HELIX
Environmental Planning

Clairemont Village Project

Acoustical Analysis Report

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Table of Contents

Table of Contents (cont.)

LIST OF APPENDICES

LIST OF FIGURES

LIST OF TABLES

Acronyms and Abbreviations

ADT	average daily trips
ALUC	Airport Land Use Commission
ALUCP	Airport Land Use Compatibility Plan
ANSI	American National Standards Institute
CAD	Computer Aided Design
CadnaA	Computer Aided Noise Abatement
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
City	City of San Diego
CNEL	Community Noise Equivalent Level
CPIOZ	Community Plan Implementation Overlay Zone
dB	decibel
dBA	A-weighted decibel
HVAC	heating, ventilation, and air conditioning
Hz	Hertz
in/sec	inches per second
kHz	kilohertz
L_{DN}	Day-Night sound level
L_{EQ}	time-averaged noise level
mPa	micro Pascal
NDP	Neighborhood Development Permit
NSLU	noise sensitive land use
PPV	peak particle velocity
RCNM	Roadway Construction Noise Model
RMS	root-mean square
SDP	Site Development Permit
SF	square feet/foot
SPL	sound pressure level
S_{WL}	Sound Power Level

Acronyms and Abbreviations (cont.)

TNM	Traffic Noise Model
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency

EXECUTIVE SUMMARY

This report assesses potential construction and operational noise impacts associated with the Clairemont Village Project (Project) located in the city of San Diego (City), California. The Project entails redevelopment of a small portion of an existing shopping center into a 224-unit, 5-story multi-family residential apartment building over two levels of parking. The residential component of the building would be 262,624 square feet and the parking component would be 124,449 square feet.

Project construction would involve demolition, clearing and grubbing, grading, underground utilities installation, building construction, and paving. Project construction noise would not result in noise levels above the City Municipal Code construction noise threshold of 75 A-weighted decibel (dBA L_{EQ}; 12-hour) measured at the nearest off-site noise sensitive land uses (NSLUs), result in noise that would substantially interfere with normal business communication, or result in a substantial increase over ambient conditions. Groundborne vibration impacts from construction would not exceed thresholds for annoyance of nearby building occupants or exceed thresholds for structural damage to nearby buildings.

Long-term on-site operational noise from the Project's operational equipment would not exceed the City Municipal Code property line limits at nearby land uses. The Project would not result in an increase in traffic that would result in substantial increases in noise levels.

The Project would be exposed to noise from traffic along adjacent roadways and existing adjacent commercial uses that would be conditionally compatible with noise exposure standards set forth in the City's General Plan for multi-family residential land uses. Per a preliminary exterior-to-interior noise analysis conducted herein, it is expected that interior noise levels would also be compatible with typical architectural construction. However, to ensure that interior noise levels would be compatible, the City would include a final exterior-to-interior noise analysis a condition of approval.

The Project would not result in the exposure of people working or residing in the Project area to excessive noise from airports and the impact would be less than significant.

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1.0 INTRODUCTION

1.1 PURPOSE OF THE REPORT

This report analyzes potential noise and vibration impacts associated with the proposed Clairemont Village Project (Project) and includes an evaluation of existing conditions in the Project vicinity and assessment of potential impacts associated with Project construction and operations.

1.2 PROJECT LOCATION

The Project is located at 3001 through 3089 Clairemont Drive (Assessor's Parcel Numbers 425-680-09 and 425-680-10) in the Clairemont Mesa community of the City of San Diego (City); refer to Figure 1, *Regional Location*. The 12.96-acre Clairemont Village Shopping Center is bounded by multi-family residences to the north, Cowley Way to the east, Field Street to the south, Burgener Boulevard to the southwest, and Clairemont Drive to the northwest. The proposed Project improvements would occur in the eastern portion of the shopping center, at the northwest corner of Field Street and Cowley Way, within a 2.67-acre area identified as the area of impact (refer to Figure 2, *Aerial Photograph*). The Project site has a General Plan land use designation of Commercial Employment, Retail, and Services and a Clairemont Mesa Community Plan land use designation of Commercial. The Clairemont Mesa Community Plan designates the total 12.96-acre site as within Community Plan Implementation Overlay Zone (CPIOZ) – Type B. The property is zoned CC-1-3, which permits residential development at a density of one unit per 1,500 square feet (SF) of lot area (San Diego Municipal Code Section 131.0531 Table 131-05E). This would allow for up to 376 units on the 12.96-acre property.

1.3 PROJECT DESCRIPTION

The Project entails redevelopment of 2.67 acres of the existing shopping center into a 224-unit, 5-story multi-family residential apartment building over two levels of parking (refer to Figure 3, *Site Plan*). The residential component of the building would be 262,624 square feet (SF) and the parking component would be 124,449 SF. Approximately 342 parking spaces would be provided within the parking garage consisting of one partially below-grade level and one at-grade level. In addition, there are 43 retail parking spaces to be shared with residents and their guests between the hours of 6:00 p.m. and 9:00a.m. Therefore, 385 parking spaces would be provided for residential use. There are two points of entry to the apartment parking garage located on site off Field Street and Cowley Way. The Project would include demolition of approximately 3,770 SF of existing commercial retail space for provision of a fire access lane around the proposed building, leaving 120,313 SF of exiting community retail. The applicant is also processing a lot line adjustment on the subject property.

2.0 ENVIRONMENTAL SETTING

2.1 NOISE AND SOUND LEVEL DESCRIPTORS AND TERMINOLOGY

2.1.1 Descriptors

All noise level or sound level values presented herein are expressed in terms of decibels (dB), with A-weighting (dBA) to approximate the hearing sensitivity of humans. Time-averaged noise levels are

expressed by the symbol L_{EQ}, with a specified duration. The Community Noise Equivalent Level (CNEL) is a 24-hour average, where noise levels during the evening hours of 7:00 p.m. to 10:00 p.m. have an added 5 dBA weighting, and sound levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. have an added 10 dBA weighting. This is similar to the Day Night sound level (L_{DN}), which is a 24-hour average with an added 10 dBA weighting on the same nighttime hours but no added weighting on the evening hours. Sound levels expressed in CNEL are always based on dBA. These metrics are used to express noise levels for both measurement and municipal regulations, as well as for land use guidelines and enforcement of noise ordinances.

2.1.2 Terminology

2.1.2.1 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.

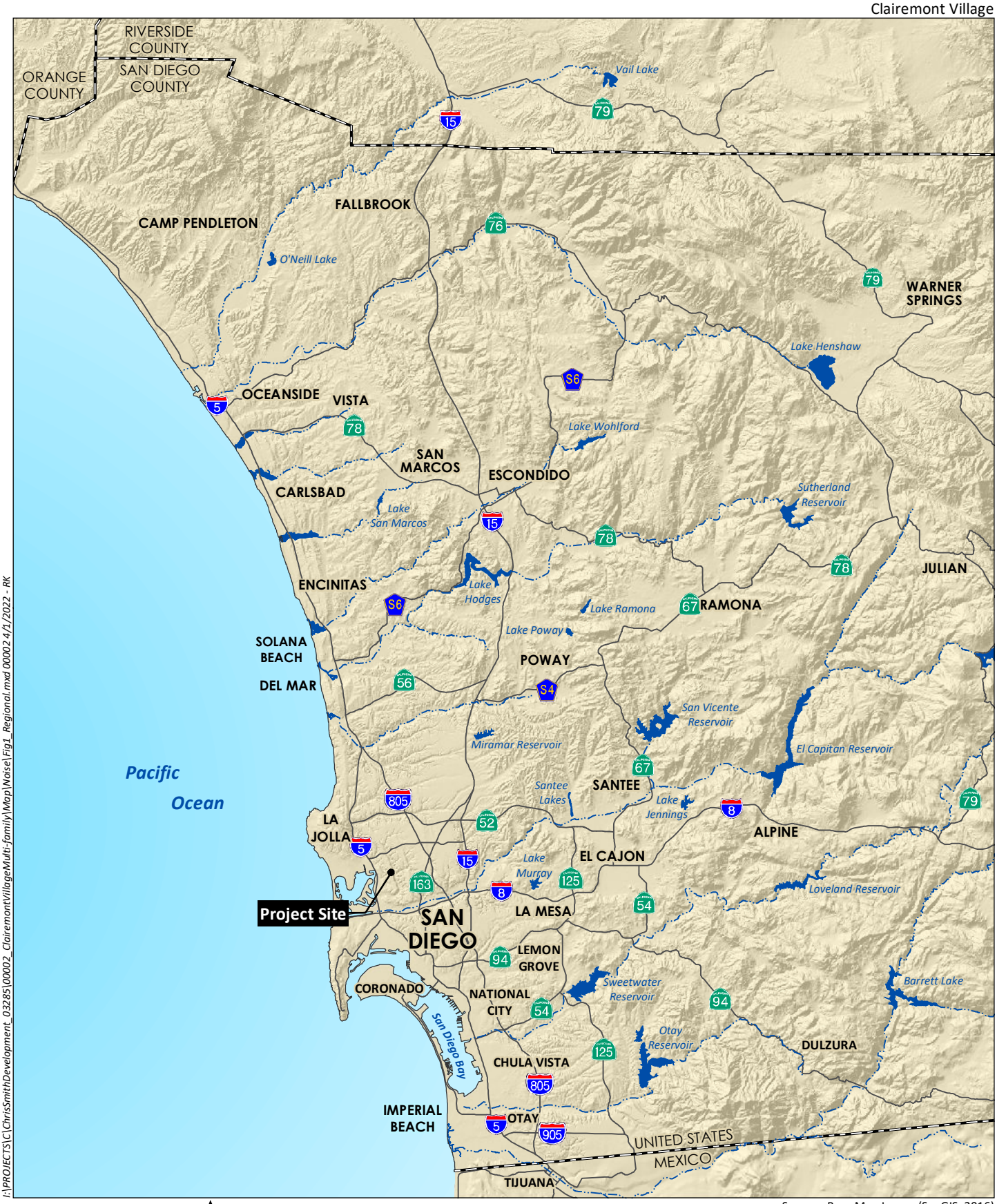
In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver contribute to the sound level and characteristics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

2.1.2.2 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 between 20 Hz and 20,000 Hz.

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 micro-Pascals (mPa). One mPa 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 mPa. Because of this wide range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of dBA. The threshold of hearing for the human ear is about 0 dBA, which corresponds to 20 mPa.



