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Acoustical Analysis Report for Chick-fil-A – I-10 and Santa Anita

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1.0 Executive Summary

The proposed project, Chick-fil-A – I-10 and Santa Anita, consists of the demolition of existing pavement structures and the construction of a new standalone Chick-fil-A fast-food restaurant. The project site is located at the northeast corner of Santa Anita Avenue and Brockway Street in the City of El Monte, California.

The California Green Building Standards Code (known as CALGreen) requires interior noise levels of 50 dBA or less during any hour of operation in occupied nonresidential spaces. Calculations show that with the anticipated exterior wall and roof/ceiling assemblies, and standard commercial glazing, interior noise levels of 50 dBA or less can be achieved. The project is expected to comply with CALGreen noise regulations as currently designed.

In addition, the City of El Monte Municipal Code requires the assessment of permanent project-generated noise impacts to determine if additional project design features are necessary and feasible to reduce project-related noise impacts to comply with applicable noise limits. Calculations show that, as currently designed, exterior noise levels from the proposed intercom, truck deliveries, and rooftop equipment are expected to meet the applicable noise limits defined by the City of El Monte at all surrounding property lines. No mitigation is deemed necessary to attenuate project-generated noise impacts at neighboring receivers. Project-generated traffic noise is also expected to be less than significant.

The City of El Monte does not provide property line noise limits for temporary construction activity at surrounding noise-sensitive property lines. However, the general good practice construction noise control methods listed herein should be followed, as a courtesy to surrounding properties. With operating hours being limited to those allowable in the City of El Monte and standard good practice construction noise control measures being followed, temporary construction noise and vibration are expected to be less than significant.

The proposed project is not expected to result in any potentially significant noise impacts by the standards of the California Environmental Quality Act (CEQA). Noise impacts are summarized in Section 5.5. The conditions of approval listed in Section 5.5 should also be considered.

2.0 Introduction

This acoustical analysis report is submitted to satisfy the noise requirements of the City of El Monte and the State of California. Its purpose is to assess interior noise impacts to the project site from transportation noise sources to determine if mitigation is necessary to reduce these noise impacts to comply with the applicable noise regulations of the California Green Building Standards Code (CALGreen). In addition, this report assesses noise impacts from potential project-related noise sources, such as mechanical equipment, truck deliveries, and project-generated traffic, 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 El Monte Municipal Code. Potential impacts will also be assessed for significance per the California Environmental Quality Act (CEQA).

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. 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, the distance from the noise source must be specified in order to provide complete information. Sound power, on the other hand, is a specialized analytical metric used 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, Chick-fil-A – I-10 and Santa Anita, consists of the demolition of existing pavement structures and the construction of a new standalone Chick-fil-A restaurant (4,851 square-foot gross area) with drive-through services. The hours of operation for the Chick-fil-A restaurant are proposed to be 6 a.m. to 11 p.m., Monday through Saturday. For additional project details, please refer to the project plans provided in Appendix A.

2.2 Project Location

The subject property is located at the northeast corner of Santa Anita Avenue and Brockway Street in the City of El Monte, California. The Assessor's Parcel Numbers (APNs) for the site are 8579-005-003 and 8579-005-024 through -028. The site is currently paved and unoccupied. The site is surrounded by multifamily residential zones to the north and east, and commercial uses to the north and west. A multifamily residential structure is located in a commercial zone directly to the north of the project site. Brockway Street and Interstate 10 (I-10) are located directly to the south of the project site such that any sensitive receptors to the south are located at a considerable distance from the site. For a graphical representation of the site, please refer to the Vicinity Map, Assessor's Parcel Map, Satellite Aerial Photograph, and Topographic Map, provided as Figures 1 through 4, respectively.

2.3 Applicable Noise Regulations

The State of California requires that commercial developments demonstrate compliance with the requirements of the California Green Building Standards Code (known as CALGreen). CALGreen states that, if noise level readings of 65 dBA L_{EQ} or greater are documented at the proposed project site, the project must either (a) incorporate wall and roof/ceiling assemblies with a composite STC rating of at least 50 and exterior windows with an STC 40, or (b) provide an acoustical analysis documenting interior noise levels do not exceed 50 dBA in occupied areas during any hour of operation. This report provides the performance method analysis described in Item (b).

In addition to the acoustical requirements of CALGreen, noise levels from drive-through intercom equipment, rooftop HVAC equipment, and truck deliveries must be adequately controlled at surrounding receivers. The City of El Monte Municipal Code states that on-site noise sources should not cause the established "ambient noise standard" at adjacent property lines to be exceeded by 5 dBA. The "ambient noise standards" for multifamily residential zones or multifamily residential uses located within commercial zones are 55 dBA during the daytime hours of 7 a.m. to 10 p.m. and 50 dBA during the nighttime hours of 10 p.m. to 7 a.m. Assuming all of these noise sources would potentially be present during nighttime hours based on the anticipated hours of operation, noise levels from the drive-through intercom, rooftop HVAC operation, and truck deliveries should not exceed a noise level of 55 dBA at adjacent residential property lines in order to meet City of El Monte Municipal Code Limits.

The City of El Monte Municipal Code also contains general requirements for temporary construction noise impacts. The City of El Monte prohibits construction activity after 7 p.m. and before 6 a.m. on weekdays and after 7 p.m. and before 8 a.m. on weekends. During permissible hours of operation, the City does not have a noise limit with which construction noise must comply; however, 75 dBA is a commonly used construction noise threshold that was applied to this project.

Pertinent sections of CALGreen and the City of El Monte Municipal Code are provided as Appendix B.

3.0 Environmental Setting

3.1 Existing Noise Environment

3.1.1 Vehicle Traffic Noise Sources

The primary noise source in the vicinity of the project site is roadway traffic from Santa Anita Avenue, Interstate 10 (I-10), and associated ramps. The existing traffic volume of Santa Anita Avenue was obtained from the City of El Monte traffic counts; traffic volumes for I-10 and associated ramps were obtained from Caltrans (see references).

Santa Anita Avenue is a six-lane, two-way Major Arterial running north-south along the west boundary of the project site. The posted speed limit is 35 mph. According to City of El Monte traffic counts, the existing (year 2015) traffic volume of Santa Anita Avenue is 38,844 Average Daily Trips (ADT).

I-10 is a twelve-lane, two-way Freeway roadway running generally east-west to the south of the project site. The posted speed limit is 65 mph. According to Caltrans, the existing (year 2020) traffic volume of I-10 is 221,000 ADT.

There are two on-ramps to I-10 to the south of the project site. The I-10 westbound on-ramp from Santa Anita Avenue currently carries 11,306 ADT (year 2020). The I-10 eastbound on-ramp from Santa Anita Avenue currently carries 8,144 ADT (year 2020). Both of these on-ramps were assumed to have a speed limit of approximately 35 mph.

There are two off-ramps from I-10 to the south of the project site. The I-10 westbound off-ramp to Santa Anita Avenue currently carries 8,028 ADT (year 2020). The I-10 eastbound off-ramp to Santa Anita Avenue currently carries 7,633 ADT (year 2020). Both of these off-ramps have a posted speed limit of 35 mph.

No existing or future truck percentages were available for Santa Anita Avenue; however, based on neighboring and surrounding land use, roadway classification, professional experience, and on-site observations, a truck percentage mix of 3.0% medium and 2.0% heavy trucks was used for Santa Anita Avenue. According to Caltrans, I-10 and associated ramps have a truck percentage mix of 1.5% medium and 1.6% heavy trucks.

Current and future (See Section 3.2) traffic volumes and vehicle mixes for roadway sections near the project site are shown in Table 1.

Table 1. Overall Roadway Traffic Information					
Roadway Name	**Speed Limit (mph)**	**Vehicle Mix (%)**		**Current ADT (Year)**	**Future ADT (2050)**
		Medium Trucks	**Heavy Trucks**		
Santa Anita Avenue	35	3.0	2.0	38,844 (2015)	55,027
I-10	65	1.5	1.6	221,000 (2020)	297,875
I-10 Westbound On-Ramp	35	1.5	1.6	11,306 (2020)	15,239
I-10 Eastbound On-Ramp	35	1.5	1.6	8,144 (2020)	10,977
I-10 Westbound Off-Ramp	35	1.5	1.6	8,028 (2020)	10,821
I-10 Eastbound Off-Ramp	35	1.5	1.6	7,633 (2020)	10,288

3.1.2 Measured Noise Level

An on-site inspection and long-term noise measurement were made beginning the afternoon of Wednesday, July 7, 2021 and running through the afternoon of Thursday, July 8, 2021. The purpose of these measurements was to obtain noise information for the site during operating hours, which are expected to be 6 a.m. to 11 p.m., Monday through Saturday for the Chick-fil-A. The noise measurement performed is expected to be representative of the typical noise exposure at off-site receivers and encompasses the primary source of noise, which is traffic noise. The noise meter was placed along the northwest boundary of the project site at approximately 55 feet east of the Santa Anita Avenue centerline and approximately 120 feet south of the Amador Street centerline; the meter was at a height of approximately four feet above ground level, where it was placed in a tree for security purposes. Noise data obtained on site is shown in Table 2, and the measurement location is shown graphically in Figure 3.

Table 2. Long-Term Measured Noise Levels on Site		
Date	**Time**	**Hourly Average Noise Level (dBA L_{EQ})**
July 7, 2021	1 p.m. – 2 p.m.	75.4
	2 p.m. – 3 p.m.	78.1
	3 p.m. – 4 p.m.	75.8
	4 p.m. – 5 p.m.	75.2
	5 p.m. – 6 p.m.	74.8
	6 p.m. – 7 p.m.	77.9
	7 p.m. – 8 p.m.	76.0
	8 p.m. – 9 p.m.	75.5
	9 p.m. – 10 p.m.	74.7
	10 p.m. – 11 p.m.	74.3
	11 p.m. – 12 a.m.	72.5

Table 2. Long-Term Measured Noise Levels on Site		
Date	**Time**	**Hourly Average Noise Level (dBA L_{EQ})**
July 8, 2021	12 a.m. – 1 a.m.	71.0
	1 a.m. – 2 a.m.	69.1
	2 a.m. – 3 a.m.	69.9
	3 a.m. – 4 a.m.	69.4
	4 a.m. – 5 a.m.	73.0
	5 a.m. – 6 a.m.	74.9
	6 a.m. – 7 a.m.	75.4
	7 a.m. – 8 a.m.	75.1
	8 a.m. – 9 a.m.	75.1
	9 a.m. – 10 a.m.	79.6
	10 a.m. – 11 a.m.	75.9
	11 a.m. – 12 p.m.	76.1
	12 p.m. – 1 p.m.	76.0

Measured noise levels were observed to range from a minimum of 69.1 dBA between the hours of 1 a.m. and 2 a.m. on July 8, 2021 to a maximum of 79.6 dBA between 9 a.m. and 10 a.m. on July 8, 2021.

3.1.3 Calculated Noise Level

Noise levels were calculated for the site using the methodology described in Section 4.1.1. The calculated noise levels (L_{EQ}) were compared with the measured traffic 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 75.4 dBA L_{EQ} between 1 p.m. and 2 p.m. on July 7, 2021, at approximately 55 feet east of the Santa Anita Avenue centerline and approximately 120 feet south of the Amador Street centerline, was compared to the calculated (modeled) noise level of 75.7 dBA L_{EQ} for the same anticipated 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 peak hour noise levels for the proposed building as the difference between the measured and calculated levels was found to be less than three decibels. This information is shown in Table 3. Please refer to Appendix C for more information.

Table 3. Calculated versus Measured Traffic Noise Data				
Location	**Calculated**	**Measured**	**Difference**	**Correction**
55' east of Santa Anita Avenue C.L. and 120' south of Amador Street C.L.	75.7 dBA L_{EQ}	75.4 dBA L_{EQ}	0.3 dB	None Applied

3.2 Future Noise Environment

3.2.1 Future Transportation Noise

The future on-site noise environment is expected to be the result of the same roadway traffic noise sources. Future (year 2050) traffic volumes for all surrounding roadways were calculated using a conservative 1% compound growth rate. In the vicinity of the project site, the traffic volumes of Santa Anita Avenue and I-10 are expected to increase to 55,027 ADT and 297,875 ADT, respectively. The traffic volumes of westbound and eastbound on-ramps to I-10 are expected to increase to 15,239 ADT and 10,977 ADT, respectively, in the future environment (year 2050). The traffic volumes of westbound and eastbound off-ramps to Santa Anita Avenue are expected to increase to 10,821 ADT and 10,288 ADT, respectively, in the future environment (year 2050).

The same truck percentages from the current traffic volumes were used for future traffic volume modeling. For further roadway details and projected future traffic volumes, please refer to Appendix C.

3.2.2 Operational Noise Sources

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 activity on the project site. The primary sources of noise associated with the project site will be the proposed drive-through intercom equipment, rooftop HVAC equipment, and truck deliveries.

The proposed drive-through intercom is expected to be manufactured by HME. Two intercoms will serve the Chick-fil-A drive-through. The proposed HME Intercom System is documented to have a maximum noise level of 84 dBA at one foot from the speaker post. The system will also be equipped with an automatic volume control (AVC) system that will automatically reduce the sound level produced by the intercom as the ambient noise level decreases. It is likely that the actual sound level produced by the intercom system during hours with lower levels of business will be less than the projected 84 dBA, as the ambient noise level may be lower during these hours due to lower traffic volumes; however, the higher noise level was modeled for a worst-case analysis. For further details on the HME intercom system, please refer to Appendix E: Manufacturer Data Sheets.

Though detailed project mechanical plans are not currently available, based on past project experience, the restaurant building is expected to be served by three rooftop HVAC units expected to be equivalent to the following units: Lennox LGH150H4B, Lennox LGH210H4B, and Lennox LGH300S4B. Noise level data for these units was provided by the manufacturer in the form of A-weighted octave band and overall sound power levels. The sound power level data for the proposed rooftop HVAC units is shown in Table 4. Please refer to Appendix D for additional information.

Table 4. Sound Power Levels of HVAC Equipment

Source	Sound Power at Octave Band Frequency (dBA)							Total (dBA)
	125	250	500	1K	2K	4K	8K	
Lennox LGH150H4B	75	81	87	85	80	74	70	90
Lennox LGH210H4B	79	84	88	89	85	82	73	94
Lennox LGH300S4B	79	84	88	89	85	82	73	94

Additionally, truck deliveries to the restaurant were evaluated for a worst-case analysis of noise impacts to surrounding noise-sensitive properties. In order to approximate noise from this source, noise levels measured for a previous study conducted by Eilar Associates were implemented into calculations. The previous noise measurement was performed at an operational Henry's grocery store. The noise measurement was performed at a distance of 15 feet from an operational refrigerated truck (with both the engine and refrigeration unit running) and was one minute in duration. In order to determine worst-case noise levels at surrounding property lines, the L_{MAX} of this noise measurement was used in calculations (rather than the average noise level, or L_{EQ}) in order to evaluate operational noise levels of the refrigerated truck maneuvering in the parking lot with its refrigeration unit running. Based on professional experience, it is assumed that a maximum of one delivery per hour would be required for the project site. Based on the site layout, it is anticipated that delivery trucks will enter the project site from the driveway on Santa Anita Avenue, park near the north facade of the Chick-fil-A building during loading/unloading, travel north along the eastern part of the parking lot, then proceed to exit from the same Santa Anita Avenue driveway. Noise measurement data is shown in Table 5.

