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March 6, 2020

Job # S191104

CityMark Communities, LLC
Attention: Russ Haley
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Subject: Response to Noise Cycle Issues for 17 on Voltaire – City of San Diego Project No. 640598

This letter is in response to the City of San Diego's Cycle Issues letter for the project known as 17 on Voltaire, City of San Diego Project No. 640598. Comments are found in the letter dated February 25, 2020 and are located in the LDR-Planning, Plan-Airport, LDR-Environmental sections. These comments have been addressed in a revised version of the report, dated March 6, 2020, and this letter will reference the location of each comment response or requested changes in the revised report.

Italics are added to indicate City of San Diego staff comments.

<u>LDR-Planning Review</u>

11 CNEL: Due to the site being in the 65-70 CNEL area for SDIA, the proposed Multiple Dwelling Units are not permitted. Refer to Airport Review's Issue 2 for attenuation guidance.

25 CNEL: Provide response to Issue 11 and how it is being addressed.

<u>Plan-Airport Review</u>

2 NOISE: The project is located in the 65 to 70 decibel (dB) Community Noise Equivalent Level (CNEL) as depicted in the ALUCP. The ALUCP requires new residential uses above the 60 dB CNEL provide noise attenuation to ensure an interior noise level of 45 dB CNEL for all habitable rooms. Please note on the title sheet of the plans to read EXACTLY as follows: "Adequate noise attenuation will be provided to ensure an interior noise level of 45 dB CNEL for all habitable rooms."

> **RESPONSE:** No changes to the report are deemed necessary to satisfy Items 11, 25, and 2 listed above. The project is required to provide an interior noise analysis prior to the issuance of building permits that confirms interior noise levels of 45 CNEL or less, and therefore, will meet the requirements listed above. The note shown in Item 2 shall be incorporated into project plans.

LDR-Environmental Comments

43 EAS received "Acoustical Analysis Report for 17 on Voltaire Southwest Corner of Voltaire Street and San Clemente Street, San Diego, California 92107," prepared by Eilar Associates, Inc., November 15, 2019. The report requires the following revisions; (New Issue)

44 In various areas of the analysis, the analysis states the project would comply with the San Diego regulations, Municipal Code or General Plan. Where applicable, specify which section of the regulations, code, etc. the project would comply with. (New Issue)

RESPONSE: The analysis has been updated throughout to include specific section numbers of the applicable regulations and code.

45 Page 1, Executive Summary, third paragraph, first sentence: This sentence states "The City of San Diego Noise Element of the General Plan requires residential outdoor use areas be protected from noise levels greater than 65 CNEL" Clarify that Table NE-3 of the General Plan addresses the noise level thresholds of the types of land uses that are compatible or incompatible. Revise. (New Issue)

RESPONSE: Section 1.0, Executive Summary, on page 1 has been updated to specify that noise level thresholds were determined using Table NE-3 of the General Plan.

46 (Continued)
Page 1, Fifth paragraph: The analysis states "It is likely that either insulated glazing units or laminated windows to reduce noise level to 50 dBA or less inside not residential spaces." Clarify if this is a project design feature or if required as mitigation measure in the commercial space. State what type of commercial use is proposed. (New Issue)

RESPONSE: Section 1.0, Executive Summary, page 1 has been updated to definitively state that the project will require an exterior-to-interior analysis when building plans become available, prior to the issuance of building permits, in order to confirm compliance. Design features will be determined in this subsequent analysis.

47 Page 3, Applicable Noise Standards: The analysis refers to the requirement of an Avigation Easement. Clarify in the analysis that Section of D of the Noise Element of the General Plan addresses projects in proximity to an Airport (e.g. San Diego International Airport) and when an Avigation Easement is required. Revise throughout the report. (New Issue)

RESPONSE: Section 2.3, Applicable Noise Standards, on page 3; Section 5.1.1, Noise Impacts to Outdoor Use Areas, on page 12; and Section 6.0, Conclusion, on page 20 have been updated to clarify that Section D of the Noise Element to the General Plan addresses when an Avigation Easement is required.

48 Page 14: The analysis states "project design features have been evaluated" Do you mean to state these balconies indicated in Table 9 and as shown in Figure 8 have been incorporated as 4-foot-high barrier walls and as project design features or mitigation measure? (New Issue)

RESPONSE: Section 5.1.1, Noise Impacts to Outdoor Use Areas Applicable Noise Standards, page 13 has been updated to clarify that sound attenuation barriers must be incorporated into the design at specified locations.

49 Page 16: The analysis indicates mechanical ventilation will likely be sufficient for achieving compliant interior noise levels. Definitively state if the mechanical ventilation will be sufficient or not for achieving compliant interior noise levels. (New Issue)

RESPONSE: This language has been removed from the report and a statement has been added to Section 1.0, Executive Summary, page 1; Section 5.2, Interior, page 15; and Section 6.0, Conclusion, on page 20 to state that the project will require an exterior-to-interior analysis when building plans become available, prior to the issuance of building permits, in order to confirm compliance with interior noise level limits.

50 Page 18: The analysis mentions that noise attenuation will be incorporated as project design features from the General Plan. Specify what design features would be incorporated into the project. (New Issue)

RESPONSE: This statement has been removed, as the determination of specific project design features relating to interior noise will be made prior to the issuance of building permits.

51 Page 18: The analysis indicates each stage of construction as shown on Table 13. Clarify how many phases of construction involved for the project. (New Issue)

RESPONSE: A statement has been added to Section 5.4, Temporary Project-Related Noise Impacts, on page 16 stating that there will be a single phase of construction.

52 Page 1 and Page 19 refers to off-site receivers. Clarify if your referring to sensitive receptors. (New Issue)

RESPONSE: The phrase “off-site receivers” has been replaced with the phrase “sensitive receptors” for clarity throughout the entire report.

53 Page 55: Remove Table K-4. Instead refer to Table NE-3 (Land Use-Noise Compatibility Guidelines) of the General Plan. (New Issue)

RESPONSE: Appendix B has been updated, per this request. A statement has been added to Section 2.3, Applicable Noise Standards, page 3 and Section 5.5, CEQA Significance Determination, page 19 stating that Table K-4 should be replaced with Table NE-3, per the direction of City staff.

54 Executive Summary: The analysis states that "interior noise levels may exceed 45 CNEL within units." Definitely state whether the interior noise would be exceeded or not exceeded and if mitigation is required or not required. Revise throughout the report. (New Issue)

RESPONSE: Section 1.0, Executive Summary, page 1 has been updated to definitively state that the project will require an exterior-to-interior analysis when building plans become available, prior to the issuance of building permits, in order to confirm compliance.

Please call if you have any questions or require additional information.

EILAR ASSOCIATES, INC.

Amy Hool, President/CEO

Rachael S. Cowell, Acoustical Consultant

ACOUSTICAL ANALYSIS REPORT

17 on Voltaire
Southwest Corner of Voltaire Street and San Clemente Street
San Diego, California 92107

City of San Diego Project No. 640598

Prepared For

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March 6, 2020

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1.0 EXECUTIVE SUMMARY

The proposed project, 17 on Voltaire, consists of the demolition of existing structures and construction of two three-story buildings, consisting of 17 residential units and a commercial space. The project site is located at the southwest corner of Voltaire Street and San Clemente Street in the City of San Diego, California.

The current and future noise environment primarily consists of noise contribution from the San Diego International Airport, as well as traffic noise from Voltaire Street, San Clemente Street, Nimitz Boulevard, Catalina Boulevard, and Wabaska Drive. Worst-case combined (traffic plus aircraft) noise levels at the building facades will range from approximately 68 CNEL to 70 CNEL.

Section A of the City of San Diego Noise Element to the General Plan addresses noise level thresholds to determine compatibility of land uses. Table NE-3 requires that residential outdoor use areas be protected from noise levels greater than 65 CNEL and greater than 75 CNEL for commercial outdoor use areas in order to be compatible, although Section D of the Noise Element conditionally allows multi-family and mixed use residential uses in areas exposed to aircraft noise levels of above 65 CNEL when there are existing residential uses in the vicinity of the project, provided the project includes project design features to reduce interior noise levels to 45 CNEL or less, and the project dedicates an avigation easement to the Airport Authority. As aircraft noise cannot be reasonably shielded at outdoor locations, noise levels for outdoor use areas would only need to be shielded from traffic noise levels of above 65 CNEL. Noise impacts from worst-case traffic noise were calculated at private balconies and commercial outdoor use areas. As designed, worst-case traffic noise levels at the commercial outdoor use area and some private balconies along Building A will be exposed to noise levels greater than 65 CNEL, and therefore, will require the incorporation of four-foot high barrier walls at several balconies. With these barriers in place, noise levels will be less than 65 CNEL, and therefore, would be in compliance with City of San Diego standards, provided an avigation easement is dedicated to the Airport Authority. More information is provided in Section 5.1.

An exterior-to-interior analysis must be performed when building plans become available, prior to the issuance of building permits, in order to confirm compliance with City of San Diego Noise Element to the General Plan and State of California Building Code requirements.

Noise from the anticipated HVAC equipment on site has been calculated to determine impacts at off-site, sensitive receptors. Calculations show that noise levels from the mechanical equipment will be in compliance with the City of San Diego noise regulations found within Section 59.5.0401 of the Municipal Code. No project design features are deemed necessary to control project-generated noise impacts from mechanical equipment.

Noise from temporary construction activities will not exceed the applicable construction noise limits in Section 59.5.0404 of the City of San Diego Municipal Code at any surrounding residential property line. Construction is prohibited between the hours of 7 p.m. and 7 a.m. and on Sundays or legal holidays. Standard construction noise control methods including adhering to permissible hours of operation, maintaining equipment in proper operating condition, and placing staging areas at furthest locations from off-site, sensitive receptors, will be sufficient for reducing noise impacts to surrounding sensitive receptors.

Using the methodology given in Section K of the City of San Diego's California Environmental Quality Act (CEQA) Significance Determination Thresholds Document, it was determined that the proposed project will have a less than significant impact with regard to noise.

As detailed herein, with the features listed for exterior noise incorporated into the project design and detailed interior noise analyses conducted prior to building permit issuance, noise impacts to and from the project site will comply with all applicable City of San Diego noise regulations.

2.0 INTRODUCTION

This acoustical analysis report is submitted to satisfy the acoustical requirements of the City of San Diego Noise Element to the General Plan, the City of San Diego Municipal Code, and the City of San Diego California Environmental Quality Act (CEQA) Significance Determination Thresholds. Its purpose is to assess noise impacts from nearby roadway traffic and aircraft overflight to identify project features or requirements necessary to achieve exterior noise levels of 65 CNEL or less at outdoor use areas, in compliance with the City of San Diego Noise Element to the General Plan noise regulations. In addition, this report assesses noise impacts from potential project-related noise sources, such as mechanical equipment, as well as temporary construction noise. This analysis aims to determine if additional project design features are necessary and feasible to reduce these impacts to comply with the applicable noise regulations of the City of San Diego Noise Element to the General Plan and Municipal Code.

All noise level or sound level values presented herein are expressed in terms of decibels, with A-weighting to approximate the hearing sensitivity of humans. Time-averaged noise levels are expressed by the symbol L_{EQ} for a specified duration. The Community Noise Equivalent Level (CNEL) is a calculated 24-hour weighted average, where sound levels during evening hours of 7 p.m. to 10 p.m. have an added 5 dB weighting, and sound levels during nighttime hours of 10 p.m. to 7 a.m. have an added 10 dB weighting. This is similar to the Day-Night sound level, L_{DN}, which is a 24-hour average with an added 10 dB weighting on the same nighttime hours but no added weighting on the evening hours. According to the California Department of Transportation's Technical Noise Supplement to the Traffic Noise Analysis Protocol (see reference), peak hour traffic noise levels are typically found to be close to predicted CNEL values. Sound levels expressed in CNEL are always based on A-weighted decibels. These metrics are used to express noise levels for both measurement and municipal regulations, for land use guidelines, and for enforcement of noise ordinances.

Sound pressure is the actual noise experienced by a human or registered by a sound level instrument. When sound pressure is used to describe a noise source, it must specify the distance from the noise source to provide complete information. Sound power, on the other hand, is a specialized analytical method to provide information without the distance requirement, but it may be used to calculate the sound pressure at any desired distance.

2.1 Project Description

The proposed project, 17 on Voltaire, consists of the demolition of existing structures and construction of two three-story buildings, consisting of 17 residential units and a commercial space. Garage parking at each unit and covered commercial parking will also be included. Outdoor use areas for the project are provided as private yards or balconies at each of the residential units and an outdoor patio for the commercial space. Additional information is provided in the project plans, included as Appendix A.

The project site is surrounded by multifamily residential uses to the northeast (across Voltaire Street), west, and south (across the alley), and commercial uses to the north and east, across Voltaire Street and San Clemente Street, respectively.

2.2 Project Location

The project site is located at the southwest corner of Voltaire Street and San Clemente Street in the City of San Diego, California. The Assessor's Parcel Numbers (APNs) for the property are 449-251-05-00, 449-251-06-00, 449-251-07-00, and 449-251-08-00. The project location is shown on the Vicinity Map, Figure 1, following this report. An Assessor's Parcel Map, Satellite Aerial Photograph, and Topographic Map of this area are also provided as Figures 2 through 4, respectively.

2.3 Applicable Noise Standards

This acoustical analysis report is submitted to satisfy the acoustical requirements of the City of San Diego Noise Element to the General Plan, the City of San Diego Municipal Code, and the City of San Diego CEQA Significance Determination Thresholds. Section D of the City of San Diego Noise Element to the General Plan states that new residential uses must obtain an avigation easement in areas where aircraft noise exceeds 65 CNEL. With the provision of an avigation easement to the San Diego County Regional Airport Authority, aircraft levels can exceed 65 CNEL at residential outdoor use areas in areas with existing residential uses, provided interior noise levels are attenuated to 45 CNEL for residential space. Additionally, Table NE-3 shows that commercial outdoor use areas should not be exposed to noise levels in excess of 75 CNEL and interior noise levels should not exceed 50 CNEL for commercial/retail space.

The City of San Diego Municipal Code, Section 59.5.0401 specifies noise limits for project-generated noise based on the land use of the properties in question. Although the City of San Diego Municipal Code states that noise limits apply "on the boundaries of the property," as the intent of the code is to protect actual occupied areas, noise levels have been evaluated at the nearest sensitive receptor locations beyond the project site (beyond alleys, sidewalks, and roadways). The most restrictive nighttime noise limits at surrounding land uses are 50 dBA for mixed use and high density (more than one dwelling unit per 2000 square feet) residential. Noise level limits at sensitive receptors on the boundary of two different land uses shall be the average of the two respective noise level limits. Noise-sensitive properties immediately surrounding the project site include high-density, multi-family residential land uses to the northeast (across Voltaire Street, west, and south (across the alley). As the proposed project consists of a similar land use, the most restrictive applicable noise limit at these receptors will be 50 dBA.

In addition, Section 59.5.0404 of the City of San Diego Municipal Code states that construction activity is prohibited between the hours of 7 p.m. and 7 a.m. and on Sundays or legal holidays. During permissible hours of operation, noise levels from construction activity must be limited to a twelve-hour average of no greater than 75 dBA at any property line zoned for residential use.

Also, the City of San Diego Significance Determination Thresholds (Section K) should be used to determine whether or not a project will have a significant impact on surrounding properties. In order to determine whether or not a project will have a significant impact on surrounding properties, the following must be considered:

1. Would the project result or create a significant increase (3 dBA or more) in the existing ambient noise levels?

2. Would the project expose people to noise levels which exceed the City's adopted noise ordinance or are incompatible with Table K-4*?

3. Would the project expose people to current or future transportation noise levels which exceed standards established in the Transportation Element of the General Plan or an adopted airport Comprehensive Land Use Plan?

4. Would the project result in land uses which are not compatible with aircraft noise levels as defined by an adopted airport Comprehensive Land Use Plan (CLUP)?

**Per comments from City of San Diego staff, Table K-4 is obsolete and should be replaced with Table NE-3.*

Please refer to Appendix B for pertinent sections of the San Diego Noise Element to the General Plan, the City of San Diego Municipal Code, and Significance Determination Thresholds.

3.0 ENVIRONMENTAL SETTING

3.1 Existing Noise Environment

Exterior noise at the site will consist primarily of traffic noise from surrounding roadways and aircraft overflight from the San Diego International Airport. No other noise source is considered significant.

3.1.1 Aircraft Overflight Noise Sources

San Diego International Airport is located approximately two miles to the southeast of the proposed project site. According to the most current Airport Influence Area for San Diego International Airport, the project site lies within the 65-70 CNEL contour. Based on the site's location within the 65-70 CNEL contour, the aircraft noise impact at the project site is estimated to be approximately 68 CNEL. Please refer to Figure 5 for a graphical representation of these contours.

3.1.2 Roadway Traffic Noise

Current and future (2035) traffic volumes are given based on information from the San Diego Association of Governments (SANDAG) Transportation Data, and the Series 12 Transportation Forecast Information Center (TFIC) (see references).

Voltaire Street is a two-lane, two-way Major Arterial running generally east-west along the north boundary of the project site. The posted speed limit is 30 mph. Voltaire Street includes a center turn lane in the vicinity of the project site. According to SANDAG traffic counts, the current traffic volume is approximately 10,800 Average Daily Trips (ADT) as of the year 2012.

San Clemente Street is a two-lane, two-way local roadway running generally north-south along the east boundary of the project site. The posted speed limit is 20 mph. No current traffic volumes were available for San Clemente Street; however, based on professional experience and observations of traffic during the site visit, a traffic volume of approximately 375 ADT was assumed for San Clemente Street (year 2019).

Nimitz Boulevard is a four-lane, two-way Major Arterial running generally north-south to the east of the project site. The posted speed limit is 45 mph. According to SANDAG traffic counts, the current traffic volume is approximately 22,300 ADT as of the year 2013.

Catalina Boulevard is a two-lane, two-way Major Arterial running generally north-south to the west of the project site. The posted speed limit is 35 mph. According to SANDAG traffic counts, the current traffic volume is approximately 17,100 ADT as of the year 2014.

Wabaska Drive is a four-lane, two-way Collector running generally north-south to the east of the project site. The posted speed limit is 35 mph. According to SANDAG traffic counts, the current traffic volume is approximately 2,800 ADT as of the year 2014.

No current or future truck percentages were available for any of the roadways in the vicinity of the project site; however, based on neighboring and surrounding land use, roadway classification, professional experience, and on-site observations, a truck percentage mix of 2.0% medium and 1.0% heavy trucks was used for Nimitz Boulevard, Catalina Boulevard, and Wabaska Drive. A truck percentage mix of 2.0% medium trucks and 2.0% heavy trucks was used for Voltaire Street, and a truck percentage mix of 2.0% medium trucks and 0.5% heavy trucks was used for San Clemente Street.

Current and future (See Section 3.2) traffic volumes and vehicle mixes for roadway sections near the project site are shown in Table 1. For more information, please refer to Appendix C: Cadna Analysis Data and Results.

Table 1. Overall Roadway Traffic Information

Roadway Name	Speed Limit (mph)	Vehicle Mix (%)		Current ADT (Year)	Future ADT (2035)
		Medium Trucks	Heavy Trucks		
Voltaire Street	30	2.0	2.0	10,800 (2012)	11,100
San Clemente Street*	20	2.0	0.5	375 (2019)	515
Nimitz Boulevard	45	2.0	1.0	22,300 (2013)	20,900
Catalina Boulevard	35	2.0	1.0	17,100 (2014)	20,100
Wabaska Drive	35	2.0	1.0	2,800 (2014)	2,400

*No current or future traffic volumes were available for San Clemente Street. Volumes used in calculations were assumed based on observations and professional experience.

Current traffic noise contours were calculated at ground level and showed that traffic noise impacts to the entire project site are between approximately 61 and 66 CNEL, without shielding from existing and proposed structures on site. Combined noise impacts from traffic and aircraft noise are addressed in Section 5.1. Please refer to Figure 6 for a graphical representation of current traffic noise contours.

3.1.3 Measured Noise Level

An on-site inspection and traffic noise measurement was made on the morning of Wednesday, November 13, 2019. The noise measurement was made using the methodology described in Section 4.1, at approximately 25 feet south of the Voltaire Street centerline, and 35 feet west of the San Clemente Street centerline. Traffic volumes were recorded for automobiles, medium-size trucks, and large trucks on Voltaire Street and San Clemente Street during the measurement period. The primary source of noise was traffic on Voltaire Street. After a 15-minute sound level measurement (paused for non-traffic noise sources such as aircraft), there was no change in the L_{EQ} and results were then

recorded. The measured noise level and related weather conditions are found in Table 2. The measurement location is shown in Figures 6 and 7.

Table 2. On-Site Noise Measurement Conditions and Results	
Date	Wednesday, November 13, 2019
Time	8:48 a.m. – 9:11 a.m.
Conditions	Clear skies, winds at 2-4 mph, temperature in the mid-60s with moderate humidity
Measured Noise Level	65.4 dBA L_{EQ}

In addition, long-term noise monitoring was also performed to determine the approximate ambient noise level in the vicinity of the project site. The meter was in a bush near the east boundary of the project site. Results of this noise monitoring are shown in Table 3, and the noise monitoring location is shown in Figures 6 and 7.

Table 3. Long-Term Measured Noise Levels near North Property Line		
Date	**Hour**	**Hourly Noise Level (dBA L_{EQ})**
November 13, 2019	9 a.m. – 10 a.m.	66.3
	10 a.m. – 11 a.m.	66.2
	11 a.m. – 12 p.m.	65.7
	12 p.m. – 1 p.m.	62.8
	1 p.m. – 2 p.m.	66.9
	2 p.m. – 3 p.m.	64.6
	3 p.m. – 4 p.m.	61.6
	4 p.m. – 5 p.m.	64.0
	5 p.m. – 6 p.m.	62.4
	6 p.m. – 7 p.m.	66.4
	7 p.m. – 8 p.m.	63.9
	8 p.m. – 9 p.m.	60.8
	9 p.m. – 10 p.m.	63.6
	10 p.m. – 11 p.m.	61.7
	11 p.m. – 12 a.m.	50.5
November 14, 2019	12 a.m. – 1 a.m.	46.6
	1 a.m. – 2 a.m.	47.1
	2 a.m. – 3 a.m.	44.1
	3 a.m. – 4 a.m.	43.3
	4 a.m. – 5 a.m.	45.5
	5 a.m. – 6 a.m.	49.8
	6 a.m. – 7 a.m.	65.5
	7 a.m. – 8 a.m.	66.6
	8 a.m. – 9 a.m.	67.7

As shown in Table 3, the minimum hourly ambient noise level in this location was found to be 43.3 dBA between the hours of 3 a.m. and 4 a.m. The maximum noise level was 67.7 dBA which occurred between the hours of 8 a.m. and 9 a.m. The average hourly nighttime (10 p.m. to 7 a.m.) ambient noise level was 57.8 dBA.

3.1.4 Calculated Noise Level

Noise levels were calculated for the site using the methodology described in Section 4.1 for the location, conditions, and traffic volumes counted during the noise measurements. The calculated noise levels (L_{EQ}) were compared with the measured on-site noise level to determine if adjustments or corrections (calibration) should be applied to the traffic noise prediction model. Adjustments are intended to account for site-specific differences, such as reflection and absorption, which may be greater or lesser than accounted for in the model.

The measured noise level of 65.4 dBA L_{EQ} at 25 feet south of the Voltaire Street centerline, and 35 feet west of the San Clemente Street centerline, was compared to the calculated (modeled) noise level of 63.5 dBA L_{EQ} for the same weather conditions and traffic flow. According to the Federal Highway Administration's Highway Traffic Noise: Analysis and Abatement Guide (see reference), a traffic noise model is considered validated if the measured and calculated noise impacts differ by three decibels or less. No adjustment was deemed necessary to model future noise levels for this noise model as the difference between the measured and calculated levels was found to be less than three decibels. The Traffic Noise Model is assumed to be representative of actual traffic noise that is experienced on site. This information is presented in Table 4.

Table 4. Calculated versus Measured Traffic Noise Data

Calibration Receiver Position	Calculated	Measured	Difference	Correction
25' from Voltaire CL 35' from San Clemente CL	63.5 dBA L_{EQ}	65.4 dBA L_{EQ}	1.9 dB	None applied

3.2 Future Noise Environment

3.2.1 Future Transportation Noise

The future noise environment in the vicinity of the project site will be primarily a result of the same ambient noise sources, as well as the noise generated by the proposed uses at the project site. Future aircraft noise is not expected to change significantly, and therefore, was modeled as described above.

The future (year 2035) traffic volumes for surrounding roadways were provided by the SANDAG Series 12 TFIC with the exception of San Clemente Street. The future traffic volume of San Clemente Street was calculated using a projected growth rate of two percent (2%). The traffic volume of Voltaire Street is expected to increase to approximately 11,100 ADT by the year 2035. San Clemente Street is expected to carry approximately 500 ADT by the year 2035. The traffic volume of Nimitz Boulevard is expected to decrease to approximately 20,900 ADT by the year 2035. The traffic volume of Catalina Boulevard is expected to increase to approximately 20,100 ADT by the year 2035. The traffic volume of Wabaska Drive is expected to decrease to carry approximately 2,400 ADT by the year 2035.

The same truck percentages from the current traffic volumes were used for future traffic volume modeling. The roadway alignment and roadbed grade elevations are expected to remain the same for these sections of all roadways. For further roadway details and projected future ADT traffic volumes, please refer to Appendix C: Cadna Analysis Data and Results.

Future traffic noise contours were calculated at approximate ground level and showed that future traffic noise impacts to the entire project site will increase slightly to be between approximately 61 and 67 CNEL. Combined traffic and airport noise impacts are addressed in Section 5.0 for building facades. Additional information is provided in Appendix C: Cadna Analysis Data and Results. For a graphical representation of these contours, please refer to Figure 7: Site Plan Showing Future Traffic CNEL Contours and Noise Measurement Locations.

3.2.2 Permanent Project-Related Mechanical Equipment Noise

Mechanical equipment in the form of roof-mounted air conditioning units is proposed for the project site. Exact locations of air conditioning units are not yet known, though it is assumed that one air conditioning unit will be mounted above each of the residential units and two units will be mounted above the commercial space. Correspondence with Mandy Miller, project representative, indicates that air conditioner units with a 3-ton capacity would likely be used at residential units and commercial space. Noise data for typical 3-ton units were incorporated into an analysis of noise impacts at off-site, sensitive receptors. The typical units were assumed to be a Carrier 25HCE436A003 (3-ton). Sound power levels for a single Carrier 25HCE436A003 unit were provided by the manufacturer. As the summed A-weighted sound power level does not match the sum of the manufacturer octave-band sound power levels, as calculated in Cadna software, the octave band sound power levels were adjusted accordingly. Table 5 shows the adjusted sound power levels of the air conditioning unit.

Table 5. Adjusted Sound Power Level of Carrier 25HCE418A003 Air Conditioning Unit

Source	Sound Power Level at Octave Band Frequency (dB)							Total (dBA)
	125	250	500	1K	2K	4K	8K	
Carrier 25HCE436A003	56.2	67.2	71.2	74.2	69.2	66.2	58.2	77.0

These noise levels will be incorporated into the permanent project-related noise analysis for the surrounding site, provided in Section 5.3.

3.2.3 Temporary Construction Equipment

Detailed construction information was not available at the time this analysis was prepared, and therefore, typical assumptions regarding equipment were made for use in conducting a temporary construction noise analysis. Noise levels of equipment likely to be used on site are shown in Table 6. Unless otherwise noted, construction equipment noise levels were obtained from noise measurements made by Eilar Associates on March 25, 2010 for Brutoco Engineering & Construction, Inc. for the Orange Line Extension Project, Metro Contract #C0943, City of Los Angeles, California.

Table 6. Typical Construction Equipment Noise Levels		
Noise Source	**Duty Cycle (%)**	**Noise Level at 50 feet (dBA)**
Excavator	40	74.6
Dump Truck*	40	75.3
Skid Steer Loader	40	73.1
Concrete Mixer*	40	71.3
Concrete Pump*	20	71.3
Backhoe	40	73.1
Manlift	40	68.2
Crane	16	80.8
Delivery Truck*	40	76.3

*Source: DEFRA Update of Noise Database for Prediction of Noise on Construction and Open Sites.

These noise levels will be incorporated into the temporary construction noise analysis for the site, provided in Section 5.4.

4.0 METHODOLOGY AND EQUIPMENT

4.1 Methodology

4.1.1 Field Measurement

Typically, a “one-hour” equivalent sound level measurement (L_{EQ}, A-Weighted) is recorded for at least one noise-sensitive location on the site. During the on-site noise measurement, start and end times are recorded, vehicle counts are made for cars, medium trucks (double-tires/two axles), and heavy trucks (three or more axles) for the corresponding road segment(s). Supplemental sound measurements of one hour or less in duration are often made to further describe the noise environment of the site.

For measurements of less than one hour in duration, the measurement time is long enough for a representative traffic volume to occur and the noise level (L_{EQ}) to stabilize. The vehicle counts are then converted to one-hour equivalent volumes by using the appropriate multiplier. Other field data gathered includes measuring or estimating distances, angles-of-view, slopes, elevations, roadway grades, and vehicle speeds. This data is checked against the available maps and records.

4.1.2 Roadway Noise Calculation

The Traffic Noise Model (TNM) calculation protocol in Cadna Version 2019 (based on the methodology used in TNM Version 2.5, released in February 2004 by the U.S. Department of Transportation) was used for all traffic modeling in the preparation of this report. Using the TNM protocol, the CNEL is calculated as 0.092 times the ADT for surrounding roadways, based on the studies made by Wyle Laboratories (see reference). Future CNEL is calculated for desired receptor locations using future road alignment, elevations, lane configurations, projected traffic volumes, estimated truck mixes, and

vehicle speeds. Noise attenuation methods may be analyzed, tested, and planned with TNM, as required.

In order to determine the estimated traffic volumes of roadways during the traffic noise measurement made on site for model calibration, the approximate percentage of the Average Daily Trips (ADT) value for the time period in which the measurement is made is incorporated into the traffic model. These percentages have been established in a study performed by Katz-Okitsu and Associates, Traffic Engineers (see reference). For purposes of calibrating the Cadna TNM, 6.4% of the ADT values for the current environment were used in calculations (for roadways that were not manually counted) to account for traffic between the hours of 8 a.m. and 9 a.m. in the vicinity of the project site. Further explanation can be supplied on request.