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Source: Base Map Layers (SanGIS, 2016)

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Regional Location

Figure 1

Source: AO Architects, 2022

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Project Vicinity

Figure 2

PROJECT DESCRIPTION		
A 5 STORY TYPE III-A RESIDENTIAL BUILDING CONSISTING OF 224 UNITS OVER 2 STORY TYPE I PARKING STRUCTURE WITH 342 PARKING STALLS		
GROSS SITE AREA:	564,537 S.F.	12.96 ACRES
TOTAL UNITS:		224 UNITS
GROSS DENSITY:		17.28 DU/AC
EXISTING RETAIL AREA:		124,083 S.F.
EXISTING RETAIL PARKING PROVIDED:		666 STALLS
EXISTING RETAIL PARKING RATIO:		5.37
REMAINING RETAIL AREA:		120,313 S.F.
REMAINING RETAIL PARKING PROVIDED:		516 STALLS
REMAINING RETAIL PARKING RATIO:		4.29
PROPOSED RESIDENTIAL STRUCTURED PARKING:		342 STALLS
PROPOSED RETAIL PARKING TO BE SHARED WITH RESIDENTIAL:		43 STALLS
PROPOSED TOTAL PARKING:		858 STALLS
AREA OF IMPACT		2.67 ACRES

NORTH

0 30' 60' 120' 180'

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Source: AO Architects, 2022

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Site Plan

Figure 3

2.1.2.3 Addition of Decibels

Because decibels are logarithmic units, SPL cannot be added or subtracted through standard arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3 dBA 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 dBA higher than from 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 dBA—rather, they would combine to produce 73 dBA. Under the decibel scale, three sources of equal loudness together produce a sound level 5 dBA louder than one source.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear can discern 1 dBA changes in sound levels, when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency (1,000 Hz to 8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dBA are generally not perceptible. It is widely accepted, however, and specified in the City's California Environmental Quality Act (CEQA) Significance Determination Thresholds (City 2020), that people begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5 dBA increase is generally perceived as a distinctly noticeable increase, and a 10 dBA increase is generally perceived as a doubling of loudness.

No known studies have directly correlated the ability of a healthy human ear to discern specific levels of change in traffic noise over a 24-hour period. Many ordinances, however, specify a change of 3 CNEL as the significant impact threshold. This is based on the concept of a doubling in noise energy resulting in a 3 dBA change in noise, which is the amount of change in noise necessary for the increase to be perceptible to the average healthy human ear.

2.2 GROUNDBORNE VIBRATION DESCRIPTORS AND TERMINOLOGY

Groundborne vibration consists of rapidly fluctuating motions or waves transmitted through the ground with an average motion of zero. Sources of groundborne vibration include natural phenomena and anthropogenic causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions). Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV); another is the root-mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. For the purposes of this analysis, a PPV descriptor with units of inches per second (in/sec) is used to evaluate construction-generated vibration for human annoyance and building damage. Generally, a PPV of less than 0.035 in/sec does not produce perceptible vibration for humans. At 0.9 in/sec PPV, vibration is strongly perceptible. Regarding building damage potential, a maximum allowable PPV for historic structures and residential structures is 0.5 in/sec, whereas industrial buildings and bridges can withstand up to 2.0 in/sec PPV (California Department of Transportation [Caltrans] 2020).

2.3 NOISE AND VIBRATION SENSITIVE LAND USES

Noise-sensitive land uses (NSLUs) are land uses that may be subject to stress and/or interference from excessive noise. Per the City's General Plan Noise Element, NSLUs include, but are not necessarily limited to, residential uses, hospitals, nursing facilities, intermediate care facilities, child educational facilities, libraries, museums, and child care facilities. Industrial and commercial land uses are generally not considered sensitive to noise. Noise receptors are individual locations that may be affected by noise.

The nearest NSLUs to the Project site are the multi-family residential developments to the north and to the east across Cowley Way, single-family residences to the south across Field Street, and the Clairmont Branch Library further to the west at the intersection of Burgener Boulevard and Field Street. In addition, while not considered NSLUs, there are existing commercial buildings in the Clairemont Village Shopping Center to the west of the 2.67-acre Project area of impact that may be subject to construction and operational noise from the proposed residential development.

Land uses in which ground-borne vibration could potentially interfere with operations or equipment, such as research, hospitals, and university research operations (Caltrans 2020) are considered "vibration-sensitive." The degree of sensitivity depends on the specific equipment that would be affected by the ground-borne vibration. In addition, excessive levels of ground-borne vibration of either a regular or an intermittent nature can result in annoyance to residential uses, schools, or transient lodging. Land uses in the Project area that may be subject to annoyance from vibration include the residential uses mentioned above.

2.4 REGULATORY FRAMEWORK

2.4.1 Federal Regulations

2.4.1.1 Noise Control Act of 1972

Under the authority of the Noise Control Act of 1972, the U.S. Environmental Protection Agency (USEPA) 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, USEPA issued guidance levels for the protection of public health and welfare in residential areas of an outdoor L_{DN} of 55 dBA and an indoor L_{DN} of 45 dBA. 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.

2.4.2 State Regulations

2.4.2.1 California Noise Control Act of 1973

Sections 46000 through 46080 of the California Health and Safety Code, known as the California Noise Control Act of 1973, finds that excessive noise is a serious hazard to the public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also finds that there is a continuous and increasing bombardment of noise in the urban, suburban, and rural areas. The California Noise Control Act declares that the state has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the state to provide an environment for all Californians free from noise that jeopardizes their health or welfare.

2.4.3 Local Regulations

2.4.3.1 City of San Diego Municipal Code, Chapter 5, Article 9.5, Division 4, §59.5.0404 Construction Noise

(a) It shall be unlawful for any person, between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on legal holidays as specified in Section 21.04 of the San Diego Municipal Code, with exception of Columbus Day and Washington's Birthday, or on Sundays, to erect, construct, demolish, excavate for, alter or repair any building or structure in such a manner as to create disturbing, excessive or offensive noise unless a permit has been applied for and granted beforehand by the Noise Abatement and Control Administrator. In granting such permit, the Administrator shall consider whether the construction noise in the vicinity of the proposed work site would be less objectionable at night than during the daytime because of different population densities or different neighboring activities; whether obstruction and interference with traffic particularly on streets of major importance, would be less objectionable at night than during the daytime; whether the type of work to be performed emits noises at such a low level as to not cause significant disturbances in the vicinity of the work site; the character and nature of the neighborhood of the proposed work site; whether great economic hardship would occur if the work were spread over a longer time; whether proposed night work is in the general public interest; and he shall prescribe such conditions, working times, types of construction equipment to be used, and permissible noise levels as he deems to be required in the public interest.

(b) Except as provided in subsection (c) hereof, it shall be unlawful for any person, including the City of San Diego, to conduct any construction activity so as to cause, at or beyond the property lines of any property zoned residential, an average sound level greater than 75 dBA during the 12-hour period from 7:00 a.m. to 7:00 p.m.

(c) The provisions of subsection (b) of this section shall not apply to construction equipment used in connection with emergency work, provided the Administrator is notified within 48 hours after commencement of work.

2.4.3.2 City of San Diego Municipal Code, Chapter 5, Article 9.5, Division 4, §59.5.0401, Sound Level Limits

(a) It shall be unlawful for any person to cause noise by any means to the extent that the one-hour average sound level exceeds the applicable limit given in the following table [Table 1, *Applicable Noise Limits*], at any location in the City on or beyond the boundaries of the property on which the noise is produced. The noise subject to these limits is that part of the total noise at the specified location that is due solely to the action of said person.

(b) The sound level limit at a location on a boundary between two zoning districts is the arithmetic mean of the respective limits for the two districts. Permissible construction noise level limits shall be governed by Section 59.5.0404 of this article.

Table 1
APPLICABLE NOISE LIMITS

Land Use Zone	Time of Day	One-hour Average Sound Level (dBA)
Single Family Residential	7:00 a.m. to 7:00 p.m.	50
	7:00 p.m. to 10:00 p.m.	45
	10:00 p.m. to 7:00 a.m.	40
Multi-Family Residential (up to a maximum density of 1/2000)	7:00 a.m. to 7:00 p.m.	55
	7:00 p.m. to 10:00 p.m.	50
	10:00 p.m. to 7:00 a.m.	45
All other Residential	7:00 a.m. to 7:00 p.m.	60
	7:00 p.m. to 10:00 p.m.	55
	10:00 p.m. to 7:00 a.m.	50
Commercial	7:00 a.m. to 7:00 p.m.	65
	7:00 p.m. to 10:00 p.m.	60
	10:00 p.m. to 7:00 a.m.	60
Industrial or Agricultural	Anytime	75

Source: City of San Diego Municipal Code, Chapter 5, Article 9.5, Division 4, §59.5.0401, Table K-4 Sound Level Limits
dBA = A-weighted decibel

The 12.96-acre Project site is zoned CC-1-3, the parcel to the north is zoned CC-1-3, parcels to the east (across Cowley Way) are zoned RM-3-7, and parcels to the south (across Field Street) are zoned RS-1-7. Thus, the limits applicable to the Project are: 65 dBA L_{EQ} from 7:00 a.m. to 7:00 p.m., 60 dBA L_{EQ} from 7:00 p.m. to 10:00 p.m., and 60 dBA L_{EQ} from 10:00 p.m. to 7:00 a.m. at the northern property line and at the existing commercial buildings to the west; 60 dBA L_{EQ} from 7:00 a.m. to 7:00 p.m., 55 dBA L_{EQ} from 7:00 p.m. to 10:00 p.m., and 52.5 dBA L_{EQ} from 10:00 p.m. to 7:00 a.m. at the eastern property line (along Cowley Way); and 57.5 dBA L_{EQ} from 7:00 a.m. to 7:00 p.m., 52.5 dBA L_{EQ} from 7:00 p.m. to 10:00 p.m., and 50 dBA L_{EQ} from 10:00 p.m. to 7:00 a.m. at the southern property line (along Field Street).

2.4.3.3 City of San Diego General Plan Noise Element

The City General Plan Noise Element (City 2008, amended in 2015) establishes noise compatibility guidelines for uses affected by traffic noise, as shown in Table 2, *City of San Diego Land Use Noise Compatibility Guidelines*.