Table 5. Sound Pressure Levels of Operational Refrigerated Truck at 15 feet

Source	Sound Pressure at Octave Band Frequency (dBA)								Total (dBA L_{MAX})
	63	125	250	500	1K	2K	4K	8K	
Refrigerated Truck	91	95	80	81	80	77	72	66	84

Operational mechanical noise levels were calculated for the project site using the above information. Results of this analysis are provided in Section 5.3.1.

3.2.3 Project-Generated Traffic

Project-generated traffic for this project was analyzed by Linscott, Law & Greenspan, Engineers in a Traffic Impact Analysis Report dated September 13, 2022. This traffic analysis gives project generated traffic volumes as a result of the construction of the Chick-fil-A project. According to the analysis, the project is expected to generate 1,696 ADT. This traffic information was incorporated into the analysis to determine worst-case noise exposure at surrounding receivers. Please refer to Section 5.3.2 for the results of this analysis and to Appendix E for pertinent sections of the traffic study.

3.2.4 Temporary Construction Equipment

During permissible hours of operation, the City of El Monte does not have a noise limit with which construction noise must comply at property lines; however, noise levels of construction activity at property lines were determined to assess off-site impacts and are detailed in Section 5.4. According to the project proponent and professional experience, on-site construction activities are expected to consist of the following stages: demolition, grading, utilities, paving, and building construction. As some of these stages will occur concurrently, demolition, grading, and utilities were evaluated as a single stage. Please refer to Table 6 for anticipated on-site construction equipment during each noise-generating stage of activity with noise levels and duty cycles for each piece of equipment. Construction equipment noise levels were provided by the UK Department for Environment, Food and Rural Affairs (DEFRA), and duty cycle information was taken from the Federal Highway Administration (FHWA) (see references).

Table 6. Anticipated Construction Activity and Equipment Noise Levels			
Activity Stage(s)	**Duty Cycle (%)[1]**	**Noise Level at 50 feet (dBA)[2]**	**Equipment**
Demolition/Grading/Utilities	40	64	Backhoe
	40	64	Skid Steer
	40	72	Dump Truck
	40	61	Mini-Excavator
Paving/Building Construction	40	71	Concrete Mixer
	40	61	Air Compressor
	50	71	Paver
	20	71	Roller

[1]Duty cycle information was provided by the Federal Highway Administration.
[2]Noise level information was provided by UK Department for Environment, Food and Rural Affairs.

4.0 Methodology and Equipment

4.1 Methodology

4.1.1 Roadway Noise Calculation

The Traffic Noise Model (TNM) calculation protocol in CadnaA Version 2022 (based on the methodology used in TNM Version 2.5, released in February 2004 by the U.S. Department of Transportation) was used to determine the peak hour noise level during hours of operation (dBA L_{EQ}). In order to determine this value, the ADT value is divided into percentages for each hour of the day to establish maximum noise impacts that the project site may experience during a 24-hour period. These percentages were established in a study performed by Katz-Okitsu and Associates, Traffic Engineers (see reference). According to this study, the peak traffic volume expected during proposed operational hours is approximately 8.6% of the ADT value (between the hours of 4 p.m. and 5 p.m.). For this analysis, the peak volume percentage of traffic volumes was used as a worst case.

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 ADT value for the time period in which the measurement is made is incorporated into the traffic model. These percentages were established in a study performed by Katz-Okitsu and Associates, Traffic Engineers (see reference). For purposes of calibrating the CadnaA TNM, 6.5% of the ADT values for the current environment were used in calculations to account for traffic between the hours of 1 p.m. and 2 p.m. in the vicinity of the project site.

4.1.2 Exterior-to-Interior Noise Analysis

CALGreen requires non-residential buildings to be designed in order to attenuate, control, and maintain average interior noise levels not greater than 50 dBA. Contemporary exterior building construction is expected to achieve at least 15 decibels of exterior-to-interior noise attenuation with windows opened, according to the U.S.

EPA (see reference). As a result, exterior noise levels of more than 65 dBA often result in interior conditions that fail to meet the 50 dBA requirements for occupied space.

Analysis for the interior noise levels requires consideration of:

- Number of unique assemblies in the wall (doors, window/wall mount air conditioners, sliding glass doors, and windows)
- Size, number of units, and sound transmission data for each assembly type
- Length of sound impacted wall(s)
- Depth of sound impacted room
- Height of exterior wall of sound impacted room
- Exterior noise level at wall assembly or assemblies of sound impacted room

The Composite Sound Transmission data is developed for the exterior wall(s) and the calculated noise exposure is converted to octave band sound pressure levels (SPL) for a typical traffic type noise. The reduction in room noise due to absorption is calculated and subtracted from the interior octave noise levels, and the octave band noise levels are logarithmically summed to yield the overall interior room noise level. When interior noise levels exceed 50 dBA, the noise reduction achieved by each element is reviewed to determine which changes will achieve the most cost-effective compliance. Windows are usually the first to be reviewed, followed by exterior doors, and then exterior walls.

Modeling of wall assemblies is accomplished using INSUL Version 9.0, which is a model-based computer program, developed by Marshall Day Acoustics for predicting the sound insulation of walls, floors, ceilings, and windows. It is acoustically based on theoretical models that require only minimal material information that can make reasonable estimates of the sound transmission loss (TL) and STC for use in sound insulation calculations, such as the design of common party walls and multiple family floor-ceiling assemblies, etc. INSUL can be used to quickly evaluate new materials or systems or investigate the effects of changes to existing designs. It models individual materials using the simple mass law and coincidence frequency approach and can model more complex assembly partitions. It has evolved over several versions into an easy-to-use tool and has refined the theoretical models by continued comparison with laboratory tests to provide acceptable accuracy for a wide range of constructions. INSUL model performance comparisons with laboratory test data show that the model generally predicts the performance of a given assembly within 3 STC points.

4.1.3 CadnaA Noise Modeling Software

Modeling of the outdoor noise environment is accomplished using CadnaA Version 2022, which is a model-based computer program developed by DataKustik for predicting noise impacts in a wide variety of conditions. CadnaA (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 CadnaA that are particularly relevant to this analysis include ISO 9613-2 (Attenuation of sound during propagation outdoors). CadnaA provides results that are in line with basic acoustical calculations for distance attenuation and barrier insertion loss.

4.1.4 Formulas and Calculations

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).

Project-Generated Traffic Noise Impacts

Changes in traffic noise levels can be predicted by inputting the ratio of the two scenarios into the following logarithmic equation:

$$\Delta = 10\,log(V_2/V_1)$$

where: Δ= change in sound level (dB),
V_1 = original or existing traffic volume, and
V_2 = future or cumulative traffic volume.

Construction Vibration Calculations

The construction vibration assessment contained herein is evaluated using calculations of peak particle velocity (PPV). PPV at receivers is calculated as follows:

$$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$$

where PPV_{equip} is the peak particle velocity (in inches per second) of the equipment, adjusted for distance, PPV_{ref} is the reference vibration level (in inches per second) at a distance of 25 feet from the equipment, and D is the distance from the equipment to the receiver.

4.2 Measurement Equipment

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

- Soft dB Model Piccolo II Type 2 Sound Level Meter, Serial # P0220110906
- Larson Davis Model CA200 Type 1 Calibrator, Serial # 16455

The sound level meters were field-calibrated immediately prior to the noise measurement and checked afterward to ensure accuracy. All sound level measurements presented in this report, in accordance with the regulations, were conducted using 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 Institute of Standards and Technology (NIST) traceable calibration, per the manufacturers' standards.

5.0 Impacts

5.1 Exterior

Peak hour traffic noise impacts were calculated at the building facades for use in interior noise calculations using traffic information shown in Section 3.2.1. Future peak hour noise impacts at these locations are shown in Table 7. More information is provided in Appendix C, and receiver locations are shown in Figure 5.

Table 7. Peak Hour Traffic Noise Levels at Building Facades

Receiver	Facade Location	Peak Hour Traffic Noise Level (dBA L_{EQ})
F1	West	76.8
F2	South	78.3
F3	East	73.6
F4	North	66.9
F5	Roof	77.8

5.2 Interior

CALGreen requires that nonresidential structures that are exposed to greater than 65 dBA during any hour of operation must control interior noise levels to be 50 dBA or less. Contemporary exterior building construction is expected to achieve at least 15 decibels of exterior-to-interior noise attenuation with windows opened, according to the U.S. EPA. As a result, exterior noise levels of more than 65 dBA may potentially result in interior conditions that fail to meet the 50 dBA requirements for non-residential space.

As noise levels at most building facades are expected to exceed 65 dBA during the worst-case hour of operation, an exterior-to-interior noise analysis was conducted for the building to evaluate the sound reduction properties of the proposed exterior wall assemblies, window, and door construction designs in the building. The roof assembly was included in this evaluation as the roof will be exposed to a significant amount of noise from I-10, which is elevated over the project site.

The exterior wall is assumed to be constructed as stucco over plywood sheathing on the exterior with wood framing, insulation in the cavity, and 5/8-inch gypsum board on the interior. This wall assembly was calculated using INSUL and is expected to have a rating of STC 38. The worst case roof/ceiling assembly is expected to primarily consist of a roof membrane over rigid insulation on plywood sheathing, with a suspended acoustical ceiling and batt insulation in the cavity. According to INSUL, the roof/ceiling STC rating is expected to achieve a rating of STC 49. Please refer to Appendix F for more details. Proposed windows were evaluated as 1-inch-thick dual-glazed windows, and doors were evaluated as 1/4-inch single pane glass doors for a conservative analysis of standard commercial glazing.

Interior noise calculations were performed using the exterior wall and standard commercial glazing information detailed above to determine whether interior noise levels of 50 dBA or less can be achieved during the worst-case hour of operation. Please refer to Table 8 for interior noise level results and refer to Appendix G for additional information.

Table 8. Peak Hour Traffic Noise Levels at Building Facades		
Room	**Maximum Facade Impact (dBA L_{EQ})**	**Interior Noise Level (dBA L_{EQ})**
Dining	76.8	42.8
Serving	66.9	37.3
Drive-Through	73.6	43.4
Office	78.3	47.5
Team Member Room	78.3	46.7
Kitchen	78.3	43.0

Calculations show that, with the anticipated exterior wall and roof/ceiling assemblies and standard commercial glazing, noise levels are not expected to exceed an hourly average of 50 dBA L_{EQ} during the worst-case hour of operation (peak hour traffic noise) in the Chick-fil-A building. As this represents the maximum noise impact in any one-hour period during the day expected to be experienced, all other hours are expected to have interior noise impacts that are less than those shown above.

Exterior door installation should include all-around weather-tight door stop seals and an improved threshold closure system. The additional hardware will improve the doors' overall sound reduction properties. The transmission loss (TL) of an exterior door without weather-tight seals is largely a factor of sound leakage, particularly at the bottom of the door if excessive clearance is allowed for air transfer. By equipping exterior doors with all-around weather-tight seals and an airtight threshold closure at the bottom, a loss of up to 10 STC points can be prevented.

Additionally, it is imperative to seal and caulk between the rough opening and the finished door frame for all doors by applying an acoustically resilient, non-skinning, butyl caulking compound. The same recommendation applies to any other penetrations, cracks, or gaps through the assembly. Sealant application should be as generous as needed to ensure effective sound barrier isolation. The OSI SC175 and Acoustical Sound Sealant and the Pecora AC-20 FTR Sealant are products specifically designed for this purpose. Please see Appendix H: Recommended Products.

The proposed project was analyzed for worst-case exterior noise impacts. With the anticipated exterior wall and roof/ceiling assemblies and standard commercial glazing in place, all occupied rooms are expected to comply with CALGreen noise requirements.

5.3 Permanent Project-Related Noise Impacts

5.3.1 Mechanical Equipment and Truck Delivery Noise

Noise levels of the proposed drive-through intercom, rooftop HVAC equipment, and truck deliveries were calculated using CadnaA at the nearest surrounding residential property lines to the north and east of the project site. All other noise-sensitive receivers are located at a further distance from the equipment, and therefore are expected to have lower noise levels, due to distance attenuation and shielding from intervening structures. As per industry standard, the receivers were calculated at a height of five feet above project grade to represent the height of an average individual's ears above ground level.

This calculation also makes conservative assumptions in that it was assumed that the intercom equipment would be in constant operation, with no breaks between orders, while in actuality, it will only operate for a fraction of an hour, thereby resulting in lower average hourly noise impacts than what have been calculated. Additionally, rooftop HVAC equipment was modeled as running constantly, though it is expected to cycle on and off throughout the day. Calculations assume one truck delivery in an hour. This analysis considers noise shielding provided by the on-site building and considers shielding provided the existing property line walls at residential receivers to the north and east, which were conservatively evaluated at a height ranging from five to six feet. Results of the analysis are shown in Table 9. Noise contours showing equipment noise levels and receiver locations are shown in Figure 6. Additional information can be found in Appendix C: CadnaA Analysis Data and Results.

Table 9. Project-Generated Noise Levels at Surrounding Property Lines

Receiver	Location	Nighttime Noise Limit (dBA L_{EQ})	Equipment/Activity Noise Level (dBA)
R1	North Property Line (East)	55	46.8
R2	East Property Line	55	44.3
R3	East Property Line	55	43.7
R4	North Property Line (West)	55	48.1

As shown above, as currently designed, noise levels from the on-site operations will be in compliance with City of El Monte noise regulations found within the Municipal Code at all surrounding off-site receivers. For this reason, no project design features are deemed necessary to control project-generated noise impacts from mechanical equipment.

5.3.2 Project-Generated Traffic Noise

As detailed in Section 3.2.3, average daily project-generated traffic impacts were evaluated to determine whether noise impacts from the project site would be significant. Calculations were performed to determine the approximate change in daily noise exposure at noise-sensitive (residential) receivers immediately surrounding the project site. A significant direct impact occurs when project traffic combines with existing traffic and causes a doubling of sound energy, which is an increase of 3 dB. Direct impacts were assessed by comparing current traffic volumes to current plus project traffic volumes using the calculation methodology shown in Section 4.1.3. Project-generated traffic noise increases are shown in Table 10.

Table 10. Anticipated Traffic Noise Increases with Project-Generated Traffic

Roadway	Traffic Volume (ADT)		Sound Level Increase (dB)
	Current	Current plus Project	
Santa Anita Avenue	38,844	40,540	0.2

As shown in Table 10, the noise level increase from project-generated traffic is expected to be less than 3 dB at all noise-sensitive receivers directly surrounding the project site. For this reason, project-generated traffic noise levels are expected to be less than significant.

5.4 Temporary Construction Noise Impacts

The City of El Monte Municipal Code also contains general requirements for temporary construction noise impacts. The City of El Monte prohibits construction activity after 7 p.m. and before 6 a.m. on weekdays and after 7 p.m. and before 8 a.m. on weekends. During permissible hours of operation, the City does not have a noise limit with which construction noise must comply; however, 75 dBA is a commonly used construction noise threshold that was applied to this project.

Construction noise levels were calculated using the information presented in Section 3.2.3 at the nearest residential receivers to the north and east. Any other potentially noise-sensitive receivers 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 evaluated as a point source at the center of the project site to estimate the average noise levels as the equipment moves around the project site. Noise calculations consider typical duty cycles of equipment, to account for periods of activity and inactivity on the site. Calculated noise levels are shown in Table 11. Detailed calculations are provided in Appendix C, and a graphical representation of noise sources and receiver locations is provided as Figure 7.