4.1.3 Cadna Noise Modeling Software

Modeling of the outdoor noise environment is accomplished using Cadna Version 2019, which is a model-based computer program developed by DataKustik for predicting noise impacts in a wide variety of conditions. Cadna (Computer Aided Noise Abatement) assists in the calculation, presentation, assessment, and alleviation of noise exposure. It allows for the input of project information such as noise source data, barriers, structures, and topography to create a detailed model and uses the most up-to-date calculation standards to predict outdoor noise impacts. Noise standards used by Cadna that are particularly relevant to this analysis include ISO 9613 (Attenuation of sound during propagation outdoors). Cadna provides results that are in line with basic acoustical calculations for distance attenuation and barrier insertion loss. Further explanation may be provided upon request.

4.1.4 Acoustical Formulas and Calculations

Modeling of the outdoor noise environment is accomplished using Cadna Version 2019, which is a model-based computer program developed by DataKustik for predicting noise impacts in a wide variety of conditions. Cadna (Computer Aided Noise Abatement) assists in the calculation, presentation, assessment, and mitigation of noise exposure. It allows for the input of project information such as noise source data, barriers, structures, and topography to create a detailed model and uses the most up-to-date calculation standards to predict outdoor noise impacts.

The following acoustical formulas and calculations have also been used in the preparation of this report.

Decibel Addition

To determine the combined logarithmic noise level of two known noise source levels, the values are converted to the base values, added together, and then converted back to the final logarithmic value, using the following formula:

$$L_C = 10\log(10^{L1/10} + 10^{L2/10} + 10^{LN/10})$$

where L_C = the combined noise level (dB), and
L_N = the individual noise sources (dB).

This procedure is also valid when used successively for each added noise source beyond the first two. The reverse procedure can be used to estimate the contribution of one source when the contribution of another concurrent source is known and the combined noise level is known. These methods can be used for L_{EQ} or other metrics (such as L_{DN} or CNEL), as long as the same metric is used for all components.

Attenuation Due To Distance

Attenuation due to distance is calculated by the equation:

$$SPL_2 = SPL_1 - 20\log(\frac{D_2}{D_1})$$

where SPL_1 = Known sound pressure level at known distance,
SPL_2 = Calculated sound pressure level at distance,
D_1 = Distance from source to location of known sound pressure level, and
D_2 = Distance from source to location of calculated sound pressure level.

This is identical to the more commonly used reference of 6 dB reduction for every doubling of distance. This equation does not take into account reduction in noise due to atmospheric absorption.

Hourly L_{EQ} Summation

To determine the hourly average noise levels (L_{EQ}) when the noise is created for less than the full hour, convert the logarithm values to the base energy value, multiply by the percentage of the hour that the noise occurs, and then convert the sum back to a logarithmic value. This is done with the following formula:

$$L_{EQ} = 10\log(P_H \times 10^{L_P/10})$$

where P_H = the percent or fraction of the hour noise is created, and
L_P = the partial hour noise level (dB).

Sound Power to Sound Pressure

To convert sound power levels to sound pressure levels, the following formula is used:

$$SPL = SWL - 20\log(D) - 0.5$$

where: SPL= Calculated sound pressure level at distance, and
D = Distance from source to location of calculated sound pressure level.

4.2 Measurement Equipment

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

- Larson Davis Model LxT Type 1 Sound Level Meter, Serial #4084
- Larson Davis Model CA250 Type 1 Calibrator, Serial #2106
- Larson Davis Model 720 Type 2 Sound Level Meter, Serial #0219 with microphone and windscreen
- Larson Davis Model CA150 Type 2 Calibrator, Serial #2056

The sound level meter was field-calibrated prior to and following the noise measurement to ensure accuracy. All sound level measurements conducted and presented in this report, in accordance with the regulations, were made with a sound level meter that conforms to the American National Standards Institute specifications for sound level meters (ANSI S1.4). All instruments are maintained with National Bureau of Standards traceable calibrations, per the manufacturers' standards.

5.0 NOISE IMPACTS

5.1 Exterior

Exterior noise impacts to the project site are evaluated in this section. As some current traffic volumes exceed those projected for the future, the higher of the two values has been used in these cases for a worst-case analysis of anticipated noise levels at the proposed project site.

5.1.1 Noise Impacts to Outdoor Use Areas

Section D of the City of San Diego Noise Element to the General Plan states that new residential uses must obtain an avigation easement in areas where aircraft noise exceeds 65 CNEL, with the provision of an avigation easement to the San Diego County Regional Airport Authority, aircraft levels can exceed 65 CNEL at residential outdoor use areas, in areas with existing residential uses, provided interior noise levels are attenuated to 45 CNEL for residential space. Additionally, commercial outdoor use areas should not be exposed to noise levels in excess of 75 CNEL. As aircraft noise cannot be reasonably shielded at outdoor locations, noise levels for outdoor use areas would only need to be shielded from traffic noise levels of above 65 CNEL for residential uses and 75 CNEL for commercial uses. The outdoor use areas consist of private residential balconies, private yards, and a commercial patio areas. These areas were evaluated to determine if traffic noise levels exceed 65 CNEL.

Worst-case traffic and noise levels for the commercial outdoor use area are shown in Table 7, and take into account the shielding provided by the building. Receiver locations are shown in Figure 8.

Table 7. Worst-Case Traffic Noise Levels at Commercial Outdoor Use Areas

Receiver	Description	Worst-Case Traffic Noise Level (CNEL)
OU1	Commercial Outdoor Patio (N)	66

As shown in Table 7, exterior traffic noise levels at the commercial outdoor patio will not exceed the 75 CNEL noise limit set by the City of San Diego in the Noise Element to the General Plan. For this reason, no additional project design features are required for the commercial outdoor use area, as noise impacts at this area are in compliance with Section D of the Noise Element as designed.

Private balconies and yards are located at all residential units along the north facade of Building A and the south and east facades of Building B. Worst-case traffic noise levels at private outdoor balconies and yards are shown in Table 8. Receiver locations are shown in Figure 8.

Table 8. Worst-Case Traffic Noise Levels at Private Outdoor Use Areas				
Receiver	**Building**	**Facade**	**Floor**	**Worst-Case Exterior Traffic Noise Level (CNEL)**
OU2	B	South	1	53
OU3	B	South	1	51
OU4	B	South	1	50
OU5	B	South	1	49
OU6	B	South	1	47
OU7	B	South	1	49
OU8	B	South	1	45
OU9	A	North	2	**66**
OU10	A	North	2	**66**
OU11	A	North	2	**66**
OU12	A	North	2	**66**
OU13	B	North	2	61
OU14	B	East	2	61
OU15	A	North	3	65
OU16	A	North	3	65
OU17	A	North	3	**66**
OU18	A	North	3	**66**

As shown in Table 8, noise levels at several balconies on Building A are anticipated to exceed 65 CNEL, as designed. Four-foot high barrier walls must be incorporated into the design at these terraces, as shown in Figure 8. Results with barrier walls in place are shown in Table 9.

Table 9. Worst-Case Exterior Traffic Noise Levels at Balconies		
Receiver	**Worst-Case Traffic Noise Level (CNEL)**	
	As Designed	**With 4-foot Balcony Wall**
OU9	**66**	61
OU10	**66**	61
OU11	**66**	62
OU12	**66**	62
OU17	**66**	62
OU18	**66**	61

Calculations demonstrate that barriers with a height of four feet at the specified balconies will bring noise levels into compliance with the noise regulations of the City of San Diego Noise Element to the General Plan, as shown in Table 9 and therefore must be incorporated into the design. Please refer to Figure 8 for a graphical representation of where these barriers are required to be located.

5.1.2 Noise Impacts at Building Facades

Worst-case combined noise impacts were calculated for all project building facades. Worst-case combined noise impacts at building facades will range from 68 CNEL at the south facade of Building A on the second floor to 70 CNEL at the north facade of Building A on the first floor. These noise levels consider calculated worst-case traffic volumes and the aircraft noise level of 68 CNEL, as detailed in Section 3.1.1. Calculation results are shown in Table 10, and receiver locations are shown graphically in Figures 9, 10, and 11 for the first, second, and third floors, respectively.

Table 10. Worst-Case Combined Exterior Noise Levels at Building Facades

Receiver	Building	Facade	Floor	Exterior Noise Level (CNEL)		
				Traffic	Aircraft	Combined
F1	A	North	2	65	68	70
F2	A	North	2	64	68	69
F3	A	North	1	66	68	70
			2	66	68	70
F4	A	East	2	63	68	69
			3	63	68	69
F5	A	South	2	53	68	68
			3	54	68	68
F6	A	South	2	52	68	68
			3	53	68	68
F7	A	South	2	55	68	68
			3	55	68	68
F8	A	West	2	62	68	69
			3	62	68	69
F9	B	North	2	58	68	68
			3	58	68	68
F10	B	North	2	54	68	68
			3	56	68	68
F11	B	North	2	58	68	68
			3	59	68	69
F12	B	East	2	61	68	69
			3	61	68	69
F13	B	South	2	52	68	68

Table 10. Worst-Case Combined Exterior Noise Levels at Building Facades						
Receiver	Building	Facade	Floor	Exterior Noise Level (CNEL)		
				Traffic	Aircraft	Combined
			3	54	68	68
F14	B	South	2	52	68	68
			3	52	68	68
F15	B	South	2	53	68	68
			3	54	68	68
F16	B	West	2	51	68	69
			3	61	68	69
F17	A	North	3	64	68	70
F18	A	North	3	66	68	70
F19	A	North	3	65	68	70
F20	A	North	1	67	68	70
F21	A	East	1	63	68	69
F22	A	Roof	Roof	65	68	70
F23	B	Roof	Roof	64	68	69

5.2 Interior

The State of California and the City of San Diego Noise Element require buildings to be designed in order to attenuate, control, and maintain interior noise levels to below 45 CNEL in habitable space. Similarly, the City of San Diego requires that commercial structures control interior noise levels to be 50 CNEL or less. An exterior-to-interior analysis must be performed when building plans become available, prior to the issuance of building permits, in order to confirm compliance with City of San Diego Noise Element to the General Plan and State of California Building Code requirements.

5.3 Permanent Project-Related Noise Impacts

Noise levels of proposed permanent project-related mechanical equipment were calculated using Cadna at surrounding residential property lines to the northeast (across Voltaire), south (across the alley), and west. Proposed equipment consists of a single roof-mounted air conditioning unit for each of the residential units and two roof-mounted air conditioning units for the commercial space. Off-site, sensitive receptors were calculated at a height of five feet above grade, with the exception of second-story and third-story receivers which are placed at 15 feet and 25 feet above grade, respectively, to account for noise impacts at upper levels of nearby structures. Noise levels were calculated considering shielding that will be provided by the proposed on-site structures and do not include any roof parapet barriers on site.

Results of on-site mechanical noise impacts are shown in Table 11 below. The distances listed in the tables represent the approximate distance from the receivers to the nearest on-site air conditioning unit without considering height differences. See Figure 12 for a graphical representation of mechanical equipment source and receiver locations. Additional information can be found in Appendix C: Cadna Analysis Data and Results.

Table 11. Calculated Air Conditioner Noise Impact Levels				
Receiver	**Receiver Location**	**Approx. Distance to Nearest AC Unit (ft)**	**Noise Limit (dBA)**	**Equipment Noise Level (dBA)**
R1-1	Northeast, 1st Floor	107	50	39
R1-2	Northeast, 2nd Floor	107	50	41
R1-3	Northeast, 3rd Floor	107	50	42
R2-1	South, 1st Floor	61	50	41
R2-2	South, 2nd Floor	61	50	44
R2-3	South, 3rd Floor	61	50	49
R3-1	South, 1st Floor	56	50	40
R3-2	South, 2nd Floor	56	50	44
R3-3	South, 3rd Floor	56	50	49
R4-1	West, 1st Floor	26	50	38
R4-2	West, 2nd Floor	26	50	42
R4-3	West, 3rd Floor	26	50	48

As shown above, noise levels from the proposed roof-mounted air conditioning units will not exceed the applicable nighttime noise limits, as set in Section 59.5.0401 of the City of San Diego Municipal Code, at surrounding property lines at ground level or at the nearest affected second-story or third-story sensitive receptors. It should be noted that interior noise impacts from HVAC equipment to residents of the proposed project will be negligible, as the building itself (including any parapet walls at the roof level) will provide adequate noise shielding of HVAC equipment, such that noise impacts from rooftop HVAC equipment will be well below 60 CNEL at all building facades.

5.4 Temporary Project-Related Noise Impacts

According to Section 59.5.0404 of the City of San Diego Municipal Code, construction activity is prohibited between the hours of 7 p.m. and 7 a.m. and on Sundays or legal holidays. During permissible hours of operation, noise levels from construction activity must be limited to a twelve-hour average of no greater than 75 dBA at any property line zoned for residential use.

Potential temporary noise impacts to the surrounding residential sensitive receptors were determined based on typical construction information and anticipated construction activity. There will be a single phase of construction with no import or export of soil at the project site, as the cut and fill amounts will balance. A typical breakdown of construction activity is shown in Table 12, with noise levels of equipment detailed in Section 3.2.3.

Table 12. Anticipated Construction Activity	
Scope of Work	**Anticipated Large Equipment**
Demolition/Grading/Clearing	Excavator, Dump Trucks
Excavation/Concrete Work	Backhoe, Skid Steer Loader, Concrete Mixer Truck and Pump
Rough Framing, Exterior Finish	Manlift, Crane, Delivery Trucks

Noise levels were calculated at the nearest sensitive receptors to the south (across the adjacent alley) and west, as these are the nearest occupied residential properties surrounding the project site. Any other potentially sensitive receptors are located at a greater distance from construction activity and, therefore, would be exposed to lesser noise impacts due to distance attenuation and shielding provided by intervening structures. Construction noise sources were placed near the center of the work area to evaluate typical impacts to the surrounding sensitive receptors as equipment moves around the property. Noise calculations consider typical duty cycles of equipment, to account for periods of activity and inactivity on the site.

Noise levels for each stage of construction are shown in Table 13. Detailed calculations can be found in Appendix D, and a graphical representation of noise source and receiver locations is provided as Figure 13.

Table 13. Temporary Construction Noise Levels at Nearest Occupied Properties				
Stage	**Equipment Used**	**Receiver**	**Approximate Distance (ft)**	**12-Hour Average Noise Level of Equipment (dBA)**
Demolition/ Grading/Clearing	Excavator, Dump Trucks	C1 (South)	92	68.7
		C2 (West)	95	68.4
Excavation/ Concrete Work	Backhoe, Skid Steer Loader, Concrete Mixer/Pump	C1 (South)	92	68.6
		C2 (West)	95	68.3
Rough Framing, Exterior Finish	Manlift, Crane, Delivery Trucks	C1 (South)	92	69.4
		C2 (West)	95	69.1

As shown in Table 13, based on the typical noise levels and duty cycles of construction equipment, 12-hour average hourly noise levels will remain below 75 dBA at the nearest noise-sensitive property lines. Any other noise-sensitive properties are located at a greater distance from on-site activity and, therefore, would be exposed to lesser noise levels.

Despite the fact that noise impacts will remain in compliance with the construction noise limit found in Section 59.5.0404 of the City of San Diego Municipal Code, the following "good practice" measures should still be practiced as a courtesy to residential neighbors.

1. Staging areas should be placed as far as possible from residential receivers (west side of the property).

2. Place stationary equipment in locations that will have a lesser noise impact on nearby sensitive receivers.

3. Turn off equipment when not in use.

4. Limit the use of enunciators or public address systems, except for emergency notifications.

5. Equipment used in construction should be maintained in proper operating condition, and all loads should be properly secured to prevent rattling and banging.

6. Schedule work to avoid simultaneous construction activities that both generate high noise levels.

7. Use equipment with effective mufflers.

8. Minimize the use of backup alarms.

With operating hours limited to those permitted by Section 59.5.0404 of the City of San Diego Municipal Code and adherence to the general good practice construction noise control techniques, temporary construction noise impacts will be less than significant at surrounding properties. No specific project design features are required for reducing construction noise impacts to off-site, sensitive receptors.

Construction vibration will be minimal at surrounding properties. As the proposed project site will not require any construction activity that will generate significant levels of vibration, such as pile driving or blasting, any construction vibration generated at the site will be minimal and less than significant. No project design features are required for reducing construction vibration impacts to off-site, sensitive receptors.

5.5 CEQA Significance Determination

The project's impact on surrounding properties was taken into account using methodology given in Section K of the City of San Diego's Significance Determination Thresholds document. In order to determine whether or not the project will have a significant impact on surrounding properties, the City's Initial Study Checklist was used, and is addressed as follows:

1. Would the project result in a significant increase (3 dBA or more) in the existing ambient noise levels?

Average hourly nighttime ambient noise levels measured on site (and detailed in Section 3.1.3) were combined with the proposed on-site mechanical equipment noise impacts at the closest surrounding properties to determine the cumulative noise impact and the increase in ambient noise levels during noise-sensitive hours at surrounding residential properties. Results are shown in Table 14.

Table 14. Calculated Cumulative Noise Impacts at Surrounding Property Lines						
Receiver Number	Receiver Location	Noise Level (dBA)				Impact
		Minimum Ambient	Mechanical	Cumulative	Ambient Increase	
R1-1	North, 1st Floor	57.8	39.2	57.9	0.1	Less than Significant
R1-2	North, 2nd Floor	57.8	40.9	57.9	0.1	Less than Significant
R1-3	North, 3rd Floor	57.8	41.5	57.9	0.1	Less than Significant
R2-1	South, 1st Floor	57.8	40.6	57.9	0.1	Less than Significant
R2-2	South, 2nd Floor	57.8	44.3	58.0	0.2	Less than Significant
R2-3	South, 3rd Floor	57.8	48.7	58.3	0.5	Less than Significant
R3-1	South, 1st Floor	57.8	40.1	57.9	0.1	Less than Significant
R3-2	South, 2nd Floor	57.8	43.6	58.0	0.2	Less than Significant
R3-3	South, 3rd Floor	57.8	48.6	58.3	0.5	Less than Significant
R4-1	West, 1st Floor	57.8	38.1	57.8	0.0	Less than Significant
R4-2	West, 2nd Floor	57.8	42.2	57.9	0.1	Less than Significant
R4-3	West, 3rd Floor	57.8	47.5	58.2	0.4	Less than Significant

As the project creates less than a 3 dBA increase in the existing ambient noise levels, its impact will be less than significant at surrounding properties.

2. Would the project expose people to noise levels which exceed the City's adopted noise ordinance or are incompatible with Table K-4?

Noise levels generated by mechanical equipment at the proposed project site are shown to comply with the applicable noise level limits contained within Section 59.5.0401 of the City of San Diego Municipal Code (the "adopted noise ordinance") at surrounding residential properties, as shown in Table 11.

Per comments from City of San Diego staff, Table K-4 is obsolete and should be replaced with Table NE-3. The noise requirements of Table NE-3 show that multi-family residential land uses with noise levels up to 65 CNEL are considered compatible. Although the proposed site will have higher noise levels, due to aircraft noise exposure, the proposed project will be required to provide an avigation easement, per the requirements of Section D of the City of San Diego Noise Element to the General Plan and will incorporate additional project design features to ensure interior noise levels of 45 CNEL or less in habitable residential space (exact design features will be determined with a detailed interior noise analysis, before the issuance of building permits). For this reason, the project is still considered to be a compatible use.

3. Would the project expose people to current or future transportation noise levels which exceed standards established in the Transportation Element to the General Plan or an adopted airport Comprehensive Land Use Plan?

As shown in Section 5.1, with the proposed barriers implemented for outdoor use areas and detailed interior noise analyses prepared prior to building permit issuance, the proposed project will result in current and future transportation noise levels that are in compliance with Section D of the City of San Diego Noise Element to the General Plan at outdoor use and indoor spaces. As the proposed project is located within the San Diego International Airport noise contours that exceed 65 CNEL, an avigation easement will be required for the project.

4. Would the project result in land uses which are not compatible with aircraft noise levels as defined by an adopted airport Comprehensive Land Use Plan (CLUP)?

As the proposed project is located within the San Diego International Airport noise contours that exceed 65 CNEL, an avigation easement will be required for the project. With the avigation easement in effect and with the project design features necessary to achieve interior noise levels of 45 CNEL or less in habitable residential spaces (exact design features will be determined with a detailed interior noise analysis, before the issuance of building permits), the project will be compatible with Section D of the City of San Diego Noise Element to the General Plan and the Airport Land Use Compatibility Place for the San Diego International Airport.

Using the methodology given in Section K of the City of San Diego's Significance Determination Thresholds Document, it has been determined that the proposed project will have a less than significant impact with regard to noise.

6.0 CONCLUSION

Section A of the City of San Diego Noise Element to the General Plan requires that residential outdoor use areas be protected from noise levels greater than 65 CNEL and greater than 75 CNEL for commercial outdoor use areas, although Section D of the Noise Element conditionally allows multi-family and mixed use residential uses in areas exposed to aircraft noise levels of above 65 CNEL when there are existing residential uses in the vicinity of the project, provided the project includes project design features to reduce interior noise levels to 45 CNEL or less (exact design features will be determined with a detailed interior noise analysis, before the issuance of building permits), and the project dedicates an avigation easement to the Airport Authority. As aircraft noise cannot be reasonably shielded at outdoor locations, noise levels for outdoor use areas would only need to be shielded from traffic noise levels of above 65 CNEL. Noise impacts from worst-case traffic noise were calculated at private balconies and commercial outdoor use areas. As designed, worst-case traffic noise levels at the commercial outdoor use area and some private balconies along Building A will be exposed to noise levels greater than 65 CNEL, and therefore, will require the incorporation of balcony barriers. With four-foot high barrier walls in place in specified locations along Building A, noise levels will be less than 65 CNEL, and therefore, would be in compliance with the noise requirements of the City of San Diego Noise Element to the General Plan, provided an avigation easement is dedicated to the Airport Authority. These project design features are further detailed in Section 5.1 on page 13 of the report, and are shown graphically in Figure 8.

Due to high noise levels on-site, an exterior-to-interior analysis must be performed when building plans become available, prior to the issuance of building permits, in order to confirm compliance with City of San Diego Noise Element to the General Plan and State of California Building Code requirements.

Noise from the anticipated HVAC equipment on site has been calculated to determine impacts at off-site, sensitive receptors. Calculations show that noise levels from the mechanical equipment will be in compliance with the City of San Diego noise regulations found within Section 59.5.0401 of the Municipal Code. No project design features are deemed necessary to control project-generated noise impacts from mechanical equipment.

Noise from temporary construction activities will not exceed the applicable construction noise limits of Section 59.5.0404 of the City of San Diego Municipal Code at any surrounding residential property line. Construction is prohibited between the hours of 7 p.m. and 7 a.m. and on Sundays or legal holidays. Standard construction noise control methods including adhering to permissible hours of operation, maintaining equipment in proper operating condition, and placing staging areas at furthest locations from off-site, sensitive receptors, will be sufficient for reducing noise impacts to surrounding sensitive receptors.

Using the methodology given in Section K of the City of San Diego's CEQA Significance Determination Thresholds Document, it was determined that the proposed project will have a less than significant impact with regard to noise.

As detailed herein, with the design features listed for exterior noise incorporated into the project design and detailed interior noise analyses conducted prior to building permit issuance, noise impacts to and from the project site will comply with all applicable City of San Diego noise regulations.

7.0 CERTIFICATION

All recommendations for noise control are based on the best information available at the time our consulting services are provided. However, as there are many factors involved in sound transmission, and Eilar Associates has no control over the construction, workmanship, or materials, Eilar Associates is specifically not liable for final results of any recommendations or implementation of the recommendations.

The findings and recommendations of this acoustical analysis report are based on the information available and are a true and factual analysis of the potential acoustical issues associated with the 17 on Voltaire project, to be located at the southwest corner of Voltaire Street and San Clemente Street, in the City of San Diego, California. This report was prepared by Rachael Cowell and Amy Hool.

Rachael Cowell, Acoustical Consultant

Amy Hool, President/CEO

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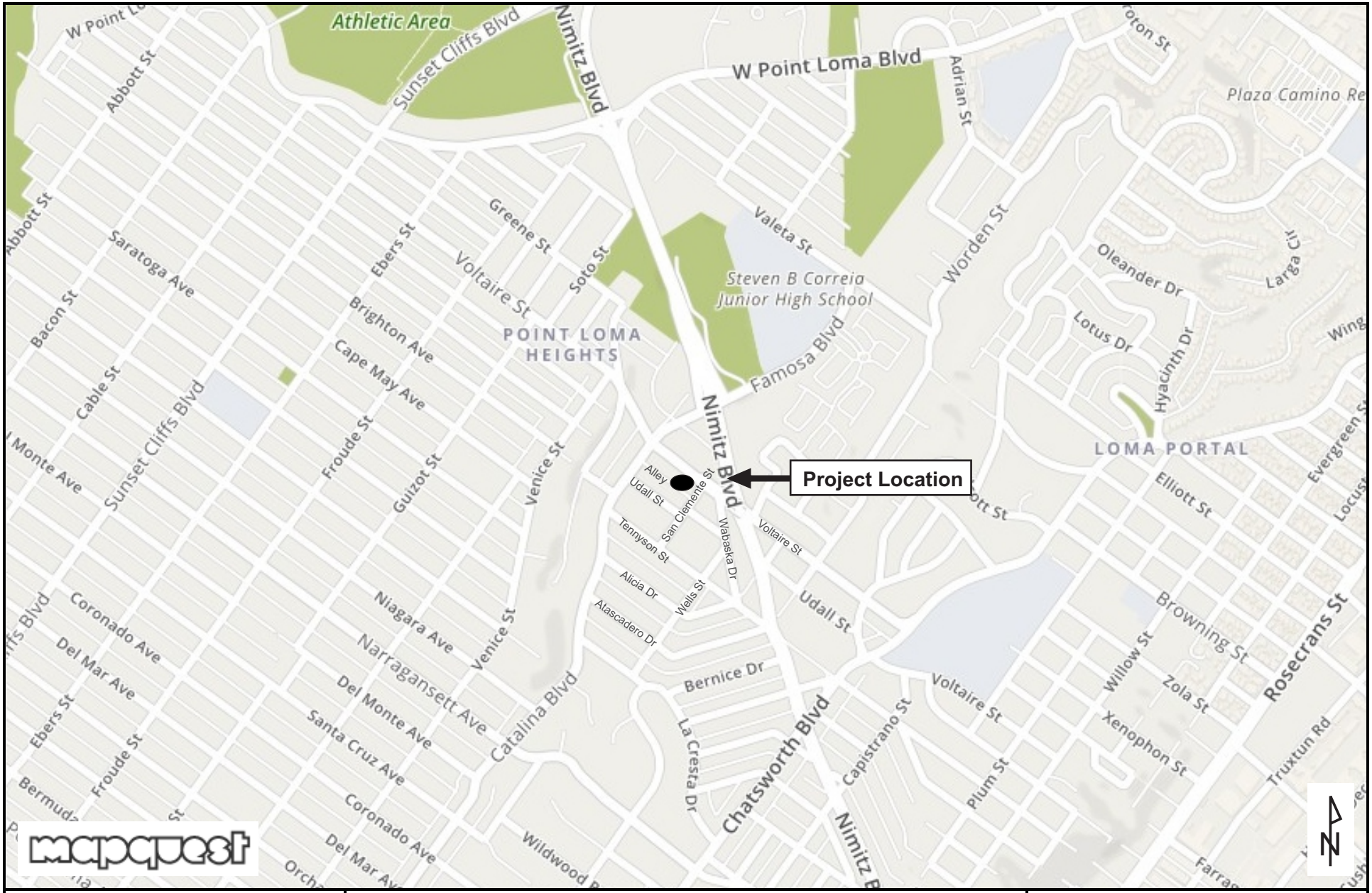
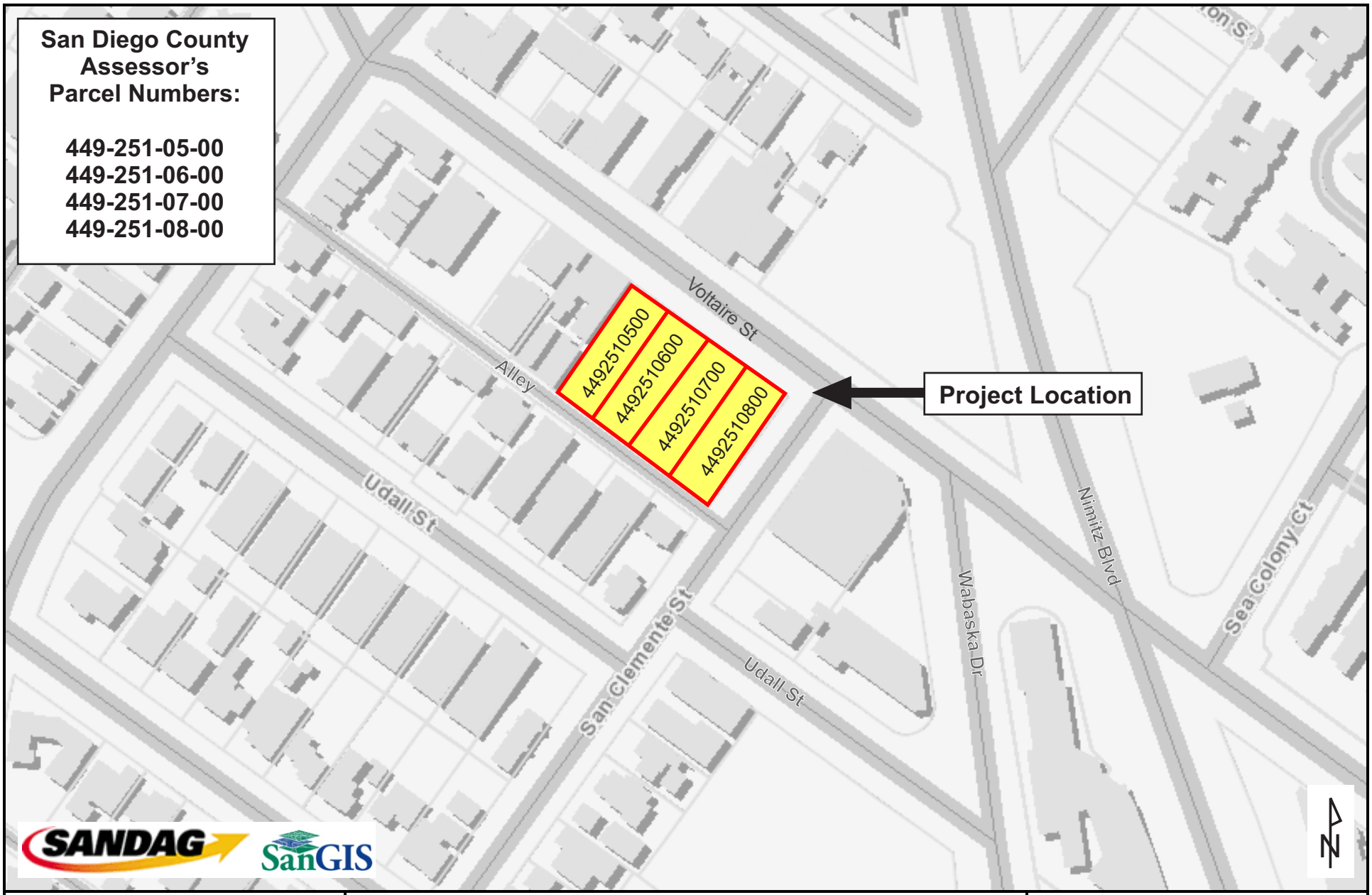
13. City of San Diego Significance Determination Thresholds, July 2016.