Table 2
CITY OF SAN DIEGO LAND USE NOISE COMPATIBILITY GUIDELINES[1]

Land Use Category	Exterior Noise Exposure (dBA CNEL)				
	<60	60-65	65-70	70-75	75+
Parks and Recreational					
Parks, Active and Passive Recreation					
Outdoor Spectator Sports, Golf Courses; Water Recreational Facilities; Indoor Recreation Facilities					
Agricultural					
Crop Raising & Farming; Community Gardens, Aquaculture, Dairies; Horticulture Nurseries & Greenhouses; Animal Raising, Maintain & Keeping; Commercial Stables					
Residential					
Single Dwelling Units; Mobile Homes		45			
Multiple Dwelling Units		45	45		
Institutional					
Hospitals; Nursing Facilities; Intermediate Care Facilities; K-12 Educational Facilities; Libraries; Museums; Child Care Facilities		45			
Other Educational Facilities including Vocational/Trade Schools and Colleges, and Universities)		45	45		
Cemeteries					
Retail Sales					
Building Supplies/Equipment; Groceries; Pets & Pet Supplies; Sundries, Pharmaceutical, & Convenience Sales; Apparel & Accessories			50	50	
Commercial Services					
Building Services; Business Support; Eating & Drinking; Financial Institutions; Maintenance & Repair; Personal Services; Assembly & Entertainment (includes public and religious assembly); Radio & Television Studios; Golf Course Support			50	50	
Visitor Accommodations		45	45	45	
Offices					
Business & Professional; Government; Medical, Dental & Health Practitioner; Regional & Corporate Headquarters			50	50	
Vehicle and Vehicular Equipment Sales and Services Use					
Vehicle Repair & Maintenance; Vehicle Sales & Rentals; Vehicle Equipment & Supplies Sales & Rentals; Vehicle Parking					
Wholesale, Distribution, Storage Use Category					
Equipment & Materials Storage Yards; Moving & Storage Facilities; Warehouse; Wholesale Distribution					

Land Use Category	Exterior Noise Exposure (dBA CNEL)				
	<60	60-65	65-70	70-75	75+
Industrial					
Heavy Manufacturing; Light Manufacturing; Marine Industry; Trucking & Transportation Terminals; Mining & Extractive Industries					
Research & Development				50	

	Compatible	Indoor Uses	Standard construction methods should attenuate exterior noise to an acceptable indoor noise level.
		Outdoor Uses	Activities associated with the land use may be carried out.
45, 50	Conditionally Compatible	Indoor Uses	Building structure must attenuate exterior noise to the indoor noise level indicated by the number (45 or 50) for occupied areas.
		Outdoor Uses	Feasible noise mitigation techniques should be analyzed and incorporated to make the outdoor activities acceptable.
	Incompatible	Indoor Uses	New construction should not be undertaken.
		Outdoor Uses	Severe noise interference makes outdoor activities unacceptable.

Source: City 2008 (as amended in 2015)

[1] Compatible noise levels and land use definitions reflect amendments to the City's General Plan Noise Element approved in 2015.

As shown in Table 2, the Project's multi-family residential use would be compatible if the exterior noise levels are 60 CNEL or less and conditionally compatible if the exterior noise levels are 60 to 70 CNEL. If the exterior noise level is conditionally compatible, the building structure must attenuate exterior noise to 45 CNEL for habitable areas.

2.4.3.4 Airport Land Use Compatibility Plans

The San Diego County Regional Airport Authority serves as the Airport Land Use Commission (ALUC) for San Diego County. The ALUC is responsible for adopting Airport Land Use Compatibility Plans (ALUCPs) for 16 public-use and military airports in San Diego County. ALUCPs provide guidance on appropriate land uses surrounding airports to protect the health and safety of people and property within the vicinity of an airport, as well as the public in general. An ALUCP contains policies and criteria that address compatibility between airports and future land uses that surround them by addressing noise, overflight, safety, and airspace protection concerns to minimize the public's exposure to excessive noise and safety hazards within the AIA for each airport over a 20-year horizon. The City implements the adopted ALUCPs with the Airport Land Use Compatibility Overlay Zone.

The ALUCPs contain policies and criteria that address land use compatibilities concerning noise and safety aspects of airport operations and land uses, building heights, residential densities and intensities, and the disclosure of aircraft overflight. The adopted ALUCPs contain policies that limit residential uses in areas experiencing noise above 60 CNEL by placing conditions on residential uses within the 60 CNEL noise contour. Residential uses in such areas may require sound attenuation to reduce interior noise levels to 45 dBA.

The closest airport to the Project site is Montgomery-Gibbs Executive Airport, located approximately 2.7 miles to the northeast. The Project site is within Airport Influence Area 2 of Montgomery-Gibbs Executive Airport but is not within the 60 to 65 CNEL contour as shown on Exhibit III-1, Compatibility Policy Map: Noise of the Montgomery Field ALUCP, or other overlay zones (San Diego County Airport

Land Use Commission 2010). The site is not within an Airport Influence Area or overlay zones of other airports.

2.5 EXISTING CONDITIONS

2.5.1 Surrounding Land Uses

Existing land uses surrounding the Project site include commercial uses to west across Clairemont Drive and Burgener Boulevard, the Clairemont Branch Library to the southwest at the intersection of Burgener Boulevard and Field Street, multi-family residences to the north and to the east across Cowley Way, and single-family residences to the south across Field Street. In addition, there are existing commercial buildings in the Clairemont Village Shopping Center to the west of the 2.67-acre Project area of impact.

2.5.2 Existing Noise Conditions

2.5.2.1 General Site Survey

Two 10-minute ambient noise measurements were conducted during a site visit on April 6, 2022 (refer to Appendix A, *On-site Noise Measurement Sheets*, for survey notes). The first measurement (M1) was taken in the northeastern portion of the Project site along Cowley Way and the second measurement (M2) was taken in the southeastern portion of the Project site near the intersection of Cowley Way and Field Street. The measurement locations are shown on Figure 2. The measured noise levels, weather conditions, and measurement notes are shown in Table 3, *Noise Measurement Results*.

Table 3
NOISE MEASUREMENT RESULTS

Measurement	Location	Time	dBA L_{EQ}	Conditions	Notes
M1	Approximately 30 feet south of the Project site's northern driveway and 30 feet west of the Cowley Way centerline.	1:28 p.m. – 1:38 p.m.	62.6	72°F; wind 9 mph; 63% humidity.	Windy; consistent noise from wind rustling leaves in trees overhead; irregular car passings also contributing noise.
M2	Approximately 50 feet north of Field Street and 40 feet west of the Cowley Way centerline.	1:40 p.m. – 1:50 p.m.	63.6	71°F; wind 10 mph; 66% humidity.	Noise primarily from cars traveling along Field Street and Cowley Way; higher noise levels due to acceleration uphill after coming to stop at stop sign at intersection.

dBA = A-weighted decibel; L_{EQ} = one-hour average sound level

3.0 METHODOLOGY, ASSUMPTIONS, AND SIGNIFICANCE CRITERIA

3.1 METHODOLOGY

3.1.1 Ambient Noise Survey

The following equipment was used to measure existing noise levels at the Project site:

- Piccolo II Integrating Sound Level Meter
- Larson Davis Model CA250 Calibrator
- Windscreen and tripod for the sound level meter

The sound level meter was field-calibrated immediately prior to the noise measurements to ensure accuracy. All sound level measurements conducted and presented in this report were made with a sound level meter that conforms to the American National Standards Institute (ANSI) specifications for sound level meters (ANSI SI.4-1983 R2006). All instruments were maintained with National Institute of Standards and Technology traceable calibration per the manufacturers' standards.

3.1.2 Noise Modeling Software

Modeling of the exterior noise environment for this report was accomplished using three computer noise models: Computer Aided Noise Abatement (CadnaA) version 2021; Traffic Noise Model (TNM) version 2.5; and the Roadway Construction Noise Model (RCNM). CadnaA is a model-based computer program developed by DataKustik for predicting noise impacts in a wide variety of conditions. CadnaA assists in the calculation, presentation, assessment, and mitigation of noise exposure. It allows for the input of project related information, such as noise source data, barriers, structures, and topography to create a detailed CadnaA model, and uses the most up-to-date calculation standards to predict outdoor noise impacts. CadnaA traffic noise prediction is based on the data and methodology used in the TNM.

TNM was released in February 2004 by the U.S. Department of Transportation (USDOT) and calculates the daytime average hourly L_{EQ} from three-dimensional model inputs and traffic data (California Department of Transportation [Caltrans] 2004). TNM was developed from Computer Aided Design (CAD) plans provided by the project applicant. Input variables included road alignment, elevation, lane configuration, area topography, existing and planned noise control features, projected traffic volumes, estimated truck composition percentages, and vehicle speeds.

Peak-hour traffic volumes are estimated based on the assumption that approximately 10 percent of the average daily traffic would occur during a peak hour. The one-hour L_{EQ} noise level is calculated utilizing peak-hour traffic. Peak hour L_{EQ} can be converted to CNEL using the following equation, where $L_{EQ}(h)pk$ is the peak hour L_{EQ}, *P* is the peak hour volume percentage of the average daily trips (ADT), *d* and *e* are divisions of the daytime fraction of ADT to account for daytime and evening hours, and *N* is the nighttime fraction of ADT:

$$CNEL = L_{EQ}(h)pk + 10\log10\ 4.17/P + 10\log10(d + 4.77e + 10N)$$

The model-calculated one-hour L_{EQ} noise output is therefore approximately equal to the CNEL (Caltrans 2013).

Project construction noise was analyzed using RCNM (USDOT 2008), which utilizes estimates of sound levels from standard construction equipment.

3.2 ASSUMPTIONS

3.2.1 Construction

Project construction would require demolition, clearing and grubbing, grading, underground utilities installation, building construction, and paving. Construction equipment estimates for each construction phase are based on model defaults from the project's Air Quality Technical Report (HELIX 2024). Table 4, *Anticipated Construction Equipment*, presents a summary of the heavy equipment anticipated to be used for Project construction.

Table 4
ANTICIPATED CONSTRUCTION EQUIPMENT

Construction Equipment	Percent Operating Time
Air Compressor	40
Concrete/Industrial Saw	20
Crane	16
Excavator	40
Forklift	20
Generator Set	50
Grader	40
Paver/Paving Equipment	50
Roller	20
Rubber Tired Dozer	40
Scraper	40
Tractor/Loader/Backhoe	40
Welder	40

Project construction would involve the demolition of a portion of an existing structure totaling 3,770 SF and soil movement (cut and fill) during grading. The export of demolition materials, the export of cut soil, and/or the import of fill soil would require the use of on-road haul trucks that would generate noise. According to the Waste Management Plan prepared for the Project (HWL 2022), approximately 2,990 tons of waste is expected to be generated during demolition. For excavation, the Project would require 29,000 cubic yards of cut and 3,000 cubic yards of fill for a net export of 26,000 cubic yards (HWL 2022). Assuming the use of standard 16-cubic yard haul trucks, the export of demolition materials would involve 277 one-way haul truck trips and the export of excavated earth material would involve 3,250 one-way haul trucks.

3.2.2 Operations

The Project's operational noise sources include heating, ventilation, and air conditioning (HVAC) and Project-generated vehicular traffic.

3.2.2.1 Heating, Ventilation, and Air Conditioning Unit

The Project would include rooftop-mounted HVAC units. The analysis assumes typical to larger-sized residential HVAC units with one unit included for each residential unit, as well as one each for the lounge room, club room, fitness center, and leasing office. The units used in this analysis are Carrier 38HDR060 split system condensers (see Appendix B, *Carrier 38HDR060 Split System Condenser*). The manufacturer's noise data is provided below in Table 5, *Carrier HDR060 Condenser Noise*.

