e., along southbound Harbor Boulevard), and would, therefore, result in higher increases in noise levels due to addition of construction traffic.

A review of vehicle trips data during construction of the OSP Specific Plan Site showed that the highest average daily haul truck trips to the project site would occur during Stage 4 grading. During this construction period, there would be a total of 2,467 hauling trips over 22 days, for an average of approximately 112 daily truck trips. This translates to nearly 14 hourly truck trips to and from the project site over an 8-hour typical construction day. Daily worker trips during this same period would be 38 vehicle trips per day.

Table 7-6 summarizes the comparison of calculated existing AM peak-hour L_{eq} values between the baseline and existing with construction conditions. As shown in Table 7-6, the vehicular traffic related to project construction increase hourly traffic noise levels by less than 1 dBA L_{eq} at locations along Harbor Boulevard and approximately 2 dBA L_{eq} at the exterior of residential uses along 1st Street and 3rd Street. The project's construction-related increases in traffic noise would not exceed the City's 5 dBA significance threshold.

Table 7-6
Comparison of AM Peak-Hour Traffic Leq (dB)
Between Existing and Existing with Construction Conditions
One San Pedro Specific Plan Project

Receptor Location	Address	Calculated Hourly Traffic Noise Level (Leq, dBA)		
		Existing	With Construction	Noise Level Change
M01	327 Harbor Blvd.	68.2	68.8	0.6
M02	Residential buildings along W. 1st St., west of Harbor Blvd.	58.0	60.3	2.3
M03	Residential units on Harbor Blvd., between 1st St. and 2nd St.	67.8	68.1	0.3
M04	Residential buildings on Harbor Blvd., between 2nd St. and 3rd St.	67.9	68.2	0.3
M05	Residential buildings on W. 3rd St., west of Harbor Blvd.	60.5	62.4	1.9

- Based on the construction traffic assumptions, a total of 38 employee automobiles would travel to the project site in the AM peak-hour and 14 trucks would arrive at and depart from the project site during this hour.
- Construction traffic is assumed to travel on Harbor Boulevard and then split evenly between 1st Street and 3rd Street.

Source: A/E Tech LLC

On an average daily basis, the project construction traffic during its most intense periods would increase the ADT volume on area roadways by 755 vehicle trips, including 622 employee vehicle trips and 133 vendor deliveries in and out of the project site. This increase in daily traffic would be an increase of up to 0.2 dBA CNEL at locations along Harbor Boulevard. Along 1st

Street and 3rd Street, added construction traffic would result in traffic noise level increases of less than 1 dBA in CNEL. Therefore, increases in daily average traffic noise levels would not be noticeable at noise-sensitive locations in the vicinity of the project site during the construction of the proposed project.

7.1.3 Construction Vibration

Construction of the proposed project could generate temporary groundborne vibration in the immediate vicinity of certain construction activities. Groundborne vibration could cause human annoyance and potential building damage. Typical construction equipment with the potential to create groundborne vibration include pile drivers, vibratory rollers, large bulldozers, loaded trucks, and small bulldozers. Vibratory rollers would have the potential to generate the highest vibration levels, but it is assumed that other earth moving equipment would be used (such as excavators) that would produce similar vibration levels as a dozer.

Primary factors affecting the level of attenuation of vibration in the ground include the type and intensity of vibration at the source and the type of soil through which vibratory force propagates. Groundborne vibration levels from vibratory rollers and large dozers are 0.21 in/sec PPV and 0.089 in/sec PPV, respectively, at 25 feet from the source (FTA 2018). The soil type at the Project site may be categorized as competent soil type, which generally includes sandy clays, silty clays, gravel, silts, or weathered rock.

Use of vibratory rollers during construction of the proposed project would result in generation of intermittent groundborne vibration events at the buildings located closest to construction activities. The nearest sensitive buildings to construction equipment would be residential buildings in the immediate vicinity of the project site. Construction would generally occur at distances of 70 to 90 feet from the nearest receivers, but roadway and utility work could occasionally occur within 25 feet of structures.

Assuming the use of vibratory rollers similar to the reference equipment, the groundborne vibration levels at the nearest residential buildings to the Project site were calculated. In addition, since annoyance from ground-borne vibration is an indoor phenomenon, coupling effects of building structures on vibration levels were considered for estimating vibration velocities inside the buildings.

Vibration calculations show that the highest groundborne vibration levels due to use of vibratory rollers at the project site would result in vibration levels in terms of PPV in the range of 0.03 in/sec to 0.05 in/sec PPV at distances of 70 to 90 feet. From dozers, the estimated vibration levels would be 0.02 in/sec PPV. Such levels are below the FTA building damage criteria for all building categories. On occasions when construction might occur within 25 feet of receptors,

vibration levels from the use of large dozers and vibratory rollers would be 0.09 in/sec PPV and 0.21 in/sec PPV, respectively. Vibration levels generated by the use of vibratory rollers at this close distance would therefore exceed the building damage criteria for building categories III and IV shown in Table 4-1.

In terms of perceptibility to the people living near the project site, the estimated vibration levels generated by a vibratory roller would be in the range of 84 VdB to 87 VdB. From a large dozer, the estimated vibration levels would be 76 VdB to 79 VdB. Such levels exceed the potential human annoyance threshold of 72 VdB for frequent intermittent events at the residential buildings nearest to the project site. Therefore, groundborne construction vibration could result in significant impact at the nearest homes if vibratory rollers and large dozers are utilized for construction of the proposed project.

7.2 Operations

Potential noise impacts due to the operation of the proposed project would be due to project-related traffic increases on area roadways and stationary mechanical equipment, such as HVAC units and trash compacting equipment, to be installed for the future buildings.

7.2.1 Traffic Noise

Future (2037) forecast peak-hour traffic volumes under the No Build and project Build conditions were obtained from the project traffic engineer. A vehicle fleet mix of 96 percent automobiles, 3.5 percent medium trucks, and 0.5 percent heavy trucks (as explained in Section 5.4) was applied to the AM and PM peak-hour volumes. The resultant traffic data are shown in Appendix A-3 and Appendix A-4.

Based on the 24-hour traffic conversion assumptions explaind in Section 5.4 (sixth paragraph), equivalent 24-hour traffic volumes were developed and input into the traffic noise model. From the resultant traffic volumes, future (2037) traffic noise levels over a typical 24-hour period were predicted in terms of CNEL for No Build and Build conditions. TNM input and output data are included in Appendix D of this report. Table 7-7 summarizes the results of future traffic noise levels and their comparison to existing traffic CNEL values.

Table 7-7
Existing (2021) and Predicted Future (2037) CNEL
One San Pedro Specific Plan Project

Receptor I.D.	Land Use[2]	Existing (2021) CNEL, dBA[1]	Future (2037) No Build CNEL, dBA[1]	Future (2037) Build CNEL, dBA[1]	No Build Noise Level Minus Existing, dBA	Build Noise Level Minus Existing, dBA	Significant Impact?
M01	RES	70	71	71	1	1	NO
M02	RES	59	61	62	2	3	NO
M03	RES	69	70	70	1	1	NO
M04	RES	69	70	70	1	1	NO
M05	RES	60	60	62	-0-	2	NO
M06	RES	62	64	65	2	3	NO
M07	COM	68	69	69	1	1	NO
M08	COM	72	73	73	1	1	NO

Notes:
1 - CNEL is A-weighted, 24-hour equivalent noise level in decibels.
2 - Land Use: RES = Residential; COM = Commercial

The data in Table 7-7 show that at locations where the project would cause the ambient noise levels to be within the "normally unacceptable" CNEL of 70 dBA or higher, project-related noise increase would be only 1 dBA, which is below the 3-dBA significance threshold. At other locations where future noise levels would be within the "conditionally acceptable" range (below 70 dBA), noise levels increases due to the project would be between 1 to 3 dBA. Such increases are below the 5-dBA significance threshold. Therefore, the proposed project traffic noise impacts would be less than significant.

7.2.2 Stationary Equipment Noise

Based on information provided by the project developer, the air conditioning equipment to be installed for individual residential units will be mini-split condensers on the unit balcony. Community room equipment will either be placed on the building roof or will be located at ground level away from direct line-of-sight from neighboring residential uses. Examples of outdoor HVAC equipment that were provided include the Mitsubishi Electric M-Series SUZ outdoor condenser (single zone Model SUZ-KA12NA2) and the 1.5-Ton multi-zone inverter heat pump system.

Based on manufacturer's specifications, the single-zone outdoor units would generate sound pressure levels in the range of 49 to 51 dBA at an assumed distance of 25 feet from the equipment. Sound pressure levels from the multi-zone system range between 50 to 54 dBA. According to project plans, the nearest distances from neighboring residential uses to future

buildings to be developed by the project range from 70 to 90 feet. At these distances, HVAC noise would be below 50 dBA, which is well below the existing daytime average ambient noise levels in the project area. During nighttime hours (10 PM to 7 AM), the City's presumed ambient noise level for residential areas is 40 dBA (see Table 4-4). Based on such levels, the LAMC noise level limit for stationary equipment at the premises of any other occupied residential property would be 45 dBA (i.e., 5 dBA plus the presumed ambient noise level). At a distance of 70 feet from the proposed project, the maximum noise levels from HVAC equipment would be 45 dBA, which would not exceed the nighttime limit. Therefore, impacts from on-site stationary operational equipment at the OSP Specific Plan Site and 327 Harbor Site would be less than significant.

Trash chutes and associated compactor systems would be placed within interior of buildings and therefore should not cause any outdoor noise impacts in the community surrounding the project site.

Future residences within earlier built phases of the proposed project would be operational during construction of subsequent phases. While stationary operational noise sources from those operational portions of the project site would occur along with construction noise from subsequent phases, construction noise would overshadow project operational noise. When combining noise levels, when one source (e.g., construction) is 10 dBA or more than the other source (stationary operational), the combination is negligible and the added decibel level is effectively zero (Caltrans 2013).

7.2.3 Stationary Recreational Noise

A youth sports field is also planned to be located between 1st Street and 2nd Street east of South Centre Street. The proposed youth sports field would include a public announcement (PA) sound system; however, details of the youth sports field, such as the location and height of the PA sound system speakers is unknown and would be determined during final design of the proposed project. In addition, other potential recreational uses, such as a skate park, bandshell, and/or dog park may be built within the planned open space facilities throughout the OSP Specific Plan Site, the details of which would be determined during final project design. No stationary recreational noise sources would be present on the 327 Harbor Site..

LAMC Section 112.01 limits noise from amplified voice and music and prohibits the operation of such devices (e.g., radio, musical instrument, phonograph, television receiver, or other machine) or other sounds in such a manner as to disturb the peace, quiet, and comfort of neighbors. Specifically, noise from such uses or operation which is audible at a distance in excess of 150 feet from the property line of the noise source within a residential zone of the City or within 500 feet thereof, is prohibited.

Because the precise locations of the speakers for the amplified PA sound system at the proposed youth sports field is currently unknown, the PA system could potentially result in noise levels exceeding the existing ambient noise levels at neighboring residential land uses by more than 5 dBA, which would result in a significant impact. Similarly, the precise locations and details of other potential recreational uses, such as a skatepark, bandshell, and/or dog park, are currently unknown, and could also result in a significant noise impact to existing/future residents at the OSP Specific Plan Site. As previously stated, the details of the proposed youth sports field and the other potential recreational uses would be determined during the final design of the project. Because the potential noise levels associated with the amplified PA sound system at the youth sports field and other potential recreational uses is currently unknown, this analysis conservatively assumes operational noise impacts from these stationary recreational uses would be potentially significant.

7.3 Potential Future Noise Impacts on the Project

CEQA only requires the evaluation of potential environmental impacts of the proposed project on the environment, and it generally does not require evaluation of impacts of the existing environment on the proposed project. Such impacts are often addressed through the City's permitting process for proposed new buildings. Nonetheless, traffic noise exposure of future proposed buildings within the 327 Harbor Site and buildings located farther south along Harbor Boulevard has been included in this study to address project impacts from the perspective of the National Environmental Policy Act (NEPA).

7.3.1 Exterior Noise

Based on the calculated future (2037) traffic noise levels, east façade of the future residential building at 327 Harbor would be exposed to traffic noise levels of about 71 dBA CNEL. Based on the land use compatibility criteria in the City's General Plan (see Table 4-4), such noise levels are considered to be "normally unacceptable" for development of new multi-family land uses and would exceed the HUD exterior noise standard of 65 dBA Ldn. Therefore, outdoor areas of proposed buildings along Harbor Boulevard including 327 Harbor, Stage 7, and Stage 10 would need to be shielded from traffic noise.

7.3.2 Interior Noise

The interior noise level standard of the City and State is 45 dB CNEL within habitable dwelling units. The worst-case future exterior traffic noise exposure would occur at the exterior of the future multi-family units at the 327 Harbor Site closest to Harbor Boulevard. This means that an outdoor-to-indoor noise level reduction (NLR) of at least 26 dBA (71-45=26) would be required for compliance with the City and State's interior noise level standard.

To evaluate compliance with the interior noise level standard of the City, a detailed analysis of the proposed building construction was conducted to determine the NLR which will be provided by the building. The NLR provided by a building may be calculated by assuming a generalized sound level spectrum (arterial traffic in this case), correcting for A-weighting, determining the composite transmission loss and resulting sound level inside an affected room, correcting for room absorption and calculating the overall sound level inside the room.

Worst-case exterior noise exposure along the east side of the building was assumed to be 71 dBA CNEL. It was also assumed for the calculations that windows and doors would remain closed, as central air conditioning and heating would be provided in the proposed buildings. Since experience has shown that the transmission loss performance reported for laboratory test conditions cannot be expected from normal "as-built" assemblies, a 3-dB adjustment is applied for the determination of compliance with the applicable City and State noise level standard.

Construction details, based upon floor plans and information provided in the 327 North Harbor Entitlement Submittal (City Fabrick, 2022), are summarized as follows, including the assumed Sound Transmission Class (SC) of each sound transmitting component:

a. Exterior Walls: Stucco siding, 2"x4" wood studs, 1/2" gypsum board on the inside with cavity insulation (STC 46)
b. Windows: Low air-infiltration-rate aluminum frame sliders with dual glazing (STC 26)
c. Doors: Solid core wood or french doors with perimeter weather-stripping and threshold seals (STC 31)
d. Interior Floors: Carpet and pad or a combination of carpet and vinyl or other soft tile
e. Interior Walls and Ceiling: Gypsum board walls and ceiling

Table 7-8 presents a summary of calculated NLR values based upon the above-described building construction details and transmission loss data obtained from laboratory test reports for individual building component assemblies. Outdoor-to-indoor noise reduction worksheets for the two typical rooms analyzed are included in Appendix E.

From Table 7-8, it is apparent that the proposed building materials at 327 Harbor Site would achieve the required NLR levels for compliance with the City and State's interior noise level standard of 45 dBA CNEL.

Table 7-8
Summary of Noise Level Reduction (NLR) Calculations
One San Pedro Specific Plan Project
Proposed Building @ 327 Harbor Site

Room	Exterior Noise Level, CNEL	Building Attenuation (NLR)	Resulting Interior Sound Level, CNEL
Primary Bedroom (2-BR Corner Unit)	71 dBA	29 dBA	42 dBA
Living Room/Kitchen/Dining (3-BR Typical)	71 dBA	31 dBA	40 dBA

Notes:

- NLR = Outdoor-to-indoor Noise Level Reduction
- NLR values include a 3-dB margin for "as-built" assemblies.
- 2-BR and 3-BR are 2-bedroom and 3-bedroom units, respectively.

Source: A/E Tech LLC

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Chapter 8 Mitigation

8.1 Construction

8.1.1 Construction Noise

327 Harbor Site

Project construction at the 327 Harbor Site would result in significant noise impacts at the immediate vicinity of the site during site preparation, grading, utilities trenching, building construction, and paving activities at the site. Construction noise levels would exceed the noise impact significance threshold by as much as 13 dBA at the east side of the future multi-family residential building located at 345 North Beacon Street.

An option to mitigate construction noise at the impacted residential uses is to erect temporary construction noise barriers along the west property line of the proposed project during construction stages that impact the adjoining receptors.

In order to determine the heights of temporary noise barriers needed to mitigate construction noise to below significant, barrier insertion loss calculations were conducted by assuming that a noise barrier would be placed at the west property line nearest to the offsite receptors. A 12-foot-high noise barrier along the west property line of the project site would reduce construction noise levels at first-floor receptors across Beacon Street by approximately 15 dBA. Therefore, construction noise exposure could be reduced at the nearest ground-level receptors to below significant increases by erecting a 12-foot-high temporary noise barrier along the west project site property line. However, the barriers would not reduce noise levels for second-story and higher receptors. Therefore, existing offsite receviers near the 327 Harbor Site in building with two or more stores would experience significant construction noise impacts, even with implementation of mitigation. Construction noise impacts would remain significant and unavoidable.

OSP Specific Plan Site

As shown by the noise analyses described in Section 7.1.1 of this report, residential land uses in the immediate vicinity to construction sites during each stage of construction of the OSP Specific Plan Site would be exposed to significant construction noise impacts.

The following measures should be included during construction of the project in order to minimize the community exposure to construction noise:

- All construction equipment should be outfitted with manufacture-recommended mufflers and silencers.

- Staging and delivery areas should be located as far as feasible from existing residences.
- Material hauling and deliveries should be coordinated by the construction contractor to reduce the potential of trucks waiting to unload for protracted periods of time.
- To the extent feasible, hydraulic equipment should be used instead of pneumatic impact tools, and electric powered equipment should be used instead of diesel powered equipment.
- For smaller equipment (such as air compressors and small pumps), line powered (electric) equipment should be used to the extent feasible.
- Stationary noise sources (e.g., generators and air compressors) shall be located as far from sensitive receptors as possible, and they shall be muffled and enclosed within temporary sheds, or insulation barriers or other measures shall be incorporated to the extent feasible.
- Signs shall be posted at the job site entrance(s), within the on-site construction zones, and along queueing lanes (if any) to reinforce the prohibition of unnecessary engine idling. All other equipment shall be turned off if not in use for more than 5 minutes. The construction manager shall be responsible for enforcing this.
- At least 10 days prior to the start of construction activities, a sign shall be posted at the entrance(s) to the job site, clearly visible to the public, that includes permitted construction days and hours, as well as the telephone numbers of the City's and contractor's authorized representatives that are assigned to respond in the event of a noise or vibration complaint. If the authorized contractor's representative receives a complaint, they shall investigate, take appropriate corrective action, and report the action to the City. The sign will have a minimum dimension of 48 inches wide by 24 inches high. The sign will be placed 5 feet above ground level.
- Temporary noise barriers of 12 feet in height shall be erected along the project property boundaries adjacent to sensitive receivers. Barriers shall be constructed with a solid material that has a density of at least 1.5 pounds per square foot with no gaps from the ground to the top of the barrier. Alternately, if an acoustical blanket, curtain or equivalent absorptive material is used it shall be rated sound transmission class (STC) 32 or higher.

The barriers would not substantially reduce noise levels for second-story and higher receptors. Therefore, existing and future onsite receivers at the OSP Specific Plan Site and existing offsite receptors near the OSP Specific Plan Site in buildings with two or more stories would experience significant construction noise impacts, even with implementation of mitigation. Construction noise impacts would remain significant and unavoidable.

8.1.2 Construction Vibration

Based on the vibration analysis results, construction of the proposed project would result in significant vibration impacts at residential land uses in the immediate vicinity of the project site. Such impacts would be due to the use of vibratory rollers at the project site during construction. The following construction vibration mitigation measures are recommended in order to reduce construction vibration to less than significant levels:

- If paving activities occur within 25 feet of off-site buildings or structures, a pneumatic or static roller shall be used in lieu of a vibratory roller.
- Grading and earthwork activities within 15 feet of adjacent residential structures shall be conducted with off-road equipment that is limited to 100 horsepower or less.

Furthermore, proper timely notices of scheduled construction activities to local residents as recommended above for construction noise mitigation would be important in managing expectations and minimizing the potential for complaints.

8.2 Operations

Long-term traffic noise effects of the proposed project are found to result in less than significant noise impacts on the existing environment. Therefore, no mitigation would be required for traffic operations. However, since there would be traffic noise impacts on the project at future buildings to be located immediately west of Harbor Boulevard, the following mitigation measures are recommended to address such impacts:

- Require the applicant to retain a qualified acoustical consultant to provide design-level review of site plans that make specific recommendations for ensuring that future traffic noise levels from Harbor Boulevard comply with the City's interior noise level criteria at the future residential buildings in the Stage 7 and Stage 10 areas of the OSP Specific Plan Site.

To mitigate exterior noise at future outdoor use areas along Harbor Boulevard, the following measures shall be required:

- Construct 5-foot-high barriers (as measured from the finished floor of the residential units) is recommended for balconies and patios with direct line-of-sight to Harbor Boulevard. Materials for the barriers may include solid masonry, plexiglass, 1/4-inch-thick glass, stucco veneer over wood framing or foam core, or a combination of these barrier types. The barrier shall be continuous from bottom to top, with no cracks or gaps.
- Construct a 6-foot-high barrier along the eastern portion of the second-story 327 Harbor Boulevard courtyard. Materials may include those listed above.

- Construct a 6-foot-high barrier along the eastern portion of the Stage 10 courtyard. Materials may include those listed above.

In terms of stationary sources associated with the project, future operation of the proposed youth sports field and/or bandshell would potentially result in violation of LAMC Section 112.01 code which limits noise from amplified voice and music. The following mitigation measure is recommended in order to reduce noise generated from the potential skate park or dog park to less than significant. However, it may not be possible to mitigate noise from amplified events such as at the sports field and/or bandshell. Therefore, operational noise from amplified events would remain significant and unavoidable.

- Prior to holding the first amplified event at any new site with amplified sound (e.g., at the youth sports field and bandshell), HACLA or its designee shall install signs at entry points that state prohibited activities during the event (e.g., use of air horns, unapproved audio amplification systems, loud activity in parking lots or streets upon exiting the facility). In addition, and prior to holding the first amplified event at the facility, the sound system contractor shall create a Public Address System Design Plan to minimize special event noise at nearby residences, to the extent feasible. Design measures may include, but are not limited to, bandwidth and peak limiter installation, and speaker angle and directivity techniques. Prior to the first amplified special event, the sound system contractor shall perform a system check to verify that the PA system meets the Public Address System Design Plan.
- Once the precise locations and design details of the project's proposed youth sports field and other potential recreational uses, such as a skate park, bandshell, and/or dog park, is finalized, HACLA or its designee shall conduct a quantitivate project-level analysis of the operational noise levels from such sources to determine if the project's recreational uses would result in an exceedance of the City of Los Angeles' exterior noise level thresholds. However, if it is determined that these recreational uses could potentially result in exceedance of the City's adopted exterior noise thresholds, the project Applicant will be required to implement additional feasible measures to minimize noise generated at the recreational uses. Such additional measures to reduce recreational noise impacts may include, but are not limited to, operational hour restrictions, setbacks, barriers and other shielding techniques. HACLA shall verify these additional measures are included on the final site plan prior to issuing construction permits for the recreational uses.

Chapter 9 References

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Appendix A Traffic Data

A-1: Hourly Traffic Counts at Traffic Noise Measurement Locations

A-2: Existing (2021) Peak-Hour Traffic Volumes

A-3: Future (2037) No Build Traffic Peak-Hour Volumes

A-4: Future (2037) Build Peak-Hour Traffic Volumes

A-1. Hourly Traffic Counts at Traffic Noise Measurement Locations

A1. Hourly Traffic Counts at Traffic Noise Measurement Locations

Site ST01: 209 Harbor Blvd.

First measurement @ 8:43 AM

	Harbor Blvd			
	Southbound		Northbound	
Vehicle Type	Lane 2	Lane 1	Lane 1	Lane 2
Automobiles	432	108	356	160
Medium Trucks	16	4	4	20
Heavy Trucks	0	0	4	0
Buses	8	0	4	0
Motorcycles	0	0	0	0

Second measurement @ 8:58 AM

	Harbor Blvd			
	Southbound		Northbound	
Vehicle Type	Lane 2	Lane 1	Lane 1	Lane 2
Automobiles	416	132	368	180
Medium Trucks	16	0	4	0
Heavy Trucks	0	0	4	0
Buses	0	0	0	0
Motorcycles	0	0	0	0

Site ST10: 327 Harbor Blvd.

First measurement @ 5:25 PM

	Harbor Blvd			
	Southbound		Northbound	
Vehicle Type	Lane 2	Lane 1	Lane 1	Lane 2
Automobiles	664	308	484	392
Medium Trucks	0	4	0	0
Heavy Trucks	0	0	8	0
Buses	0	0	0	0
Motorcycles	0	4	0	4

	O'Farrell St		
	Eastbound		Westbound
Vehicle Type	Left Turn	Right Turn	Lane 1
Automobiles	84	4	84
Medium Trucks	0	4	8
Heavy Trucks	4	0	0
Buses	4	0	0
Motorcycles	0	0	0

Second measurement @ 5:40 PM

	Harbor Blvd			
	Southbound		Northbound	
Vehicle Type	Lane 2	Lane 1	Lane 1	Lane 2
Automobiles	624	240	444	348
Medium Trucks	0	0	18	0
Heavy Trucks	0	0	0	0
Buses	0	0	0	0
Motorcycles	18	6	0	0

	O'Farrell St		
	Eastbound		Westbound
Vehicle Type	Left Turn	Right Turn	Lane 1
Automobiles	90	18	54
Medium Trucks	0	0	0
Heavy Trucks	0	0	0
Buses	0	0	0
Motorcycles	0	0	0

Note: The normalized hourly traffic counts above are derived by multiplying 15-minute counts by 4 and a 10-minute traffic count by 6.

A-2. Existing (2021) Peak-hour Traffic Volumes

			Baseline Year (2021) AM Peak Hour											
			1	2	3	4	5	6	7	8	9	10	11	12
Int	North/South	East/West	SR	ST	SL	WR	WT	WL	NR	NT	NL	ER	ET	EL
1	N Gaffey St	I-110/SR-47 Ramps												
		Automobiles	0	754	0	68	0	1,486	2,859	388	1	0	0	0
		Medium Trucks	0	27	0	2	0	54	104	14	0	0	0	0
		Heavy Trucks	0	4	0	0	0	8	15	2	0	0	0	0
2	N/S Gaffey St	W 1st St												
		Automobiles	386	1,426	69	170	112	39	3	1,702	9	23	45	998
		Medium Trucks	14	52	3	6	4	1	0	62	0	1	2	36
		Heavy Trucks	2	7	0	1	1	0	0	9	0	0	0	5
3	N Pacific Avenue	W 1st St												
		Automobiles	21	479	18	59	105	69	25	670	74	44	76	42
		Medium Trucks	1	17	1	2	4	3	1	24	3	2	3	2
		Heavy Trucks	0	2	0	0	1	0	0	3	0	0	0	0
4	N Front St	SR-47 WB On Ramps												
		Automobiles	7	195	0	0	0	0	0	417	717	0	0	0
		Medium Trucks	0	7	0	0	0	0	0	15	26	0	0	0
		Heavy Trucks	0	1	0	0	0	0	0	2	4	0	0	0
5	S Harbor Blvd	SR-47 Off Ramps/EB On Ramp / Swinford St												
		Automobiles	41	143	30	3	6	10	34	957	409	937	61	157
		Medium Trucks	2	5	1	0	0	0	1	35	15	34	2	6
		Heavy Trucks	0	1	0	0	0	0	0	5	2	5	0	1
6	S Harbor Blvd	W Ofarrell St												
		Automobiles	19	949	0	0	0	0	0	1,427	7	18	0	156
		Medium Trucks	1	35	0	0	0	0	0	52	0	1	0	6
		Heavy Trucks	0	5	0	0	0	0	0	7	0	0	0	1
7	N/S Harbor Blvd	W 1st St												
		Automobiles	37	932	17	7	0	3	6	1,017	7	10	3	235
		Medium Trucks	1	34	1	0	0	0	0	37	0	0	0	9
		Heavy Trucks	0	5	0	0	0	0	0	5	0	0	0	1
8	S Harbor Blvd	W 3rd St												
		Automobiles	188	763	0	0	0	0	0	1,015	3	12	0	25
		Medium Trucks	7	28	0	0	0	0	0	37	0	0	0	1
		Heavy Trucks	1	4	0	0	0	0	0	5	0	0	0	0

Note: Vehicle fleet mix is calculated based an automobile/medium truck/heavy truck mix of 96%/3.5%/0.5%, as counted during the traffic noise measurements.

			Baseline Year (2021) PM Peak Hour											
			1	2	3	4	5	6	7	8	9	10	11	12
Int	North/South	East/West	SR	ST	SL	WR	WT	WL	NR	NT	NL	ER	ET	EL
1	N Gaffey St	I-110/SR-47 Ramps												
		Automobiles	0	1,032	0	82	0	1,779	1,887	408	1	0	0	0
		Medium Trucks	0	38	0	3	0	65	69	15	0	0	0	0
		Heavy Trucks	0	5	0	0	0	9	10	2	0	0	0	0
2	N/S Gaffey St	W 1st St												
		Automobiles	407	1,739	88	105	135	40	9	1,334	30	36	98	664
		Medium Trucks	15	63	3	4	5	1	0	49	1	1	4	24
		Heavy Trucks	2	9	0	1	1	0	0	7	0	0	1	3
3	N Pacific Avenue	W 1st St												
		Automobiles	36	655	21	35	86	35	27	514	72	91	75	51
		Medium Trucks	1	24	1	1	3	1	1	19	3	3	3	2
		Heavy Trucks	0	3	0	0	0	0	0	3	0	0	0	0
4	N Front St	SR-47 WB On Ramps												
		Automobiles	97	183	0	0	0	0	0	375	484	0	0	0
		Medium Trucks	4	7	0	0	0	0	0	14	18	0	0	0
		Heavy Trucks	1	1	0	0	0	0	0	2	3	0	0	0
5	S Harbor Blvd	SR-47 Off Ramps/EB On Ramp / Swinford St												
		Automobiles	71	109	17	7	7	14	204	637	343	1,040	49	134
		Medium Trucks	3	4	1	0	0	1	7	23	12	38	2	5
		Heavy Trucks	0	1	0	0	0	0	1	3	2	5	0	1
6	S Harbor Blvd	W Ofarrell St												
		Automobiles	13	1,497	0	0	0	0	0	1,127	12	15	0	90
		Medium Trucks	0	55	0	0	0	0	0	41	0	1	0	3
		Heavy Trucks	0	8	0	0	0	0	0	6	0	0	0	0
7	N/S Harbor Blvd	W 1st St												
		Automobiles	45	995	3	27	3	8	3	949	24	27	6	163
		Medium Trucks	2	36	0	1	0	0	0	35	1	1	0	6
		Heavy Trucks	0	5	0	0	0	0	0	5	0	0	0	1
8	S Harbor Blvd	W 3rd St												
		Automobiles	69	908	10	0	0	0	0	930	6	16	0	47
		Medium Trucks	3	33	0	0	0	0	0	34	0	1	0	2
		Heavy Trucks	0	5	0	0	0	0	0	5	0	0	0	0

Note: Vehicle fleet mix is calculated based an automobile/medium truck/heavy truck mix of 96%/3.5%/0.5%, as counted during the traffic noise measurements.

A-3. Future (2037) No Build Peak-hour Traffic Volumes

			Future Year (2037) AM Peak Hour											
			1	2	3	4	5	6	7	8	9	10	11	12
Int	North/South	East/West	SR	ST	SL	WR	WT	WL	NR	NT	NL	ER	ET	EL
1	N Gaffey St	I-110/SR-47 Ramps												
		Automobiles	0	792	0	71	0	1,594	3,050	410	1	0	0	0
		Medium Trucks	0	29	0	3	0	58	111	15	0	0	0	0
		Heavy Trucks	0	4	0	0	0	8	16	2	0	0	0	0
2	N/S Gaffey St	W 1st St												
		Automobiles	405	1,529	75	184	124	41	3	1,835	9	24	49	1,047
		Medium Trucks	15	56	3	7	5	2	0	67	0	1	2	38
		Heavy Trucks	2	8	0	1	1	0	0	10	0	0	0	5
3	N Pacific Avenue	W 1st St												
		Automobiles	22	512	19	61	120	73	124	780	78	46	84	44
		Medium Trucks	1	19	1	2	4	3	5	28	3	2	3	2
		Heavy Trucks	0	3	0	0	1	0	1	4	0	0	0	0
4	N Front St	SR-47 WB On Ramps												
		Automobiles	7	204	5	9	114	52	87	385	753	388	194	53
		Medium Trucks	0	7	0	0	4	2	3	14	27	14	7	2
		Heavy Trucks	0	1	0	0	1	0	0	2	4	2	1	0
5	S Harbor Blvd	SR-47 Off Ramps/EB On Ramp / Swinford St												
		Automobiles	43	518	52	3	6	10	36	1,004	633	669	44	112
		Medium Trucks	2	19	2	0	0	0	1	37	23	24	2	4
		Heavy Trucks	0	3	0	0	0	0	0	5	3	3	0	1
6	S Harbor Blvd	W Ofarrell St												
		Automobiles	20	1,050	0	0	0	0	0	1,698	7	22	0	165
		Medium Trucks	1	38	0	0	0	0	0	62	0	1	0	6
		Heavy Trucks	0	5	0	0	0	0	0	9	0	0	0	1
7	N/S Harbor Blvd	W 1st St												
		Automobiles	50	1,069	18	7	0	3	6	1,078	7	10	3	455
		Medium Trucks	2	39	1	0	0	0	0	39	0	0	0	17
		Heavy Trucks	0	6	0	0	0	0	0	6	0	0	0	2
8	S Harbor Blvd	W 3rd St												
		Automobiles	204	887	0	0	0	0	0	1,075	3	13	0	27
		Medium Trucks	7	32	0	0	0	0	0	39	0	0	0	1
		Heavy Trucks	1	5	0	0	0	0	0	6	0	0	0	0

Note: Vehicle fleet mix is calculated based an automobile/medium truck/heavy truck mix of 96%/3.5%/0.5%, as counted during the traffic noise measurements.