FIGURES



Eilar Associates, Inc. 210 South Juniper Street, Suite 100 Escondido, California 92025 760-738-5570	**Vicinity Map** **Job # S191104**	**Figure 1**



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760-738-5570

Assessor's Parcel Map
Job #S191104

Figure 2

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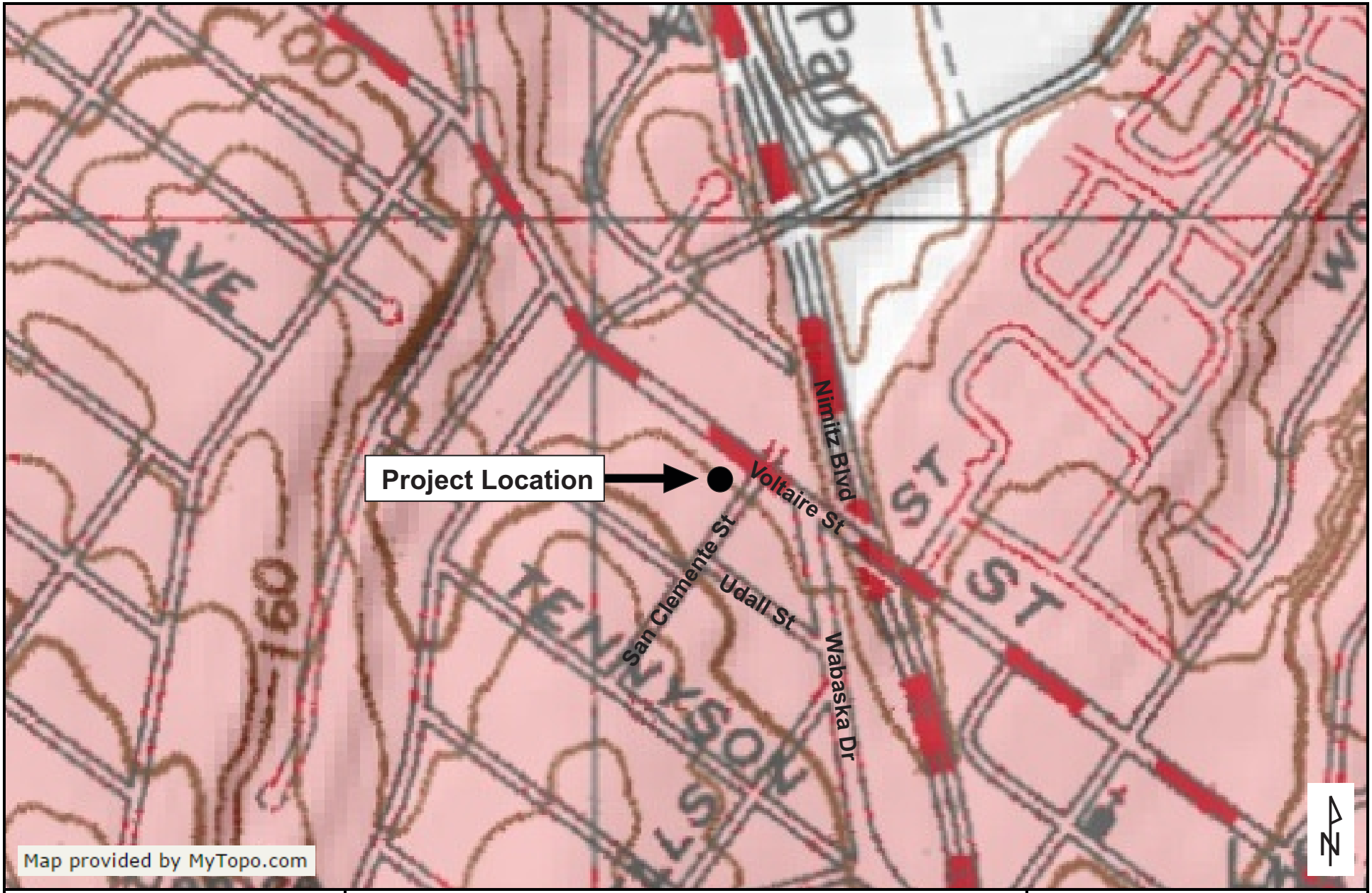
Satellite Aerial Photograph
Job # S191104

Figure 3



Eilar Associates, Inc.
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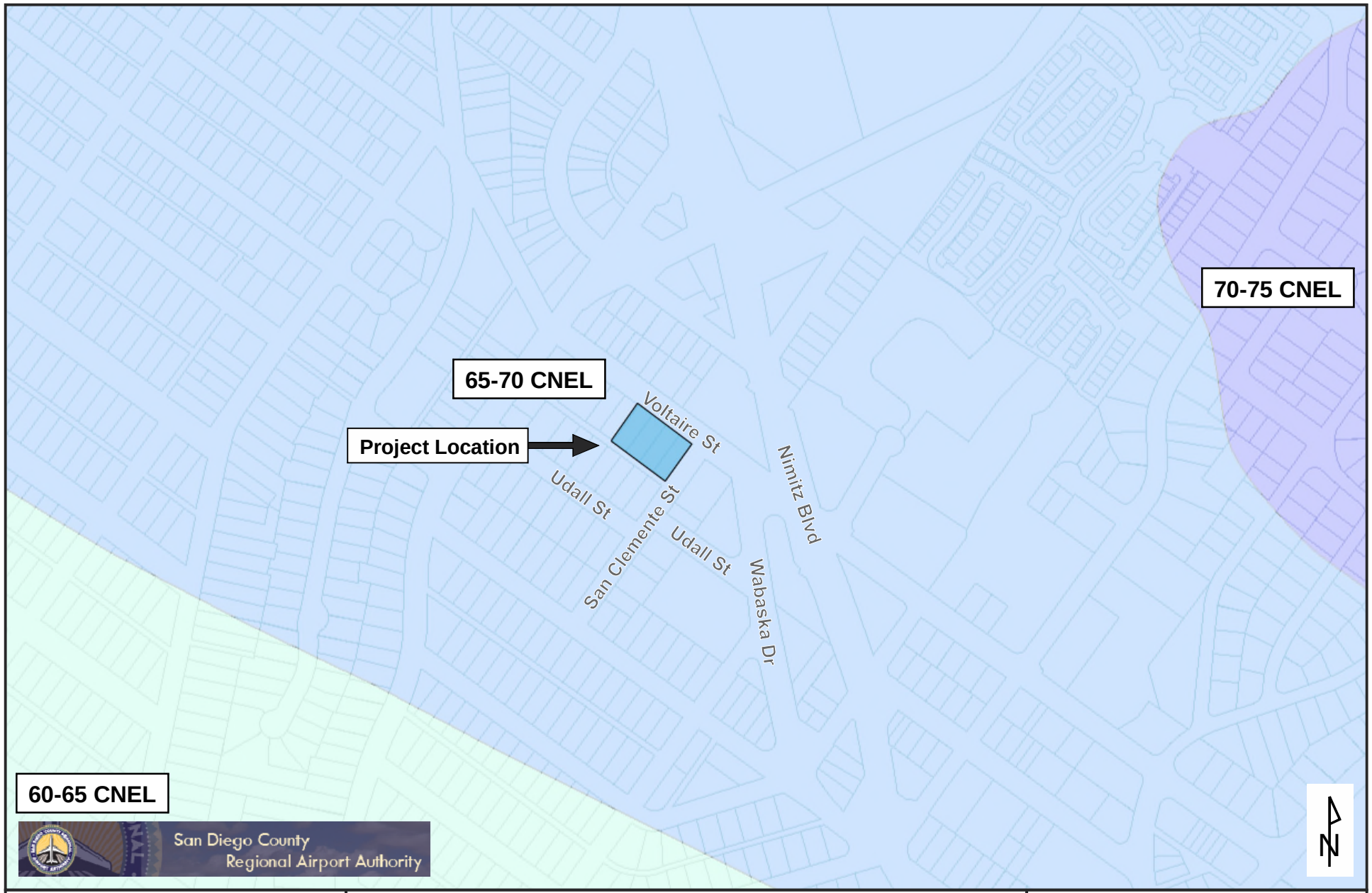
Topographic Map
Job # S191104

Figure 4



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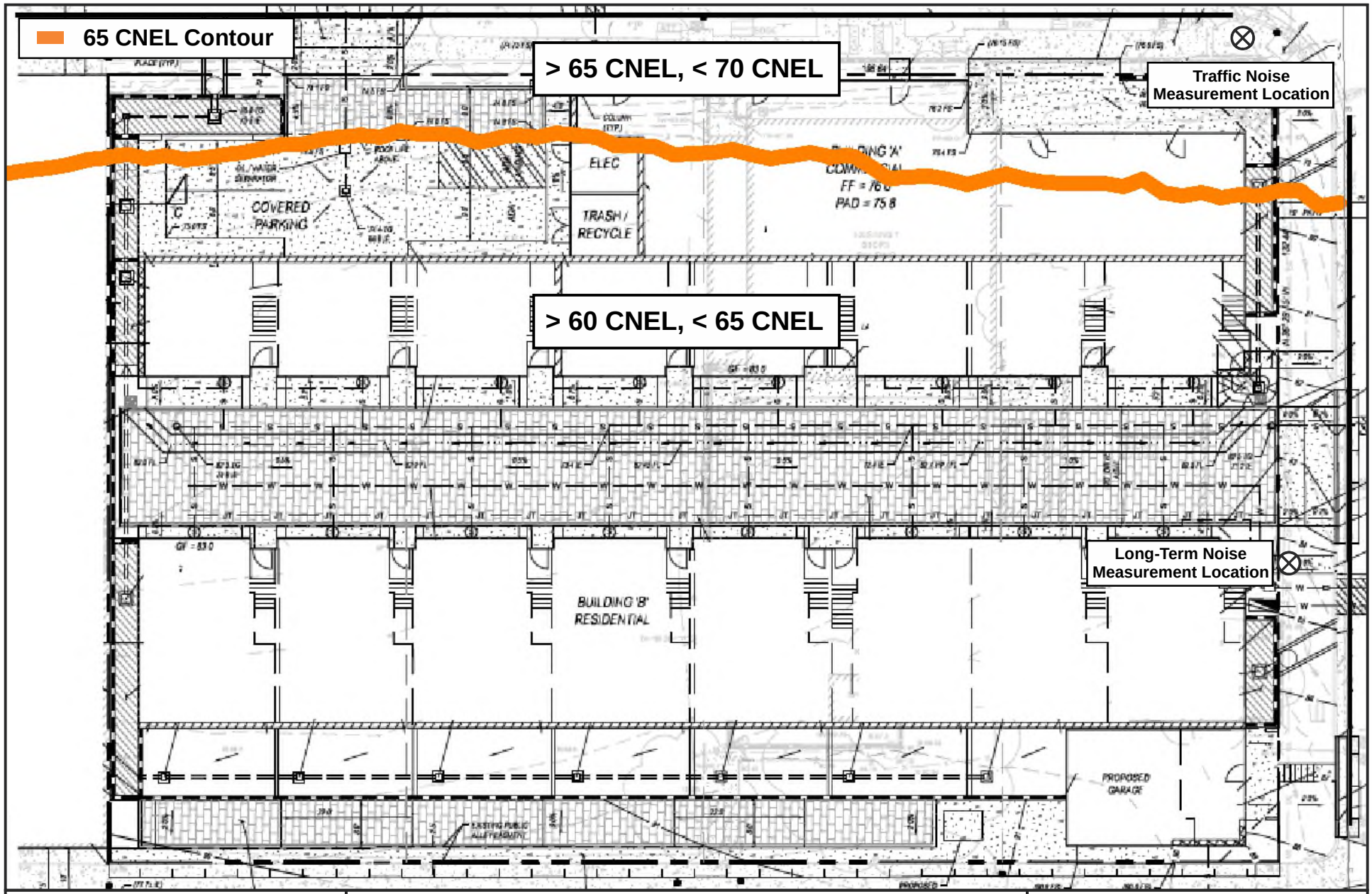
San Diego International Airport Noise Contours
Job # S191104

Figure 5



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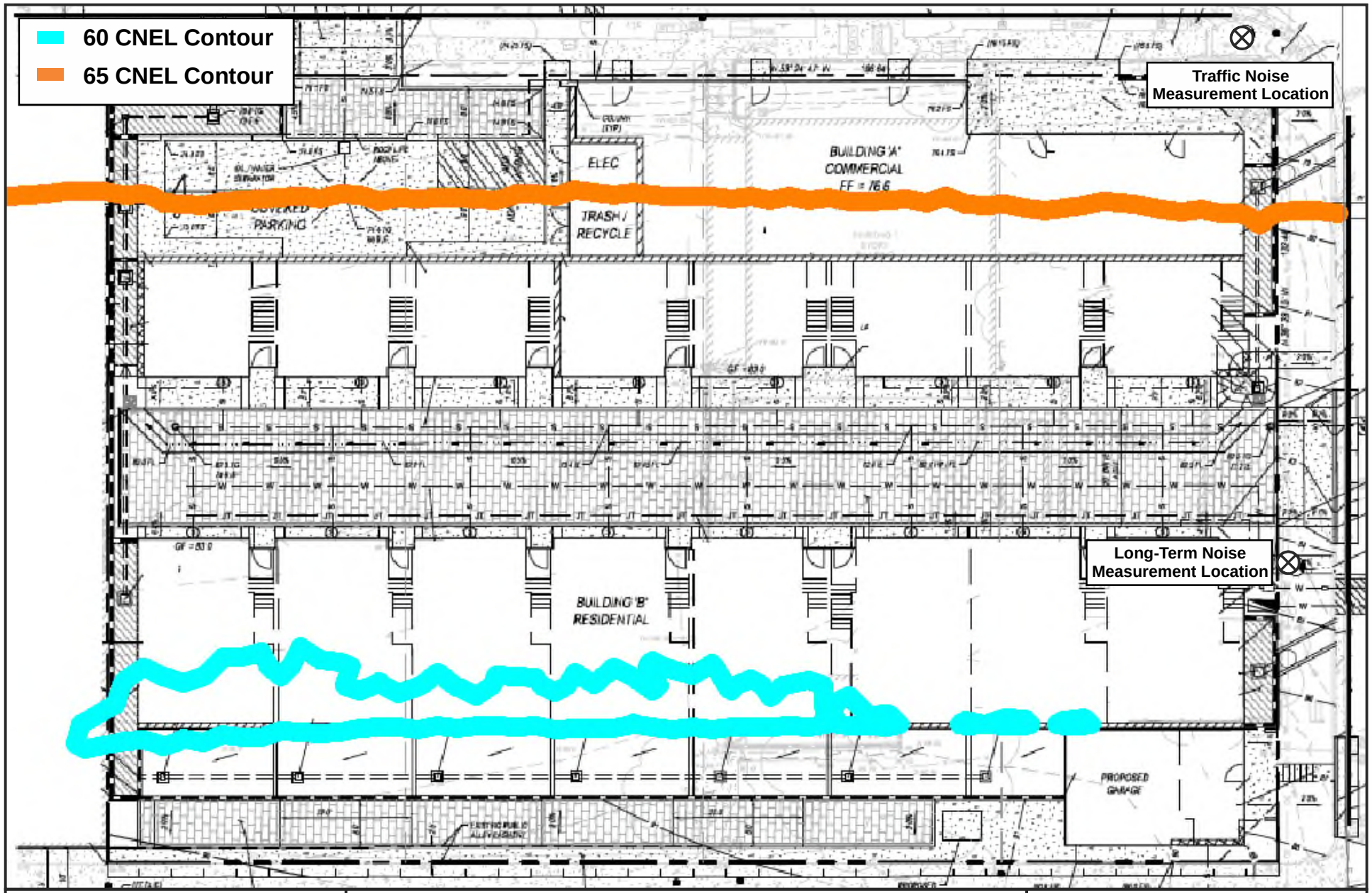
Site Plan Showing Current Traffic CNEL Contours and Noise Measurement Locations
Job # S191104

Figure 6



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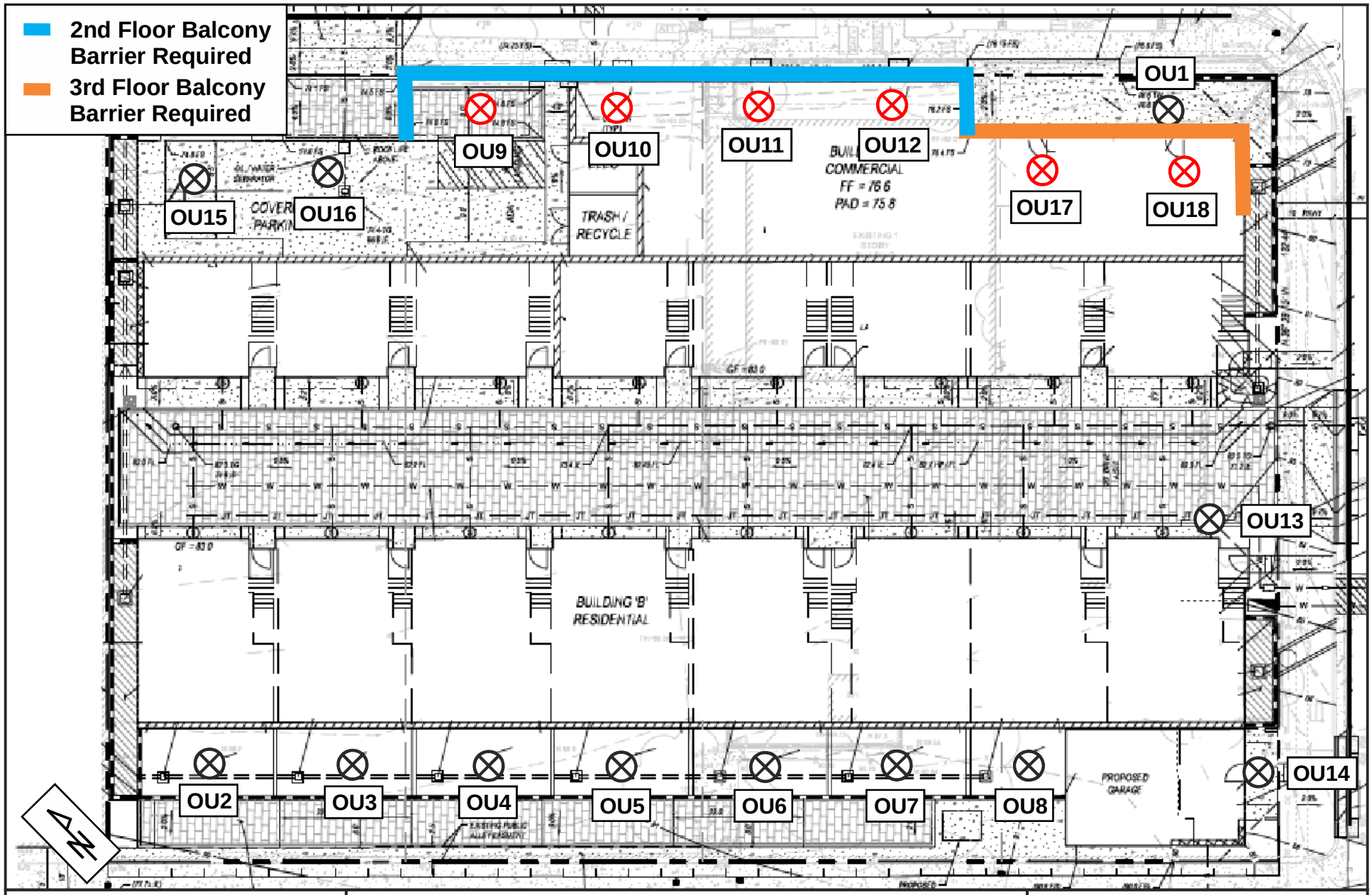
Site Plan Showing Future Traffic CNEL Contours and Noise Measurement Locations
Job # S191104

Figure 7



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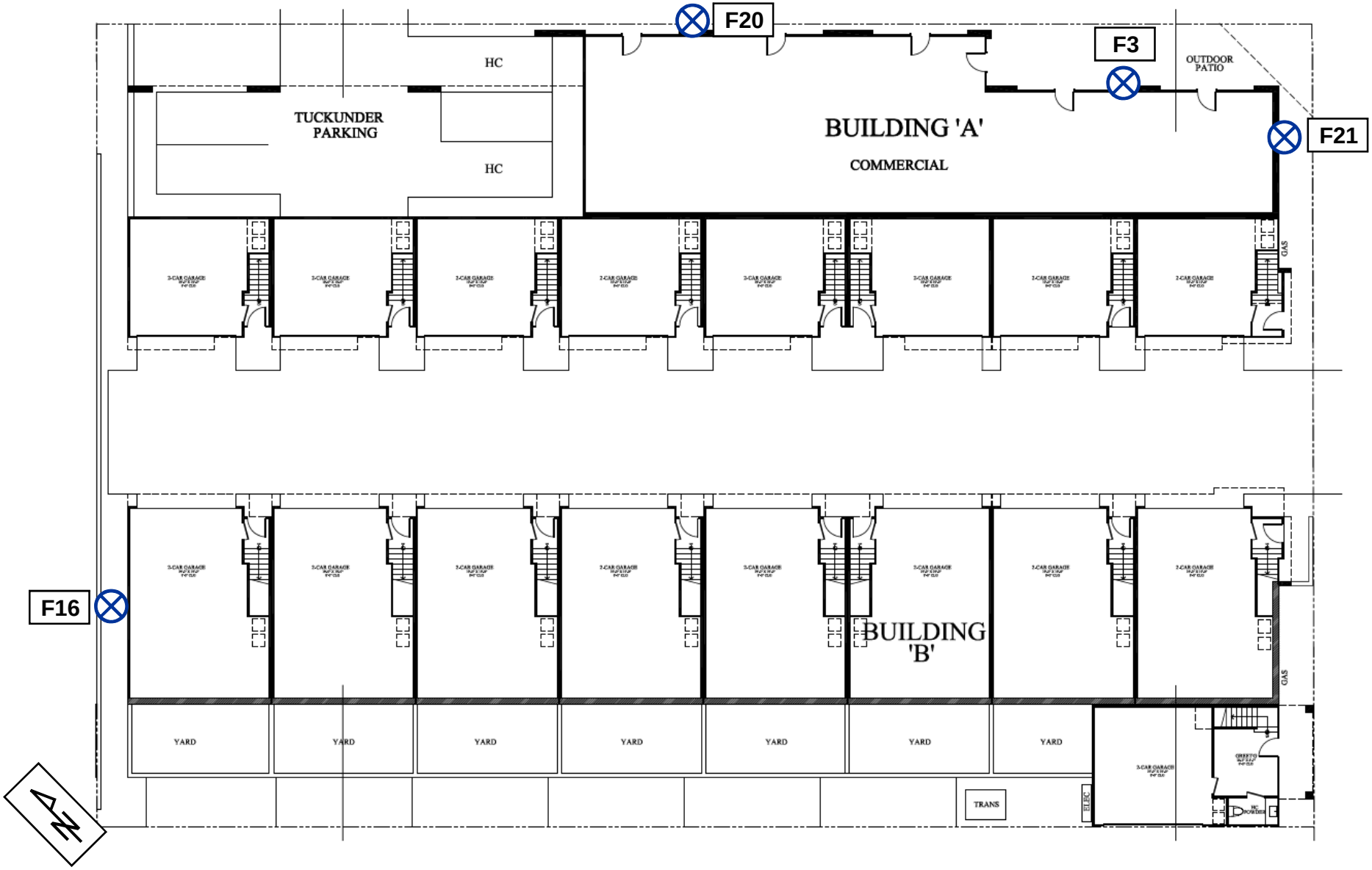
Site Plan Showing Receiver and Barrier Locations for Outdoor Use Areas
Job # S191104

Figure 8



Eilar Associates, Inc.
210 South Juniper Street, Suite 100
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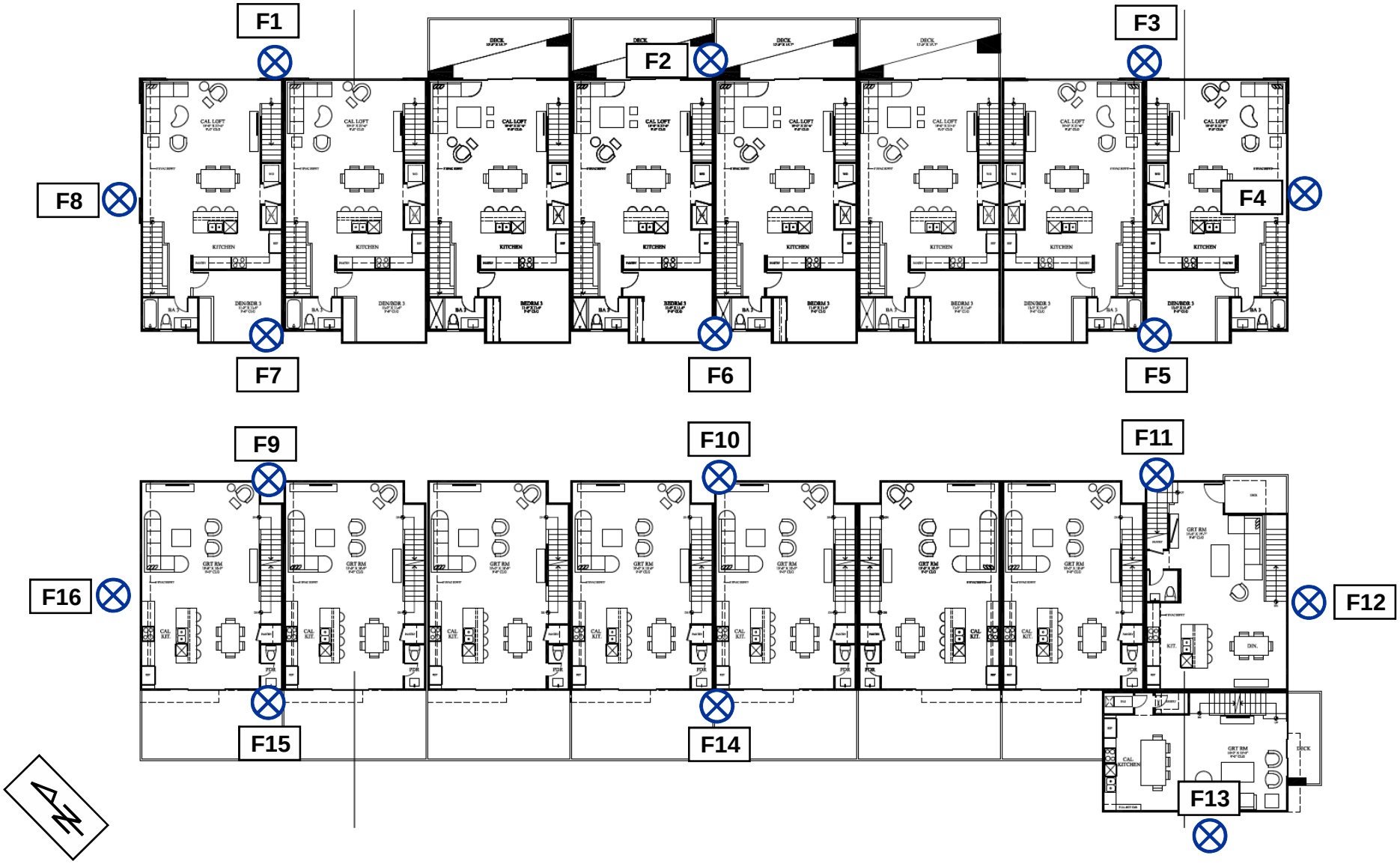
First Floor Plan Showing Receiver Locations at Building Facades
Job # S191104

