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May 2, 2019

Adam Finestone, AICP
Planning Division
City of Escondido
201 North Broadway
Escondido, CA 92025

Subject: **Update to the 220 North Quince Street Senior Housing Project 2017 Acoustical Analysis Report**

Dear Mr. Finestone:

HELIX Environmental Planning, Inc. (HELIX) prepared an Acoustical Analysis Report for the 220 North Quince Senior Housing Project, dated August 30, 2017. The report analyzed the construction and operational noise impacts of the project as proposed at the time. Since preparation of the report, the project has been refined based on comments from City staff, including minor updates to the site plan and changes to the Transportation Impact Analysis (TIA) prepared by Linscott, Law & Greenspan Engineers (LLG). Relevant project refinements are summarized below:

- Refinement of the proposed density from 97.32 to 97.9 units per acre.
- Reduction in the total number of parking spaces from 147 to 142 per revised City standards.
- Total open space is revised from 33,001 to 36,784 square feet.
- Construction start date revised to January 2020 (originally September 2018).
- Reduction in the anticipated export quantities from 2,000 to 1,000 cubic yards.

Although the overall trip generation for the project remains at 590 Average Daily Trips (ADT), the distribution of the trips on the North Quince Street segment from West Washington Avenue to West Valley Parkway increased. Additionally, the overall baseline existing traffic levels for the analyzed roadway segments were increased by 10 percent.

Section 4.2.1 of the 2017 Acoustical Analysis Report analyzed exterior and interior noise levels for the project based on anticipated increases in traffic. The exterior courtyard locations are shown as receivers D1 through D3 in Table 10, *Future Exterior On-site Noise Levels*, of the report. The results were based on the prior estimate of the traffic volumes for the Near Term Future (Existing + Cumulative) + Project scenario provided by the project TIA for North Quince Street and West Valley Parkway and the SANDAG Series 13 Traffic Volume Forecasts for 2035 for Centre City Parkway, plus an addition of 3 dBA to account for the nearby transportation center noise. The resulting exterior noise levels ranged from 47.4 to 51.6 CNEL. The Near Term Future + Project volumes have since been updated to estimate 11,060 ADT for North Quince Street from West Washington Avenue to West Valley Parkway (an increase of

approximately 12 percent over the previous estimate of 9,860 ADT) and 18,738 ADT for West Valley Parkway (an increase of approximately 9 percent over the previous estimate of 17,160 ADT). A standard rule of thumb is to estimate an increase of 3 dBA with a doubling of traffic volumes. Correspondingly, a conservative estimate would be that traffic noise levels would increase by 1 dBA from the 9 to 12 percent increase in traffic volumes. This would increase the exterior noise levels to 48.4 to 52.6 CNEL. The resulting levels would remain below the City's Community Protection Element exterior 65 CNEL limit for multi-family residential uses.

Implementation of the interior noise reduction strategies detailed in mitigation measure Noi-1 would still be required to ensure that all rooms would be in compliance with the relevant Title 24 interior noise standards of 45 CNEL for habitable areas.

Section 4.4.2 of the Acoustical Analysis Report analyzed the potential off-site transportation noise impacts from the project on adjacent roadways. As described in the analysis, a significant increase would be an increase of 3 dBA over existing conditions, which would occur with a doubling of traffic volumes. Based on the updated traffic volume on North Quince Street, the project would change traffic from 10,370 ADT (existing conditions) to 10,810 ADT (existing + project). This is an increase of 440 trips, or approximately 4 percent, which would be substantially lower than a doubling of traffic volumes. Therefore, the conclusion in the Acoustical Analysis Report of a less than significant impact remains valid.

Construction noise impacts were assessed based on a conservative estimate of an excavator and a loader operating simultaneously. The project refinements would not result in changes to the typical equipment assumed in the construction noise modeling; therefore the 2017 Acoustical Analysis Report's conclusions that (1) construction vibration impacts would be less than significant, and (2) construction noise levels from demolition and excavation would not exceed the City's noise limit of 75 dBA L_{EQ} (1 hour) and impacts from construction noise would be less than significant remain valid.

Based on the above considerations, the conclusions and mitigation presented in the 2017 Acoustical Analysis Report would remain valid for the project and the report does not need to be revised.

Regards,

Joanne M. Dramko, AICP
Principal Air Quality and Noise Specialist

REFERENCES

HELIX Environmental Planning (HELIX).
2017 Acoustical Analysis Report. August 30.

Linscott, Law & Greenspan Engineers (LLG).
2019 Transportation Impact Analysis, 220 N. Quince Street Senior Housing Project. April 29.

2017 Transportation Impact Analysis, 220 N. Quince Street Senior Housing Project. August 9.

220 North Quince Street Senior Housing Project

ACOUSTICAL ANALYSIS REPORT

August 30, 2017 | ISH-02

Prepared for:

220 Quince, L.P.
7956 Lester Avenue
Lemon Grove, CA 91945

Prepared by:

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942

220 North Quince Street Senior Housing Project

ACOUSTICAL ANALYSIS REPORT

Prepared for:

220 Quince, L.P.
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August 30, 2017 | ISH-02

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ACRONYMS AND ABBREVIATIONS

AMSL	average mean sea level
ANSI	American National Standards Institute
CAD	Computer Aided (engineering and architectural) Design
CadnaA	Computer Aided Noise Abatement
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
City	City of Escondido
CNEL	Community Noise Equivalent Level
dB	decibel
dBA	A-weighted decibels
EIR	Environmental Impact Report
EQRs	Environmental Quality Regulations
FTA	Federal Transit Administration
HVAC	heating, ventilation, and air conditioning
Hz	Hertz
I-5	Interstate 5
in./sec	inches per second
kHz	kilohertz
L_{DN}	Day-Night Sound Level
L_{EQ}	one-hour average sound level
LLG	Linscott, Law & Greenspan Engineers
M1	Light Industrial
MCAS	Marine Corps Air Station
mPa	micro-Pascals
mph	miles per hour
NCTD	North County Transit District
NSLU	noise-sensitive land use
PPV	peak particle velocity
RCNM	Roadway Construction Noise Model
SANDAG	San Diego Association of Governments
SF	square foot/feet

ACRONYMS AND ABBREVIATIONS (cont.)

SPL	sound pressure level
STC	Sound Transmission Class
S_{WL}	sound power level
TNM	Traffic Noise Model
USDOT	U.S. Department of Transportation
Vdb	vibration decibel

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EXECUTIVE SUMMARY

This report presents an assessment of potential construction and operational noise impacts associated with the proposed 220 North Quince Street Senior Housing Project (project).

The project proposes to construct a five-story affordable senior housing development with ground-floor parking and four stories of apartments in the City of Escondido (City). The project would construct 145 residential units and provide 147 parking spaces.

The project would result in less than significant construction noise impacts. In addition, operational noise from the project's heating, ventilation, and air conditioning (HVAC) units and project-generated traffic would also result in less than significant noise impacts.

Exterior noise levels from traffic noise at the project's courtyards would be consistent with City standards in the General Plan Community Protection Element for a multi-family residential use.

Exterior noise levels at the building façades for the residential areas with a view of North Quince Street or West Valley Parkway have the potential to result in an exceedance of interior noise standards (45 CNEL). Therefore, an exterior-to-interior noise reduction analysis was conducted to determine if the interior noise levels would comply with Title 24. Interior noise levels would be consistent with City standards with implementation of mitigation measure Noi-1 for the bedroom and living rooms with a view (including partial) of North Quince Street or West Valley Parkway, which requires a minimum window requirement of Sound Transmission Class (STC) 28; exterior wall requirement of Standard 0.875-inch Stucco over 0.5 inch Shearwall on 2x6 Studs with 0.625-inch Type "X" Drywall; window construction of Dual Glazing Window Thickness 0.125-inch and 0.5- inch Air Gap; and proper ventilation in accordance with the International Building Code to ensure that windows would be able to be permanently closed.

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1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

The 220 North Quince Street Senior Housing project (project) is located in the City of Escondido (City), east of Interstate 15 (I-15) at the northeast corner of West Valley Parkway and North Quince Street (Figure 1, *Regional Location*; Figure 2, *Project Vicinity*). The 1.49-acre project site is developed with three approximately 10,000-square-foot (sf) warehouse buildings and one approximately 2,000-sf building formerly used as a maintenance and repair facility for a moving and storage company. A small paved and striped parking area, as well as driveways and other parking areas formerly utilized for outdoor storage are located within the site. The project site consists of one parcel that is relatively flat in topography with a slight downward slope toward the northeast. On-site elevations range from approximately 635 to 647 feet above mean sea level (AMSL). The property is zoned as Light Industrial (M1) within the downtown Specific Plan Area.