			Future Year (2037) PM Peak Hour											
			1	2	3	4	5	6	7	8	9	10	11	12
Int	North/South	East/West	SR	ST	SL	WR	WT	WL	NR	NT	NL	ER	ET	EL
1	N Gaffey St	I-110/SR-47 Ramps												
		Automobiles	0	1,094	0	85	0	1,928	2,024	435	1	0	0	0
		Medium Trucks	0	40	0	3	0	70	74	16	0	0	0	0
		Heavy Trucks	0	6	0	0	0	10	11	2	0	0	0	0
2	N/S Gaffey St	W 1st St												
		Automobiles	427	1,883	107	118	158	47	17	1,441	32	37	129	697
		Medium Trucks	16	69	4	4	6	2	1	53	1	1	5	25
		Heavy Trucks	2	10	1	1	1	0	0	8	0	0	1	4
3	N Pacific Avenue	W 1st St												
		Automobiles	37	769	22	36	124	36	111	568	76	96	131	54
		Medium Trucks	1	28	1	1	5	1	4	21	3	4	5	2
		Heavy Trucks	0	4	0	0	1	0	1	3	0	1	1	0
4	N Front St	SR-47 WB On Ramps												
		Automobiles	102	199	26	52	193	142	74	353	578	666	153	45
		Medium Trucks	4	7	1	2	7	5	3	13	21	24	6	2
		Heavy Trucks	1	1	0	0	1	1	0	2	3	3	1	0
5	S Harbor Blvd	SR-47 Off Ramps/EB On Ramp / Swinford St												
		Automobiles	75	690	116	81	52	15	213	669	462	741	149	96
		Medium Trucks	3	25	4	3	2	1	8	24	17	27	5	4
		Heavy Trucks	0	4	1	0	0	0	1	3	2	4	1	1
6	S Harbor Blvd	W Ofarrell St												
		Automobiles	14	1,796	0	0	0	0	0	1,284	13	22	0	96
		Medium Trucks	1	65	0	0	0	0	0	47	0	1	0	4
		Heavy Trucks	0	9	0	0	0	0	0	7	0	0	0	1
7	N/S Harbor Blvd	W 1st St												
		Automobiles	55	1,294	3	28	29	30	40	1,024	25	28	48	286
		Medium Trucks	2	47	0	1	1	1	1	37	1	1	2	10
		Heavy Trucks	0	7	0	0	0	0	0	5	0	0	0	1
8	S Harbor Blvd	W 3rd St												
		Automobiles	77	1,223	10	0	0	0	0	1,039	6	17	0	52
		Medium Trucks	3	45	0	0	0	0	0	38	0	1	0	2
		Heavy Trucks	0	6	0	0	0	0	0	5	0	0	0	0

Note: Vehicle fleet mix is calculated based an automobile/medium truck/heavy truck mix of 96%/3.5%/0.5%, as counted during the traffic noise measurements.

A-4. Future (2037) Build Peak-hour Traffic Volumes

			Future Year (2037) Plus Project Both Scenarios, Full Buildout, AM Peak Hour											
			1	2	3	4	5	6	7	8	9	10	11	12
Int	North/South	East/West	SR	ST	SL	WR	WT	WL	NR	NT	NL	ER	ET	EL
1	N Gaffey St	I-110/SR-47 Ramps												
		Automobiles	0	804	0	71	0	1,641	3,114	426	1	0	0	0
		Medium Trucks	0	29	0	3	0	60	114	16	0	0	0	0
		Heavy Trucks	0	4	0	0	0	9	16	2	0	0	0	0
2	N/S Gaffey St	W 1st St												
		Automobiles	405	1,563	101	220	134	44	5	1,879	9	24	57	1,047
		Medium Trucks	15	57	4	8	5	2	0	68	0	1	2	38
		Heavy Trucks	2	8	1	1	1	0	0	10	0	0	0	5
3	N Pacific Avenue	W 1st St												
		Automobiles	22	516	28	74	170	76	127	784	78	46	121	44
		Medium Trucks	1	19	1	3	6	3	5	29	3	2	4	2
		Heavy Trucks	0	3	0	0	1	0	1	4	0	0	1	0
4	N Front St	SR-47 WB On Ramps												
		Automobiles	7	209	5	9	114	52	87	391	817	435	194	53
		Medium Trucks	0	8	0	0	4	2	3	14	30	16	7	2
		Heavy Trucks	0	1	0	0	1	0	0	2	4	2	1	0
5	S Harbor Blvd	SR-47 Off Ramps/EB On Ramp / Swinford St												
		Automobiles	43	569	52	3	6	10	36	1,074	697	716	44	112
		Medium Trucks	2	21	2	0	0	0	1	39	25	26	2	4
		Heavy Trucks	0	3	0	0	0	0	0	6	4	4	0	1
6	S Harbor Blvd	W Ofarrell St												
		Automobiles	24	1,149	0	0	0	0	0	1,833	7	22	0	171
		Medium Trucks	1	42	0	0	0	0	0	67	0	1	0	6
		Heavy Trucks	0	6	0	0	0	0	0	10	0	0	0	1
7	N/S Harbor Blvd	W 1st St												
		Automobiles	99	1,111	18	7	0	3	6	1,093	26	11	3	569
		Medium Trucks	4	40	1	0	0	0	0	40	1	0	0	21
		Heavy Trucks	1	6	0	0	0	0	0	6	0	0	0	3
8	S Harbor Blvd	W 3rd St												
		Automobiles	226	885	0	0	0	0	0	1,080	18	17	0	66
		Medium Trucks	8	32	0	0	0	0	0	39	1	1	0	2
		Heavy Trucks	1	5	0	0	0	0	0	6	0	0	0	0

Note: Vehicle fleet mix is calculated based an automobile/medium truck/heavy truck mix of 96%/3.5%/0.5%, as counted during the traffic noise measurements.

			Future Year (2037) Plus Project Both Scenarios, Full Buildout, PM Peak Hour											
			1	2	3	4	5	6	7	8	9	10	11	12
Int	North/South	East/West	SR	ST	SL	WR	WT	WL	NR	NT	NL	ER	ET	EL
1	N Gaffey St	I-110/SR-47 Ramps												
		Automobiles	0	1,108	0	85	0	1,982	2,072	447	1	0	0	0
		Medium Trucks	0	40	0	3	0	72	76	16	0	0	0	0
		Heavy Trucks	0	6	0	0	0	10	11	2	0	0	0	0
2	N/S Gaffey St	W 1st St												
		Automobiles	427	1,921	137	145	167	49	19	1,475	32	37	138	697
		Medium Trucks	16	70	5	5	6	2	1	54	1	1	5	25
		Heavy Trucks	2	10	1	1	1	0	0	8	0	0	1	4
3	N Pacific Avenue	W 1st St												
		Automobiles	37	773	32	45	162	38	115	572	76	96	174	54
		Medium Trucks	1	28	1	2	6	1	4	21	3	4	6	2
		Heavy Trucks	0	4	0	0	1	0	1	3	0	1	1	0
4	N Front St	SR-47 WB On Ramps												
		Automobiles	102	204	26	52	193	142	74	357	626	721	153	45
		Medium Trucks	4	7	1	2	7	5	3	13	23	26	6	2
		Heavy Trucks	1	1	0	0	1	1	0	2	3	4	1	0
5	S Harbor Blvd	SR-47 Off Ramps/EB On Ramp / Swinford St												
		Automobiles	75	751	116	81	52	15	213	722	510	796	149	96
		Medium Trucks	3	27	4	3	2	1	8	26	19	29	5	4
		Heavy Trucks	0	4	1	0	0	0	1	4	3	4	1	1
6	S Harbor Blvd	W Ofarrell St												
		Automobiles	18	1,912	0	0	0	0	0	1,384	13	22	0	100
		Medium Trucks	1	70	0	0	0	0	0	50	0	1	0	4
		Heavy Trucks	0	10	0	0	0	0	0	7	0	0	0	1
7	N/S Harbor Blvd	W 1st St												
		Automobiles	113	1,341	3	28	29	30	40	1,014	62	30	48	389
		Medium Trucks	4	49	0	1	1	1	1	37	2	1	2	14
		Heavy Trucks	1	7	0	0	0	0	0	5	0	0	0	2
8	S Harbor Blvd	W 3rd St												
		Automobiles	102	1,201	10	0	0	0	0	1,045	38	20	0	95
		Medium Trucks	4	44	0	0	0	0	0	38	1	1	0	3
		Heavy Trucks	1	6	0	0	0	0	0	5	0	0	0	0

Note: Vehicle fleet mix is calculated based an automobile/medium truck/heavy truck mix of 96%/3.5%/0.5%, as counted during the traffic noise measurements.

Appendix B Supplemental Fieldwork Data

B-1: Field Noise Measurement Data Sheets

B-2: Noise Measurement Photographs

B-3: Sound Level Measurement Instrumentation Calibration Records

B-1. Field Noise Measurement Data Sheets

July 19, 2022

Field Noise Measurement Data Sheet

Project: One San Pedro	By: F. Farhang	Date: 7/19/2022
Measurement Address: 209 Harbor Blvd.		Site No: ST-1

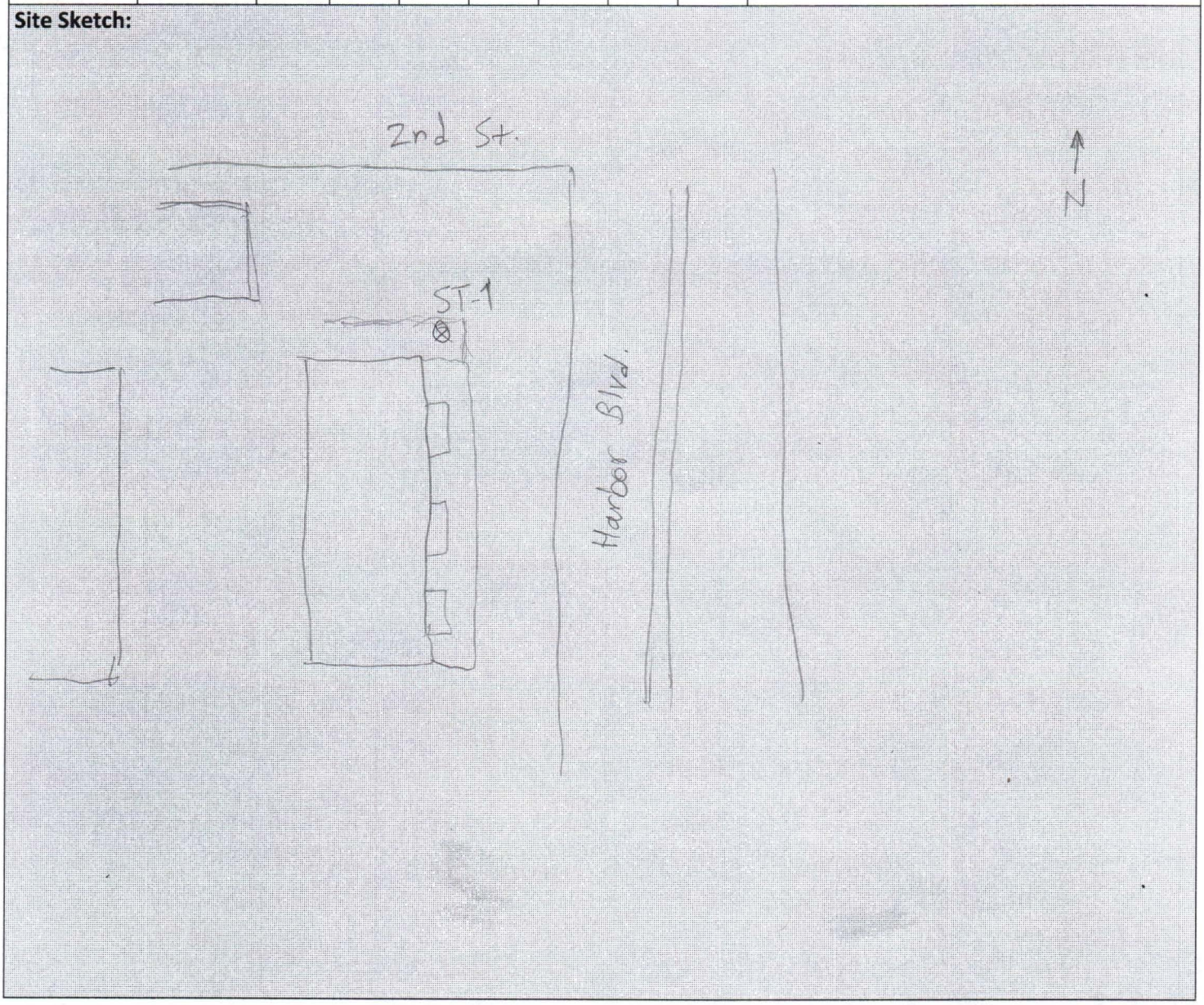
Sound Level Meter: Rion NL-52	Mic: Rion UC59	Preamp: —	Calibrator: Rion NC-74
Serial #: 01054269	08733	—	35157442

Weather Conditions:
Skies: clear Temp: 70-75 °F RH: 70 % Wind Speed: 0-5 mph Dir: W

Meter Settings: Response Slow Weighting A

Start Time	End Time	L_{eq}	L_{min}	L_{max}	L_{10}	L_{25}	L_{50}	L_{90}	Notes
8:43	8:58	65.8	52.8	75.5	70.0	67.7	62.7	55.8	
8:58	9:13	66.3	52.1	75.5	70.8	68.0	61.9	53.9	

Site Sketch:



Field Noise Measurement Data Sheet

Project: One San Pedro	By: F. Farhang	Date: 7/19/22
Measurement Address: 360 3rd St., Units 55-60		Site No: ST-2

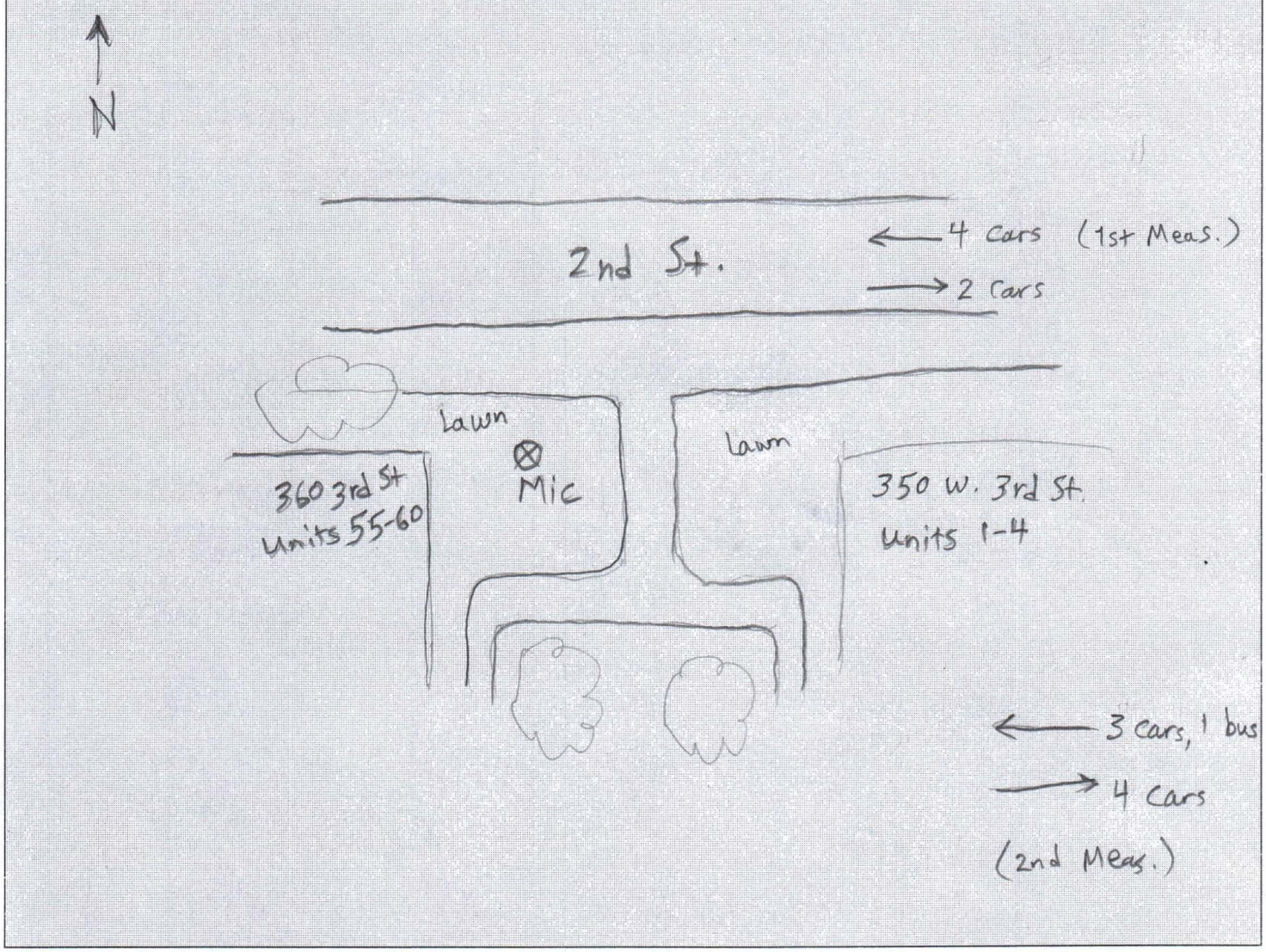
Sound Level Meter: Rion NL-52	Mic: Rion UC59	Preamp: —	Calibrator: Rion NC-74
Serial #: 01054269	08733	—	35157442

Weather Conditions:
Skies: clear Temp: 75 °F RH: 60-65 % Wind Speed: 0-7 mph Dir: W

Meter Settings: Response Slow Weighting A

Start Time	End Time	L_{eq}	L_{min}	L_{max}	L_{10}	L_{25}	L_{50}	L_{90}	Notes
9:26:30	9:41:30	51.6	41.1	73.3	51.8	48.6	45.6	42.1	City Ambient, traffic on 2nd
9:41:30	9:56:30	54.1	42.8	74.9	56.5	51.3	48.1	44.8	Dist. Lawn Mowing to North, dog

Site Sketch:



Field Noise Measurement Data Sheet

Project: One San Pedro	By: F. Farhang	Date: 7/19/22
Measurement Address: 1085. Mesa St.		Site No: ST-3

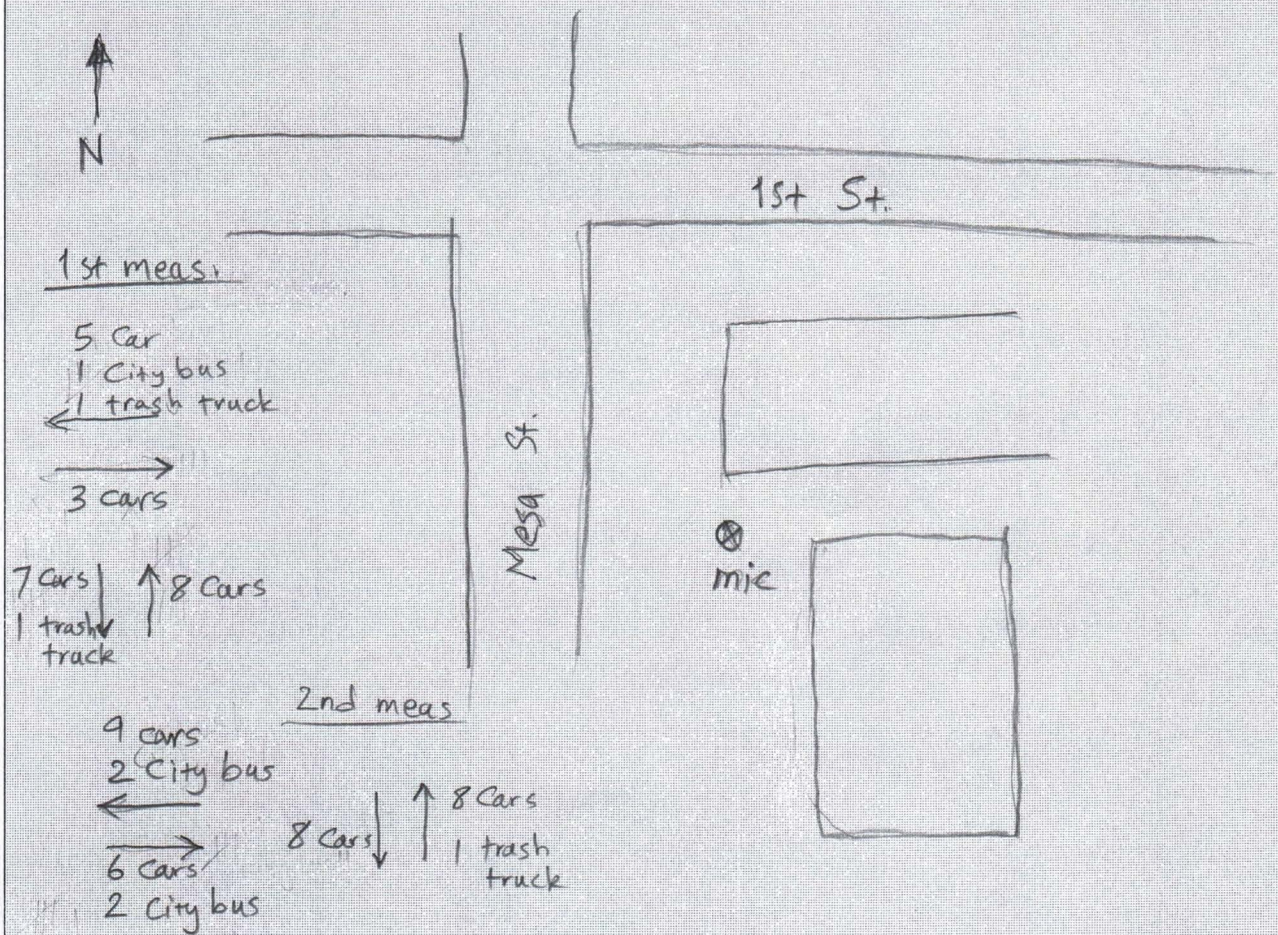
Sound Level Meter: Rion NL-52	Mic: Rion UC 59	Preamp: —	Calibrator: Rion NC74
Serial #: 01054269	08733	—	35157442

Weather Conditions:
Skies: Clear Temp: 75 °F RH: 63-64 % Wind Speed: 0-8 mph Dir: W

Meter Settings: Response Slow Weighting A

Start Time	End Time	L_{eq}	L_{min}	L_{max}	L_{10}	L_{25}	L_{50}	L_{90}	Notes
10:04	10:19	54.6	42.0	72.8	56.3	52.6	48.7	44.5	Local traffic on Mesa/1st., Trash Truck Pass by
10:19	10:34	56.7	42.2	78.0	56.2	52.2	48.6	44.7	Dist Ac Overflight, Dist. Heli, Dogs, birds

Site Sketch:



Field Noise Measurement Data Sheet

Project: One San Pedro	By: F. Farhang	Date: 7/19/22
Measurement Address: 331 W. 1st. St.		Site No: ST-4

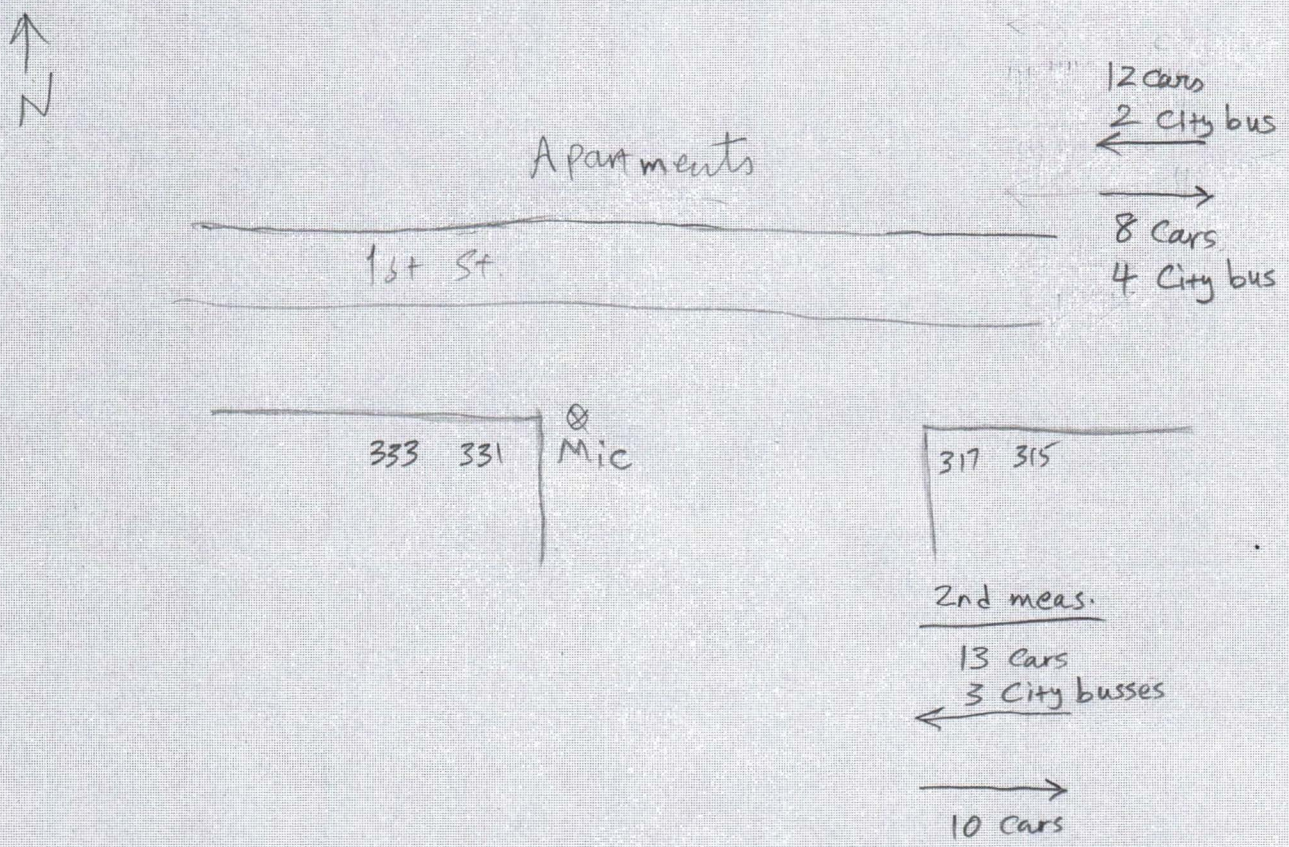
Sound Level Meter: Rion NL-52	Mic: Rion UC59	Preamp: —	Calibrator: Rion NC74
Serial #: 01054269	08733	—	35157442

Weather Conditions:
Skies: Clear Temp: 75-80 °F RH: 60-62 % Wind Speed: 0-8 mph Dir: W

Meter Settings: Response Slow Weighting A

Start Time	End Time	L_{eq}	L_{min}	L_{max}	L_{10}	L_{25}	L_{50}	L_{90}	Notes
10:43:30	10:58:30	57.6	46.4	73.7	60.5	54.2	49.8	47.5	Local Traffic, dogs
10:58:30	11:13:30	55.8	45.6	70.5	60.2	51.8	48.3	46.3	

Site Sketch:



Field Noise Measurement Data Sheet

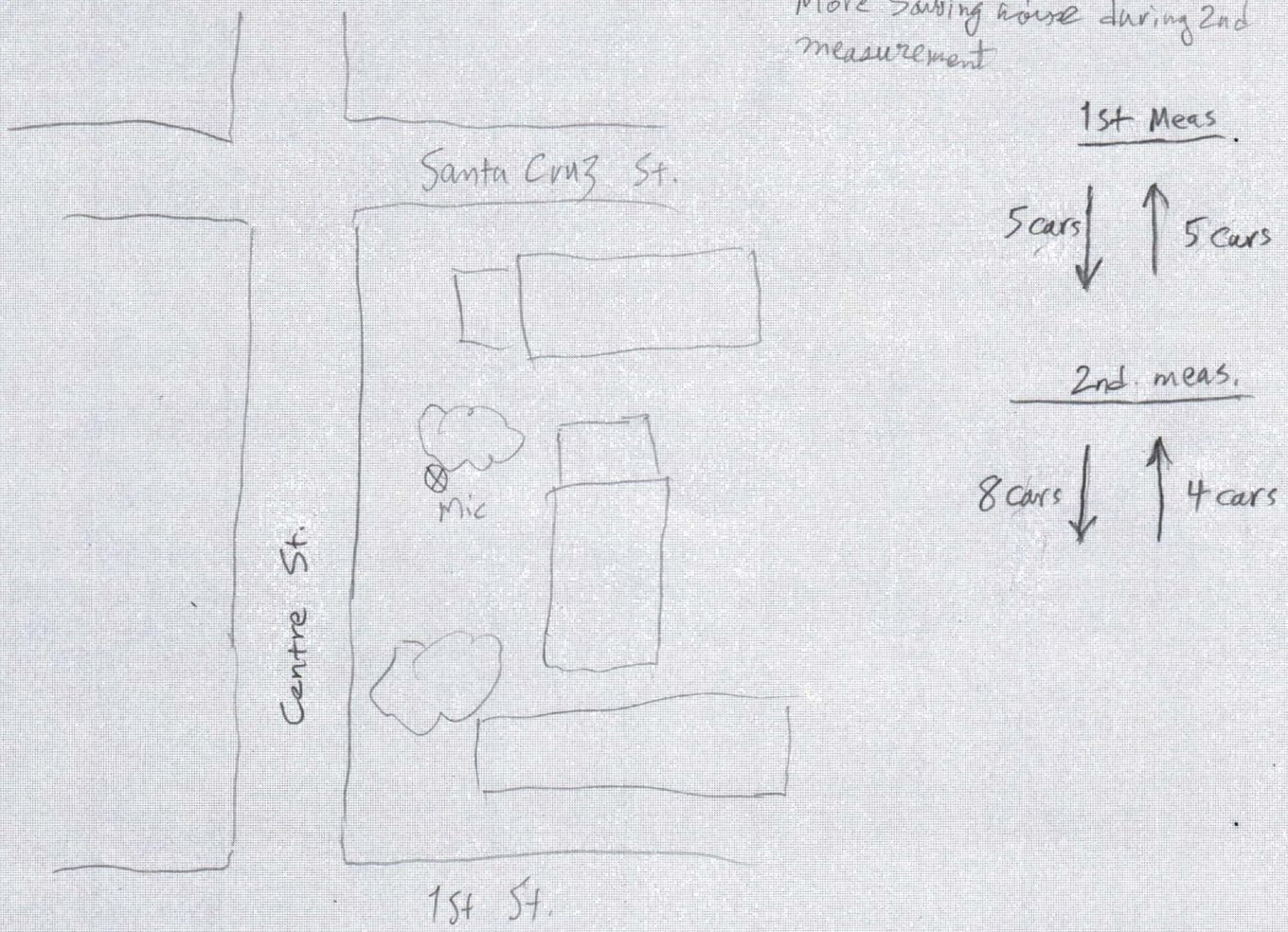
Project: One San Pedro	By: F. Farhang	Date: 7/19/22
Measurement Address: 120 N. Centre St.		Site No: ST-5
Sound Level Meter: Rion NL-52	Mic: Rion UC59 / Preamp: —	Calibrator: Rion NC74
Serial #: 01054269	08733	35157442

Weather Conditions:
Skies: Clear Temp: 80 °F RH: 55-60 % Wind Speed: 0-4 mph Dir: W

Meter Settings: Response Slow Weighting A

Start Time	End Time	L_{eq}	L_{min}	L_{max}	L_{10}	L_{25}	L_{50}	L_{90}	Notes
11:26	11:41	55.5	45.1	74.7	56.9	51.5	48.8	46.3	Local traffic, dist. gardening, AC
11:41	11:56	56.3	44.8	80.7	57.8	55.9	50.6	46.6	Dogs, people talking

Site Sketch:



Field Noise Measurement Data Sheet

Project: One San Pedro	By: F. Farhang	Date: 7/19/22
Measurement Address: 215 W. Santa Cruz St.		Site No: ST-6

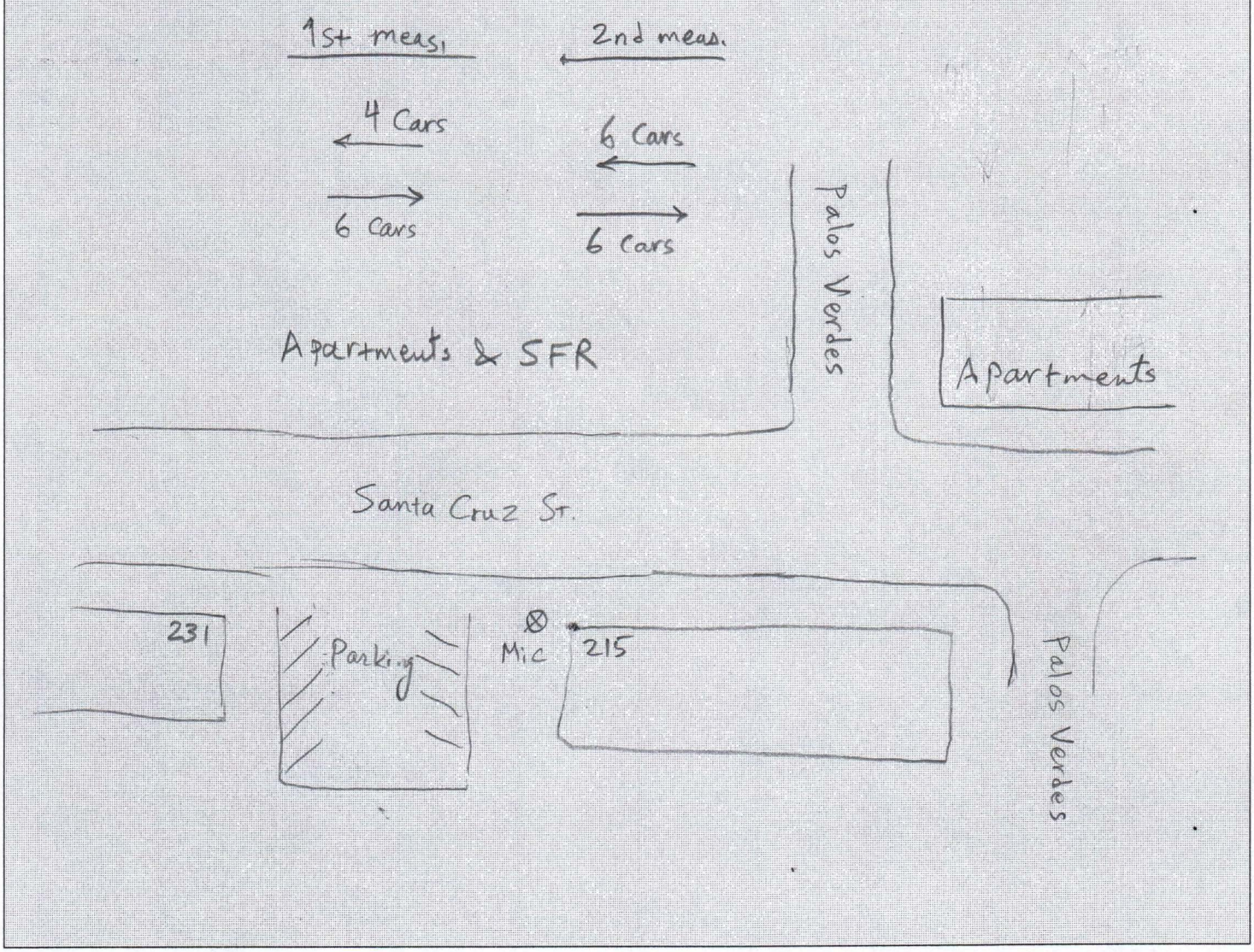
Sound Level Meter: Rion NL-52	Mic: Rion UC 59	Preamp: —	Calibrator: Rion NC74
Serial #: 01054269	08733	—	3515744 2