Figure 9



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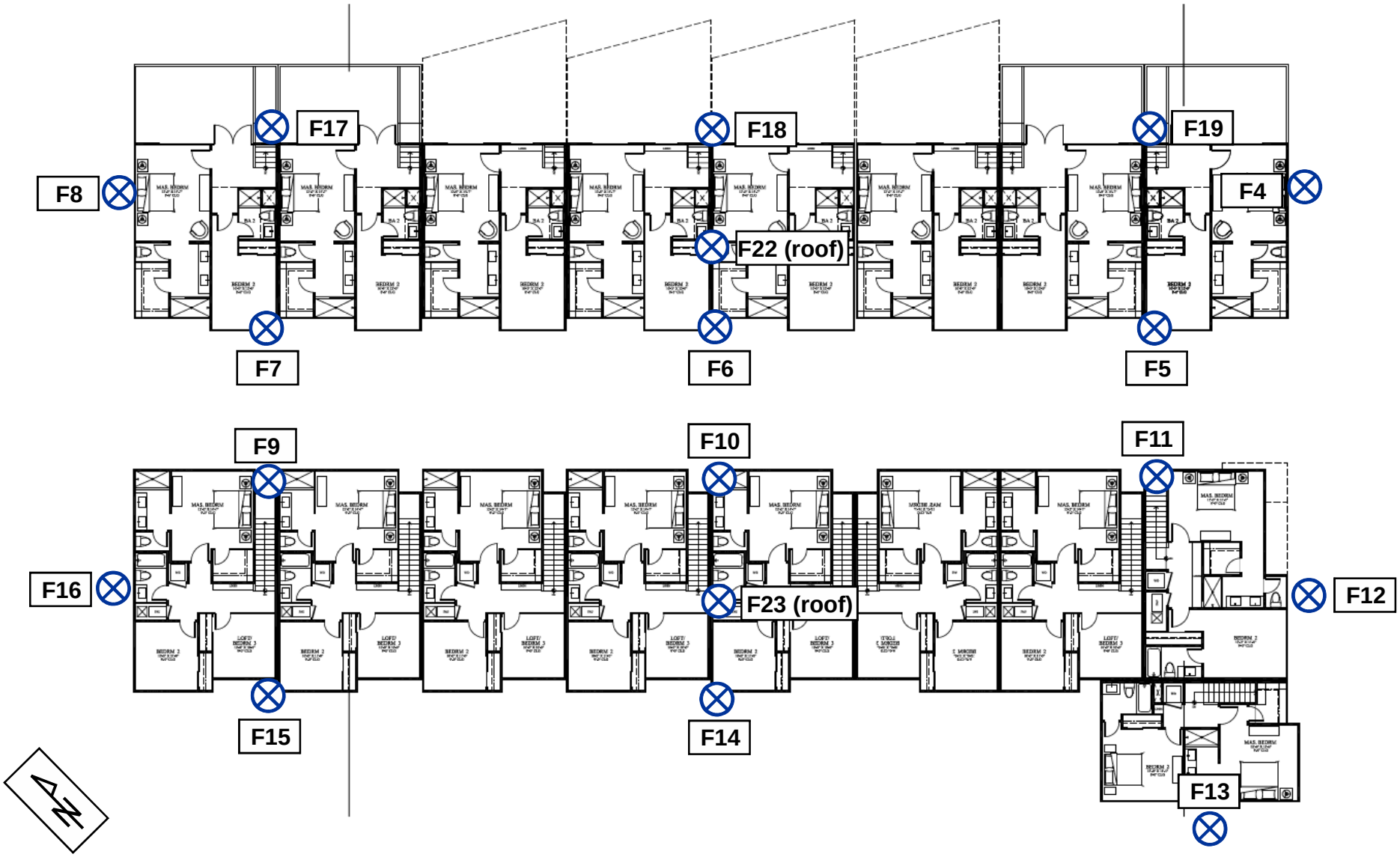
Escondido, California 92025
760-738-5570

Second Floor Plan Showing Receiver Locations at Building Facades
Job # S191104

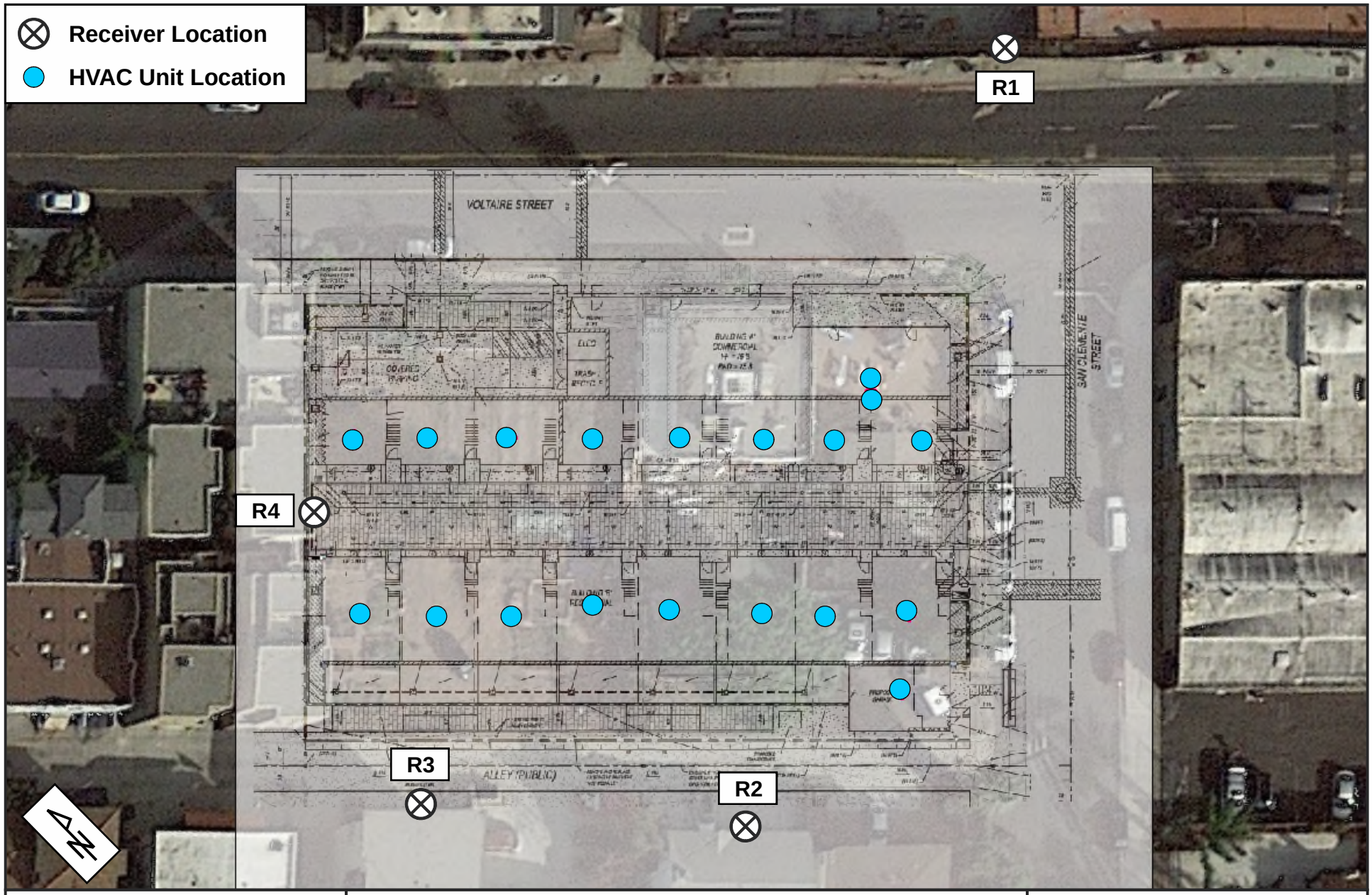
Figure 10



Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025
760-738-5570

Third Floor Plan Showing Receiver Locations at Building Facades
Job # S191104

Figure 11



Eilar Associates, Inc.
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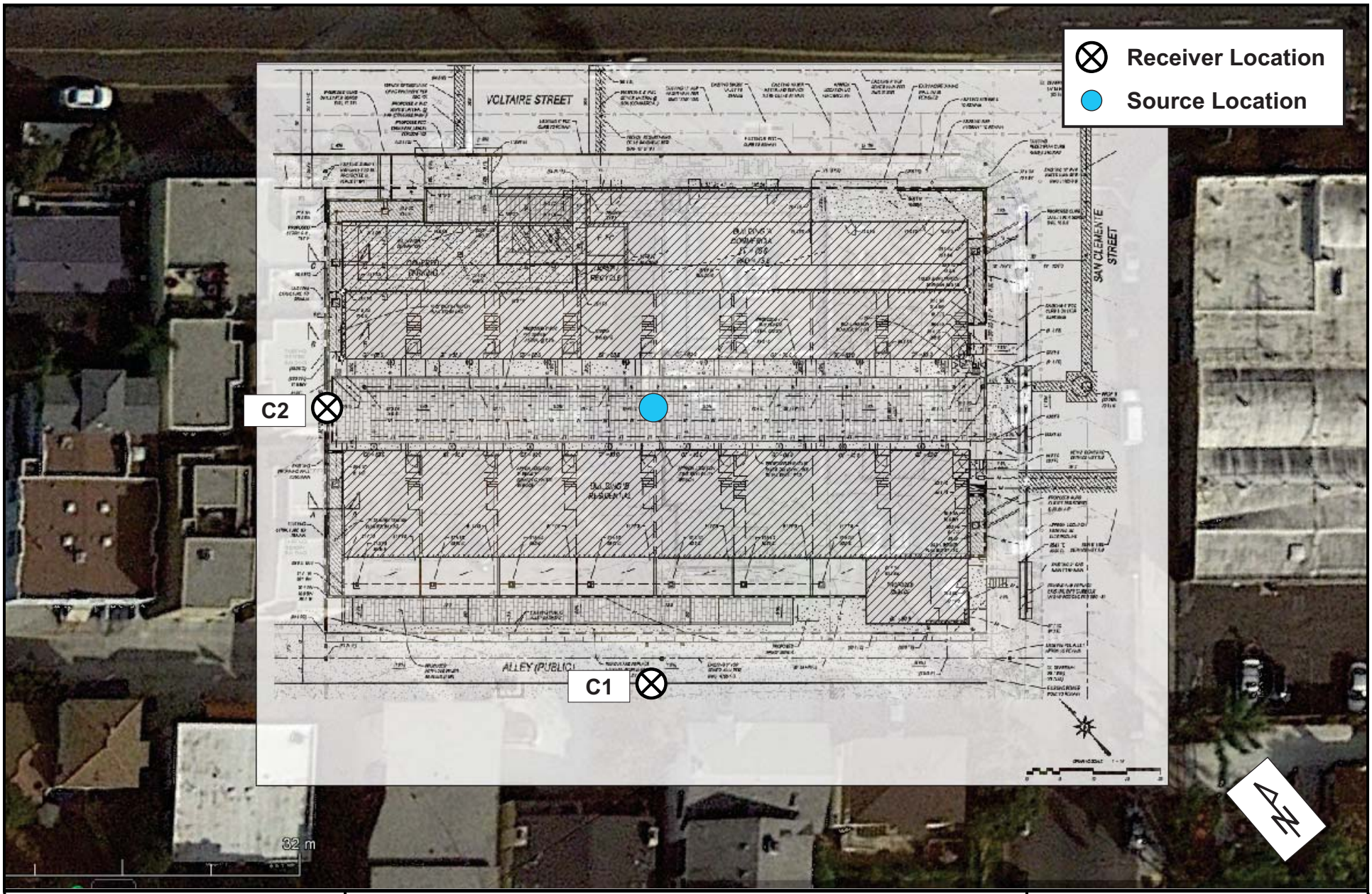
Satellite Aerial Photograph Showing AC Equipment Noise Source and Receiver Locations
Job # S191104

Figure 12



Eilar Associates, Inc. **210 South Juniper Street, Suite 100** **Escondido, California 92025** **760-738-5570**	**Satellite Aerial Photograph Showing** **Construction Noise Source and Receiver Locations** **Job # S191104**	**Figure 13**

APPENDIX A

Project Plans

17 on VOLTAIRE

CityMark

Architectural Submittal Package

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

JUNE 14, 2019

Prepared By:
Name: The McKinley Associates, Inc.
Address: 1818 First Avenue
San Diego, California 92101
Phone #: (619) 238-1134

Project Address:
San Diego, CA

Project Name:
17 on Voltaire

Sheet Title:
COVER SHEET

Revision 14:
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Revision 11:
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Revision 8:
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Revision 6:
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Revision 2:
Revision 1:

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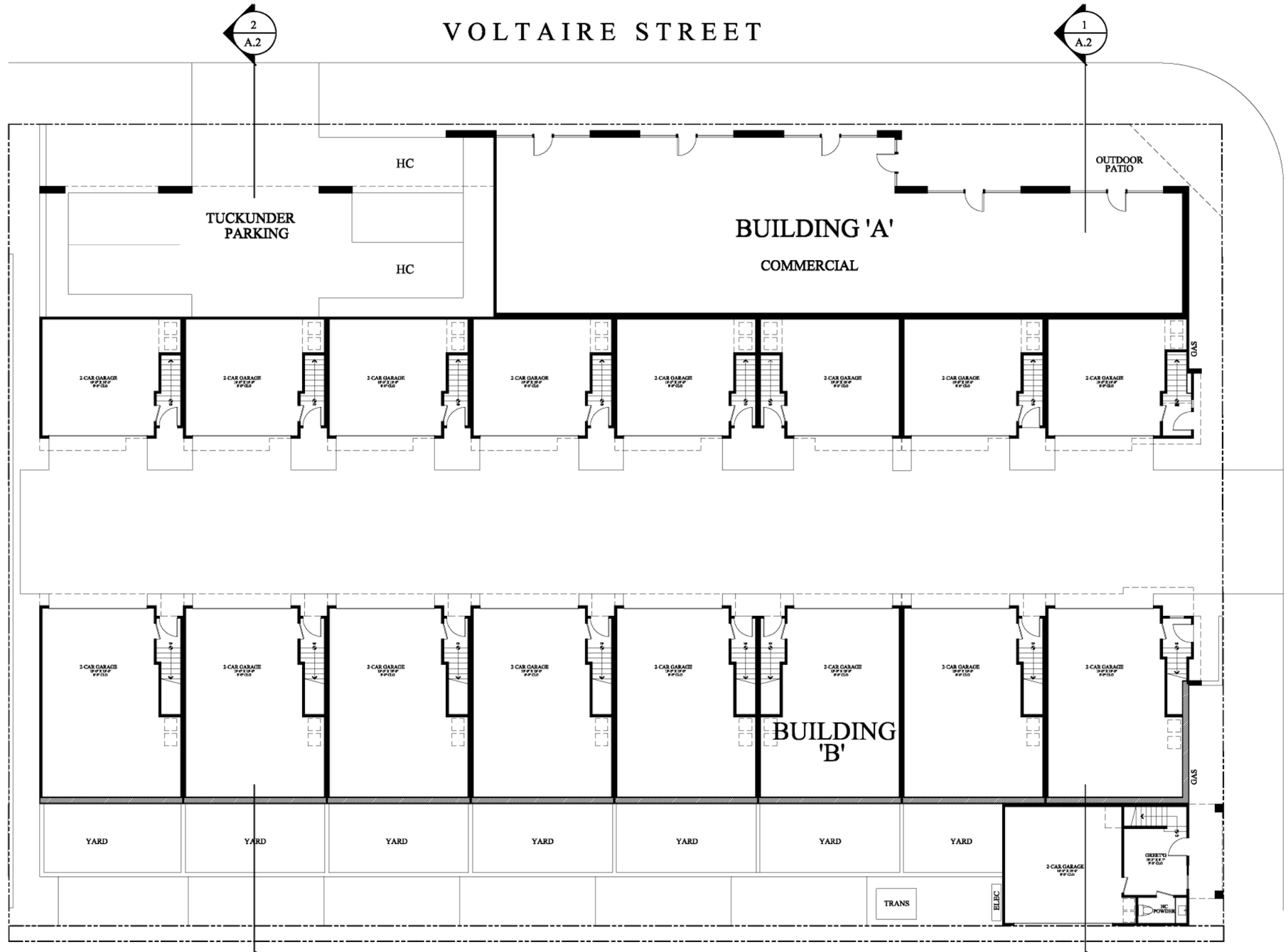

1ST FLOOR BUILDING PLANS

17 on VOLTAIRE

SCALE: 1/8" = 1'-0"

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

JUNE 14, 2019

17 UNITS

2 3 STORY TOWNHOUSES	1662 3 BR/3.0 BA	4.50 CARS
6 3 STORY TOWNHOUSES	1656 3 BR/3.0 BA	13.50 CARS
7 3 STORY TOWNHOUSES	1524 3 BR/2.5 BA	15.75 CARS
1 3 STORY TOWNHOUSES	1460 2 BR/2.5 BA	2.00 CARS
1 3 STORY TOWNHOUSE	1375 2 BR/DEN/2.5BA	2.00 CARS
2879 SF COMMERCIAL	1/500 CARS	5.76 CARS
	TOTAL CARS REQ.	43.51 CARS
	TOTAL CARS PROVIDED	44.00 CARS

TYPE V 1 HOUR NFPA13R SPRINKLER SYSTEM

Prepared By:
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San Diego, California 92101
Phone #: (619) 238-1134

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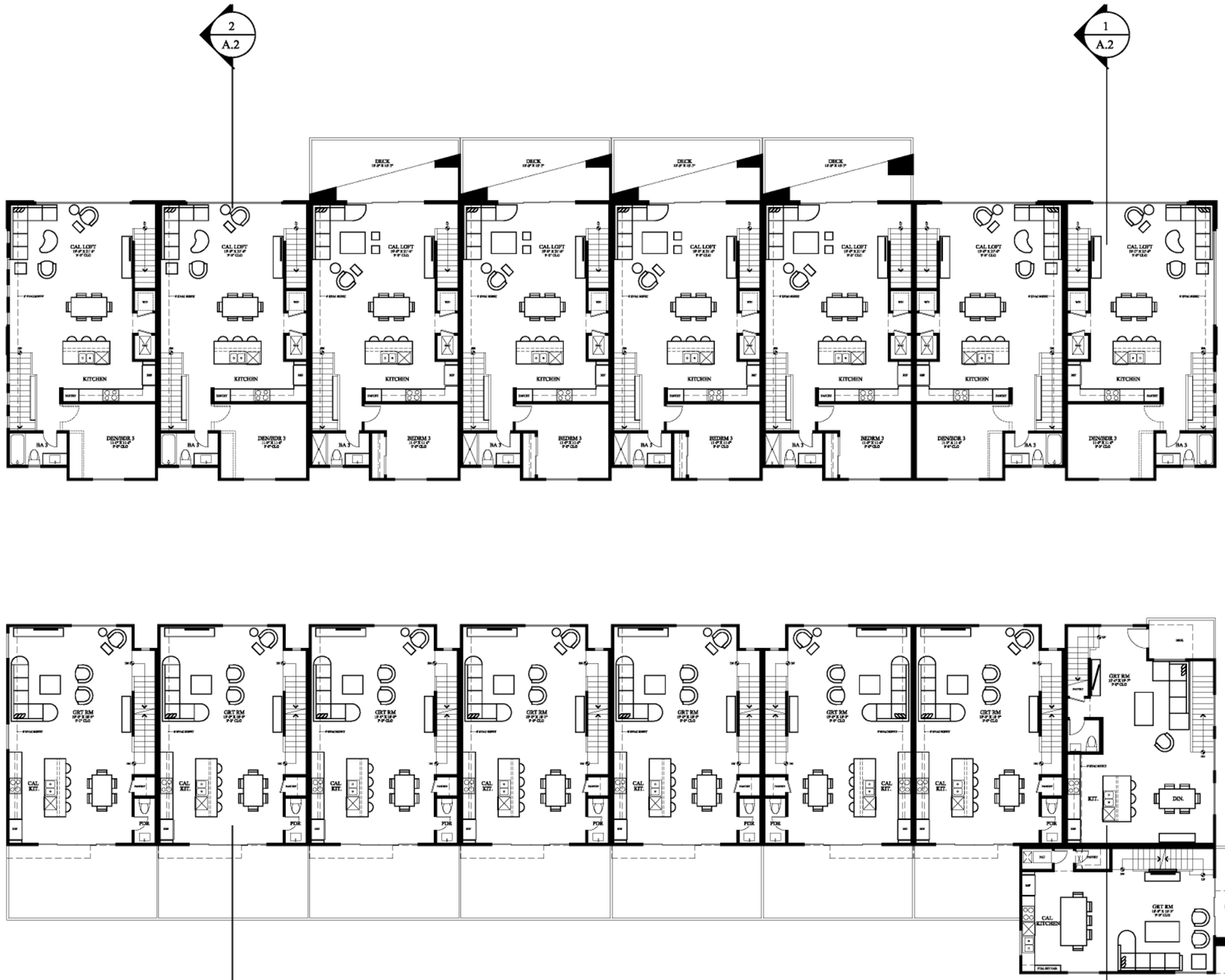

2ND FLOOR BUILDING PLANS

17 on VOLTAIRE

SCALE: 1/8" = 1'-0"

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

JUNE 14, 2019

Prepared By:
Name: The McKinley Associates, Inc.
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San Diego, CA

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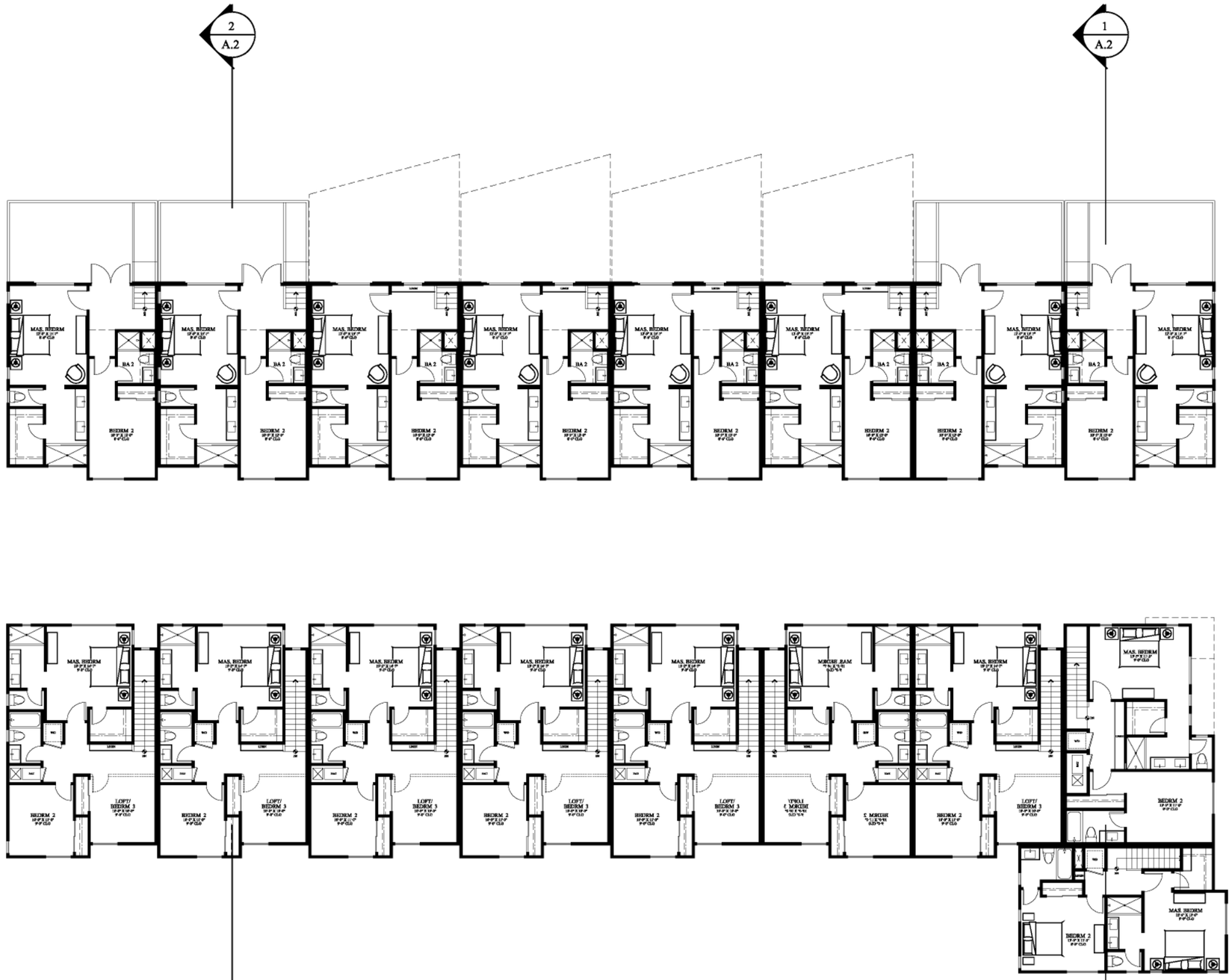

3RD FLOOR BUILDING PLANS

17 on VOLTAIRE

SCALE: 1/8" = 1'-0"

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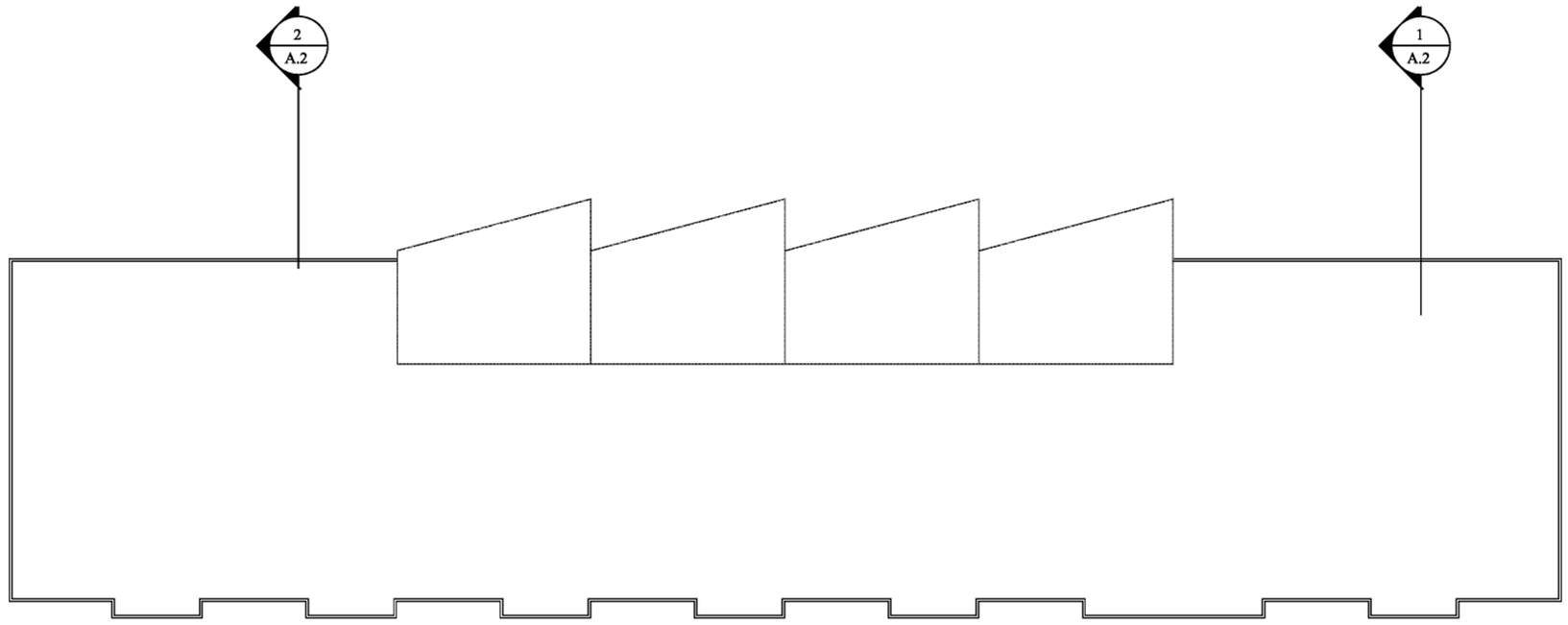

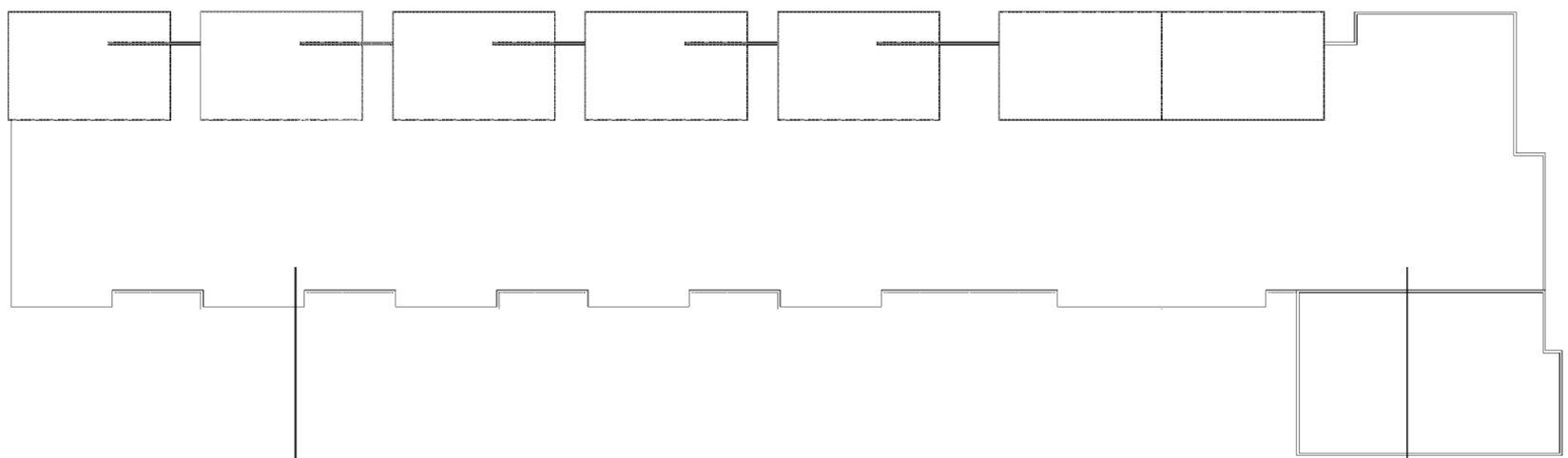

BUILDING ROOF PLANS

17 on VOLTAIRE

SCALE: 1/8" = 1'-0"

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

JUNE 14, 2019

N

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San Diego, CA

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BUILDING 'B'

BUILDING 'A'

VOLTAIRE STREET

NORTH BUILDING ELEVATIONS

17 on VOLTAIRE

SCALE: 1/8" = 1'-0"

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

JUNE 14, 2019

N

Prepared By:

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San Diego, California 92101
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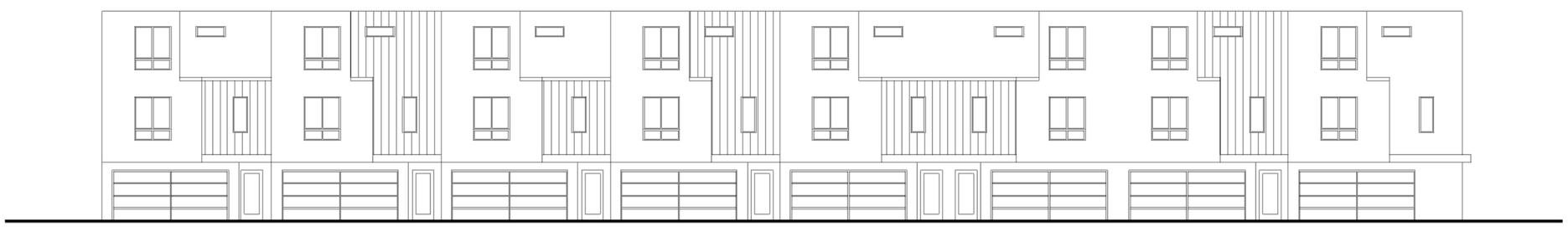
BUILDING 'B'



BUILDING 'A'

SOUTH BUILDING ELEVATIONS

17 on VOLTAIRE

SCALE: 1/8" = 1'-0"

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

JUNE 14, 2019

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Prepared By:

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Address: 1818 First Avenue
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San Diego, CA

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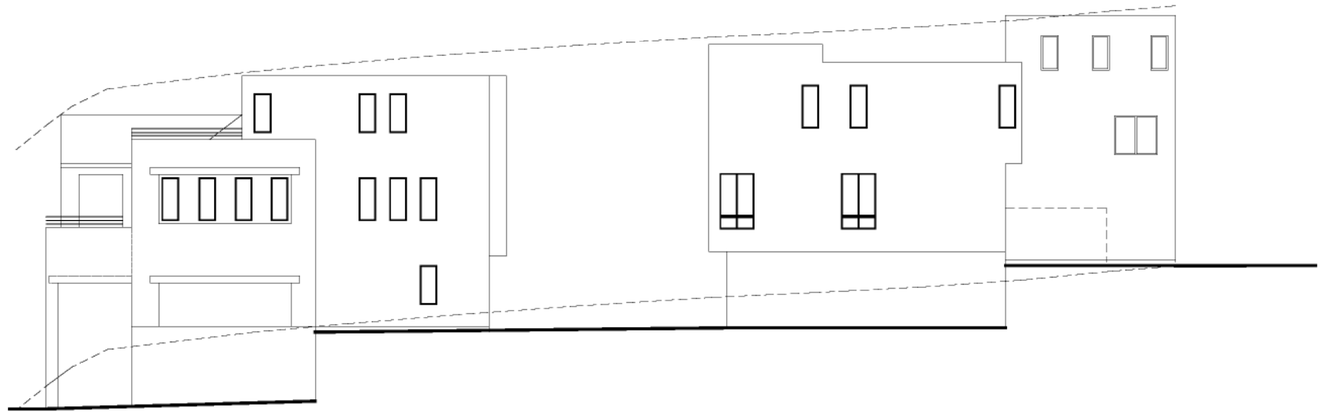

BUILDING 'A' & 'B' WEST

BUILDING 'A' & 'B' EAST

SAN CLEMENTE STREET

WEST AND EAST BUILDING ELEVATIONS

17 on VOLTAIRE

SCALE: 1/8" = 1'-0"

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ARCHITECTURE & PLANNING

JUNE 14, 2019

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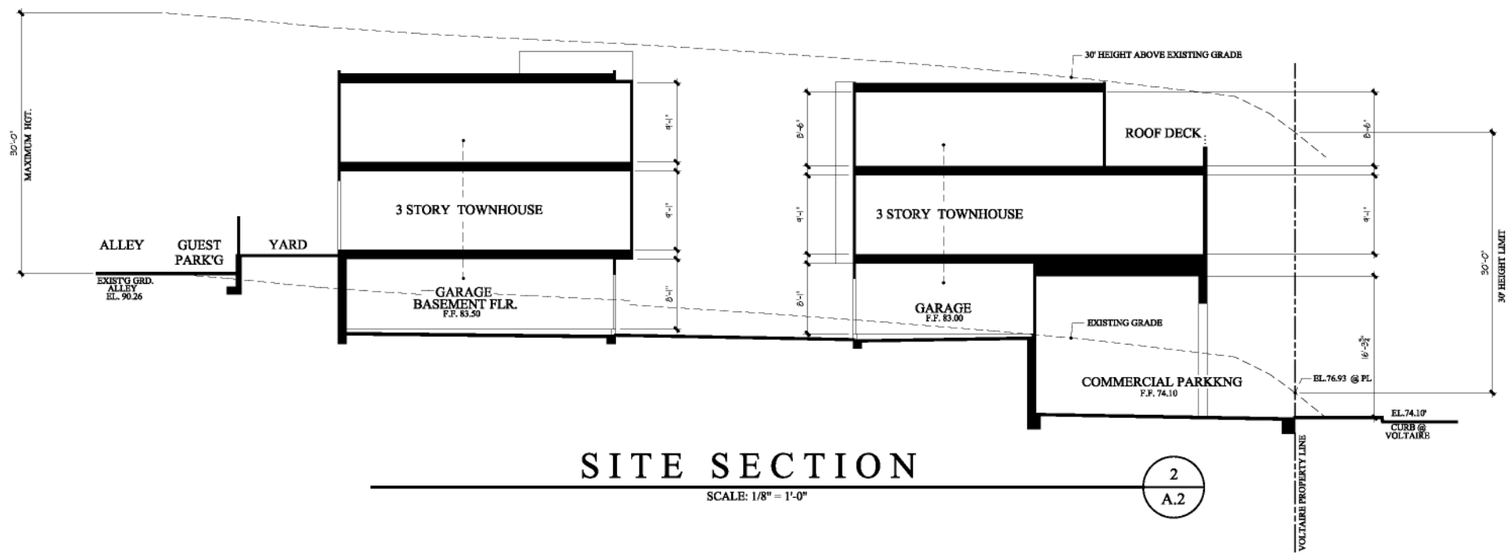
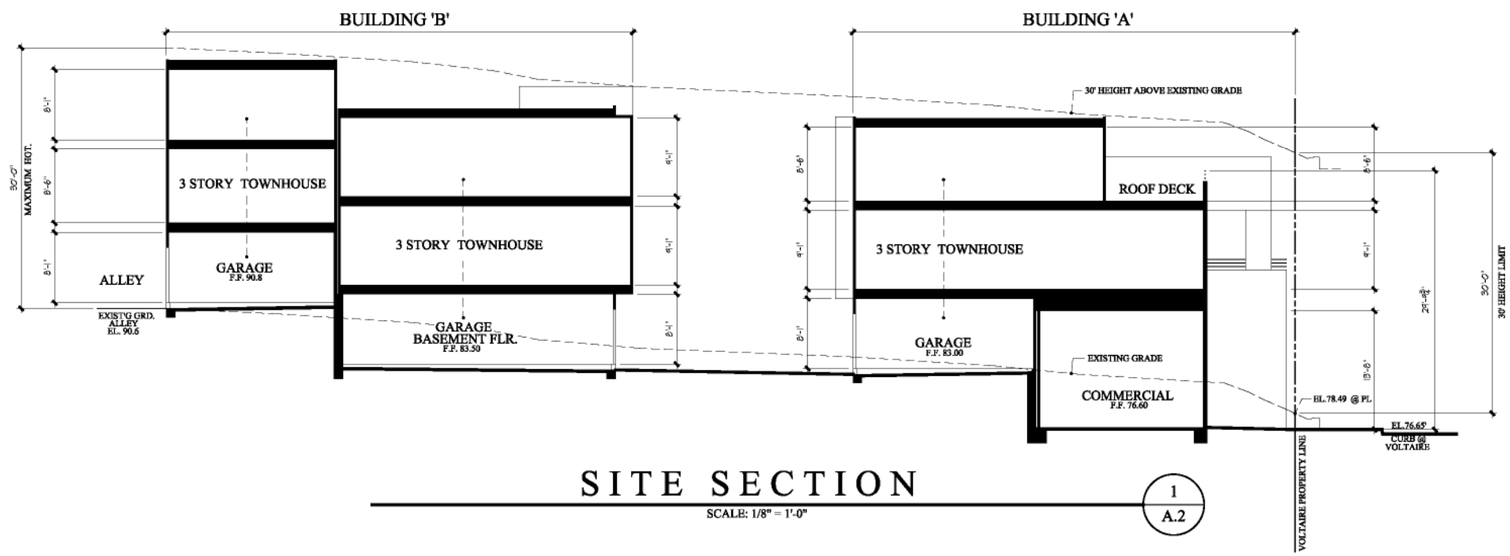


SITE SECTION

SCALE: 1/8" = 1'-0"

2
A.2



SITE SECTION

SCALE: 1/8" = 1'-0"

1
A.2

17 on VOLTAIRE

SCALE: 1/8" = 1'-0"

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ARCHITECTURE & PLANNING

JUNE 14, 2019

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APPENDIX B

Pertinent Sections of the City of San Diego Noise Element to the General Plan, Municipal Code, and Significance Determination Thresholds

Noise Element

A. Noise and Land Use Compatibility

Goal

- Consider existing and future noise levels when making land use planning decisions to minimize people's exposure to excessive noise.

Discussion

The Noise Element influences Land Use Element policies since excessive noise affects land uses, specifically, the quality of life of people working and living in the City. The planning of future noise-sensitive land uses should have a sufficient spatial separation or incorporate site design and construction techniques to ensure compatibility with noise-generating uses. Noise-sensitive land uses include, but are not necessarily limited to residential uses, hospitals, nursing facilities, intermediate care facilities, child educational facilities, libraries, museums, and child care facilities.

The City uses the Land Use - Noise Compatibility Guidelines shown on Table NE-3 for evaluating land use noise compatibility when reviewing proposed land use development projects. The land uses described provide examples of uses under each land use category. A more complete listing of use categories and subcategaories is found in the Land Development Code Chapter 13, in the use regulation tables. A "compatible" land use indicates that standard construction methods will attenuate exterior noise to an acceptable indoor noise level and people can carry out outdoor activities with minimal noise interference. Evaluation of land use that falls into the "conditionally compatible" noise environment should have an acoustical study. In general, an acoustical study should include, but is not limited to the analysis listed on Table NE-4, Acoustical Study Guidelines, with consideration of the type of noise source, the sensitivity of the noise receptor, and the degree to which the noise source may interfere with speech, sleep, or other activities characteristic of the land use. For land uses indicated as conditionally compatible, structures must be capable of attenuating exterior noise to the indoor noise level as shown on Table NE-3. For land uses indicated as incompatible, new construction should generally not be undertaken. Due to severe noise interference, outdoor activities are generally unacceptable and for structures, extensive mitigation techniques are required to make the indoor environment acceptable. For uses related to motor vehicle traffic noise, refer to Section B for additional guidance. For uses affected by aircraft noise, refer to Section D, since noise compatibility policies in the Airport Land Use Compatibility Plans could be more or less restrictive for uses affected by aircraft noise than shown on Table NE-3. Refer to Section I for a discussion of typical noise attenuation measures.

Policies

NE-A.1. Separate excessive noise-generating uses from residential and other noise-sensitive land uses with a sufficient spatial buffer of less sensitive uses.

NE-A.2. Assure the appropriateness of proposed developments relative to existing and future noise levels by consulting the guidelines for noise-compatible land use (shown on Table NE-3) to minimize the effects on noise-sensitive land uses.

NE-A.3. Limit future residential and other noise-sensitive land uses in areas exposed to high levels of noise.

NE-A.4. Require an acoustical study consistent with Acoustical Study Guidelines (Table NE-4) for proposed developments in areas where the existing or future noise level exceeds or would exceed the "compatible" noise level thresholds as indicated on the Land Use - Noise Compatibility Guidelines (Table NE-3), so that noise mitigation measures can be included in the project design to meet the noise guidelines.

NE-A.5. Prepare noise studies to address existing and future noise levels from noise sources that are specific to a community when updating community plans.

TABLE NE-3 Land Use - Noise Compatibility Guidelines

Land Use Category	Exterior Noise Exposure (dBA CNEL)				
	60	65	70	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 **For uses affected by aircraft noise, refer to Policies NE-D.2. & NE-D.3.*		45	45*		
Institutional					
Hospitals; Nursing Facilities; Intermediate Care Facilities; Kindergarten through Grade 12Educational 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; Food, Beverages & Groceries; Pets & Pet Supplies; Sundries, Pharmaceutical, & Convenience Sales; Wearing Apparel & Accessories			50	50	

Land Use Category	Exterior Noise Exposure (dBA CNEL)				
	60	65	70	75	
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					
Commercial or Personal Vehicle Repair & Maintenance; Commercial or Personal 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					
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. Refer to Section I.
		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. Refer to Section I.
		Outdoor Uses	Feasible noise mitigation techniques should be analyzed and incorporated t make the outdoor activities acceptable. Refer to Section I.
	Incompatible	**Indoor Uses**	New construction should not be undertaken.
		Outdoor Uses	Severe noise interference makes outdoor activities unacceptable.

D. Aircraft Noise

Goal

- Minimal excessive aircraft-related noise on residential and other noise-sensitive land uses.

Discussion

Aircraft noise primarily affects communities within an airport influence area. The noise impact or the perceived annoyance depends upon the noise volume, length of the noise event and the time of day. In general, aircraft noise varies with the type and size of the aircraft, the power the aircraft is using, and the altitude or distance of the aircraft from the receptor. Another variable affecting the overall impact of noise is a perceived increase in aircraft noise at night. The City evaluates the potential aircraft noise impacts on noise sensitive land uses when considering the siting or expansion of airports, heliports, and helistops/helipads as addressed in the Land Use Element.

Aircraft noise is one of the factors that the state-required Airport Land Use Compatibility Plans address with established policies for land use compatibility for each public use airport and military air installation. The Airport Land Use Compatibility Plans, as discussed in the Land Use Element, incorporates the California Airport Noise Standards that establishes the 65-dBA CNEL as the boundary for the normally acceptable level of aircraft noise for noise-sensitive land uses including residential uses near airports. The land use noise compatibility policies in the compatibility plans could be more or less restrictive for uses affected by aircraft noise than shown on Table NE-3. The City implements the noise policies contained in the compatibility plans through development regulations and zoning ordinances in the Land Development Code.

Since CNEL represents averaged noise exposure over a 24-hour period, there can be single event noise levels that may exceed the reported CNEL. Although there is no single event standard for aircraft noise exposure, the measurement of the duration and maximum noise levels during single event noises can assist in evaluating potential affects on future noise sensitive land uses.

Uses that have outdoor areas exposed to high levels of aircraft noise cannot mitigate noise levels to an acceptable level due to overflights. Noise-sensitive uses that have outdoor areas used daily by the occupants, such as schools for children and child care centers, are incompatible in areas that exceed the 65 dBA CNEL since mitigation measures cannot reduce exposure to outdoor play areas from prolonged periods of high aircraft noise.

San Diego International Airport (SDIA)

San Diego International Airport (SDIA) at Lindbergh Field is the commercial air carrier airport serving the region located in the City's urban center and is adjacent to downtown. Although various industrial, commercial, and residential uses surround the airport, residential is the

primary use and the most affected by the airport. Primarily commercial air carrier aircraft with a limited number of general aviation corporate jet aircraft use SDIA. Normally, aircraft arrive from the east and depart to the west. Noise from aircraft taking off and climbing affect more areas west or adjacent to SDIA, whereas noise from aircraft approaching and landing affects fewer areas east of the airport. Commercial aircraft noise has been declining due to advances in engine technology. However, noise will affect more areas as operations at SDIA increase in the future.

The SDIA requires a variance from the California Airport Noise Standards in order to operate with noise in excess of the 65 dBA CNEL affecting residential uses. As the airport operator, the San Diego County Regional Airport Authority has implemented monitoring and mitigation measures to minimize aircraft noise affecting residential areas. The SDIA prohibits most late night takeoffs to help limit noise impacts. As a mitigation measure, the Quieter Home Program retrofits affected homes to reduce interior noise levels to an acceptable level. The variance requires that the Airport Authority obtain avigation easements for new residential uses and other noise sensitive uses above the 60 dBA CNEL and for participating homes in the Quieter Home Program.

Communities surrounding SDIA contain existing and planned areas for residential uses including higher-density residential uses. Higher-density residential structures use construction materials that can mitigate higher exterior noise levels to acceptable levels. Higher-density residential uses also contain limited outdoor areas, which limit the length of outdoor exposure to higher noise levels. Given the geographic extent of the areas above the 65 dBA CNEL within the SDIA airport influence area and the desire to maintain and enhance the character of these neighborhoods, the City conditionally allows future single unit, multiple unit, and mixed-use residential uses in the areas above the 65 dBA CNEL. Although not generally considered compatible with aircraft noise, the City conditionally allows multiple unit and mixed-use residential uses above the 65 dBA CNEL only in areas with existing residential uses, and single unit residential uses only on existing single unit lots. Any future residential use above the 65 dBA CNEL must include noise attenuation measures to ensure an interior noise level of 45 dBA CNEL, provision of an avigation easement, and be located in an area where a community plan and the Airport Land Use Compatibility Plan allow residential uses.

Marine Corps Air Station (MCAS) Miramar

MCAS Miramar operates a mixture of jet fighter, transport, and helicopter aircraft. Noise from military air installations presents different noise issues compared to civilian airports. Military readiness requires constant training. Aircraft training includes touch and goes (takeoffs and landings with a close-in circuit around the airport), aircraft carrier simulated landings, practice instrument approaches, and normal departures to and arrivals from other installations or training areas. As a result, noise can affect more areas than from civilian airports. Helicopter noise can be an annoyance since helicopter noise events last longer and pulsate.

As indicated by the Air Installations Compatibility Use Zones (AICUZ) study, adjacent industrial and commercial uses are compatible with MCAS Miramar's noise levels. Noise from MCAS Miramar affects residential areas in surrounding communities. To minimize aircraft

Policies

NE-D.1. Encourage noise-compatible land use within airport influence areas in accordance with federal and state noise standards and guidelines.

NE-D.2. Limit future residential uses within airport influence areas to the 65 dBA CNEL airport noise contour, except for multiple-unit, mixed-use, and live work residential uses within the San Diego International Airport influence area in areas with existing residential uses and where a community plan and the Airport Land Use Compatibility Plan allow future residential uses.

NE-D.3. Ensure that future multiple-unit, mixed-use, and live work residential uses within the San Diego International Airport influence area that are located greater than the 65 dBA CNEL airport noise contour are located in areas with existing residential uses and where a community plan and Airport Land Use Compatibility Plan allow future residential uses.

a. Limit the amount of outdoor areas subject to exposure above the 65 dBA CNEL; and;

b. Provide noise attenuation to ensure an interior noise level that does not exceed 45 dBA CNEL.

NE-D.4. Discourage outdoor uses in areas where people could be exposed to prolonged periods of high aircraft noise levels greater than the 65 dBA CNEL airport noise contour.

NE-D.5. Minimize excessive aircraft noise from aircraft operating at Montgomery Field to surrounding residential areas.

a. Implement a noise-monitoring program to assess aircraft noise.

b. Implement nighttime aircraft noise limits and a weight limit for aircraft using the airport.

NE-D.6. Encourage civilian and military airport operators, to the extent practical, to monitor aircraft noise, implement noise-reducing operation measures, and promote pilot awareness of where aircraft noise affects noise-sensitive land uses.

NE-D.7. Limit future uses within airport influences areas when the noise policies in the compatibility plans are more restrictive for uses affected by aircraft noise than shown on Table NE-3.

Article 9.5: Noise Abatement and Control

Division 4: Limits

("Noise Level Limits, Standards and Control"
added 9–18–1973 by O–11122 N.S.)
(Retitled to "Limits" on 9–22–1976 by O–11916 N.S.)

§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, at any location in the City of San Diego 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.

TABLE OF APPLICABLE LIMITS

Land Use Zone	Time of Day	One-Hour Average Sound Level (decibels)
1. Residential: All R-1	7 a.m. to 7 p.m. 7 p.m. to 10 p.m. 10 p.m. to 7 a.m.	50 45 40
2. All R-2	7 a.m. to 7 p.m. 7 p.m. to 10 p.m. 10 p.m. to 7 a.m.	55 50 45
3. R-3, R-4 and all other Residential	7 a.m. to 7 p.m. 7 p.m. to 10 p.m. 10 p.m. to 7 a.m.	60 55 50
4. All Commercial	7 a.m. to 7 p.m. 7 p.m. to 10 p.m. 10 p.m. to 7 a.m.	65 60 60
5. Manufacturing all other industrial including Agricultural and Extractive Industry	any time	75

(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 Sections 59.5.0404 of this article.

4. **Is the site currently being mined?**
   If an economically feasible mineral extraction operation is the site's current use, and the site is not exhausted, a different use of the site would likely result in a significant impact on the availability of a locally important mineral recovery site.

K. NOISE

Noise is defined as unwanted or objectionable sound. Noise levels compatible with a person's life, health and enjoyment of property are regulated by Local, State, and Federal regulations, including the City of San Diego Progress Guide and General Plan, City Noise Abatement and Control Ordinance, California Noise Insulation Standards (Title 24), the State Public Utilities Code regulating airports, and other regulations. A direct and/or indirect noise impact should be evaluated in relation to applicable City standards, particularly, the City of San Diego Progress Guide and General Plan (Transportation Element). The following significance thresholds are in accordance with the City's Progress Guide and General Plan (Transportation Element) Land Use Compatibility with Annual Community Noise Equivalent Levels (CNEL).

Measurement of sound involves three variables, (1) magnitude; (2) frequency; and (3) duration. Noise levels in the City of San Diego are expressed and compared as dB (A) CNEL.

Definitions

The following definitions shall have the same meaning as defined in the Section 59.5.0102 of the City of San Diego Municipal Code:

A-Weighting
As in decibel A-weighting (dB [A]). Represents the frequency characteristics of the average human ear for various sound intensities. An A-Weight sound filters out lower frequencies, and provides a good indicator of the annoyance potential of a noise.

Average Sound Level
A sound level typical of the sound levels at a certain place during a given period of time, averaged by the general rule of combination for sound levels, said general rule being set forth in American National Standard Specifications for Sound Level Meters 1.4-1971. Average sound level is also called equivalent continuous sound level. (L_{eq})

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

CNEL recognizes that noise annoyance is related to duration, how often the noise is present, how long it persists, and when it occurs.

Decibel (dB)

A unit measure of sound (noise) level.

Just as feet is used to measure distances, decibels are used to measure sound (noise) levels. The decibel is defined as 10 times the common logarithm of the ratio of two amounts of sound power.

The human ear can hear sounds from less than 10 dB to over 100 dB (sounds which are 100,000 times greater that the faintest sounds). Table K-1 shows the approximate relationship between sound level changes and peoples judgment of the relative loudness of the change.

Table K-1
RELATIVE LOUDNESS

Sound Level Change	Acoustic Energy Change	Relative Loudness
0 dB	0	Reference Point
3 dB	50 %	Perceptible Change
10 dB	90 %	Twice as Loud
20 dB	99 %	Four Times as Loud
30 dB	99.9 %	Eight Times as Loud
40 dB	99.99 %	Sixteen Times as Loud

Source: Miller 1989 pg. 1-6

Noise Level
The same as sound level. The terms may be used interchangeably.

Sound Level
In decibels, that quantity measured with a sound level meter as defined herein, by use of the "A" frequency weighting and "fast" time averaging unless some other time averaging is specified.

Sound Level Meter
An instrument for the measurement of sound, including a microphone, an amplifier, an attenuator, networks at least for standardized frequency weighting A, and an indicating instrument having at least the standardized dynamic characteristic "fast," as specified in American National Standard Specification for Sound Level Meters S1. 4-1971 or its successor.

INITIAL STUDY CHECKLIST QUESTIONS

The following questions are from the City's Initial Study Checklist and are used to provide guidance to determine potential significant impacts related to Noise:

Would the project:

1. Result or create a significant increase in the existing ambient noise levels?

2. Exposure of people to noise levels which exceed the City's adopted noise ordinance or are incompatible with Table K-4?

3. Exposure of people to current or future transportation noise levels which exceed standards established in the Transportation Element of the General Plan or an adopted airport Comprehensive Land Use Plan?

4. Result in land uses which are not compatible with aircraft noise levels as defined by an adopted airport Comprehensive Land Use Plan (CLUP)?

SIGNIFICANCE THRESHOLDS

1. Interior and Exterior Noise Impacts from Traffic Generated Noise (Table K-2 below provides the general thresholds of significance for uses affected by traffic noise.)

Table K-2
TRAFFIC NOISE SIGNIFICANCE THRESHOLDS
(db(A) CNEL)

Structure or Proposed Use that would be impacted by Traffic Noise	Interior Space	Exterior Useable Space [22]	General Indication of Potential Significance
Single-family detached	45 dB	65 Db	Structure or outdoor useable area[23] is < 50 feet from the center of the closest (outside) lane on a street with existing or future ADTs > 7500 [24]
Multi-family, schools, libraries, hospitals, day care, hotels, motels, parks, convalescent homes.	- Development Services Department (DSD) ensures 45 dB pursuant to Title 24	65 dB	
Offices, Churches, Business, Professional Uses	n/a	70 dB	Structure or outdoor usable area is < 50 feet from the center of the closest lane on a street with existing or future ADTs > 20,000
Commercial, Retail, Industrial, Outdoor Spectator Sports Uses	n/a	75 dB	Structure or outdoor usable area is < 50 feet from the center of the closest lane on a street with existing or future ADTs > 40,000

Source: 1) City of San Diego Acoustical Report Guidelines (December 2003) and 2) City of San Diego Progress Guide and General Plan (Transportation Element)

[22] If a project is currently at or exceeds the significance thresholds for traffic noise described above and noise levels would result in less than a 3 dB increase, then the impact is not considered significant.

[23] Exterior usable areas do not include residential front yards or balconies, unless the areas such as balconies are part of the required usable open space calculation for multi-family units.

[24] Traffic counts are available from:
- San Diego Regional Association of Governments (SANDAG) Regional Economic Development Information
- System (**REDI**): http://cart.sandag.cog.ca.us/REDI/
- **SANDAG Traffic Forecast Information Center**: http://pele.sandag.org/trfic.html

2. HUD-Funded projects and Noise

   If a project is receiving U.S. Department of Housing and Urban Development (HUD) funding, noise analysis and mitigation must be in accordance with the HUD Noise Guidebook[25] Minimum attenuation requirements are prescribed in Title 24 of the Code of Federal Regulations[26] (24 CFR 51.104(a)) which are the HUD Environmental Criteria and Standards.

3. Airport Noise Impacts

   If the project is proposed within the Airport Environs Overlay Zone (AEOZ) as defined in Chapter 13, Article 2, Division 3 of the San Diego Municipal Code, the potential exterior noise impacts from aircraft noise would not constitute a significant environmental impact.

   However, interior noise impacts will be regulated by the requirement for residential development within the AEOZ to reduce interior noise levels attributable to airport noise to 45 dB Community Noise Equivalent Level (CNEL). Interior noise levels for new construction of multi-family units are addressed by the Building Development Review Division (BDR) of the City's Development Services Department (DSD) and do not need to be mitigated through conditions in the environment report, but the BDR requirements should be noted. BDR requires additional insulation and upgraded building materials so that interior noise levels do \not exceed 45 dB(A) CNEL. The requirements for an acoustical testing are defined in the City of San Diego Municipal Code, Chapter 13, Article 2, Division 3, §132.0308, "Acoustical Testing of Interior Noise Levels."

   Requirements for noise studies are found in the Municipal Code at Chapter 13, Article 2, Division 3, §132.0308. This section of the municipal code applies to "development" as defined at, § 113.0103 to include "constructing, reconstructing, converting, establishing, altering, maintaining, relocating, demolishing, using, or enlarging any building, structure, improvement, lot, or premises."

   Remodels and additions to single-family and multi-family residences subject to airport noise levels above 65 dB (A) CNEL ordinarily would not be considered a significant issue and a noise study would not be required for the purposes of CEQA analysis. However, new construction of hospitals, schools, day care centers, or other sensitive uses subject to airport noise levels in excess of 65 dB(A) CNEL would be considered a significant issue and a noise study would be required that could recommend measures to mitigate potential noise impacts to a level below significance. Table K-3 below addresses the general impacts from airport noise thresholds.

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[25] http://www.hud.gov/offices/cpd/energyenviron/environment/resources/guidebooks/noise/index.cfm

[26] http://www.access.gpo.gov/nara/cfr/cfr-table-search.html#page1

Table K-3
IMPACTS FROM AIRPORT NOISE

Structure or Proposed Use that would be impacted by Airport Noise	Regulation
Structure within an AEOZ	Exterior noise is one factor in determining land use compatibility. See Table K-4 and the applicable Comprehensive Land Use Plan (CLUP).
New Single Family and Multi-family	Building Development Review Division (BDR) of Development Services Department (DSD) ensures 45 dB interior noise levels. Discuss Airport noise impact & BDR requirements (insulation and upgraded building materials to ensure 45 dB(A) CNEL) in environmental document See also **§ 132.0309 Requirement for Avigation Easement**
Remodels and additions to existing single and multi-family	Noise study & mitigation **not required** for airport noise > 65 dB(A) CNEL. See also **§ 132.0309 Requirement for Avigation Easement**. For development within the 60 dB CNEL contour of Lindbergh Field the applicant must demonstrate that indoor noise levels that are attributable to airport operations shall not exceed 45 dB. Refer to § 132.0306 of the Municipal Code.
New construction of hospitals, schools, day care centers or other sensitive uses	Noise study and mitigation **required** for airport noise > 65 dB(A) CNEL. See also § **132.0309 Requirement for Avigation Easement.**

4. Noise from Adjacent Stationary Uses (Noise Generators)

A project which would generate noise levels at the property line which exceed the City's Noise Ordinance Standards is considered potentially significant (such as potentially a carwash or projects operating generators or noisy equipment).