Table 11. Temporary Construction Noise Levels at Surrounding Property Lines

Activity Stage	Equipment	Receiver	Construction Noise Level (dBA L_{EQ})
Demolition/Grading/ Utilities	Backhoe, Skid Steer, Dump Truck, Mini-Excavator	R1	60.4
		R2	62.9
Paving/Building Construction	Concrete Mixer, Air Compressor, Paver, Roller	R1	62.8
		R2	65.3

As shown above, construction noise levels are not expected to exceed the general construction noise threshold of 75 dBA L_{EQ} at surrounding property lines. Any other surrounding otherwise noise-sensitive receivers are located at a greater distance from proposed construction activity, and therefore will be exposed to lesser noise impacts due to additional distance attenuation and shielding provided by intervening structures.

Despite the fact that noise impacts are expected to remain in compliance with typically accepted construction noise limits, the following "good practice" measures should still be practiced as a courtesy to off-site receivers.

1. Turn off equipment when not in use.

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

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

4. Schedule work to avoid simultaneous construction activities where both are generating high noise levels.

5. Use equipment with effective mufflers.

6. Minimize the use of backup alarms.

With operating hours limited to those permitted by the City of El Monte and adherence to the general good practice construction noise control techniques, temporary construction noise impacts are expected to be less than significant at surrounding properties.

5.5 CEQA Significance Determination

Noise impacts from the project site are summarized below and classified per the noise portion of the CEQA Environmental Checklist Form. This list summarizes conclusions made within the report and classifies the level of significance as: Potentially Significant Impact, Less than Significant with Mitigation Incorporated, Less than Significant Impact, or No Impact. *Italics* are used to denote language from the CEQA Environmental Checklist Form.

XII. NOISE — Would the project result in:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less Than Significant Impact. Operational noise impacts calculated in Section 5.3.1 are not expected to generate a substantial permanent increase in ambient noise levels in the vicinity of the project site. A substantial increase would be considered an increase of three decibels or more, which would represent a doubling of sound energy.

The minimum ambient noise level measured during hours of operation was combined with the projected equipment noise impacts in terms of dBA to determine the cumulative noise impact and the increase in ambient noise levels resulting from operation of the project at off-site receivers. Results are shown in Table 12.

Table 12. Calculated Cumulative Noise Impacts at Surrounding Property Lines

Receiver Number	Receiver Location	Noise Level (dBA)				Impact
		Ambient	Operations	Cumulative	Ambient Increase	
R1	North Property Line (East)	69.1	46.8	69.1	0.0	Less than Significant
R2	West Property Line	69.1	44.3	69.1	0.0	Less than Significant
R3	West Property Line	69.1	43.7	69.1	0.0	Less than Significant
R4	North Property Line (West)	69.1	48.1	69.1	0.0	Less than Significant

The results in Table 12 demonstrate that the increase in ambient noise levels from on-site operations (including drive-through intercom equipment, roof-mounted HVAC equipment, and truck deliveries) will be less than 3 dBA. Additionally, as demonstrated in Section 5.3.2 of this report, noise impacts from project-generated traffic are not expected to cause a significant direct increase on any surrounding roadway. This impact is also considered to be less than significant.

As shown in Section 5.4 of this report, noise from temporary construction is expected to be less than significant considering a typical construction schedule and assuming that equipment is maintained in proper operating condition and using appropriate mufflers. Additionally, no construction activity may take place during the more sensitive nighttime hours when ambient noise levels tend to be lower, as per City of El Monte

requirements. For these reasons, this impact is deemed to be less than significant, provided the following "conditions of approval" are practiced as a courtesy to off-site receivers.

1. Turn off equipment when not in use.

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

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

4. Schedule work to avoid simultaneous construction activities where both are generating high noise levels.

5. Use equipment with effective mufflers.

6. Minimize the use of backup alarms.

As demonstrated above, the project is not expected to cause a substantial permanent or temporary increase in ambient noise levels, and therefore, this impact can be classified as less than significant.

b) Generation of excessive groundborne vibration or groundborne noise levels?

Less Than Significant Impact. The paving stage of construction has the potential to generate the highest vibration levels of any phase of construction, as paving activities would take place closest to sensitive receivers and may consist of the use of a vibratory roller. According to the Federal Transit Administration Transit Noise and Vibration Assessment Manual (see reference), a vibratory roller generates a peak particle velocity (PPV) of approximately 0.210 inches/second at a distance of 25 feet from equipment. The evaluation of an impact's significance can be determined by reviewing both the likelihood of annoyance to individuals as well as the potential for damage to existing structures. According to the Caltrans Transportation and Construction Vibration Guidance Manual (see reference), the appropriate threshold for damage to modern residential structures is a PPV of 0.5 inches/second. Annoyance is assessed based on levels of perception, with a PPV of 0.01 being considered "barely perceptible," 0.04 inches/second as "distinctly perceptible," 0.1 inches/second as "strongly perceptible," and 0.4 inches/second as "severe."

It is estimated that the nearest location to sensitive receptors would be approximately 18 feet from the nearest residential structure when the roller is used at the north boundary of the site. Calculations show that, at this minimum distance, the PPV would be approximately 0.344 inches/second at the residential receiver. These levels of vibration fall below the building damage PPV criteria of 0.5 inches/second. This impact would be classified as somewhere between "strongly perceptible" and "severe" at the residence for the brief period of time during which the roller is operating at this distance; however, vibration would be reduced to "strongly perceptible" levels by the time the roller is located at a distance of 40 feet from receivers, "distinctly perceptible" levels by the time the roller is located at a distance of 75 feet from receivers, and "barely perceptible" at 195 feet from receivers. As construction vibration is not anticipated to cause damage to off-site buildings and would only approach the "severe" vibration threshold for a very short period of time when work is performed near the north boundary of the property, it is the opinion of the undersigned that temporary construction vibration impacts would not be "excessive" and therefore are less than significant.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Less Than Significant Impact. The project site is located approximately 0.78 miles southwest of the San Gabriel Valley Airport. According to the year 2013 noise contours for the San Gabriel Valley Airport (see reference), the project site is located well outside of the 65 CNEL contour line. As this noise exposure is less than the exterior noise threshold of CALGreen (65 dBA peak-hour), the proposed project would not expose people working in the project area to excessive noise levels from such uses.

6.0 Conclusion

The California Green Building Standards Code (known as CALGreen) requires interior noise levels of 50 dBA or less during any hour of operation in occupied nonresidential spaces. Calculations show that with the anticipated exterior wall and roof/ceiling assemblies, and standard commercial glazing, interior noise levels of 50 dBA or less can be achieved. Therefore, the project is expected to comply with CALGreen noise regulations as currently designed.

Calculations show that, as currently designed, exterior noise levels from the proposed intercom, truck deliveries, and rooftop equipment are expected to meet the applicable noise limits defined by the City of El Monte at all surrounding property lines. No mitigation is deemed necessary to attenuate project-generated noise impacts at neighboring receivers. Project-generated traffic noise is also expected to be less than significant.

The City of El Monte does not provide property line noise limits for temporary construction activity at surrounding noise-sensitive property lines. However, the general good practice construction noise control methods listed herein should be followed, as a courtesy to surrounding properties. With operating hours being limited to those allowable in the City of El Monte and standard good practice construction noise control measures being followed, temporary construction noise and vibration are expected to be less than significant.

The proposed project is not expected to result in any potentially significant noise impacts by the standards of the California Environmental Quality Act (CEQA). Noise impacts are summarized in Section 5.5. The conditions of approval listed in Section 5.5 should also be considered.

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.

This report is based on the related project information received and measured noise levels and represents a true and factual analysis of the acoustical impact issues associated with the Chick-fil-A – I-10 and Santa Anita project, located at the northeast corner of Santa Anita Avenue and Brockway Street in the City of El Monte, California. This report was prepared by Mo Ouwenga and Amy Hool.

Mo Ouwenga, INCE
Acoustical Consultant

Amy Hool, INCE
President/CEO

8.0 References

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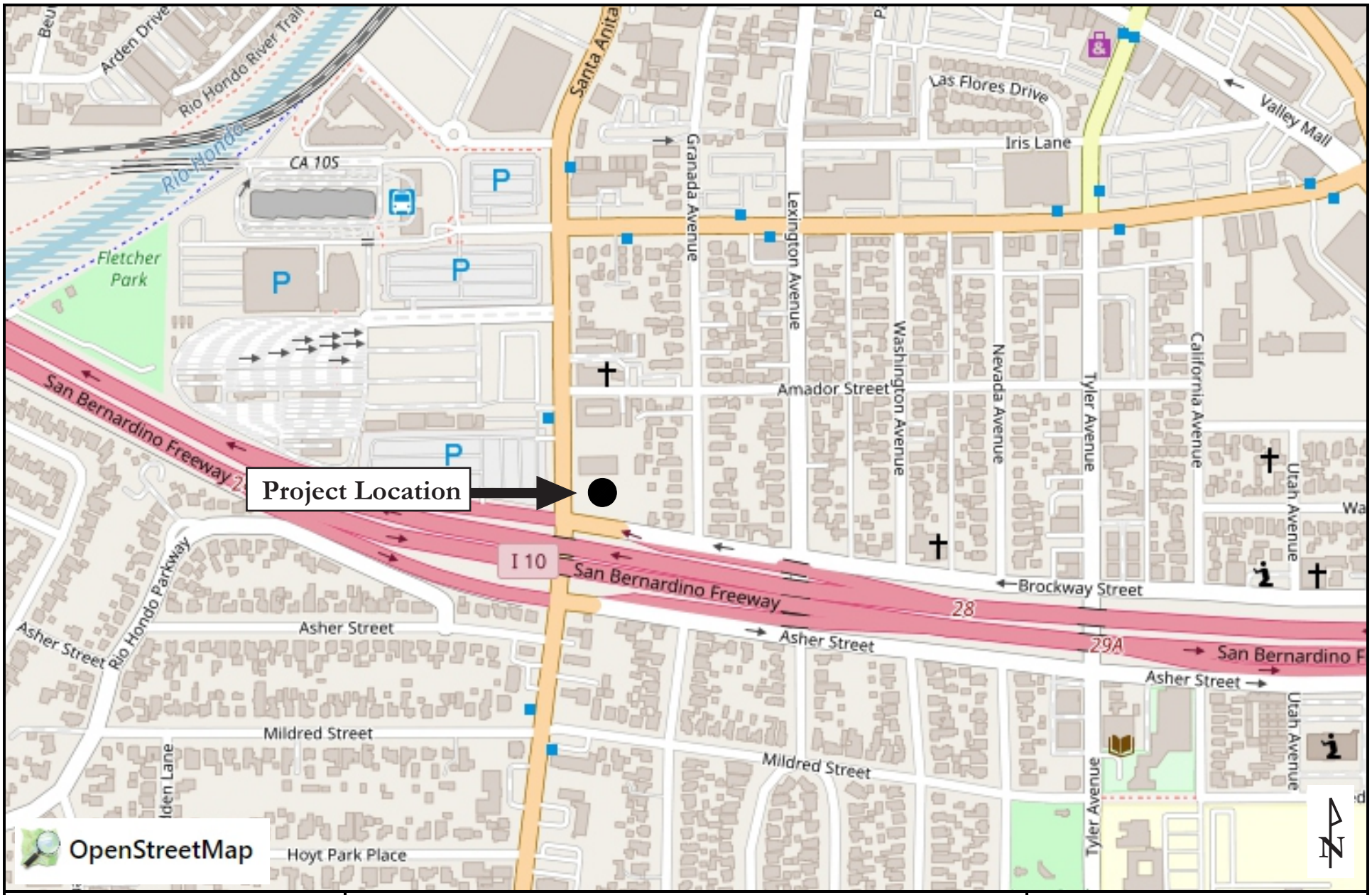
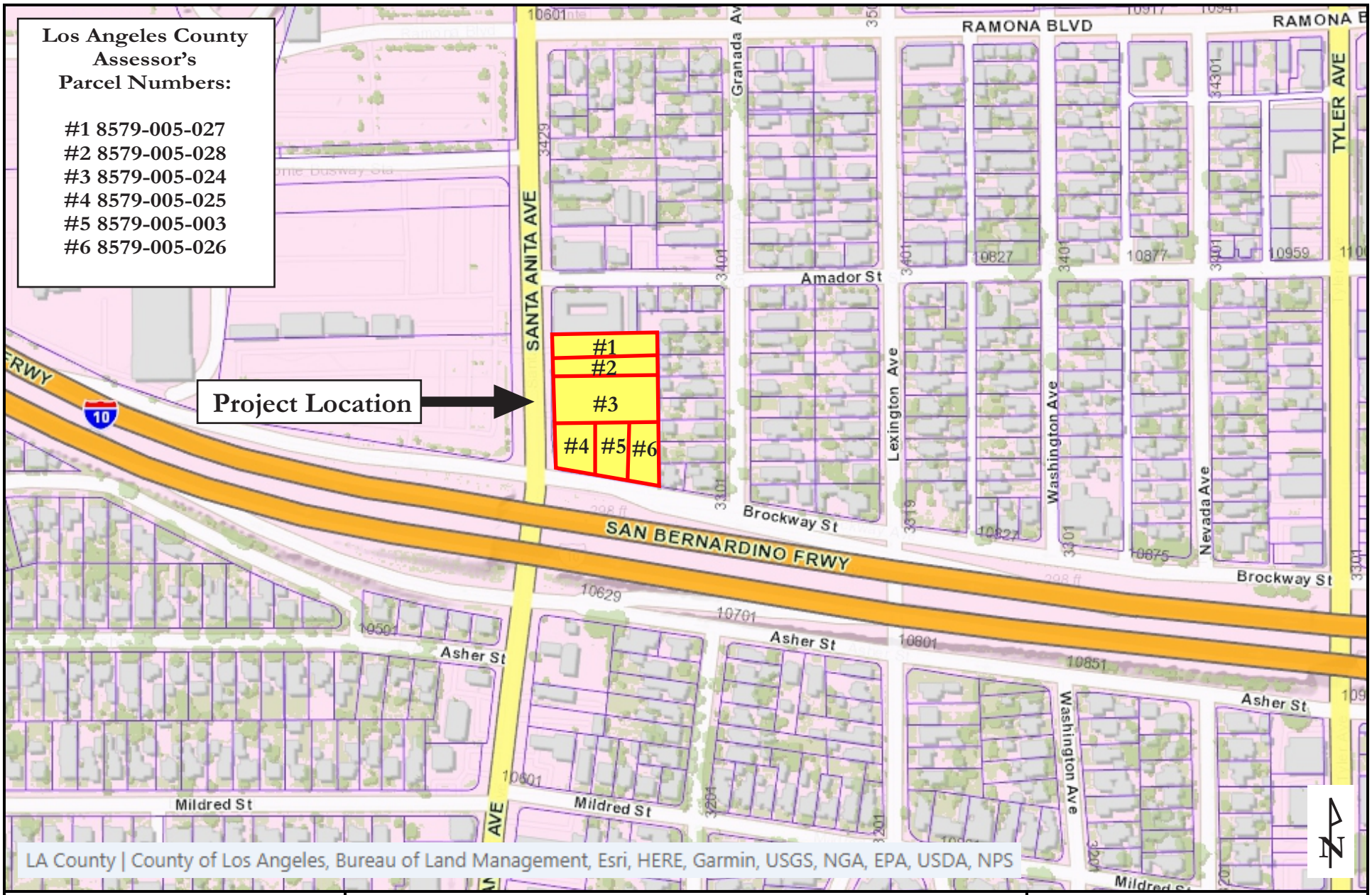
Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

Figures



Eilar Associates, Inc. 210 South Juniper Street, Suite 100 Escondido, California 92025 760-738-5570	**Vicinity Map** **Job #L210603**	**Figure 1**