Weather Conditions:
Skies: clear Temp: 78 °F RH: 50 % Wind Speed: 0-10 mph Dir: WSW

Meter Settings: Response Slow Weighting A

Start Time	End Time	L_{eq}	L_{min}	L_{max}	L_{10}	L_{25}	L_{50}	L_{90}	Notes
14:56:30	15:11:30	51.1	43.8	66.9	52.5	49.2	47.3	45.1	local traffic, dist dogs
15:11:30	15:26:30	54.7	44.0	73.0	54.4	50.6	47.6	45.5	" + Car alarm

Site Sketch:



Field Noise Measurement Data Sheet

Project: One San Pedro	By: F. Farhang	Date: 7/19/22
Measurement Address: 107-109 S. Palos Verdes St.		Site No: ST-7

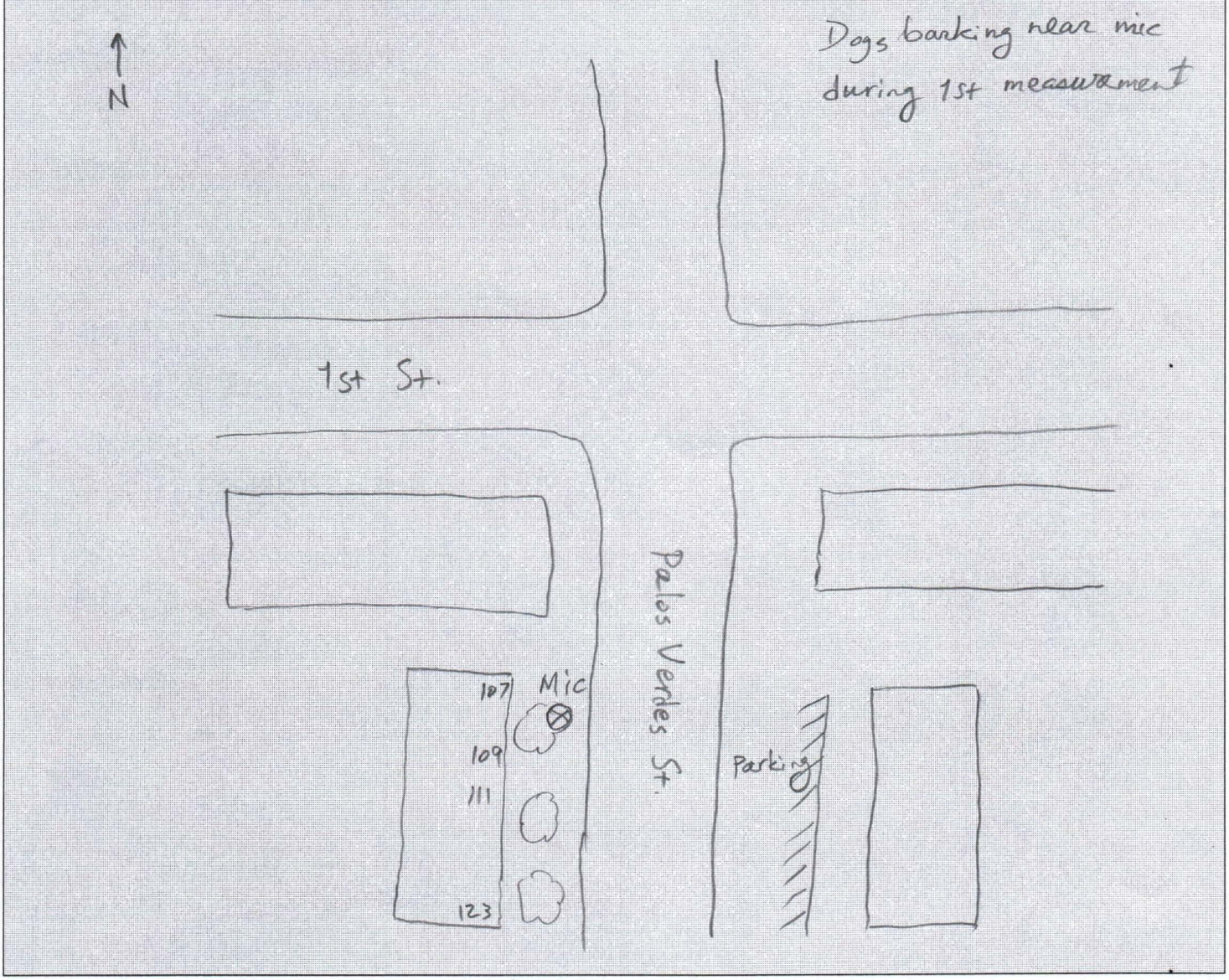
Sound Level Meter: Rion NL-52	Mic: Rion UC59	Preamp: —	Calibrator: Rion NC 74
Serial #: 01054269	08733	—	35157442

Weather Conditions:
Skies: Clear Temp: 77° °F RH: 55 % Wind Speed: 0-10 mph Dir: W

Meter Settings: Response Slow Weighting A

Start Time	End Time	L_{eq}	L_{min}	L_{max}	L_{10}	L_{25}	L_{50}	L_{90}	Notes
13:02	13:17	66.5	44.0	87.2	60.3	53.7	50.4	46.6	Street traffic, dogs, kids' voices
13:17	13:32	56.1	45.2	76.3	57.1	53.4	49.9	46.7	

Site Sketch:



Field Noise Measurement Data Sheet

Project: One San Pedro	By: F. Farhang	Date: 7/19/22
Measurement Address: 230 W. 3rd St.		Site No: ST-8

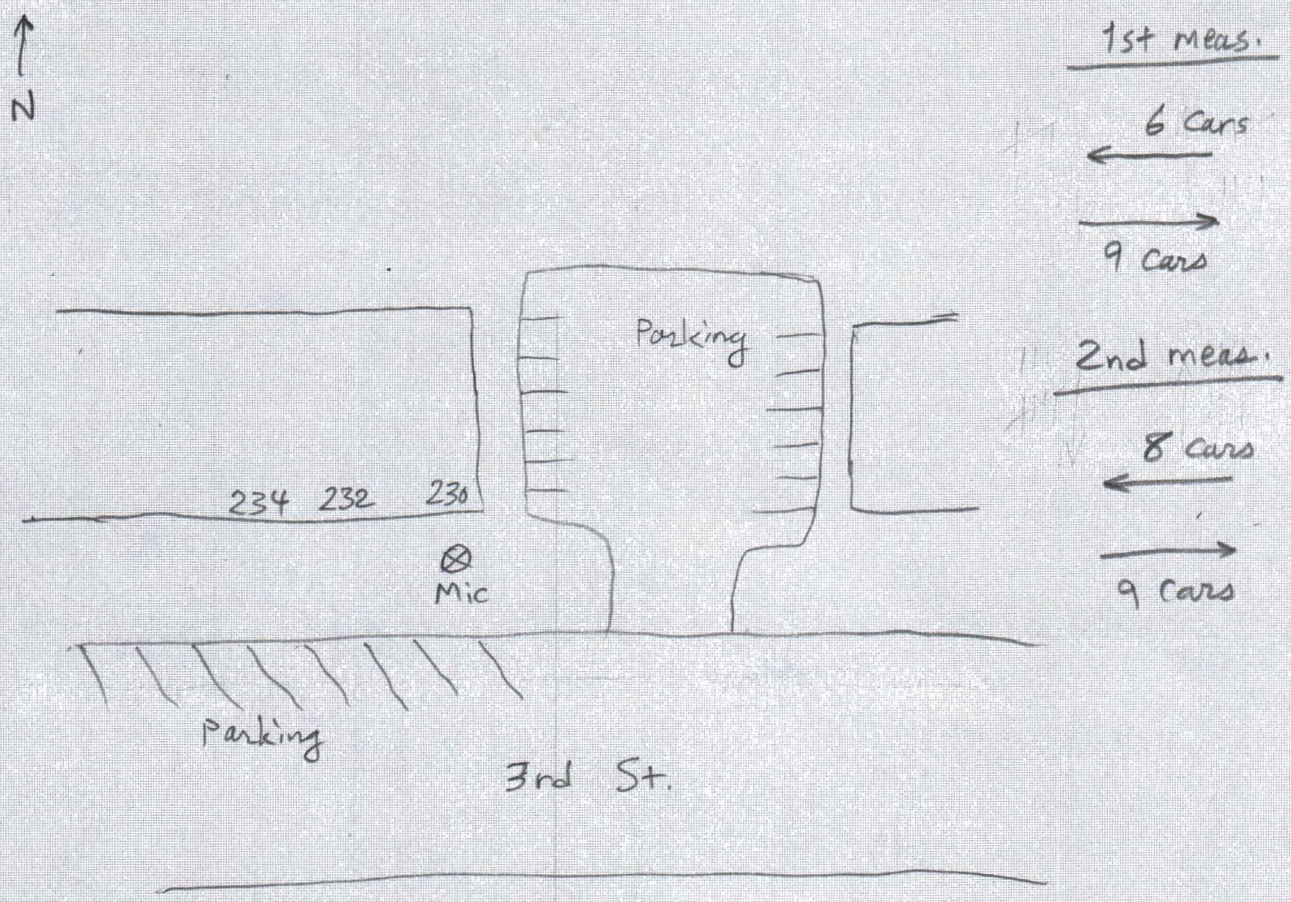
Sound Level Meter: Rion NL-52	Mic: Rion UC 59	Preamp: —	Calibrator: Rion NC 74
Serial #: 01054269	08733	—	35157442

Weather Conditions:
Skies: Clear Temp: 77 °F RH: 54 % Wind Speed: 0-10 mph Dir: W

Meter Settings: Response Slow Weighting A

Start Time	End Time	L_{eq}	L_{min}	L_{max}	L_{10}	L_{25}	L_{50}	L_{90}	Notes
13:46:45	14:01:45	59.3	47.2	77.2	61.4	57.9	52.9	49.4	Local Traffic, distant banging, mowing
14:30:15	14:45:15	59.4	47.7	84.5	57.9	52.6	49.7	48.3	drilling ↑ Dist. AC,

Site Sketch:



Field Noise Measurement Data Sheet

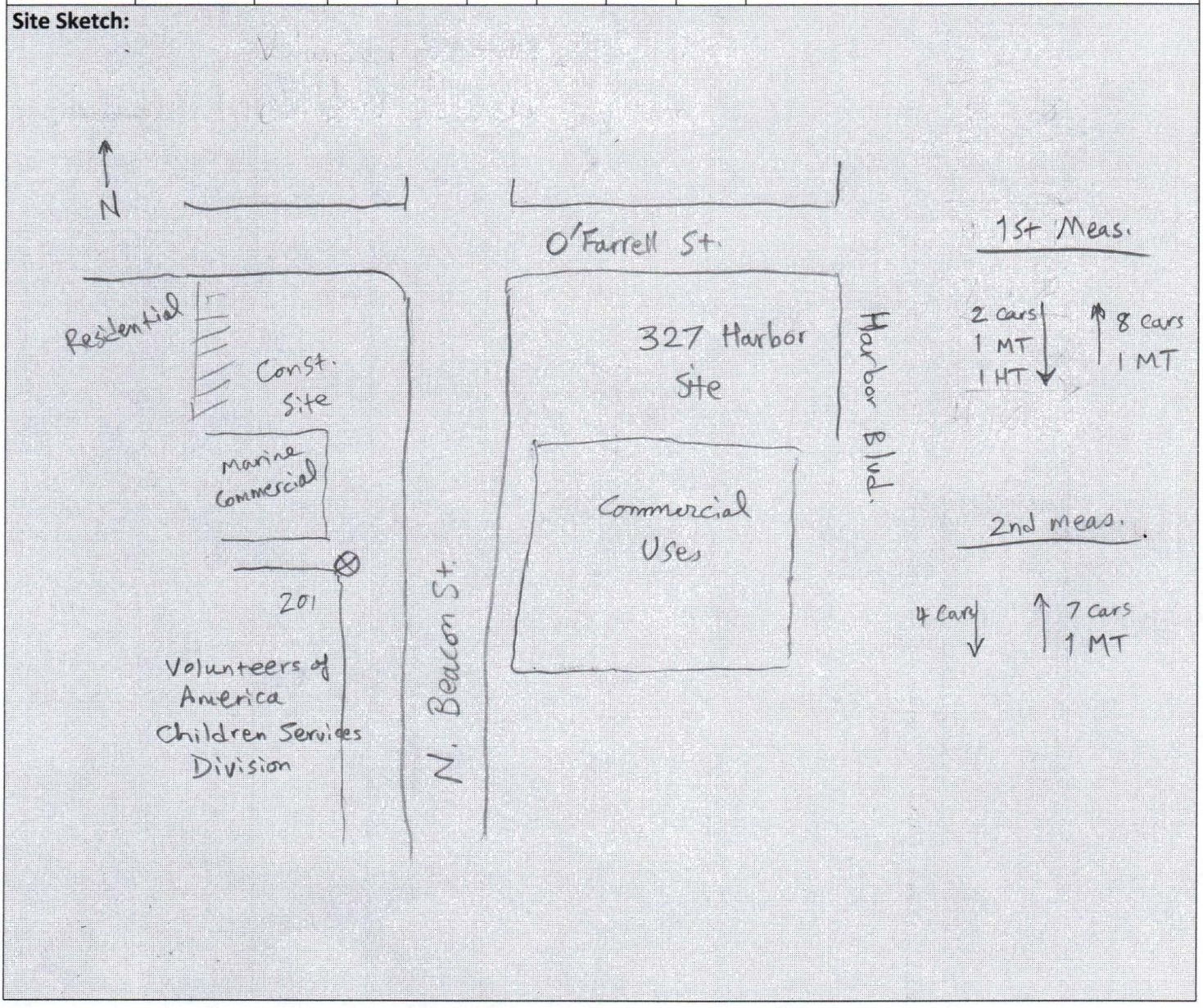
Project: One San Pedro	By: F. Farhang	Date: 7/19/2022
Measurement Address: NE corner of 201 N. Beacon St.		Site No: ST-9
Sound Level Meter: Rion NL-52	Mic: Rion UC 59	Preamp: —	Calibrator: Rion NC 74
Serial #: 01054269	08733	—	35157442

Weather Conditions:
Skies: Clear Temp: 75 °F RH: 50 % Wind Speed: 0-7 mph Dir: WSW

Meter Settings: Response Slow Weighting A

Start Time	End Time	L_{eq}	L_{min}	L_{max}	L_{10}	L_{25}	L_{50}	L_{90}	Notes
16:44	16:59	61.6	51.3	82.3	60.0	56.7	55.3	53.2	Local traffic, dist. traffic, AC
16:59	17:14	56.6	50.5	76.0	57.5	55.3	54.3	52.8	

Site Sketch:



Field Noise Measurement Data Sheet

Project: One San Pedro	By: F. Farhang	Date: 7/19/2022
Measurement Address: 327 Harbor Blvd.		Site No: ST-10

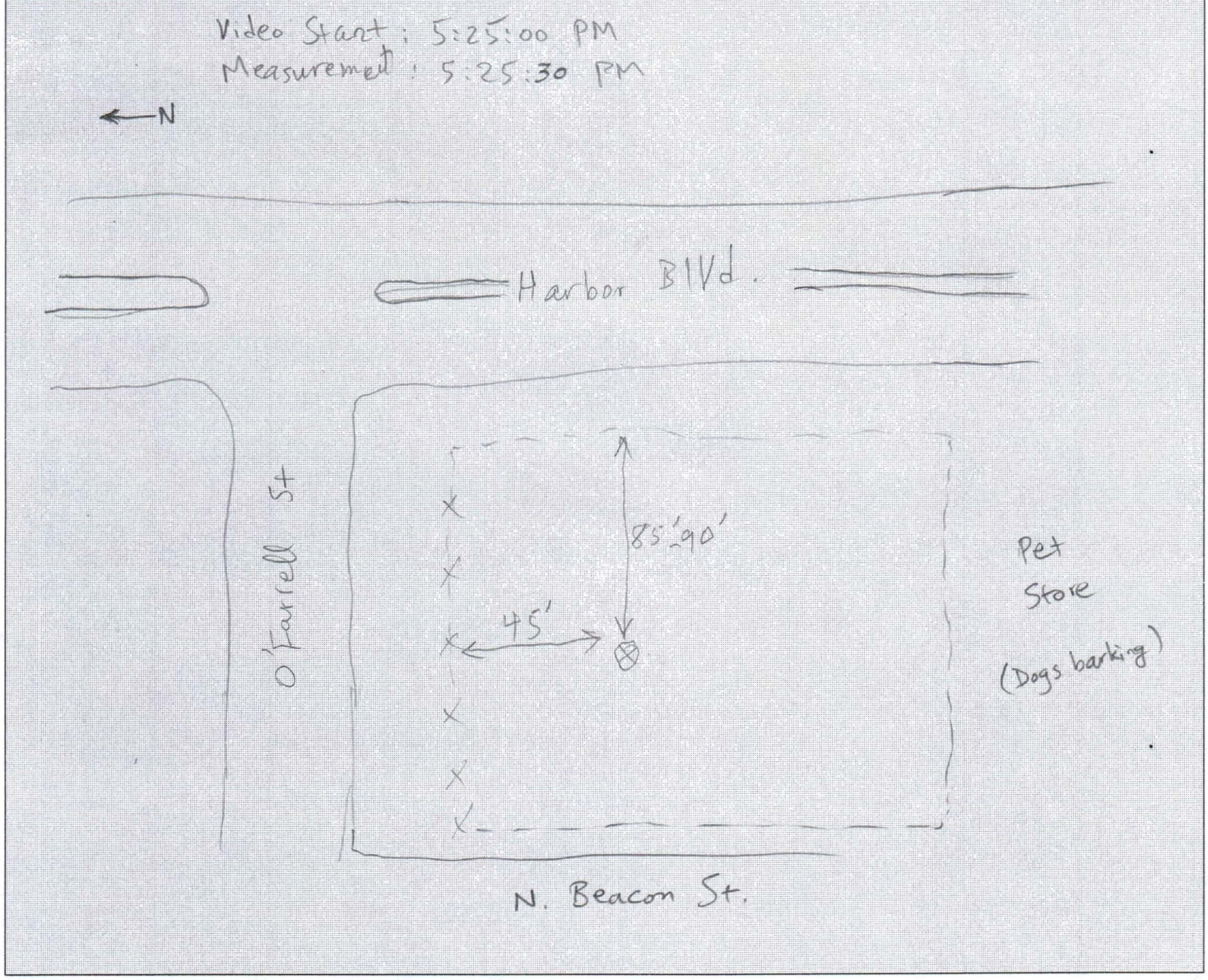
Sound Level Meter: Rion NL 52	Mic: Rion UC 59	Preamp: —	Calibrator: Rion NC-74
Serial #: 01054269	08733	—	35157442

Weather Conditions:
Skies: Clear Temp: 70-75 °F RH: 50 % Wind Speed: 0-7 mph Dir: W

Meter Settings: Response Slow Weighting A

Start Time	End Time	L_{eq}	L_{min}	L_{max}	L_{10}	L_{25}	L_{50}	L_{90}	Notes
17:25:30	17:40:30	62.5	51.0	73.8	65.0	63.1	61.5	56.5	Traffic on Harbord O'Farrell
17:40:30	17:50:30	61.1	50.0	76.0	63.4	61.6	59.4	53.7	dogs barking

Site Sketch:



Field Noise Measurement Data Sheet

Project: One San Pedro	By: F. Farhang	Date: 7/19/2022
Measurement Address:		Site No: ST11

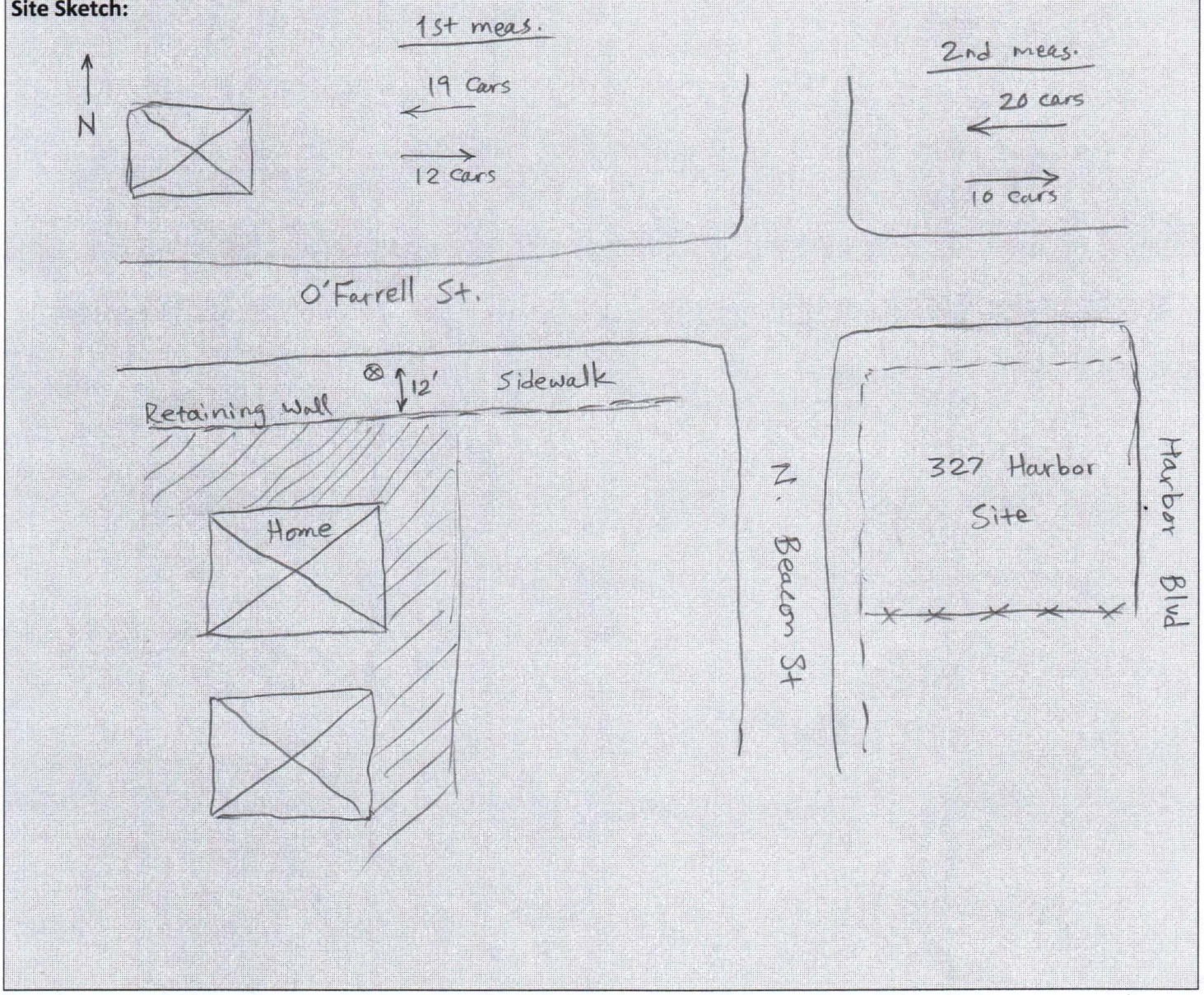
Sound Level Meter: Rion NL-52	Mic: Rion UC 59	Preamp: —	Calibrator: Rion NC-74
Serial #: 01054269	08733	—	35157442

Weather Conditions:
Skies: clear Temp: 70 °F RH: 50 % Wind Speed: 0-5 mph Dir: W

Meter Settings: Response Slow Weighting A

Start Time	End Time	L_{eq}	L_{min}	L_{max}	L_{10}	L_{25}	L_{50}	L_{90}	Notes
18:04	18:19	57.9	52.2	69.2	60.6	57.2	55.3	53.7	Traffic on O'Farrell, Harbor
18:19	18:34	67.7	52.5	90.2	62.2	58.3	56.5	54.4	Car alarm @ 6:30:35, Dog 6:31:30

Site Sketch:



B-2. Noise Measurement Photographs

Noise Measurement Photographs at Site ST01

Looking East

Looking South

Looking West

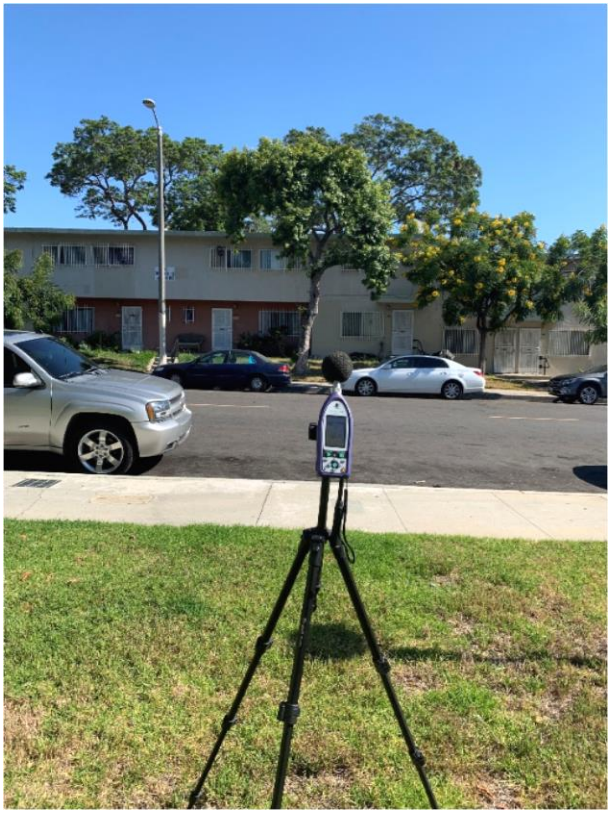
Looking North

Noise Measurement Photographs at Site ST02

Looking East

Looking South

Looking West



Looking North

Noise Measurement Photographs at Site ST03

Looking East

Looking South

Looking West

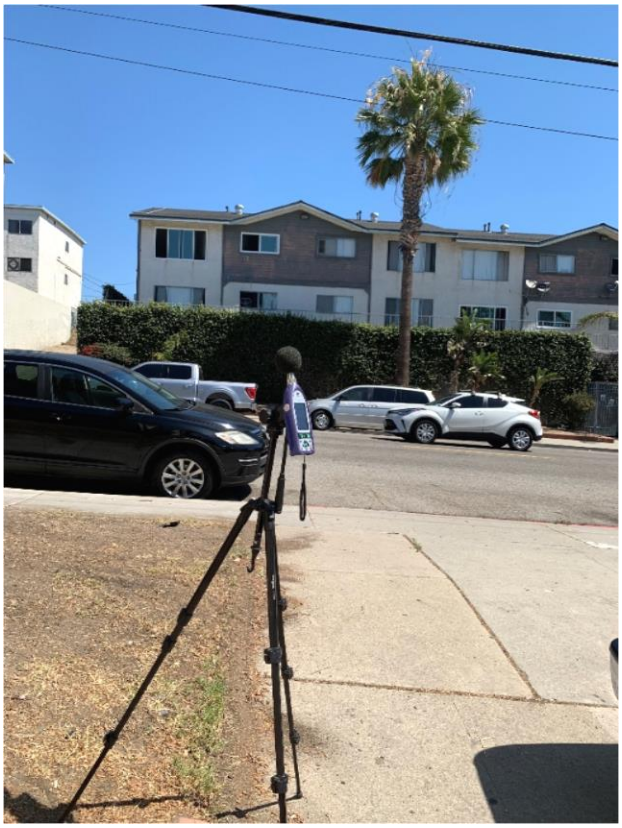
Looking North

Noise Measurement Photographs at Site ST04

Looking East

Looking South

Looking West



Looking North

Noise Measurement Photographs at Site ST05

Looking East

Looking South

Looking West

Looking North

Noise Measurement Photographs at Site ST06

Looking East

Looking South

Looking West

Looking North

Noise Measurement Photographs at Site ST07

Looking East

Looking South

Looking West

Looking North

Noise Measurement Photographs at Site ST08

Looking East

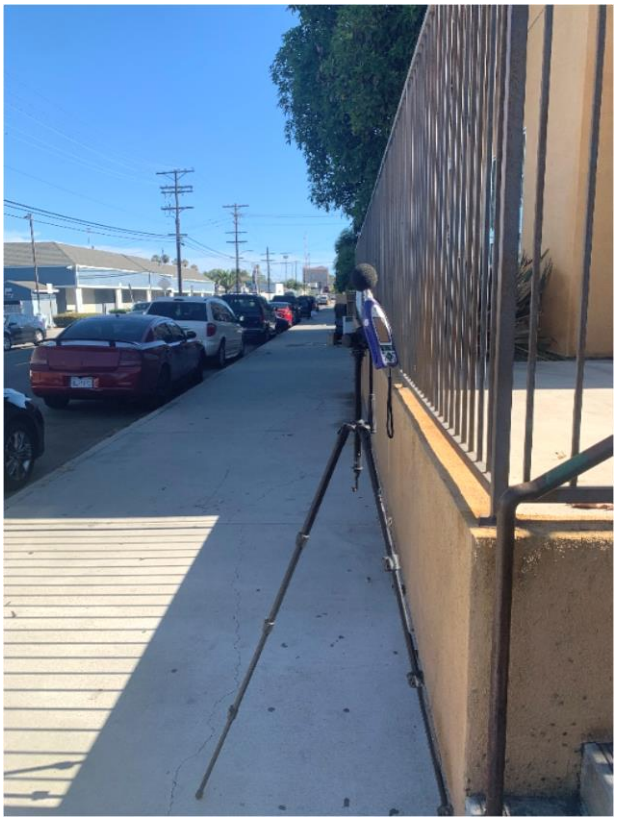
Looking South

Looking West

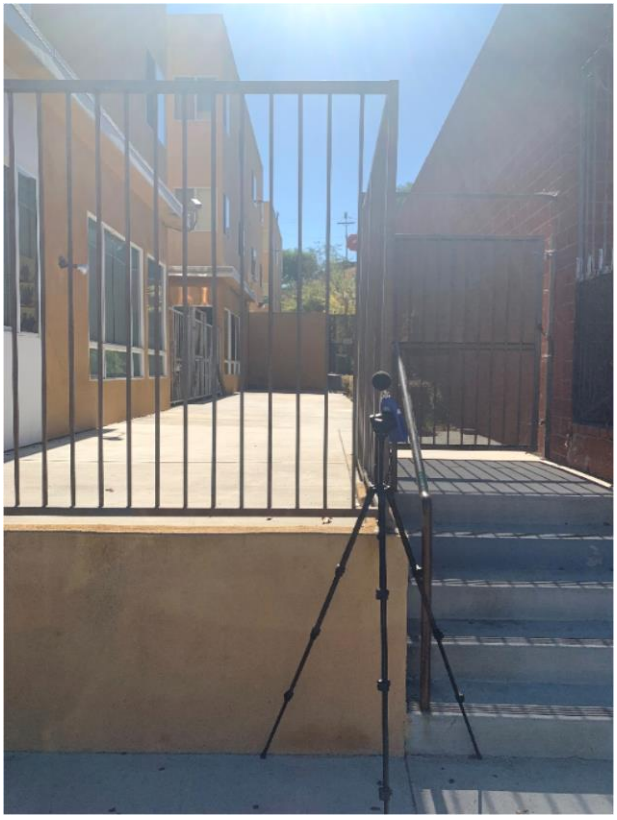
Looking North

Noise Measurement Photographs at Site ST09

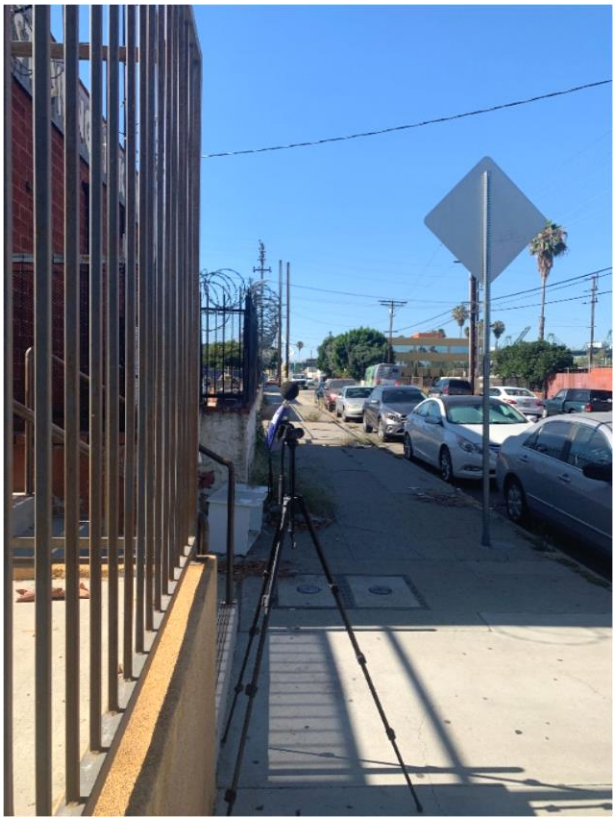
Looking East



Looking South



Looking West



Looking North

Noise Measurement Photographs at Site ST10

Looking East

Looking South

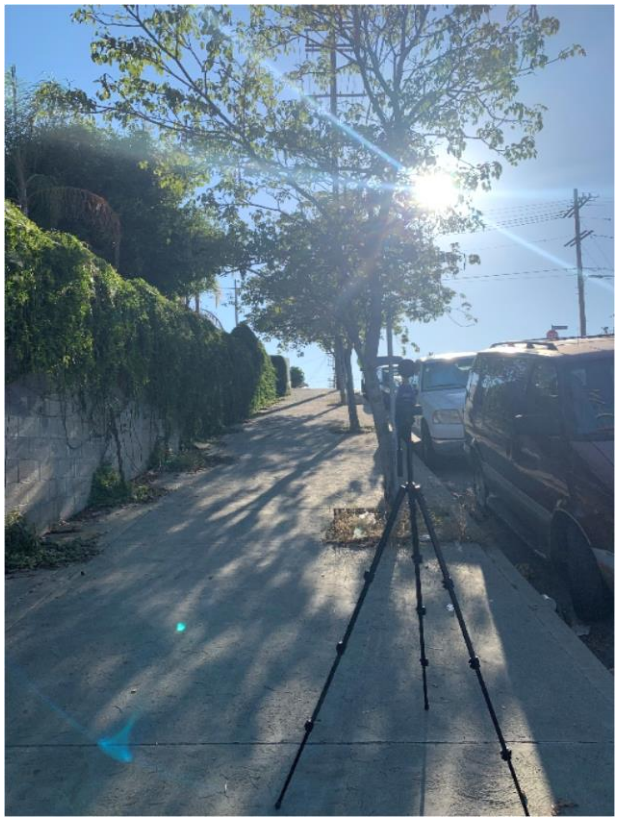
Looking West

Looking North

Noise Measurement Photographs at Site ST11

Looking East

Looking South



Looking West

Looking North

B-3. Sound Level Measurement Instrumentation Calibration Records

CERTIFICATE OF CALIBRATION
26994-1
FOR RION MODEL
NL-52 SOUND LEVEL METER

Model **NL-52** Serial No. **01054269**
ID No. **N/A**

Microphone **UC-59** Serial No. **08733**
Preamplifier **NH-25** Serial No. **54342**

Customer: **A/E Tech**
Laguna Woods, CA 92637 P.O. No. **Credit Card**

was tested and met Rion specifications at the points tested and as outlined in ANSI S1.4-1983 (R2006) Type 1; IEC 61672-2002 Class1; 60651-2001 Type 1

on **22 MAR 2022** **BY** **HAROLD LYNCH**
Service Manager

As received and as left condition: Within Specifications.
Re-calibration due on: **22 MAR 2023**

Certified References*

Mfg.	Type	Serial No.	Cal Date	Due Date
B&K	1051	1777523	28 SEP 2021	28 SEP 2022
B&K	2636	1423390	03 JAN 2022	03 JAN 2023
B&K	4226	3274134	30 NOV 2021	30 NOV 2022
B&K	4231	1770857	09 SEP 2021	09 SEP 2022
HP	34401A	MY45023668	25 JAN 2022	25 JAN 2023
HP	3458A	2823A07179	21 AUG 2021	21 AUG 2022

Calibration System operates in conformance to ANSI/ NCSL Z540-1, 1994 and ISO 17025, ISO 9001:2015 Certification NQA No. 11252
*References are traceable to NIST (National Institute of Standards and Technology).