Table 5
CARRIER HDR060 CONDENSER NOISE

Noise Levels in Decibels[1] (dB) Measured at Octave Frequencies							Overall Noise Level in A-weighted Scale (dBA)[1]
125 Hz	250 Hz	500 Hz	1 KHz	2 KHz	4 KHz	8 KHz	
63.0	61.5	64.0	66.5	66.0	64.5	55.5	72.0

[1] Sound Power Level (S_{WL})
Hz = hertz; KHz = kilohertz

3.2.2.2 Vehicular Traffic

According to the Local Mobility Analysis prepared for the Project (Urban Systems Associates Inc. 2023), the Project would generate 1,792 ADT that would occur along Cowley Way, Field Street, Iroquois Avenue, Burgener Boulevard, and Clairemont Drive. Table 6, *Roadway Traffic Volumes*, summarizes the ADT data along these studied roadway segments both with and without the Project.

Table 6
ROADWAY TRAFFIC VOLUMES

Roadway Segment	Opening Day ADT	Opening Day + Project ADT
Cowley Way		
Mt. Acadia Boulevard to Iroquois Avenue	2,275	3,171
Field Street		
Burgener Boulevard to Cowley Way	8,962	9,948
Iroquois Avenue		
Clairemont Drive to Cowley Way	3,472	4,010
Burgener Boulevard		
Clairemont Drive to Field Street	10,807	11,703
Clairemont Drive		
Burgener Boulevard to Iroquois Avenue	16,941	17,030

Source: Urban Systems Associates Inc. 2023
ADT = average daily trips

3.3 GUIDELINES FOR THE DETERMINATION OF SIGNIFICANCE

The following noise thresholds are based on the City's California Environmental Quality Act (CEQA) Significance Determination Thresholds (City 2022), Municipal Code, and General Plan (City 2008), as applicable to the Project.

A potentially significant noise impact would occur if the Project would:

1. Result in temporary construction noise that exceeds 75 dBA L_{EQ} (12 hour) at the property line of an off-site property zoned residential or other NSLU from 7:00 a.m. to 7:00 p.m. (as identified in Section 59.0404 of the City's Municipal Code), if non-emergency construction occurs during the 12-hour period from 7:00 p.m. to 7:00 a.m., or the Project results in a substantial increase over ambient noise levels during construction, which is considered a 10-dBA increase. Additionally, where temporary noise would substantially interfere with normal business communication, or affect sensitive receptors, such as day care facilities, a significant noise impact may be identified.

2. Result in or create a significant permanent increase in the existing noise levels.

    a. A significant increase in off-site roadway traffic noise would be greater than a perceptible change (3 CNEL) over existing conditions, when noise levels exceed: 65 CNEL for residential uses, schools, libraries, hospitals, day care, hotels, motels, parks, and convalescent homes; 70 CNEL for offices, churches, business, and professional uses; or 75 CNEL commercial, retail, industrial, and outdoor spectator sports uses.

    b. A significant increase in on-site operational noise would be the generation of noise levels at a common property line that exceed the arithmetic mean of the decibel limits allowed for each use shown in Table 1.

3. The Project would expose new development to noise levels at exterior use areas or interior areas more than the noise compatibility guidelines established in the City's General Plan Noise Element. For the Project's multi-family residential use, the compatible noise level is 60 CNEL and the conditionally compatible noise level is 70 CNEL. For outdoor uses at a conditionally compatible land use, feasible noise mitigation techniques should be analyzed and incorporated to make the outdoor activities acceptable. For indoor uses at a conditionally compatible land use, interior noise must be attenuated to 45 CNEL.

The following vibration thresholds are based on the Caltrans' Transportation and Construction Vibration Guidance Manual (2020), which provide criteria for both human annoyance and building damage potential.

A significant vibration impact would occur of the Project would:

1. Subject vibration-sensitive land uses to construction-related ground-borne vibration that exceeds the strongly vibration annoyance potential criteria for human receptors, as specified by Caltrans (2020), of 0.1 in/sec PPV, or exceeds 0.5 in/sec PPV for damage to residential structures.

4.0 IMPACTS

4.1 ISSUE 1: TEMPORARY INCREASE IN AMBIENT NOISE LEVELS

4.1.1 On-site Construction

As discussed in Section 3.2.1, Project construction would require demolition, clearing and grubbing, grading, underground utilities installation, building construction, and paving. These construction activities would generate elevated noise levels that could be audible to the residential NSLUs to the north, east, and south of the Project site. The magnitude of the impact would depend on the type of construction activity, equipment used, duration of each construction phase, distance between the noise source and receiver(s), and any intervening structures. Construction equipment would not all operate at the same time or location. Furthermore, construction equipment would not be in constant use during the 8-hour operating day.

Demolition would be required for a small portion of one existing structure totaling 3,770 square feet to the west of the proposed Project structure location, at an approximate distance of 180 feet from the nearest off-site residential property line to the northeast. Development of the proposed Project structure would involve clearing and grubbing, grading, underground utilities installation, building construction, and paving. Work for structure development would occur throughout the structure site area and equipment would be mobile throughout the site area; therefore, for noise analysis purposes, grading and construction equipment is considered at the center of the structure site area, at an approximate distance of 140 feet from the closest residential property line to the east across Cowley Way. This distance represents the assumed average distance to the property line that construction equipment would be operating over the course of a workday.

The loudest combination of equipment anticipated to be used simultaneously for each of these construction activities and the resultant noise levels at the applicable distances are shown in Table 7, *Construction Noise Levels.*

Table 7
CONSTRUCTION NOISE LEVELS

Phase	Simultaneous Construction Equipment	Average Distance to Nearest NSLU (feet)	Noise Levels (dBA L_{EQ})
Demolition	Concrete Saw	180	71.5
	Rubber Tired Dozer, Tractor/Loader/Backhoe	180	70.2
Clearing and Grubbing	Grader	140	72.1
	Scraper	140	70.7
Grading	Rubber Tired Dozer, Tractor/Loader/Backhoe	140	70.2
	Grader	140	72.1
Underground Utilities	Excavator, Tractor/Loader/ Backhoe	140	69.5
Excavation	Rubber Tired Dozer, Tractor/Loader/Backhoe	140	70.2
	Grader	140	72.1

Phase	Simultaneous Construction Equipment	Average Distance to Nearest NSLU (feet)	Noise Levels (dBA L_{EQ})
Building Construction	Crane, Forklift, Tractor/ Loader/Backhoe	140	67.8
Paving	Paver, Roller, Tractor/ Loader/Backhoe	140	69.5

Source: Roadway Construction Noise Model (U.S. Department of Transportation 2008)
NSLU = noise sensitive land use; dBA = A-weighted decibel; L_{EQ} = time-averaged noise level

As shown in Table 7, noise levels at nearby NSLUs are estimated to be as high as 72.1 dBA L_{EQ} (12 hour), which would occur during the clearing and grubbing, grading, and excavation phases, and would not exceed the applicable 75-dBA L_{EQ} (12 hour) construction noise limit set forth in the City's Municipal Code or result in a substantial (10 dBA or more) increase over ambient conditions (refer to Table 3). Although Project construction activities would result in increased noise levels at adjacent commercial uses within the Clairemont Village Shopping Center, the noise generation would be occurring on the back side of these businesses. In addition, the businesses present, including a grocery store, restaurants, and personal services, are not businesses where quiet is an important component of the environment, as could be the case for an office building, for example. Therefore, temporary Project construction noise would not substantially interfere with normal business communication at these uses. Further, the noise levels present a conservative analysis that assumes that the listed equipment would be operating simultaneously at a single given location. In actuality, the pieces of equipment would be located at different areas of the site and would not necessarily generate combined noise at a given receptor location. As such, impacts from Project construction would be less than significant.

4.1.2 Off-site Construction Traffic

As discussed in Section 3.2.1., it is anticipated that 277 one-way haul truck trips would be required for the export of demolition materials and 3,250 one-way haul truck trips would be required for the export of excavated earth materials (HWL 2022). Demolition is expected to occur over 20 days and excavation is expected to occur over 31 days (HELIX 2023); thus, the Project would involve approximately 14 one-way trucks trips per day during demolition, resulting in approximately two trips per hour over the course of an eight-hour work day, and approximately 105 one-way truck trips per day during excavation, resulting in approximately 13 trips per hour over the course of an eight-hour work day. These daily traffic levels are anticipated to be the highest daily traffic levels associated with Project construction.

It is expected that haul trucks would exit the Project site to the south and travel along Field Street, Burgener Street, and Clairemont Drive in route to Interstate 5, thus having the potential to expose residences along Field Street and Clairemont Drive to elevated noise levels. These hourly truck trip volumes were input into TNM with trucks assumed to travel 30 miles per hour along Field Street and 35 miles per hour along Clairemont Drive, in accordance with posted speed limits. Noise levels were considered at residences located as close at 40 feet from the roadway centerline along Field Street, the Clairmont Branch Library located 40 feet from the roadway centerline along Burgener Boulevard, and residences located 50 feet from the roadway centerline along Clairemont Drive.

Noise levels from haul trucks at residences along Field Street and the Clairemont Branch Library were calculated to be as high as 57.8 dBA L_{EQ} and noise levels from haul trucks at residences along Clairemont Drive were calculated to be as high as 57.2 dBA L_{EQ}. Noise levels would be below the 75-dBA L_{EQ} construction noise limit and impacts would therefore be less than significant.

4.2 ISSUE 2: PERMANENT INCREASE IN AMBIENT NOISE LEVELS

4.2.1 On-Site Operational Noise

As discussed in Section 3.2.2.1, the Project would include rooftop-mounted HVAC units, which would represent the most prominent on-site operational noise source. Modeling assumes the use of Carrier 38HRD060 split system condenser units. A single unit typically generates a noise level of 56 dBA at a distance of 7 feet. The units would be surrounded by an approximately 4-foot-tall parapet.

The HVAC units would have the potential to generate increased noise levels at adjacent receiving property lines to the north, east, and south, and at the existing commercial buildings to the west, as well as at elevated balconies associated with the off-site multi-family residential developments to the north and east. In the CadnaA model, noise receivers were placed at property line locations to the north, east, and south, and at the existing commercial buildings to the west at heights of five feet, and at balcony locations at second- through fourth-story heights at the residential development to the north and at third- through fourteenth-story heights at the residential development to the east. Receiver locations considered in the analysis are shown on Figure 4, *Receiver Locations.*

Noise generated by the HVAC units is subject to property line limits set forth in the City's Municipal Code (refer to Table 1 in Section 2.4.2). The limit at a location on a boundary between two zoning districts is the arithmetic mean of the respective limits for the two districts. The 12.96-acre Project site is zoned CC-1-3, the parcel to the north is zoned CC-1-3, parcels to the east (across Cowley Way) are zoned RM-3-7, and parcels to the south (across Field Street) are zoned RS-1-7. This analysis focuses on nighttime limits, as those are the most restrictive and HVAC units would operate at during nighttime hours. Thus, the applicable limits considered in this analysis are 60 dBA L_{EQ} at the northern property line, 52.5 dBA L_{EQ} at the eastern property line, 50 dBA L_{EQ} at the southern property line, and 60 dBA L_{EQ} to the west at the boundary of the area of impact (i.e., at the existing commercial units).