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760-738-5570

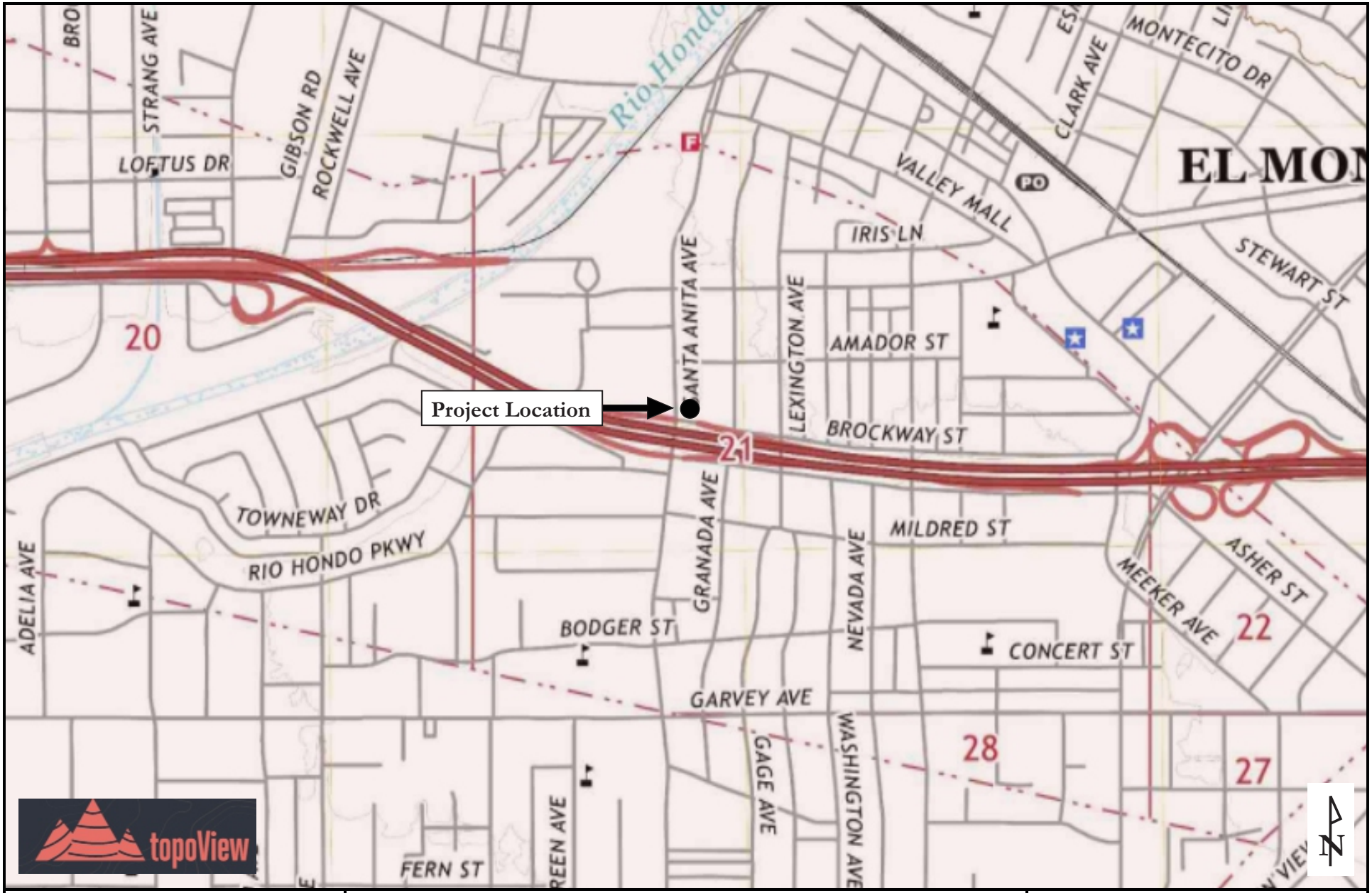
Assessor's Parcel Map
Job # L210603

Figure 2

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

Satellite Aerial Photograph Showing Noise Measurement Location
Job # L210603

Figure 3



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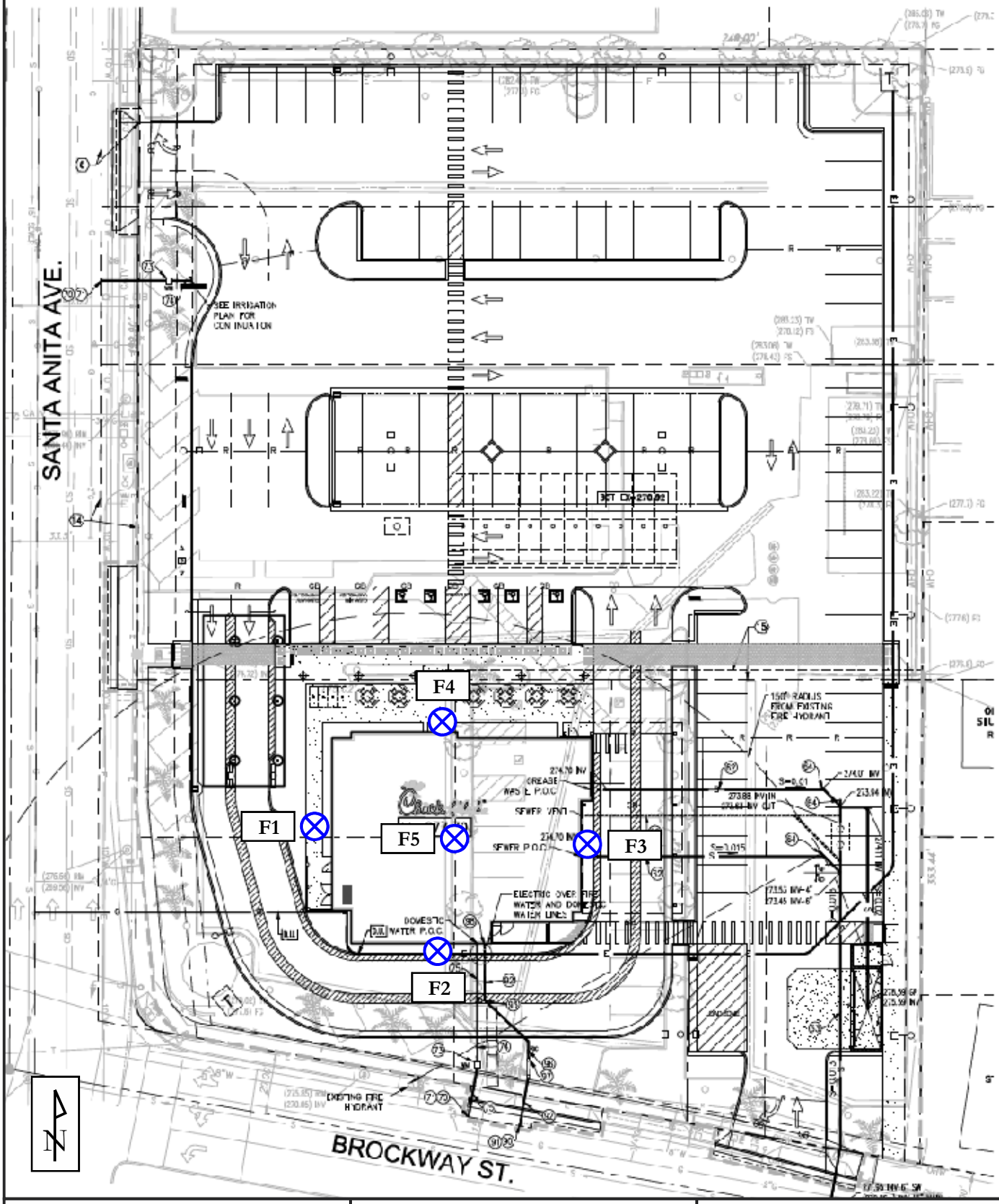
Escondido, California 92025
760-738-5570

Topographic Map
Job # L210603

Figure 4



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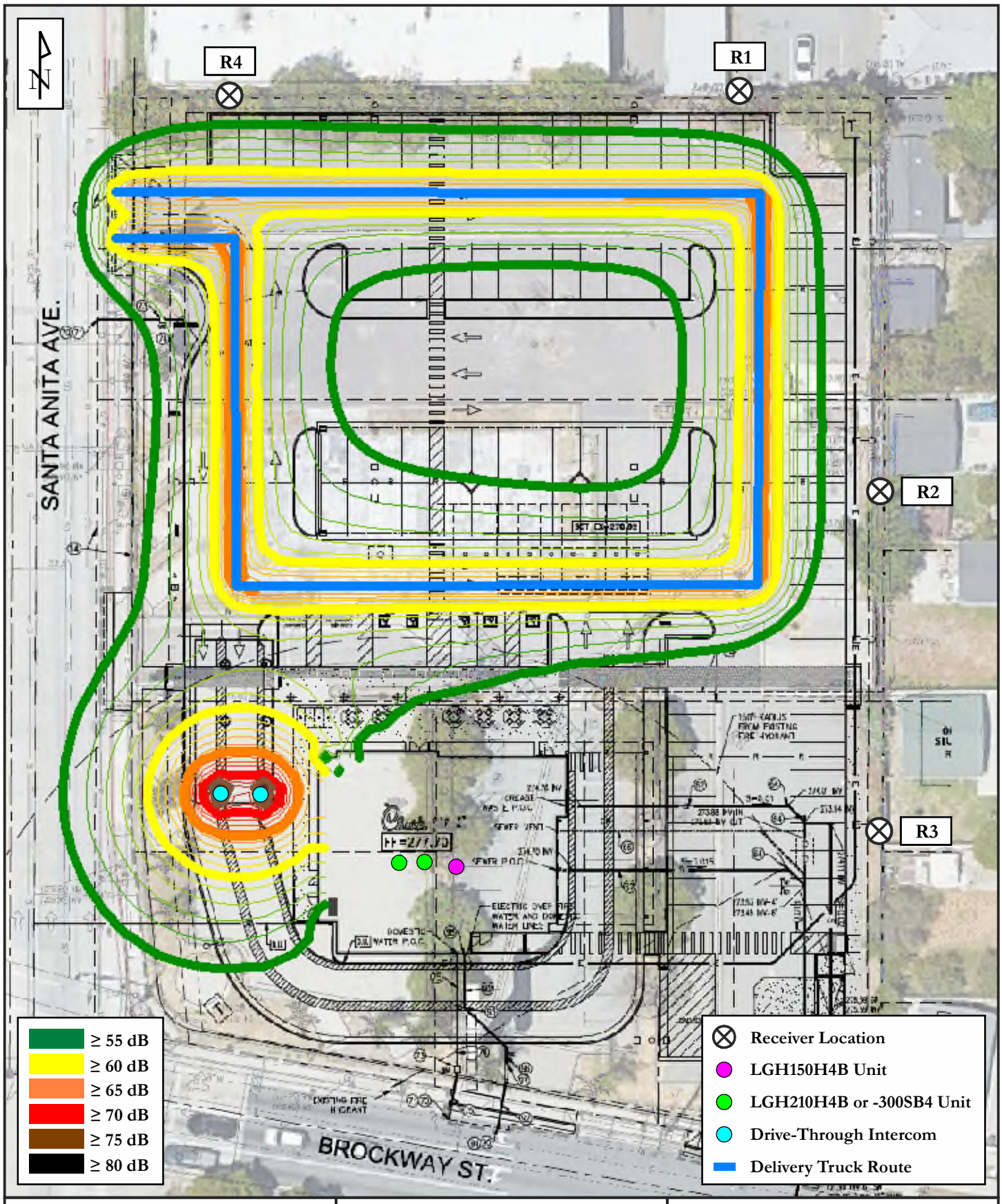
760-738-5570

Site Plan Showing
Facade Receiver Locations
Job # L210603

Figure 5



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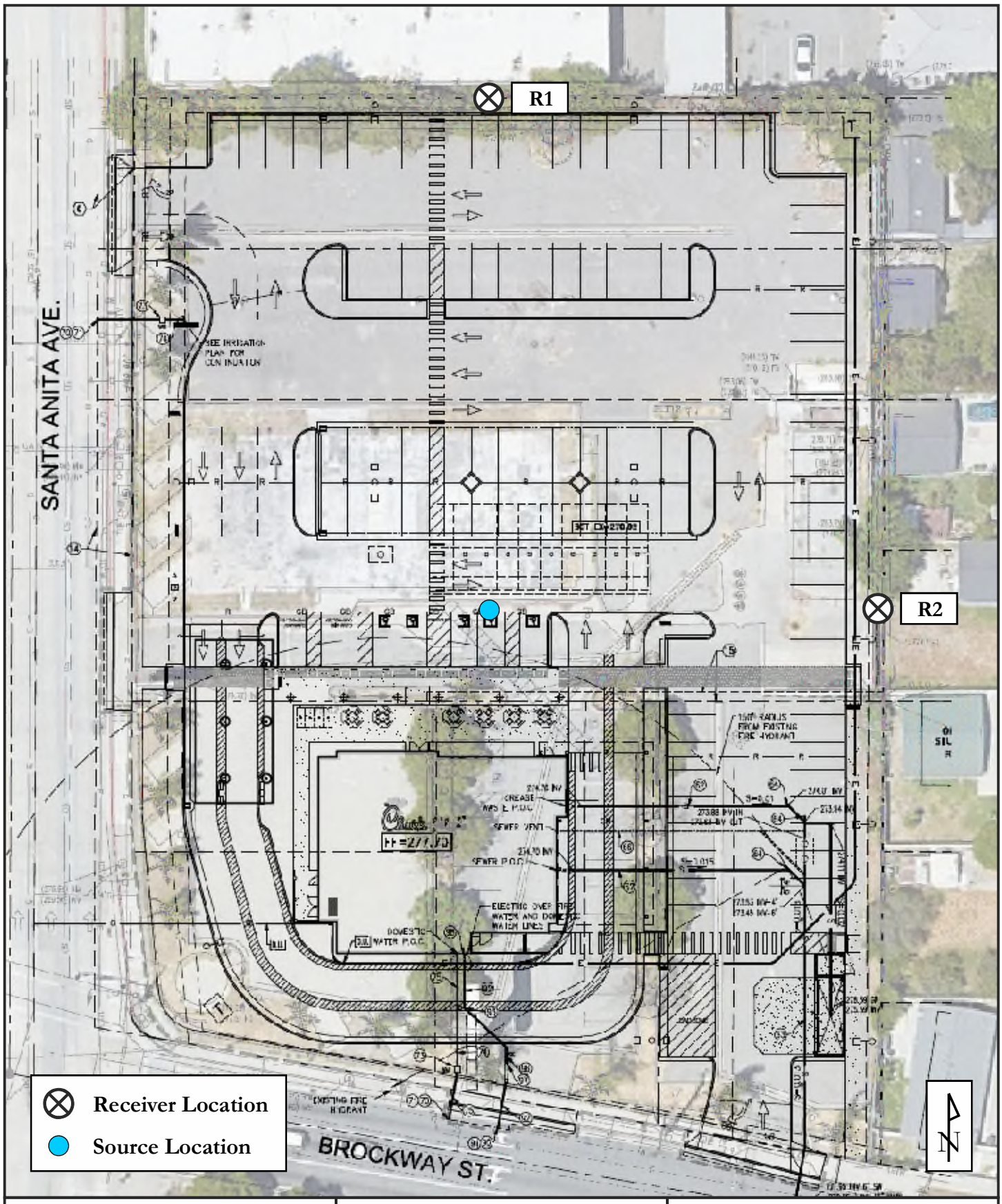
Escondido, California 92025
760-738-5570