Note: For calibration data see enclosed pages.
The data represent both "as found" and "as left" conditions.

Reference Test Procedure: **ACCT Procedure General SLM Version 1.0.2.**

Temperature	Relative Humidity	Barometric Pressure
23°C	**29**%	**992.41** hPa

Signed

ODIN METROLOGY, INC.
CALIBRATION OF SOUND & VIBRATION INSTRUMENTATION
3533 OLD CONEJO ROAD, SUITE 125 THOUSAND OAKS CA 91320
PHONE: (805) 375-0830 FAX: (805) 375-0405

Odin Metrology, Inc.
Calibration of Sound & Vibration Instruments

Certificate Number: **26994-2**

Certificate of Calibration for RION 1/2" Free-field Microphone

This calibration is performed by comparison with measurement reference standard microphone:

Reference Standards	
Type No.	4134/UA0825
Serial No.	1866524
Calibrated by	DANAK
Cal Date	23 SEP 2021
Due Date	23 SEP 2023

a) Estimated uncertainty of comparison: ± **0.05** dB
b) Estimated uncertainty of reference microphone: ± **0.04** dB
c) Total uncertainty: $\sqrt{a^2+b^2}$ = ± **0.064** dB
d) Expanded uncertainty (coverage factor k = 2 for 95% confidence level): = ± **0.13** dB

Type no.	**UC-59**
Serial no.	**08733**
With preamplifier type no.	**N/A**
Preamplifier Serial no.	**N/A**
Submitted by	**A/E Tech** **Laguna Woods, CA 92637**
Purchase order no.	**Credit Card**
Asset no.	**N/A**

Performance Data		
Open circuit sensitivity at 1,013 hPa, 23°C, 50% RH, 251.2 Hz	**-26.96**	dB re 1 V/Pa
	44.86	mV/Pa
System sensitivity (with preamplifier) at 251.2 Hz	**N/A**	dB re 1 V/Pa
	N/A	mV/Pa

UC-59# 08733 free field frequency response with multitone calibrator 4226:

31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	12.5 kHz	16 kHz
0.0	0.0	0.0	REF	0.0	+0.1	+0.2	+0.2	-0.2	-0.6	-0.4

Note: this data can not be used to update the specifications for the microphone. It is only listed to indicate compliance to specifications. Tolerance is ± 2 dB.

Calibration performed by Harold Lynch

Harold Lynch, Service Manager

Condition of Test		
Ambient Pressure	**991.71**	hPa
Temperature	**23**	°C
Relative Humidity	**30**	%
Polarization Voltage	**0**	V
Frequency	**251.2**	Hz
Date of Calibration	**21 MAR 2022**	
Re-calibration due on	**21 MAR 2023**	

ODIN METROLOGY, INC.
3533 OLD CONEJO ROAD, SUITE 125
THOUSAND OAKS, CA 91320
PHONE: (805) 375-0830; FAX: (805) 375-0405

The calibration data is both "as found" and "as final." At the time of calibration this microphone was found to be **within** the manufacturer's specifications. Calibration Procedure: **OM-P-1008-Microphone Rev. 1.2 20130618.**

This calibration is traceable to DANAK/DPLA No. **M2.10-1478-2.1** and through inter-laboratory comparisons to NIST Test Number: **683/289533-17.** *See page 2 Traceability.

Odin Metrology, Inc.
Calibration of Sound & Vibration Instruments

Certificate Number: **26994-3**

Certificate of Calibration for Rion Sound Level Calibrator

This calibration is performed by comparison with measurement reference standard pistonphones:

Type No.	4228	4228
Serial No.	1793011	1504084
Calibrated by	HL	HL
Cal Date	19 NOV 2021	19 NOV 2022
Due Date	19 NOV 2022	19 NOV 2022

a) Estimated uncertainty of comparison: ± **0.05** dB
b) Estimated uncertainty of calibration service for standard pistonphone: ± **0.06** dB
c) Total uncertainty: $\sqrt{a^2 + b^2}$ = ± **0.08** dB
d) Expanded uncertainty (coverage factor k = 2 for 95% confidence level): = ± **0.16** dB

This acoustic calibrator has been calibrated using standards with values traceable to the National Institute of Standards and Technology. This calibration is traceable to NIST Test Number **683/289533-17.**

CONDITION OF TEST		
Ambient Pressure	**992.41**	hPa
Temperature	**23**	°C
Relative Humidity	**29**	%
Date of Calibration	**22 MAR 2022**	
Re-calibration due on	**22 MAR 2023**	

The calibration of this acoustic calibrator was performed using a test system conforming to the requirements of ANSI/NCSLZ540-1, 1994, ISO 17025, and ISO 9001:2015, Certification NQA No. 11252.

Calibration procedure: **OM-P-1001-Acoustic_Calibrator, Rev. 1.0 20130522.**

Calibration performed by

Harold Lynch, Service Manager

ODIN METROLOGY, INC.
3533 OLD CONEJO ROAD, SUITE 125
THOUSAND OAKS, CA 91320
PHONE: (805) 375-0830; FAX: (805) 375-0405

Calibrator type **NC-74**
Serial no. **35157442**
Submitted by **A/E Tech**
Laguna Woods, CA 92637
Purchase order no. **Credit Card**
Asset no. **N/A**

This calibrator has been found to perform **within** the specifications listed below at the normalized conditions stated.

SPL produced in coupler terminated by a loading volume of 1.333 cm^3	94.0 ± 0.3 dB
Frequency	1,000 Hz ± 20 Hz
Distortion	No manufacturer specs
At 1,013 hPa, 23°C, and 65% relative humidity	

PERFORMANCE AS RECEIVED		
Frequency	**1001.2**	Hz
SPL	**93.90**	dB
Distortion	**0.3**	%
Battery Voltage	**1.55**	V

Was adjustment performed? **No**
Were batteries replaced? **No**

FINAL PERFORMANCE		
Frequency	**1001.2**	Hz
SPL	**93.90**	dB
Distortion	**0.3**	%

Following the final calibration measurements, a quality test with a Brüel & Kjær 1/2" microphone type 4134 was inserted into a Rion ½"" adapter. The test measured the SPL as: **94.12 dB**.

Note: This calibrator was **within** manufacturer's specifications as received.

Appendix C Construction Noise Calculation Data Sheets

327 Harbor Site Preparation Noise Levels, dBA

Receiver C01	Quantity	Usage Factor	Source Lmax @ 50 ft	Effective Distance, ft	Shielding	Leq @ Receiver	Overall Leq	Noise Limit*
Trencher	1	50%	75	141	0	63.0	63	65

Receiver C02	Quantity	Usage Factor	Source Lmax @ 50 ft	Effective Distance, ft	Shielding	Leq @ Receiver	Overall Leq	Noise Limit*
Trencher	1	50%	75	332	5	50.5	51	63

Receiver C03	Quantity	Usage Factor	Source Lmax @ 50 ft	Effective Distance, ft	Shielding	Leq @ Receiver	Overall Leq	Noise Limit*
Trencher	1	50%	75	397	5	49.0	49	63

Receiver C04	Quantity	Usage Factor	Source Lmax @ 50 ft	Effective Distance, ft	Shielding	Leq @ Receiver	Overall Leq	Noise Limit*
Trencher	1	50%	75	285	3	53.9	54	62

* Noise limit is set at existing measured ambient noise level plus 5 dBA.

327 Harbor Grading Noise Levels, dBA

Receiver C01	Quantity	Usage Factor	Source Lmax @ 50 ft	Effective Distance, ft	Shielding	Leq @ Receiver	Overall Leq	Noise Limit*
Backhoe	1	40%	78	141	0	65.0	77	65
Compactor	1	20%	80			64.0		
Compressor	2	40%	78			68.0		
Excavator	2	40%	81			71.0		
Generator	1	50%	81			69.0		
Pump	1	50%	77			65.0		
Forklift	1	40%	70			57.0		
Scraper	1	40%	84			71.0		
Sweeper/Scrubber	1	10%	80			61.0		
Tractor	2	40%	84			74.0		
Welder	2	40%	73			63.0		

Receiver C02	Quantity	Usage Factor	Source Lmax @ 50 ft	Effective Distance, ft	Shielding	Leq @ Receiver	Overall Leq	Noise Limit*
Backhoe	1	40%	78	332	5	52.6	64	63
Compactor	1	20%	80			51.6		
Compressor	2	40%	78			55.6		
Excavator	2	40%	81			58.6		
Generator	1	50%	81			56.5		
Pump	1	50%	77			52.5		
Forklift	1	40%	70			44.6		
Scraper	1	40%	84			58.6		
Sweeper/Scrubber	1	10%	80			48.5		
Tractor	2	40%	84			61.6		
Welder	2	40%	73			50.6		

Receiver C03	Quantity	Usage Factor	Source Lmax @ 50 ft	Effective Distance, ft	Shielding	Leq @ Receiver	Overall Leq	Noise Limit*
Backhoe	1	40%	78	397	5	51.0	63	63
Compactor	1	20%	80			50.0		
Compressor	2	40%	78			54.0		
Excavator	2	40%	81			57.0		
Generator	1	50%	81			55.0		
Pump	1	50%	77			51.0		
Forklift	1	40%	70			43.0		
Scraper	1	40%	84			57.0		
Sweeper/Scrubber	1	10%	80			47.0		
Tractor	2	40%	84			60.0		
Welder	2	40%	73			49.0		

* Noise limit is set at existing measured ambient noise level plus 5 dBA.

327 Harbor Grading Noise Levels, dBA

Receiver C04	Quantity	Usage Factor	Source Lmax @ 50 ft	Effective Distance, ft	Shielding	Leq @ Receiver	Overall Leq	Noise Limit*
Backhoe	1	40%	78	285	3	55.9	68	62
Compactor	1	20%	80			54.9		
Compressor	2	40%	78			58.9		
Excavator	2	40%	81			61.9		
Generator	1	50%	81			59.9		
Pump	1	50%	77			55.9		
Forklift	1	40%	70			47.9		
Scraper	1	40%	84			61.9		
Sweeper/Scrubber	1	10%	80			51.9		
Tractor	2	40%	84			64.9		
Welder	2	40%	73			53.9		

* Noise limit is set at existing measured ambient noise level plus 5 dBA.

327 Harbor Utilities Trenching Noise Levels, dBA

Receiver C01	Quantity	Usage Factor	Source Lmax @ 50 ft	Effective Distance, ft	Shielding	Leq @ Receiver	Overall Leq	Noise Limit*
Backhoe	2	40%	78	141	0	68.0	78	65
Concrete/Industrial Saw	1	20%	90			74.0		
Compressor	1	40%	78			65.0		
Excavator	1	40%	81			68.0		
Generator	1	50%	81			69.0		
Loader (rubber tired)	2	40%	79			69.0		
Paving Equipment	1	50%	77			65.0		
Roller	1	20%	80			64.0		
Sweeper/Scrubber	1	10%	80			61.0		
Surfacing Equipment	1	50%	80			68.0		

Receiver C02	Quantity	Usage Factor	Source Lmax @ 50 ft	Effective Distance, ft	Shielding	Leq @ Receiver	Overall Leq	Noise Limit*
Backhoe	2	40%	78	332	5	55.6	66	63
Concrete/Industrial Saw	1	20%	90			61.6		
Compressor	1	40%	78			52.6		
Excavator	1	40%	81			55.6		
Generator	1	50%	81			56.5		
Loader (rubber tired)	2	40%	79			56.6		
Paving Equipment	1	50%	77			52.5		
Roller	1	20%	80			51.6		
Sweeper/Scrubber	1	10%	80			48.5		
Surfacing Equipment	1	50%	80			55.5		

Receiver C03	Quantity	Usage Factor	Source Lmax @ 50 ft	Effective Distance, ft	Shielding	Leq @ Receiver	Overall Leq	Noise Limit*
Backhoe	2	40%	78	397	5	54.0	64	63
Concrete/Industrial Saw	1	20%	90			60.0		
Compressor	1	40%	78			51.0		
Excavator	1	40%	81			54.0		
Generator	1	50%	81			55.0		
Loader (rubber tired)	2	40%	79			55.0		
Paving Equipment	1	50%	77			51.0		
Roller	1	20%	80			50.0		
Sweeper/Scrubber	1	10%	80			47.0		
Surfacing Equipment	1	50%	80			54.0		

* Noise limit is set at existing measured ambient noise level plus 5 dBA.

327 Harbor Utilities Trenching Noise Levels, dBA

Receiver C04	Quantity	Usage Factor	Source Lmax @ 50 ft	Effective Distance, ft	Shielding	Leq @ Receiver	Overall Leq	Noise Limit*
Backhoe	2	40%	78	285	3	58.9	69	62
Concrete/Industrial Saw	1	20%	90			64.9		
Compressor	1	40%	78			55.9		
Excavator	1	40%	81			58.9		
Generator	1	50%	81			59.9		
Loader (rubber tired)	2	40%	79			59.9		
Paving Equipment	1	50%	77			55.9		
Roller	1	20%	80			54.9		
Sweeper/Scrubber	1	10%	80			51.9		
Surfacing Equipment	1	50%	80			58.9		

* Noise limit is set at existing measured ambient noise level plus 5 dBA.

327 Harbor Building Construction Noise Levels, dBA

Receiver C01	Quantity	Usage Factor	Source Lmax @ 50 ft	Effective Distance, ft	Shielding	Leq @ Receiver	Overall Leq	Noise Limit*
Cement/Mortar Mixer	1	20%	80	141	0	64.0	70	65
Crane	1	16%	81			64.0		
Compressor	1	40%	78			65.0		
Forklift	1	40%	75			62.0		
Sweeper/Scrubber	1	10%	80			61.0		

Receiver C02	Quantity	Usage Factor	Source Lmax @ 50 ft	Effective Distance, ft	Shielding	Leq @ Receiver	Overall Leq	Noise Limit*
Cement/Mortar Mixer	1	20%	80	332	5	51.6	58	63
Crane	1	16%	81			51.6		
Compressor	1	40%	78			52.6		
Forklift	1	40%	75			49.6		
Sweeper/Scrubber	1	10%	80			48.5		

Receiver C03	Quantity	Usage Factor	Source Lmax @ 50 ft	Effective Distance, ft	Shielding	Leq @ Receiver	Overall Leq	Noise Limit*
Cement/Mortar Mixer	1	20%	80	397	5	50.0	56	63
Crane	1	16%	81			50.0		
Compressor	1	40%	78			51.0		
Forklift	1	40%	75			48.0		
Sweeper/Scrubber	1	10%	80			47.0		

Receiver C04	Quantity	Usage Factor	Source Lmax @ 50 ft	Effective Distance, ft	Shielding	Leq @ Receiver	Overall Leq	Noise Limit*
Cement/Mortar Mixer	1	20%	80	285	3	54.9	61	62
Crane	1	16%	81			54.9		
Compressor	1	40%	78			55.9		
Forklift	1	40%	75			52.9		
Sweeper/Scrubber	1	10%	80			51.9		

* Noise limit is set at existing measured ambient noise level plus 5 dBA.

327 Harbor Paving Noise Levels, dBA

Receiver C01	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance, ft	Shielding	Leq @ Receiver	Overall Leq	Noise Limit*
Cement and Mortar Mixers	2	50%	80	141	0	71.0	74	65
Paver	1	50%	77			65.0		
Paving Equipment	2	50%	73			64.0		
Rollers	2	20%	80			67.0		
Tractors/Loaders/Backhoes	1	40%	75			62.0		

Receiver C02	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance, ft	Shielding	Leq @ Receiver	Overall Leq	Noise Limit*
Cement and Mortar Mixers	2	50%	80	332	5	58.5	62	63
Paver	1	50%	77			52.5		
Paving Equipment	2	50%	73			51.5		
Rollers	2	20%	80			54.6		
Tractors/Loaders/Backhoes	1	40%	75			49.6		

Receiver C03	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance, ft	Shielding	Leq @ Receiver	Overall Leq	Noise Limit*
Cement and Mortar Mixers	2	50%	80	397	5	57.0	60	63
Paver	1	50%	77			51.0		
Paving Equipment	2	50%	73			50.0		
Rollers	2	20%	80			53.0		
Tractors/Loaders/Backhoes	1	40%	75			48.0		

Receiver C04	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance, ft	Shielding	Leq @ Receiver	Overall Leq	Noise Limit*
Cement and Mortar Mixers	2	50%	80	285	3	61.9	65	62
Paver	1	50%	77			55.9		
Paving Equipment	2	50%	73			54.9		
Rollers	2	20%	80			57.9		
Tractors/Loaders/Backhoes	1	40%	75			52.9		

* Noise limit is set at existing measured ambient noise level plus 5 dBA.

327 Harbor Architectural Coatings Noise Levels, dBA

Receiver C01	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance, ft	Shielding	Leq @ Receiver	Overall Leq	Noise Limit
Compressor	1	50%	75	141	0	63.0	63	65

Receiver C02	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance, ft	Shielding	Leq @ Receiver	Overall Leq	Noise Limit
Compressor	1	50%	75	332	5	50.5	51	63

Receiver C03	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance, ft	Shielding	Leq @ Receiver	Overall Leq	Noise Limit
Compressor	1	50%	75	397	5	49.0	49	63

Receiver C04	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance, ft	Shielding	Leq @ Receiver	Overall Leq	Noise Limit
Compressor	1	50%	75	285	3	53.9	54	62

* Noise limit is set at existing measured ambient noise level plus 5 dBA.

Phase 1 Demolition

Receiver C05	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	4	40%	78	80 - 420	66.4	76	61
Concrete/Industrial Saw	2	20%	90		71.9		
Excavator	4	40%	81		69.4		
Generator	2	50%	81		66.9		
Loader, Rubber tired	2	40%	79		63.9		
Sweeper/Scrubber	2	10%	80		58.9		

Receiver C06	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	4	40%	78	70 - 500	63.9	73	61
Concrete/Industrial Saw	2	20%	90		68.6		
Excavator	4	40%	81		66.9		
Generator	2	50%	81		63.6		
Loader, Rubber tired	2	40%	79		60.6		
Sweeper/Scrubber	2	10%	80		55.6		

Receiver C07	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	4	40%	78	75 - 425	65.9	75	57
Concrete/Industrial Saw	2	20%	90		70.9		
Excavator	4	40%	81		68.9		
Generator	2	50%	81		65.8		
Loader, Rubber tired	2	40%	79		62.9		
Sweeper/Scrubber	2	10%	80		57.9		

Receiver C08	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	4	40%	78	50 - 470	66.6	75	61
Concrete/Industrial Saw	2	20%	90		71.5		
Excavator	4	40%	81		69.6		
Generator	2	50%	81		66.5		
Loader, Rubber tired	2	40%	79		63.5		
Sweeper/Scrubber	2	10%	80		58.5		

Phase 1 Demolition

Receiver C09	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	4	40%	78	725 - 1,150	39.4	49	60
Concrete/Industrial Saw	2	20%	90		45.4		
Excavator	4	40%	81		42.4		
Generator	2	50%	81		40.4		
Loader, Rubber tired	2	40%	79		37.4		
Sweeper/Scrubber	2	10%	80		32.4		

Receiver C10	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	4	40%	78	340 - 820	56.7	66	57
Concrete/Industrial Saw	2	20%	90		62.5		
Excavator	4	40%	81		59.7		
Generator	2	50%	81		57.5		
Loader, Rubber tired	2	40%	79		54.5		
Sweeper/Scrubber	2	10%	80		49.5		

Receiver C11	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	4	40%	78	570 - 920	41.9	51	64
Concrete/Industrial Saw	2	20%	90		47.9		
Excavator	4	40%	81		44.9		
Generator	2	50%	81		42.9		
Loader, Rubber tired	2	40%	79		39.9		
Sweeper/Scrubber	2	10%	80		34.9		

Receiver C12	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	4	40%	78	725 - 1,200	39.6	49	65
Concrete/Industrial Saw	2	20%	90		45.5		
Excavator	4	40%	81		42.6		
Generator	2	50%	81		40.5		
Loader, Rubber tired	2	40%	79		37.5		
Sweeper/Scrubber	2	10%	80		32.5		

Phase 1 Demolition

Receiver C13	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	4	40%	78	515 - 990	41.9	51	64
Concrete/Industrial Saw	2	20%	90		47.8		
Excavator	4	40%	81		44.9		
Generator	2	50%	81		42.8		
Loader, Rubber tired	2	40%	79		39.8		
Sweeper/Scrubber	2	10%	80		34.8		

Receiver C14	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	4	40%	78	550 - 1,015	48.4	59	61
Concrete/Industrial Saw	2	20%	90		55.2		
Excavator	4	40%	81		51.4		
Generator	2	50%	81		50.2		
Loader, Rubber tired	2	40%	79		47.2		
Sweeper/Scrubber	2	10%	80		42.2		

C-12

Phase 1 Site Preparation

Receiver C05	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Trencher	4	50%	75	80 - 420	64.3	64	61

Receiver C06	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Trencher	4	50%	75	70 - 500	63.2	63	61

Receiver C07	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Trencher	4	50%	75	75 - 425	59.3	59	57

Receiver C08	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Trencher	4	50%	75	50 - 470	65.6	66	61

Receiver C09	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Trencher	4	50%	75	725 - 1,150	37.6	38	60

Receiver C10	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Trencher	4	50%	75	340 - 820	55.3	55	57

Receiver C11	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Trencher	4	50%	75	570 - 920	39.8	40	64

Receiver C12	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Trencher	4	50%	75	725 - 1,200	37.4	37	65

C-13

Phase 1 Site Preparation

Receiver C13	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Trencher	4	50%	75	515 - 990	39.7	40	64

Receiver C14	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Trencher	4	50%	75	550 - 1,015	47.5	48	61

C-14

Phase 1 Grading

Receiver C05	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	2	40%	78	80 - 420	63.3	78	61
Compactor	2	20%	80		62.3		
Compressor	4	40%	78		66.7		
Excavator	4	40%	81		69.7		
Generator	2	50%	81		67.2		
Pump	2	50%	77		63.2		
Forklift	2	20%	75		57.3		
Scraper	2	40%	84		70.2		
Sweeper/Scrubber	2	10%	80		59.3		
Tractor	4	40%	84		72.7		
Welder	4	40%	73		61.7		

Receiver C06	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	2	40%	78	70 - 500	62.4	76	61
Compactor	2	20%	80		61.4		
Compressor	4	40%	78		65.4		
Excavator	4	40%	81		68.4		
Generator	2	50%	81		66.4		
Pump	2	50%	77		62.4		
Forklift	2	20%	75		56.4		
Scraper	2	40%	84		68.4		
Sweeper/Scrubber	2	10%	80		58.4		
Tractor	4	40%	84		71.4		
Welder	4	40%	73		60.4		

Receiver C07	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	2	40%	78	75 - 425	63.3	77	57
Compactor	2	20%	80		62.3		
Compressor	4	40%	78		66.6		
Excavator	4	40%	81		69.6		
Generator	2	50%	81		65.1		
Pump	2	50%	77		61.1		
Forklift	2	20%	75		55.2		
Scraper	2	40%	84		69.3		
Sweeper/Scrubber	2	10%	80		57.1		
Tractor	4	40%	84		72.1		
Welder	4	40%	73		61.1		

C-15

Phase 1 Grading

Receiver C08	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	2	40%	78	50 - 470	64.6	78	61
Compactor	2	20%	80		63.6		
Compressor	4	40%	78		67.6		
Excavator	4	40%	81		70.6		
Generator	2	50%	81		68.6		
Pump	2	50%	77		64.6		
Forklift	2	20%	75		58.6		
Scraper	2	40%	84		70.6		
Sweeper/Scrubber	2	10%	80		60.6		
Tractor	4	40%	84		73.6		
Welder	4	40%	73		62.6		

Receiver C09	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	2	40%	78	725 - 1,150	36.7	51	60
Compactor	2	20%	80		35.7		
Compressor	4	40%	78		39.7		
Excavator	4	40%	81		42.7		
Generator	2	50%	81		40.6		
Pump	2	50%	77		36.6		
Forklift	2	20%	75		30.7		
Scraper	2	40%	84		42.7		
Sweeper/Scrubber	2	10%	80		32.6		
Tractor	4	40%	84		45.7		
Welder	4	40%	73		34.7		

Receiver C10	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	2	40%	78	340 - 820	54.0	68	57
Compactor	2	20%	80		53.0		
Compressor	4	40%	78		57.4		
Excavator	4	40%	81		60.4		
Generator	2	50%	81		58.0		
Pump	2	50%	77		52.7		
Forklift	2	20%	75		48.0		
Scraper	2	40%	84		60.0		
Sweeper/Scrubber	2	10%	80		50.0		
Tractor	4	40%	84		63.4		
Welder	4	40%	73		52.4		

C-16

Phase 1 Grading

Receiver C11	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	2	40%	78	570 - 920	38.8	53	64
Compactor	2	20%	80		37.8		
Compressor	4	40%	78		41.8		
Excavator	4	40%	81		44.8		
Generator	2	50%	81		42.8		
Pump	2	50%	77		38.8		
Forklift	2	20%	75		32.8		
Scraper	2	40%	84		44.8		
Sweeper/Scrubber	2	10%	80		34.8		
Tractor	4	40%	84		47.8		
Welder	4	40%	73		36.8		

Receiver C12	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	2	40%	78	725 - 1,200	36.3	50	65
Compactor	2	20%	80		35.3		
Compressor	4	40%	78		39.5		
Excavator	4	40%	81		42.5		
Generator	2	50%	81		40.3		
Pump	2	50%	77		36.3		
Forklift	2	20%	75		30.3		
Scraper	2	40%	84		42.3		
Sweeper/Scrubber	2	10%	80		32.3		
Tractor	4	40%	84		45.5		
Welder	4	40%	73		34.5		

Receiver C13	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	2	40%	78	515 - 990	38.5	53	64
Compactor	2	20%	80		37.5		
Compressor	4	40%	78		41.7		
Excavator	4	40%	81		44.7		
Generator	2	50%	81		42.5		
Pump	2	50%	77		38.5		
Forklift	2	20%	75		32.5		
Scraper	2	40%	84		44.5		
Sweeper/Scrubber	2	10%	80		34.5		
Tractor	4	40%	84		47.7		
Welder	4	40%	73		36.7		

C-17

Phase 1 Grading

Receiver C14	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	2	40%	78	550 - 1,015	46.3	60	61
Compactor	2	20%	80		45.3		
Compressor	4	40%	78		48.6		
Excavator	4	40%	81		51.6		
Generator	2	50%	81		50.3		
Pump	2	50%	77		46.3		
Forklift	2	20%	75		40.3		
Scraper	2	40%	84		52.3		
Sweeper/Scrubber	2	10%	80		42.3		
Tractor	4	40%	84		54.6		
Welder	4	40%	73		43.6		

C-18

Phase 1 Utilities Trenching

Receiver C05	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	4	40%	78	80 - 420	67.5	77	61
Concrete/Industrial Saw	2	20%	90		73.2		
Compressor	2	40%	78		64.2		
Excavator	2	40%	81		67.2		
Generator	2	50%	81		68.2		
Loader, Rubber Tired	4	40%	79		68.5		
Paving Equipment	2	50%	77		63.2		
Roller	2	20%	80		62.3		
Sweeper/Scrubber	2	10%	80		59.3		
Surfacing Equipment	2	40%	80		65.3		

Receiver C06	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	4	40%	78	70 - 500	66.1	76	61
Concrete/Industrial Saw	2	20%	90		72.1		
Compressor	2	40%	78		63.1		
Excavator	2	40%	81		66.1		
Generator	2	50%	81		67.0		
Loader, Rubber Tired	4	40%	79		67.1		
Paving Equipment	2	50%	77		63.0		
Roller	2	20%	80		62.1		
Sweeper/Scrubber	2	10%	80		59.0		
Surfacing Equipment	2	40%	80		65.1		

Receiver C07	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	4	40%	78	75 - 425	67.4	78	57
Concrete/Industrial Saw	2	20%	90		73.2		
Compressor	2	40%	78		64.2		
Excavator	2	40%	81		67.2		
Generator	2	50%	81		68.1		
Loader, Rubber Tired	4	40%	79		68.4		
Paving Equipment	2	50%	77		64.1		
Roller	2	20%	80		63.2		
Sweeper/Scrubber	2	10%	80		60.2		
Surfacing Equipment	2	40%	80		66.2		

Phase 1 Utilities Trenching

Receiver C08	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	4	40%	78	50 - 470	68.1	78	61
Concrete/Industrial Saw	2	20%	90		74.1		
Compressor	2	40%	78		65.1		
Excavator	2	40%	81		68.1		
Generator	2	50%	81		69.1		
Loader, Rubber Tired	4	40%	79		69.1		
Paving Equipment	2	50%	77		65.1		
Roller	2	20%	80		64.1		
Sweeper/Scrubber	2	10%	80		61.1		
Surfacing Equipment	2	40%	80		67.1		

Receiver C09	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	4	40%	78	725 - 1,150	39.7	50	60
Concrete/Industrial Saw	2	20%	90		45.7		
Compressor	2	40%	78		36.7		
Excavator	2	40%	81		39.7		
Generator	2	50%	81		40.6		
Loader, Rubber Tired	4	40%	79		40.7		
Paving Equipment	2	50%	77		36.6		
Roller	2	20%	80		35.7		
Sweeper/Scrubber	2	10%	80		32.6		
Surfacing Equipment	2	40%	80		38.7		

Receiver C10	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	4	40%	78	340 - 820	57.4	67	57
Concrete/Industrial Saw	2	20%	90		63.0		
Compressor	2	40%	78		54.0		
Excavator	2	40%	81		57.0		
Generator	2	50%	81		58.0		
Loader, Rubber Tired	4	40%	79		58.4		
Paving Equipment	2	50%	77		54.0		
Roller	2	20%	80		53.0		
Sweeper/Scrubber	2	10%	80		50.0		
Surfacing Equipment	2	40%	80		56.0		