Noise levels at the modeled receiver locations are presented in Table 8, *Project-generated Noise Levels.* The location number on Figure 4 representing each receiver is indicated in the table. Note that some location numbers represent more than one receiver as these receivers are at different heights at a given location. As shown in Table 8, noise levels are generally higher at increasing receiver heights because of the location of the Project's HVAC units on the roof of the proposed structure. Noise levels at modeled receiver locations would not exceed applicable noise limits, and impacts from the Project's on-site operational noise would be less than significant.

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Source: Aerial (SanGIS 2019)

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Receiver Locations

Figure 4

Table 8
PROJECT-GENERATED NOISE LEVELS

Receiver	Figure 4 Location Number	Operational Hourly Noise Levels (dBA L_{EQ})	Municipal Code Limit (dBA L_{EQ})	Exceed Limit?
North Property Line 1	1	33.5	60	No
North Property Line 2	2	31.6	60	No
North Building Story 2	3	36.0	60	No
North Building Story 3	3	39.1	60	No
North Building Story 4	3	43.1	60	No
East Property Line 1	4	29.5	52.5	No
East Property Line 2	5	29.5	52.5	No
East Property Line 3	6	29.9	52.5	No
East Building Story 3	7	33.6	52.5	No
East Building Story 4	7	36.0	52.5	No
East Building Story 5	7	39.0	52.5	No
East Building Story 6	7	42.9	52.5	No
East Building Story 7	7	45.2	52.5	No
East Building Story 8	7	46.0	52.5	No
East Building Story 9	7	46.7	52.5	No
East Building Story 10	7	47.6	52.5	No
East Building Story 11	7	48.3	52.5	No
East Building Story 12	7	48.9	52.5	No
East Building Story 13	7	49.6	52.5	No
East Building Story 14	7	49.8	52.5	No
South Property Line 1	8	30.1	50	No
South Property Line 2	9	29.4	50	No
Existing Commercial Line 1	10	32.9	60	No
Existing Commercial Line 2	11	33.2	60	No
Existing Commercial Line 3	12	32.4	60	No
Existing Commercial Line 4	13	34.3	60	No
Existing Commercial Line 5	14	32.8	60	No

4.2.2 Operational Traffic Noise

As discussed in Section 3.2.2.2, during operations the Project would generate 1,792 ADT that would occur along Cowley Way, Field Street, Iroquois Avenue, Burgener Boulevard, and Clairemont Drive and have the potential to generate elevated noise levels at residential land uses along Cowley Way, Field Street, and Iroquois Avenue, and the library use along Burgener Boulevard. The segment of Clairemont Drive studied in the Local Mobility Analysis (Urban Systems Associates, Inc. 2023) is between Burgener Boulevard and Iroquois Avenue where no NSLUs are located. Roadway traffic volumes under the opening day and opening day plus Project scenarios (refer to Table 6 in Section 3.2.2.2) were input into TNM to calculate noise levels at the nearest NSLUs along the subject roadways, distances to which are indicated in Table 9, *Off-site Traffic Noise Levels.*

Impacts would be significant in areas where traffic noise at residential or library uses exceeds the 65-CNEL noise compatibility level specified in Table K-2 of the City's CEQA Significance Determination Thresholds (City 2022) and implementation of the Project results in a significant increase in noise levels, which is considered greater than a perceptible change of 3 CNEL over without-Project conditions.

The roadway traffic noise modeling represents a conservative analysis that does not consider topography or attenuation provided by existing structures. The results of this analysis for the noise levels (in CNEL) at the nearest NSLUs to the subject roadways are shown below in Table 9.

Table 9
OFF-SITE TRAFFIC NOISE LEVELS

Roadway Segment	Distance to Nearest NSLU	Existing CNEL at Distance to Nearest NSLU	Existing Plus Project CNEL at Distance to Nearest NSLU	Change from Existing CNEL at Distance to Nearest NSLU	Direct Impact[1]
Cowley Way					
North of Mt. Acadia Boulevard	30	55.4	56.9	+1.5	No
Field Street					
Burgener Boulevard to Cowley Way	40	62.3	62.7	+0.4	No
Iroquois Avenue					
Clairemont Drive to Cowley Way	40	56.0	56.6	+0.6	No
Burgener Boulevard					
Clairemont Drive to Field Street	30	64.4	64.8	+0.4	No

[1] A direct impact to off-site uses would occur if existing noise levels exceed 65 CNEL and the Project more than doubles (increases by more than 3 CNEL) the existing noise level.

NSLU = noise sensitive land use; CNEL = Community Noise Equivalent Level

As shown in Table 9, the Project would not result in an increase of 3 CNEL or more along the four analyzed roadway segments; therefore, impacts associated with operational Project-generated traffic noise would be less than significant.

4.3 ISSUE 3: NOISE LEVEL STANDARD COMPLIANCE FOR NEW USES

The City's General Plan states that existing and future noise levels should be considered when making land use planning decisions to minimize people's exposure to excessive noise. As shown in Table 2, multi-family residential uses are compatible where exterior noise levels are below 60 CNEL, are conditionally compatible where exterior noise levels are between 60 and 70 CNEL, and are not compatible in areas where exterior noise levels exceed 70 CNEL. Per the Noise Element, indoor uses that are within the conditionally compatible noise level must demonstrate the building structure would attenuate interior noise levels for occupied areas to 45 CNEL and measures should be included to make the outdoor activity areas acceptable.

4.3.1 Exterior Noise Levels

The Project's exterior use areas include a pool area and a courtyard on the western side of the building and private balconies for residential units on all sides of the building. The primary noise sources that may affect exterior noise levels at the Project includes roadway traffic along Cowley Way and Field Street and activity at the adjacent commercial uses, such as truck deliveries. To assess exterior noise levels at the Project, 24-hour noise measurements were conducted at four locations around the periphery of the proposed structure location at heights of approximately 10 feet. Measured noise levels, converted to CNEL, are provided in Table 10, *Current Noise Levels at Project Site,* measurement locations are depicted on Figure 5, *24-hour Noise Measurement Locations,* and 24-hour measured noise levels are depicted on graphs included as Appendix C.

Table 10
CURRENT NOISE LEVELS AT PROJECT SITE

Location	CNEL
South	68.2
Southwest	64.5
Northeast	61.2
Northwest	59.7

24-hour noise measurements were conducted August 3 through August 4, 2022.
CNEL=Community Noise Equivalent Level

As shown in Table 10, the CNEL at the Project site was measured to range from 59.7 CNEL in the northwest to 68.2 CNEL in the south. Noise levels in the northwest are within the compatible range while noise levels in the south, southwest, and southeast are within the conditionally compatible range for multi-family residential uses. The Project's primary outdoor use areas are the pool area and the courtyard on the west side of the building. These areas are both located on the third story and would be afforded noise attenuation by stories four through seven that would be located on the south, east, and north sides of the pool area and courtyard, between the outdoor areas and Field Street and Cowley Way, which are the primary noise sources in the area. As such, it is expected that noise levels at these outdoor use areas would be below 60 CNEL upon buildout of the Project. Impacts are therefore considered less than significant.

4.3.2 Interior Noise Levels

As discussed above in Section 4.4.1, noise levels at the periphery of the proposed structure location, at approximate locations of future building facades, were measured to be as high as 68.2 CNEL, which is within the conditionally compatible noise exposure range for multi-family residential uses. Therefore, interior noise levels must be attenuated to 45 CNEL or less. To assess anticipated interior noise levels, a preliminary exterior-to-interior analysis was conducted. The information in this analysis includes wall heights/lengths, room volumes, window/door tables typical for a standard building plan, as well as information on any other openings in the building shell for the habitable residential rooms. The analysis provides information for the rooms with the highest potential interior noise.

The rooms expected to have the highest interior noise levels are those located along Field Street that have two walls exposed to exterior noise. These include the living room in Unit A2 and the living room/kitchen in Unit A5. The room specifications used in this analysis are based on current floor plans provided by the Project applicant. Refer to Figure 6, *Analyzed Rooms*, for the Project plans of the rooms included in this analysis.

Table 11, *Exterior-to-Interior Noise Levels*, displays the calculated interior noise levels with standard window and wall construction STC ratings.

Table 11
EXTERIOR-TO-INTERIOR NOISE LEVELS

Specification	Unit A2 Living Room	Unit A5 Living Room/Kitchen
Minimum exterior wall requirement	STC 46	STC 46
Wall construction	Standard 0.875-inch Stucco over 0.5-inch Shearwall on 2x4 Studs with R11/R13 Insulation and 0.625-inch Type "X" Drywall	Standard 0.875-inch Stucco over 0.5-inch Shearwall on 2x4 Studs with R11/R13 Insulation and 0.625-inch Type "X" Drywall
Minimum window requirement	STC 28	STC 28
Window construction	Dual Glazing Window Thickness 0.125-inch and 0.5-inch Air Gap	Dual Glazing Window Thickness 0.125-inch and 0.5-inch Air Gap
Exterior Noise	68.2 CNEL from south, 64.5 CNEL from west	68.2 CNEL from south and east
Interior Noise	35.3 CNEL (windows closed)	40.4 CNEL (windows closed)
Above 45 CNEL interior noise standard?	**No**	**No**

STC = Sound Transmission Class; CNEL = Community Noise Equivalent Level

Based on inclusion of typical window and wall construction, as specified in Table 11, the Project's interior noise levels are anticipated to be below 45 CNEL for habitable areas. Appropriate means of air circulation and provision of fresh air would be present to allow windows to remain closed for extended intervals of time so that acceptable levels of noise can be maintained on the interior. As such, impacts are expected to be less than significant. However, once final building plan information is available, the City would include a standard exterior-to-interior noise analysis as a condition of approval, such as the following, to ensure that interior noise levels in habitable spaces would not exceed 45 CNEL.

Final Exterior-to-Interior Analysis. Interior noise levels for the Project's proposed residential units shall be demonstrated to not exceed 45 CNEL. Once final building plan information is available, additional exterior-to-interior noise analysis shall be conducted for units with a direct line of sight to Field Street and Cowley Way.

The information in the analysis shall include wall heights and lengths, room volumes, window and door tables typical for a building plan, as well as information on any other openings in the building shell. With this specific building plan information, the analysis shall determine the predicted interior noise levels at the planned on-site residential units. If predicted noise levels are found to be more than 45 CNEL, the report shall identify architectural materials or techniques that could be included to reduce noise levels to 45 CNEL in habitable rooms.

Air conditioning or mechanical ventilation systems shall be installed to allow windows and doors to remain closed for extended intervals of time so that acceptable interior noise levels can be maintained. The mechanical ventilation system shall meet the criteria of the International Building Code (Chapter 12, Section 1203 of the 2022 California Building Code).