The project proposes to construct a five-story affordable senior housing development with ground-floor parking and four stories of residences above (Figures 3a and 3b, Site Plans). The project would construct 145 residential units (97.32 units/acre density) and provide 147 parking spaces. The entrance lobby would be located at the street (parking) level facing North Quince Street. Two courtyards would be provided at the podium (second) level and would be open to the northeastern edge of the property. An overlook plaza would be provided in the southwest corner of the podium level, facing the intersection of North Quince Street and West Valley Parkway. A leasing area and a 4,800-sf community room with a kitchen, office, and laundry facilities also would be provided at the podium level. New curbs, gutters, sidewalks, and street trees would be provided along the project's western and southern frontages along North Quince Street and West Valley Parkway, respectively. The driveway entry into the ground-level parking would be located at the northwestern corner of the project from North Quince Street. Storm drain improvements and connections to public utility, sewer, and water lines would be installed.

2.0 ENVIRONMENTAL SETTING

2.1 NOISE AND SOUND LEVEL DESCRIPTORS AND TERMINOLOGY

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.

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.

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.

The amplitude of pressure waves generated by a sound source determines the loudness of that source. A logarithmic scale is used to describe sound pressure level (SPL) in terms of dBA units. The threshold of hearing for the human ear is about 0 dBA, which corresponds to 20 micro Pascals (mPa).

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-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 one source under the same conditions.

2.2 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, such as residential dwellings, schools, transient lodging (hotels), hospitals, educational facilities, and libraries. Industrial and commercial land uses are generally not considered sensitive to

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Regional Location

220 NORTH QUINCE STREET SENIOR HOUSING

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N 0 8 Miles

Figure 1

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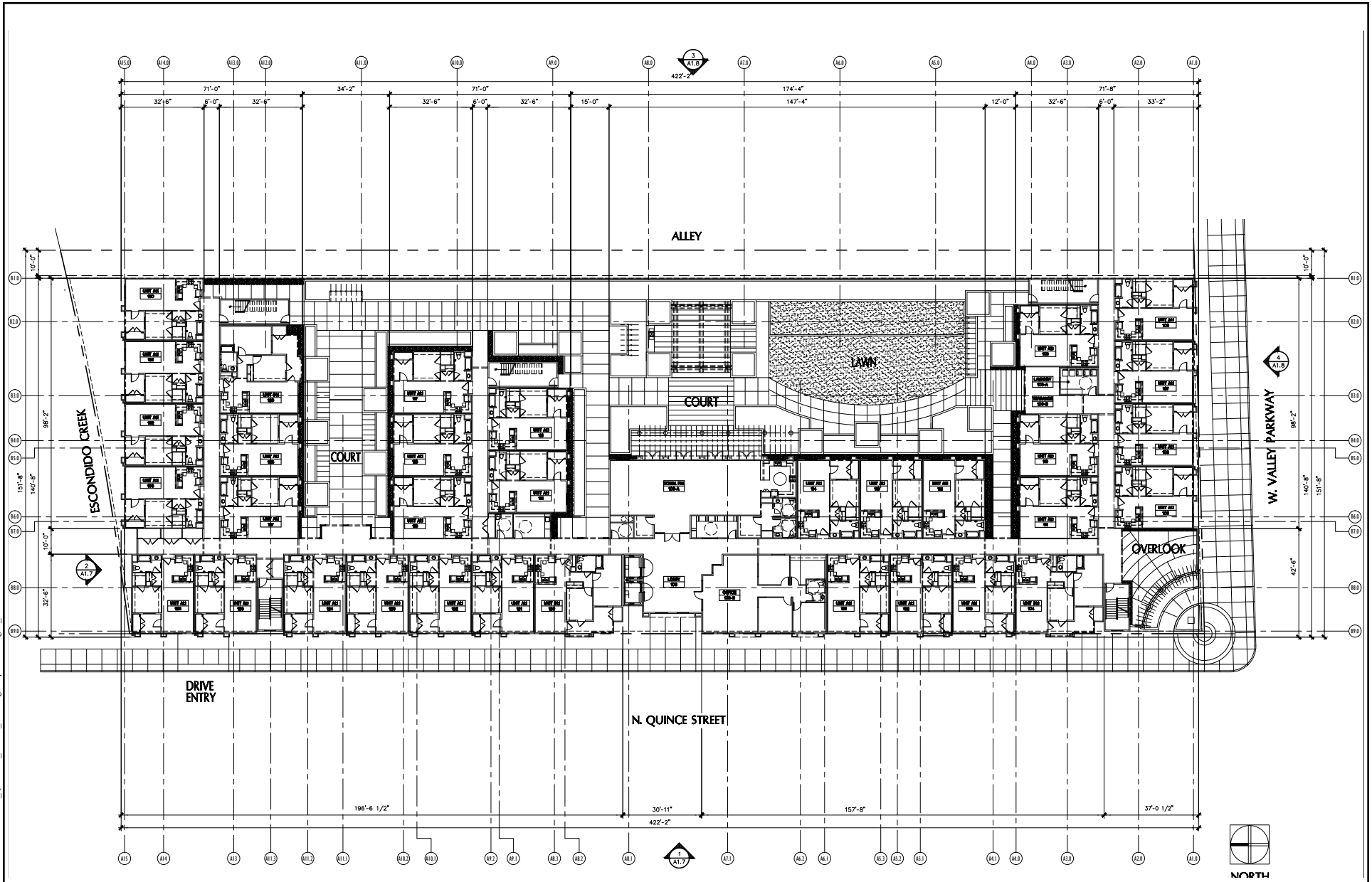
Project Vicinity

220 NORTH QUINCE STREET SENIOR HOUSING

HELIX Environmental Planning

N 0 300 Feet

Figure 2



Source: Rodriguez Associates Architects & Planners Inc., 2017

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Site Plan - Podium Level

220 NORTH QUINCE STREET SENIOR HOUSING

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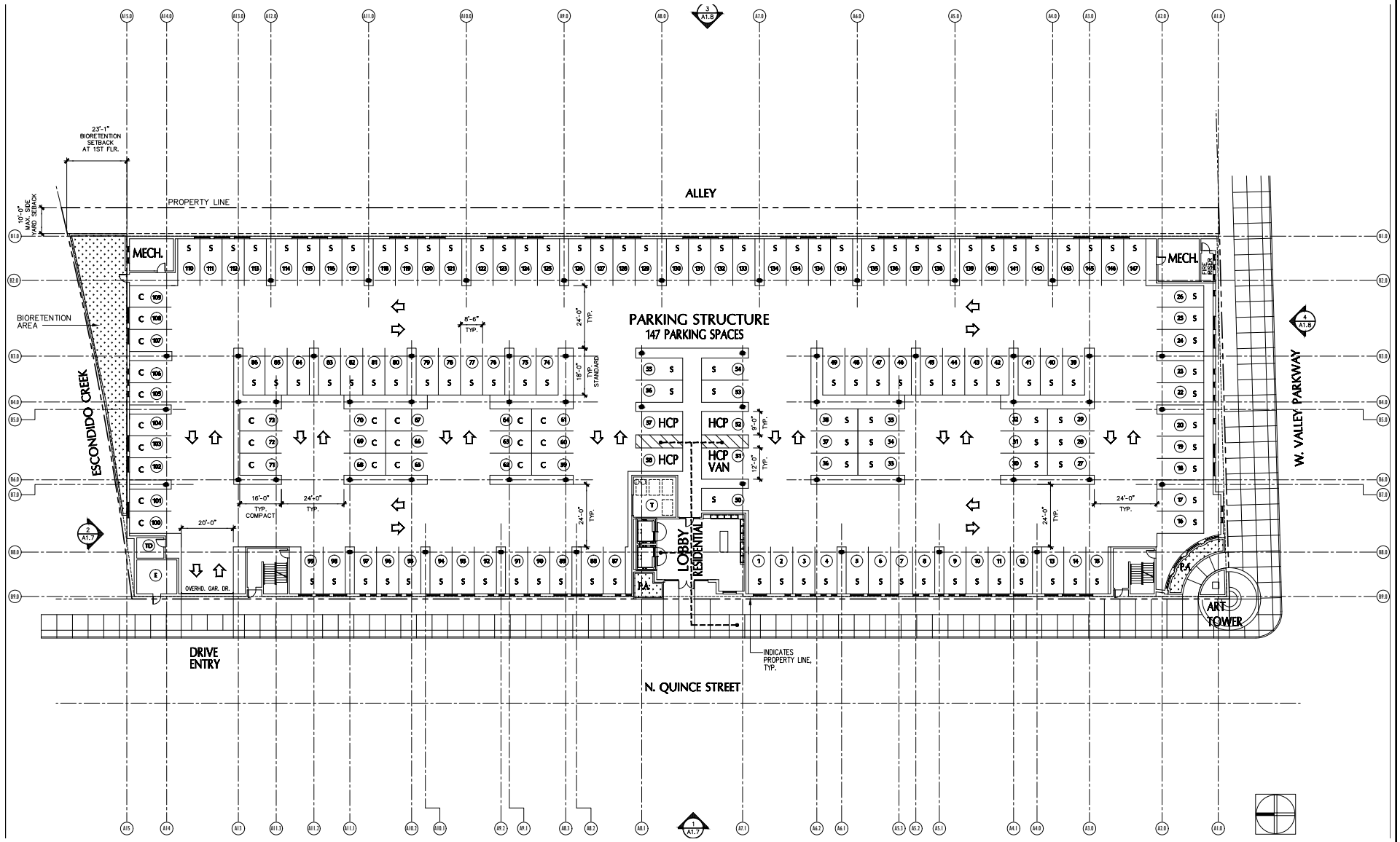
Figure 3a



Source: Rodriguez Associates Architects & Planners Inc., 2017

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Site Plan - Ground Level

220 NORTH QUINCE STREET SENIOR HOUSING

Figure 3b

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noise. The proposed project is considered a NSLU; however, there are no other NSLUs in the immediate vicinity to the project site.