Phase 1 Utilities Trenching

Receiver C11	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	4	40%	78	570 - 920	41.8	52	64
Concrete/Industrial Saw	2	20%	90		47.8		
Compressor	2	40%	78		38.8		
Excavator	2	40%	81		41.8		
Generator	2	50%	81		42.8		
Loader, Rubber Tired	4	40%	79		42.8		
Paving Equipment	2	50%	77		38.8		
Roller	2	20%	80		37.8		
Sweeper/Scrubber	2	10%	80		34.8		
Surfacing Equipment	2	40%	80		40.8		

Receiver C12	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	4	40%	78	725 - 1,200	39.5	50	65
Concrete/Industrial Saw	2	20%	90		45.3		
Compressor	2	40%	78		36.3		
Excavator	2	40%	81		39.3		
Generator	2	50%	81		40.3		
Loader, Rubber Tired	4	40%	79		40.5		
Paving Equipment	2	50%	77		36.3		
Roller	2	20%	80		35.3		
Sweeper/Scrubber	2	10%	80		32.3		
Surfacing Equipment	2	40%	80		38.3		

Receiver C13	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	4	40%	78	515 - 990	41.7	52	64
Concrete/Industrial Saw	2	20%	90		47.5		
Compressor	2	40%	78		38.5		
Excavator	2	40%	81		41.5		
Generator	2	50%	81		42.5		
Loader, Rubber Tired	4	40%	79		42.7		
Paving Equipment	2	50%	77		38.5		
Roller	2	20%	80		37.5		
Sweeper/Scrubber	2	10%	80		34.5		
Surfacing Equipment	2	40%	80		40.5		

C-21

Phase 1 Utilities Trenching

Receiver C14	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Backhoe	4	40%	78	550 - 1,015	48.6	60	61
Concrete/Industrial Saw	2	20%	90		55.3		
Compressor	2	40%	78		46.3		
Excavator	2	40%	81		49.3		
Generator	2	50%	81		50.3		
Loader, Rubber Tired	4	40%	79		49.6		
Paving Equipment	2	50%	77		46.3		
Roller	2	20%	80		45.3		
Sweeper/Scrubber	2	10%	80		42.3		
Surfacing Equipment	2	40%	80		48.3		

Phase 1 Building Construction

Receiver C05	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	2	20%	80	80 - 420	63.2	69	61
Compressor	2	40%	78		64.2		
Crane	2	16%	81		63.2		
Forklift	2	20%	75		58.2		
Sweeper/Scrubber	2	10%	80		60.2		

Receiver C06	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	2	20%	80	70 - 500	62.1	68	61
Compressor	2	40%	78		63.1		
Crane	2	16%	81		62.1		
Forklift	2	20%	75		57.1		
Sweeper/Scrubber	2	10%	80		59.0		

Receiver C07	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	2	20%	80	75 - 425	60.2	66	57
Compressor	2	40%	78		61.2		
Crane	2	16%	81		60.2		
Forklift	2	20%	75		55.2		
Sweeper/Scrubber	2	10%	80		57.1		

Receiver C08	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	2	20%	80	50 - 470	63.6	70	61
Compressor	2	40%	78		64.6		
Crane	2	16%	81		63.6		
Forklift	2	20%	75		58.6		
Sweeper/Scrubber	2	10%	80		60.6		

Receiver C09	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	2	20%	80	725 - 1,150	35.7	42	60
Compressor	2	40%	78		36.7		
Crane	2	16%	81		35.7		
Forklift	2	20%	75		30.7		
Sweeper/Scrubber	2	10%	80		32.6		

Phase 1 Building Construction

Receiver C10	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	2	20%	80	340 - 820	53.0	59	57
Compressor	2	40%	78		54.0		
Crane	2	16%	81		53.0		
Forklift	2	20%	75		48.0		
Sweeper/Scrubber	2	10%	80		50.0		

Receiver C11	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	2	20%	80	570 - 920	37.8	44	64
Compressor	2	40%	78		38.8		
Crane	2	16%	81		37.8		
Forklift	2	20%	75		32.8		
Sweeper/Scrubber	2	10%	80		34.8		

Receiver C12	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	2	20%	80	725 - 1,200	35.3	41	65
Compressor	2	40%	78		36.3		
Crane	2	16%	81		35.4		
Forklift	2	20%	75		30.3		
Sweeper/Scrubber	2	10%	80		32.3		

Receiver C13	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	2	20%	80	515 - 990	37.5	44	64
Compressor	2	40%	78		38.5		
Crane	2	16%	81		37.5		
Forklift	2	20%	75		32.5		
Sweeper/Scrubber	2	10%	80		34.5		

Receiver C14	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	2	20%	80	550 - 1,015	45.3	51	61
Compressor	2	40%	78		46.3		
Crane	2	16%	81		45.4		
Forklift	2	20%	75		40.3		
Sweeper/Scrubber	2	10%	80		42.3		

Phase 1 Paving

Receiver C05	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Compactor	2	20%	80	80 - 420	63.2	72	61
Generator	2	50%	81		68.2		
Paver	2	50%	77		64.2		
Paving Equipment	2	50%	77		64.2		
Roller	2	20%	80		63.2		
Sweeper/Scrubber	2	10%	80		60.2		

Receiver C06	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Compactor	2	20%	80	70 - 500	62.1	71	61
Generator	2	50%	81		67.0		
Paver	2	50%	77		63.0		
Paving Equipment	2	50%	77		63.0		
Roller	2	20%	80		62.1		
Sweeper/Scrubber	2	10%	80		59.0		

Receiver C07	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Compactor	2	20%	80	75 - 425	63.2	72	57
Generator	2	50%	81		68.1		
Paver	2	50%	77		64.1		
Paving Equipment	2	50%	77		64.1		
Roller	2	20%	80		63.2		
Sweeper/Scrubber	2	10%	80		60.2		

Receiver C08	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Compactor	2	20%	80	50 - 470	64.1	73	61
Generator	2	50%	81		69.1		
Paver	2	50%	77		65.1		
Paving Equipment	2	50%	77		65.1		
Roller	2	20%	80		64.1		
Sweeper/Scrubber	2	10%	80		61.1		

Phase 1 Paving

Receiver C09	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Compactor	2	20%	80	725 - 1,150	35.7	45	60
Generator	2	50%	81		40.6		
Paver	2	50%	77		36.6		
Paving Equipment	2	50%	77		36.6		
Roller	2	20%	80		35.7		
Sweeper/Scrubber	2	10%	80		32.6		

Receiver C10	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Compactor	2	20%	80	340 - 820	53.0	62	57
Generator	2	50%	81		58.0		
Paver	2	50%	77		54.0		
Paving Equipment	2	50%	77		54.0		
Roller	2	20%	80		53.0		
Sweeper/Scrubber	2	10%	80		50.0		

Receiver C11	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Compactor	2	20%	80	570 - 920	37.8	47	64
Generator	2	50%	81		42.8		
Paver	2	50%	77		38.8		
Paving Equipment	2	50%	77		38.8		
Roller	2	20%	80		37.8		
Sweeper/Scrubber	2	10%	80		34.8		

Receiver C12	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Compactor	2	20%	80	725 - 1,200	35.3	44	65
Generator	2	50%	81		40.3		
Paver	2	50%	77		36.3		
Paving Equipment	2	50%	77		36.3		
Roller	2	20%	80		35.3		
Sweeper/Scrubber	2	10%	80		32.3		

Phase 1 Paving

Receiver C13	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Compactor	2	20%	80	515 - 990	37.5	47	64
Generator	2	50%	81		42.5		
Paver	2	50%	77		38.5		
Paving Equipment	2	50%	77		38.5		
Roller	2	20%	80		37.5		
Sweeper/Scrubber	2	10%	80		34.5		

Receiver C14	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Compactor	2	20%	80	550 - 1,015	45.3	54	61
Generator	2	50%	81		50.3		
Paver	2	50%	77		46.3		
Paving Equipment	2	50%	77		46.3		
Roller	2	20%	80		45.3		
Sweeper/Scrubber	2	10%	80		42.3		

Phase 1 Architectural Coating

Receiver C05	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	4	20%	80	80 - 420	65.3	68	61
Compressor	2	40%	78		62.9		
Pressure Washer	2	40%	74		58.9		

Receiver C06	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	4	20%	80	70 - 500	64.2	67	61
Compressor	2	40%	78		62.2		
Pressure Washer	2	40%	74		58.2		

Receiver C07	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	4	20%	80	75 - 425	65.3	68	57
Compressor	2	40%	78		63.0		
Compressor	2	40%	74		59.0		

Receiver C08	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	4	20%	80	50 - 470	66.4	69	61
Compressor	2	40%	78		64.4		
Compressor	2	40%	74		60.4		

Receiver C09	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	4	20%	80	725 - 1,150	38.7	41	60
Compressor	2	40%	78		36.7		
Compressor	2	40%	74		32.7		

Receiver C10	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	4	20%	80	340 - 820	55.7	58	57
Compressor	2	40%	78		53.3		
Compressor	2	40%	74		49.3		

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Phase 1 Architectural Coating

Receiver C11	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	4	20%	80	570 - 920	40.8	44	64
Compressor	2	40%	78		38.8		
Compressor	2	40%	74		34.8		

Receiver C12	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	4	20%	80	725 - 1,200	38.5	41	65
Compressor	2	40%	78		36.3		
Compressor	2	40%	74		32.3		

Receiver C13	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	4	20%	80	515 - 990	40.7	43	64
Compressor	2	40%	78		38.5		
Compressor	2	40%	74		34.5		

Receiver C14	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	4	20%	80	550 - 1,015	47.6	51	61
Compressor	2	40%	78		46.3		
Compressor	2	40%	74		42.3		

Phase 4 Demolition

Receiver C05	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	640 - 890	41.7	52	61
Concrete/Industrial Saw	1	20%	90		49.4		
Excavator	2	40%	81		44.7		
Generator	1	50%	81		44.4		
Loader, Rubber tired	1	40%	79		41.4		
Sweeper/Scrubber	1	10%	80		36.4		

Receiver C06	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	390 - 600	42.2	52	61
Concrete/Industrial Saw	1	20%	90		48.2		
Excavator	2	40%	81		45.2		
Generator	1	50%	81		43.2		
Loader, Rubber tired	1	40%	79		40.2		
Sweeper/Scrubber	1	10%	80		35.2		

Receiver C07	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	640 - 900	41.6	52	57
Concrete/Industrial Saw	1	20%	90		49.1		
Excavator	2	40%	81		44.6		
Generator	1	50%	81		44.1		
Loader, Rubber tired	1	40%	79		41.1		
Sweeper/Scrubber	1	10%	80		36.1		

Receiver C08	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	910 - 1,120	35.8	45	61
Concrete/Industrial Saw	1	20%	90		41.8		
Excavator	2	40%	81		38.8		
Generator	1	50%	81		36.8		
Loader, Rubber tired	1	40%	79		33.8		
Sweeper/Scrubber	1	10%	80		28.8		

C-30

Phase 4 Demolition

Receiver C09	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	65 - 300	65.9	75	60
Concrete/Industrial Saw	1	20%	90		71.9		
Excavator	2	40%	81		68.9		
Generator	1	50%	81		66.9		
Loader, Rubber tired	1	40%	79		63.9		
Sweeper/Scrubber	1	10%	80		58.9		

Receiver C10	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	160 - 485	59.9	68	57
Concrete/Industrial Saw	1	20%	90		63.8		
Excavator	2	40%	81		62.9		
Generator	1	50%	81		58.8		
Loader, Rubber tired	1	40%	79		55.8		
Sweeper/Scrubber	1	10%	80		50.8		

Receiver C11	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	1,030 - 1,350	34.5	44	64
Concrete/Industrial Saw	1	20%	90		40.5		
Excavator	2	40%	81		37.5		
Generator	1	50%	81		35.5		
Loader, Rubber tired	1	40%	79		32.5		
Sweeper/Scrubber	1	10%	80		27.5		

Receiver C12	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	1,530 - 1,800	31.6	41	65
Concrete/Industrial Saw	1	20%	90		37.6		
Excavator	2	40%	81		34.6		
Generator	1	50%	81		32.5		
Loader, Rubber tired	1	40%	79		29.6		
Sweeper/Scrubber	1	10%	80		24.6		

C-31

Phase 4 Demolition

Receiver C13	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	1,375 - 1,610	32.6	42	64
Concrete/Industrial Saw	1	20%	90		38.6		
Excavator	2	40%	81		35.6		
Generator	1	50%	81		33.6		
Loader, Rubber tired	1	40%	79		30.6		
Sweeper/Scrubber	1	10%	80		25.6		

Receiver C14	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	70 - 360	65.5	75	61
Concrete/Industrial Saw	1	20%	90		71.0		
Excavator	2	40%	81		68.5		
Generator	1	50%	81		65.9		
Loader, Rubber tired	1	40%	79		63.0		
Sweeper/Scrubber	1	10%	80		58.0		

C-32

Phase 4 Site Preparation

Receiver C05	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Trencher	2	50%	75	640 - 890	39.7	40	61

Receiver C06	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Trencher	2	50%	75	390 - 600	43.4	43	61

Receiver C07	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Trencher	2	50%	75	640 - 900	39.6	40	57

Receiver C08	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Trencher	2	50%	75	910 - 1,120	33.8	34	61

Receiver C09	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Trencher	2	50%	75	65 - 300	63.9	64	60

Receiver C10	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Trencher	2	50%	75	160 - 485	57.9	58	57

Receiver C11	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Trencher	2	50%	75	1,030 - 1,350	32.5	32	64

Receiver C12	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Trencher	2	50%	75	1,530 - 1,800	29.6	30	65

Receiver C13	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Trencher	2	50%	75	1,375 - 1,610	30.6	31	64

C-33

Phase 4 Site Preparation

Receiver C14	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Trencher	2	50%	75	70 - 360	64.4	64	61

C-34

Phase 4 Grading

Receiver C05	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	1	40%	78	640 - 890	40.4	53	61
Compactor	1	20%	80		39.4		
Compressor	2	40%	78		41.7		
Excavator	1	40%	81		44.7		
Generator	1	50%	81		44.4		
Pump	1	50%	77		40.4		
Forklift	1	20%	75		34.4		
Scraper	1	40%	84		46.4		
Sweeper/Scrubber	1	10%	80		36.4		
Tractor	2	40%	84		47.7		
Welder	2	40%	73		36.7		

Receiver C06	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	1	40%	78	390 - 600	39.2	53	61
Compactor	1	20%	80		38.2		
Compressor	2	40%	78		42.2		
Excavator	1	40%	81		45.2		
Generator	1	50%	81		43.2		
Pump	1	50%	77		39.2		
Forklift	1	20%	75		33.2		
Scraper	1	40%	84		45.2		
Sweeper/Scrubber	1	10%	80		35.2		
Tractor	2	40%	84		48.2		
Welder	2	40%	73		37.2		

Receiver C07	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	1	40%	78	640 - 900	40.3	53	57
Compactor	1	20%	80		39.3		
Compressor	2	40%	78		41.6		
Excavator	1	40%	81		44.6		
Generator	1	50%	81		44.3		
Pump	1	50%	77		40.3		
Forklift	1	20%	75		34.3		
Scraper	1	40%	84		46.3		
Sweeper/Scrubber	1	10%	80		36.3		
Tractor	2	40%	84		47.6		
Welder	2	40%	73		36.6		

C-35

Phase 4 Grading

Receiver C08	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	1	40%	78	910 - 1,120	32.8	47	61
Compactor	1	20%	80		31.8		
Compressor	2	40%	78		35.8		
Excavator	1	40%	81		38.8		
Generator	1	50%	81		36.8		
Pump	1	50%	77		32.8		
Forklift	1	20%	75		26.8		
Scraper	1	40%	84		38.8		
Sweeper/Scrubber	1	10%	80		28.8		
Tractor	2	40%	84		41.8		
Welder	2	40%	73		30.8		

Receiver C09	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	1	40%	78	65 - 300	62.9	77	60
Compactor	1	20%	80		61.9		
Compressor	2	40%	78		65.9		
Excavator	1	40%	81		68.9		
Generator	1	50%	81		66.9		
Pump	1	50%	77		62.9		
Forklift	1	20%	75		56.9		
Scraper	1	40%	84		68.9		
Sweeper/Scrubber	1	10%	80		58.9		
Tractor	2	40%	84		71.9		
Welder	2	40%	73		60.9		

Receiver C10	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	1	40%	78	160 - 485	54.8	70	57
Compactor	1	20%	80		53.8		
Compressor	2	40%	78		59.9		
Excavator	1	40%	81		62.9		
Generator	1	50%	81		57.6		
Pump	1	50%	77		53.6		
Forklift	1	20%	75		47.6		
Scraper	1	40%	84		59.6		
Sweeper/Scrubber	1	10%	80		49.6		
Tractor	2	40%	84		65.9		
Welder	2	40%	73		54.9		

C-36

Phase 4 Grading

Receiver C11	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	1	40%	78	1,030 - 1,350	31.5	45	64
Compactor	1	20%	80		30.5		
Compressor	2	40%	78		34.5		
Excavator	1	40%	81		37.5		
Generator	1	50%	81		35.2		
Pump	1	50%	77		31.2		
Forklift	1	20%	75		25.2		
Scraper	1	40%	84		37.2		
Sweeper/Scrubber	1	10%	80		27.2		
Tractor	2	40%	84		40.5		
Welder	2	40%	73		29.5		

Receiver C12	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	1	40%	78	1,530 - 1,800	28.6	42	65
Compactor	1	20%	80		27.6		
Compressor	2	40%	78		31.6		
Excavator	1	40%	81		34.6		
Generator	1	50%	81		32.4		
Pump	1	50%	77		28.4		
Forklift	1	20%	75		22.4		
Scraper	1	40%	84		34.4		
Sweeper/Scrubber	1	10%	80		24.4		
Tractor	2	40%	84		37.6		
Welder	2	40%	73		26.6		

Receiver C13	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	1	40%	78	1,375 - 1,610	29.6	43	64
Compactor	1	20%	80		28.6		
Compressor	2	40%	78		32.6		
Excavator	1	40%	81		35.6		
Generator	1	50%	81		33.6		
Pump	1	50%	77		29.6		
Forklift	1	20%	75		23.6		
Scraper	1	40%	84		35.6		
Sweeper/Scrubber	1	10%	80		25.6		
Tractor	2	40%	84		38.6		
Welder	2	40%	73		27.6		

C-37

Phase 4 Grading

Receiver C14	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	1	40%	78	70 - 360	47.0	62	61
Compactor	1	20%	80		46.0		
Compressor	2	40%	78		51.4		
Excavator	1	40%	81		54.4		
Generator	1	50%	81		50.9		
Pump	1	50%	77		46.9		
Forklift	1	20%	75		41.0		
Scraper	1	40%	84		53.0		
Sweeper/Scrubber	1	10%	80		43.0		
Tractor	2	40%	84		57.4		
Welder	2	40%	73		46.4		

C-38

Phase 4 Utilities Trenching

Receiver C05	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	640 - 890	41.7	53	61
Concrete/Industrial Saw	1	20%	90		49.4		
Compressor	1	40%	78		40.4		
Excavator	1	40%	81		43.4		
Generator	1	50%	81		44.4		
Loader, Rubber Tired	2	40%	79		42.7		
Paving Equipment	1	50%	77		40.4		
Roller	1	20%	80		39.4		
Sweeper/Scrubber	1	10%	80		36.4		
Surfacing Equipment	1	40%	80		42.4		

Receiver C06	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	390 - 600	42.2	53	61
Concrete/Industrial Saw	1	20%	90		48.2		
Compressor	1	40%	78		39.2		
Excavator	1	40%	81		42.2		
Generator	1	50%	81		43.2		
Loader, Rubber Tired	2	40%	79		43.2		
Paving Equipment	1	50%	77		39.2		
Roller	1	20%	80		38.2		
Sweeper/Scrubber	1	10%	80		35.2		
Surfacing Equipment	1	40%	80		41.2		

Receiver C07	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	640 - 900	41.6	53	57
Concrete/Industrial Saw	1	20%	90		49.3		
Compressor	1	40%	78		40.3		
Excavator	1	40%	81		43.3		
Generator	1	50%	81		44.3		
Loader, Rubber Tired	2	40%	79		42.6		
Paving Equipment	1	50%	77		40.3		
Roller	1	20%	80		39.3		
Sweeper/Scrubber	1	10%	80		36.3		
Surfacing Equipment	1	40%	80		42.3		

Phase 4 Utilities Trenching

Receiver C08	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	910 - 1,120	35.8	46	61
Concrete/Industrial Saw	1	20%	90		41.8		
Compressor	1	40%	78		32.8		
Excavator	1	40%	81		35.8		
Generator	1	50%	81		36.8		
Loader, Rubber Tired	2	40%	79		36.8		
Paving Equipment	1	50%	77		32.8		
Roller	1	20%	80		31.8		
Sweeper/Scrubber	1	10%	80		28.8		
Surfacing Equipment	1	40%	80		34.8		

Receiver C09	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	65 - 300	65.9	76	60
Concrete/Industrial Saw	1	20%	90		71.9		
Compressor	1	40%	78		62.9		
Excavator	1	40%	81		65.9		
Generator	1	50%	81		66.9		
Loader, Rubber Tired	2	40%	79		66.9		
Paving Equipment	1	50%	77		62.9		
Roller	1	20%	80		61.9		
Sweeper/Scrubber	1	10%	80		58.9		
Surfacing Equipment	1	40%	80		64.9		

Receiver C10	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	160 - 485	59.9	69	57
Concrete/Industrial Saw	1	20%	90		63.8		
Compressor	1	40%	78		54.8		
Excavator	1	40%	81		57.8		
Generator	1	50%	81		58.8		
Loader, Rubber Tired	2	40%	79		60.9		
Paving Equipment	1	50%	77		54.8		
Roller	1	20%	80		53.8		
Sweeper/Scrubber	1	10%	80		50.8		
Surfacing Equipment	1	40%	80		56.8		

C-40

Phase 4 Utilities Trenching

Receiver C11	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	1,030 - 1,350	34.5	45	64
Concrete/Industrial Saw	1	20%	90		40.5		
Compressor	1	40%	78		31.5		
Excavator	1	40%	81		34.5		
Generator	1	50%	81		35.5		
Loader, Rubber Tired	2	40%	79		35.5		
Paving Equipment	1	50%	77		31.5		
Roller	1	20%	80		30.5		
Sweeper/Scrubber	1	10%	80		27.5		
Surfacing Equipment	1	40%	80		33.5		

Receiver C12	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	1,530 - 1,800	31.6	42	65
Concrete/Industrial Saw	1	20%	90		37.6		
Compressor	1	40%	78		28.6		
Excavator	1	40%	81		31.6		
Generator	1	50%	81		32.5		
Loader, Rubber Tired	2	40%	79		32.6		
Paving Equipment	1	50%	77		28.5		
Roller	1	20%	80		27.6		
Sweeper/Scrubber	1	10%	80		24.6		
Surfacing Equipment	1	40%	80		30.6		

Phase 4 Building Construction

Receiver C05	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	1	20%	80	640 - 890	39.4	46	61
Compressor	1	40%	78		40.4		
Crane	1	16%	81		39.4		
Forklift	1	20%	75		34.4		
Sweeper/Scrubber	1	10%	80		36.4		

Receiver C06	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	1	20%	80	390 - 600	38.2	44	61
Compressor	1	40%	78		39.2		
Crane	1	16%	81		38.2		
Forklift	1	20%	75		33.2		
Sweeper/Scrubber	1	10%	80		35.2		

Receiver C07	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	1	20%	80	640 - 900	39.3	45	57
Compressor	1	40%	78		40.3		
Crane	1	16%	81		39.3		
Forklift	1	20%	75		34.3		
Sweeper/Scrubber	1	10%	80		36.3		

Receiver C08	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	1	20%	80	910 - 1,120	31.8	38	61
Compressor	1	40%	78		32.8		
Crane	1	16%	81		31.8		
Forklift	1	20%	75		26.8		
Sweeper/Scrubber	1	10%	80		28.8		

Receiver C09	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	1	20%	80	65 - 300	61.9	68	60
Compressor	1	40%	78		62.9		
Crane	1	16%	81		61.9		
Forklift	1	20%	75		56.9		
Sweeper/Scrubber	1	10%	80		58.9		

* Noise limit is set at existing measured ambient noise level plus 5 dBA.

Phase 4 Building Construction

Receiver C10	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	1	20%	80	160 - 485	53.8	60	57
Compressor	1	40%	78		54.8		
Crane	1	16%	81		53.9		
Forklift	1	20%	75		48.8		
Sweeper/Scrubber	1	10%	80		50.8		

Receiver C11	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	1	20%	80	1,030 - 1,350	30.5	37	64
Compressor	1	40%	78		31.5		
Crane	1	16%	81		30.5		
Forklift	1	20%	75		25.5		
Sweeper/Scrubber	1	10%	80		27.5		

Receiver C12	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	1	20%	80	1,530 - 1,800	27.6	34	65
Compressor	1	40%	78		28.6		
Crane	1	16%	81		27.6		
Forklift	1	20%	75		22.6		
Sweeper/Scrubber	1	10%	80		24.6		

Receiver C13	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	1	20%	80	1,375 - 1,610	28.6	35	64
Compressor	1	40%	78		29.6		
Crane	1	16%	81		28.6		
Forklift	1	20%	75		23.6		
Sweeper/Scrubber	1	10%	80		25.6		

Receiver C14	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	1	20%	80	70 - 360	61.0	67	61
Compressor	1	40%	78		62.0		
Crane	1	16%	81		61.0		
Forklift	1	20%	75		56.0		
Sweeper/Scrubber	1	10%	80		58.0		

* Noise limit is set at existing measured ambient noise level plus 5 dBA.

Phase 4 Paving

Receiver C05	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Compactor	1	20%	80	640 - 890	39.4	49	61
Generator	1	50%	81		44.4		
Paver	1	50%	77		40.4		
Paving Equipment	1	50%	77		40.4		
Roller	1	20%	80		39.4		
Sweeper/Scrubber	1	10%	80		36.4		

Receiver C06	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Compactor	1	20%	80	390 - 600	38.2	47	61
Generator	1	50%	81		43.2		
Paver	1	50%	77		39.2		
Paving Equipment	1	50%	77		39.2		
Roller	1	20%	80		38.2		
Sweeper/Scrubber	1	10%	80		35.2		

Receiver C07	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Compactor	1	20%	80	640 - 900	39.3	48	57
Generator	1	50%	81		44.3		
Paver	1	50%	77		40.3		
Paving Equipment	1	50%	77		40.3		
Roller	1	20%	80		39.3		
Sweeper/Scrubber	1	10%	80		36.3		

Receiver C08	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Compactor	1	20%	80	910 - 1,120	31.8	41	61
Generator	1	50%	81		36.8		
Paver	1	50%	77		32.8		
Paving Equipment	1	50%	77		32.8		
Roller	1	20%	80		31.8		
Sweeper/Scrubber	1	10%	80		28.8		

* Noise limit is set at existing measured ambient noise level plus 5 dBA.

Phase 4 Paving

Receiver C09	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Compactor	1	20%	80	65 - 300	62.4	71	60
Generator	1	50%	81		67.4		
Paver	1	50%	77		63.4		
Paving Equipment	1	50%	77		63.4		
Roller	1	20%	80		62.4		
Sweeper/Scrubber	1	10%	80		59.4		

Receiver C10	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Compactor	1	20%	80	160 - 485	53.8	63	57
Generator	1	50%	81		58.8		
Paver	1	50%	77		54.8		
Paving Equipment	1	50%	77		54.8		
Roller	1	20%	80		53.8		
Sweeper/Scrubber	1	10%	80		50.8		

Receiver C11	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Compactor	1	20%	80	1,030 - 1,350	30.5	40	64
Generator	1	50%	81		35.5		
Paver	1	50%	77		31.5		
Paving Equipment	1	50%	77		31.5		
Roller	1	20%	80		30.5		
Sweeper/Scrubber	1	10%	80		27.5		

Receiver C12	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Compactor	1	20%	80	1,530 - 1,800	27.6	37	65
Generator	1	50%	81		32.5		
Paver	1	50%	77		28.5		
Paving Equipment	1	50%	77		28.5		
Roller	1	20%	80		27.6		
Sweeper/Scrubber	1	10%	80		24.6		

* Noise limit is set at existing measured ambient noise level plus 5 dBA.

Phase 4 Paving

Receiver C13	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Compactor	1	20%	80	1,375 - 1,610	28.6	38	64
Generator	1	50%	81		33.6		
Paver	1	50%	77		29.6		
Paving Equipment	1	50%	77		29.6		
Roller	1	20%	80		28.6		
Sweeper/Scrubber	1	10%	80		25.6		

Receiver C14	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Compactor	1	20%	80	70 - 360	61.0	70	61
Generator	1	50%	81		65.9		
Paver	1	50%	77		61.9		
Paving Equipment	1	50%	77		61.9		
Roller	1	20%	80		61.0		
Sweeper/Scrubber	1	10%	80		58.0		

* Noise limit is set at existing measured ambient noise level plus 5 dBA.

Phase 4 Architectural Coating

Receiver C05	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	2	20%	80	640 - 890	40.7	45	61
Compressor	2	40%	78		40.4		
Pressure Washer	2	40%	74		37.7		

Receiver C06	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	2	20%	80	390 - 600	41.2	44	61
Compressor	2	40%	78		39.2		
Pressure Washer	2	40%	74		38.2		

Receiver C07	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	2	20%	80	640 - 900	40.6	44	57
Compressor	2	40%	78		40.3		
Compressor	2	40%	74		37.6		

Receiver C08	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	2	20%	80	910 - 1,120	34.8	38	61
Compressor	2	40%	78		32.8		
Compressor	2	40%	74		31.8		

Receiver C09	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	2	20%	80	65 - 300	64.9	68	60
Compressor	2	40%	78		62.9		
Compressor	2	40%	74		61.9		

Receiver C10	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	2	20%	80	160 - 485	58.4	61	57
Compressor	2	40%	78		52.8		
Compressor	2	40%	74		55.4		

* Noise limit is set at existing measured ambient noise level plus 5 dBA.

Phase 4 Architectural Coating

Receiver C11	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	2	20%	80	1,030 - 1,350	33.5	37	64
Compressor	2	40%	78		31.5		
Compressor	2	40%	74		30.5		

Receiver C12	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	2	20%	80	1,530 - 1,800	30.6	34	65
Compressor	2	40%	78		28.6		
Compressor	2	40%	74		27.6		

Receiver C13	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	2	20%	80	1,375 - 1,610	31.6	35	64
Compressor	2	40%	78		29.6		
Compressor	2	40%	74		28.6		

Receiver C14	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	2	20%	80	70 - 360	64.7	68	61
Compressor	2	40%	78		62.0		
Compressor	2	40%	74		61.7		

* Noise limit is set at existing measured ambient noise level plus 5 dBA.