If a non-residential use, such as a commercial, industrial or school use, is proposed to abut an existing residential use, the decibel level at the property line should be the arithmetic mean of the decibel levels allowed for each use as set forth in Section 59.5.0401 of the Municipal Code. Although the noise level above could be consistent with the City's Noise Ordinance Standards, a noise level above 65 dB (A) CNEL at the residential property line could be considered a significant environmental impact.

1. Impacts to Sensitive Wildlife

Noise mitigation may be required for significant noise impacts to certain avian species during their breeding season, depending upon the location of the project such as in or adjacent to an MHPA, whether or not the project is occupied by the California gnatcatcher, least Bell's vireo, southern willow flycatcher, least tern, cactus wren, tricolored blackbird or western snowy plover, and whether or not noise levels from the project, including construction during the breeding season of these species would exceed 60dB(A) or existing ambient noise level if above 60dB(A). In addition, please note that significant noise impacts to the California gnatcatcher are only analyzed if the project is within an MHPA; there are no restrictions for the gnatcatcher outside the MHPA any time of year. Please see Biological Resources Section, Step 2, Note (f).

6. Temporary Construction Noise

Temporary construction noise which exceeds 75 dB (A) L_{eq} at a sensitive receptor would be considered significant. Construction noise levels measured at or beyond the property lines of any property zoned residential shall not exceed an average sound level greater than 75-decibles (dB) during the 12-hour period from 7:00 a.m. to 7:00 p.m. In addition, construction activity is prohibited 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, that would create disturbing, excessive, or offensive noise unless a permit has been applied for and granted beforehand by the Noise Abatement and Control Administrator, in conformance with San Diego Municipal Code Section 59.5.0404.

Additionally, where temporary construction noise would substantially interfere with normal business communication, or affect sensitive receptors, such as day care facilities, a significant noise impact may be identified.

7. Noise/Land Use Compatibility

Noise is one factor to be considered in determining whether a land use is compatible. Land use compatibility noise factors are presented in Table K-4. Compatible land uses are shaded. Incompatible land uses are unshaded. The transition zone between compatible and incompatible should be evaluated by the environmental planner to determine whether the use would be acceptable based on all available information and the extent to which the noise from the proposed project would affect the surrounding uses.

APPENDIX C

Cadna Analysis Data and Results

Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025-4230
Phone: (760) 738-5570
Date: 15 Nov 2019

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	1000.00
Min. Length of Section (#(Unit,LEN))	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	0
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.20
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (TNM)	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (???)	
Strictly acc. to AzB	

Receivers

Name	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates		
			Day	Night	Day	Night	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)				(m)		(m)	(m)	(m)
NML			63.5	-60.1	0.0	0.0		x	Total	1.52	r	426.25	226.27	24.92

Roads

Name	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflection		
			Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type		Drefl	Hbuild	Dist.
			(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(km/h)	(km/h)		(dB)		(%)	(dB)	(m)	(m)
Voltaire St EB		R_1	52.3	0.0	0.0			216.0	0.0	0.0	2.8	0.0	0.0	48		3.66	0.0	1	0.0	0.0		
Voltaire St WB		R_2	52.3	0.0	0.0			216.0	0.0	0.0	2.8	0.0	0.0	48		3.66	0.0	1	0.0	0.0		
San Clemente St		R_3	43.9	0.0	0.0			24.0	0.0	0.0	16.7	0.0	0.0	32		6.71	0.0	1	0.0	0.0		
Nimitz Blvd SB		R_4	62.7	0.0	0.0			714.0	0.0	0.0	3.0	0.0	0.0	72		6.1	0.0	1	0.0	0.0		
Nimitz Blvd NB		R_5	62.7	0.0	0.0			714.0	0.0	0.0	3.0	0.0	0.0	72		6.1	0.0	1	0.0	0.0		
Catalina Blvd		R_6	61.6	0.0	0.0			1094.0	0.0	0.0	3.0	0.0	0.0	56		7.32	0.0	1	0.0	0.0		
Wabaska Dr	+	R_7	53.7	0.0	0.0			179.0	0.0	0.0	3.0	0.0	0.0	56		13.41	0.0	1	0.0	0.0		

Geometry - Roads

Name	Height		Coordinates				Dist	LSlope
	Begin	End	x	y	z	Ground	(m)	(%)
	(m)	(m)	(m)	(m)	(m)	(m)		
Voltaire St EB			115.25	299.11	24.79	24.69		
			266.22	232.65	21.00	21.00		
			439.19	232.80	23.57	23.47		
			568.18	233.99	23.00	15.00		
			649.31	233.76	29.67	29.57		
Voltaire St WB			117.82	305.72	24.69	24.69		
			267.13	240.41	21.00	21.00		
			438.54	240.46	23.47	23.47		
			561.18	240.99	23.00	15.00		
			645.77	241.47	29.57	29.57		
San Clemente St			436.06	230.13	23.39	23.39		
			437.04	76.07	37.00	37.00		
Nimitz Blvd SB			261.25	456.43	13.00	13.00		
			417.27	324.08	15.00	15.00		
			494.28	263.40	16.00	16.00		
			625.29	171.06	20.00	20.00		
Nimitz Blvd NB			616.59	194.93	19.00	19.00		
			542.58	241.94	16.00	16.00		
			431.23	332.29	14.00	14.00		
			286.22	456.97	13.00	13.00		
Catalina Blvd			266.19	75.58	25.60	25.60		
			263.01	236.99	21.00	21.00		
			264.12	249.66	20.00	20.00		
			271.87	288.50	18.50	18.50		
			350.16	462.83	18.90	18.90		
Wabaska Dr			474.34	237.67	23.47	23.47		
			604.02	104.99	27.13	27.13		

Terrain Contours

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
74				22.56		375.77	236.28	22.56
						374.15	235.16	22.56
						373.99	234.70	22.56
						376.57	232.71	22.56
						385.66	227.52	22.56
						385.36	227.19	22.56
						383.28	227.15	22.56
						376.73	227.02	22.56
						375.94	223.32	22.56
75				22.86		393.09	236.14	22.86
						390.57	235.14	22.86
						391.46	233.99	22.86
						398.55	229.37	22.86
						402.54	227.06	22.86
						402.49	226.22	22.86
						398.50	227.16	22.86
						393.88	227.16	22.86
						393.09	224.01	22.86
76				23.16		406.27	235.62	23.16
						405.59	234.93	23.16
						406.01	234.09	23.16
						411.68	231.42	23.16
						418.13	228.42	23.16
						419.39	227.11	23.16
						410.57	227.32	23.16
						408.68	224.28	23.16
77				23.47		424.01	235.98	23.47
						424.28	234.62	23.47
						428.01	232.83	23.47
						428.53	231.68	23.47
						432.68	230.00	23.47
						434.04	227.06	23.47
						429.74	225.69	23.47
						426.90	225.06	23.47
78				23.77		430.97	221.77	23.77
						435.99	223.04	23.77
						440.62	222.12	23.77
79				24.08		430.85	217.89	24.08
						432.10	218.33	24.08
						433.33	218.35	24.08
						436.45	218.96	24.08
						439.75	218.02	24.08
80				24.38		431.04	213.79	24.38
						432.31	214.37	24.38
						433.54	214.37	24.38

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						436.62	215.02	24.38
						439.89	213.62	24.38
81				24.69		368.58	217.33	24.69
						373.21	218.06	24.69
						379.99	219.91	24.69
						381.94	220.31	24.69
						383.53	219.75	24.69
						386.90	220.74	24.69
						389.65	221.83	24.69
						396.03	221.20	24.69
81				24.69		413.33	221.82	24.69
						414.54	220.97	24.69
						415.60	221.09	24.69
						416.57	222.38	24.69
						418.70	222.76	24.69
						421.02	222.73	24.69
						425.07	222.46	24.69
						427.78	221.20	24.69
						430.33	214.26	24.69
						430.81	211.26	24.69
81				24.69		431.81	210.31	24.69
						436.87	211.43	24.69
						440.83	209.56	24.69
82				24.99		426.31	219.32	24.99
						425.27	218.65	24.99
						423.23	218.58	24.99
						420.96	221.85	24.99
						420.23	221.65	24.99
						419.72	221.54	24.99
						418.34	218.50	24.99
						416.23	218.27	24.99
						414.63	218.91	24.99
						413.46	220.07	24.99
82				24.99		367.98	213.99	24.99
						375.75	216.74	24.99
						381.77	218.56	24.99
						386.07	217.83	24.99
						397.65	221.30	24.99
82				24.99		430.74	208.11	24.99
						430.02	209.67	24.99
						429.31	210.13	24.99
						429.43	213.98	24.99
						428.58	217.21	24.99
						427.95	218.96	24.99
						426.39	219.42	24.99
82				24.99		431.81	206.20	24.99
						436.77	207.56	24.99

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						440.41	205.66	24.99
83				25.30		413.46	217.47	25.30
						414.55	217.49	25.30
						416.51	215.75	25.30
						419.30	215.73	25.30
						422.94	215.98	25.30
						424.97	216.11	25.30
						426.11	216.39	25.30
						427.41	216.53	25.30
83				25.30		368.38	210.75	25.30
						373.93	212.75	25.30
						376.70	212.96	25.30
						380.78	214.59	25.30
						385.40	215.18	25.30
						389.10	215.40	25.30
						397.39	217.04	25.30
						398.84	216.70	25.30
83				25.30		431.83	202.45	25.30
						436.47	203.56	25.30
						440.75	201.43	25.30
83				25.30		431.10	202.46	25.30
						429.92	207.08	25.30
						428.92	208.42	25.30
						426.88	210.76	25.30
						426.90	216.46	25.30
84				25.60		431.47	198.16	25.60
						437.02	199.56	25.60
						442.79	196.22	25.60
84				25.60		431.29	198.22	25.60
						430.66	200.43	25.60
						430.08	201.56	25.60
						429.68	203.54	25.60
						428.66	206.83	25.60
						424.21	211.30	25.60
						424.38	212.39	25.60
						420.47	213.41	25.60
						418.34	213.15	25.60
						415.92	213.70	25.60
						413.59	213.33	25.60
						413.30	213.02	25.60
84				25.60		371.57	208.61	25.60
						375.64	209.34	25.60
						379.76	210.00	25.60
						381.73	210.66	25.60
						384.72	210.92	25.60
						389.08	210.39	25.60
						391.36	210.00	25.60

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						394.67	212.28	25.60
						397.85	212.99	25.60
						398.82	212.73	25.60
85				25.91		431.08	194.35	25.91
						436.68	195.54	25.91
						441.47	193.29	25.91
85				25.91		431.09	194.36	25.91
						430.21	197.34	25.91
						429.12	199.58	25.91
						427.98	204.71	25.91
						426.13	206.73	25.91
						423.67	208.25	25.91
86				26.21		400.03	194.08	26.21
						405.31	196.44	26.21
						411.98	200.93	26.21
86				26.21		399.98	194.02	26.21
						399.72	195.57	26.21
						397.59	195.18	26.21
						396.38	194.55	26.21
						392.66	194.47	26.21
						382.07	190.54	26.21
						373.04	190.44	26.21
						371.62	190.87	26.21
						368.11	191.23	26.21
86				26.21		430.79	190.62	26.21
						436.91	191.89	26.21
						441.45	189.10	26.21
86				26.21		430.90	190.61	26.21
						430.45	192.71	26.21
						429.42	194.19	26.21
						428.80	197.47	26.21
						427.47	201.18	26.21
						425.91	201.80	26.21
						424.08	203.15	26.21
86				26.21		368.69	198.18	26.21
						376.02	198.65	26.21
						378.19	198.81	26.21
						379.01	199.31	26.21
						379.66	199.25	26.21
						385.73	201.30	26.21
						386.68	201.62	26.21
						389.62	201.19	26.21
						397.94	203.44	26.21
						399.09	204.17	26.21
87				26.52		439.88	186.12	26.52
						436.99	187.93	26.52
						432.76	186.95	26.52

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						431.59	186.72	26.52
						430.69	186.82	26.52
						430.09	188.39	26.52
						428.36	192.57	26.52
87				26.52		416.70	198.46	26.52
						413.61	198.20	26.52
						409.51	195.13	26.52
						406.91	194.10	26.52
						407.25	193.53	26.52
87				26.52		368.45	194.60	26.52
						371.93	194.33	26.52
						377.32	194.86	26.52
						380.10	194.70	26.52
						390.75	198.37	26.52
						395.28	199.82	26.52
						397.03	199.92	26.52
						399.38	199.66	26.52
						399.02	198.70	26.52
						398.79	197.87	26.52
						400.27	197.77	26.52
						407.52	202.83	26.52
						412.91	207.33	26.52
						415.10	207.62	26.52
						415.51	208.96	26.52
						415.91	209.89	26.52
						417.20	211.19	26.52
						418.89	211.83	26.52
						420.27	211.98	26.52
						420.31	210.19	26.52
88				26.82		439.74	182.61	26.82
						437.00	184.02	26.82
						431.10	182.86	26.82
						430.93	182.71	26.82
						429.19	184.91	26.82
						428.65	188.02	26.82
						428.34	192.42	26.82
						426.19	194.06	26.82
						419.89	196.46	26.82
						415.34	194.86	26.82
						412.84	194.89	26.82
						407.72	192.36	26.82
89				26.82		428.74	179.65	26.82
						427.48	180.99	26.82
						426.85	181.89	26.82
						426.77	184.04	26.82
						425.94	185.31	26.82
						424.21	188.56	26.82

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						423.48	190.75	26.82
						422.23	191.73	26.82
						419.84	192.37	26.82
						418.25	191.71	26.82
						410.80	191.85	26.82
						409.49	191.14	26.82
89				26.82		428.75	179.67	26.82
						431.08	179.32	26.82
						433.82	179.88	26.82
						436.70	180.56	26.82
						440.14	178.89	26.82
89				26.82		381.77	187.39	26.82
						388.48	188.59	26.82
						392.52	189.30	26.82
						397.52	191.09	26.82
						399.98	191.80	26.82
90				27.43		366.37	185.90	27.43
						376.40	183.64	27.43
						382.78	182.07	27.43
						383.20	181.81	27.43
						382.75	181.49	27.43
						376.29	180.99	27.43
						369.23	179.15	27.43
90				27.43		430.45	177.89	27.43
						430.24	178.42	27.43
						427.35	179.52	27.43
						426.49	180.68	27.43
						422.23	181.65	27.43
						422.55	184.04	27.43
						420.11	187.35	27.43
						419.21	187.95	27.43
						414.88	188.76	27.43
						413.23	188.79	27.43
						410.89	189.30	27.43
						409.68	189.54	27.43
						408.03	189.70	27.43
						406.97	189.45	27.43
						406.32	189.74	27.43
						404.78	189.37	27.43
						403.45	189.25	27.43
						400.40	189.15	27.43
91				27.74		393.09	187.45	27.74
						397.56	185.17	27.74
						401.86	183.72	27.74
						405.72	182.72	27.74
						411.47	182.09	27.74
						410.26	181.31	27.74

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						406.30	181.25	27.74
						401.47	180.62	27.74
						392.04	179.13	27.74
91				27.74		415.15	187.50	27.74
						414.12	182.99	27.74
						413.96	181.78	27.74
						415.36	181.28	27.74
						419.21	180.49	27.74
						420.26	180.73	27.74
						424.68	179.68	27.74
						426.49	179.26	27.74
Udall						267.93	129.47	24.00
						434.13	130.81	32.00
Alley						268.38	182.13	22.00
						344.73	182.26	27.00
						436.82	181.07	27.00

Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025-4230
Phone: (760) 738-5570
Date: 15 Nov 2019

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	1000.00
Min. Length of Section (#(Unit,LEN))	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	0
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.20
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (TNM)	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (???)	
Strictly acc. to AzB	

Roads

Name	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflection		
			Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type		Drefl	Hbuild	Dist.
			(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(km/h)	(km/h)		(dB)		(%)	(dB)	(m)	(m)
Voltaire St EB		R_1	57.3	0.0	0.0			497.0	0.0	0.0	4.0	0.0	0.0	48		3.66	0.0	1	0.0	0.0		
Voltaire St WB		R_2	57.3	0.0	0.0			497.0	0.0	0.0	4.0	0.0	0.0	48		3.66	0.0	1	0.0	0.0		
San Clemente St		R_3	41.5	0.0	0.0			35.0	0.0	0.0	2.5	0.0	0.0	32		6.71	0.0	1	0.0	0.0		
Nimitz Blvd SB		R_4	64.3	0.0	0.0			1026.0	0.0	0.0	3.0	0.0	0.0	72		6.1	0.0	1	0.0	0.0		
Nimitz Blvd NB		R_5	64.3	0.0	0.0			1026.0	0.0	0.0	3.0	0.0	0.0	72		6.1	0.0	1	0.0	0.0		
Catalina Blvd		R_6	63.2	0.0	0.0			1573.0	0.0	0.0	3.0	0.0	0.0	56		7.32	0.0	1	0.0	0.0		
Wabaska Dr	+	R_7	55.3	0.0	0.0			258.0	0.0	0.0	3.0	0.0	0.0	56		13.41	0.0	1	0.0	0.0		

Geometry - Roads

Name	Height		Coordinates				Dist	LSlope
	Begin	End	x	y	z	Ground	(m)	(%)
	(m)	(m)	(m)	(m)	(m)	(m)		
Voltaire St EB			115.25	299.11	24.79	24.69		
			266.22	232.65	21.00	21.00		
			439.19	232.80	23.57	23.47		
			568.18	233.99	23.00	15.00		
			649.31	233.76	29.67	29.57		
Voltaire St WB			117.82	305.72	24.69	24.69		
			267.13	240.41	21.00	21.00		
			438.54	240.46	23.47	23.47		
			561.18	240.99	23.00	15.00		
			645.77	241.47	29.57	29.57		
San Clemente St			436.06	230.13	23.39	23.39		
			437.04	76.07	37.00	37.00		
Nimitz Blvd SB			261.25	456.43	13.00	13.00		
			417.27	324.08	15.00	15.00		
			494.28	263.40	16.00	16.00		
			625.29	171.06	20.00	20.00		
Nimitz Blvd NB			616.59	194.93	19.00	19.00		
			542.58	241.94	16.00	16.00		
			431.23	332.29	14.00	14.00		
			286.22	456.97	13.00	13.00		
Catalina Blvd			266.19	75.58	25.60	25.60		
			263.01	236.99	21.00	21.00		
			264.12	249.66	20.00	20.00		
			271.87	288.50	18.50	18.50		
			350.16	462.83	18.90	18.90		
Wabaska Dr			474.34	237.67	23.47	23.47		
			604.02	104.99	27.13	27.13		

Terrain Contours

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
74				22.56		375.77	236.28	22.56
						374.15	235.16	22.56
						373.99	234.70	22.56
						376.57	232.71	22.56
						385.66	227.52	22.56
						385.36	227.19	22.56
						383.28	227.15	22.56
						376.73	227.02	22.56
						375.94	223.32	22.56
75				22.86		393.09	236.14	22.86
						390.57	235.14	22.86
						391.46	233.99	22.86
						398.55	229.37	22.86
						402.54	227.06	22.86
						402.49	226.22	22.86
						398.50	227.16	22.86
						393.88	227.16	22.86
						393.09	224.01	22.86
76				23.16		406.27	235.62	23.16
						405.59	234.93	23.16
						406.01	234.09	23.16
						411.68	231.42	23.16
						418.13	228.42	23.16
						419.39	227.11	23.16
						410.57	227.32	23.16
						408.68	224.28	23.16
77				23.47		424.01	235.98	23.47
						424.28	234.62	23.47
						428.01	232.83	23.47
						428.53	231.68	23.47
						432.68	230.00	23.47
						434.04	227.06	23.47
						429.74	225.69	23.47
						426.90	225.06	23.47
78				23.77		430.97	221.77	23.77
						435.99	223.04	23.77
						440.62	222.12	23.77
79				24.08		430.85	217.89	24.08
						432.10	218.33	24.08
						433.33	218.35	24.08
						436.45	218.96	24.08
						439.75	218.02	24.08
80				24.38		431.04	213.79	24.38
						432.31	214.37	24.38
						433.54	214.37	24.38

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						436.62	215.02	24.38
						439.89	213.62	24.38
81				24.69		368.58	217.33	24.69
						373.21	218.06	24.69
						379.99	219.91	24.69
						381.94	220.31	24.69
						383.53	219.75	24.69
						386.90	220.74	24.69
						389.65	221.83	24.69
						396.03	221.20	24.69
81				24.69		413.33	221.82	24.69
						414.54	220.97	24.69
						415.60	221.09	24.69
						416.57	222.38	24.69
						418.70	222.76	24.69
						421.02	222.73	24.69
						425.07	222.46	24.69
						427.78	221.20	24.69
						430.33	214.26	24.69
						430.81	211.26	24.69
81				24.69		431.81	210.31	24.69
						436.87	211.43	24.69
						440.83	209.56	24.69
82				24.99		426.31	219.32	24.99
						425.27	218.65	24.99
						423.23	218.58	24.99
						420.96	221.85	24.99
						420.23	221.65	24.99
						419.72	221.54	24.99
						418.34	218.50	24.99
						416.23	218.27	24.99
						414.63	218.91	24.99
						413.46	220.07	24.99
82				24.99		367.98	213.99	24.99
						375.75	216.74	24.99
						381.77	218.56	24.99
						386.07	217.83	24.99
						397.65	221.30	24.99
82				24.99		430.74	208.11	24.99
						430.02	209.67	24.99
						429.31	210.13	24.99
						429.43	213.98	24.99
						428.58	217.21	24.99
						427.95	218.96	24.99
						426.39	219.42	24.99
82				24.99		431.81	206.20	24.99
						436.77	207.56	24.99

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						440.41	205.66	24.99
83				25.30		413.46	217.47	25.30
						414.55	217.49	25.30
						416.51	215.75	25.30
						419.30	215.73	25.30
						422.94	215.98	25.30
						424.97	216.11	25.30
						426.11	216.39	25.30
						427.41	216.53	25.30
83				25.30		368.38	210.75	25.30
						373.93	212.75	25.30
						376.70	212.96	25.30
						380.78	214.59	25.30
						385.40	215.18	25.30
						389.10	215.40	25.30
						397.39	217.04	25.30
						398.84	216.70	25.30
83				25.30		431.83	202.45	25.30
						436.47	203.56	25.30
						440.75	201.43	25.30
83				25.30		431.10	202.46	25.30
						429.92	207.08	25.30
						428.92	208.42	25.30
						426.88	210.76	25.30
						426.90	216.46	25.30
84				25.60		431.47	198.16	25.60
						437.02	199.56	25.60
						442.79	196.22	25.60
84				25.60		431.29	198.22	25.60
						430.66	200.43	25.60
						430.08	201.56	25.60
						429.68	203.54	25.60
						428.66	206.83	25.60
						424.21	211.30	25.60
						424.38	212.39	25.60
						420.47	213.41	25.60
						418.34	213.15	25.60
						415.92	213.70	25.60
						413.59	213.33	25.60
						413.30	213.02	25.60
84				25.60		371.57	208.61	25.60
						375.64	209.34	25.60
						379.76	210.00	25.60
						381.73	210.66	25.60
						384.72	210.92	25.60
						389.08	210.39	25.60
						391.36	210.00	25.60

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						394.67	212.28	25.60
						397.85	212.99	25.60
						398.82	212.73	25.60
85				25.91		431.08	194.35	25.91
						436.68	195.54	25.91
						441.47	193.29	25.91
85				25.91		431.09	194.36	25.91
						430.21	197.34	25.91
						429.12	199.58	25.91
						427.98	204.71	25.91
						426.13	206.73	25.91
						423.67	208.25	25.91
86				26.21		400.03	194.08	26.21
						405.31	196.44	26.21
						411.98	200.93	26.21
86				26.21		399.98	194.02	26.21
						399.72	195.57	26.21
						397.59	195.18	26.21
						396.38	194.55	26.21
						392.66	194.47	26.21
						382.07	190.54	26.21
						373.04	190.44	26.21
						371.62	190.87	26.21
						368.11	191.23	26.21
86				26.21		430.79	190.62	26.21
						436.91	191.89	26.21
						441.45	189.10	26.21
86				26.21		430.90	190.61	26.21
						430.45	192.71	26.21
						429.42	194.19	26.21
						428.80	197.47	26.21
						427.47	201.18	26.21
						425.91	201.80	26.21
						424.08	203.15	26.21
86				26.21		368.69	198.18	26.21
						376.02	198.65	26.21
						378.19	198.81	26.21
						379.01	199.31	26.21
						379.66	199.25	26.21
						385.73	201.30	26.21
						386.68	201.62	26.21
						389.62	201.19	26.21
						397.94	203.44	26.21
						399.09	204.17	26.21
87				26.52		439.88	186.12	26.52
						436.99	187.93	26.52
						432.76	186.95	26.52

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						431.59	186.72	26.52
						430.69	186.82	26.52
						430.09	188.39	26.52
						428.36	192.57	26.52
87				26.52		416.70	198.46	26.52
						413.61	198.20	26.52
						409.51	195.13	26.52
						406.91	194.10	26.52
						407.25	193.53	26.52
87				26.52		368.45	194.60	26.52
						371.93	194.33	26.52
						377.32	194.86	26.52
						380.10	194.70	26.52
						390.75	198.37	26.52
						395.28	199.82	26.52
						397.03	199.92	26.52
						399.38	199.66	26.52
						399.02	198.70	26.52
						398.79	197.87	26.52
						400.27	197.77	26.52
						407.52	202.83	26.52
						412.91	207.33	26.52
						415.10	207.62	26.52
						415.51	208.96	26.52
						415.91	209.89	26.52
						417.20	211.19	26.52
						418.89	211.83	26.52
						420.27	211.98	26.52
						420.31	210.19	26.52
88				26.82		439.74	182.61	26.82
						437.00	184.02	26.82
						431.10	182.86	26.82
						430.93	182.71	26.82
						429.19	184.91	26.82
						428.65	188.02	26.82
						428.34	192.42	26.82
						426.19	194.06	26.82
						419.89	196.46	26.82
						415.34	194.86	26.82
						412.84	194.89	26.82
						407.72	192.36	26.82
89				26.82		428.74	179.65	26.82
						427.48	180.99	26.82
						426.85	181.89	26.82
						426.77	184.04	26.82
						425.94	185.31	26.82
						424.21	188.56	26.82

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						423.48	190.75	26.82
						422.23	191.73	26.82
						419.84	192.37	26.82
						418.25	191.71	26.82
						410.80	191.85	26.82
						409.49	191.14	26.82
89				26.82		428.75	179.67	26.82
						431.08	179.32	26.82
						433.82	179.88	26.82
						436.70	180.56	26.82
						440.14	178.89	26.82
89				26.82		381.77	187.39	26.82
						388.48	188.59	26.82
						392.52	189.30	26.82
						397.52	191.09	26.82
						399.98	191.80	26.82
90				27.43		366.37	185.90	27.43
						376.40	183.64	27.43
						382.78	182.07	27.43
						383.20	181.81	27.43
						382.75	181.49	27.43
						376.29	180.99	27.43
						369.23	179.15	27.43
90				27.43		430.45	177.89	27.43
						430.24	178.42	27.43
						427.35	179.52	27.43
						426.49	180.68	27.43
						422.23	181.65	27.43
						422.55	184.04	27.43
						420.11	187.35	27.43
						419.21	187.95	27.43
						414.88	188.76	27.43
						413.23	188.79	27.43
						410.89	189.30	27.43
						409.68	189.54	27.43
						408.03	189.70	27.43
						406.97	189.45	27.43
						406.32	189.74	27.43
						404.78	189.37	27.43
						403.45	189.25	27.43
						400.40	189.15	27.43
91				27.74		393.09	187.45	27.74
						397.56	185.17	27.74
						401.86	183.72	27.74
						405.72	182.72	27.74
						411.47	182.09	27.74
						410.26	181.31	27.74

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						406.30	181.25	27.74
						401.47	180.62	27.74
						392.04	179.13	27.74
91				27.74		415.15	187.50	27.74
						414.12	182.99	27.74
						413.96	181.78	27.74
						415.36	181.28	27.74
						419.21	180.49	27.74
						420.26	180.73	27.74
						424.68	179.68	27.74
						426.49	179.26	27.74
Udall						267.93	129.47	24.00
						434.13	130.81	32.00
Alley						268.38	182.13	22.00
						344.73	182.26	27.00
						436.82	181.07	27.00

Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025-4230
Phone: (760) 738-5570
Date: 15 Nov 2019

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	1000.00
Min. Length of Section (#(Unit,LEN))	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	0
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.20
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (TNM)	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (???)	
Strictly acc. to AzB	

Roads

Name	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflection		
			Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type		Drefl	Hbuild	Dist.
			(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(km/h)	(km/h)		(dB)		(%)	(dB)	(m)	(m)
Voltaire St EB		R_1	57.5	0.0	0.0			511.0	0.0	0.0	4.0	0.0	0.0	48		3.66	0.0	1	0.0	0.0		
Voltaire St WB		R_2	57.5	0.0	0.0			511.0	0.0	0.0	4.0	0.0	0.0	48		3.66	0.0	1	0.0	0.0		
San Clemente St		R_3	42.7	0.0	0.0			46.0	0.0	0.0	2.5	0.0	0.0	32		6.71	0.0	1	0.0	0.0		
Nimitz Blvd SB		R_4	64.0	0.0	0.0			961.0	0.0	0.0	3.0	0.0	0.0	72		6.1	0.0	1	0.0	0.0		
Nimitz Blvd NB		R_5	64.0	0.0	0.0			961.0	0.0	0.0	3.0	0.0	0.0	72		6.1	0.0	1	0.0	0.0		
Catalina Blvd		R_6	63.9	0.0	0.0			1849.0	0.0	0.0	3.0	0.0	0.0	56		7.32	0.0	1	0.0	0.0		
Wabaska Dr	+	R_7	54.7	0.0	0.0			221.0	0.0	0.0	3.0	0.0	0.0	56		13.41	0.0	1	0.0	0.0		