Land uses in which ground-borne vibration could potentially interfere with operations or equipment, such as research, manufacturing, hospitals, and university research operations (Federal Transit Administration [FTA] 2006) 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. No vibration-sensitive uses are located in the project area.

2.3 REGULATORY FRAMEWORK

California Noise Insulation Standards (California Code of Regulations, Title 24)

Title 24 establishes an Interior Noise Standard of 45 CNEL for multiple-unit residential and hotel/motel structures. Acoustical studies must be prepared for proposed multiple-unit residential and hotel/motel structures within the CNEL noise contours of 60 dBA or greater. The studies must demonstrate that the design of the building will reduce interior noise in habitable rooms to 45 CNEL or lower.

City of Escondido Community Protection Element

The goal of the Community Protection Element of the City General Plan (City 2012a) is to minimize the impact of noise on the community by identifying existing and potential noise sources and providing the policies and standards needed to keep noise from reducing the quality of life in the City. The Community Protection Element establishes guidelines to evaluate the compatibility of land uses and noise exposure levels. Table 1, *City of Escondido Exterior Land Use/Noise Compatibility Guidelines*, summarizes the City's exterior land use/noise compatibility guidelines. A land use located in an area identified as "normally acceptable" indicates that standard construction methods would attenuate exterior noise to an acceptable indoor noise level and that people can conduct outdoor activities with minimal noise interference. For land uses where the exterior noise level falls within the "conditionally unacceptable" range, new construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made with noise insulation features included in the design. For land uses where the exterior noise levels fall within the "clearly unacceptable" range, new construction generally should not be undertaken.

The Community Protection Element also states that the exterior standard should not normally be applied to balconies or patios associated with residential uses. In addition, noise impacts of proposed projects on existing land uses should be evaluated in terms of potential for adverse community response, based on a significant increase in existing noise levels. For example, if an area currently is below the maximum normally acceptable level, an increase in noise up to the maximum should not necessarily be allowed. Projects increasing noise levels by 5 dB or greater should be considered as generating a significant impact that requires mitigation.

Table 1
CITY OF ESCONDIDO EXTERIOR LAND USE/
NOISE COMPATIBILITY GUIDELINES

Land Use Category	Annual CNEL (dBA)						
	55	60	65	70	75	80	
Residential Single-family, Duplex, Mobile Home							
Residential Multi-family, Residential Mixed Use							
Transient Lodging, Motels, and Hotels							
Schools, Libraries, Churches, Hospitals, and Nursing Homes							
Auditoriums, Concert Halls, Amphitheaters							
Sports Arena, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Offices Buildings, Business, Commercial, and Professional							
Industrial, Manufacturing, Utilities, Agriculture							

Normally Acceptable – Specified land use is satisfactory, based upon the assumption that buildings involved are of normal conventional construction, without any special noise insulation requirements.

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

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 noise insulation features included in the design.

Clearly Unacceptable - New construction or development clearly should not be undertaken.

Source: City 2012a

The Community Protection Element also includes exterior incremental environmental noise impact standards for NSLUs, shown in Table 2, *City of Escondido Incremental Noise Impact Standards*. The allowable increase in noise levels decreases as ambient noise levels increases. In addition, the standards include separate allowable noise increases for uses that are more noise sensitive during the day (peak hour) versus at night where people normally sleep (24-hour).

Table 2
CITY OF ESCONDIDO INCREMENTAL
NOISE IMPACT STANDARDS

Residences and Building Where People Normally Sleep		Institutional Land Uses with Primarily Daytime and Evening Uses	
Existing L_{DN}[1]	Allowable Noise Increment	Existing Peak Hour L_{EQ}[2]	Allowable Noise Increment
45	8	45	12
50	5	50	9
55	3	55	6
60	2	60	5
65	1	65	3
70	1	70	3
75	0	75	1
80	0	80	0

Source: City 2012a

[1] L_{DN} is a 24-hour average with an added 10 dBA weighting on the nighttime hours of 10:00 p.m. to 7:00 a.m.

[2] L_{EQ} stands for one-hour average sound level.

Noise Policy 5.5 of the Community Protection Element requires that construction projects and new development ensure acceptable vibration levels at nearby NSLUs based on FTA criteria. These criteria are outlined in the Escondido General Plan Update, Downtown Specific Plan Update and Climate Action Plan Environmental Impact Report (General Plan EIR; City 2012b) and shown in Table 3, *City of Escondido Ground-borne Vibration Impact Criteria*, below. The General Plan EIR states that the category of infrequent events is applicable to construction activities.

Table 3
CITY OF ESCONDIDO GROUND-BORNE VIBRATION IMPACT CRITERIA

Land Use Category	Impact Levels (VdB)		
	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]
Category 1: Buildings where vibration would interfere with interior operations	65[4]	65[4]	65[4]
Category 2: Residences and buildings where people normally sleep	72	75	80
Category 3: Institutional land uses with primarily daytime uses	75	78	83

Source: City 2012b

VdB = vibration decibels

[1] "Frequent Events" is defined as more than 70 vibration events of the same source per day.

[2] "Occasional Events" is defined as between 30 to 70 vibration events of the same source per day.

[3] "Infrequent Events" is defined as fewer than 70 vibration events of the same source per day.

[4] This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels.

City of Escondido Municipal Code (Noise Ordinance)

City of Escondido Municipal Code Chapter 17, Article 12, Noise Abatement and Control, establishes prohibitions for the purpose of securing and promoting the public health, comfort, safety, peace, and quiet for its citizens (City 2015). Table 4, *City of Escondido Noise Ordinance – Exterior Noise Limits*, shows the allowable noise levels at any point on or beyond the boundaries of the property on which the sound is produced, and corresponding times of day for each zoning designation. The noise standards apply to each property or portion of property substantially used for a particular type of land use. Where two or more dissimilar land uses occur on a single property, the more restrictive noise limits apply. Noise is measured by the one-hour average sound level known as L_{EQ}. Noise restrictions are listed in Sections 17-230 through 17-241 of the Noise Ordinance, such as specific regulations pertaining to motor vehicles. Additional sections of the Noise Ordinance applicable to this analysis are listed below.

Table 4
CITY OF ESCONDIDO NOISE ORDINANCE –
EXTERIOR NOISE LIMITS

Zone	Time	Noise Level (dBA)
Residential zones	7:00 a.m. to 10:00 p.m.	50
	10:00 p.m. to 7:00 a.m.	45
Multi-residential zones	7:00 a.m. to 10:00 p.m.	55
	10:00 p.m. to 7:00 a.m.	50
Commercial zones	7:00 a.m. to 10:00 p.m.	60
	10:00 p.m. to 7:00 a.m.	55
Light industrial	Anytime	70
General industrial zones	Anytime	75

Source: City of Escondido Municipal Code Section 17-229, Sound Level Limits

Section 17-229(c)(5) (Corrections to Exterior Noise Level Limits)

Section 17-229 (c)(5) of the Noise Ordinance, Corrections to Exterior Noise Level Limits, includes the following regulations:

a) If the noise is continuous, the L_{EQ} for any hour will be represented by any lesser time period within that hour. Noise measurements of a few minutes only will thus suffice to define the noise level.

b) If the noise is intermittent, the L_{EQ} for any hour may be represented by a time period typical of the operating cycle. Measurement should be made of a representative number of noisy/quiet periods. A measurement period of not less than 15 minutes is, however, strongly recommended when dealing with intermittent noise.

c) In the event the alleged offensive noise, as judged by the enforcement officer, contains a steady, audible sound such as a whine, screech or hum, or contains a repetitive impulsive noise such as hammering or riveting, the standard limits set forth in Table 4, shall be reduced by 10 dB or to the ambient noise level when such noises are not occurring.

d) If the measured ambient level exceeds that permissible in Table 4, the allowable noise exposure standard shall be the ambient noise level. The ambient level shall be measured when the alleged noise violations source is not operating.

e) The sound level limit at a location on a boundary between two land use classifications is the limit applicable to the receiving land use; provided, however, that the one-hour average sound level limit applicable to extractive industries including, but not limited to, borrow pits and mines, shall be 75 dB at the property line regardless of the zone where the extractive industry is actually located.