Phase 7 Demolition Noise Levels, dBA

Receiver C05	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	870 - 1,150	35.9	45	61
Concrete/Industrial Saw	1	20%	90		41.9		
Excavator	2	40%	81		38.9		
Generator	1	50%	81		36.9		
Loader, Rubber tired	1	40%	79		33.9		
Sweeper/Scrubber	1	10%	80		28.9		

Receiver C06	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	1,020 - 1,250	34.8	44	61
Concrete/Industrial Saw	1	20%	90		40.8		
Excavator	2	40%	81		37.8		
Generator	1	50%	81		35.8		
Loader, Rubber tired	1	40%	79		32.8		
Sweeper/Scrubber	1	10%	80		27.8		

Receiver C07	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	765 - 960	40.5	51	57
Concrete/Industrial Saw	1	20%	90		48.3		
Excavator	2	40%	81		43.5		
Generator	1	50%	81		43.3		
Loader, Rubber tired	1	40%	79		40.3		
Sweeper/Scrubber	1	10%	80		35.3		

Receiver C08	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	520 - 785	39.8	49	61
Concrete/Industrial Saw	1	20%	90		45.8		
Excavator	2	40%	81		42.8		
Generator	1	50%	81		40.7		
Loader, Rubber tired	1	40%	79		37.8		
Sweeper/Scrubber	1	10%	80		32.8		

Phase 7 Demolition Noise Levels, dBA

Receiver C09	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	1,675 - 1,880	31.0	41	60
Concrete/Industrial Saw	1	20%	90		37.0		
Excavator	2	40%	81		34.0		
Generator	1	50%	81		32.0		
Loader, Rubber tired	1	40%	79		29.0		
Sweeper/Scrubber	1	10%	80		24.0		

Receiver C10	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	1,270 - 1,450	33.3	43	57
Concrete/Industrial Saw	1	20%	90		39.3		
Excavator	2	40%	81		36.3		
Generator	1	50%	81		34.3		
Loader, Rubber tired	1	40%	79		31.3		
Sweeper/Scrubber	1	10%	80		26.3		

Receiver C11	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	590 - 860	47.0	58	64
Concrete/Industrial Saw	1	20%	90		54.6		
Excavator	2	40%	81		50.0		
Generator	1	50%	81		49.6		
Loader, Rubber tired	1	40%	79		46.6		
Sweeper/Scrubber	1	10%	80		41.6		

Receiver C12	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	90 - 360	65.1	74	65
Concrete/Industrial Saw	1	20%	90		69.9		
Excavator	2	40%	81		68.1		
Generator	1	50%	81		64.9		
Loader, Rubber tired	1	40%	79		62.0		
Sweeper/Scrubber	1	10%	80		56.9		

Phase 7 Demolition Noise Levels, dBA

Receiver C13	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	70 - 250	67.3	77	64
Concrete/Industrial Saw	1	20%	90		73.2		
Excavator	2	40%	81		70.3		
Generator	1	50%	81		68.2		
Loader, Rubber tired	1	40%	79		65.2		
Sweeper/Scrubber	1	10%	80		60.2		

Receiver C14	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	1,540 - 1,780	31.6	41	61
Concrete/Industrial Saw	1	20%	90		37.6		
Excavator	2	40%	81		34.6		
Generator	1	50%	81		32.6		
Loader, Rubber tired	1	40%	79		29.6		
Sweeper/Scrubber	1	10%	80		24.6		

Phase 7 Site Preparation Noise Levels, dBA

Receiver C05	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Trencher	2	50%	75	870 - 1,150	33.9	34	61

Receiver C06	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Trencher	2	50%	75	1,020 - 1,250	32.8	33	61

Receiver C07	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Trencher	2	50%	75	765 - 960	38.5	39	57

Receiver C08	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Trencher	2	50%	75	520 - 785	37.8	38	61

Receiver C09	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Trencher	2	50%	75	1,675 - 1,880	29.0	29	60

Receiver C10	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Trencher	2	50%	75	1,270 - 1,450	31.3	31	57

Receiver C11	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Trencher	2	50%	75	590 - 860	45.0	45	64

Receiver C12	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Trencher	2	50%	75	90 - 360	63.0	63	65

Receiver C13	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Trencher	2	50%	75	70 - 250	65.2	65	64

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Phase 7 Site Preparation Noise Levels, dBA

Receiver C14	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Trencher	2	50%	75	1,540 - 1,780	29.6	30	61

Phase 7 Grading Noise Levels, dBA

Receiver C05	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	1	40%	78	870 - 1,150	37.9	51	61
Compactor	1	20%	80		36.9		
Compressor	2	40%	78		39.3		
Excavator	1	40%	81		42.3		
Generator	1	50%	81		41.9		
Pump	1	50%	77		37.9		
Forklift	1	20%	75		31.9		
Scraper	1	40%	84		43.9		
Sweeper/Scrubber	1	10%	80		33.9		
Tractor	2	40%	84		45.3		
Welder	2	40%	73		34.3		

Receiver C06	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	1	40%	78	,020 - 1,25	32.0	46	61
Compactor	1	20%	80		31.0		
Compressor	2	40%	78		34.8		
Excavator	1	40%	81		37.8		
Generator	1	50%	81		35.9		
Pump	1	50%	77		31.9		
Forklift	1	20%	75		26.0		
Scraper	1	40%	84		38.0		
Sweeper/Scrubber	1	10%	80		28.0		
Tractor	2	40%	84		40.8		
Welder	2	40%	73		29.8		

Receiver C07	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	1	40%	78	765 - 960	39.3	52	57
Compactor	1	20%	80		38.3		
Compressor	2	40%	78		40.5		
Excavator	1	40%	81		43.5		
Generator	1	50%	81		43.3		
Pump	1	50%	77		39.3		
Forklift	1	20%	75		33.3		
Scraper	1	40%	84		45.3		
Sweeper/Scrubber	1	10%	80		35.3		
Tractor	2	40%	84		46.5		
Welder	2	40%	73		35.5		

Phase 7 Grading Noise Levels, dBA

Receiver C08	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	1	40%	78	520 - 785	37.2	51	61
Compactor	1	20%	80		36.2		
Compressor	2	40%	78		39.8		
Excavator	1	40%	81		42.8		
Generator	1	50%	81		41.2		
Pump	1	50%	77		37.2		
Forklift	1	20%	75		31.2		
Scraper	1	40%	84		43.2		
Sweeper/Scrubber	1	10%	80		33.2		
Tractor	2	40%	84		45.8		
Welder	2	40%	73		34.8		

Receiver C09	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	1	40%	78	1,675 - 1,880	28.0	42	60
Compactor	1	20%	80		27.0		
Compressor	2	40%	78		31.0		
Excavator	1	40%	81		34.0		
Generator	1	50%	81		32.0		
Pump	1	50%	77		28.0		
Forklift	1	20%	75		22.0		
Scraper	1	40%	84		34.0		
Sweeper/Scrubber	1	10%	80		24.0		
Tractor	2	40%	84		37.0		
Welder	2	40%	73		26.0		

Receiver C10	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	1	40%	78	1,270 - 1,450	30.3	44	57
Compactor	1	20%	80		29.3		
Compressor	2	40%	78		33.3		
Excavator	1	40%	81		36.3		
Generator	1	50%	81		34.3		
Pump	1	50%	77		30.3		
Forklift	1	20%	75		24.4		
Scraper	1	40%	84		36.4		
Sweeper/Scrubber	1	10%	80		26.3		
Tractor	2	40%	84		39.3		
Welder	2	40%	73		28.3		

Phase 7 Grading Noise Levels, dBA

Receiver C11	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	1	40%	78	590 - 860	45.6	58	64
Compactor	1	20%	80		44.6		
Compressor	2	40%	78		47.0		
Excavator	1	40%	81		50.0		
Generator	1	50%	81		49.1		
Pump	1	50%	77		45.1		
Forklift	1	20%	75		39.1		
Scraper	1	40%	84		51.2		
Sweeper/Scrubber	1	10%	80		41.1		
Tractor	2	40%	84		53.0		
Welder	2	40%	73		42.0		

Receiver C12	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	1	40%	78	90 - 360	61.0	75	65
Compactor	1	20%	80		59.9		
Compressor	2	40%	78		65.1		
Excavator	1	40%	81		68.1		
Generator	1	50%	81		62.7		
Pump	1	50%	77		58.7		
Forklift	1	20%	75		52.7		
Scraper	1	40%	84		64.8		
Sweeper/Scrubber	1	10%	80		54.7		
Tractor	2	40%	84		71.1		
Welder	2	40%	73		60.1		

Receiver C13	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	1	40%	78	70 - 250	64.2	78	64
Compactor	1	20%	80		63.2		
Compressor	2	40%	78		67.3		
Excavator	1	40%	81		70.3		
Generator	1	50%	81		68.2		
Pump	1	50%	77		64.2		
Forklift	1	20%	75		58.2		
Scraper	1	40%	84		70.2		
Sweeper/Scrubber	1	10%	80		60.2		
Tractor	2	40%	84		73.3		
Welder	2	40%	73		62.3		

Phase 7 Grading Noise Levels, dBA

Receiver C14	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	1	40%	78	1,540 - 1,780	28.6	43	61
Compactor	1	20%	80		27.6		
Compressor	2	40%	78		31.6		
Excavator	1	40%	81		34.6		
Generator	1	50%	81		32.7		
Pump	1	50%	77		28.7		
Forklift	1	20%	75		22.7		
Scraper	1	40%	84		34.8		
Sweeper/Scrubber	1	10%	80		24.7		
Tractor	2	40%	84		37.6		
Welder	2	40%	73		26.6		

Phase 7 Utilities Trenching Noise Levels, dBA

Receiver C05	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	870 - 1,150	35.9	46	61
Concrete/Industrial Saw	1	20%	90		41.9		
Compressor	1	40%	78		32.9		
Excavator	1	40%	81		35.9		
Generator	1	50%	81		36.9		
Loader, Rubber Tired	2	40%	79		36.9		
Paving Equipment	1	50%	77		32.9		
Roller	1	20%	80		31.9		
Sweeper/Scrubber	1	10%	80		28.9		
Surfacing Equipment	1	40%	80		34.9		

Receiver C06	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	1,020 - 1,250	34.8	45	61
Concrete/Industrial Saw	1	20%	90		41.0		
Compressor	1	40%	78		32.0		
Excavator	1	40%	81		35.0		
Generator	1	50%	81		35.9		
Loader, Rubber Tired	2	40%	79		35.8		
Paving Equipment	1	50%	77		31.9		
Roller	1	20%	80		31.0		
Sweeper/Scrubber	1	10%	80		28.0		
Surfacing Equipment	1	40%	80		34.0		

Receiver C07	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	765 - 960	40.5	52	57
Concrete/Industrial Saw	1	20%	90		48.3		
Compressor	1	40%	78		39.3		
Excavator	1	40%	81		42.3		
Generator	1	50%	81		43.3		
Loader, Rubber Tired	2	40%	79		41.5		
Paving Equipment	1	50%	77		39.3		
Roller	1	20%	80		38.3		
Sweeper/Scrubber	1	10%	80		35.3		
Surfacing Equipment	1	40%	80		41.3		

Phase 7 Utilities Trenching Noise Levels, dBA

Receiver C08	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	520 - 785	39.8	51	61
Concrete/Industrial Saw	1	20%	90		46.2		
Compressor	1	40%	78		37.2		
Excavator	1	40%	81		40.2		
Generator	1	50%	81		41.2		
Loader, Rubber Tired	2	40%	79		40.8		
Paving Equipment	1	50%	77		37.2		
Roller	1	20%	80		36.2		
Sweeper/Scrubber	1	10%	80		33.2		
Surfacing Equipment	1	40%	80		39.2		

Receiver C09	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	1,675 - 1,880	31.0	41	60
Concrete/Industrial Saw	1	20%	90		37.0		
Compressor	1	40%	78		28.0		
Excavator	1	40%	81		31.0		
Generator	1	50%	81		32.0		
Loader, Rubber Tired	2	40%	79		32.0		
Paving Equipment	1	50%	77		28.0		
Roller	1	20%	80		27.0		
Sweeper/Scrubber	1	10%	80		24.0		
Surfacing Equipment	1	40%	80		30.0		

Receiver C10	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	1,270 - 1,450	33.3	44	57
Concrete/Industrial Saw	1	20%	90		39.3		
Compressor	1	40%	78		30.3		
Excavator	1	40%	81		33.3		
Generator	1	50%	81		34.3		
Loader, Rubber Tired	2	40%	79		34.3		
Paving Equipment	1	50%	77		30.3		
Roller	1	20%	80		29.3		
Sweeper/Scrubber	1	10%	80		26.3		
Surfacing Equipment	1	40%	80		32.3		

Phase 7 Utilities Trenching Noise Levels, dBA

Receiver C11	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	590 - 860	47.0	59	64
Concrete/Industrial Saw	1	20%	90		54.6		
Compressor	1	40%	78		45.6		
Excavator	1	40%	81		48.6		
Generator	1	50%	81		49.6		
Loader, Rubber Tired	2	40%	79		48.0		
Paving Equipment	1	50%	77		45.6		
Roller	1	20%	80		44.6		
Sweeper/Scrubber	1	10%	80		41.6		
Surfacing Equipment	1	40%	80		47.6		

Receiver C12	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	90 - 360	65.1	75	65
Concrete/Industrial Saw	1	20%	90		69.9		
Compressor	1	40%	78		61.0		
Excavator	1	40%	81		64.0		
Generator	1	50%	81		64.9		
Loader, Rubber Tired	2	40%	79		66.1		
Paving Equipment	1	50%	77		60.9		
Roller	1	20%	80		59.9		
Sweeper/Scrubber	1	10%	80		56.9		
Surfacing Equipment	1	40%	80		63.0		

Receiver C13	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	70 - 250	67.3	78	64
Concrete/Industrial Saw	1	20%	90		73.2		
Compressor	1	40%	78		64.2		
Excavator	1	40%	81		67.2		
Generator	1	50%	81		68.2		
Loader, Rubber Tired	2	40%	79		68.3		
Paving Equipment	1	50%	77		64.2		
Roller	1	20%	80		63.2		
Sweeper/Scrubber	1	10%	80		60.2		
Surfacing Equipment	1	40%	80		66.2		

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Phase 7 Utilities Trenching Noise Levels, dBA

Receiver C14	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Backhoe	2	40%	78	1,540 - 1,780	31.6	42	61
Concrete/Industrial Saw	1	20%	90		37.6		
Compressor	1	40%	78		28.6		
Excavator	1	40%	81		31.6		
Generator	1	50%	81		32.6		
Loader, Rubber Tired	2	40%	79		32.6		
Paving Equipment	1	50%	77		28.6		
Roller	1	20%	80		27.6		
Sweeper/Scrubber	1	10%	80		24.6		
Surfacing Equipment	1	40%	80		30.6		

Phase 7 Building Construction Noise Levels, dBA

Receiver C05	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	1	20%	80	870 - 1,150	31.9	38	61
Compressor	1	40%	78		32.9		
Crane	1	16%	81		31.9		
Forklift	1	20%	75		26.9		
Sweeper/Scrubber	1	10%	80		28.9		

Receiver C06	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	1	20%	80	1,020 - 1,250	30.8	37	61
Compressor	1	40%	78		31.8		
Crane	1	16%	81		30.8		
Forklift	1	20%	75		25.8		
Sweeper/Scrubber	1	10%	80		27.8		

Receiver C07	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	1	20%	80	765 - 960	38.3	44	57
Compressor	1	40%	78		39.3		
Crane	1	16%	81		38.3		
Forklift	1	20%	75		33.3		
Sweeper/Scrubber	1	10%	80		35.3		

Receiver C08	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	1	20%	80	520 - 785	36.2	42	61
Compressor	1	40%	78		37.2		
Crane	1	16%	81		36.2		
Forklift	1	20%	75		31.2		
Sweeper/Scrubber	1	10%	80		33.2		

Receiver C09	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	1	20%	80	1,675 - 1,880	27.0	33	60
Compressor	1	40%	78		28.0		
Crane	1	16%	81		27.0		
Forklift	1	20%	75		22.0		
Sweeper/Scrubber	1	10%	80		24.0		

* Noise limit is set at existing measured ambient noise level plus 5 dBA.

Phase 7 Building Construction Noise Levels, dBA

Receiver C10	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	1	20%	80	1,270 - 1,450	29.3	35	57
Compressor	1	40%	78		30.3		
Crane	1	16%	81		29.3		
Forklift	1	20%	75		24.3		
Sweeper/Scrubber	1	10%	80		26.3		

Receiver C11	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	1	20%	80	590 - 860	44.6	51	64
Compressor	1	40%	78		45.6		
Crane	1	16%	81		44.6		
Forklift	1	20%	75		39.6		
Sweeper/Scrubber	1	10%	80		41.6		

Receiver C12	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	1	20%	80	90 - 360	59.9	66	65
Compressor	1	40%	78		61.0		
Crane	1	16%	81		60.0		
Forklift	1	20%	75		54.9		
Sweeper/Scrubber	1	10%	80		56.9		

Receiver C13	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	1	20%	80	70 - 250	63.2	69	64
Compressor	1	40%	78		64.2		
Crane	1	16%	81		63.3		
Forklift	1	20%	75		58.2		
Sweeper/Scrubber	1	10%	80		60.2		

Receiver C14	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	1	20%	80	1,540 - 1,780	27.6	34	61
Compressor	1	40%	78		28.6		
Crane	1	16%	81		27.6		
Forklift	1	20%	75		22.6		
Sweeper/Scrubber	1	10%	80		24.6		

* Noise limit is set at existing measured ambient noise level plus 5 dBA.

Phase 7 Paving Noise Levels, dBA

Receiver C05	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Compactor	1	20%	80	870 - 1,150	31.9	41	61
Generator	1	50%	81		36.9		
Paver	1	50%	77		32.9		
Paving Equipment	1	50%	77		32.9		
Roller	1	20%	80		31.9		
Sweeper/Scrubber	1	10%	80		28.9		

Receiver C06	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Compactor	1	20%	80	1,020 - 1,250	30.8	40	61
Generator	1	50%	81		35.8		
Paver	1	50%	77		31.8		
Paving Equipment	1	50%	77		31.8		
Roller	1	20%	80		30.8		
Sweeper/Scrubber	1	10%	80		27.8		

Receiver C07	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Compactor	1	20%	80	765 - 960	38.3	47	57
Generator	1	50%	81		43.3		
Paver	1	50%	77		39.3		
Paving Equipment	1	50%	77		39.3		
Roller	1	20%	80		38.3		
Sweeper/Scrubber	1	10%	80		35.3		

Receiver C08	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Compactor	1	20%	80	520 - 785	35.8	45	61
Generator	1	50%	81		40.7		
Paver	1	50%	77		36.7		
Paving Equipment	1	50%	77		36.7		
Roller	1	20%	80		35.8		
Sweeper/Scrubber	1	10%	80		32.8		

* Noise limit is set at existing measured ambient noise level plus 5 dBA.

Phase 7 Paving Noise Levels, dBA

Receiver C09	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Compactor	1	20%	80	1,675 - 1,880	27.0	36	60
Generator	1	50%	81		32.0		
Paver	1	50%	77		28.0		
Paving Equipment	1	50%	77		28.0		
Roller	1	20%	80		27.0		
Sweeper/Scrubber	1	10%	80		24.0		

Receiver C10	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Compactor	1	20%	80	1,270 - 1,450	29.3	38	57
Generator	1	50%	81		34.3		
Paver	1	50%	77		30.3		
Paving Equipment	1	50%	77		30.3		
Roller	1	20%	80		29.3		
Sweeper/Scrubber	1	10%	80		26.3		

Receiver C11	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Compactor	1	20%	80	590 - 860	44.6	54	64
Generator	1	50%	81		49.6		
Paver	1	50%	77		45.6		
Paving Equipment	1	50%	77		45.6		
Roller	1	20%	80		44.6		
Sweeper/Scrubber	1	10%	80		41.6		

Receiver C12	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Compactor	1	20%	80	90 - 360	59.9	69	65
Generator	1	50%	81		64.9		
Paver	1	50%	77		60.9		
Paving Equipment	1	50%	77		60.9		
Roller	1	20%	80		59.9		
Sweeper/Scrubber	1	10%	80		56.9		

* Noise limit is set at existing measured ambient noise level plus 5 dBA.

Phase 7 Paving Noise Levels, dBA

Receiver C13	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Compactor	1	20%	80	70 - 250	63.2	72	64
Generator	1	50%	81		68.2		
Paver	1	50%	77		64.2		
Paving Equipment	1	50%	77		64.2		
Roller	1	20%	80		63.2		
Sweeper/Scrubber	1	10%	80		60.2		

Receiver C14	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Compactor	1	20%	80	1,540 - 1,780	27.6	37	61
Generator	1	50%	81		32.6		
Paver	1	50%	77		28.6		
Paving Equipment	1	50%	77		28.6		
Roller	1	20%	80		27.6		
Sweeper/Scrubber	1	10%	80		24.6		

* Noise limit is set at existing measured ambient noise level plus 5 dBA.

Phase 7 Architectural Coating Noise Levels, dBA

Receiver C05	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	2	20%	80	870 - 1,150	34.9	38	61
Compressor	2	40%	78		32.9		
Pressure Washer	2	40%	74		31.9		

Receiver C06	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	2	20%	80	1,020 - 1,250	33.8	37	61
Compressor	2	40%	78		31.8		
Pressure Washer	2	40%	74		30.8		

Receiver C07	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	2	20%	80	765 - 960	39.5	43	57
Compressor	2	40%	78		39.3		
Compressor	2	40%	74		36.5		

Receiver C08	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	2	20%	80	520 - 785	38.8	42	61
Compressor	2	40%	78		36.8		
Compressor	2	40%	74		35.8		

Receiver C09	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	2	20%	80	1,675 - 1,880	30.0	33	60
Compressor	2	40%	78		28.0		
Compressor	2	40%	74		27.0		

Receiver C10	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit *
Cement & Mortar Mixer	2	20%	80	1,270 - 1,450	32.3	36	57
Compressor	2	40%	78		30.3		
Compressor	2	40%	74		29.3		

* Noise limit is set at existing measured ambient noise level plus 5 dBA.

Phase 7 Architectural Coating Noise Levels, dBA

Receiver C11	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	2	20%	80	590 - 860	46.0	50	64
Compressor	2	40%	78		45.6		
Compressor	2	40%	74		43.0		

Receiver C12	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	2	20%	80	90 - 360	63.3	66	65
Compressor	2	40%	78		61.0		
Compressor	2	40%	74		60.3		

Receiver C13	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	2	20%	80	70 - 250	66.2	70	64
Compressor	2	40%	78		64.2		
Compressor	2	40%	74		63.3		

Receiver C14	Quantity	Usage Factor	Source Lmax @ 50 ft	Distance Range, ft	Leq @ Receiver	Overall Leq	Noise Limit
Cement & Mortar Mixer	2	20%	80	1,540 - 1,780	30.6	34	61
Compressor	2	40%	78		28.6		
Compressor	2	40%	74		27.6		

* Noise limit is set at existing measured ambient noise level plus 5 dBA.

Appendix D Traffic Noise Model (TNM) Input and Output Data

HACLA
A/E Tech LLC

24 January 2023
TNM 2.5

INPUT: ROADWAYS
PROJECT/CONTRACT: One San Pedro
RUN: Existing CNEL

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA

Roadway		Points					Flow Control			Segment	
Name	Width	Name	No.	Coordinates (pavement) X	Y	Z	Control Device	Speed Constraint	Percent Vehicles Affected	Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
SB Harbor Ln 1-1	14.0	point1	1	1,251,382.0	12,254,546.0	16.00				Average	
		point2	2	1,251,539.5	12,254,167.0	17.00				Average	
		point3	3	1,251,549.1	12,254,144.0	17.00				Average	
		point4	4	1,251,561.6	12,254,113.0	17.00				Average	
		point5	5	1,251,571.8	12,254,081.0	17.00				Average	
		point6	6	1,251,580.8	12,254,050.0	18.00				Average	
		point7	7	1,251,588.8	12,254,013.0	18.00				Average	
		point8	8	1,251,593.9	12,253,982.0	18.00				Average	
		point9	9	1,251,597.0	12,253,948.0	18.00				Average	
		point10	10	1,251,600.6	12,253,892.0	18.00				Average	
		point11	11	1,251,597.4	12,253,680.0	18.00					
SB Harbor Ln 1-2	14.0	point12	12	1,251,597.4	12,253,680.0	18.00	Signal	10.00	30	Average	
		point13	13	1,251,596.5	12,253,603.0	19.00				Average	
		point14	14	1,251,588.2	12,253,102.0	20.00				Average	
		point15	15	1,251,587.2	12,253,013.0	21.00					
SB Harbor LT-1	14.0	point16	16	1,251,588.2	12,253,102.0	20.00				Average	
		point17	17	1,251,598.2	12,253,052.0	20.00				Average	
		point18	18	1,251,596.6	12,252,955.0	21.00				Average	
		point19	19	1,251,593.2	12,252,709.0	21.00					
SB Harbor Ln 1-3	14.0	point20	20	1,251,587.2	12,253,013.0	21.00				Average	
		point21	21	1,251,586.6	12,252,955.0	21.00				Average	
		point22	22	1,251,582.8	12,252,707.0	21.00					
SB Harbor Ln 1-4	14.0	point23	23	1,251,582.8	12,252,707.0	21.00				Average	
		point24	24	1,251,581.6	12,252,610.0	20.00				Average	
		point25	25	1,251,577.5	12,252,352.0	19.00					

SB Harbor Ln 1-5	14.0	point26	26	1,251,577.5	12,252,352.0	19.00				Average	
		point27	27	1,251,576.6	12,252,295.0	19.00				Average	
		point28	28	1,251,573.5	12,252,130.0	19.00				Average	
		point29	29	1,251,571.9	12,252,020.0	18.00					
SB Harbor Ln 2-1	14.0	point30	30	1,251,372.0	12,254,541.0	16.00				Average	
		point31	31	1,251,530.0	12,254,163.0	17.00				Average	
		point32	32	1,251,541.0	12,254,136.0	17.00				Average	
		point33	33	1,251,552.9	12,254,107.0	17.00				Average	
		point34	34	1,251,562.4	12,254,077.0	17.00				Average	
		point35	35	1,251,571.2	12,254,047.0	17.00				Average	
		point36	36	1,251,578.0	12,254,014.0	18.00				Average	
		point37	37	1,251,583.5	12,253,982.0	18.00				Average	
		point38	38	1,251,587.6	12,253,949.0	18.00				Average	
		point39	39	1,251,590.5	12,253,892.0	18.00				Average	
		point40	40	1,251,589.0	12,253,782.0	18.00				Average	
		point41	41	1,251,587.2	12,253,680.0	18.00					
SB Harbor RT @ Ofarrell	14.0	point42	42	1,251,589.0	12,253,782.0	18.00				Average	
		point43	43	1,251,576.8	12,253,748.0	18.00				Average	
		point44	44	1,251,577.2	12,253,680.0	18.00					
SB Harbor Ln 2-2	14.0	point45	45	1,251,587.2	12,253,680.0	18.00	Signal	10.00	30	Average	
		point46	46	1,251,586.5	12,253,602.0	19.00				Average	
		point47	47	1,251,578.4	12,253,102.0	20.00				Average	
		point48	48	1,251,576.8	12,253,013.0	20.00					
SB Harbor RT @ Santa Cruz	14.0	point49	49	1,251,578.4	12,253,102.0	20.00				Average	
		point50	50	1,251,566.8	12,253,071.0	20.00				Average	
		point51	51	1,251,565.0	12,253,014.0	20.00					
SB Harbor Ln 2-3	14.0	point52	52	1,251,576.8	12,253,013.0	20.00				Average	
		point53	53	1,251,576.2	12,252,954.0	21.00				Average	
		point54	54	1,251,573.4	12,252,770.0	21.00				Average	
		point55	55	1,251,572.8	12,252,705.0	21.00					
SB Harbor RT @ 1st	14.0	point56	56	1,251,573.4	12,252,770.0	21.00				Average	
		point57	57	1,251,561.2	12,252,747.0	20.00				Average	
		point58	58	1,251,562.2	12,252,703.0	20.00					
SB Harbor Ln 2-4	14.0	point59	59	1,251,572.8	12,252,705.0	21.00				Average	
		point60	60	1,251,571.0	12,252,610.0	20.00				Average	
		point61	61	1,251,568.0	12,252,450.0	20.00				Average	
		point62	62	1,251,567.2	12,252,350.0	19.00					
SB Harbor RT @ 2nd	14.0	point63	63	1,251,568.0	12,252,450.0	20.00				Average	
		point64	64	1,251,556.2	12,252,406.0	19.00				Average	

		point65	65	1,251,555.4	12,252,352.0	19.00					
SB Harbor Ln 2-5	14.0	point66	66	1,251,567.2	12,252,350.0	19.00				Average	
		point67	67	1,251,565.9	12,252,291.0	19.00				Average	
		point68	68	1,251,563.2	12,252,130.0	18.00				Average	
		point69	69	1,251,560.4	12,252,018.0	18.00					
SB Harbor RT @ 3rd	14.0	point70	70	1,251,563.2	12,252,130.0	18.00				Average	
		point71	71	1,251,551.1	12,252,084.0	18.00				Average	
		point72	72	1,251,549.8	12,252,031.0	18.00					
NB Harbor Ln 1-1	14.0	point250	250	1,251,598.2	12,251,950.0	18.00				Average	
		point73	73	1,251,599.8	12,252,032.0	18.00				Average	
		point74	74	1,251,606.1	12,252,409.0	19.00				Average	
		point75	75	1,251,609.2	12,252,603.0	20.00					
NB Harbor LT @ 1st	14.0	point76	76	1,251,606.1	12,252,409.0	19.00				Average	
		point77	77	1,251,596.5	12,252,478.0	20.00				Average	
		point78	78	1,251,598.8	12,252,604.0	20.00					
NB Harbor Ln 1-2	14.0	point79	79	1,251,609.2	12,252,603.0	20.00				Average	
		point80	80	1,251,610.8	12,252,707.0	20.00				Average	
		point81	81	1,251,616.1	12,253,063.0	20.00				Average	
		point82	82	1,251,619.9	12,253,348.0	20.00				Average	
		point83	83	1,251,624.2	12,253,596.0	19.00					
NB Harbor LT-1	14.0	point84	84	1,251,616.1	12,253,063.0	20.00				Average	
		point85	85	1,251,607.0	12,253,128.0	20.00				Average	
		point86	86	1,251,606.0	12,253,183.0	20.00					
NB Harbor LT @ Ofarrell	14.0	point87	87	1,251,619.9	12,253,348.0	20.00				Average	
		point88	88	1,251,611.4	12,253,412.0	19.00				Average	
		point89	89	1,251,613.6	12,253,597.0	19.00					
NB Harbor Ln 1-3	14.0	point90	90	1,251,624.2	12,253,596.0	19.00	Signal	10.00	30	Average	
		point91	91	1,251,624.8	12,253,672.0	19.00				Average	
		point92	92	1,251,627.2	12,253,776.0	18.00				Average	
		point93	93	1,251,629.0	12,253,895.0	18.00				Average	
		point94	94	1,251,627.6	12,253,932.0	18.00				Average	
		point95	95	1,251,623.6	12,253,974.0	18.00				Average	
		point96	96	1,251,617.4	12,254,016.0	18.00				Average	
		point97	97	1,251,609.6	12,254,053.0	17.00				Average	
		point98	98	1,251,600.5	12,254,093.0	17.00				Average	
		point99	99	1,251,590.6	12,254,127.0	17.00				Average	
		point100	100	1,251,569.9	12,254,181.0	17.00				Average	
		point101	101	1,251,412.9	12,254,559.0	16.00					
NB Harbor LT @ Ramp -1	14.0	point102	102	1,251,569.9	12,254,181.0	17.00				Average	

		point103	103	1,251,511.2	12,254,266.0	17.00				Average	
		point104	104	1,251,392.1	12,254,550.0	16.00					
NB Harbor LT @ Ramp -2	14.0	point105	105	1,251,569.9	12,254,181.0	17.00				Average	
		point106	106	1,251,521.0	12,254,269.0	17.00				Average	
		point107	107	1,251,402.1	12,254,554.0	16.00					
NB Harbor LT-2	14.0	point108	108	1,251,627.2	12,253,776.0	18.00				Average	
		point109	109	1,251,617.5	12,253,824.0	18.00				Average	
		point110	110	1,251,616.2	12,253,892.0	18.00					
NB Harbor Ln 2-1	14.0	point256	256	1,251,608.6	12,251,951.0	18.00				Average	
		point111	111	1,251,610.0	12,252,032.0	18.00				Average	
		point112	112	1,251,616.2	12,252,409.0	19.00				Average	
		point113	113	1,251,619.5	12,252,602.0	20.00					
WB 1st - Beacon to Centre	18.0	point114	114	1,251,619.5	12,252,602.0	20.00				Average	
		point115	115	1,251,621.2	12,252,709.0	20.00				Average	
		point116	116	1,251,626.0	12,253,062.0	20.00				Average	
		point117	117	1,251,630.4	12,253,348.0	20.00				Average	
		point118	118	1,251,634.8	12,253,597.0	19.00					
NB Harbor Ln 2-3	14.0	point119	119	1,251,634.8	12,253,597.0	19.00	Signal	10.00	30	Average	
		point120	120	1,251,635.9	12,253,672.0	19.00				Average	
		point121	121	1,251,637.4	12,253,775.0	18.00				Average	
		point122	122	1,251,638.8	12,253,891.0	18.00				Average	
		point123	123	1,251,637.8	12,253,934.0	18.00				Average	
		point124	124	1,251,633.9	12,253,974.0	18.00				Average	
		point125	125	1,251,627.5	12,254,016.0	18.00				Average	
		point126	126	1,251,620.6	12,254,053.0	17.00				Average	
		point127	127	1,251,611.4	12,254,096.0	17.00				Average	
		point128	128	1,251,601.4	12,254,129.0	17.00				Average	
		point129	129	1,251,581.9	12,254,182.0	17.00				Average	
		point130	130	1,251,423.1	12,254,564.0	15.00					
WB Ofarrell - Harbor to Beacon	14.0	point131	131	1,251,563.8	12,253,652.0	18.00	Signal	10.00	100	Average	
		point132	132	1,251,406.2	12,253,656.0	25.00					
EB Ofarrell - Harbor to Beacon	14.0	point133	133	1,251,346.1	12,253,640.0	26.00	Stop	0.00	100	Average	
		point134	134	1,251,405.8	12,253,638.0	25.00				Average	
		point135	135	1,251,545.9	12,253,635.0	18.00					
WB Ofarrell - Beacon to Palos Verdes	14.0	point136	136	1,251,406.2	12,253,656.0	25.00	Stop	0.00	100	Average	
		point137	137	1,251,345.8	12,253,656.0	26.00				Average	
		point138	138	1,251,015.8	12,253,662.0	71.00					
EB Ofarrell - Beacon to Palos Verdes	14.0	point139	139	1,251,014.6	12,253,645.0	71.00	Stop	0.00	100	Average	
		point140	140	1,251,346.1	12,253,640.0	26.00					