Geometry - Roads

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(m)	(%)
	(m)		(m)		(m)	(m)	(m)	(m)		
Voltaire St EB					115.25	299.11	24.79	24.69		
					266.22	232.65	21.00	21.00		
					439.19	232.80	23.57	23.47		
					568.18	233.99	23.00	15.00		
					649.31	233.76	29.67	29.57		
Voltaire St WB					117.82	305.72	24.69	24.69		
					267.13	240.41	21.00	21.00		
					438.54	240.46	23.47	23.47		
					561.18	240.99	23.00	15.00		
					645.77	241.47	29.57	29.57		
San Clemente St					436.06	230.13	23.39	23.39		
					437.04	76.07	37.00	37.00		
Nimitz Blvd SB					261.25	456.43	13.00	13.00		
					417.27	324.08	15.00	15.00		
					494.28	263.40	16.00	16.00		
					625.29	171.06	20.00	20.00		
Nimitz Blvd NB					616.59	194.93	19.00	19.00		
					542.58	241.94	16.00	16.00		
					431.23	332.29	14.00	14.00		
					286.22	456.97	13.00	13.00		
Catalina Blvd					266.19	75.58	25.60	25.60		
					263.01	236.99	21.00	21.00		
					264.12	249.66	20.00	20.00		
					271.87	288.50	18.50	18.50		
					350.16	462.83	18.90	18.90		
Wabaska Dr					474.34	237.67	23.47	23.47		
					604.02	104.99	27.13	27.13		

Terrain Contours

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
75				22.86		369.65	221.12	22.86
						377.11	220.91	22.86
						377.19	224.37	22.86
						390.74	223.91	22.86
						390.49	215.41	22.86
						370.40	215.82	22.86
76.6				23.35		391.95	223.99	23.35
						412.08	223.95	23.35
						412.12	221.12	23.35
						426.16	221.20	23.35
						426.12	215.07	23.35
						391.53	215.07	23.35
						391.61	223.91	23.35
77				23.47		422.73	224.37	23.47
						427.61	219.83	23.47
78				23.77		427.71	223.40	23.77
						430.97	223.30	23.77
79				24.08		427.79	220.09	24.08
						431.44	219.33	24.08
80				24.38		427.95	216.50	24.38
						431.31	215.50	24.38
81				24.69		427.71	212.56	24.69
						431.21	211.59	24.69
82				24.99		427.77	208.99	24.99
						430.89	207.86	24.99
82.5				25.15		369.86	214.66	25.15
						391.15	214.74	25.15
						390.74	208.90	25.15
						369.82	208.82	25.15
						369.61	214.91	25.15
Driveway						369.00	204.25	24.99
						412.95	204.25	25.21
						427.07	204.19	25.09
83				25.30		427.92	204.71	25.30
						429.21	204.42	25.30
						430.76	201.82	25.30
						431.76	202.48	25.30
83				25.30		391.11	214.82	25.30
						426.00	214.70	25.30
						426.00	208.90	25.30
						391.24	208.78	25.30
						391.36	214.74	25.30
83				25.30		369.68	200.53	25.30
						426.20	200.45	25.30
						426.28	191.03	25.30

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						369.60	191.03	25.30
						369.77	200.36	25.30
84				25.60		427.85	200.66	25.60
						430.84	199.82	25.60
85				25.91		426.27	197.15	25.91
						430.94	195.86	25.91
86				26.21		427.90	192.58	26.21
						431.13	191.97	26.21
88				26.82		426.09	185.46	26.82
						430.68	184.26	26.82
89				27.13		424.64	183.86	27.13
						427.92	187.09	27.13
90				27.43		368.14	185.52	27.43
						379.38	182.97	27.43
90.8				27.68		417.14	190.44	27.68
						426.23	190.44	27.68
						426.44	184.93	27.68
						416.83	185.03	27.68
						417.04	190.44	27.68
91				27.74		414.19	183.84	27.74
						415.06	187.43	27.74
91				27.74		393.51	187.38	27.74
						399.62	184.33	27.74
						405.21	182.81	27.74
Alley						268.38	182.13	22.00
						344.73	182.26	27.00
						436.82	181.07	27.00
Udall						267.93	129.47	24.00
						434.13	130.81	32.00

Eilar Associates, Inc.
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Escondido, California 92025-4230
Phone: (760) 738-5570
Date: 15 Nov 2019

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	1000.00
Min. Length of Section (#(Unit,LEN))	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	0
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.20
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (TNM)	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (???)	
Strictly acc. to AzB	

Receivers

Name	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates		
			Day	Night	Day	Night	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)				(m)		(m)	(m)	(m)
OU1			66.1	-60.9	0.0	0.0		x	Total	1.22	r	422.31	222.38	24.67
OU2			53.0	-73.0	0.0	0.0		x	Total	1.22	r	373.27	188.96	27.23
OU3			50.7	-73.6	0.0	0.0		x	Total	1.22	r	380.51	188.83	27.78
OU4			49.7	-73.3	0.0	0.0		x	Total	1.22	r	387.52	188.83	28.18
OU5			49.1	-72.9	0.0	0.0		x	Total	1.22	r	394.33	188.99	28.45
OU6			47.2	-72.4	0.0	0.0		x	Total	1.22	r	401.68	188.88	28.82
OU7			48.8	-72.2	0.0	0.0		x	Total	1.22	r	408.35	189.10	28.92
OU8			45.0	-75.4	0.0	0.0		x	Total	1.22	r	415.20	188.94	28.93
OU9			65.6	-63.1	0.0	0.0		x	Total	30.13	a	387.15	222.51	30.13
OU10			65.6	-63.1	0.0	0.0		x	Total	30.13	a	394.23	222.54	30.13
OU11			65.8	-63.0	0.0	0.0		x	Total	30.13	a	401.37	222.54	30.13
OU12			66.0	-62.7	0.0	0.0		x	Total	30.13	a	408.25	222.51	30.13
OU13			61.0	-64.0	0.0	0.0		x	Total	29.68	a	424.38	201.66	29.68
OU14			61.4	-61.7	0.0	0.0		x	Total	31.91	a	426.81	188.43	31.91
OU15			64.9	-64.0	0.0	0.0		x	Total	32.56	a	372.42	219.01	32.56
OU16			65.1	-63.9	0.0	0.0		x	Total	32.56	a	379.35	219.28	32.56
OU17			65.8	-63.3	0.0	0.0		x	Total	32.56	a	415.90	219.33	32.56
OU18			65.9	-63.0	0.0	0.0		x	Total	32.56	a	423.20	219.28	32.56

Roads

Name	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflection		
			Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type		Drefl	Hbuild	Dist.
			(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(km/h)	(km/h)		(dB)		(%)	(dB)	(m)	(m)
Voltaire St EB		R_1	57.5	0.0	0.0			511.0	0.0	0.0	4.0	0.0	0.0	48		3.66	0.0	1	0.0	0.0		
Voltaire St WB		R_2	57.5	0.0	0.0			511.0	0.0	0.0	4.0	0.0	0.0	48		3.66	0.0	1	0.0	0.0		
San Clemente St		R_3	42.7	0.0	0.0			46.0	0.0	0.0	2.5	0.0	0.0	32		6.71	0.0	1	0.0	0.0		
Nimitz Blvd SB		R_4	64.3	0.0	0.0			1026.0	0.0	0.0	3.0	0.0	0.0	72		6.1	0.0	1	0.0	0.0		
Nimitz Blvd NB		R_5	64.3	0.0	0.0			1026.0	0.0	0.0	3.0	0.0	0.0	72		6.1	0.0	1	0.0	0.0		
Catalina Blvd		R_6	63.9	0.0	0.0			1849.0	0.0	0.0	3.0	0.0	0.0	56		7.32	0.0	1	0.0	0.0		
Wabaska Dr	+	R_7	55.3	0.0	0.0			258.0	0.0	0.0	3.0	0.0	0.0	56		13.41	0.0	1	0.0	0.0		

Geometry - Roads

Name	Height		Coordinates				Dist	LSlope
	Begin	End	x	y	z	Ground	(m)	(%)
	(m)	(m)	(m)	(m)	(m)	(m)		
Voltaire St EB			115.25	299.11	24.79	24.69		
			266.22	232.65	21.00	21.00		
			439.19	232.80	23.57	23.47		
			568.18	233.99	23.00	15.00		
			649.31	233.76	29.67	29.57		
Voltaire St WB			117.82	305.72	24.69	24.69		
			267.13	240.41	21.00	21.00		
			438.54	240.46	23.47	23.47		
			561.18	240.99	23.00	15.00		
			645.77	241.47	29.57	29.57		
San Clemente St			436.06	230.13	23.39	23.39		
			437.04	76.07	37.00	37.00		
Nimitz Blvd SB			261.25	456.43	13.00	13.00		
			417.27	324.08	15.00	15.00		
			494.28	263.40	16.00	16.00		
			625.29	171.06	20.00	20.00		
Nimitz Blvd NB			616.59	194.93	19.00	19.00		
			542.58	241.94	16.00	16.00		
			431.23	332.29	14.00	14.00		
			286.22	456.97	13.00	13.00		
Catalina Blvd			266.19	75.58	25.60	25.60		
			263.01	236.99	21.00	21.00		
			264.12	249.66	20.00	20.00		
			271.87	288.50	18.50	18.50		
			350.16	462.83	18.90	18.90		
Wabaska Dr			474.34	237.67	23.47	23.47		
			604.02	104.99	27.13	27.13		

Barriers

Name	M.	ID	Absorption		Z-Ext.	Cantilever		Height			
			left	right		horz.	vert.	Begin		End	
					(m)	(m)	(m)	(m)		(m)	
	+		0.37	0.37	0.00	5.00	0.00	28.46	a		
	+		0.37	0.37	0.00	5.00	0.00	30.69	a		

Geometry - Barriers

Name	M.	ID	Absorption		Z-Ext.	Cantilever		Height				Coordinates			
			left	right		horz.	vert.	Begin		End		x	y	z	Ground
					(m)	(m)	(m)	(m)		(m)		(m)	(m)	(m)	(m)
	+		0.37	0.37	0.00	5.00	0.00	28.46	a			422.95	202.28	28.46	25.32
												426.24	202.28	28.46	25.29
	+		0.37	0.37	0.00	5.00	0.00	30.69	a			427.77	190.93	30.69	25.74
												427.79	186.29	30.69	27.01

Buildings

Name	M.	ID	RB	Residents	Absorption	Height Begin (m)	
Commercial			x	0	0.37		
A			x	0	0.37		
B			x	0	0.37		
B South			x	0	0.37		
Covered Parking/A NW			x	0	0.37		
Commercial 1st fl	+		x	0	0.37		
Commercial 1-2	+		x	0	0.37		
Parking 1-2	+		x	0	0.37		
Commercial 1-2	+		x	0	0.37		

Geometry - Buildings

Name	M.	ID	RB	Residents	Absorption	Height Begin (m)		Coordinates x (m)	y (m)	z (m)	Ground (m)
Commercial			x	0	0.37			390.86	217.34	34.14	23.35
								412.18	217.30	34.14	23.35
								426.23	217.36	34.14	23.35
								426.20	215.07	34.14	23.35
								390.90	215.01	34.14	23.35
A			x	0	0.37			369.59	214.93	34.14	25.30
								426.23	215.04	34.14	25.30
								426.31	208.83	34.14	25.30
								369.49	208.78	34.14	25.30
B			x	0	0.37			369.69	200.53	34.29	25.45
								426.40	200.61	34.29	25.45
								426.49	190.77	34.29	25.45
								369.73	190.82	34.29	25.45
B South			x	0	0.37			417.07	190.74	36.36	27.68
								417.07	184.81	36.36	27.68
								426.32	184.77	36.36	27.68
								426.24	190.73	36.36	27.68
Covered Parking/A NW			x	0	0.37			369.61	215.02	34.14	22.59
								369.63	217.27	34.14	22.59
								383.73	217.34	34.14	22.59
								383.63	217.27	34.14	22.59
								390.80	217.32	34.14	22.59
								390.78	215.00	34.14	22.59
Commercial 1st fl	+		x	0	0.37			383.69	221.23	28.91	23.35
								383.64	224.20	28.91	23.35
								412.05	224.21	28.91	23.35
								412.11	221.23	28.91	23.35
Commercial 1-2	+		x	0	0.37			383.72	221.21	0.00	0.00
								412.02	221.21	0.00	0.00
								412.10	217.33	0.00	0.00

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(m)		(m)	(m)	(m)	(m)
								383.74	217.40	0.00	0.00
Parking 1-2	+		x	0	0.37			369.55	221.26	31.34	22.59
								383.66	221.23	31.34	22.59
								383.61	217.36	31.34	22.59
								369.62	217.32	31.34	22.59
Commercial 1-2	+		x	0	0.37			412.12	221.21	31.27	23.35
								426.25	221.19	31.27	23.35
								426.25	217.39	31.27	23.35
								412.13	217.36	31.27	23.35

Terrain Contours

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
77				23.47		422.73	224.37	23.47
						427.61	219.83	23.47
78				23.77		427.71	223.40	23.77
						430.97	223.30	23.77
79				24.08		427.79	220.09	24.08
						431.44	219.33	24.08
80				24.38		427.95	216.50	24.38
						431.31	215.50	24.38
81				24.69		427.71	212.56	24.69
						431.21	211.59	24.69
82				24.99		427.77	208.99	24.99
						430.89	207.86	24.99
Driveway						369.00	204.25	24.99
						412.95	204.25	25.21
						427.07	204.19	25.09
83				25.30		427.92	204.71	25.30
						429.21	204.42	25.30
						430.76	201.82	25.30
						431.76	202.48	25.30
84				25.60		427.85	200.66	25.60
						430.84	199.82	25.60
85				25.91		426.27	197.15	25.91
						430.94	195.86	25.91
86				26.21		427.90	192.58	26.21
						431.13	191.97	26.21
88				26.82		426.09	185.46	26.82
						430.68	184.26	26.82
89				27.13		424.64	183.86	27.13
						427.92	187.09	27.13
90				27.43		368.14	185.52	27.43
						379.38	182.97	27.43
91				27.74		414.19	183.84	27.74
						415.06	187.43	27.74
91				27.74		393.51	187.38	27.74
						399.62	184.33	27.74
						405.21	182.81	27.74
Alley						268.38	182.13	22.00
						344.73	182.26	27.00
						436.82	181.07	27.00
Udall						267.93	129.47	24.00
						434.13	130.81	32.00

Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025-4230
Phone: (760) 738-5570
Date: 15 Nov 2019

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	1000.00
Min. Length of Section (#(Unit,LEN))	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	0
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.20
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (TNM)	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (???)	
Strictly acc. to AzB	

Receivers

Name	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates		
			Day	Night	Day	Night	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)				(m)		(m)	(m)	(m)
OU1			66.1	-60.9	0.0	0.0		x	Total	1.22	r	422.31	222.38	24.67
OU2			53.0	-73.1	0.0	0.0		x	Total	1.22	r	373.27	188.96	27.23
OU3			50.7	-73.6	0.0	0.0		x	Total	1.22	r	380.51	188.83	27.78
OU4			49.7	-73.3	0.0	0.0		x	Total	1.22	r	387.52	188.83	28.18
OU5			49.1	-72.9	0.0	0.0		x	Total	1.22	r	394.33	188.99	28.45
OU6			47.2	-72.4	0.0	0.0		x	Total	1.22	r	401.68	188.88	28.82
OU7			48.8	-72.2	0.0	0.0		x	Total	1.22	r	408.35	189.10	28.92
OU8			45.0	-75.5	0.0	0.0		x	Total	1.22	r	415.20	188.94	28.93
OU9			60.7	-66.2	0.0	0.0		x	Total	30.13	a	387.15	222.51	30.13
OU10			60.9	-65.9	0.0	0.0		x	Total	30.13	a	394.23	222.54	30.13
OU11			62.2	-65.1	0.0	0.0		x	Total	30.13	a	401.37	222.54	30.13
OU12			62.4	-64.8	0.0	0.0		x	Total	30.13	a	408.25	222.51	30.13
OU13			61.0	-64.0	0.0	0.0		x	Total	29.68	a	424.38	201.66	29.68
OU14			61.4	-61.7	0.0	0.0		x	Total	31.91	a	426.81	188.43	31.91
OU15			64.9	-64.1	0.0	0.0		x	Total	32.56	a	372.42	219.01	32.56
OU16			65.1	-64.2	0.0	0.0		x	Total	32.56	a	379.35	219.28	32.56
OU17			61.9	-65.3	0.0	0.0		x	Total	32.56	a	415.90	219.33	32.56
OU18			61.3	-65.1	0.0	0.0		x	Total	32.56	a	423.20	219.28	32.56

Roads

Name	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflection		
			Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type		Drefl	Hbuild	Dist.
			(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(km/h)	(km/h)		(dB)		(%)	(dB)	(m)	(m)
Voltaire St EB		R_1	57.5	0.0	0.0			511.0	0.0	0.0	4.0	0.0	0.0	48		3.66	0.0	1	0.0	0.0		
Voltaire St WB		R_2	57.5	0.0	0.0			511.0	0.0	0.0	4.0	0.0	0.0	48		3.66	0.0	1	0.0	0.0		
San Clemente St		R_3	42.7	0.0	0.0			46.0	0.0	0.0	2.5	0.0	0.0	32		6.71	0.0	1	0.0	0.0		
Nimitz Blvd SB		R_4	64.3	0.0	0.0			1026.0	0.0	0.0	3.0	0.0	0.0	72		6.1	0.0	1	0.0	0.0		
Nimitz Blvd NB		R_5	64.3	0.0	0.0			1026.0	0.0	0.0	3.0	0.0	0.0	72		6.1	0.0	1	0.0	0.0		
Catalina Blvd		R_6	63.9	0.0	0.0			1849.0	0.0	0.0	3.0	0.0	0.0	56		7.32	0.0	1	0.0	0.0		
Wabaska Dr	+	R_7	55.3	0.0	0.0			258.0	0.0	0.0	3.0	0.0	0.0	56		13.41	0.0	1	0.0	0.0		

Geometry - Roads

Name	Height		Coordinates				Dist	LSlope
	Begin	End	x	y	z	Ground	(m)	(%)
	(m)	(m)	(m)	(m)	(m)	(m)		
Voltaire St EB			115.25	299.11	24.79	24.69		
			266.22	232.65	21.00	21.00		
			439.19	232.80	23.57	23.47		
			568.18	233.99	23.00	15.00		
			649.31	233.76	29.67	29.57		
Voltaire St WB			117.82	305.72	24.69	24.69		
			267.13	240.41	21.00	21.00		
			438.54	240.46	23.47	23.47		
			561.18	240.99	23.00	15.00		
			645.77	241.47	29.57	29.57		
San Clemente St			436.06	230.13	23.39	23.39		
			437.04	76.07	37.00	37.00		
Nimitz Blvd SB			261.25	456.43	13.00	13.00		
			417.27	324.08	15.00	15.00		
			494.28	263.40	16.00	16.00		
			625.29	171.06	20.00	20.00		
Nimitz Blvd NB			616.59	194.93	19.00	19.00		
			542.58	241.94	16.00	16.00		
			431.23	332.29	14.00	14.00		
			286.22	456.97	13.00	13.00		
Catalina Blvd			266.19	75.58	25.60	25.60		
			263.01	236.99	21.00	21.00		
			264.12	249.66	20.00	20.00		
			271.87	288.50	18.50	18.50		
			350.16	462.83	18.90	18.90		
Wabaska Dr			474.34	237.67	23.47	23.47		
			604.02	104.99	27.13	27.13		

Barriers

Name	M.	ID	Absorption		Z-Ext.	Cantilever		Height			
			left	right		horz.	vert.	Begin		End	
					(m)	(m)	(m)	(m)		(m)	
	+		0.37	0.37	0.00	5.00	0.00	28.46	a		
	+		0.37	0.37	0.00	5.00	0.00	30.69	a		
OU Barrier	+		0.37	0.37	1.22			30.13	a		
OU Barrier	+		0.37	0.37	1.22			32.49	a		

Geometry - Barriers

Name	M.	ID	Absorption		Z-Ext.	Cantilever		Height				Coordinates			
			left	right		horz.	vert.	Begin		End		x	y	z	Ground
					(m)	(m)	(m)	(m)		(m)		(m)	(m)	(m)	(m)
	+		0.37	0.37	0.00	5.00	0.00	28.46	a			422.95	202.28	28.46	25.32
												426.24	202.28	28.46	25.29
	+		0.37	0.37	0.00	5.00	0.00	30.69	a			427.77	190.93	30.69	25.74
												427.79	186.29	30.69	27.01
OU Barrier	+		0.37	0.37	1.22			30.13	a			383.65	221.22	30.13	22.59
												383.65	224.23	30.13	23.35
												412.00	224.23	30.13	23.35
												412.04	221.27	30.13	23.35
OU Barrier	+		0.37	0.37	1.22			32.49	a			412.01	221.28	32.49	23.35
												426.18	221.25	32.49	23.48
												426.16	217.21	32.49	23.35

Buildings

Name	M.	ID	RB	Residents	Absorption	Height Begin (m)	
Commercial			x	0	0.37		
A			x	0	0.37		
B			x	0	0.37		
B South			x	0	0.37		
Covered Parking/A NW			x	0	0.37		
Commercial 1st fl	+		x	0	0.37		
Commercial 1-2	+		x	0	0.37		
Parking 1-2	+		x	0	0.37		
Commercial 1-2	+		x	0	0.37		

Geometry - Buildings

Name	M.	ID	RB	Residents	Absorption	Height Begin (m)		Coordinates x (m)	y (m)	z (m)	Ground (m)
Commercial			x	0	0.37			390.86	217.34	34.14	23.35
								412.18	217.30	34.14	23.35
								426.23	217.36	34.14	23.35
								426.20	215.07	34.14	23.35
								390.90	215.01	34.14	23.35
A			x	0	0.37			369.59	214.93	34.14	25.30
								426.23	215.04	34.14	25.30
								426.31	208.83	34.14	25.30
								369.49	208.78	34.14	25.30
B			x	0	0.37			369.69	200.53	34.29	25.45
								426.40	200.61	34.29	25.45
								426.49	190.77	34.29	25.45
								369.73	190.82	34.29	25.45
B South			x	0	0.37			417.07	190.74	36.36	27.68
								417.07	184.81	36.36	27.68
								426.32	184.77	36.36	27.68
								426.24	190.73	36.36	27.68
Covered Parking/A NW			x	0	0.37			369.61	215.02	34.14	22.59
								369.63	217.27	34.14	22.59
								383.73	217.34	34.14	22.59
								383.63	217.27	34.14	22.59
								390.80	217.32	34.14	22.59
								390.78	215.00	34.14	22.59
Commercial 1st fl	+		x	0	0.37			383.69	221.23	28.91	23.35
								383.64	224.20	28.91	23.35
								412.05	224.21	28.91	23.35
								412.11	221.23	28.91	23.35
Commercial 1-2	+		x	0	0.37			383.72	221.21	0.00	0.00
								412.02	221.21	0.00	0.00
								412.10	217.33	0.00	0.00

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(m)		(m)	(m)	(m)	(m)
								383.74	217.40	0.00	0.00
Parking 1-2	+		x	0	0.37			369.55	221.26	31.34	22.59
								383.66	221.23	31.34	22.59
								383.61	217.36	31.34	22.59
								369.62	217.32	31.34	22.59
Commercial 1-2	+		x	0	0.37			412.12	221.21	31.27	23.35
								426.25	221.19	31.27	23.35
								426.25	217.39	31.27	23.35
								412.13	217.36	31.27	23.35

Terrain Contours

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
77				23.47		422.73	224.37	23.47
						427.61	219.83	23.47
78				23.77		427.71	223.40	23.77
						430.97	223.30	23.77
79				24.08		427.79	220.09	24.08
						431.44	219.33	24.08
80				24.38		427.95	216.50	24.38
						431.31	215.50	24.38
81				24.69		427.71	212.56	24.69
						431.21	211.59	24.69
82				24.99		427.77	208.99	24.99
						430.89	207.86	24.99
Driveway						369.00	204.25	24.99
						412.95	204.25	25.21
						427.07	204.19	25.09
83				25.30		427.92	204.71	25.30
						429.21	204.42	25.30
						430.76	201.82	25.30
						431.76	202.48	25.30
84				25.60		427.85	200.66	25.60
						430.84	199.82	25.60
85				25.91		426.27	197.15	25.91
						430.94	195.86	25.91
86				26.21		427.90	192.58	26.21
						431.13	191.97	26.21
88				26.82		426.09	185.46	26.82
						430.68	184.26	26.82
89				27.13		424.64	183.86	27.13
						427.92	187.09	27.13
90				27.43		368.14	185.52	27.43
						379.38	182.97	27.43
91				27.74		414.19	183.84	27.74
						415.06	187.43	27.74
91				27.74		393.51	187.38	27.74
						399.62	184.33	27.74
						405.21	182.81	27.74
Alley						268.38	182.13	22.00
						344.73	182.26	27.00
						436.82	181.07	27.00
Udall						267.93	129.47	24.00
						434.13	130.81	32.00

Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025-4230
Phone: (760) 738-5570
Date: 15 Nov 2019

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	1000.00
Min. Length of Section (#(Unit,LEN))	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	0
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.20
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (TNM)	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (???)	
Strictly acc. to AzB	

Receivers

Name	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates		
			Day	Night	Day	Night	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)				(m)		(m)	(m)	(m)
F1-2	-		-88.0	-88.0	0.0	0.0		x	Total	29.80	a	376.74	221.72	29.80
F2-2	-		-88.0	-88.0	0.0	0.0		x	Total	29.80	a	397.78	221.68	29.80
F3-1	-		-88.0	-88.0	0.0	0.0		x	Total	24.87	a	418.91	221.72	24.87
F3-2	-		-88.0	-88.0	0.0	0.0		x	Total	29.80	a	418.91	221.72	29.80
F4-2	-		-88.0	-88.0	0.0	0.0		x	Total	29.80	a	426.46	215.12	29.80
F4-3	+		63.2	-62.7	0.0	0.0		x	Total	32.85	a	426.46	215.12	32.85
F5-2	-		-88.0	-88.0	0.0	0.0		x	Total	29.80	a	419.35	208.34	29.80
F5-3	+		53.9	-69.1	0.0	0.0		x	Total	32.85	a	419.35	208.34	32.85
F6-2	-		-88.0	-88.0	0.0	0.0		x	Total	29.80	a	397.97	208.41	29.80
F6-3	+		52.9	-72.4	0.0	0.0		x	Total	32.85	a	397.97	208.41	32.85
F7-2	-		-88.0	-88.0	0.0	0.0		x	Total	29.80	a	376.46	208.42	29.80
F7-3	+		55.2	-73.1	0.0	0.0		x	Total	32.85	a	376.46	208.42	32.85
F8-2	-		-88.0	-88.0	0.0	0.0		x	Total	29.80	a	369.19	215.01	29.80
F8-3	+		62.4	-66.2	0.0	0.0		x	Total	32.85	a	369.19	215.01	32.85
F9-2	-		-88.0	-88.0	0.0	0.0		x	Total	29.97	a	376.57	200.95	29.97
F9-3	+		58.0	-69.5	0.0	0.0		x	Total	33.07	a	376.57	200.95	33.07
F10-2	-		-88.0	-88.0	0.0	0.0		x	Total	29.97	a	398.16	201.03	29.97
F10-3	+		55.7	-71.0	0.0	0.0		x	Total	33.07	a	398.16	201.03	33.07
F11-2	-		-88.0	-88.0	0.0	0.0		x	Total	29.97	a	419.32	201.12	29.97
F11-3	+		58.5	-67.3	0.0	0.0		x	Total	33.07	a	419.32	201.12	33.07
F12-2	-		-88.0	-88.0	0.0	0.0		x	Total	29.97	a	426.86	195.32	29.97
F12-3	+		60.8	-63.0	0.0	0.0		x	Total	33.07	a	426.86	195.32	33.07
F13-2	-		-88.0	-88.0	0.0	0.0		x	Total	29.97	a	422.11	184.19	29.97
F13-3	+		54.0	-67.2	0.0	0.0		x	Total	33.07	a	422.11	184.19	33.07
F14-2	-		-88.0	-88.0	0.0	0.0		x	Total	29.97	a	398.27	190.32	29.97
F14-3	+		52.2	-72.3	0.0	0.0		x	Total	33.07	a	398.27	190.32	33.07
F15-2	-		-88.0	-88.0	0.0	0.0		x	Total	29.97	a	376.59	190.43	29.97
F15-3	+		53.8	-73.1	0.0	0.0		x	Total	33.07	a	376.59	190.43	33.07
F16-2	-		-88.0	-88.0	0.0	0.0		x	Total	29.97	a	368.92	195.84	29.97
F16-3	+		60.7	-68.8	0.0	0.0		x	Total	33.07	a	368.92	195.84	33.07
F17-3	+		64.4	-64.7	0.0	0.0		x	Total	32.85	a	376.59	218.10	32.85
F18-3	+		66.0	-62.7	0.0	0.0		x	Total	32.85	a	397.83	217.93	32.85
F19-3	+		65.3	-63.7	0.0	0.0		x	Total	32.85	a	419.07	218.02	32.85
F20-1			66.6	-60.6	0.0	0.0		x	Total	24.87	a	397.57	224.66	24.87
F21-1			63.0	-61.0	0.0	0.0		x	Total	24.87	a	426.72	218.84	24.87
F22			63.5	-66.2	0.0	0.0		x	Total	37.88	a	397.93	194.09	37.88
F23			64.5	-64.8	0.0	0.0		x	Total	35.66	a	396.93	212.94	35.66

Roads

Name	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflection		
			Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type		Drefl	Hbuild	Dist.
			(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(km/h)	(km/h)		(dB)		(%)	(dB)	(m)	(m)
Voltaire St EB		R_1	57.5	0.0	0.0			511.0	0.0	0.0	4.0	0.0	0.0	48		3.66	0.0	1	0.0	0.0		
Voltaire St WB		R_2	57.5	0.0	0.0			511.0	0.0	0.0	4.0	0.0	0.0	48		3.66	0.0	1	0.0	0.0		
San Clemente St		R_3	42.7	0.0	0.0			46.0	0.0	0.0	2.5	0.0	0.0	32		6.71	0.0	1	0.0	0.0		
Nimitz Blvd SB		R_4	64.3	0.0	0.0			1026.0	0.0	0.0	3.0	0.0	0.0	72		6.1	0.0	1	0.0	0.0		
Nimitz Blvd NB		R_5	64.3	0.0	0.0			1026.0	0.0	0.0	3.0	0.0	0.0	72		6.1	0.0	1	0.0	0.0		
Catalina Blvd		R_6	63.9	0.0	0.0			1849.0	0.0	0.0	3.0	0.0	0.0	56		7.32	0.0	1	0.0	0.0		
Wabaska Dr	+	R_7	55.3	0.0	0.0			258.0	0.0	0.0	3.0	0.0	0.0	56		13.41	0.0	1	0.0	0.0		