Fixed-location public utility distribution or transmission facilities located on or adjacent to a property line shall be subject to the noise level limits of this section, measured at or beyond six feet from the boundary of the easement upon which the equipment is located.

Section 17-234 (Construction Equipment)

Except for emergency work, it shall be unlawful for any person, including the City of Escondido, to operate construction equipment as follows:

(a) It shall be unlawful for any person, including the City of Escondido, to operate construction equipment at any construction site, except on Monday through Friday during a week between the hours of 7:00 a.m. and 6:00 p.m. and on Saturdays between the hours of 9:00 a.m. and 5:00 p.m., and provided that the operation of such construction equipment complies with the requirements of subsection (c) of this section.

(b) It shall be unlawful for any person, including the City of Escondido, to operate construction equipment at any construction site on Sundays and on days designated by the President, Governor or City Council as public holidays.

(c) No construction equipment or combination of equipment, regardless of age or date of acquisition, shall be operated so as to cause noise in excess of a one-hour average sound level limit of 75 dBA at any time, unless a variance has been obtained in advance from the City Manager.

Section 17-237 (Landscape Equipment)

It shall be unlawful for any person, including the City of Escondido, to use any motorized landscape equipment, including but not limited to power blowers and vacuums, which causes a disturbing, excessive or offensive noise as defined under Section 17-227(k) of the Noise Ordinance. Disturbing, excessive or offensive noise refers to any sound or noise exceeding the noise standards established in the Noise Ordinance (Table 4.12-5, City of Escondido Exterior Sound Limit Levels).

Section 17-238 (Grading)

a) It shall be unlawful for any person, including the City of Escondido, to do any authorized grading at any construction site, except on Mondays through Fridays during a week between the hours of 7:00 a.m. and 6:00 p.m. and, provided a variance has been obtained in advance from the City Manager, on Saturdays from 10:00 a.m. to 5:00 p.m.

b) For the purpose of this section, "grading" shall include, but not be limited to, compacting, drilling, rock crushing or splitting, bulldozing, clearing, dredging, digging, filling and blasting.

c) In addition, any equipment used for grading shall not be operated so as to cause noise in excess of a one-hour sound level limit of 75 dB at any time when measured at or within the property lines of any property which is developed and used in whole or in part for residential purposes, unless a variance has been obtained in advance from the City Manager.

Section 17-240

Section 17-240 includes additional general noise regulations. This section states that it is unlawful for any person to make, continue or cause to be made or continued, any disturbing, excessive or offensive noise which causes discomfort or annoyance to reasonable persons of normal sensitivity. Noises declared to be disturbing, excessive and offensive include stereo equipment, animal noise, and loading and unloading of vehicles that disturbs neighboring receptors.

City of Escondido Municipal Code Chapter 33, Article 47, Environmental Quality Regulations

The Environmental Quality Regulations (EQRs) implement the California Environmental Quality Act (CEQA) and the CEQA Guidelines (guidelines) by applying the provisions and procedures contained in CEQA to development projects proposed within the City of Escondido. Section 33-924(a)(8)(A) and (B) pertain to noise impacts, specifically noise impacts related to the widening of Circulation Element street widening. In situations where a negative declaration is otherwise appropriate, the following incremental noise increases are generally not considered significant:

a. Short or long-term increases, regardless of the extent, that do not result in noise increases in excess of General Plan standards.

b. Short or long-term increases that result in a 3 dBA or less incremental increase in noise beyond the General Plan's noise standards.

2.4 EXISTING CONDITIONS

2.4.1 Surrounding Land Uses

The area surrounding the project site is primarily developed with commercial and industrial uses. The channelized Escondido Creek runs north of the project site, beyond which is the Escondido Fire Department Station 1, located at 310 North Quince Street. East of the project site is another storage facility and commercial offices. South of the project across West Valley Parkway is a paved parking lot and bank. Directly across the street of the project to the west is the North County Transit District (NCTD) Escondido Transit Center, which includes a regional bus hub and a SPRINTER station. The bus hub is located across North Quince Street at an approximately distance of 100 feet; the SPRINTER station is located approximately 1,000 feet west of the project and is the eastern terminus for the SPRINTER rail line. The surrounding land uses are zoned Light Industrial (M1).

2.4.2 Existing Noise Conditions

2.4.2.1 General Site Survey

Two 15-minute traffic noise measurements were conducted during a site visit on June 15, 2017. Measurement M1 was performed across the street from the building structures on North Quince Street, near the "no entry" symbol at the Escondido Transit Station. Measurement M2 was performed off West Valley Parkway, adjacent to the existing alley behind the structure on the project site closest to the parkway. During the traffic noise measurements, start and end times were recorded and vehicle counts were made for cars, medium-duty vehicles (double-tires/two axles), and heavy trucks (three or more axles) for the corresponding road segments. The measurement time was sufficiently long for a representative traffic volume to occur and the noise level (L_{EQ}) to stabilize. The vehicle counts were then converted to one-hour equivalent volumes by applying an appropriate factor.

The measurements included substantial noise associated with the Escondido Transit Center. Noise from the station included buses, trains, vehicles parking at the center, and general activity noise from people at the station. For measurement M1 on North Quince Street, only one medium-duty vehicle passed in front of the microphone. This is likely because the measurement was taken north of the bus exit, whereas buses that are exiting the station onto North Quince Street were observed turning right and heading south towards West Valley Parkway, therefore not passing in front of the microphone. For measurement M2 on West Valley Parkway, a higher number of medium-duty vehicles were observed, as most buses traveling to the transit center would travel on West Valley Parkway to the transit center entrance.

The measured noise levels and related weather conditions are shown in Table 5, *Noise Measurement Results*. Traffic counts for the timed measurement and the one-hour equivalent volumes are shown in Table 6, *Measured Traffic Volumes and Vehicular Distribution*.

Table 5
NOISE MEASUREMENT RESULTS

Measurement	Location	Conditions	Time	dBA L_{EQ}	Notes
M1	At the "no entry" symbol on the north side of the driveway out of the transit center parking lot (approximately 50 feet from roadway centerline)	Mid 70's temperature; no measurable wind; moderate humidity.	1:45 p.m. to 2:00 p.m.	69.8	Substantial background activity from Escondido Transit Center, including buses, trains, and vehicles.
M2	At the north edge of the sidewalk in the center of the alley behind the buildings on West Valley Parkway (approximately 50 feet from roadway centerline)	Mid 70's temperature; no measurable wind; moderate humidity.	2:10 p.m. to 2:25 p.m.	67.5	Substantial background activity from Escondido Transit Center, including buses, trains, and vehicles

Table 6
MEASURED TRAFFIC VOLUMES AND VEHICULAR DISTRIBUTION

Roadway	Traffic	Autos	MDV[1]	HDV[2]
North Quince Street	15-minute count	92	1	0
	One-hour Equivalent	368	4	0
	Percent	**99%**	**1%**	**0%**
West Valley Parkway	15-minute count	245	11	2
	One-hour Equivalent	980	44	8
	Percent	**95%**	**4%**	**1%**

[1] Medium-duty Vehicles (double tires/two axles)
[2] Heavy-duty Vehicles (three or more axles)

The posted speed limit for both streets is 35 miles per hour (mph); the observed vehicle speeds during the site visit averaged about 30 mph. Analysis is based on the 35 mph speed limit.

3.0 METHODOLOGY AND SIGNIFICANCE CRITERIA

3.1 METHODOLOGY AND EQUIPMENT

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

- Larson Davis System 831 Integrating Sound Level Meters
- Larson Davis Model CAL250 Calibrator
- Windscreen and tripod for the sound level meter
- Digital camera

The sound level meter was field-calibrated immediately prior to the noise measurements to ensure accuracy. All measurements were made with a meter that conforms to the American National Standards Institute (ANSI) specifications for sound level meters (ANSI SI.4 1983 R2001). All instruments were maintained with National Bureau of Standards traceable calibration per the manufacturers' standards.

Modeling of the exterior noise environment for this report was accomplished using two computer noise models: Computer Aided Noise Abatement (CadnaA) version 2017 and Traffic Noise Model (TNM) version 2.5. 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.

The one-hour L_{EQ} noise level is calculated utilizing peak-hour traffic; peak-hour traffic volumes can be estimated based on the assumption that 10 percent of the average daily traffic would occur during a peak hour. The model-calculated one-hour L_{EQ} noise output is the equivalent to the CNEL (Caltrans 2009).