Satellite Aerial Photograph Showing Site Plan, Operational Noise Contours, and Source and Receiver Locations
Job # L210603

Figure 6



Eilar Associates, Inc.
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760-738-5570

Satellite Aerial Photograph Showing Construction Noise Source and Receiver Locations Job # L210603

Figure 7

Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

Appendix A
Project Plans

CODE INFORMATION

BUILDING CODE:	2019 CALIFORNIA BUILDING CODE
PLUMBING CODE:	2019 CALIFORNIA PLUMBING CODE
MECHANICAL CODE:	2019 CALIFORNIA MECHANICAL CODE
ELECTRICAL CODE:	2019 CALIFORNIA ELECTRICAL CODE
ACCESSIBILITY CODE:	2019 CALIFORNIA BUILDING CODE
ENERGY CODE:	2019 CALIFORNIA ENERGY CODE
FIRE CODE:	2019 CALIFORNIA FIRE CODE
GAS CODE:	2019 CALIFORNIA PLUMBING CODE

BUILDING DATA

OCCUPANCY:	A2 (RESTAURANT)
FIRE SPRINKLERED:	YES
CONSTRUCTION TYPE:	V-B
SITE AREA:	82,344 s.f.
BUILDING AREA:	4,824 s.f. - Gross Floor Area
BUILDING AREA - RESTAURANT:	2,500 s.f. - Gross Floor Area
FAR:	0.058 (5.8%)
LANDSCAPE AREA:	17,560 s.f.
LANDSCAPE SITE COVERAGE:	0.289 (28.9%)
ZONING:	C-3 (GENERAL COMMERCIAL)
PARCEL ID:	8579-005-003 (Affects Parcel 7) 8579-005-024 (Affects Parcel 6) 8579-005-025 (Affects Parcel 4) 8579-005-026 (Affects Parcel 1 & 2) 8579-005-027 (Affects Parcel 5) 8579-005-028 (Affects Parcel 3)

PARKING

TOTAL PARKING SPACES REQUIRED:	37
BASIS:	1 SPACE / 150 S.F.
BUILDING AREA:	4,824 / 150 = 33
OUTDOOR SEATING AREA:	578 / 150 = 4
TOTAL PARKING SPACES PROVIDED:	102
STANDARD SPACES:	95
ACCESSIBLE SPACES:	5
EV SPACES:	2
TOTAL SHORT-TERM BICYCLE SPACE REQUIRED:	NOT SPECIFIED
TOTAL SHORT-TERM BICYCLE SPACE PROVIDED:	8
TOTAL LONG-TERM BICYCLE SPACE REQUIRED:	NOT SPECIFIED
TOTAL LONG-TERM BICYCLE SPACE PROVIDED:	0
TOTAL CAR STACK SPACES PROVIDED:	29

Architect:

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1833 17TH STREET; SUITE 301
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FAX: (714) 832-1910
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Chick-fil-A

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Atlanta, Georgia 30349-2998
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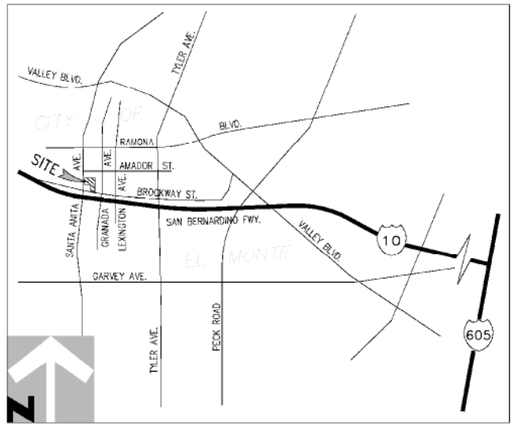
Fax: (404) 684-8550

3342 SANTA ANITA AVE.
EL MONTE, CA 91731



1 VICINITY MAP
NOT TO SCALE

DRAWING INDEX

PROJECT SCOPE OF WORK

SITE DEVELOPMENT OF A 4,824 SF RESTAURANT
WITH A DUAL-LANE DRIVE-THROUGH AND OUTDOOR
PATIO DINING AREA.

Chick-fil-A

Chick-fil-A
5200 Buffington Road
Atlanta, Georgia
30349-2998

crho
architects
1833 E. 17th Street
3rd Floor - Suite 301
Santa Ana, CA 92705
Phone 714.832.1834

I-10 & SANTA ANITA

NEC SANTA ANITAAND BROCKWAY,
EL MONTE, CA

FSR# 04098

REVISION SCHEDULE

NO.	DATE	DESCRIPTION
01	05/17/21	Pre-App Submittal
02	07/16/21	CUP Submittal
03	10/20/21	CUP Resubmittal
04	01/26/22	CUP Resubmittal
05	05/16/22	CUP Resubmittal

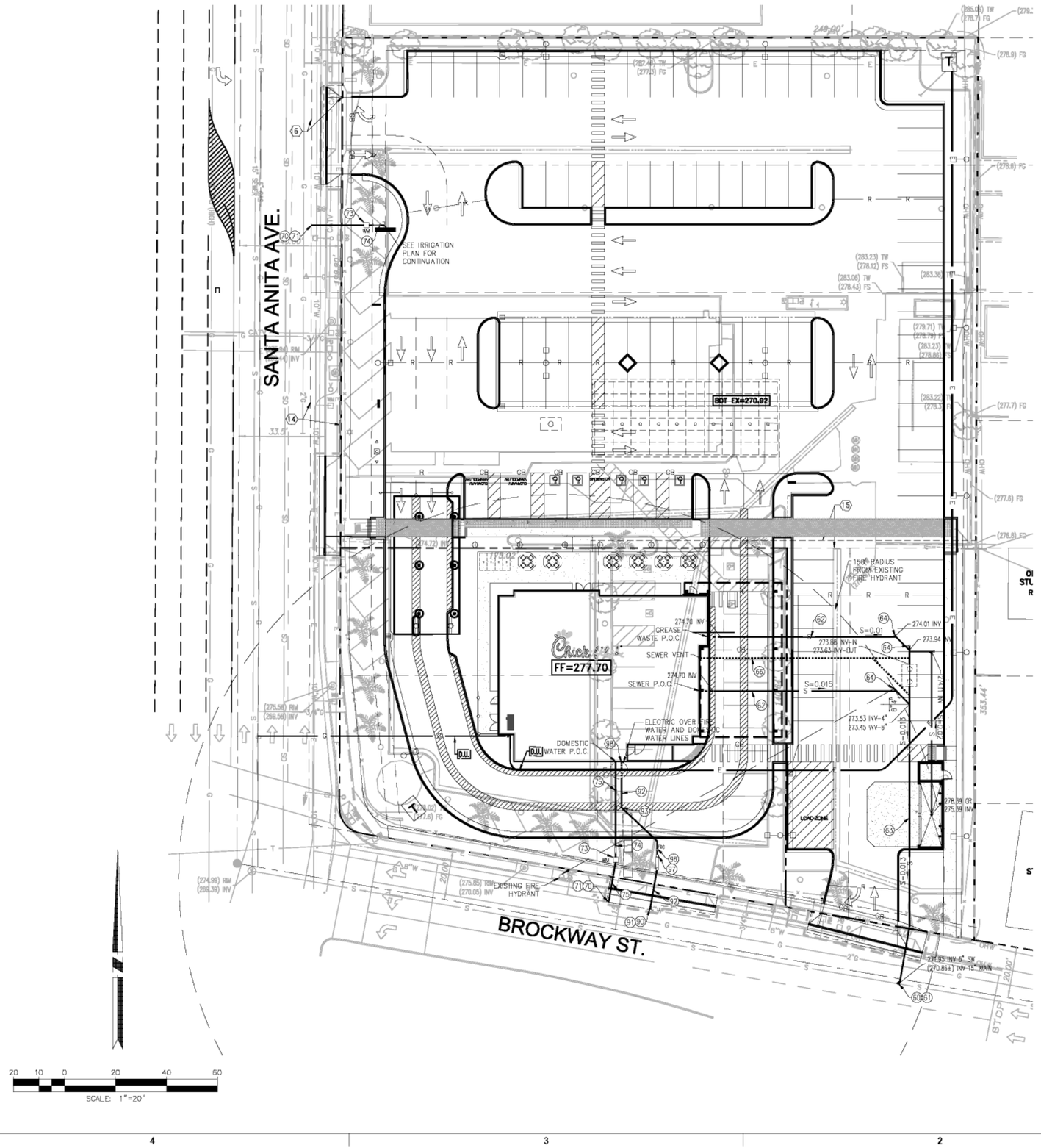
ARCHITECT'S PROJECT # 16-209
PRINTED FOR CUP Resubmittal
DATE 06-16-22
DRAWN BY YC

SHEET
TITLE SHEET

SHEET NUMBER
G-000

CUP RESUBMITTAL

01 January, 2000



CONSTRUCTION NOTES–SEWER *

(60) POTHOLE AND VERIFY THE EXISTENCE, LOCATION, DEPTH, MATERIAL, SIZE, AND CONDITION OF EXISTING SEWER MAIN. REPORT FINDINGS TO TRUXAW & ASSOCIATES PRIOR TO CONSTRUCTION.

(61) CONNECT TO EXISTING SEWER MAIN. SIZE SHOWN ON PLAN.

(62) PLACE 4–INCH SDR–35 PVC SEWER PIPE PER CPC REQUIREMENTS. PIPE BEDDING AND BACKFILL PER THE RECOMMENDATIONS OF THE SOILS ENGINEER.

(63) PLACE 6–INCH SDR–35 PVC SEWER PIPE PER CPC REQUIREMENTS. PIPE BEDDING & BACKFILL PER RECOMMENDATIONS OF THE SOILS ENGINEER.

(64) INSTALL TWO–WAY CLEANOUT SIZE TO MATCH DOWNSTREAM PIPE SIZE.

(65) JENSEN PRECAST 1,500 GAL. GREASE INTERCEPTOR AND SAMPLE BOX PER PLUMBING PLANS.

(66) PLACE 6–INCH VENT LINE PER PLUMBING PLANS. BEDDING & BACKFILL PER THE RECOMMENDATIONS OF THE SOILS ENGINEER.

(67) INSTALL CLEANOUT IN PAVEMENT AREA, SIZE TO MATCH DOWNSTREAM PIPE SIZE.

(68) INSTALL CLEANOUT IN CONCRETE SIDEWALK, SIZE TO MATCH DOWNSTREAM PIPE SIZE.

(69) DRAIN IN TRASH ENCLOSURE PER PLUMBING PLANS

CONSTRUCTION NOTES–DOMESTIC WATER

(70) POTHOLE AND VERIFY THE EXISTENCE, LOCATION, DEPTH, MATERIAL, SIZE, AND CONDITION OF EXISTING WATER MAIN. REPORT FINDINGS TRUXAW & ASSOCIATES PRIOR TO CONSTRUCTION.

(71) CONNECT TO EXISTING WATER MAIN PER CITY OF EL MONTE STANDARDS AND SPECIFICATIONS. SIZE SHOWN ON PLAN.

(72) PLACE 2–INCH WATER SERVICE LATERAL PER CITY OF EL MONTE STANDARDS AND SPECIFICATIONS. PIPE BEDDING & BACKFILL PER RECOMMENDATIONS OF SOILS ENGINEER.

(73) INSTALL 1.5–INCH WATER METER PER CITY OF EL MONTE STANDARDS AND SPECIFICATIONS.

(74) INSTALL 2–INCH REDUCED PRESSURE BACKFLOW PREVENTOR PER CITY OF EL MONTE STANDARDS AND SPECIFICATIONS.

(75) PLACE 2–INCH TYPE K COPPER WATER PIPE. PIPE BEDDING & BACKFILL PER RECOMMENDATIONS OF SOILS ENGINEER.

(76) PLACE 3/4–INCH TYPE K COPPER WATER LINE. PIPE BEDDING & BACKFILL PER RECOMMENDATIONS OF SOILS ENGINEER.

CONSTRUCTION NOTES–IRRIGATION WATER *****

(80) POTHOLE AND VERIFY THE EXISTENCE, LOCATION, DEPTH, MATERIAL, SIZE, AND CONDITION OF EXISTING 12–INCH RECLAIMED WATER MAIN. REPORT FINDINGS TRUXAW & ASSOCIATES PRIOR TO CONSTRUCTION.

(81) CONNECT TO EXISTING 12–INCH RECLAIMED WATER MAIN PER CITY OF EL MONTE STANDARDS AND SPECIFICATIONS.

(82) PLACE 1–INCH SCH. 80 PVC WATER LINE. PIPE BEDDING & BACKFILL PER RECOMMENDATIONS OF SOILS ENGINEER.

(83) INSTALL 1–INCH WATER METER PER CITY OF EL MONTE STANDARDS AND SPECIFICATIONS.

CONSTRUCTION NOTES – FIRE WATER ****

(90) POTHOLE AND VERIFY EXISTENCE, LOCATION, DEPTH, MATERIAL, SIZE, AND CONDITION OF EXISTING 8–INCH WATER MAIN. REPORT FINDINGS TO TRUXAW & ASSOCIATES PRIOR TO CONSTRUCTION.

(91) CONNECT TO EXISTING 8–INCH WATER MAIN WITH THREE WAY TEE PER CITY OF EL MONTE STANDARDS AND SPECIFICATIONS.

*** (92) PLACE 6–INCH CLASS C–900 PVC PIPE. PIPE BEDDING & BACKFILL PER RECOMMENDATIONS OF SOILS ENGINEER.

*** (93) PLACE 6–INCH 90° ELBOW AND CONSTRUCT THRUST BLOCK PER CITY OF EL MONTE STANDARDS AND SPECIFICATIONS.

*** (94) PLACE 6"X4"X6" TEE AND CONSTRUCT THRUST BLOCK PER CITY OF EL MONTE STANDARDS AND SPECIFICATIONS.

*** (95) PLACE 4–INCH CLASS C–900 PVC PIPE. PIPE BEDDING & BACKFILL PER RECOMMENDATIONS OF SOILS ENGINEER.

*** (96) INSTALL 4–INCH FIRE DEPARTMENT CONNECTION (FDC).

*** (97) INSTALL 6–INCH DETECTOR CHECK VALVE ASSEMBLY (DCVA)

*** (98) CONNECT TO FIRE RISER WITH 5–FOOT ONE PIECE STAINLESS STEEL PIPE.

*** FIRE PROTECTION PIPE LINE AND SPRINKLERS IN THE BUILDING TO BE DESIGNED AND PERMITTED BY SEPARATE PLANS. PRIOR TO CONSTRUCTION OF FIRE WATER SYSTEM SHOWN ON THIS PLAN, CONTRACTOR SHALL VERIFY VIA HYDRAULIC CALCULATIONS ACCEPTABLE TO THE FIRE DEPARTMENT THAT SIZE OF FIRE SERVICE AND DETECTOR CHECK ARE OF SUFFICIENT SIZE TO SERVE BUILDING. (SIZE SHOWN FOR PLAN CHECK AND BID PURPOSES ONLY).

DRY UTILITIES

PROPOSED ELECTRIC, TELEPHONE, CABLE TV, AND GAS LINES ARE SHOWN HEREON FOR COORDINATION PURPOSES. CONTRACTOR TO VERIFY POINTS OF CONNECTION AND CONSTRUCT PROPOSED SERVICE LINES IN ACCORDANCE WITH SERVICE PLANNING DOCUMENTS PREPARED BY EACH RESPECTIVE UTILITY COMPANY.