SB Beacon - Ofarrell to Santa Cruz	18.0	point141	141	1,251,366.6	12,253,620.0	26.00				Average	
		point142	142	1,251,357.4	12,253,008.0	23.00					
NB Beacon - Ofarrell to Santa Cruz	18.0	point143	143	1,251,374.2	12,253,007.0	23.00				Average	
		point144	144	1,251,384.4	12,253,617.0	26.00					
SB Beacon - Santa Cruz to 1st	14.0	point145	145	1,251,354.5	12,252,960.0	28.00				Average	
		point146	146	1,251,351.6	12,252,692.0	27.00					
WB Santa Cruz - Harbor to Beacon	18.0	point147	147	1,251,544.4	12,252,992.0	21.00				Average	
		point148	148	1,251,395.5	12,252,994.0	25.00					
WB Santa Cruz - Beacon to Centre	18.0	point149	149	1,251,395.5	12,252,994.0	25.00				Average	
		point150	150	1,250,925.5	12,253,000.0	37.00				Average	
		point151	151	1,250,461.1	12,253,009.0	71.00					
WB Santa Cruz - Centre to Mesa	18.0	point152	152	1,250,461.1	12,253,009.0	71.00				Average	
		point153	153	1,250,156.6	12,253,013.0	83.00				Average	
		point154	154	1,249,795.6	12,253,021.0	88.00					
WB Santa Cruz - Mesa to Pacific	18.0	point155	155	1,249,795.6	12,253,021.0	88.00				Average	
		point156	156	1,249,359.0	12,253,024.0	98.00				Average	
		point157	157	1,249,134.8	12,253,029.0	99.00					
EB Santa Cruz - Pacific to Mesa	18.0	point158	158	1,249,136.8	12,253,017.0	99.00				Average	
		point159	159	1,249,358.2	12,253,013.0	98.00				Average	
		point160	160	1,249,734.4	12,253,008.0	89.00					
EB Santa Cruz - Mesa to Centre	18.0	point161	161	1,249,734.4	12,253,008.0	89.00				Average	
		point162	162	1,250,156.5	12,253,000.0	83.00				Average	
		point163	163	1,250,393.9	12,252,997.0	73.00					
EB Santa Cruz - Centre to Beacon	18.0	point164	164	1,250,393.9	12,252,997.0	73.00				Average	
		point165	165	1,250,925.8	12,252,988.0	37.00				Average	
		point166	166	1,251,334.5	12,252,982.0	27.00					
EB Santa Cruz - Beacon to Harbor	18.0	point167	167	1,251,334.5	12,252,982.0	27.00				Average	
		point168	168	1,251,544.6	12,252,976.0	21.00					
Roadway45	18.0	point169	169	1,251,367.1	12,252,691.0	26.00				Average	
		point170	170	1,251,371.2	12,252,959.0	28.00					
WB 1st - Harbor to Beacon	18.0	point171	171	1,251,551.6	12,252,668.0	22.00	Signal	10.00	100	Average	
		point172	172	1,251,385.2	12,252,667.0	26.00					
Roadway47	18.0	point173	173	1,251,385.2	12,252,667.0	26.00				Average	
		point174	174	1,251,104.8	12,252,672.0	31.00				Average	
		point175	175	1,250,880.8	12,252,672.0	38.00				Average	
		point176	176	1,250,664.8	12,252,675.0	46.00				Average	
		point177	177	1,250,453.4	12,252,680.0	57.00					
WB 1st - Centre to Mesa	18.0	point178	178	1,250,453.4	12,252,680.0	57.00	Stop	0.00	100	Average	
		point179	179	1,250,178.9	12,252,683.0	69.00				Average	

		point180	180	1,249,788.6	12,252,692.0	85.00					
WB 1st - Mesa to Pacific	18.0	point181	181	1,249,788.6	12,252,692.0	85.00	Stop	0.00	100	Average	
		point182	182	1,249,467.2	12,252,693.0	92.00				Average	
		point183	183	1,249,179.0	12,252,699.0	91.00					
EB 1st - Pacific to Mesa	18.0	point184	184	1,249,119.1	12,252,687.0	91.00	Signal	10.00	50	Average	
		point185	185	1,249,470.4	12,252,681.0	92.00				Average	
		point186	186	1,249,730.8	12,252,677.0	87.00					
EB 1st - Mesa to Centre	18.0	point187	187	1,249,730.8	12,252,677.0	87.00	Stop	0.00	100	Average	
		point188	188	1,250,172.9	12,252,668.0	69.00				Average	
		point189	189	1,250,389.5	12,252,667.0	59.00					
Roadway52	18.0	point190	190	1,250,389.5	12,252,667.0	59.00	Stop	0.00	100	Average	
		point191	191	1,250,661.2	12,252,662.0	46.00				Average	
		point192	192	1,250,878.4	12,252,660.0	38.00				Average	
		point193	193	1,251,050.5	12,252,656.0	31.00				Average	
		point194	194	1,251,332.4	12,252,646.0	27.00					
EB 1st - Beacon to Harbor	18.0	point195	195	1,251,332.4	12,252,646.0	27.00				Average	
		point196	196	1,251,531.6	12,252,645.0	22.00					
WB 3rd - Harbor to Beacon	18.0	point197	197	1,251,539.4	12,252,012.0	19.00	Signal	10.00	100	Average	
		point198	198	1,251,517.8	12,251,996.0	19.00				Average	
		point199	199	1,251,393.8	12,251,999.0	23.00					
WB 3rd - Beacon to Palos Verdes	18.0	point200	200	1,251,393.8	12,251,999.0	23.00				Average	
		point201	201	1,251,109.8	12,252,004.0	29.00					
WB 3rd - Palos Verdes to Centre	18.0	point202	202	1,251,109.8	12,252,004.0	29.00	Stop	0.00	100	Average	
		point203	203	1,250,814.5	12,252,007.0	35.00				Average	
		point204	204	1,250,605.6	12,252,011.0	40.00				Average	
		point205	205	1,250,457.2	12,252,013.0	43.00					
WB 3rd - Centre to Mesa	18.0	point206	206	1,250,457.2	12,252,013.0	43.00	Stop	0.00	100	Average	
		point207	207	1,250,361.2	12,252,018.0	45.00				Average	
		point208	208	1,250,074.2	12,252,022.0	55.00				Average	
		point209	209	1,249,782.8	12,252,028.0	61.00					
WB 3rd - Mesa to Pacific	18.0	point210	210	1,249,782.8	12,252,028.0	61.00	Stop	0.00	100	Average	
		point211	211	1,249,546.9	12,252,032.0	65.00				Average	
		point212	212	1,249,333.2	12,252,035.0	71.00				Average	
		point213	213	1,249,119.8	12,252,039.0	75.00					
EB 3rd - Pacific to Mesa	18.0	point214	214	1,249,119.0	12,252,017.0	76.00	Stop	0.00	100	Average	
		point215	215	1,249,332.2	12,252,014.0	70.00				Average	
		point216	216	1,249,544.9	12,252,011.0	65.00				Average	
		point217	217	1,249,713.0	12,252,008.0	63.00					
EB 3rd - Mesa to Centre	18.0	point218	218	1,249,713.0	12,252,008.0	63.00	Stop	0.00	100	Average	

		point219	219	1,250,074.2	12,252,001.0	55.00				Average	
		point220	220	1,250,362.8	12,251,994.0	45.00					
3rd St - Centre to Palos Verdes	18.0	point221	221	1,250,362.8	12,251,994.0	45.00	Stop	0.00	100	Average	
		point222	222	1,250,604.2	12,251,988.0	40.00				Average	
		point223	223	1,250,810.8	12,251,986.0	35.00				Average	
		point224	224	1,251,035.2	12,251,982.0	31.00					
3rd St - Palos Verdes to Beacon	18.0	point225	225	1,251,035.2	12,251,982.0	31.00	Stop	0.00	100	Average	
		point226	226	1,251,313.6	12,251,977.0	25.00					
3rd St - Beacon to Harbor LT	14.0	point227	227	1,251,313.6	12,251,977.0	25.00				Average	
		point228	228	1,251,379.8	12,251,987.0	24.00				Average	
		point229	229	1,251,529.4	12,251,985.0	18.00					
3rd St - Beacon to Harbor RT	18.0	point230	230	1,251,313.6	12,251,977.0	25.00				Average	
		point231	231	1,251,379.8	12,251,977.0	24.00				Average	
		point232	232	1,251,528.5	12,251,971.0	18.00					
SB Harbor - 3rd to 5th Ln 1	14.0	point244	244	1,251,571.9	12,252,020.0	18.00				Average	
		point233	233	1,251,570.2	12,251,951.0	18.00				Average	
		point234	234	1,251,569.0	12,251,848.0	17.00				Average	
		point235	235	1,251,563.9	12,251,788.0	21.00				Average	
		point236	236	1,251,559.2	12,251,743.0	23.00				Average	
		point237	237	1,251,555.1	12,251,710.0	19.00					
SB Harbor - 3rd to 5th Ln 2	14.0	point243	243	1,251,560.4	12,252,018.0	18.00	Signal	0.00	20	Average	
		point238	238	1,251,559.8	12,251,948.0	18.00				Average	
		point239	239	1,251,557.8	12,251,845.0	17.00				Average	
		point240	240	1,251,553.9	12,251,786.0	21.00				Average	
		point241	241	1,251,549.2	12,251,743.0	23.00				Average	
		point242	242	1,251,544.5	12,251,710.0	19.00					
NB Harbor - 5th to 3rd Ln 1	14.0	point245	245	1,251,577.8	12,251,708.0	17.00				Average	
		point246	246	1,251,587.2	12,251,743.0	19.00				Average	
		point247	247	1,251,591.5	12,251,786.0	18.00				Average	
		point248	248	1,251,595.4	12,251,847.0	17.00				Average	
		point249	249	1,251,598.2	12,251,950.0	18.00					
NB Harbor - 5th to 3rd Ln 2	14.0	point251	251	1,251,592.8	12,251,709.0	17.00				Average	
		point252	252	1,251,598.2	12,251,747.0	19.00				Average	
		point253	253	1,251,602.1	12,251,791.0	18.00				Average	
		point254	254	1,251,606.1	12,251,847.0	17.00				Average	
		point255	255	1,251,608.6	12,251,951.0	18.00					
NB Harbor - 5th to 3rd LT	14.0	point257	257	1,251,591.5	12,251,786.0	18.00				Average	
		point258	258	1,251,585.5	12,251,838.0	17.00				Average	
		point259	259	1,251,587.2	12,251,949.0	18.00					

Roadway70	18.0	point260	260	1,249,084.1	12,252,992.0	98.00				Average	
		point261	261	1,249,079.9	12,252,736.0	92.00					
Roadway71	18.0	point262	262	1,249,099.8	12,252,654.0	90.00	Signal	0.00	50	Average	
		point263	263	1,249,104.6	12,252,991.0	98.00					
SB Pacific - 1st to 2nd	18.0	point264	264	1,249,079.9	12,252,736.0	92.00	Signal	0.00	50	Average	
		point265	265	1,249,073.6	12,252,395.0	82.00					
Roadway73	18.0	point266	266	1,249,093.9	12,252,394.0	82.00				Average	
		point267	267	1,249,099.8	12,252,654.0	90.00					
WB 1st - Pacific to Grand	18.0	point268	268	1,249,059.8	12,252,703.0	91.00	Signal	10.00	50	Average	
		point269	269	1,248,449.8	12,252,713.0	109.00					
WB 1st - Grand to Gaffey	18.0	point270	270	1,248,449.8	12,252,713.0	109.00	Stop	0.00	100	Average	
		point271	271	1,247,812.1	12,252,725.0	138.00					
EB 1st - Gaffey to Grand	18.0	point272	272	1,247,807.8	12,252,701.0	136.00	Signal	10.00	50	Average	
		point273	273	1,248,027.6	12,252,704.0	130.00				Average	
		point274	274	1,248,378.9	12,252,698.0	111.00					
EB 1st - Grand to Pacific	18.0	point275	275	1,248,378.9	12,252,698.0	111.00	Stop	0.00	100	Average	
		point276	276	1,249,040.1	12,252,688.0	91.00					
SB Gaffey - Sepulveda to 1st - 1	36.0	point277	277	1,247,733.2	12,253,523.0	136.00				Average	
		point278	278	1,247,728.6	12,253,206.0	139.00					
SB Gaffey - Sepulveda to 1st - 2	50.0	point279	279	1,247,733.5	12,253,202.0	139.00				Average	
		point280	280	1,247,729.8	12,252,776.0	140.00					
NB Gaffey - 1st to Sepulveda - 1	36.0	point281	281	1,247,765.6	12,252,766.0	140.00	Signal	10.00	50	Average	
		point282	282	1,247,777.6	12,253,196.0	138.00					
NB Gaffey - 1st to Sepulveda - 2	50.0	point283	283	1,247,771.8	12,253,193.0	138.00				Average	
		point284	284	1,247,776.1	12,253,368.0	138.00					

HACLA
A/E Tech LLC

24 January 2023
TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: One San Pedro
RUN: Existing CNEL

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
M01	1	1	1,251,542.8	12,253,560.0	22.00	5.00	0.00	66	10.0	8.0	
M02	3	1	1,251,234.0	12,252,700.0	30.00	5.00	0.00	66	10.0	8.0	Y
M03	4	1	1,251,523.8	12,252,417.0	25.00	5.00	0.00	66	10.0	8.0	Y
M04	5	1	1,251,522.6	12,252,163.0	24.00	5.00	0.00	66	10.0	8.0	Y
M05	6	1	1,251,174.2	12,252,049.0	29.00	5.00	0.00	66	10.0	8.0	Y
M06	7	1	1,249,551.1	12,252,638.0	91.00	5.00	0.00	66	10.0	8.0	Y
M07	9	1	1,249,056.8	12,252,879.0	97.00	5.00	0.00	66	10.0	8.0	Y
M08	10	1	1,247,807.2	12,253,094.0	138.00	5.00	0.00	66	10.0	8.0	Y

HACLA
A/E Tech LLC

25 January 2023
TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: One San Pedro
RUN: Existing CNEL

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
SB Harbor Ln 1-1	point1	1	927	40	33	40	4	40	0	0	0	0
	point2	2	927	40	33	40	4	40	0	0	0	0
	point3	3	927	40	33	40	4	40	0	0	0	0
	point4	4	927	40	33	40	4	40	0	0	0	0
	point5	5	927	40	33	40	4	40	0	0	0	0
	point6	6	927	40	33	40	4	40	0	0	0	0
	point7	7	927	40	33	40	4	40	0	0	0	0
	point8	8	927	40	33	40	4	40	0	0	0	0
	point9	9	927	40	33	40	4	40	0	0	0	0
	point10	10	927	25	33	25	4	25	0	0	0	0
	point11	11										
SB Harbor Ln 1-2	point12	12	927	35	33	35	4	35	0	0	0	0
	point13	13	937	35	33	35	5	35	0	0	0	0
	point14	14	933	40	33	40	5	40	0	0	0	0
	point15	15										
SB Harbor LT-1	point16	16	4	25	0	0	0	0	0	0	0	0
	point17	17	4	25	0	0	0	0	0	0	0	0
	point18	18	4	25	0	0	0	0	0	0	0	0
	point19	19										
SB Harbor Ln 1-3	point20	20	616	40	22	40	2	40	0	0	0	0
	point21	21	616	40	22	40	2	40	0	0	0	0
	point22	22										
SB Harbor Ln 1-4	point23	23	616	40	22	40	2	40	0	0	0	0

	point24	24	639	40	22	40	2	40	0	0	0	0
	point25	25										
SB Harbor Ln 1-5	point26	26	574	40	21	40	2	40	0	0	0	0
	point27	27	574	40	21	40	2	40	0	0	0	0
	point28	28	574	40	21	40	2	40	0	0	0	0
	point29	29										
SB Harbor Ln 2-1	point30	30	942	40	35	40	5	40	0	0	0	0
	point31	31	942	40	35	40	5	40	0	0	0	0
	point32	32	942	40	35	40	5	40	0	0	0	0
	point33	33	942	40	35	40	5	40	0	0	0	0
	point34	34	942	40	35	40	5	40	0	0	0	0
	point35	35	942	40	35	40	5	40	0	0	0	0
	point36	36	942	40	35	40	5	40	0	0	0	0
	point37	37	942	40	35	40	5	40	0	0	0	0
	point38	38	942	40	35	40	5	40	0	0	0	0
	point39	39	942	40	35	40	5	40	0	0	0	0
	point40	40	926	25	35	25	5	25	0	0	0	0
	point41	41										
SB Harbor RT @ Ofarrell	point42	42	16	25	0	0	0	0	0	0	0	0
	point43	43	16	25	0	0	0	0	0	0	0	0
	point44	44										
SB Harbor Ln 2-2	point45	45	926	35	35	35	5	35	0	0	0	0
	point46	46	934	35	36	35	5	35	0	0	0	0
	point47	47	934	40	36	40	5	40	0	0	0	0
	point48	48										
SB Harbor RT @ Santa Cruz	point49	49	0	0	0	0	0	0	0	0	0	0
	point50	50	0	0	0	0	0	0	0	0	0	0
	point51	51										
SB Harbor Ln 2-3	point52	52	670	40	25	40	4	40	0	0	0	0
	point53	53	670	40	25	40	4	40	0	0	0	0
	point54	54	614	40	23	40	4	40	0	0	0	0
	point55	55										
SB Harbor RT @ 1st	point56	56	56	25	2	25	0	0	0	0	0	0
	point57	57	56	25	2	25	0	0	0	0	0	0
	point58	58										
SB Harbor Ln 2-4	point59	59	614	40	23	40	4	40	0	0	0	0

	point60	60	636	40	24	40	4	40	0	0	0	0
	point61	61	636	40	24	40	4	40	0	0	0	0
	point62	62										
SB Harbor RT @ 2nd	point63	63	0	0	0	0	0	0	0	0	0	0
	point64	64	0	0	0	0	0	0	0	0	0	0
	point65	65										
SB Harbor Ln 2-5	point66	66	647	40	24	40	4	40	0	0	0	0
	point67	67	647	40	24	40	4	40	0	0	0	0
	point68	68	562	40	20	40	4	40	0	0	0	0
	point69	69										
SB Harbor RT @ 3rd	point70	70	85	25	4	25	0	0	0	0	0	0
	point71	71	85	25	4	25	0	0	0	0	0	0
	point72	72										
NB Harbor Ln 1-1	point250	250	576	40	21	40	2	40	0	0	0	0
	point73	73	618	40	23	40	2	40	0	0	0	0
	point74	74	588	40	22	40	2	40	0	0	0	0
	point75	75										
NB Harbor LT @ 1st	point76	76	30	25	1	25	0	0	0	0	0	0
	point77	77	30	25	1	25	0	0	0	0	0	0
	point78	78										
NB Harbor Ln 1-2	point79	79	588	40	22	40	2	40	0	0	0	0
	point80	80	707	40	26	40	2	40	0	0	0	0
	point81	81	713	35	25	35	4	35	0	0	0	0
	point82	82	698	35	25	35	4	35	0	0	0	0
	point83	83										
NB Harbor LT-1	point84	84	0	0	0	0	0	0	0	0	0	0
	point85	85	0	0	0	0	0	0	0	0	0	0
	point86	86										
NB Harbor LT @ Ofarrell	point87	87	15	25	0	0	0	0	0	0	0	0
	point88	88	15	25	0	0	0	0	0	0	0	0
	point89	89										
NB Harbor Ln 1-3	point90	90	698	40	25	40	4	40	0	0	0	0
	point91	91	754	40	26	40	4	40	0	0	0	0
	point92	92	754	40	26	40	4	40	0	0	0	0
	point93	93	754	40	26	40	4	40	0	0	0	0
	point94	94	754	40	26	40	4	40	0	0	0	0

	point95	95	754	40	26	40	4	40	0	0	0	0
	point96	96	754	40	26	40	4	40	0	0	0	0
	point97	97	754	40	26	40	4	40	0	0	0	0
	point98	98	754	40	26	40	4	40	0	0	0	0
	point99	99	754	40	26	40	4	40	0	0	0	0
	point100	100	541	40	19	40	2	40	0	0	0	0
	point101	101										
NB Harbor LT @ Ramp -1	point102	102	213	25	7	25	1	25	0	0	0	0
	point103	103	213	25	7	25	1	25	0	0	0	0
	point104	104										
NB Harbor LT @ Ramp -2	point105	105	212	25	7	25	1	25	0	0	0	0
	point106	106	212	25	7	25	1	25	0	0	0	0
	point107	107										
NB Harbor LT-2	point108	108	0	0	0	0	0	0	0	0	0	0
	point109	109	0	0	0	0	0	0	0	0	0	0
	point110	110										
NB Harbor Ln 2-1	point256	256	576	40	21	40	4	40	0	0	0	0
	point111	111	590	40	21	40	4	40	0	0	0	0
	point112	112	590	40	21	40	4	40	0	0	0	0
	point113	113										
WB 1st - Beacon to Centre	point114	114	587	40	21	40	4	40	0	0	0	0
	point115	115	703	40	26	40	5	40	0	0	0	0
	point116	116	697	35	26	35	4	35	0	0	0	0
	point117	117	697	35	26	35	4	35	0	0	0	0
	point118	118										
NB Harbor Ln 2-3	point119	119	697	40	26	40	4	40	0	0	0	0
	point120	120	753	40	28	40	4	40	0	0	0	0
	point121	121	753	40	28	40	4	40	0	0	0	0
	point122	122	753	40	28	40	4	40	0	0	0	0
	point123	123	753	40	28	40	4	40	0	0	0	0
	point124	124	753	40	28	40	4	40	0	0	0	0
	point125	125	753	40	28	40	4	40	0	0	0	0
	point126	126	753	40	28	40	4	40	0	0	0	0
	point127	127	753	40	28	40	4	40	0	0	0	0
	point128	128	753	40	28	40	4	40	0	0	0	0
	point129	129	541	40	21	40	3	40	0	0	0	0

	point130	130										
WB Ofarrell - Harbor to Beacon	point131	131	31	25	0	0	0	0	0	0	0	0
	point132	132										
EB Ofarrell - Harbor to Beacon	point133	133	131	25	5	25	0	0	0	0	0	0
	point134	134	131	25	5	25	0	0	0	0	0	0
	point135	135										
WB Ofarrell - Beacon to Palos Verdes	point136	136	31	25	0	0	0	0	0	0	0	0
	point137	137	31	25	0	0	0	0	0	0	0	0
	point138	138										
EB Ofarrell - Beacon to Palos Verdes	point139	139	131	25	5	25	0	0	0	0	0	0
	point140	140										
SB Beacon - Ofarrell to Santa Cruz	point141	141	0	0	0	0	0	0	0	0	0	0
	point142	142										
NB Beacon - Ofarrell to Santa Cruz	point143	143	0	0	0	0	0	0	0	0	0	0
	point144	144										
SB Beacon - Santa Cruz to 1st	point145	145	0	0	0	0	0	0	0	0	0	0
	point146	146										
WB Santa Cruz - Harbor to Beacon	point147	147	0	0	0	0	0	0	0	0	0	0
	point148	148										
WB Santa Cruz - Beacon to Centre	point149	149	0	0	0	0	0	0	0	0	0	0
	point150	150	0	0	0	0	0	0	0	0	0	0
	point151	151										
WB Santa Cruz - Centre to Mesa	point152	152	0	0	0	0	0	0	0	0	0	0
	point153	153	0	0	0	0	0	0	0	0	0	0
	point154	154										
WB Santa Cruz - Mesa to Pacific	point155	155	0	0	0	0	0	0	0	0	0	0
	point156	156	0	0	0	0	0	0	0	0	0	0
	point157	157										
EB Santa Cruz - Pacific to Mesa	point158	158	0	0	0	0	0	0	0	0	0	0
	point159	159	0	0	0	0	0	0	0	0	0	0
	point160	160										
EB Santa Cruz - Mesa to Centre	point161	161	0	0	0	0	0	0	0	0	0	0
	point162	162	0	0	0	0	0	0	0	0	0	0
	point163	163										
EB Santa Cruz - Centre to Beacon	point164	164	0	0	0	0	0	0	0	0	0	0
	point165	165	0	0	0	0	0	0	0	0	0	0

	point166	166										
EB Santa Cruz - Beacon to Harbor	point167	167	0	0	0	0	0	0	0	0	0	0
	point168	168										
Roadway45	point169	169	0	0	0	0	0	0	0	0	0	0
	point170	170										
WB 1st - Harbor to Beacon	point171	171	86	25	3	25	0	0	0	0	0	0
	point172	172										
Roadway47	point173	173	86	25	3	25	0	0	0	0	0	0
	point174	174	86	25	3	25	0	0	0	0	0	0
	point175	175	86	25	3	25	0	0	0	0	0	0
	point176	176	86	25	3	25	0	0	0	0	0	0
	point177	177										
WB 1st - Centre to Mesa	point178	178	192	30	8	30	1	30	0	0	0	0
	point179	179	192	30	8	30	1	30	0	0	0	0
	point180	180										
WB 1st - Mesa to Pacific	point181	181	192	30	8	30	1	30	0	0	0	0
	point182	182	192	30	8	30	1	30	0	0	0	0
	point183	183										
EB 1st - Pacific to Mesa	point184	184	152	30	5	30	0	0	0	0	0	0
	point185	185	152	30	5	30	0	0	0	0	0	0
	point186	186										
EB 1st - Mesa to Centre	point187	187	152	30	5	30	0	0	0	0	0	0
	point188	188	152	30	5	30	0	0	0	0	0	0
	point189	189										
Roadway52	point190	190	243	25	9	25	1	25	0	0	0	0
	point191	191	243	25	9	25	1	25	0	0	0	0
	point192	192	243	25	9	25	1	25	0	0	0	0
	point193	193	243	25	9	25	1	25	0	0	0	0
	point194	194										
EB 1st - Beacon to Harbor	point195	195	243	25	9	25	1	25	0	0	0	0
	point196	196										
WB 3rd - Harbor to Beacon	point197	197	93	30	4	30	0	0	0	0	0	0
	point198	198	93	30	4	30	0	0	0	0	0	0
	point199	199										
WB 3rd - Beacon to Palos Verdes	point200	200	93	30	4	30	0	0	0	0	0	0
	point201	201										

WB 3rd - Palos Verdes to Centre	point202	202	93	30	4	30	0	0	0	0	0	0
	point203	203	93	30	4	30	0	0	0	0	0	0
	point204	204	93	30	4	30	0	0	0	0	0	0
	point205	205										
WB 3rd - Centre to Mesa	point206	206	0	0	0	0	0	0	0	0	0	0
	point207	207	0	0	0	0	0	0	0	0	0	0
	point208	208	0	0	0	0	0	0	0	0	0	0
	point209	209										
WB 3rd - Mesa to Pacific	point210	210	0	0	0	0	0	0	0	0	0	0
	point211	211	0	0	0	0	0	0	0	0	0	0
	point212	212	0	0	0	0	0	0	0	0	0	0
	point213	213										
EB 3rd - Pacific to Mesa	point214	214	0	0	0	0	0	0	0	0	0	0
	point215	215	0	0	0	0	0	0	0	0	0	0
	point216	216	0	0	0	0	0	0	0	0	0	0
	point217	217										
EB 3rd - Mesa to Centre	point218	218	0	0	0	0	0	0	0	0	0	0
	point219	219	0	0	0	0	0	0	0	0	0	0
	point220	220										
3rd St - Centre to Palos Verdes	point221	221	78	30	4	30	0	0	0	0	0	0
	point222	222	78	30	4	30	0	0	0	0	0	0
	point223	223	78	30	4	30	0	0	0	0	0	0
	point224	224										
3rd St - Palos Verdes to Beacon	point225	225	78	30	4	30	0	0	0	0	0	0
	point226	226										
3rd St - Beacon to Harbor LT	point227	227	58	25	3	25	0	0	0	0	0	0
	point228	228	58	25	3	25	0	0	0	0	0	0
	point229	229										
3rd St - Beacon to Harbor RT	point230	230	20	25	1	25	0	0	0	0	0	0
	point231	231	20	25	1	25	0	0	0	0	0	0
	point232	232										
SB Harbor - 3rd to 5th Ln 1	point244	244	562	40	21	40	2	40	0	0	0	0
	point233	233	572	40	21	40	2	40	0	0	0	0
	point234	234	572	40	21	40	2	40	0	0	0	0
	point235	235	572	40	21	40	2	40	0	0	0	0
	point236	236	572	40	21	40	2	40	0	0	0	0

	point237	237										
SB Harbor - 3rd to 5th Ln 2	point243	243	562	40	20	40	4	40	0	0	0	0
	point238	238	572	40	21	40	4	40	0	0	0	0
	point239	239	572	40	21	40	4	40	0	0	0	0
	point240	240	572	40	21	40	4	40	0	0	0	0
	point241	241	572	40	21	40	4	40	0	0	0	0
	point242	242										
NB Harbor - 5th to 3rd Ln 1	point245	245	584	40	21	40	2	40	0	0	0	0
	point246	246	584	40	21	40	2	40	0	0	0	0
	point247	247	576	40	21	40	2	40	0	0	0	0
	point248	248	576	40	21	40	2	40	0	0	0	0
	point249	249										
NB Harbor - 5th to 3rd Ln 2	point251	251	576	40	21	40	4	40	0	0	0	0
	point252	252	576	40	21	40	4	40	0	0	0	0
	point253	253	576	40	21	40	4	40	0	0	0	0
	point254	254	576	40	21	40	4	40	0	0	0	0
	point255	255										
NB Harbor - 5th to 3rd LT	point257	257	8	25	0	0	0	0	0	0	0	0
	point258	258	8	25	0	0	0	0	0	0	0	0
	point259	259										
SB Pacific - Santa Cruz to 1st	point260	260	880	30	33	30	4	30	0	0	0	0
	point261	261										
NB Pacific - 1st to Santa Cruz	point262	262	741	30	27	30	3	30	0	0	0	0
	point263	263										
SB Pacific - 1st to 2nd	point264	264	966	30	36	30	5	30	0	0	0	0
	point265	265										
NB Pacific - 2nd to 1st	point266	266	758	0	27	30	3	30	0	0	0	0
	point267	267										
WB 1st - Pacific to Grand	point268	268	240	30	9	30	1	30	0	0	0	0
	point269	269										
WB 1st - Grand to Gaffey	point270	270	347	30	13	30	2	30	0	0	0	0
	point271	271										
EB 1st - Gaffey to Grand	point272	272	241	30	8	30	2	30	0	0	0	0
	point273	273	241	30	8	30	2	30	0	0	0	0
	point274	274										
EB 1st - Grand to Pacific	point275	275	269	30	9	30	1	30	0	0	0	0

	point276	276										
SB Gaffey - Sepulveda to 1st - 1	point277	277	2765	25	101	25	15	25	0	0	0	0
	point278	278										
SB Gaffey - Sepulveda to 1st - 2	point279	279	2765	25	101	25	15	25	0	0	0	0
	point280	280										
NB Gaffey - 1st to Sepulveda - 1	point281	281	2603	25	95	25	14	25	0	0	0	0
	point282	282										
NB Gaffey - 1st to Sepulveda - 2	point283	283	2603	25	95	25	14	25	0	0	0	0
	point284	284										

HACLA
A/E Tech LLC

25 January 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: One San Pedro
RUN: Existing CNEL
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
M01	1	1	0.0	70.0	66	70.0	10	Snd Lvl	70.0	0.0	8	-8.0
M02	3	1	0.0	58.9	66	58.9	10	----	58.9	0.0	8	-8.0
M03	4	1	0.0	68.9	66	68.9	10	Snd Lvl	68.9	0.0	8	-8.0
M04	5	1	0.0	69.0	66	69.0	10	Snd Lvl	69.0	0.0	8	-8.0
M05	6	1	0.0	59.5	66	59.5	10	----	59.5	0.0	8	-8.0
M06	7	1	0.0	62.3	66	62.3	10	----	62.3	0.0	8	-8.0
M07	9	1	0.0	68.4	66	68.4	10	Snd Lvl	68.4	0.0	8	-8.0
M08	10	1	0.0	72.2	66	72.2	10	Snd Lvl	72.2	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	8	0.0	0.0	0.0
All Impacted	5	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