Project construction noise was analyzed using the Roadway Construction Noise Model (RCNM; USDOT 2008), which utilizes estimates of sound levels from standard construction equipment.

3.2 ASSUMPTIONS

3.2.1 Construction

To prepare the site for construction, the project would demolish the existing three warehouse building, parking lot, curbs, and sidewalks; remove existing vegetation; and conduct site grading. The project would entail the use of equipment throughout the site for the full term of construction. See Table 7, *Construction Phases and Equipment*, for typical equipment information by phase.

Table 7
CONSTRUCTION PHASES AND EQUIPMENT

Construction Phase	Equipment
Demolition	Concrete/Industrial Saws
	Rubber Tired Dozers
	Tractors/Loaders/Medium Size Excavators
Site Preparation	Graders
	Rubber Tired Dozers
	Tractors/Loaders/Backhoes
Grading	Graders
	Rubber Tired Dozers
	Tractors/Loaders/Backhoes
Underground Utilities	Medium Size Excavators
	Trenchers
Building Construction	Cranes
	Forklifts
	Generator Sets
	Tractors/Loaders/Backhoes
	Welders
Paving	Cement and Mortar Mixers
	Pavers
	Paving Equipment
	Rollers
	Tractors/Loaders/Backhoes
Architectural Coating	Air Compressors

3.2.2 Operation

The known or anticipated project site operational noise sources include heating, ventilation, and air conditioning (HVAC) units and vehicular traffic. During project operation, the site would be subject to noise from the nearby Escondido Transit Center, which includes buses, trains, and pedestrian noise, and noise from vehicular traffic on West Valley Parkway, North Quince Street, and Centre City Parkway. The project would also be subject to noise from the fire station located to the north across Escondido Creek.

3.2.2.1 Heating, Ventilation, and Air Conditioning Units

No air conditioning systems have been specified for the project. However, it is reasonable to anticipate the use of a heat (and cooling) source roof mounted water cooling tower with in-room cooling and heating units for the residential units with some split system units for other spaces.

A typical water cooling tower for this size building is a Baltimore Aircoil Company FXV-664, with three 5.5-foot diameter fans with 15-hp motors per fan. The manufacturer's noise data for this tower is provided below in Table 8, *Baltimore Aircoil Company Cooling Tower Noise*; more detailed data can be found in Appendix A, *Baltimore Aircoil Company FXV-664 Noise Data*.

Table 8
BALTIMORE AIRCOIL COMPANY COOLING TOWER NOISE

Unit	Noise Levels in Decibels[1] (dB) Measured at Octave Frequencies								Overall Noise Level in dBA[1]
	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	
FXV-664	108	102	98	97	92	86	85	77	96.9

Source: Appendix A

[1] Sound power levels (S_{WL})

Hz=Hertz; kHz=kilohertz

3.2.2.2 Transportation Noise

Traffic information for North Quince Street and West Valley Parkway was taken from the project Transportation Impact Analysis prepared by Linscott, Law & Greenspan Engineers (LLG 2017). Table 9, *Existing and Future Traffic Volumes,* includes these values that was used for traffic noise modeling scenario.

Table 9
EXISTING AND FUTURE TRAFFIC VOLUMES

Roadway Segment	ADT			
	Existing	Existing + Project	Near-Term Future	Near Term Future + Project
North Quince Street (West Washington Avenue to West Valley Parkway)	9,430	9,610	9,680	9,860
West Valley Parkway (Centre City Parkway to North Quince Street)	16,380	16,560	16,980	17,160

Note: Traffic volumes for North Quince Street and West Valley Parkway provided by the project TIA (LLG 2017).

Traffic information for Centre City Parkway (from West Valley Parkway to Escondido Creek) was provided from the San Diego Association of Governments (SANDAG 2017) Series 13 Traffic Volume Forecasts, which included a volume of 22,900 ADT for 2035 (used to estimate future conditions).

As previously noted the posted speed limits for North Quince Street and West Valley Parkway is 35 mph. Centre City Parkway is technically a 65-mph speed limit but normal traffic speeds are 45 mph (or less) and are analyzed at 50 mph. During the project site visit, the percentage breakdown of vehicles observed on West Valley Parkway to be 95 percent autos, 4 percent medium-duty vehicles, and

1 percent heavy duty vehicles. This may be an unusually low for heavy duty vehicles. In addition, North Quince Street was observed to be 99 percent automobiles, 1 percent medium-duty vehicles, and zero percent heavy vehicles. A more typical mix of 94 percent automobiles, 4 percent medium-duty vehicles, and 2 percent heavy vehicles was used for vehicle composition in the modeling.

During the general site survey for the project (as described under Section 2.4.1), noise levels were noticeably elevated in the area due to noise from the Escondido Transit Center. As a regional bus hub, there is frequent use of the transit center by buses near the project site. In addition, noise from users of the site and from train noise from the SPRINTER station were also audible. This noise was observed to be a similar intensity to the traffic noise in the area. Therefore, the transit center noise is accounted for at the project site by adding 3 dBA (a doubling of the sound energy level) to the calculated area traffic noise.

3.2.3 Fire Station

Escondido Fire Department Station 1, located approximately 130 feet north of the northern property line of the project site, is a fire station with six bay doors that empty onto North Quince Street. During the general site survey, no substantial noise was observed from the station. Noise from the fire station would occur from occasional fire truck traffic and use of sirens in emergencies. This noise would be infrequent and intermittent, and would not be expected to result in substantial noise to the project. Therefore, fire station noise is not analyzed further in this report.

4.0 IMPACTS

4.1 GUIDELINES FOR THE DETERMINATION OF SIGNIFICANCE

The following thresholds are based on the City General Plan EIR and Noise Ordinance, as applicable to the project.

A significant noise impact would occur if the project would:

1. Expose new development to noise levels in excess of the Noise Compatibility Standards established in the City's Community Protection Element, provided in Table 1. For multi-family uses, the noise compatibility standard is 65 CNEL.

2. For infrequent vibration events (defined as fewer than 30 events per day, applicable to construction operations), expose vibration-sensitive uses to vibration levels that exceed 65 VdB, residences and buildings where people normally sleep to 80 VdB, or institutional land uses with primarily daytime uses to 83 VdB. The FTA damage thresholds indicate that, for buildings not extremely sensitive to vibration, a damage threshold between 0.2 inch per second (in./sec) peak particle velocity (PPV) and 0.5 in./sec would apply (depending on the type of building).

3. Result in a permanent increase in ambient noise levels from operational sources that would exceed the sound level limits that exceed the noise limits in the City of Escondido Municipal Code Section 17-229, Sound Level Limits, at any point on or beyond the boundaries of the property on which the sound is produced, or result in a permanent increase in transportation noise that would exceed the incremental noise standards listed in Table 2.

4. Generate construction noise that exceeds the standards listed in the City of Escondido Municipal Code Section 17-234, Construction Equipment, and Section 17-238, Grading, both of which restrict construction noise to 75 dBA L_{EQ} (1 hour).

5. Expose people residing or working in the project area to noise levels from a nearby public airport or private airstrip that exceed the City's noise compatibility standard for that use.

4.2 ISSUE 1: NOISE LEVEL STANDARD COMPLIANCE FOR NEW USES

As noted in Section 3.2.2.2, future traffic noise levels to the project's on-site uses used in this analysis are based on the forecasted traffic volumes for North Quince Street and West Valley Parkway provided in the project TIA and the forecasted traffic volumes for Centre City Parkway provided by the SANDAG Series 13 Traffic Volume Forecasts.

As observed during the site visit for the project (discussed in Section 2.4.2), significant Escondido Transit Center noise and other background noise was heard at the project site. To approximate the noise impacts from these sources to the project's on-site uses, an adjustment of 3 dBA (a doubling of the noise energy) was added to the calculated noise level for each receiver.

4.2.1 Transportation Noise

4.2.1.1 Exterior Noise Levels

The project would not have any ground level exterior or interior residential use areas; all exterior residential uses, the project's courtyards, start at the podium level (first floor over ground level parking). These areas are modeled as receivers D1 through D3 and are shown in Table 10, *Future Exterior On-site Noise Levels*. The modeled receiver locations are identified on Figure 4, *Receiver Locations*.