NOTICE TO CONTRACTOR

THE CONTRACTOR SHALL ASCERTAIN THE TRUE VERTICAL AND HORIZONTAL LOCATION AND SIZE OF ALL UTILITIES, PIPES, AND/OR STRUCTURES AND SHALL BE RESPONSIBLE FOR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES, SHOWN OR NOT SHOWN HEREON.

IMPORTANT NOTICE

Section 4216 of the Government Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert CALL 811 Two working days before you dig.

THIS PLAN IS:

PRELIMINARY

(NOT FOR CONSTRUCTION)

Chick-fil-A
5200 Buffington Road
Atlanta, Georgia
30349-2998

Prepared by:
[redacted]
JOSEPH C. TRUXAW & ASSOCIATES, INC.
Civil Engineers and Land Surveyors
201 S. ANITA DRIVE, SUITE 111
ORANGE, CA 92868
(714) 532-0202
(714) 532-0206 (FAX)

SEAL
REGISTERED PROFESSIONAL ENGINEER
RANDY J. DECKER
No. 81077
CIVIL
STATE OF CALIFORNIA

I-10 & SANTA ANITA

NEC SANTA ANITAAND BROCKWAY,

EL MONTE, CA

FSR# 04098

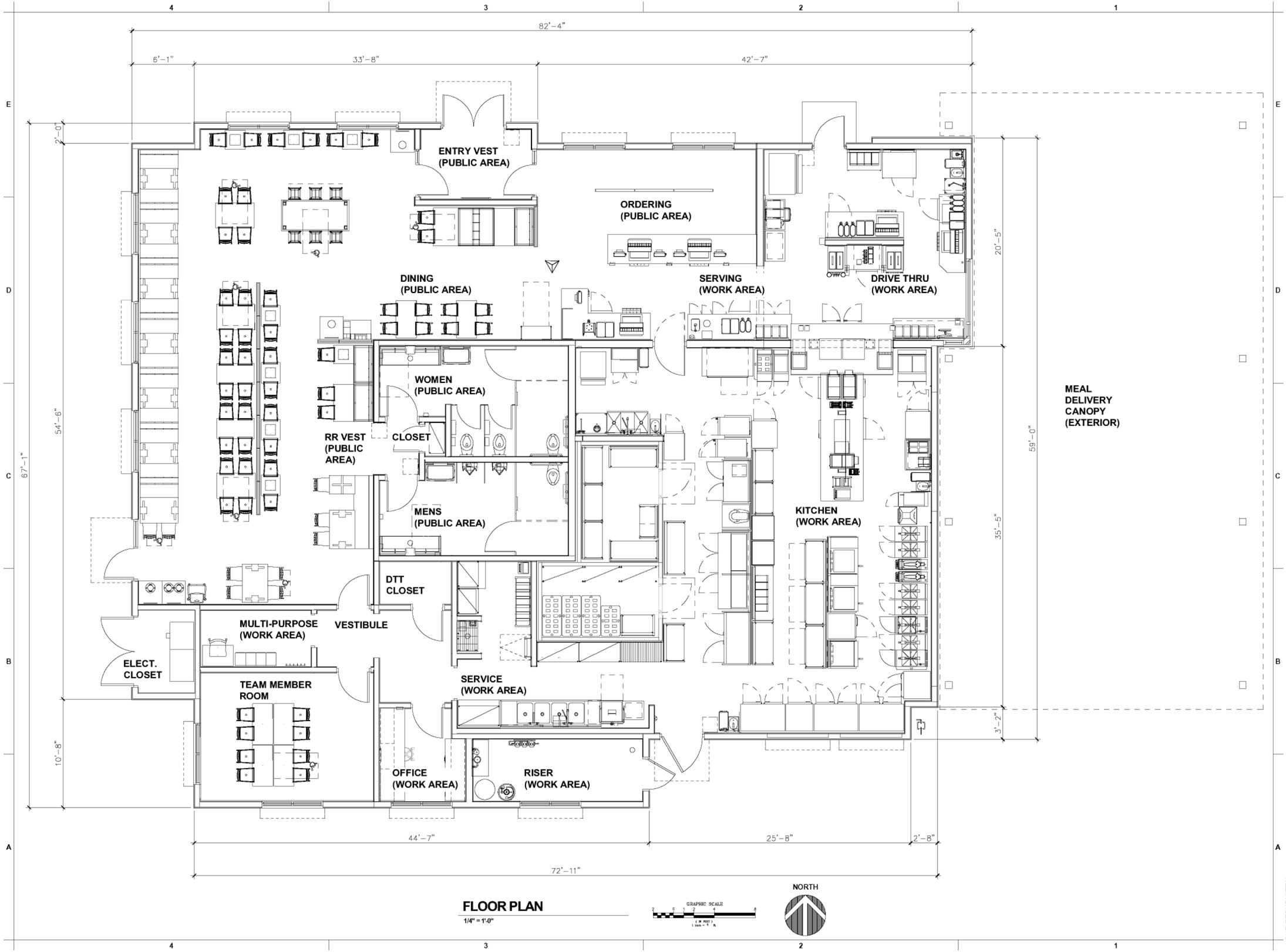
REVISION SCHEDULE

NO.	DATE	DESCRIPTION

PROJECT #	CFA17030
PRINTED FOR	ENTITLEMENTS
DATE	06-03-22
DRAWN BY	KSV

SHEET
CONCEPTUAL UTILITY PLAN

SHEET NUMBER
C–5
OF 5



FLOOR PLAN

1/4" = 1'-0"

Chick-fil-A
5200 Buffington Road
Atlanta, Georgia
30349-2998

crho architects
1833 E. 17th Street
3rd Floor - Suite 301
Santa Ana, CA 92705
Phone 714.832.1834

I-10 & SANTA ANITA

NEC SANTA ANITAAND BROCKWAY,

EL MONTE, CA

FSR# 04098

REVISION SCHEDULE

NO.	DATE	DESCRIPTION
01	05/17/21	Pre-App Submittal
02	07/16/21	CUP Submittal
03	10/29/21	CUP Resubmittal
04	01/28/22	CUP Resubmittal
05	06/16/22	CUP Resubmittal

ARCHITECT'S PROJECT # 16-209

PRINTED FOR CUP Resubmittal

DATE 05-16-22

DRAWN BY YC

SHEET FLOOR PLAN

SHEET NUMBER

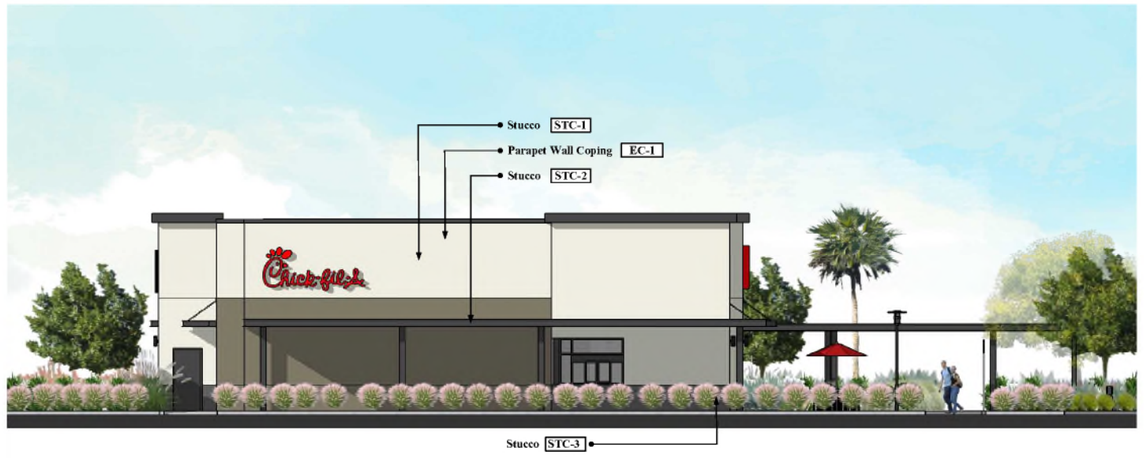
A-110

CUP RESUBMITTAL

SOUTH ELEVATION

WEST ELEVATION

NORTH ELEVATION



EAST ELEVATION

PRELIMINARY ELEVATIONS
I-10 & SANTA ANITA- El Monte, CA

File Name: 16-209 Color Elevations

05-13-21 06-28-21 07-08-21 07-16-21 10-26-21 01-28-22 06-16-22
06-22-21 06-30-21 07-12-21 10-20-21 11-01-21 05-31-22 06-21-22

Note:
All roof top mechanical equipment shall be located in equipment well and screened from view by parapet walls.

COLOR AND MATERIAL LEGEND

STC-1	Stucco - Paint Sherwin Williams #SW7566 "Westhighland White"
STC-2	Stucco - Paint Sherwin Williams #SW6172 "Hardware"
STC-3	Stucco - Paint Sherwin Williams CFA Custom "Urban Night"
EC-1	Parapet Wall Coping - Durolast/Exceptional Metals - Dark Bronze (Matte)
A-1	Aluminum Awning - Color: "Dark Bronze"

0 10 20 30

crho architects
1833 E. 17th Street
3rd Floor - Suite 301
Santa Ana, CA 92705
Phone 714.832.1834

Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

Appendix B

Applicable Noise Regulations

Section 5.507 Environmental Comfort

5.507.4 Acoustical control

Employ building assemblies and components with Sound Transmission Class (STC) values determined in accordance with ASTM E90 and ASTM E413 or Outdoor-Indoor Sound Transmission Class (OITC) determined in accordance with ASTM E1332, using either the prescriptive or performance method in Section 5.507.4.1 or 5.507.4.2.

Exception: Buildings with few or no occupants or where occupants are not likely to be affected by exterior noise, as determined by the enforcement authority, such as factories, stadiums, storage, enclosed parking structures and utility buildings.

Exception: [DSA-SS] For public schools and community colleges, the requirements of this section and all subsections apply only to new construction.

5.507.4.1 Exterior noise transmission, prescriptive method

Wall and roof-ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope shall meet a composite STC rating of at least 50 or a composite OITC rating of no less than 40, with exterior windows of a minimum STC of 40 or OITC of 30 in the following locations:

1. Within the 65 CNEL noise contour of an airport.
   Exceptions:
   1. L_{dn} or CNEL for military airports shall be determined by the facility Air Installation Compatible Land Use Zone (AICUZ) plan.
   2. L_{dn} or CNEL for other airports and heliports for which a land use plan has not been developed shall be determined by the local general plan noise element.
2. Within the 65 CNEL or L_{dn} noise contour of a freeway or expressway, railroad, industrial source or fixed-guideway source as determined by the Noise Element of the General Plan.

5.507.4.1.1 Noise exposure where noise contours are not readily available

Buildings exposed to a noise level of 65 dB L_{eq}-1-hr during any hour of operation shall have building, addition or alteration exterior wall and roof-ceiling assemblies exposed to the noise source meeting a composite STC rating of at least 45 (or OITC 35), with exterior windows of a minimum STC of 40 (or OITC 30).

5.507.4.2 Performance method

For buildings located as defined in Section 5.507.4.1 or 5.507.4.1.1, wall and roof-ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope shall be constructed to provide an interior noise environment attributable to exterior sources that does not exceed an hourly equivalent noise level (L_{eq}-1Hr) of 50 dBA in occupied areas during any hour of operation.

5.507.4.2.1 Site features

Exterior features such as sound walls or earth berms may be utilized as appropriate to the building,addition or alteration project to mitigate sound migration to the interior.

5.507.4.2.2 Documentation of compliance

An acoustical analysis documenting complying interior sound levels shall be prepared by personnel approved by the architect or engineer of record.

5.507.4.3 Interior sound transmission

Wall and floor-ceiling assemblies separating tenant spaces and tenant spaces and public places shall have an STC of at least 40.

Note: Examples of assemblies and their various STC ratings may be found at the California Office of Noise Control: http://www.toolbase.org/PDF/CaseStudies/stc_icc_ratings.pdf.

Chapter 8.36 - NOISE CONTROL

Sections:

8.36.010 - Declaration of policy.

It is declared to be the policy of the city to prohibit unnecessary, excessive, and annoying noises from all sources subject to its police power. It is recognized that at certain levels noises are detrimental to the health and welfare of the citizenry and in the public interest shall be controlled or eliminated.

(Prior code § 5910)

8.36.020 - Definitions.

Unless the context otherwise clearly indicates, the words and phrases used in this chapter are defined as follows:

"A-weighted sound pressure level" means the sound pressure level as measured with a sound meter using the A-weighting network. The standard notation is dBA.

"Ambient noise level" means the all-encompassing noise level associated with a given environment, being a composite of sounds from all sources, excluding the alleged offensive noise, at the location and approximate time at which a comparison with the alleged offensive noise is to be made.

"Decibel" means a unit of level for measuring the volume of a sound, equal to the logarithm of the ratio of the sound pressure of a standard sound (.0002 microbars). The standard notation is dB.

"Fixed noise source" means a stationary device which creates sounds while fixed or motionless, including but not limited to industrial and commercial machinery and equipment, pumps, fans, compressors, generators, air conditioners and refrigeration equipment.

"Hertz" means the complete sequence of values of a periodic quantity which occurs during a period.

"Impact noise" means the noise produced by the collision of one mass in motion with a second mass which may be either in motion or at rest.

"Impulsive noise" means and includes any noise which is composed of momentary noises that are repeated at sufficiently slow rates, such that a sound level meter set at "slow" meter characteristics will show changes in sound pressure level greater than ten (10) dBA.

"Mobile noise source" means any noise source other than a fixed noise source.

"Noise disturbance" means any sound or noise which endangers or injures the safety or health of human beings or animals or which annoys or disturbs reasonable persons of normal sensitivities or which is of such a noise level or volume as would annoy or disturb reasonable persons of normal sensitivities or which endangers or injures personal or real property, or which violates the ambient noise standards set forth in Section of this chapter.

"Sound level meter" means a measurement instrument containing a microphone or amplifier, an output meter and "A" frequency weighting networks for the measurement of sound levels, which satisfies the pertinent requirements, in American Specifications for Type 2 Sound Level Meters S1.4-1971, or the most recent revision

thereof.

"Steady noise" means noise for which the sound pressure level remains essentially constant during the period of observation. It does not vary more than six (6) dBA when measured with the "slow" meter response of a sound level meter.

(Prior code §§ 5920—5920.11)

8.36.030 - Sound level measurements.

Any sound level measurement made pursuant to the provisions of this chapter shall be measured with a sound level meter using the "A" weighting network and slow response as defined in Section 8.36.020.

(Prior code § 5930)

8.36.040 - Ambient noise standards.

A. The following ambient noise standards, unless otherwise specifically indicated, shall apply to all property within their assigned zoning districts and said standards shall constitute the permissible noise level:

Zone	Day 7:00 a.m. to 10:00 p.m.	Night 10:00 p.m. to 7:00 a.m.
Single-family	50 dBA	45 dBA
Multifamily	55 dBA	50 dBA
Commercial	65 dBA	60 dBA
Industrial	70 dBA	70 dBA

B. It is unlawful for any person to create any noise which would cause the noise level at the property line of any property to exceed the ambient noise level by more than five (5) decibels for a cumulation period of fifteen (15) minutes in any hour.

C. At the boundary line between a residential zone and a commercial and/or manufacturing zone, the noise level of the residential zone shall be used.