HACLA
A/E Tech LLC

25 January 2023
TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: One San Pedro
RUN: 2037 No Build CNEL

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
SB Harbor Ln 1-1	point1	1	1112	40	41	40	5	40	0	0	0	0
	point2	2	1112	40	41	40	5	40	0	0	0	0
	point3	3	1112	40	41	40	5	40	0	0	0	0
	point4	4	1112	40	41	40	5	40	0	0	0	0
	point5	5	1112	40	41	40	5	40	0	0	0	0
	point6	6	1112	40	41	40	5	40	0	0	0	0
	point7	7	1112	40	41	40	5	40	0	0	0	0
	point8	8	1112	40	41	40	5	40	0	0	0	0
	point9	9	1112	40	41	40	5	40	0	0	0	0
	point10	10	1112	25	41	25	5	25	0	0	0	0
	point11	11										
SB Harbor Ln 1-2	point12	12	1112	35	41	35	5	35	0	0	0	0
	point13	13	1125	35	41	35	5	35	0	0	0	0
	point14	14	1121	40	41	40	5	40	0	0	0	0
	point15	15										
SB Harbor LT-1	point16	16	4	25	0	0	0	0	0	0	0	0
	point17	17	4	25	0	0	0	0	0	0	0	0
	point18	18	4	25	0	0	0	0	0	0	0	0
	point19	19										
SB Harbor Ln 1-3	point20	20	801	40	30	40	4	40	0	0	0	0
	point21	21	801	40	30	40	4	40	0	0	0	0
	point22	22										
SB Harbor Ln 1-4	point23	23	801	40	30	40	4	40	0	0	0	0

	point24	24	819	40	30	40	4	40	0	0	0	0
	point25	25										
SB Harbor Ln 1-5	point26	26	770	40	27	40	4	40	0	0	0	0
	point27	27	770	40	27	40	4	40	0	0	0	0
	point28	28	770	40	27	40	4	40	0	0	0	0
	point29	29										
SB Harbor Ln 2-1	point30	30	1129	40	41	40	6	40	0	0	0	0
	point31	31	1129	40	41	40	6	40	0	0	0	0
	point32	32	1129	40	41	40	6	40	0	0	0	0
	point33	33	1129	40	41	40	6	40	0	0	0	0
	point34	34	1129	40	41	40	6	40	0	0	0	0
	point35	35	1129	40	41	40	6	40	0	0	0	0
	point36	36	1129	40	41	40	6	40	0	0	0	0
	point37	37	1129	40	41	40	6	40	0	0	0	0
	point38	38	1129	40	41	40	6	40	0	0	0	0
	point39	39	1129	40	41	40	6	40	0	0	0	0
	point40	40	1112	25	40	25	6	25	0	0	0	0
	point41	41										
SB Harbor RT @ Ofarrell	point42	42	17	25	1	25	0	0	0	0	0	0
	point43	43	17	25	1	25	0	0	0	0	0	0
	point44	44										
SB Harbor Ln 2-2	point45	45	1112	35	40	35	6	35	0	0	0	0
	point46	46	1125	35	41	35	6	35	0	0	0	0
	point47	47	1125	40	41	40	6	40	0	0	0	0
	point48	48										
SB Harbor RT @ Santa Cruz	point49	49	0	0	0	0	0	0	0	0	0	0
	point50	50	0	0	0	0	0	0	0	0	0	0
	point51	51										
SB Harbor Ln 2-3	point52	52	869	40	31	40	5	40	0	0	0	0
	point53	53	869	40	31	40	5	40	0	0	0	0
	point54	54	801	40	29	40	5	40	0	0	0	0
	point55	55										
SB Harbor RT @ 1st	point56	56	68	25	2	25	0	0	0	0	0	0
	point57	57	68	25	2	25	0	0	0	0	0	0
	point58	58										
SB Harbor Ln 2-4	point59	59	801	40	29	40	5	40	0	0	0	0

	point60	60	819	40	30	40	5	40	0	0	0	0
	point61	61	819	40	30	40	5	40	0	0	0	0
	point62	62										
SB Harbor RT @ 2nd	point63	63	0	0	0	0	0	0	0	0	0	0
	point64	64	0	0	0	0	0	0	0	0	0	0
	point65	65										
SB Harbor Ln 2-5	point66	66	852	40	28	40	4	40	0	0	0	0
	point67	67	852	40	28	40	4	40	0	0	0	0
	point68	68	757	40	24	40	4	40	0	0	0	0
	point69	69										
SB Harbor RT @ 3rd	point70	70	95	25	4	25	0	0	0	0	0	0
	point71	71	95	25	4	25	0	0	0	0	0	0
	point72	72										
NB Harbor Ln 1-1	point250	250	642	40	24	40	2	40	0	0	0	0
	point73	73	676	40	25	40	2	40	0	0	0	0
	point74	74	634	40	24	40	2	40	0	0	0	0
	point75	75										
NB Harbor LT @ 1st	point76	76	25	25	1	25	0	0	0	0	0	0
	point77	77	34	25	1	25	0	0	0	0	0	0
	point78	78										
NB Harbor Ln 1-2	point79	79	634	40	24	40	2	40	0	0	0	0
	point80	80	669	40	25	40	2	40	0	0	0	0
	point81	81	811	35	30	35	4	35	0	0	0	0
	point82	82	795	35	30	35	4	35	0	0	0	0
	point83	83										
NB Harbor LT-1	point84	84	0	0	0	0	0	0	0	0	0	0
	point85	85	0	0	0	0	0	0	0	0	0	0
	point86	86										
NB Harbor LT @ Ofarrell	point87	87	16	25	0	0	0	0	0	0	0	0
	point88	88	16	25	0	0	0	0	0	0	0	0
	point89	89										
NB Harbor Ln 1-3	point90	90	795	40	30	40	4	40	0	0	0	0
	point91	91	854	40	32	40	4	40	0	0	0	0
	point92	92	854	40	32	40	4	40	0	0	0	0
	point93	93	854	40	32	40	4	40	0	0	0	0
	point94	94	854	40	32	40	4	40	0	0	0	0

	point95	95	854	40	32	40	4	40	0	0	0	0
	point96	96	854	40	32	40	4	40	0	0	0	0
	point97	97	854	40	32	40	4	40	0	0	0	0
	point98	98	854	40	32	40	4	40	0	0	0	0
	point99	99	854	40	32	40	4	40	0	0	0	0
	point100	100	568	40	21	40	3	40	0	0	0	0
	point101	101										
NB Harbor LT @ Ramp -1	point102	102	286	25	10	25	1	25	0	0	0	0
	point103	103	286	25	10	25	1	25	0	0	0	0
	point104	104										
NB Harbor LT @ Ramp -2	point105	105	286	25	11	25	1	25	0	0	0	0
	point106	106	286	25	11	25	1	25	0	0	0	0
	point107	107										
NB Harbor LT-2	point108	108	0	0	0	0	0	0	0	0	0	0
	point109	109	0	0	0	0	0	0	0	0	0	0
	point110	110										
NB Harbor Ln 2-1	point256	256	642	40	23	40	4	40	0	0	0	0
	point111	111	675	40	25	40	4	40	0	0	0	0
	point112	112	683	40	24	40	4	40	0	0	0	0
	point113	113										
WB 1st - Beacon to Centre	point114	114	634	40	22	40	4	40	0	0	0	0
	point115	115	669	40	23	40	4	40	0	0	0	0
	point116	116	795	35	28	35	5	35	0	0	0	0
	point117	117	795	35	28	35	5	35	0	0	0	0
	point118	118										
NB Harbor Ln 2-3	point119	119	795	40	28	40	5	40	0	0	0	0
	point120	120	854	40	31	40	6	40	0	0	0	0
	point121	121	854	40	31	40	6	40	0	0	0	0
	point122	122	854	40	31	40	6	40	0	0	0	0
	point123	123	854	40	31	40	6	40	0	0	0	0
	point124	124	854	40	31	40	6	40	0	0	0	0
	point125	125	854	40	31	40	6	40	0	0	0	0
	point126	126	854	40	31	40	6	40	0	0	0	0
	point127	127	854	40	31	40	6	40	0	0	0	0
	point128	128	854	40	31	40	6	40	0	0	0	0
	point129	129	568	40	21	40	5	40	0	0	0	0

	point130	130										
WB Ofarrell - Harbor to Beacon	point131	131	33	25	1	25	0	0	0	0	0	0
	point132	132										
EB Ofarrell - Harbor to Beacon	point133	133	146	25	6	25	1	25	0	0	0	0
	point134	134	146	25	6	25	1	25	0	0	0	0
	point135	135										
WB Ofarrell - Beacon to Palos Verdes	point136	136	33	25	1	25	0	0	0	0	0	0
	point137	137	33	25	1	25	0	0	0	0	0	0
	point138	138										
EB Ofarrell - Beacon to Palos Verdes	point139	139	146	25	6	25	1	25	0	0	0	0
	point140	140										
SB Beacon - Ofarrell to Santa Cruz	point141	141	0	0	0	0	0	0	0	0	0	0
	point142	142										
NB Beacon - Ofarrell to Santa Cruz	point143	143	0	0	0	0	0	0	0	0	0	0
	point144	144										
SB Beacon - Santa Cruz to 1st	point145	145	0	0	0	0	0	0	0	0	0	0
	point146	146										
WB Santa Cruz - Harbor to Beacon	point147	147	0	0	0	0	0	0	0	0	0	0
	point148	148										
WB Santa Cruz - Beacon to Centre	point149	149	0	0	0	0	0	0	0	0	0	0
	point150	150	0	0	0	0	0	0	0	0	0	0
	point151	151										
WB Santa Cruz - Centre to Mesa	point152	152	0	0	0	0	0	0	0	0	0	0
	point153	153	0	0	0	0	0	0	0	0	0	0
	point154	154										
WB Santa Cruz - Mesa to Pacific	point155	155	0	0	0	0	0	0	0	0	0	0
	point156	156	0	0	0	0	0	0	0	0	0	0
	point157	157										
EB Santa Cruz - Pacific to Mesa	point158	158	0	0	0	0	0	0	0	0	0	0
	point159	159	0	0	0	0	0	0	0	0	0	0
	point160	160										
EB Santa Cruz - Mesa to Centre	point161	161	0	0	0	0	0	0	0	0	0	0
	point162	162	0	0	0	0	0	0	0	0	0	0
	point163	163										
EB Santa Cruz - Centre to Beacon	point164	164	0	0	0	0	0	0	0	0	0	0
	point165	165	0	0	0	0	0	0	0	0	0	0

	point166	166										
EB Santa Cruz - Beacon to Harbor	point167	167	0	0	0	0	0	0	0	0	0	0
	point168	168										
Roadway45	point169	169	0	0	0	0	0	0	0	0	0	0
	point170	170										
WB 1st - Harbor to Beacon	point171	171	134	25	5	25	0	0	0	0	0	0
	point172	172										
Roadway47	point173	173	134	25	5	25	0	0	0	0	0	0
	point174	174	134	25	5	25	0	0	0	0	0	0
	point175	175	134	25	5	25	0	0	0	0	0	0
	point176	176	134	25	5	25	0	0	0	0	0	0
	point177	177										
WB 1st - Centre to Mesa	point178	178	243	30	10	30	1	30	0	0	0	0
	point179	179	243	30	10	30	1	30	0	0	0	0
	point180	180										
WB 1st - Mesa to Pacific	point181	181	243	30	10	30	1	30	0	0	0	0
	point182	182	243	30	10	30	1	30	0	0	0	0
	point183	183										
EB 1st - Pacific to Mesa	point184	184	328	30	12	30	2	30	0	0	0	0
	point185	185	328	30	12	30	2	30	0	0	0	0
	point186	186										
EB 1st - Mesa to Centre	point187	187	328	30	12	30	2	30	0	0	0	0
	point188	188	328	30	12	30	2	30	0	0	0	0
	point189	189										
Roadway52	point190	190	448	25	16	25	1	25	0	0	0	0
	point191	191	448	25	16	25	1	25	0	0	0	0
	point192	192	448	25	16	25	1	25	0	0	0	0
	point193	193	448	25	16	25	1	25	0	0	0	0
	point194	194										
EB 1st - Beacon to Harbor	point195	195	448	25	16	25	1	25	0	0	0	0
	point196	196										
WB 3rd - Harbor to Beacon	point197	197	102	30	4	30	0	0	0	0	0	0
	point198	198	102	30	4	30	0	0	0	0	0	0
	point199	199										
WB 3rd - Beacon to Palos Verdes	point200	200	102	30	4	30	0	0	0	0	0	0
	point201	201										

WB 3rd - Palos Verdes to Centre	point202	202	102	30	4	30	0	0	0	0	0	0
	point203	203	102	30	4	30	0	0	0	0	0	0
	point204	204	102	30	4	30	0	0	0	0	0	0
	point205	205										
WB 3rd - Centre to Mesa	point206	206	0	0	0	0	0	0	0	0	0	0
	point207	207	0	0	0	0	0	0	0	0	0	0
	point208	208	0	0	0	0	0	0	0	0	0	0
	point209	209										
WB 3rd - Mesa to Pacific	point210	210	0	0	0	0	0	0	0	0	0	0
	point211	211	0	0	0	0	0	0	0	0	0	0
	point212	212	0	0	0	0	0	0	0	0	0	0
	point213	213										
EB 3rd - Pacific to Mesa	point214	214	0	0	0	0	0	0	0	0	0	0
	point215	215	0	0	0	0	0	0	0	0	0	0
	point216	216	0	0	0	0	0	0	0	0	0	0
	point217	217										
EB 3rd - Mesa to Centre	point218	218	0	0	0	0	0	0	0	0	0	0
	point219	219	0	0	0	0	0	0	0	0	0	0
	point220	220										
3rd St - Centre to Palos Verdes	point221	221	85	30	3	30	0	0	0	0	0	0
	point222	222	85	30	3	30	0	0	0	0	0	0
	point223	223	85	30	3	30	0	0	0	0	0	0
	point224	224										
3rd St - Palos Verdes to Beacon	point225	225	85	30	3	30	0	0	0	0	0	0
	point226	226										
3rd St - Beacon to Harbor LT	point227	227	64	25	2	25	0	0	0	0	0	0
	point228	228	64	25	2	25	0	0	0	0	0	0
	point229	229										
3rd St - Beacon to Harbor RT	point230	230	21	25	1	25	0	0	0	0	0	0
	point231	231	21	25	1	25	0	0	0	0	0	0
	point232	232										
SB Harbor - 3rd to 5th Ln 1	point244	244	770	40	27	40	4	40	0	0	0	0
	point233	233	769	40	27	40	4	40	0	0	0	0
	point234	234	769	40	27	40	4	40	0	0	0	0
	point235	235	769	40	27	40	4	40	0	0	0	0
	point236	236	769	40	27	40	4	40	0	0	0	0

	point237	237										
SB Harbor - 3rd to 5th Ln 2	point243	243	757	40	24	40	4	40	0	0	0	0
	point238	238	716	40	30	40	4	40	0	0	0	0
	point239	239	716	40	30	40	4	40	0	0	0	0
	point240	240	716	40	30	40	4	40	0	0	0	0
	point241	241	716	40	30	40	4	40	0	0	0	0
	point242	242										
NB Harbor - 5th to 3rd Ln 1	point245	245	635	40	24	40	2	40	0	0	0	0
	point246	246	635	40	24	40	2	40	0	0	0	0
	point247	247	642	40	24	40	2	40	0	0	0	0
	point248	248	642	40	24	40	2	40	0	0	0	0
	point249	249										
NB Harbor - 5th to 3rd Ln 2	point251	251	642	40	23	40	4	40	0	0	0	0
	point252	252	642	40	23	40	4	40	0	0	0	0
	point253	253	642	40	23	40	4	40	0	0	0	0
	point254	254	642	40	23	40	4	40	0	0	0	0
	point255	255										
NB Harbor - 5th to 3rd LT	point257	257	7	25	0	0	0	0	0	0	0	0
	point258	258	7	25	0	0	0	0	0	0	0	0
	point259	259										
SB Pacific - Santa Cruz to 1st	point260	260	1025	30	38	30	5	30	0	0	0	0
	point261	261										
NB Pacific - 1st to Santa Cruz	point262	262	815	30	30	30	4	30	0	0	0	0
	point263	263										
SB Pacific - 1st to 2nd	point264	264	1116	30	41	30	6	30	0	0	0	0
	point265	265										
NB Pacific - 2nd to 1st	point266	266	935	30	34	30	5	30	0	0	0	0
	point267	267										
WB 1st - Pacific to Grand	point268	268	293	30	11	30	1	30	0	0	0	0
	point269	269										
WB 1st - Grand to Gaffey	point270	270	400	30	14	30	2	30	0	0	0	0
	point271	271										
EB 1st - Gaffey to Grand	point272	272	313	30	12	30	2	30	0	0	0	0
	point273	273	313	30	12	30	2	30	0	0	0	0
	point274	274										
EB 1st - Grand to Pacific	point275	275	348	30	12	30	2	30	0	0	0	0

	point276	276										
SB Gaffey - Sepulveda to 1st - 1	point277	277	2991	25	109	25	16	25	0	0	0	0
	point278	278										
SB Gaffey - Sepulveda to 1st - 2	point279	279	2991	25	109	25	16	25	0	0	0	0
	point280	280										
NB Gaffey - 1st to Sepulveda - 1	point281	281	2792	25	101	25	14	25	0	0	0	0
	point282	282										
NB Gaffey - 1st to Sepulveda - 2	point283	283	2792	25	101	25	14	25	0	0	0	0
	point284	284										

HACLA
A/E Tech LLC

25 January 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: One San Pedro
RUN: 2037 No Build CNEL
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
M01	1	1	0.0	70.8	66	70.8	10	Snd Lvl	70.8	0.0	8	-8.0
M02	3	1	0.0	60.7	66	60.7	10	----	60.7	0.0	8	-8.0
M03	4	1	0.0	69.8	66	69.8	10	Snd Lvl	69.8	0.0	8	-8.0
M04	5	1	0.0	69.9	66	69.9	10	Snd Lvl	69.9	0.0	8	-8.0
M05	6	1	0.0	59.8	66	59.8	10	----	59.8	0.0	8	-8.0
M06	7	1	0.0	64.3	66	64.3	10	----	64.3	0.0	8	-8.0
M07	9	1	0.0	69.0	66	69.0	10	Snd Lvl	69.0	0.0	8	-8.0
M08	10	1	0.0	72.5	66	72.5	10	Snd Lvl	72.5	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	8	0.0	0.0	0.0
All Impacted	5	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

HACLA 25 January 2023
A/E Tech LLC TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: One San Pedro
RUN: 2037 Build CNEL

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
SB Harbor Ln 1-1	point1	1	1183	40	43	40	6	40	0	0	0	0
	point2	2	1183	40	43	40	6	40	0	0	0	0
	point3	3	1183	40	43	40	6	40	0	0	0	0
	point4	4	1183	40	43	40	6	40	0	0	0	0
	point5	5	1183	40	43	40	6	40	0	0	0	0
	point6	6	1183	40	43	40	6	40	0	0	0	0
	point7	7	1183	40	43	40	6	40	0	0	0	0
	point8	8	1183	40	43	40	6	40	0	0	0	0
	point9	9	1183	40	43	40	6	40	0	0	0	0
	point10	10	1183	25	43	25	6	25	0	0	0	0
	point11	11										
SB Harbor Ln 1-2	point12	12	1183	35	43	35	6	35	0	0	0	0
	point13	13	1197	35	43	35	6	35	0	0	0	0
	point14	14	1193	40	43	40	6	40	0	0	0	0
	point15	15										
SB Harbor LT-1	point16	16	4	25	0	0	0	0	0	0	0	0
	point17	17	4	25	0	0	0	0	0	0	0	0
	point18	18	4	25	0	0	0	0	0	0	0	0
	point19	19										
SB Harbor Ln 1-3	point20	20	831	40	30	40	4	40	0	0	0	0
	point21	21	831	40	30	40	4	40	0	0	0	0
	point22	22										
SB Harbor Ln 1-4	point23	23	831	40	30	40	4	40	0	0	0	0

	point24	24	866	40	32	40	4	40	0	0	0	0
	point25	25										
SB Harbor Ln 1-5	point26	26	756	40	27	40	4	40	0	0	0	0
	point27	27	756	40	27	40	4	40	0	0	0	0
	point28	28	756	40	27	40	4	40	0	0	0	0
	point29	29										
SB Harbor Ln 2-1	point30	30	1205	40	36	40	5	40	0	0	0	0
	point31	31	1205	40	36	40	5	40	0	0	0	0
	point32	32	1205	40	36	40	5	40	0	0	0	0
	point33	33	1205	40	36	40	5	40	0	0	0	0
	point34	34	1205	40	36	40	5	40	0	0	0	0
	point35	35	1205	40	36	40	5	40	0	0	0	0
	point36	36	1205	40	36	40	5	40	0	0	0	0
	point37	37	1205	40	36	40	5	40	0	0	0	0
	point38	38	1205	40	36	40	5	40	0	0	0	0
	point39	39	1205	40	36	40	5	40	0	0	0	0
	point40	40	1183	25	43	25	6	25	0	0	0	0
	point41	41										
SB Harbor RT @ Ofarrell	point42	42	22	25	1	25	0	0	0	0	0	0
	point43	43	22	25	1	25	0	0	0	0	0	0
	point44	44										
SB Harbor Ln 2-2	point45	45	1183	35	43	35	6	35	0	0	0	0
	point46	46	1197	35	45	35	6	35	0	0	0	0
	point47	47	1197	40	45	40	6	40	0	0	0	0
	point48	48										
SB Harbor RT @ Santa Cruz	point49	49	0	0	0	0	0	0	0	0	0	0
	point50	50	0	0	0	0	0	0	0	0	0	0
	point51	51										
SB Harbor Ln 2-3	point52	52	969	40	33	40	6	40	0	0	0	0
	point53	53	969	40	33	40	6	40	0	0	0	0
	point54	54	829	40	28	40	5	40	0	0	0	0
	point55	55										
SB Harbor RT @ 1st	point56	56	140	25	5	25	1	25	0	0	0	0
	point57	57	140	25	5	25	1	25	0	0	0	0
	point58	58										
SB Harbor Ln 2-4	point59	59	829	40	28	40	5	40	0	0	0	0

	point60	60	865	40	34	40	5	40	0	0	0	0
	point61	61	865	40	34	40	5	40	0	0	0	0
	point62	62										
SB Harbor RT @ 2nd	point63	63	0	0	0	0	0	0	0	0	0	0
	point64	64	0	0	0	0	0	0	0	0	0	0
	point65	65										
SB Harbor Ln 2-5	point66	66	869	40	32	40	5	40	0	0	0	0
	point67	67	869	40	32	40	5	40	0	0	0	0
	point68	68	743	40	27	40	4	40	0	0	0	0
	point69	69										
SB Harbor RT @ 3rd	point70	70	126	25	5	25	1	25	0	0	0	0
	point71	71	126	25	5	25	1	25	0	0	0	0
	point72	72										
NB Harbor Ln 1-1	point250	250	647	40	24	40	2	40	0	0	0	0
	point73	73	704	40	25	40	2	40	0	0	0	0
	point74	74	628	40	23	40	2	40	0	0	0	0
	point75	75										
NB Harbor LT @ 1st	point76	76	76	25	2	25	0	0	0	0	0	0
	point77	77	76	25	2	25	0	0	0	0	0	0
	point78	78										
NB Harbor Ln 1-2	point79	79	628	40	23	40	2	40	0	0	0	0
	point80	80	886	40	33	40	4	40	0	0	0	0
	point81	81	873	35	31	35	4	35	0	0	0	0
	point82	82	857	35	31	35	4	35	0	0	0	0
	point83	83										
NB Harbor LT-1	point84	84	13	25	2	25	0	0	0	0	0	0
	point85	85	13	25	2	25	0	0	0	0	0	0
	point86	86										
NB Harbor LT @ Ofarrell	point87	87	16	25	0	0	0	0	0	0	0	0
	point88	88	16	25	0	0	0	0	0	0	0	0
	point89	89										
NB Harbor Ln 1-3	point90	90	857	40	31	40	4	40	0	0	0	0
	point91	91	918	40	33	40	4	40	0	0	0	0
	point92	92	918	40	33	40	4	40	0	0	0	0
	point93	93	918	40	33	40	4	40	0	0	0	0
	point94	94	918	40	33	40	4	40	0	0	0	0

	point95	95	918	40	33	40	4	40	0	0	0	0
	point96	96	918	40	33	40	4	40	0	0	0	0
	point97	97	918	40	33	40	4	40	0	0	0	0
	point98	98	918	40	33	40	4	40	0	0	0	0
	point99	99	918	40	33	0	4	40	0	0	0	0
	point100	100	603	40	22	40	2	40	0	0	0	0
	point101	101										
NB Harbor LT @ Ramp -1	point102	102	315	25	12	25	2	25	0	0	0	0
	point103	103	315	25	12	25	2	25	0	0	0	0
	point104	104										
NB Harbor LT @ Ramp -2	point105	105	315	25	11	25	2	25	0	0	0	0
	point106	106	315	25	11	25	2	25	0	0	0	0
	point107	107										
NB Harbor LT-2	point108	108	0	0	0	0	0	0	0	0	0	0
	point109	109	0	0	0	0	0	0	0	0	0	0
	point110	110										
NB Harbor Ln 2-1	point256	256	646	40	24	40	4	40	0	0	0	0
	point111	111	706	40	25	40	4	40	0	0	0	0
	point112	112	677	40	24	40	4	40	0	0	0	0
	point113	113										
WB 1st - Beacon to Centre	point114	114	628	40	22	40	4	40	0	0	0	0
	point115	115	885	40	32	40	5	40	0	0	0	0
	point116	116	856	35	31	35	5	35	0	0	0	0
	point117	117	856	35	31	35	5	35	0	0	0	0
	point118	118										
NB Harbor Ln 2-3	point119	119	856	40	31	40	5	40	0	0	0	0
	point120	120	918	40	33	40	6	40	0	0	0	0
	point121	121	918	40	33	40	6	40	0	0	0	0
	point122	122	918	40	33	40	6	40	0	0	0	0
	point123	123	918	40	33	40	6	40	0	0	0	0
	point124	124	918	40	33	40	6	40	0	0	0	0
	point125	125	918	40	33	40	6	40	0	0	0	0
	point126	126	918	40	33	40	6	40	0	0	0	0
	point127	127	918	40	33	40	6	40	0	0	0	0
	point128	128	918	40	33	40	6	40	0	0	0	0
	point129	129	603	40	21	40	4	40	0	0	0	0

	point130	130										
WB Ofarrell - Harbor to Beacon	point131	131	38	25	1	25	0	0	0	0	0	0
	point132	132										
EB Ofarrell - Harbor to Beacon	point133	133	151	25	6	25	1	25	0	0	0	0
	point134	134	151	25	6	25	1	25	0	0	0	0
	point135	135										
WB Ofarrell - Beacon to Palos Verdes	point136	136	38	25	1	25	0	0	0	0	0	0
	point137	137	38	25	1	25	0	0	0	0	0	0
	point138	138										
EB Ofarrell - Beacon to Palos Verdes	point139	139	151	25	6	25	1	25	0	0	0	0
	point140	140										
SB Beacon - Ofarrell to Santa Cruz	point141	141	0	0	0	0	0	0	0	0	0	0
	point142	142										
NB Beacon - Ofarrell to Santa Cruz	point143	143	0	0	0	0	0	0	0	0	0	0
	point144	144										
SB Beacon - Santa Cruz to 1st	point145	145	0	0	0	0	0	0	0	0	0	0
	point146	146										
WB Santa Cruz - Harbor to Beacon	point147	147	0	0	0	0	0	0	0	0	0	0
	point148	148										
WB Santa Cruz - Beacon to Centre	point149	149	0	0	0	0	0	0	0	0	0	0
	point150	150	0	0	0	0	0	0	0	0	0	0
	point151	151										
WB Santa Cruz - Centre to Mesa	point152	152	0	0	0	0	0	0	0	0	0	0
	point153	153	0	0	0	0	0	0	0	0	0	0
	point154	154										
WB Santa Cruz - Mesa to Pacific	point155	155	0	0	0	0	0	0	0	0	0	0
	point156	156	0	0	0	0	0	0	0	0	0	0
	point157	157										
EB Santa Cruz - Pacific to Mesa	point158	158	0	0	0	0	0	0	0	0	0	0
	point159	159	0	0	0	0	0	0	0	0	0	0
	point160	160										
EB Santa Cruz - Mesa to Centre	point161	161	0	0	0	0	0	0	0	0	0	0
	point162	162	0	0	0	0	0	0	0	0	0	0
	point163	163										
EB Santa Cruz - Centre to Beacon	point164	164	0	0	0	0	0	0	0	0	0	0
	point165	165	0	0	0	0	0	0	0	0	0	0

	point166	166										
EB Santa Cruz - Beacon to Harbor	point167	167	0	0	0	0	0	0	0	0	0	0
	point168	168										
Roadway45	point169	169	0	0	0	0	0	0	0	0	0	0
	point170	170										
WB 1st - Harbor to Beacon	point171	171	252	25	10	25	1	25	0	0	0	0
	point172	172										
Roadway47	point173	173	252	25	10	25	1	25	0	0	0	0
	point174	174	252	25	10	25	1	25	0	0	0	0
	point175	175	252	25	10	25	1	25	0	0	0	0
	point176	176	252	25	10	25	1	25	0	0	0	0
	point177	177										
WB 1st - Centre to Mesa	point178	178	304	30	11	30	1	30	0	0	0	0
	point179	179	304	30	11	30	1	30	0	0	0	0
	point180	180										
WB 1st - Mesa to Pacific	point181	181	304	30	11	30	1	30	0	0	0	0
	point182	182	304	30	11	30	1	30	0	0	0	0
	point183	183										
EB 1st - Pacific to Mesa	point184	184	398	30	14	30	2	30	0	0	0	0
	point185	185	398	30	14	30	2	30	0	0	0	0
	point186	186										
EB 1st - Mesa to Centre	point187	187	398	30	14	30	2	30	0	0	0	0
	point188	188	398	30	14	30	2	30	0	0	0	0
	point189	189										
Roadway52	point190	190	577	25	21	25	2	25	0	0	0	0
	point191	191	577	25	21	25	2	25	0	0	0	0
	point192	192	577	25	21	25	2	25	0	0	0	0
	point193	193	577	25	21	25	2	25	0	0	0	0
	point194	194										
EB 1st - Beacon to Harbor	point195	195	577	25	21	25	2	25	0	0	0	0
	point196	196										
WB 3rd - Harbor to Beacon	point197	197	173	30	6	30	1	30	0	0	0	0
	point198	198	173	30	6	30	1	30	0	0	0	0
	point199	199										
WB 3rd - Beacon to Palos Verdes	point200	200	173	30	6	30	1	30	0	0	0	0
	point201	201										

WB 3rd - Palos Verdes to Centre	point202	202	173	30	6	30	1	30	0	0	0	0
	point203	203	173	30	6	30	1	30	0	0	0	0
	point204	204	173	30	6	30	1	30	0	0	0	0
	point205	205										
WB 3rd - Centre to Mesa	point206	206	0	0	0	0	0	0	0	0	0	0
	point207	207	0	0	0	0	0	0	0	0	0	0
	point208	208	0	0	0	0	0	0	0	0	0	0
	point209	209										
WB 3rd - Mesa to Pacific	point210	210	0	0	0	0	0	0	0	0	0	0
	point211	211	0	0	0	0	0	0	0	0	0	0
	point212	212	0	0	0	0	0	0	0	0	0	0
	point213	213										
EB 3rd - Pacific to Mesa	point214	214	0	0	0	0	0	0	0	0	0	0
	point215	215	0	0	0	0	0	0	0	0	0	0
	point216	216	0	0	0	0	0	0	0	0	0	0
	point217	217										
EB 3rd - Mesa to Centre	point218	218	0	0	0	0	0	0	0	0	0	0
	point219	219	0	0	0	0	0	0	0	0	0	0
	point220	220										
3rd St - Centre to Palos Verdes	point221	221	143	30	5	30	0	0	0	0	0	0
	point222	222	143	30	5	30	0	0	0	0	0	0
	point223	223	143	30	5	30	0	0	0	0	0	0
	point224	224										
3rd St - Palos Verdes to Beacon	point225	225	143	30	5	30	0	0	0	0	0	0
	point226	226										
3rd St - Beacon to Harbor LT	point227	227	118	25	4	25	0	0	0	0	0	0
	point228	228	118	25	4	25	0	0	0	0	0	0
	point229	229										
3rd St - Beacon to Harbor RT	point230	230	25	25	1	25	0	0	0	0	0	0
	point231	231	25	25	1	25	0	0	0	0	0	0
	point232	232										
SB Harbor - 3rd to 5th Ln 1	point244	244	744	40	27	40	4	40	0	0	0	0
	point233	233	756	40	27	40	4	40	0	0	0	0
	point234	234	756	40	27	40	4	40	0	0	0	0
	point235	235	756	40	27	40	4	40	0	0	0	0
	point236	236	756	40	27	40	4	40	0	0	0	0

	point237	237										
SB Harbor - 3rd to 5th Ln 2	point243	243	0	40	27	40	4	40	0	0	0	0
	point238	238	755	40	28	40	4	40	0	0	0	0
	point239	239	755	40	28	40	4	40	0	0	0	0
	point240	240	755	40	28	40	4	40	0	0	0	0
	point241	241	755	40	28	40	4	40	0	0	0	0
	point242	242										
NB Harbor - 5th to 3rd Ln 1	point245	245	600	40	23	40	2	40	0	0	0	0
	point246	246	600	40	23	40	2	40	0	0	0	0
	point247	247	647	40	24	40	2	40	0	0	0	0
	point248	248	647	40	24	40	2	40	0	0	0	0
	point249	249										
NB Harbor - 5th to 3rd Ln 2	point251	251	646	40	24	40	4	40	0	0	0	0
	point252	252	646	40	24	40	4	40	0	0	0	0
	point253	253	646	40	24	40	4	40	0	0	0	0
	point254	254	646	40	24	40	4	40	0	0	0	0
	point255	255										
NB Harbor - 5th to 3rd LT	point257	257	47	25	1	25	0	0	0	0	0	0
	point258	258	47	25	1	25	0	0	0	0	0	0
	point259	259										
SB Pacific - Santa Cruz to 1st	point260	260	1042	30	38	30	5	30	0	0	0	0
	point261	261										
NB Pacific - 1st to Santa Cruz	point262	262	831	30	30	30	4	30	0	0	0	0
	point263	263										
SB Pacific - 1st to 2nd	point264	264	1123	30	41	30	6	30	0	0	0	0
	point265	265										
NB Pacific - 2nd to 1st	point266	266	945	30	34	30	5	30	0	0	0	0
	point267	267										
WB 1st - Pacific to Grand	point268	268	341	30	12	30	1	30	0	0	0	0
	point269	269										
WB 1st - Grand to Gaffey	point270	270	447	30	17	30	2	30	0	0	0	0
	point271	271										
EB 1st - Gaffey to Grand	point272	272	365	30	13	30	2	30	0	0	0	0
	point273	273	365	30	13	30	2	30	0	0	0	0
	point274	274										
EB 1st - Grand to Pacific	point275	275	401	30	14	30	2	30	0	0	0	0

	point276	276										
SB Gaffey - Sepulveda to 1st - 1	point277	277	3076	25	112	25	16	25	0	0	0	0
	point278	278										
SB Gaffey - Sepulveda to 1st - 2	point279	279	3076	25	112	25	16	25	0	0	0	0
	point280	280										
NB Gaffey - 1st to Sepulveda - 1	point281	281	2867	25	105	25	15	25	0	0	0	0
	point282	282										
NB Gaffey - 1st to Sepulveda - 2	point283	283	2867	25	105	25	15	25	0	0	0	0
	point284	284										

HACLA
A/E Tech LLC

25 January 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: One San Pedro
RUN: 2037 Build CNEL
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
M01	1	1	0.0	71.1	66	71.1	10	Snd Lvl	71.1	0.0	8	-8.0
M02	3	1	0.0	62.3	66	62.3	10	----	62.3	0.0	8	-8.0
M03	4	1	0.0	70.0	66	70.0	10	Snd Lvl	70.0	0.0	8	-8.0
M04	5	1	0.0	70.1	66	70.1	10	Snd Lvl	70.1	0.0	8	-8.0
M05	6	1	0.0	61.9	66	61.9	10	----	61.9	0.0	8	-8.0
M06	7	1	0.0	65.0	66	65.0	10	----	65.0	0.0	8	-8.0
M07	9	1	0.0	69.1	66	69.1	10	Snd Lvl	69.1	0.0	8	-8.0
M08	10	1	0.0	72.7	66	72.7	10	Snd Lvl	72.7	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	8	0.0	0.0	0.0
All Impacted	5	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Appendix E Outdoor-to-Indoor Noise Reduction Calculation Worksheet

Room Absorption and Façade Transmission Calculation Worksheet

Project: One San Pedro Specific Plan Engr: F. Farhang

Date: 10/21/2022

Room: Primary BR (2-BR Corner Unit)

Area of Components (Sq Ft):

Wall: 237 (gyp bd) Floor: 119 (carpet) Other: 99 (door, closet, water heater door)

Windows: 14 (glass) Ceiling: 119 (gyp bd)

Frequency (Hz):	125	250	500	1000	2000	4000
Absorption:						
dB:	+0.8	+2.7	+3.2	+4.3	+2.7	+1.7
Sabins:	145	93	84	65	93	118

Transmitting Panel:

Total Area: 175

Wall: 161 (stucco) Window: 14 (dual glazed) Ceiling: --

Other: -- Noise Source: Arterial Traffic Exterior Level: 71.1 dBA

Transmission Loss: 28.9 dBA Interior Level: 42.2 dBA

Room: LR/Dining/Kitchen (3-BR Unit - Typ)

Area of Components (Sq Ft):

Wall: 395 (gyp bd) Floor: 249 (carpet), 53 (vinyl) Other: 183 (doors, cabinets), 25 opening

Windows: 24 (glass) Ceiling: 302 (gyp bd)

Frequency (Hz):	125	250	500	1000	2000	4000
Absorption:						
dB:	-5.6	-3.8	-3.5	-2.5	-3.9	-4.9
Sabins:	295	197	181	146	202	254

Transmitting Panel:

Total Area: 82

Wall: 58 (stucco) Window: 24 (dual glazed) Ceiling: --

Other: -- Noise Source: Arterial Traffic Exterior Level: 71.1 dBA

Transmission Loss: 30.6 dBA Interior Level: 40.5 dBA