Table 10
FUTURE EXTERIOR ON-SITE NOISE LEVELS

Receiver Number	Location	Exterior Noise Levels (CNEL)[1]
D1	Podium Level Courtyard South	47.4
D2	Podium Level Courtyard Center	48.3
D3	Podium Level Courtyard North	51.6

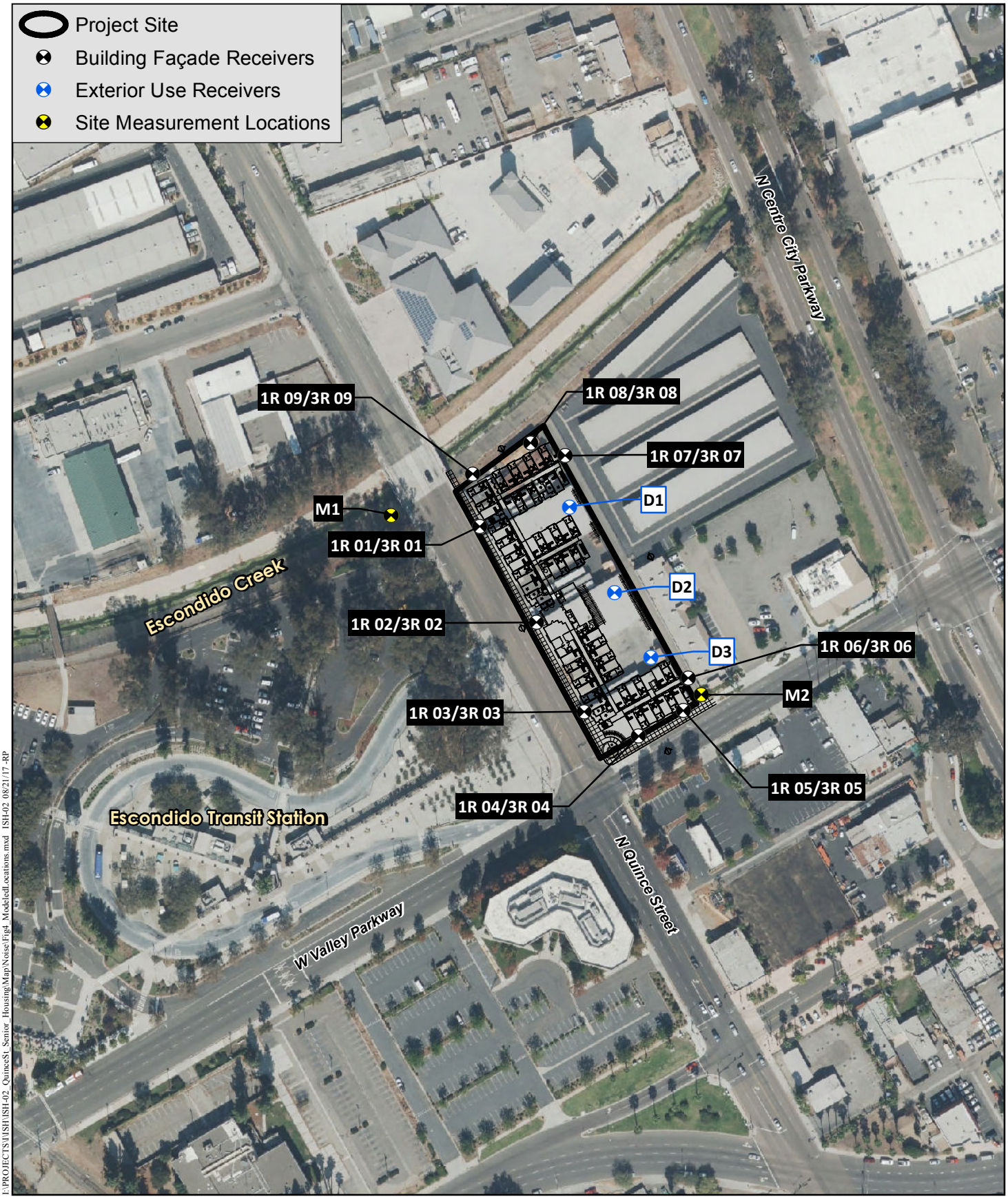
Note: Noise levels are based on traffic volumes for the Near Term Future + Project scenario provided by the project TIA (LLG 2017) for North Quince Street and West Valley Parkway and the SANDAG Series 13 Traffic Volume Forecasts (SANDAG 2017) for 2035 for Centre City Parkway. The podium level is the 1st floor above the ground level.

[1] Noise levels include the modeled transportation noise levels, plus 3 dBA to account for the nearby transportation center noise and other background noise.

As shown in Table 10, the exterior use areas (courtyard) would be below the City's Community Protection Element exterior 65 CNEL limit for multi-family residential.

4.2.1.2 Interior Noise Levels

As traditional architectural materials are expected to attenuate noise levels by 15 CNEL, if noise levels exceed 60 CNEL, interior noise levels may exceed the Title 24 interior noise standard of 45 CNEL. Receivers were placed at building façade locations throughout the project site at the podium level (first floor) and the 3rd floor. As shown in Table 11, *Future Interior On-site Noise Levels*, building façade noise levels would exceed 60 CNEL for all of the residential areas with a view (including partial) of North Quince Street or West Valley Parkway. Therefore, interior noise levels are likely to exceed the Title 24 interior noise standard of 45 CNEL. An exterior-to-interior noise analysis was conducted to calculate expected interior noise levels at these units to determine if they would comply with the 45 CNEL standard.



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Receiver Locations

220 NORTH QUINCE STREET SENIOR HOUSING

HELIX Environmental Planning

N 0 200 Feet

Figure 4

Table 11
FUTURE INTERIOR ON-SITE NOISE LEVELS

Receiver Number	Location	Exterior Noise Levels (CNEL)[1]
1R 01	Podium Level Residential Quince Street North	68.3
1R 02	Podium Level Residential Quince Street Center	64.7
1R 03	Podium Level Residential Quince Street South	68.7
1R 04	Podium Level Residential West Valley Parkway West	71.0
1R 05	Podium Level Residential West Valley Parkway East	70.9
1R 06	Podium Level Residential Driveway South	59.5
1R 07	Podium Level Residential Driveway North	44.3
1R 08	Podium Level Residential Channel East	59.4
1R 09	3rd Floor Residential Channel West	63.3
3R 01	3rd Floor Residential Quince Street North	67.8
3R 02	3rd Floor Residential Quince Street Center	67.2
3R 03	3rd Floor Residential Quince Street South	68.3
3R 04	3rd Floor Residential West Valley Parkway West	70.5
3R 05	3rd Floor Residential West Valley Parkway East	70.4
3R 06	3rd Floor Residential Driveway South	65.8
3R 07	3rd Floor Residential Driveway North	58.6
3R 08	3rd Floor Residential Channel East	59.4
3R 09	3rd Floor Residential Channel West	63.3

Note: Noise levels are based on traffic volumes provided by the project TIA (LLG 2017) for North Quince Street and West Valley Parkway and the SANDAG Series 13 Traffic Volume Forecasts (SANDAG 2017) for Centre City Parkway. The podium level is the 1st floor above the ground level, and the 3rd floor is 3 floors above the ground level.

[1] Noise levels include the modeled transportation noise levels, plus 3 dBA to account for the nearby transportation center noise and other background noise.

The information in this interior noise 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 and extends these requirements to other similar rooms.

All residential units are proposed to include one bedroom and a living room. The bedroom and living room was analyzed for the conservative noise condition of 71 CNEL that occurred at receiver 1R 04, which is located on West Valley Parkway. Modeling of on-site receivers demonstrated that the area of the project site on West Valley Parkway would experience the greatest noise levels during project operation; therefore, these rooms were chosen to ensure that the Title 24 analysis is applicable to all project units. The exterior-to-interior analysis uses the modeled noise levels shown in Table 10. The room specifications used in this analysis are based on current floor plans provided by the project applicant. Refer to Figure 5, *Exterior-to-Interior Title 24 Analyzed Rooms*, for the project plans for the rooms included in this Title 24 analysis.

The depth of the living room was analyzed as 20.5 feet to account for the open space of the kitchen.

Table 12, *Exterior-to-Interior Noise Levels*, displays the calculated interior noise levels and discusses the Sound Transmission Class (STC) ratings necessary to ensure interior noise levels for the proposed project

are consistent with the City's interior 45 CNEL limit. Detailed modeling results can be seen in Appendix C, *Exterior-to-Interior Noise Reduction Analysis*.