D. If a residential use is located within a commercial or industrial zone, the ambient noise level shall not exceed fifty (50) dBA between the hours of ten p.m. and seven a.m.

E. Corrections to Noise Limits. The numerical limits given in subsection A of this section shall be adjusted by the following corrections, where appropriate:

Noise Condition	Correction in dBA

1. Impulsive sounds, pure tone or sounds with a cyclically varying amplitude (The following corrections apply to day only)	-5
2. Noise occurring for a cumulation period of more than 5 but less than 15 minutes in any hour.	+5
3. Noise occurring more than 1 but less than 5 minutes in any hour.	+10
4. Noise occurring less than 1 minute in any hour.	+15

(Prior code §§ 5940—5940.4)

8.36.050 - Special noise sources.

A. Radios, Television Sets, and Similar Devices. Any noise level from the use or operation of any radio receiving set, musical instruments, phonograph, television set, or other machine or device for the producing or reproducing of sound at any hour of the day, which exceeds the noise limit at the property line of any receiving property shall be a violation of the provisions of Section 8.36.040(A).

B. Machinery, Fans and Other Mechanical Devices. Any noise level from the use or operation of any machinery, equipment, pump, fan, air conditioning apparatus, refrigerating equipment, motor vehicle, or other mechanical or electrical device, or in repairing or rebuilding any motor vehicle which exceeds the noise limits at any property line, of any receiving property shall be a violation of the provisions of Section 8.36.040(A).

C. Construction of Building.

1. Except as otherwise permitted under subsections (C)(2) or (G) of this section, it is unlawful for any person within the city to operate power construction tools or equipment in the performance of any outside construction or repair work on buildings, structures, or projects in or adjacent to a residential area, except between the hours of six a.m. and seven p.m. Monday through Friday or between the hours of eight a.m. and seven p.m. on Saturday and Sunday.
2. Upon a written showing of good cause by a project applicant and the applicant's construction contractor or subcontractor, the Chief Building Official may conditionally relax the hourly restrictions of this subsection on a case-by-case basis, provided such authorization is made in writing. The Chief

Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

Appendix C

CadnaA Analysis Data and Results

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

Date: 18 Nov 2021

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	0.30
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)				(ft)		(ft)	(ft)	(ft)
NML			75.7	-63.4	75.4	0.0				5.00	r	887.12	846.15	5.00

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	(mph)	(mph)		(dB)		(%)	(dB)	(ft)	(ft)
Santa Anita			69.4	0.0	0.0			2525.0	0.0	0.0	5.0	0.0	0.0	35		21.95	0.0	1	0.0	0.0		
I-10			81.3	0.0	0.0			14365.0	0.0	0.0	3.1	0.0	0.0	65		40.54	0.0	1	0.0	0.0		
WB On Ramp			63.6	0.0	0.0			735.0	0.0	0.0	3.1	0.0	0.0	35		3.35	0.0	1	0.0	0.0		
WB On Ramp			62.1	0.0	0.0			522.0	0.0	0.0	3.1	0.0	0.0	35		w8	0.0	1	0.0	0.0		
EB On Ramp			62.2	0.0	0.0			529.0	0.0	0.0	3.1	0.0	0.0	35		3.96	0.0	1	0.0	0.0		
EB Off Ramp			61.9	0.0	0.0			496.0	0.0	0.0	3.1	0.0	0.0	35		w8	0.0	1	0.0	0.0		

Geometry - Roads

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(ft)	(%)
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)		
Santa Anita	0.00	r			834.88	1064.44	0.00	0.00		
					836.11	561.19	0.00	0.00		
					843.32	475.33	0.00	0.00		
					825.95	276.48	0.00	0.00		
					798.16	37.25	0.00	0.00		
I-10	0.00	r			49.82	552.65	8.05	8.05		
					206.82	505.61	10.08	10.08		
					344.67	471.14	12.50	12.50		
					484.17	443.79	15.67	15.67		
					751.12	402.76	18.97	18.97		
					913.04	377.05	19.01	19.01		
					1230.77	328.12	20.28	20.28		
					1545.06	277.12	20.89	20.89		
					1800.76	237.83	21.00	21.00		
					2139.93	192.97	21.00	21.00		
WB On Ramp	0.00	r			802.78	521.41	0.00	0.00		
					510.45	559.41	0.00	0.00		
					374.55	578.95	0.00	0.00		
					363.04	580.69	0.03	0.03		
					232.84	605.85	1.00	1.00		
					47.60	652.37	2.00	2.00		
WB On Ramp	0.00	r			2080.18	276.48	19.77	19.77		
					1808.36	329.45	18.86	18.86		
					1734.68	340.94	18.61	18.61		
					1684.75	349.19	18.45	18.45		
					1627.00	358.31	18.26	18.26		
					1563.60	367.86	18.04	18.04		
					1498.64	377.74	16.53	16.53		
					1449.40	385.66	15.15	15.15		
					1391.22	395.65	13.52	13.52		
					1291.92	411.67	7.34	7.34		

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(ft)	(%)
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)		
					1231.78	419.95	3.39	3.39		
					1184.37	427.86	0.20	0.20		
					1158.71	435.46	0.00	0.00		
					1136.34	441.27	0.00	0.00		
					1104.95	454.07	0.00	0.00		
					1072.21	466.48	0.00	0.00		
					1002.60	492.29	0.00	0.00		
					876.03	513.13	0.00	0.00		
EB On Ramp	0.00	r			858.88	239.41	0.00	0.00		
					951.37	235.07	0.00	0.00		
					1062.96	234.64	0.00	0.00		
					1098.57	235.94	1.84	1.84		
					1208.54	222.08	7.97	7.97		
					1343.15	205.14	14.46	14.46		
					1459.65	189.98	19.75	19.75		
					1718.88	158.72	21.43	21.43		
					1980.38	134.92	21.51	21.51		
EB Off Ramp	0.00	r			47.88	468.70	8.05	8.05		
					249.79	386.64	11.35	11.35		
					427.63	312.88	13.41	13.41		
					538.95	281.17	8.99	8.99		
					656.82	256.01	1.85	1.85		
					782.27	237.06	0.00	0.00		

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

Date: 20 Sep 2022

Calculation Configuration

Configuration	
Parameter	Value
General	
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	0.30
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)				(ft)		(ft)	(ft)	(ft)
F1			76.8	-67.1	65.0	0.0				5.00	r	942.65	602.07	5.00
F2			78.3	-66.3	65.0	0.0				5.00	r	981.52	562.77	5.00
F3			73.6	-71.5	65.0	0.0				5.00	r	1029.50	597.51	5.00
F4			66.9	-73.0	65.0	0.0				5.00	r	982.82	635.50	5.00
F5			77.8	-70.1	65.0	0.0				1.00	g	986.04	598.51	16.00

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	(mph)	(mph)		(dB)		(%)		(dB)	(ft)	(ft)
Santa Anita			72.2	0.0	0.0			4732.0	0.0	0.0	5.0	0.0	0.0	35		21.95	0.0	1	0.0		0.0		
I-10			83.8	0.0	0.0			25617.0	0.0	0.0	3.1	0.0	0.0	65		40.54	0.0	1	0.0		0.0		
WB On Ramp			66.1	0.0	0.0			1311.0	0.0	0.0	3.1	0.0	0.0	35		3.35	0.0	1	0.0		0.0		
WB On Ramp			64.7	0.0	0.0			931.0	0.0	0.0	3.1	0.0	0.0	35		w8	0.0	1	0.0		0.0		
EB On Ramp			64.7	0.0	0.0			944.0	0.0	0.0	3.1	0.0	0.0	35		3.96	0.0	1	0.0		0.0		
EB Off Ramp			64.4	0.0	0.0			885.0	0.0	0.0	3.1	0.0	0.0	35		w8	0.0	1	0.0		0.0		

Geometry - Roads

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(ft)	(%)
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)		
Santa Anita	0.00	r			834.88	1064.44	0.00	0.00		
					836.11	561.19	0.00	0.00		
					843.32	475.33	0.00	0.00		
					825.95	276.48	0.00	0.00		
					798.16	37.25	0.00	0.00		
I-10	0.00	r			49.82	552.65	8.05	8.05		
					206.82	505.61	10.08	10.08		
					344.67	471.14	12.50	12.50		
					484.17	443.79	15.67	15.67		
					751.12	402.76	18.97	18.97		
					913.04	377.05	19.01	19.01		
					1230.77	328.12	20.28	20.28		
					1545.06	277.12	20.89	20.89		
					1800.76	237.83	21.00	21.00		
					2139.93	192.97	21.00	21.00		
WB On Ramp	0.00	r			802.78	521.41	0.00	0.00		
					510.45	559.41	0.00	0.00		
					374.55	578.95	0.00	0.00		
					363.04	580.69	0.03	0.03		
					232.84	605.85	1.00	1.00		
					47.60	652.37	2.00	2.00		
WB On Ramp	0.00	r			2080.18	276.48	19.77	19.77		
					1808.36	329.45	18.86	18.86		
					1734.68	340.94	18.61	18.61		
					1684.75	349.19	18.45	18.45		
					1627.00	358.31	18.26	18.26		
					1563.60	367.86	18.04	18.04		
					1498.64	377.74	16.53	16.53		
					1449.40	385.66	15.15	15.15		
					1391.22	395.65	13.52	13.52		
					1291.92	411.67	7.34	7.34		

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(ft)	(%)
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)		
					1231.78	419.95	3.39	3.39		
					1184.37	427.86	0.20	0.20		
					1158.71	435.46	0.00	0.00		
					1136.34	441.27	0.00	0.00		
					1104.95	454.07	0.00	0.00		
					1072.21	466.48	0.00	0.00		
					1002.60	492.29	0.00	0.00		
					876.03	513.13	0.00	0.00		
EB On Ramp	0.00	r			858.88	239.41	0.00	0.00		
					951.37	235.07	0.00	0.00		
					1062.96	234.64	0.00	0.00		
					1098.57	235.94	1.84	1.84		
					1208.54	222.08	7.97	7.97		
					1343.15	205.14	14.46	14.46		
					1459.65	189.98	19.75	19.75		
					1718.88	158.72	21.43	21.43		
					1980.38	134.92	21.51	21.51		
EB Off Ramp	0.00	r			47.88	468.70	8.05	8.05		
					249.79	386.64	11.35	11.35		
					427.63	312.88	13.41	13.41		
					538.95	281.17	8.99	8.99		
					656.82	256.01	1.85	1.85		
					782.27	237.06	0.00	0.00		

Buildings

Name	M.	ID	RB	Residents	Absorption	Height	
						Begin	
						(ft)	
CFA Building				0		15.00	r

Geometry - Buildings

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(ft)		(ft)	(ft)	(ft)	(ft)
CFA Building				0		15.00	r	953.70	575.45	15.00	0.00
								953.63	565.35	15.00	0.00
								998.27	565.52	15.00	0.00
								998.27	571.21	15.00	0.00
								1023.60	571.55	15.00	0.00
								1023.63	574.71	15.00	0.00
								1026.68	574.69	15.00	0.00
								1026.38	610.08	15.00	0.00
								1029.76	609.99	15.00	0.00
								1029.63	630.32	15.00	0.00
								987.21	629.95	15.00	0.00
								987.21	632.14	15.00	0.00
								953.81	631.87	15.00	0.00
								953.81	629.80	15.00	0.00
								947.59	629.95	15.00	0.00
								947.78	575.36	15.00	0.00

Eilar Associates, Inc.
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Phone: (760) 738-5570

Date: 20 Sep 2022

Calculation Configuration

Configuration	
Parameter	Value
General	
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	0.30
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)				(ft)		(ft)	(ft)	(ft)
R1			46.8	43.1	0.0	0.0		x	Total	5.00	r	1087.04	851.36	5.00
R2			44.3	41.6	0.0	0.0		x	Total	5.00	r	1134.42	718.02	5.00
R3			43.7	42.9	0.0	0.0		x	Total	5.00	r	1133.82	605.09	5.00
R4			48.1	43.8	0.0	0.0		x	Total	5.00	r	919.14	849.46	5.00

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)		(ft²)		(min)	(min)	(min)	(dB)	(Hz)		(ft)		(ft)	(ft)	(ft)
HVAC			90.5	90.5	90.5	Lw	AC1		0.0	0.0	0.0							0.0		(none)	3.00	g	993.87	594.16	18.00
HVAC			93.5	93.5	93.5	Lw	AC2		0.0	0.0	0.0							0.0		(none)	3.00	g	983.51	595.24	18.00
HVAC			93.5	93.5	93.5	Lw	AC2		0.0	0.0	0.0							0.0		(none)	3.00	g	975.33	595.53	18.00
DT			84.5	84.5	84.5	Lw	DT		0.0	0.0	0.0							0.0	500	(none)	4.00	r	915.94	618.00	4.00
DT			84.5	84.5	84.5	Lw	DT		0.0	0.0	0.0							0.0	500	(none)	4.00	r	929.28	617.94	4.00

Line Sources

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Moving Pt. Src			
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night				Number			Sp
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft²)		(min)	(min)	(min)	(dB)	(Hz)		Day	Evening	Night	(m
Refrigerated Truck			89.6	-10.4	-10.4	66.5	-33.5	-33.5	PWL-Pt	RT		0.0	0.0	0.0							0.0		(none)	1.0	0.0	0.0	1

Geometry - Line Sources

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
Refrigerated Truck	6.00	r			880.89	802.19	6.00	0.00
					920.55	801.99	6.00	0.00
					920.59	686.78	6.00	0.00
					1093.45	687.22	6.00	0.00
					1094.50	817.15	6.00	0.00
					880.86	817.48	6.00	0.00

Barriers

Name	M.	ID	Absorption		Z-Ext.	Cantilever		Height			
			left	right		horz.	vert.	Begin		End	
					(ft)	(ft)	(ft)	(ft)		(ft)	
	+										

Geometry - Barriers

Name	M.	ID	Absorption		Z-Ext.	Cantilever		Height				Coordinates			
			left	right		horz.	vert.	Begin		End		x	y	z	Ground
					(ft)	(ft)	(ft)	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
	+											889.93	847.80	5.00	0.00
												1082.32	848.49	5.00	0.00
												1084.29	848.27	6.00	0.00
												1132.76	848.35	6.00	0.00
												1132.70	600.47	6.00	0.00

Buildings

Name	M.	ID	RB	Residents	Absorption	Height	
						Begin	
						(ft)	
CFA Building				0		15.00	r

Geometry - Buildings

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(ft)		(ft)	(ft)	(ft)	(ft)
CFA Building				0		15.00	r	953.70	575.45	15.00	0.00
								953.63	565.35	15.00	0.00
								998.27	565.52	15.00	0.00
								998.27	571.21	15.00	0.00
								1023.60	571.55	15.00	0.00
								1023.63	574.71	15.00	0.00
								1026.68	574.69	15.00	0.00
								1026.38	610.08	15.00	0.00
								1029.76	609.99	15.00	0.00
								1029.63	630.32	15.00	0.00
								987.21	629.95	15.00	0.00
								987.21	632.14	15.00	0.00
								953.81	631.87	15.00	0.00
								953.81	629.80	15.00	0.00
								947.59	629.95	15.00	0.00
								947.78	575.36	15.00	0.00