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Source: Aerial (SanGIS 2019)

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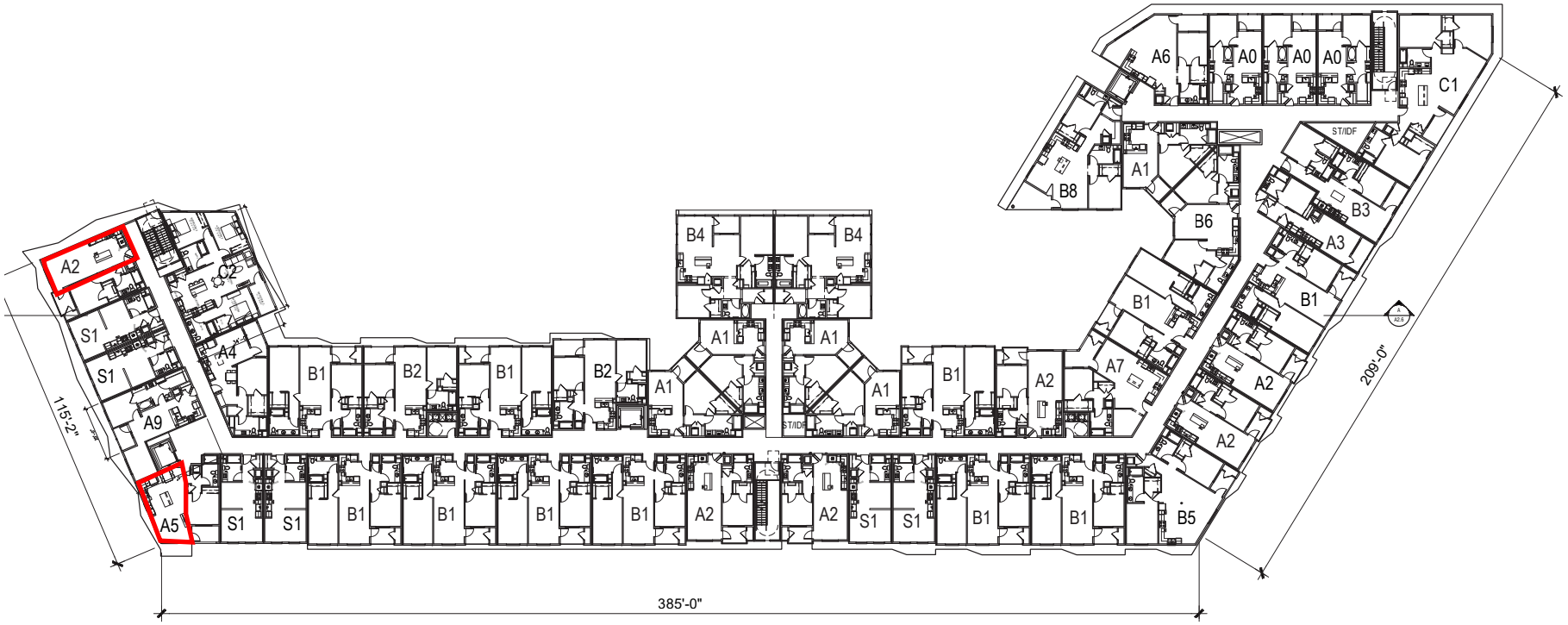
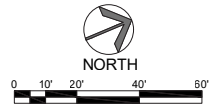
24-hour Noise Measurement Locations

Figure 5





Source: AO Architects, 2022

HELIX Environmental Planning

Analyzed Rooms

Figure 6

4.3.3 Airport Noise

The closest airport to the Project site is Montgomery-Gibbs Executive Airport, located approximately 2.7 miles to the northeast. The Project site is not within the 60 to 65 CNEL contour as shown on Exhibit III-1, Compatibility Policy Map: Noise of the Montgomery Field ALUCP (San Diego County Airport Land Use Commission 2010). Therefore, the Project would not result in the exposure of people working or residing in the Project area to excessive noise from airports and the impact would be less than significant.

4.4 ISSUE 4: EXCESSIVE GROUND-BORNE VIBRATION

4.4.1 Construction Vibration

Construction activities known to generate excessive ground-borne vibration, such as pile driving, would not be conducted for the Project. The most prominent source of vibration anticipated during general Project construction activities would be a vibratory roller used for soil and/or pavement compaction. As discussed in Section 2.3, vibration-sensitive land uses in the Project area include nearby residential uses. A vibratory roller could be used as close as 60 feet from the closest off-site residential structure to the north. According to Caltrans, a vibratory roller creates a PPV of 0.210 in/sec at 25 feet (Caltrans 2020). At a distance of 60 feet, a vibratory roller would create a PPV of 0.08 in/sec.[1] This would be lower than what is considered a "strongly perceptible" level for humans of 0.1 inch per second PPV, and far lower than the residential structural damage threshold of 0.5 in/sec PPV for continuous/frequent intermittent construction sources. Therefore, although a vibratory roller may be perceptible to nearby human receptors, temporary impacts associated with the roller (and other potential equipment) would be less than significant.

4.4.2 Operational Vibration

Land uses that may generate substantial operational vibration include heavy industrial or mining operations that require the use of vibratory equipment. The proposed Project does not include equipment that would generate substantial vibration. Therefore, operational vibration impacts are less than significant.

5.0 LIST OF PREPARERS

Hunter Stapp	Project Manager, Acoustic Analyst
Jason Runyan	Acoustic Analyst, Quality Assurance Reviewer
Joanne Dramko, AICP	Principal Noise Specialist

[1] Equipment PPV = Reference PPV * $(25/D)^n$ (in/sec), where Reference PPV is PPV at 25 feet, D is distance from equipment to the receiver in feet, and n = 1.1 (the value related to the attenuation rate through the ground); formula from Caltrans 2013b.

6.0 REFERENCES

California Department of Transportation (Caltrans). 2020. Transportation and Construction Vibration Guidance Manual. April.

2013. Technical Noise Supplement to the Traffic Noise Protocol. September.

2004. California Department of Transportation, Traffic Noise Model (TNM).

HELIX Environmental Planning, Inc. (HELIX). 2024. Clairemont Village Project Air Quality Technical Report. April

HWL Planning & Engineering. 2022. Waste Management Plan.

San Diego, City of (City). 2022. California Environmental Quality Act Significance Determination Thresholds. September.

2008. City of San Diego General Plan Noise Element. March 10. Amended 2015. Available at: https://www.sandiego.gov/sites/default/files/legacy/planning/genplan/pdf/generalplan/adoptednoiseelem.pdf.

San Diego County Airport Land Commission. 2010. Montgomery Field Airport Land Use Compatibility Plan. Adopted January 2010, Amended December 2010. Available at: https://www.san.org/Airport-Projects/Land-Use-Compatibility#7121296-alucps.

Urban Systems Associates Inc. 2023. Local Mobility Analysis, Clairemont Village Residential, City of San Diego. February.

U.S. Department of Transportation (USDOT). 2008. Roadway Construction Noise Model.

Appendix A

On-site Noise Measurement Sheets

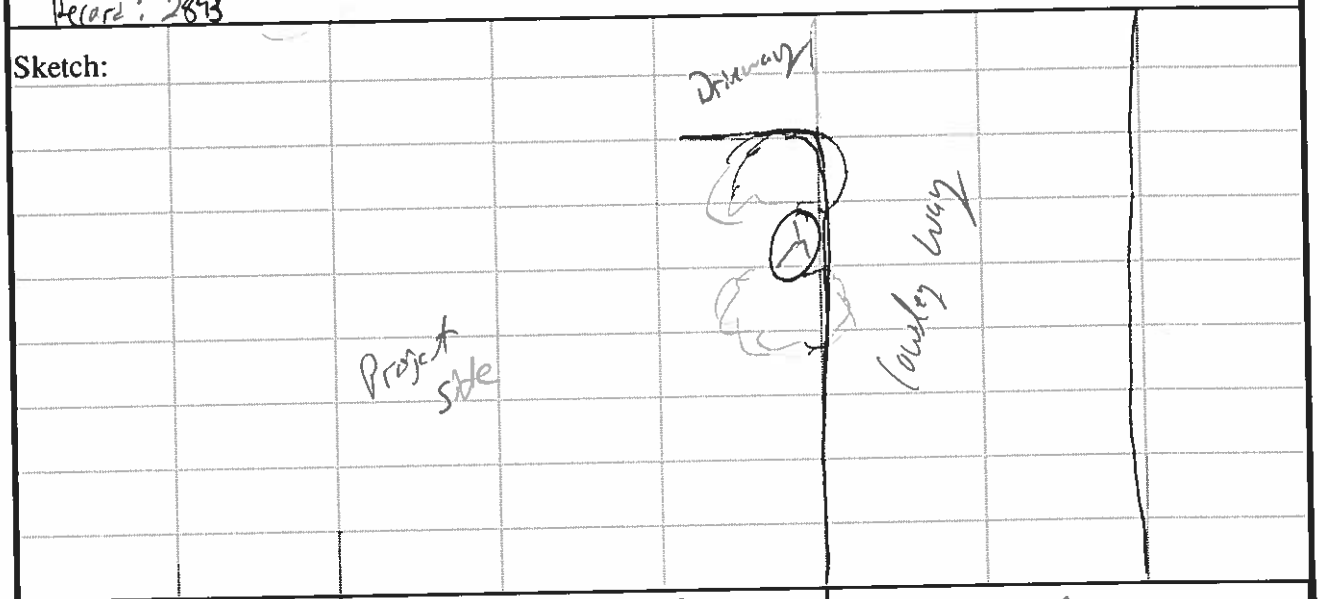
Site Survey

Job # 03285.00002.001	Project Name: Clairemont Village		
Date: 4/6/22	Site #: North	Engineer: Hunter S.	
Address: Along Cowley Way, south of northern site driveway			
Meter: Piccolo-II	Serial #: P0221031712	Calibrator: CA 250	Serial #: 1544

Notes: Windy; substantial noise from rustling of leaves in trees overhead. Noise also from cars along Cowley Way.