Table 12
EXTERIOR-TO-INTERIOR NOISE LEVELS

Specification	Living Room	Bedroom
Exterior wall requirement	Standard 0.875-inch Stucco over 0.5-inch Shearwall on 2x6 Studs with 0.625-inch Type "X" Drywall	Standard 0.875-inch Stucco over 0.5-inch Shearwall on 2x6 Studs with 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	71.0 CNEL	71.0 CNEL
Interior Noise	35.4 CNEL (windows closed)	39.5 CNEL (windows closed)
Above 45 CNEL interior noise standard?	**No**	**No**

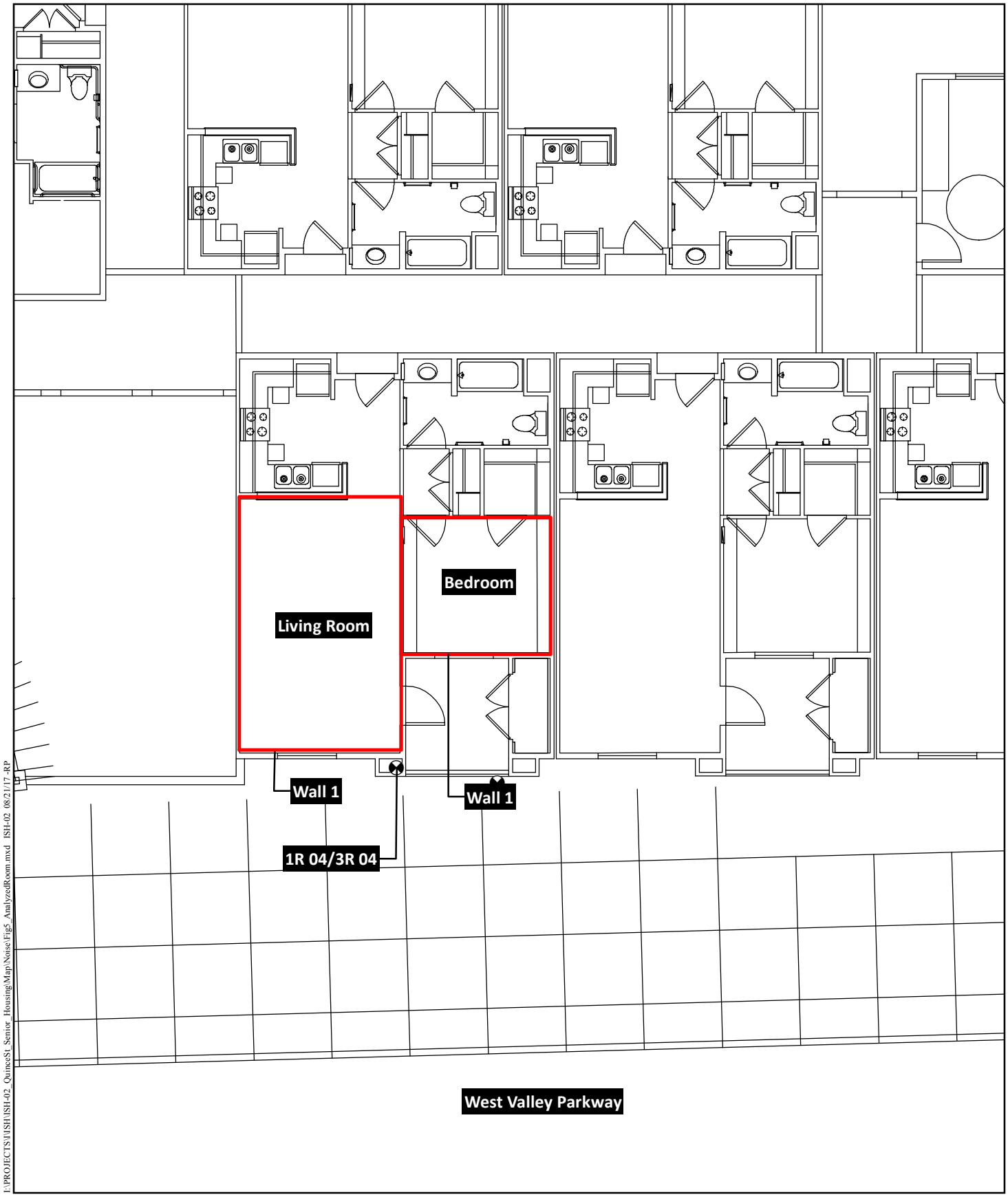
With standard dual glazing and the incorporation of the building materials described above, all rooms would be in compliance with the relevant interior noise standards of 45 CNEL for habitable areas. Appropriate means of air circulation and provision of fresh air must be present to allow windows to remain closed for extended intervals of time so that acceptable levels of noise can be maintained on the interior. The building design would include a mechanical ventilation system that would meet the criteria of the International Building Code (Chapter 12, §1203.3 of the 2013 California Building Code) to ensure that windows would be able to remain permanently closed. With incorporation of appropriate architectural materials and techniques, the project would be consistent with City Noise Element policies.

4.2.2 Mitigation Measures

To ensure that interior noise levels are within acceptable noise levels, the following mitigation measure is required:

Noi-1 **Interior Noise Reduction.** For the project's habitable areas (both living rooms and bedrooms) with a view (including partial) of North Quince Street or West Valley Parkway, which are likely to exceed an interior noise level of 45 CNEL, the following measures shall be incorporated to provide the required noise control to ensure that noise levels at interior habitable areas are 45 CNEL or less:

- Exterior wall requirement of standard 0.875-inch stucco over 0.5-inch shearwall on 2x6 studs with 0.625-inch Type "X" Drywall
- Minimum window requirement of STC 28
- Window construction of dual glazing window thickness 0.125-inch and 0.5-inch air gap
- Appropriate means of air circulation and provision of fresh air must 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.



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Exterior-to-Interior Title 24 Analyzed Rooms

220 NORTH QUINCE STREET SENIOR HOUSING

HELIX Environmental Planning

N 0 10 Feet

Figure 5

- The building design would include a mechanical ventilation system that would meet the criteria of the International Building Code (Chapter 12, §1203.3 of the 2013 California Building Code) to ensure that windows would be able to remain permanently closed.

4.2.3 Significance of Impacts After Mitigation

With the implementation of Noi-1, potential interior noise levels at on-site NSLUs would be compatible with City Community Protection Element and Title 24 standards.

4.3 ISSUE 2: EXCESSIVE GROUND-BORNE VIBRATION

4.3.1 Construction Vibration

The primary potential for generation of ground-borne vibration would occur during project construction. Per FTA vibration levels provided in the General Plan EIR, an impact would occur if construction would generate vibration levels greater than 65 VdB at buildings were vibration could interfere with interior operations, 80 VdB at the nearest residence or building where people sleep, or 83 VdB at the nearest institutional land use with primarily daytime uses. As the project is located in an industrial area, it is not located in close proximity to the above types of land uses. The nearest building where people sleep is the Quality Inn & Suites hotel, located approximately 1,000 feet to the north.

A vibratory roller would be expected to create the highest vibration levels during fill compaction. Table 4.12-9 of the City General Plan EIR provides vibration source levels for common construction equipment, which lists a vibratory roller as generating approximately 94 VdB at 25 feet. Using the vibration formula[1] provided in that table, a roller would generate approximately 45 VdB at 1,000 feet, which would be well below the 80 VdB threshold. Therefore, construction vibration impacts would be less than significant.

4.3.2 Mitigation Measures

Because impacts related to Issue 2 would be less than significant, no mitigation is required.

4.3.3 Significance of Impacts After Mitigation

Impacts would be less than significant without mitigation.

4.4 ISSUE 3: PERMANENT INCREASE IN AMBIENT NOISE LEVELS

The anticipated primary project operational noise sources include the HVAC unit located on the rooftop, and vehicular traffic. Potential impacts from these sources are discussed below.

4.4.1 Heating, Ventilation, and Air Conditioning Units

As previously discussed, the project would likely use a rooftop water cooling tower or similar rooftop mounted cooling systems. With a cooling tower mounted within the rooftop area, and a 5-foot parapet barrier around the outer rooftop edge shielding the equipment from normal ground level offsite views,

[1] VdB = VdB (VdB at 25 feet) – 30log(distance/25)

the predicted noise impact from a single cooling tower would be below 45 dBA L_{EQ}. This would be significantly less than the applicable City noise limit for an industrial zone of 70 dBA L_{EQ}. Therefore, impacts would be less than significant.

4.4.2 Off-site Transportation Noise

Project-generated traffic may increase noise levels on adjacent roadways. A significant increase would be a greater than a perceptible change of 3 dBA over existing conditions. A 3 dBA increase would occur with a doubling of traffic volumes. Using the traffic volumes in Table 9, the project would increase traffic on North Quince Street by approximately four percent and on West Valley Parkway by approximately five percent. These increases in traffic would generate less than a 1.0 dBA increase in noise levels. Therefore, impacts from project-generated traffic would be less than significant.

4.4.3 Mitigation Measures

Because impacts related to Issue 3 would be less than significant, no mitigation is required.

4.4.4 Significance of Impacts After Mitigation

Impacts would be less than significant without mitigation.

4.5 ISSUE 4: TEMPORARY INCREASE IN AMBIENT NOISE LEVELS

4.5.1 Construction Noise

The most substantial noise increases from construction activities would occur during demolition and excavation. For demolition, a dozer or a medium size excavator is used to break down the building and, in conjunction with a loader, loads the debris into trucks for removal. Following demolition, the site would be excavated to the subgrade level for the foundation using a medium size excavator and a loader. For modeling purposes, these pieces of equipment were assumed to operate at 75 feet from the nearest adjacent property line (the commercial offices at 520 West Valley Parkway).