Geometry - Roads

Name	Height		Coordinates				Dist	LSlope
	Begin	End	x	y	z	Ground	(m)	(%)
	(m)	(m)	(m)	(m)	(m)	(m)		
Voltaire St EB			115.25	299.11	24.79	24.69		
			266.22	232.65	21.00	21.00		
			439.19	232.80	23.57	23.47		
			568.18	233.99	23.00	15.00		
			649.31	233.76	29.67	29.57		
Voltaire St WB			117.82	305.72	24.69	24.69		
			267.13	240.41	21.00	21.00		
			438.54	240.46	23.47	23.47		
			561.18	240.99	23.00	15.00		
			645.77	241.47	29.57	29.57		
San Clemente St			436.06	230.13	23.39	23.39		
			437.04	76.07	37.00	37.00		
Nimitz Blvd SB			261.25	456.43	13.00	13.00		
			417.27	324.08	15.00	15.00		
			494.28	263.40	16.00	16.00		
			625.29	171.06	20.00	20.00		
Nimitz Blvd NB			616.59	194.93	19.00	19.00		
			542.58	241.94	16.00	16.00		
			431.23	332.29	14.00	14.00		
			286.22	456.97	13.00	13.00		
Catalina Blvd			266.19	75.58	25.60	25.60		
			263.01	236.99	21.00	21.00		
			264.12	249.66	20.00	20.00		
			271.87	288.50	18.50	18.50		
			350.16	462.83	18.90	18.90		
Wabaska Dr			474.34	237.67	23.47	23.47		
			604.02	104.99	27.13	27.13		

Barriers

Name	M.	ID	Absorption		Z-Ext.	Cantilever		Height			
			left	right		horz.	vert.	Begin		End	
					(m)	(m)	(m)	(m)		(m)	
	-		0.37	0.37	0.00	5.00	0.00	32.86	a		
	-		0.37	0.37	0.00	5.00	0.00	32.86	a		
	-		0.37	0.37	0.00	5.00	0.00	32.86	a		
	-		0.37	0.37	0.00	5.00	0.00	32.86	a		

Geometry - Barriers

Name	M.	ID	Absorption		Z-Ext.	Cantilever		Height				Coordinates			
			left	right		horz.	vert.	Begin		End		x	y	z	Ground
					(m)	(m)	(m)	(m)		(m)		(m)	(m)	(m)	(m)
	-		0.37	0.37	0.00	5.00	0.00	32.86	a			383.61	221.54	32.86	22.67
												390.83	223.43	32.86	23.35
	-		0.37	0.37	0.00	5.00	0.00	32.86	a			390.73	221.54	32.86	23.35
												397.90	223.43	32.86	23.35
	-		0.37	0.37	0.00	5.00	0.00	32.86	a			397.87	221.52	32.86	23.35
												404.96	223.35	32.86	23.35
	-		0.37	0.37	0.00	5.00	0.00	32.86	a			404.83	221.49	32.86	23.35
												412.13	223.43	32.86	23.35

Buildings

Name	M.	ID	RB	Residents	Absorption	Height Begin (m)	
Commercial			x	0	0.37		
A			x	0	0.37		
B			x	0	0.37		
B South			x	0	0.37		
Covered Parking/A NW			x	0	0.37		
Commercial 1st fl	+		x	0	0.37		
Commercial 1-2	+		x	0	0.37		
Parking 1-2	+		x	0	0.37		
Commercial 1-2	+		x	0	0.37		

Geometry - Buildings

Name	M.	ID	RB	Residents	Absorption	Height Begin (m)		Coordinates x (m)	y (m)	z (m)	Ground (m)
Commercial			x	0	0.37			390.86	217.34	34.14	23.35
								412.18	217.30	34.14	23.35
								426.23	217.36	34.14	23.35
								426.20	215.07	34.14	23.35
								390.90	215.01	34.14	23.35
A			x	0	0.37			369.59	214.93	34.14	25.30
								426.23	215.04	34.14	25.30
								426.31	208.83	34.14	25.30
								369.49	208.78	34.14	25.30
B			x	0	0.37			369.69	200.53	34.29	25.45
								426.40	200.61	34.29	25.45
								426.49	190.77	34.29	25.45
								369.73	190.82	34.29	25.45
B South			x	0	0.37			417.07	190.74	36.36	27.68
								417.07	184.81	36.36	27.68
								426.32	184.77	36.36	27.68
								426.24	190.73	36.36	27.68
Covered Parking/A NW			x	0	0.37			369.61	215.02	34.14	22.59
								369.63	217.27	34.14	22.59
								383.73	217.34	34.14	22.59
								383.63	217.27	34.14	22.59
								390.80	217.32	34.14	22.59
								390.78	215.00	34.14	22.59
Commercial 1st fl	+		x	0	0.37			383.69	221.23	28.91	23.35
								383.64	224.20	28.91	23.35
								412.05	224.21	28.91	23.35
								412.11	221.23	28.91	23.35
Commercial 1-2	+		x	0	0.37			383.72	221.21	0.00	0.00
								412.02	221.21	0.00	0.00
								412.10	217.33	0.00	0.00

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(m)		(m)	(m)	(m)	(m)
								383.74	217.40	0.00	0.00
Parking 1-2	+		x	0	0.37			369.55	221.26	31.34	22.59
								383.66	221.23	31.34	22.59
								383.61	217.36	31.34	22.59
								369.62	217.32	31.34	22.59
Commercial 1-2	+		x	0	0.37			412.12	221.21	31.27	23.35
								426.25	221.19	31.27	23.35
								426.25	217.39	31.27	23.35
								412.13	217.36	31.27	23.35

Terrain Contours

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
77				23.47		422.73	224.37	23.47
						427.61	219.83	23.47
78				23.77		427.71	223.40	23.77
						430.97	223.30	23.77
79				24.08		427.79	220.09	24.08
						431.44	219.33	24.08
80				24.38		427.95	216.50	24.38
						431.31	215.50	24.38
81				24.69		427.71	212.56	24.69
						431.21	211.59	24.69
82				24.99		427.77	208.99	24.99
						430.89	207.86	24.99
Driveway						369.00	204.25	24.99
						412.95	204.25	25.21
						427.07	204.19	25.09
83				25.30		427.92	204.71	25.30
						429.21	204.42	25.30
						430.76	201.82	25.30
						431.76	202.48	25.30
84				25.60		427.85	200.66	25.60
						430.84	199.82	25.60
85				25.91		426.27	197.15	25.91
						430.94	195.86	25.91
86				26.21		427.90	192.58	26.21
						431.13	191.97	26.21
88				26.82		426.09	185.46	26.82
						430.68	184.26	26.82
89				27.13		424.64	183.86	27.13
						427.92	187.09	27.13
90				27.43		368.14	185.52	27.43
						379.38	182.97	27.43
91				27.74		414.19	183.84	27.74
						415.06	187.43	27.74
91				27.74		393.51	187.38	27.74
						399.62	184.33	27.74
						405.21	182.81	27.74
Alley						268.38	182.13	22.00
						344.73	182.26	27.00
						436.82	181.07	27.00
Udall						267.93	129.47	24.00
						434.13	130.81	32.00

Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025-4230
Phone: (760) 738-5570
Date: 15 Nov 2019

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	1000.00
Min. Length of Section (#(Unit,LEN))	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	5.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	0
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.20
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (TNM)	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (???)	
Strictly acc. to AzB	

Receivers

Name	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates		
			Day	Night	Day	Night	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)				(m)		(m)	(m)	(m)
R1-1			39.2	39.2	0.0	0.0		x	Total	1.52	r	431.37	246.23	24.40
R1-2			40.9	40.9	0.0	0.0		x	Total	4.57	r	431.37	246.23	27.45
R1-3			41.5	41.5	0.0	0.0		x	Total	7.62	r	431.37	246.23	30.50
R2-1			40.6	40.6	0.0	0.0		x	Total	1.52	r	407.79	175.95	29.07
R2-2			44.3	44.3	0.0	0.0		x	Total	4.57	r	407.79	175.95	32.12
R2-3			48.7	48.7	0.0	0.0		x	Total	7.62	r	407.79	175.95	35.17
R3-1			40.1	40.1	0.0	0.0		x	Total	1.52	r	378.55	177.93	28.91
R3-2			43.6	43.6	0.0	0.0		x	Total	4.57	r	378.55	177.93	31.96
R3-3			48.6	48.6	0.0	0.0		x	Total	7.62	r	378.55	177.93	35.01
R4-1			38.1	38.1	0.0	0.0		x	Total	1.52	r	369.05	204.38	26.52
R4-2			42.2	42.2	0.0	0.0		x	Total	4.57	r	369.05	204.38	29.57
R4-3			47.5	47.5	0.0	0.0		x	Total	7.62	r	369.05	204.38	32.62

Point Sources

Name	M.	ID	Result. PWL			Lw / Li			Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night						X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(m²)		(min)	(min)	(min)	(dB)	(Hz)		(m)		(m)	(m)	(m)
S1			77.0	77.0	77.0	Lw	Mech_1		0.0	0.0	0.0				720.00	180.00	540.00	0.0		(none)	35.14	a	372.47	211.46	35.14
S2			77.0	77.0	77.0	Lw	Mech_1		0.0	0.0	0.0							0.0		(none)	35.14	a	379.38	211.28	35.14
S3			77.0	77.0	77.0	Lw	Mech_1		0.0	0.0	0.0							0.0		(none)	35.14	a	386.65	211.23	35.14
S4			77.0	77.0	77.0	Lw	Mech_1		0.0	0.0	0.0							0.0		(none)	35.14	a	393.87	211.07	35.14
S5			77.0	77.0	77.0	Lw	Mech_1		0.0	0.0	0.0							0.0		(none)	35.14	a	401.69	211.07	35.14
S6			77.0	77.0	77.0	Lw	Mech_1		0.0	0.0	0.0							0.0		(none)	35.14	a	409.28	211.15	35.14
S7			77.0	77.0	77.0	Lw	Mech_1		0.0	0.0	0.0							0.0		(none)	35.14	a	415.88	211.20	35.14
S8			77.0	77.0	77.0	Lw	Mech_1		0.0	0.0	0.0							0.0		(none)	35.14	a	423.53	211.22	35.14
S9			77.0	77.0	77.0	Lw	Mech_1		0.0	0.0	0.0							0.0		(none)	35.29	a	373.06	195.43	35.29
S10			77.0	77.0	77.0	Lw	Mech_1		0.0	0.0	0.0							0.0		(none)	35.29	a	380.04	195.12	35.29
S11			77.0	77.0	77.0	Lw	Mech_1		0.0	0.0	0.0							0.0		(none)	35.29	a	386.65	195.16	35.29
S12			77.0	77.0	77.0	Lw	Mech_1		0.0	0.0	0.0							0.0		(none)	35.29	a	393.90	196.00	35.29
S13			77.0	77.0	77.0	Lw	Mech_1		0.0	0.0	0.0							0.0		(none)	35.29	a	400.96	195.76	35.29
S14			77.0	77.0	77.0	Lw	Mech_1		0.0	0.0	0.0							0.0		(none)	35.29	a	409.04	195.54	35.29
S15			77.0	77.0	77.0	Lw	Mech_1		0.0	0.0	0.0							0.0		(none)	35.29	a	415.08	195.22	35.29
S16			77.0	77.0	77.0	Lw	Mech_1		0.0	0.0	0.0							0.0		(none)	35.29	a	422.52	195.22	35.29
S17			77.0	77.0	77.0	Lw	Mech_1		0.0	0.0	0.0							0.0		(none)	37.36	a	421.90	188.13	37.36
S18			77.0	77.0	77.0	Lw	Mech_1		0.0	0.0	0.0							0.0		(none)	35.14	a	419.11	216.02	35.14
S19			77.0	77.0	77.0	Lw	Mech_1		0.0	0.0	0.0							0.0		(none)	35.14	a	419.06	215.39	35.14

Buildings

Name	M.	ID	RB	Residents	Absorption	Height Begin (m)	
Commercial			x	0	0.37		
A			x	0	0.37		
B			x	0	0.37		
B South			x	0	0.37		
Covered Parking/A NW			x	0	0.37		
Commercial 1st fl	-		x	0	0.37		
Commercial 1-2	-		x	0	0.37		
Parking 1-2	-		x	0	0.37		
Commercial 1-2	-		x	0	0.37		

Geometry - Buildings

Name	M.	ID	RB	Residents	Absorption	Height Begin (m)		Coordinates x (m)	y (m)	z (m)	Ground (m)
Commercial			x	0	0.37			390.86	217.34	34.14	23.35
								412.18	217.30	34.14	23.35
								426.23	217.36	34.14	23.35
								426.20	215.07	34.14	23.35
								390.90	215.01	34.14	23.35
A			x	0	0.37			369.59	214.93	34.14	25.30
								426.23	215.04	34.14	25.30
								426.31	208.83	34.14	25.30
								369.49	208.78	34.14	25.30
B			x	0	0.37			369.69	200.53	34.29	25.45
								426.40	200.61	34.29	25.45
								426.49	190.77	34.29	25.45
								369.73	190.82	34.29	25.45
B South			x	0	0.37			417.07	190.74	36.36	27.68
								417.07	184.81	36.36	27.68
								426.32	184.77	36.36	27.68
								426.24	190.73	36.36	27.68
Covered Parking/A NW			x	0	0.37			369.61	215.02	34.14	22.59
								369.63	217.27	34.14	22.59
								383.73	217.34	34.14	22.59
								383.63	217.27	34.14	22.59
								390.80	217.32	34.14	22.59
								390.78	215.00	34.14	22.59
Commercial 1st fl	-		x	0	0.37			383.69	221.23	28.91	23.35
								383.64	224.20	28.91	23.35
								412.05	224.21	28.91	23.35
								412.11	221.23	28.91	23.35
Commercial 1-2	-		x	0	0.37			383.72	221.21	0.00	0.00
								412.02	221.21	0.00	0.00
								412.10	217.33	0.00	0.00

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(m)		(m)	(m)	(m)	(m)
								383.74	217.40	0.00	0.00
Parking 1-2	-		x	0	0.37			369.55	221.26	31.34	22.59
								383.66	221.23	31.34	22.59
								383.61	217.36	31.34	22.59
								369.62	217.32	31.34	22.59
Commercial 1-2	-		x	0	0.37			412.12	221.21	31.27	23.35
								426.25	221.19	31.27	23.35
								426.25	217.39	31.27	23.35
								412.13	217.36	31.27	23.35

Terrain Contours

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
77				23.47		422.73	224.37	23.47
						427.61	219.83	23.47
78				23.77		427.71	223.40	23.77
						430.97	223.30	23.77
79				24.08		427.79	220.09	24.08
						431.44	219.33	24.08
80				24.38		427.95	216.50	24.38
						431.31	215.50	24.38
81				24.69		427.71	212.56	24.69
						431.21	211.59	24.69
82				24.99		427.77	208.99	24.99
						430.89	207.86	24.99
Driveway						369.00	204.25	24.99
						412.95	204.25	25.21
						427.07	204.19	25.09
83				25.30		427.92	204.71	25.30
						429.21	204.42	25.30
						430.76	201.82	25.30
						431.76	202.48	25.30
84				25.60		427.85	200.66	25.60
						430.84	199.82	25.60
85				25.91		426.27	197.15	25.91
						430.94	195.86	25.91
86				26.21		427.90	192.58	26.21
						431.13	191.97	26.21
88				26.82		426.09	185.46	26.82
						430.68	184.26	26.82
89				27.13		424.64	183.86	27.13
						427.92	187.09	27.13
90				27.43		368.14	185.52	27.43
						379.38	182.97	27.43
91				27.74		414.19	183.84	27.74
						415.06	187.43	27.74
91				27.74		393.51	187.38	27.74
						399.62	184.33	27.74
						405.21	182.81	27.74
Alley						268.38	182.13	22.00
						344.73	182.26	27.00
						436.82	181.07	27.00
Udall						267.93	129.47	24.00
						434.13	130.81	32.00
Voltaire St WB		R_2				117.82	305.72	24.69
						267.13	240.41	21.00
						438.54	240.46	23.47
						561.18	240.99	23.00

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						645.77	241.47	29.57
Voltaire St EB		R_1				115.25	299.11	24.79
						266.22	232.65	21.00
						439.19	232.80	23.57
						568.18	233.99	23.00
						649.31	233.76	29.67
San Clemente St		R_3				436.06	230.13	23.39
						437.04	76.07	37.00
Nimitz Blvd SB		R_4				261.25	456.43	13.00
						417.27	324.08	15.00
						494.28	263.40	16.00
						625.29	171.06	20.00
Nimitz Blvd NB		R_5				616.59	194.93	19.00
						542.58	241.94	16.00
						431.23	332.29	14.00
						286.22	456.97	13.00
Wabaska Dr	+	R_7				474.34	237.67	23.47
						604.02	104.99	27.13
Catalina Blvd		R_6				266.19	75.58	25.60
						263.01	236.99	21.00
						264.12	249.66	20.00
						271.87	288.50	18.50
						350.16	462.83	18.90

Sound Level Spectra

Name	ID	Type	Oktave Spectrum (dB)												Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	
Carrier 25HCE436A003	Mech_1	Lw				56.2	67.2	71.2	74.2	69.2	66.2	58.2	77.0	77.7	Manufacturer

APPENDIX D

Temporary Construction Noise Calculations

Noise Attenuation by Distance Calculation

Job: 17 on Voltaire
Job #: S191104
Date: 11/15/2019
Source: Excavator
Receiver: South - Demo/Grading/Clearing

Noise Source

Noise Level (dBA)	74.6	at	50	feet

Distances

Source Elevation	0	feet	at	5	feet above grade
Receiver Elevation:	0	feet	at	5	feet above grade
Source to Receiver Distance:	92	feet			

Path Calculation

Source to Receiver Direct Path Distance:	**92**	feet

Sound Pressure Level	**69.3**	at	92	feet
Hours of Use:	**12**			
Duty Cycle (%):	**40**			
Level During 12 Hour day:	**65.3**			

Summation

Number of Sources:	2
Level during 12 hour day:	**68.7**

Noise Attenuation by Distance Calculation

Job: 17 on Voltaire
Job #: S191104
Date: 11/15/2019
Source: Dump Truck
Receiver: South - Demo/Grading/Clearing

Noise Source

Noise Level (dBA)	75.3	at	50	feet

Distances

Source Elevation	0	feet	at	5	feet above grade
Receiver Elevation:	0	feet	at	5	feet above grade
Source to Receiver Distance:	92	feet			

Path Calculation

Source to Receiver Direct Path Distance:	**92**	feet

Sound Pressure Level	**70.0**	at	92	feet
Hours of Use:	**12**			
Duty Cycle (%):	**40**			
Level During 12 Hour day:	**66.0**			

Noise Attenuation by Distance Calculation

Job: 17 on Voltaire
Job #: S191104
Date: 11/15/2019
Source: Excavator
Receiver: West - Demo/Grading/Clearing

Noise Source

Noise Level (dBA)	74.6	at	50	feet

Distances

Source Elevation	0	feet	at	5	feet above grade
Receiver Elevation:	0	feet	at	5	feet above grade
Source to Receiver Distance:	95	feet			

Path Calculation

Source to Receiver Direct Path Distance:	**95**	feet

Sound Pressure Level	**69.0**	at	95	feet
Hours of Use:	**12**			
Duty Cycle (%):	**40**			
Level During 12 Hour day:	**65.0**			

Summation

Number of Sources:	2
Level during 12 hour day:	**68.4**

Noise Attenuation by Distance Calculation

Job: 17 on Voltaire
Job #: S191104
Date: 11/15/2019
Source: Dump Truck
Receiver: West - Demo/Grading/Clearing

Noise Source

Noise Level (dBA)	75.3	at	50	feet

Distances

Source Elevation	0	feet	at	5	feet above grade
Receiver Elevation:	0	feet	at	5	feet above grade
Source to Receiver Distance:	95	feet			

Path Calculation

Source to Receiver Direct Path Distance:	**95**	feet

Sound Pressure Level	**69.7**	at	95	feet
Hours of Use:	**12**			
Duty Cycle (%):	**40**			
Level During 12 Hour day:	**65.7**			

Noise Attenuation by Distance Calculation

Job: 17 on Voltaire
Job #: S191104
Date: 11/15/2019
Source: Skid Steer Loader
Receiver: South - Excavation/Concrete

Noise Source

Noise Level (dBA)	73.1	at	50	feet

Distances

Source Elevation	0	feet	at	5	feet above grade
Receiver Elevation:	0	feet	at	5	feet above grade
Source to Receiver Distance:	92	feet			

Path Calculation

Source to Receiver Direct Path Distance:	**92**	feet

Sound Pressure Level	**67.8**	at	92	feet
Hours of Use:	**12**			
Duty Cycle (%):	**40**			
Level During 12 Hour day:	**63.8**			

Summation

Number of Sources:	4
Level during 12 hour day:	**68.6**

Noise Attenuation by Distance Calculation

Job: 17 on Voltaire
Job #: S191104
Date: 11/15/2019
Source: Backhoe
Receiver: South - Excavation/Concrete

Noise Source

Noise Level (dBA)	73.1	at	50	feet

Distances

Source Elevation	0	feet	at	5	feet above grade
Receiver Elevation:	0	feet	at	5	feet above grade
Source to Receiver Distance:	92	feet			

Path Calculation

Source to Receiver Direct Path Distance:	**92**	feet

Sound Pressure Level	**67.8**	at	92	feet
Hours of Use:	**12**			
Duty Cycle (%):	**40**			
Level During 12 Hour day:	**63.8**			

Noise Attenuation by Distance Calculation

Job: 17 on Voltaire
Job #: S191104
Date: 11/15/2019
Source: Concrete Mixer
Receiver: South - Excavation/Concrete

Noise Source

Noise Level (dBA)	71.3	at	50	feet

Distances

Source Elevation	0	feet	at	5	feet above grade
Receiver Elevation:	0	feet	at	5	feet above grade
Source to Receiver Distance:	92	feet			

Path Calculation

Source to Receiver Direct Path Distance:	**92**	feet

Sound Pressure Level	**66.0**	at	92	feet
Hours of Use:	**12**			
Duty Cycle (%):	**40**			
Level During 12 Hour day:	**62.0**			

Noise Attenuation by Distance Calculation

Job: 17 on Voltaire
Job #: S191104
Date: 11/15/2019
Source: Concrete Pump
Receiver: South - Excavation/Concrete

Noise Source

Noise Level (dBA)	71.3	at	50	feet

Distances

Source Elevation	0	feet	at	5	feet above grade
Receiver Elevation:	0	feet	at	5	feet above grade
Source to Receiver Distance:	92	feet			

Path Calculation

Source to Receiver Direct Path Distance:	**92**	feet

Sound Pressure Level	**66.0**	at	92	feet
Hours of Use:	**12**			
Duty Cycle (%):	**20**			
Level During 12 Hour day:	**59.0**			

Noise Attenuation by Distance Calculation

Job: 17 on Voltaire
Job #: S191104
Date: 11/15/2019
Source: Skid Steer Loader
Receiver: West - Excavation/Concrete

Noise Source

Noise Level (dBA)	73.1	at	50	feet

Distances

Source Elevation	0	feet	at	5	feet above grade
Receiver Elevation:	0	feet	at	5	feet above grade
Source to Receiver Distance:	95	feet			

Path Calculation

Source to Receiver Direct Path Distance:	**95**	feet

Sound Pressure Level	**67.5**	at	95	feet
Hours of Use:	**12**			
Duty Cycle (%):	**40**			
Level During 12 Hour day:	**63.5**			

Summation

Number of Sources:	4
Level during 12 hour day:	**68.3**

Noise Attenuation by Distance Calculation

Job: 17 on Voltaire
Job #: S191104
Date: 11/15/2019
Source: Backhoe
Receiver: West - Excavation/Concrete

Noise Source

Noise Level (dBA)	73.1	at	50	feet

Distances

Source Elevation	0	feet	at	5	feet above grade
Receiver Elevation:	0	feet	at	5	feet above grade
Source to Receiver Distance:	95	feet			

Path Calculation

Source to Receiver Direct Path Distance:	**95**	feet

Sound Pressure Level	**67.5**	at	95	feet
Hours of Use:	**12**			
Duty Cycle (%):	**40**			
Level During 12 Hour day:	**63.5**			

Noise Attenuation by Distance Calculation

Job: 17 on Voltaire
Job #: S191104
Date: 11/15/2019
Source: Concrete Mixer
Receiver: West - Excavation/Concrete

Noise Source

Noise Level (dBA)	71.3	at	50	feet

Distances

Source Elevation	0	feet	at	5	feet above grade
Receiver Elevation:	0	feet	at	5	feet above grade
Source to Receiver Distance:	95	feet			

Path Calculation

Source to Receiver Direct Path Distance:	**95**	feet

Sound Pressure Level	**65.7**	at	95	feet
Hours of Use:	**12**			
Duty Cycle (%):	**40**			
Level During 12 Hour day:	**61.7**			

Noise Attenuation by Distance Calculation

Job: 17 on Voltaire
Job #: S191104
Date: 11/15/2019
Source: Concrete Pump
Receiver: West - Excavation/Concrete

Noise Source

Noise Level (dBA)	71.3	at	50	feet

Distances

Source Elevation	0	feet	at	5	feet above grade
Receiver Elevation:	0	feet	at	5	feet above grade
Source to Receiver Distance:	95	feet			

Path Calculation

Source to Receiver Direct Path Distance:	**95**	feet

Sound Pressure Level	**65.7**	at	95	feet
Hours of Use:	**12**			
Duty Cycle (%):	**20**			
Level During 12 Hour day:	**58.7**			

Noise Attenuation by Distance Calculation

Job: 17 on Voltaire
Job #: S191104
Date: 11/15/2019
Source: Manlift
Receiver: South - Rough Framing, Exterior Finish

Noise Source

Noise Level (dBA)	68.2	at	50	feet

Distances

Source Elevation	0	feet	at	5	feet above grade
Receiver Elevation:	0	feet	at	5	feet above grade
Source to Receiver Distance:	92	feet			

Path Calculation

Source to Receiver Direct Path Distance:	**92**	feet

Sound Pressure Level **62.9** at 92 feet

Hours of Use:	**12**
Duty Cycle (%):	**40**
Level During 12 Hour day:	**58.9**

Summation

Number of Sources:	3
Level during 12 hour day:	**69.4**

Noise Attenuation by Distance Calculation

Job: 17 on Voltaire
Job #: S191104
Date: 11/15/2019
Source: Crane
Receiver: South - Rough Framing, Exterior Finish

Noise Source

Noise Level (dBA)	80.8	at	50	feet

Distances

Source Elevation	0	feet	at	5	feet above grade
Receiver Elevation:	0	feet	at	5	feet above grade
Source to Receiver Distance:	92	feet			

Path Calculation

Source to Receiver Direct Path Distance:	**92**	feet

Sound Pressure Level	**75.5**	at	92	feet
Hours of Use:	**12**			
Duty Cycle (%):	**16**			
Level During 12 Hour day:	**67.5**			

Noise Attenuation by Distance Calculation

Job: 17 on Voltaire
Job #: S191104
Date: 11/15/2019
Source: Delivery Truck
Receiver: South - Rough Framing, Exterior Finish

Noise Source

Noise Level (dBA)	76.3	at	32.8	feet

Distances

Source Elevation	0	feet	at	5	feet above grade
Receiver Elevation:	0	feet	at	5	feet above grade
Source to Receiver Distance:	92	feet			

Path Calculation

Source to Receiver Direct Path Distance:	**92**	feet

Sound Pressure Level	**67.3**	at	92	feet
Hours of Use:	**12**			
Duty Cycle (%):	**40**			
Level During 12 Hour day:	**63.4**			

Noise Attenuation by Distance Calculation

Job: 17 on Voltaire
Job #: S191104
Date: 11/15/2019
Source: Manlift
Receiver: West - Rough Framing, Exterior Finish

Noise Source

Noise Level (dBA)	68.2	at	50	feet

Distances

Source Elevation	0	feet	at	5	feet above grade
Receiver Elevation:	0	feet	at	5	feet above grade
Source to Receiver Distance:	95	feet			

Path Calculation

Source to Receiver Direct Path Distance:	**95**	feet

Sound Pressure Level	**62.6**	at	95	feet
Hours of Use:	**12**			
Duty Cycle (%):	**40**			
Level During 12 Hour day:	**58.6**			

Summation

Number of Sources:	3
Level during 12 hour day:	**69.1**

Noise Attenuation by Distance Calculation

Job: 17 on Voltaire
Job #: S191104
Date: 11/15/2019
Source: Crane
Receiver: West - Rough Framing, Exterior Finish

Noise Source

Noise Level (dBA)	80.8	at	50	feet

Distances

Source Elevation	0	feet	at	5	feet above grade
Receiver Elevation:	0	feet	at	5	feet above grade
Source to Receiver Distance:	95	feet			

Path Calculation

Source to Receiver Direct Path Distance:	**95**	feet

Sound Pressure Level	**75.2**	at	95	feet
Hours of Use:	**12**			
Duty Cycle (%):	**16**			
Level During 12 Hour day:	**67.3**			

Noise Attenuation by Distance Calculation

Job: 17 on Voltaire
Job #: S191104
Date: 11/15/2019
Source: Delivery Truck
Receiver: West - Rough Framing, Exterior Finish

Noise Source

Noise Level (dBA)	76.3	at	32.8	feet

Distances

Source Elevation	0	feet	at	5	feet above grade
Receiver Elevation:	0	feet	at	5	feet above grade
Source to Receiver Distance:	95	feet			

Path Calculation

Source to Receiver Direct Path Distance:	**95**	feet

Sound Pressure Level	**67.1**	at	95	feet
Hours of Use:	**12**			
Duty Cycle (%):	**40**			
Level During 12 Hour day:	**63.1**			