Record: 2893

Sketch:



Temp: 72°F	Wind Spd: 9	mph	Humidity: 63	%	
Start of Measurement: 1:28 pm	End of Measurement: 1:38 pm		62.6	dBA L_{EQ}	

Cars (tally per 5 cars)	Medium Trucks (MT)	Heavy Trucks (HT)

Noise Measurement for Information Only

No Through Roadways

No Calibration Analysis Will Be Provided

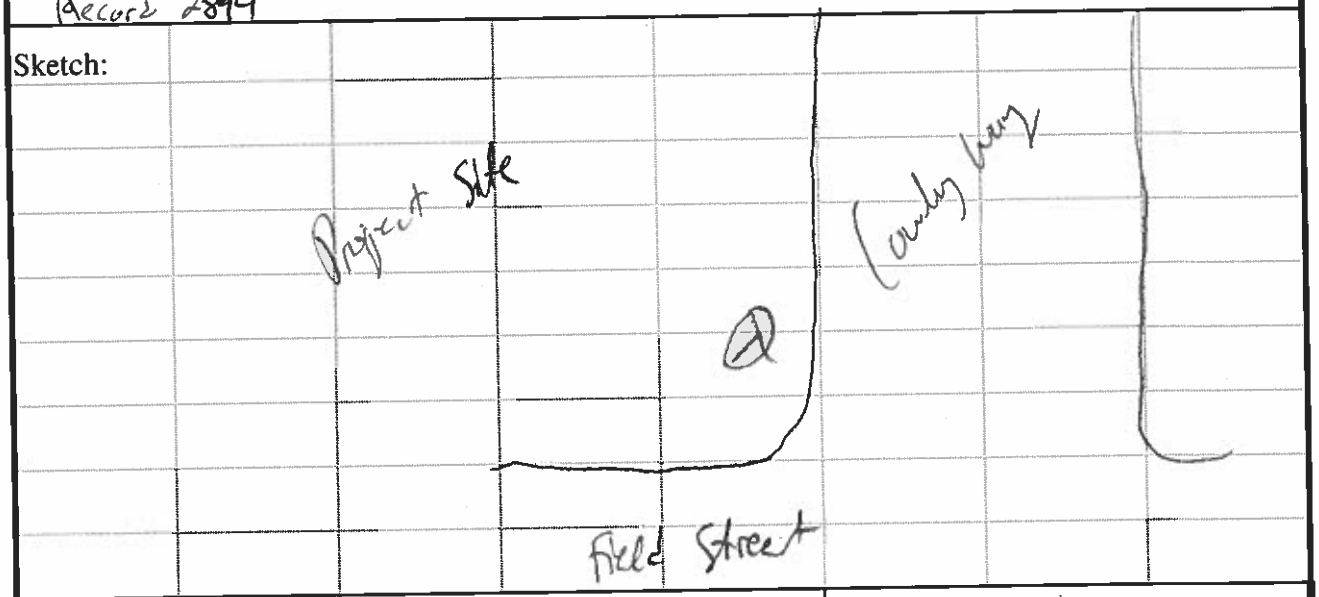
Site Survey

Job # 03285.00002.001	Project Name: Clairemont Village		
Date: 4/6/22	Site #: South	Engineer: Hunter S.	
Address: Northwestern corner of intersection of Field St. & Cowley Way			
Meter: Piccolo-11	Serial #: P0221031712	Calibrator: CA 250	Serial #: 1544

Notes: Roadway traffic dominant noise source; acceleration up hill east of Stop @ Stop sign

Record 2894

Sketch:



Temp:	71 °F	Wind Spd:	10 mph	Humidity:	66 %
Start of Measurement:	1:40 pm	End of Measurement:	1:50 pm	63.6	dBA L_{EQ}

Cars (tally per 5 cars)	Medium Trucks (MT)	Heavy Trucks (HT)

Noise Measurement for Information Only

No Through Roadways

No Calibration Analysis Will Be Provided

Appendix B

Carrier 38HDR060 Split System Condenser

ELECTRICAL DATA

38HDR UNIT SIZE	V–PH–Hz	VOLTAGE RANGE*		COMPRESSOR		OUTDOOR FAN MOTOR			MIN CKT AMPS	FUSE/ HACR BKR AMPS
		Min	Max	RLA	LRA	FLA	NEC Hp	kW Out		
018	208/230–1–60	187	253	9.0	48.0	0.80	0.125	0.09	12.1	20
024	208/230–1–60	187	253	12.8	58.3	0.80	0.125	0.09	16.8	25
030	208/230–1–60	187	253	14.1	73.0	1.45	0.25	0.19	19.1	30
036	208/230–1–60	187	253	14.1	77.0	1.45	0.25	0.19	19.1	30
	208/230–3–60	187	253	9.0	71.0	1.45	0.25	0.19	12.7	20
	460–3–60	414	506	5.6	38.0	0.80	0.25	0.19	7.8	15
048	208/230–1–60	187	253	21.8	117.0	1.45	0.25	0.19	28.7	50
	208/230–3–60	187	253	13.7	83.1	1.45	0.25	0.19	18.6	30
	460–3–60	414	506	6.2	41.0	0.80	0.25	0.19	8.6	15
060	208/230–1–60	187	253	26.4	134.0	1.45	0.25	0.19	34.5	60
	208/230–3–60	187	253	16.0	110.0	1.45	0.25	0.19	21.5	35
	460–3–60	414	506	7.8	52.0	0.80	0.25	0.19	10.6	15

* Permissible limits of the voltage range at which the unit will operate satisfactorily

FLA – Full Load Amps
HACR – Heating, Air Conditininng, Refrigeration
LRA – Locked Rotor Amps
NEC – National Electrical Code
RLA – Rated Load Amps (compressor)

NOTE: Control circuit is 24–V on all units and requires external power source. Copper wire must be used from service disconnect to unit.
All motors/compressors contain internal overload protection.

SOUND LEVEL

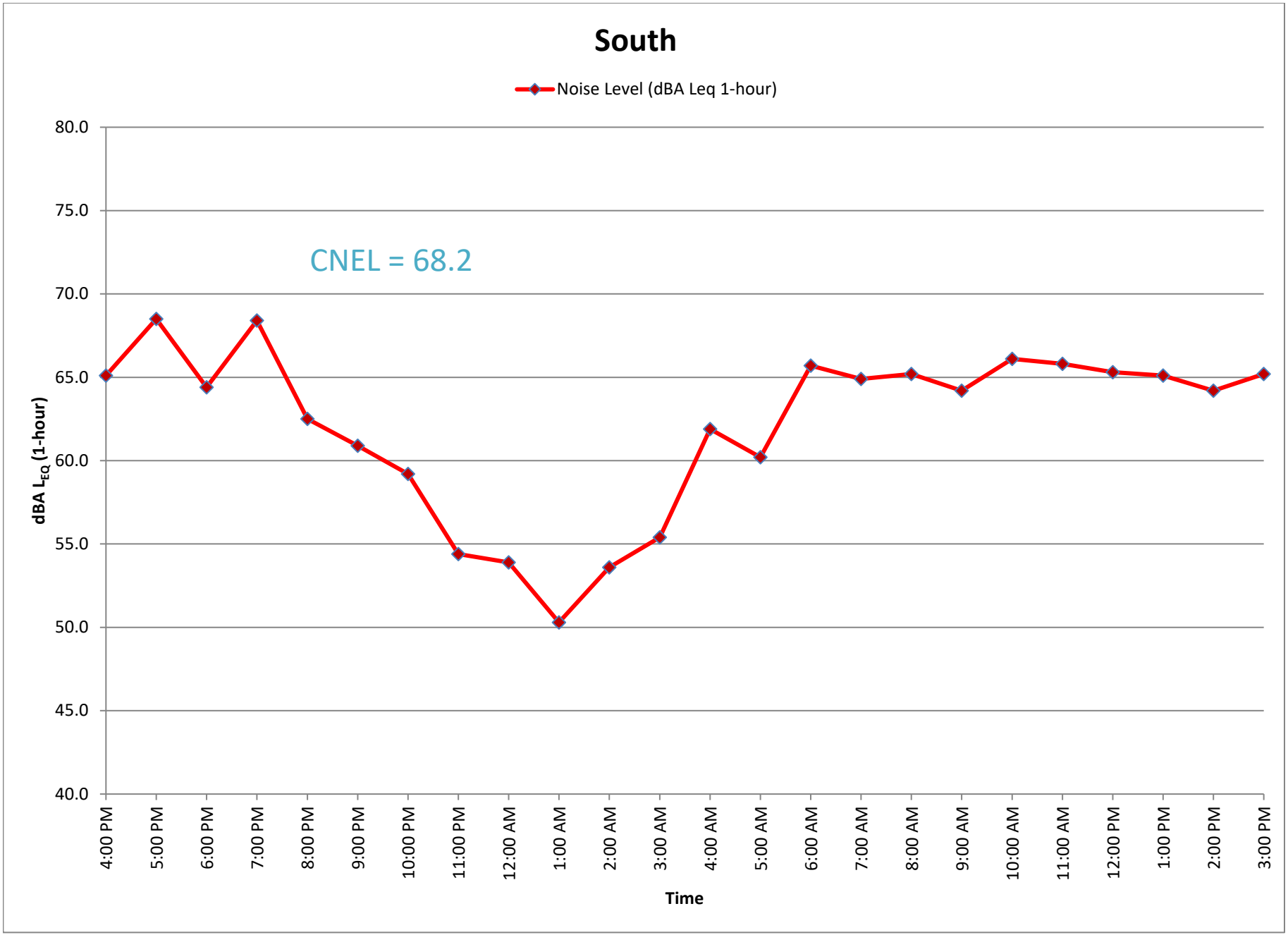
Unit Size	Standard Rating (dB)	Typical Octave Band Spectrum (dBA) (without tone adjustment)						
		125	250	500	1000	2000	4000	8000
018	68	52.0	57.5	60.5	63.5	60.5	57.5	46.5
024	69	57.5	61.5	63.0	61.0	60.0	56.0	45.0
030	72	56.5	63.0	65.0	66.0	64.0	62.5	57.0
036	72	65.0	61.5	63.5	65.0	64.5	61.0	54.5
048	72	58.5	61.0	64.0	67.5	66.0	64.0	57.0
060	72	63.0	61.5	64.0	66.5	66.0	64.5	55.5