RCNM lists a loader as generating 75 dBA at 50 feet. RCNM does not list the noise level of a medium size excavator; therefore, a typical a value of 78 dBA at 50 feet was used for modeling. These pieces of equipment were assumed to operate for 40 percent of a typical construction hour. For an excavator and a loader at 75 feet, this would equate to a 74 dBA L_{EQ} noise level (see Appendix B, Construction Noise Model Outputs). Given that construction noise levels from demolition and excavation would not exceed the City's noise limit of 75 dBA L_{EQ} (1 hour), impacts from construction noise would be less than significant.

4.5.2 Mitigation Measures

Because impacts related to Issue 4 would be less than significant, no mitigation is required.

4.5.3 Significance of Impacts After Mitigation

Impacts would be less than significant without mitigation.

4.6 ISSUE 5: AIRPORT NOISE LEVELS

4.6.1 Public and Private Airports

As noted in the General Plan EIR, the two nearest public airports to the City are the McClellan-Palomar Airport and Ramona Airport. Additionally, portions of the City are subject to periodic flyovers from Marine Corps Air Station (MCAS) Miramar. However, the entire City is outside of the 60 CNEL noise contours for these airports. The project site is not within 2 miles of any private airstrip. Therefore, impacts associated with airports and airstrips are less than significant.

4.6.2 Mitigation Measures

Because impacts related to Issue 5 would be less than significant, no mitigation is required.

4.6.3 Significance of Impacts After Mitigation

Impacts would be less than significant without mitigation.

5.0 LIST OF PREPARERS

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Joanne M. Dramko, AICP	Senior Technical Specialist, Quality Assurance Reviewer

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Appendix A

Baltimore Aircoil Company FXV-664 Noise Data

Close

Baltimore Aircoil Company

Sound Rating Program, 4/27/2007 Release

FXV Closed Circuit Cooling Tower

Model: FXV-664
No. of Fans: (3) 5.5 ft. Diameter Fan Per Cell
Fan Type: Low Sound Fan
Motor HP: 15 HP per fan

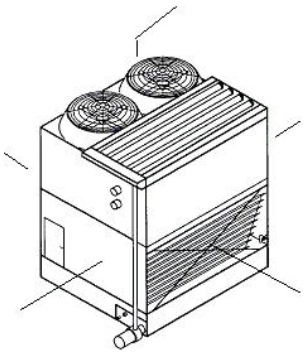
Octave band and A-weighted sound pressure levels (L_p) are expressed in decibels (dB) reference 0.0002 microbar. Sound power levels (L_w) are expressed in decibels (dB) reference one picowatt. Octave band 1 has a center frequency of 63 Hertz.

Top L_p Sound Pressure (dB)

Octave Band	Distance 5 ft	Distance 50 ft
1	87	75
2	86	73
3	84	71
4	82	70
5	78	65
6	76	60
7	74	59
8	65	52
A-wgtd	**84**	**71**

Back L_p Sound Pressure (dB)

Octave Band	Distance 5 ft	Distance 50 ft
1	78	73
2	77	68
3	74	63
4	68	62
5	60	54
6	53	49
7	47	45
8	39	35
A-wgtd	**70**	**62**



End L_p Sound Pressure (dB)

Octave Band	Distance 5 ft	Distance 50 ft
1	77	74
2	74	66
3	71	63
4	65	60
5	57	53
6	50	48
7	44	44
8	36	34
A-wgtd	**67**	**61**

Connection End L_p Sound Pressure (dB)

Octave Band	Distance 5 ft	Distance 50 ft
1	77	74
2	74	66
3	71	63
4	65	60
5	57	53
6	50	48
7	44	44
8	36	34
A-wgtd	**67**	**61**

Air Inlet L_p Sound Pressure (dB)

Octave Band	Distance 5 ft	Distance 50 ft
1	85	79
2	84	72
3	81	65
4	77	64
5	71	59
6	65	53
7	58	47
8	51	38
A-wgtd	**78**	**65**

Sound Power (dB)

Octave Band	Center Frequency (Hertz)	L_w
1	63	108
2	125	102
3	250	98
4	500	97
5	1000	92
6	2000	86
7	4000	85
8	8000	77

Appendix B

Construction Noise Model Outputs

ISH-02: Construction Noise Levels

Equipment	dBA L_{MAX}	Percentage	Use Per Day	Ordinance Hour Day	L_{EQ} dBA (Daily)		Distance	L_{EQ} dBA (Daily)		Distance To (dBA):	Distance
Noise Sum	79.1	N/A	N/A	N/A	77.6	#	N/A	74.1	#	75	67.6
Loader	79.1	40.00%	8	8	75.1	#	75.0	71.6	#	75	50.7
Excavator Medium	78.0	40.00%	8	8	74.0	#	75.0	70.5	#	75	44.7

Appendix C

Exterior-to-Interior Noise Reduction Analysis

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Quince Street Senior Housing
Project # : ISH-02
Room Name: Bedroom

Wall 1 of 1

Room Type : Soft

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	0.8	0.8	0.8	0.8	0.7	0.7	: Highly Absorptive Room
Room Absorption (Sabins) :	56	56	56	56	70	70	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	Traffic	71.0	CNEL	54.3	59.8	62.3	66.3	66.3	60.3	: Traffic Spectrum
Source 2:	<N/A>	0.0	CNEL	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	<N/A>	0.0	CNEL	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	<N/A>	0.0	CNEL	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		71.0	CNEL	54.3	59.8	62.3	66.3	66.3	60.3	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 46 Typical Exterior Wall	N	11.3	8	1	67.9	29	40	46	46	44	53
STC 28 1/2-inch Dual Insulating Window	Y	4.5	5	1	22.5	23	23	22	32	43	37
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: 10.3 ft **Overall Area:** 90.4 ft²
Volume: 931 ft³

Number of Impacted Walls: 1

Windows Open Interior Noise Level:	**53.1**	**CNEL**
Windows Closed Interior Noise Level:	**39.5**	**CNEL**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
54.3	59.8	62.3	66.3	66.3	60.3	: Exterior Wall Noise Exposure
9.0	9.0	9.0	9.0	9.0	9.0	: Transmission Loss
0.0	0.0	0.0	0.0	0.0	0.0	: Noise Reduction
17.5	17.5	17.5	17.5	18.4	18.4	: Absorption
36.8	42.3	44.8	48.8	47.9	41.9	: Noise Level

53.1 **CNEL** WINDOWS OPEN

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
54.3	59.8	62.3	66.3	66.3	60.3	: Exterior Wall Noise Exposure
26.5	28.7	28.1	37.8	43.6	43.0	: Transmission Loss
7.0	9.1	8.5	18.3	24.0	23.5	: Noise Reduction
17.5	17.5	17.5	17.5	18.4	18.4	: Absorption
29.9	33.2	36.3	30.6	23.8	18.4	: Noise Level

39.5 **CNEL** WINDOWS CLOSED

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Quince Street Senior Housing
Project # : ISH-02
Room Name: Living Room

Wall 1 of 1

Room Type : Soft

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	0.8	0.8	0.8	0.8	0.7	0.7	: Highly Absorptive Room
Room Absorption (Sabins) :	148	148	148	148	185	185	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	Traffic	71.0	CNEL	54.3	59.8	62.3	66.3	66.3	60.3	: Traffic Spectrum
Source 2:	<N/A>	0.0	CNEL	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	<N/A>	0.0	CNEL	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	<N/A>	0.0	CNEL	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		71.0	CNEL	54.3	59.8	62.3	66.3	66.3	60.3	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 46 Typical Exterior Wall	N	12	10	1	97.5	29	40	46	46	44	53
STC 28 1/2-inch Dual Insulating Window	Y	4.5	5	1	22.5	23	23	22	32	43	37
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: 20.5 ft

Overall Area: 120 ft²
Volume: 2460 ft³

Number of Impacted Walls: 1

Windows Open		
Interior Noise Level:	**48.9**	**CNEL**
Windows Closed		
Interior Noise Level:	**35.4**	**CNEL**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
54.3	59.8	62.3	66.3	66.3	60.3	: Exterior Wall Noise Exposure
10.2	10.3	10.3	10.3	10.3	10.3	: Transmission Loss
0.0	0.0	0.0	0.0	0.0	0.0	: Noise Reduction
21.7	21.7	21.7	21.7	22.7	22.7	: Absorption
32.6	38.1	40.6	44.6	43.6	37.6	: Noise Level
48.9	**CNEL**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
54.3	59.8	62.3	66.3	66.3	60.3	: Exterior Wall Noise Exposure
27.0	29.8	29.3	38.9	43.7	44.1	: Transmission Loss
6.2	9.0	8.5	18.1	22.9	23.3	: Noise Reduction
21.7	21.7	21.7	21.7	22.7	22.7	: Absorption
26.4	29.1	32.1	26.5	20.7	14.3	: Noise Level
35.4	**CNEL**	WINDOWS CLOSED				