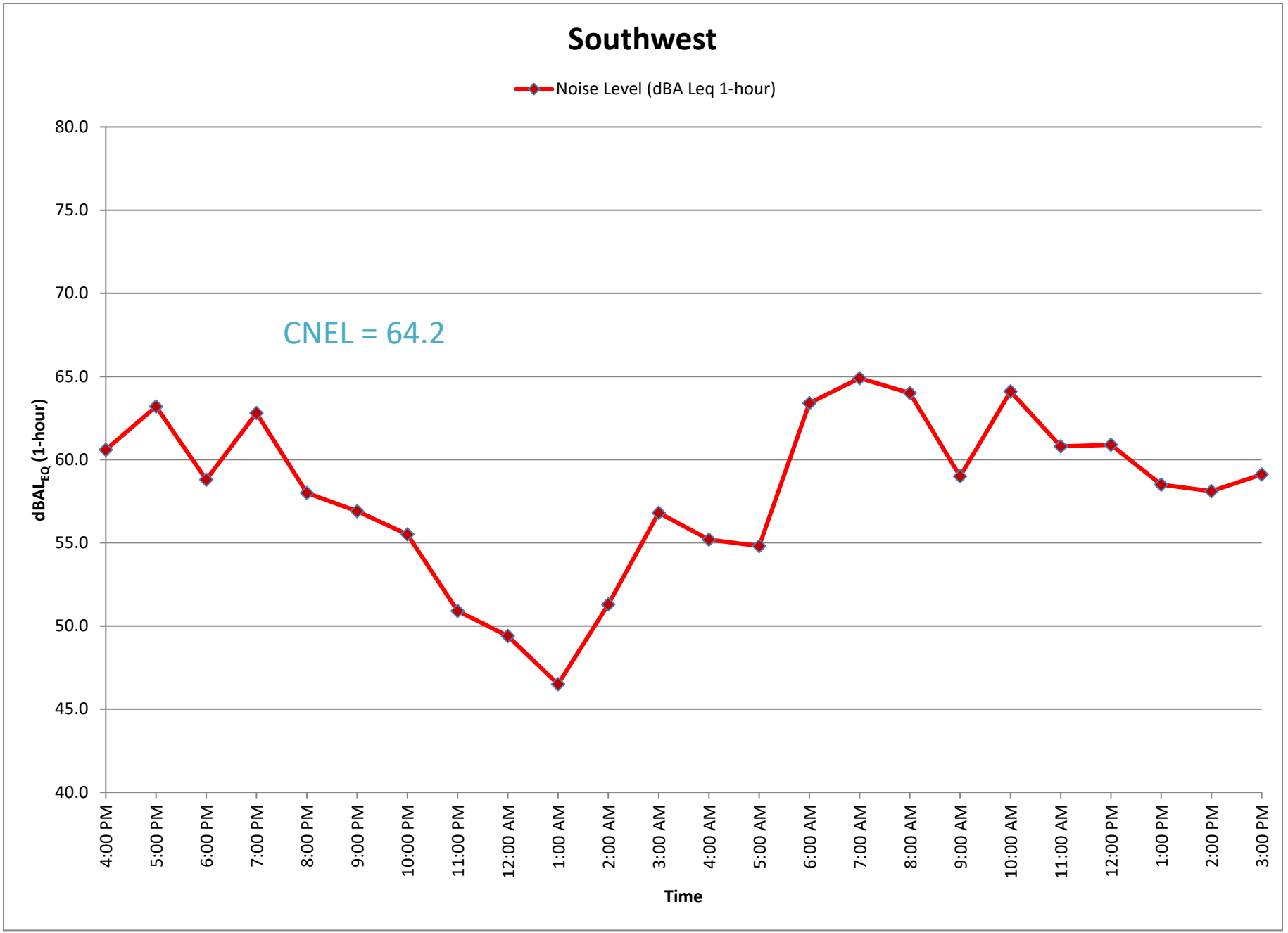
CHARGING SUBCOOLING (TXV-TYPE EXPANSION DEVICE)

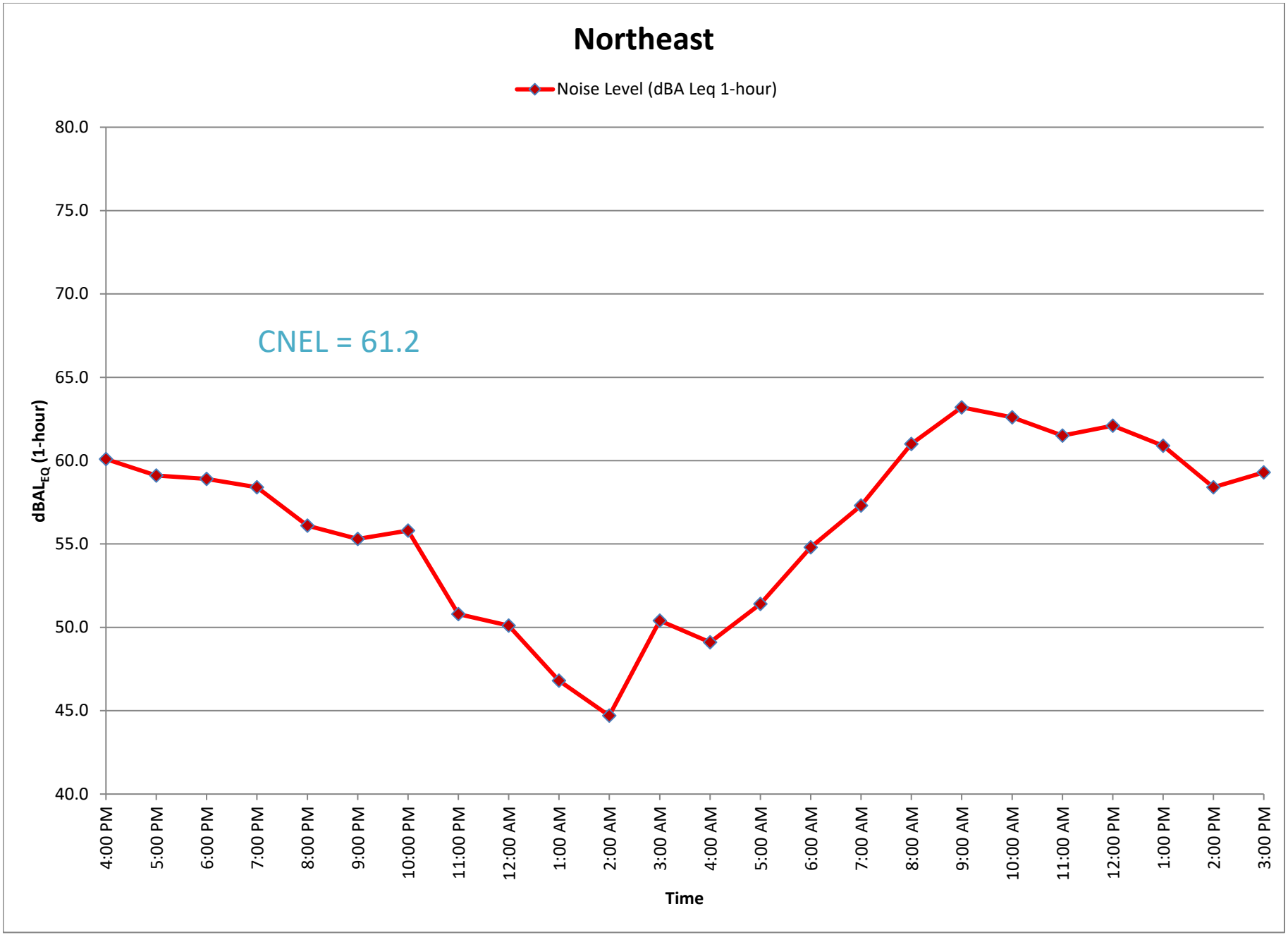
UNIT SIZE–VOLTAGE, SERIES	REQUIRED SUBCOOLING °F (°C)
018	12 (6.7)
024	12 (6.7)
030	12 (6.7)
036	12 (6.7)
048	12 (6.7)
060	12 (6.7)

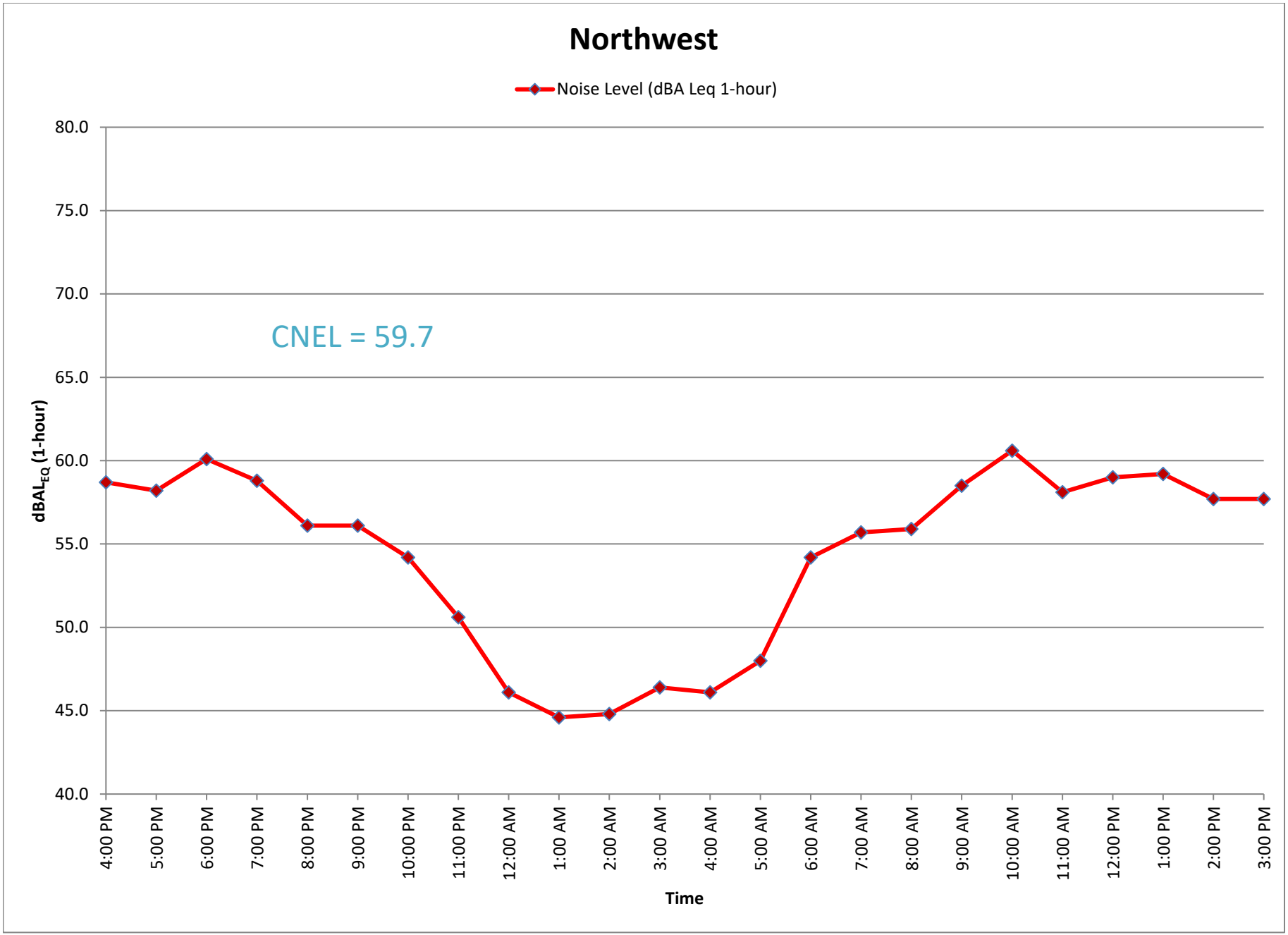
Appendix C

24-hour Measured Noise Levels


South
Noise Level (dBA Leq 1-hour)
CNEL = 68.2
dBA L_{EQ} (1-hour)
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
Time


Southwest
Noise Level (dBA Leq 1-hour)
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
CNEL = 64.2
dBAL$_{EQ}$ (1-hour)
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
Time


Northeast
Noise Level (dBA Leq 1-hour)
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
CNEL = 61.2
dBAL$_{EQ}$ (1-hour)
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
Time


Northwest
Noise Level (dBA Leq 1-hour)
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
CNEL = 59.7
dBAL$_{EQ}$ (1-hour)
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
Time