Sound Level Spectra

Name	ID	Type	1/3 Oktave Spectrum (dB)												Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	
Lennox LGH150H4B	AC1	Lw	A			75.0	81.0	87.0	85.0	80.0	74.0	70.0	90.5	95.6	Manufacturer
Lennox LGH210H4B or LGH300S4B	AC2	Lw	A			79.0	84.0	88.0	89.0	85.0	82.0	73.0	93.5	98.8	Manufacturer
Refrigerated Truck	RT	Lw (c)			115.2	109.2	104.2	105.2	104.2	101.2	96.2	90.2	108.6	117.1	Measurements
Drive-Through Intercom	DT	Lw (c)	A					84.5					84.5	87.7	Manufacturer

Eilar Associates, Inc.
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Phone: (760) 738-5570

Date: 23 Nov 2021

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	0.30
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)				(ft)		(ft)	(ft)	(ft)
R1			60.4	-80.2	75.0	0.0				5.00	r	1004.84	848.57	5.00
R2			62.9	-80.2	75.0	0.0				5.00	r	1134.14	679.20	5.00

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)		(ft²)		(min)	(min)	(min)	(dB)	(Hz)		(ft)		(ft)	(ft)	(ft)
Backhoe			98.8	98.8	98.8	Lw	L1		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	6.00	r	1005.02	678.89	6.00
Skid Steer			98.8	98.8	98.8	Lw	L2		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	6.00	r	1005.02	678.89	6.00
Dump Truck			107.1	107.1	107.1	Lw	L3		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	6.00	r	1005.02	678.89	6.00
Mini-Excavator			96.1	96.1	96.1	Lw	L4		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	6.00	r	1005.02	678.89	6.00

Sound Level Spectra

Name	ID	Type	1/3 Oktave Spectrum (dB)												Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	
Backhoe	L1	Lw (c)			105.0	97.0	95.0	95.0	94.0	91.0	90.0	81.0	98.8	106.8	Defra
Skid Steer	L2	Lw (c)			105.0	97.0	95.0	95.0	94.0	91.0	90.0	81.0	98.8	106.8	Defra
Dump Truck	L3	Lw (c)			108.0	108.0	107.0	103.0	102.0	100.0	95.0	85.0	107.1	113.5	Defra
Mini-Excavator	L4	Lw (c)			102.0	102.0	97.0	90.0	90.0	89.0	85.0	79.0	96.1	106.0	Defra
Concrete Mixer	L5	Lw (c)			110.0	111.0	104.0	103.0	100.0	99.0	90.0	84.0	105.8	114.6	Defra
Air Compressor	L6	Lw (c)			115.0	104.0	95.0	90.0	88.0	86.0	89.0	78.0	96.5	115.4	Defra
Paver	L7	Lw (c)			109.0	108.0	103.0	103.0	102.0	100.0	93.0	87.0	106.6	113.2	Defra
Roller	L8	Lw (c)			121.0	113.0	104.0	103.0	101.0	96.0	90.0	85.0	106.0	121.8	Defra

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Phone: (760) 738-5570

Date: 23 Nov 2021

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	0.30
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)				(ft)		(ft)	(ft)	(ft)
R1			62.8	-80.2	75.0	0.0				5.00	r	1004.84	848.57	5.00
R2			65.3	-80.2	75.0	0.0				5.00	r	1134.14	679.20	5.00

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)		(ft²)		(min)	(min)	(min)	(dB)	(Hz)		(ft)		(ft)	(ft)	(ft)
Concrete Mixer			105.8	105.8	105.8	Lw	L5		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	6.00	r	1005.02	678.89	6.00
Air Compressor			96.5	96.5	96.5	Lw	L6		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	6.00	r	1005.02	678.89	6.00
Paver			106.6	106.6	106.6	Lw	L7		0.0	0.0	0.0				30.00	0.00	0.00	0.0		(none)	6.00	r	1005.02	678.89	6.00
Roller			106.0	106.0	106.0	Lw	L8		0.0	0.0	0.0				12.00	0.00	0.00	0.0		(none)	6.00	r	1005.02	678.89	6.00

Sound Level Spectra

Name	ID	Type	1/3 Oktave Spectrum (dB)												Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	
Backhoe	L1	Lw (c)			105.0	97.0	95.0	95.0	94.0	91.0	90.0	81.0	98.8	106.8	Defra
Skid Steer	L2	Lw (c)			105.0	97.0	95.0	95.0	94.0	91.0	90.0	81.0	98.8	106.8	Defra
Dump Truck	L3	Lw (c)			108.0	108.0	107.0	103.0	102.0	100.0	95.0	85.0	107.1	113.5	Defra
Mini-Excavator	L4	Lw (c)			102.0	102.0	97.0	90.0	90.0	89.0	85.0	79.0	96.1	106.0	Defra
Concrete Mixer	L5	Lw (c)			110.0	111.0	104.0	103.0	100.0	99.0	90.0	84.0	105.8	114.6	Defra
Air Compressor	L6	Lw (c)			115.0	104.0	95.0	90.0	88.0	86.0	89.0	78.0	96.5	115.4	Defra
Paver	L7	Lw (c)			109.0	108.0	103.0	103.0	102.0	100.0	93.0	87.0	106.6	113.2	Defra
Roller	L8	Lw (c)			121.0	113.0	104.0	103.0	101.0	96.0	90.0	85.0	106.0	121.8	Defra

Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

Appendix D

Manufacturer Data Sheets

HME

Customer Driven

Memo

Re: Drive-Thru Sound Pressure Levels From the Menu Board or Speaker Post

The sound pressure levels from the menu board or speaker post are as follows:

1. Sound pressure level (SPL) contours (A weighted) were measured on a typical HME SPP2 speaker post. The test condition was for pink noise set to 84 dBA at 1 foot in front of the speaker. All measurements were conducted outside with the speaker post placed 8 feet from a non-absorbing building wall and at an oblique angle to the wall. These measurements should not be construed to guarantee performance with any particular speaker post in any particular environment. They are typical results obtained under the conditions described above.

2. The SPL levels are presented for different distances from the speaker post:

Distance from the Speaker (Feet)	SPL (dBA)
1 foot	84 dBA
2 feet	78 dBA
4 feet	72 dBA
8 feet	66 dBA
16 feet	60 dBA
32 feet	54 dBA

3. The above levels are based on factory recommended operating levels, which are preset for HME components and represent the optimum level for drive-thru operations in the majority of the installations.

Also, HME incorporates automatic volume control (AVC) into many of our Systems. AVC will adjust the outbound volume based on the outdoor, ambient noise level. When ambient noise levels naturally decrease at night, AVC will reduce the outbound volume on the system. See below for example:

Distance from Outside Speaker	Decibel Level of standard system with 45 dB of outside noise without AVC	Decibel level of standard system with 45 dB of outside noise with AVC active
1 foot	84 dBA	60 dBA
2 feet	78 dBA	54 dBA
4 feet	72 dBA	48 dBA
8 feet	66 dBA	42 dBA
16 feet	60 dBA	36 dBA

If there are any further questions regarding this issue please contact HME customer service at 1-800-848-4468.

Thank you for your interest in HME's products.

LGH
Energence® Rooftop Units
60 Hz

COMMERCIAL
PRODUCT SPECIFICATIONS

Bulletin No. 210555
February 2020
Supersedes January 2020

ENERGENCE™ Saving Energy with *Intelligence*

PRODIGY™ CONTROL SYSTEM

SMARTWIRE™ SYSTEM

Environ™ Coil System

MSAV™ MULTI-STAGE AIR VOLUME

Humiditrol

L Connection® NETWORK

ASHRAE 90.1 COMPLIANT

ENERGY STAR

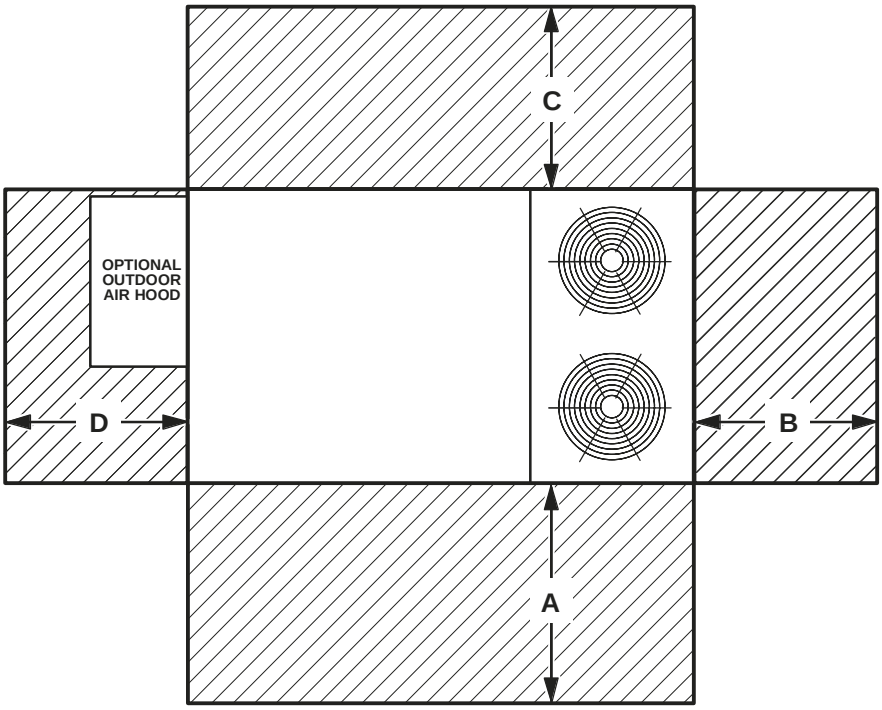
7.5 to 12.5 Tons
Net Cooling Capacity – 90,000 to 138,000 Btuh
Gas Input Heat Capacity – 130,000 to 240,000 Btuh

MODEL NUMBER IDENTIFICATION

L G H 120 H 4 B S 1 Y

- **Brand/Family**: L = Energence®
- **Unit Type**: G = Packaged Gas Heat w/ Electric Cooling
- **Major Design Sequence**: H = 1st Generation
- **Nominal Cooling Capacity - Tons**: 092 = 7.5 Tons; 102 = 8.5 Tons; 120 = 10 Tons; 150 = 12.5 Tons
- **Cooling Efficiency**: H = High Efficiency
- **Refrigerant Type**: 4 = R-410A
- **Blower Type**: B = Belt Drive, Constant Air Volume; M = MSAV® (Multi-Stage Air Volume), Belt Drive
- **Heating Type**: S = Standard Gas Heat, 2 Stage; M = Medium Gas Heat, 2 Stage; H = High Gas Heat, 2 Stage
- **Minor Design Sequence**: 1 = 1st Revision; 2 = 2nd Revision; 3 = 3rd Revision
- **Voltage**: Y = 208/230V-3 phase-60hz; G = 460V-3 phase-60hz; J = 575V-3 phase-60hz

UNIT CLEARANCES



[1] Unit Clearance	A		B		C		D		Top Clearance
	in.	mm	in.	mm	in.	mm	in.	mm	
Service Clearance	60	1524	36	914	36	934	60	1524	Unobstructed
Clearance to Combustibles	36	914	1	25	1	25	1	25	
Minimum Operation Clearance	36	914	36	914	36	914	36	914	

NOTE - Entire perimeter of unit base requires support when elevated above the mounting surface.

[1] Service Clearance - Required for removal of serviceable parts.
Clearance to Combustibles - Required clearance to combustible material.
Minimum Operation Clearance - Required clearance for proper unit operation.

OUTDOOR SOUND DATA

Unit Model Number	Octave Band Sound Power Levels dBA, re 10^{-12} Watts - Center Frequency - Hz							[1] Sound Rating Number (dBA)
	125	250	500	1000	2000	4000	8000	
092, 102 and 120	76	79	84	83	79	73	66	88
150	75	81	87	85	80	74	70	90

Note - The octave sound power data does not include tonal corrections.

[1] Sound Rating Number according to AHRI Standard 370-2001 (includes pure tone penalty). Sound Rating Number is the overall A-Weighted Sound Power Level, (LWA), dBA (100 Hz to 10,000 Hz).

LGH
Energence® Rooftop Units
60 Hz

COMMERCIAL
PRODUCT SPECIFICATIONS

Bulletin No. 210557
June 2020
Supersedes February 2020

ENERGENCE™ Saving Energy with *Intelligence*

PRODIGY™ CONTROL SYSTEM
SMARTWIRE™ SYSTEM
Environ™ Coil System
MSAV™ MULTI-STAGE AIR VOLUME
Humiditrol
L Connection® NETWORK
ASHRAE 90.1 COMPLIANT
ENERGY STAR

13 to 25 Tons
Net Cooling Capacity - 148,000 to 270,000 Btuh
Gas Input Heat Capacity - 169,000 to 480,000 Btuh

MODEL NUMBER IDENTIFICATION

L G H 240 H 4 B S 1 Y

Brand/Family
Energence®

Unit Type
G = Packaged Gas Heat w/ Electric Cooling

Major Design Sequence
H = 1st Generation

Nominal Cooling Capacity - Tons
156 = 13 Tons
180= 15 Tons
210 = 17.5 Tons
240 = 20 Tons
300 = 25 Tons

Cooling Efficiency
H = High Efficiency
S = Standard Efficiency

Refrigerant Type
4 = R-410A

Blower Type
B = Belt Drive, Constant Air Volume
M = MSAV® (Multi-Stage Air Volume), Belt Drive
V = VAV (Variable Air Volume), Belt Drive

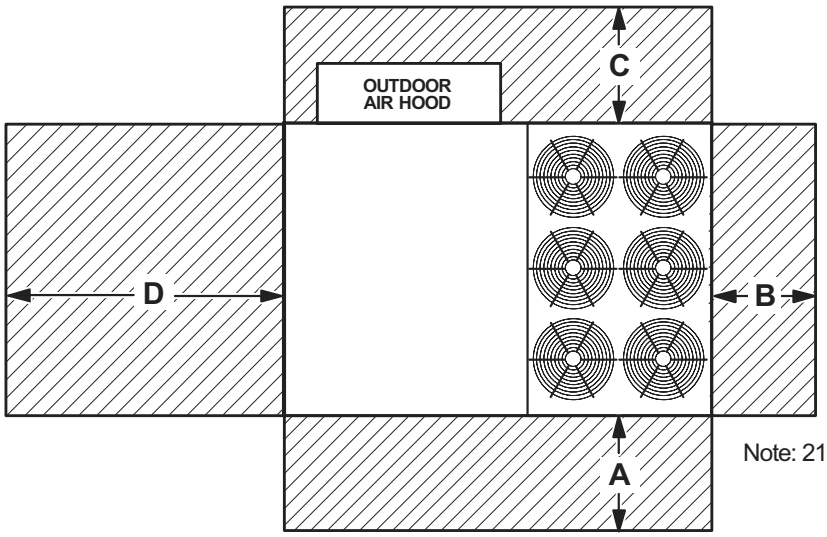
Heating Type
L = Low Gas Heat, 1 Stage
S = Standard Gas Heat, 2 Stage
M = Medium Gas Heat, 2 Stage
H = High Gas Heat, 2 Stage

Minor Design Sequence
1 = 1st Revision
2 = 2nd Revision
3 = 3rd Revision

Voltage
Y = 208/230V-3 phase-60hz
G = 460V-3 phase-60hz
J = 575V-3 phase-60hz

INSTALLATION CLEARANCES

Unit With Economizer



Note: 210-240-300 sizes shown

[1] Unit Clearance	A		B		C		D		Top Clearance
	in.	mm	in.	mm	in.	mm	in.	mm	
Service Clearance	60	1524	36	914	36	934	66	1676	Unobstructed
Clearance to Combustibles	36	914	1	25	1	25	1	25	
Minimum Operation Clearance	45	1143	36	914	36	914	41	1041	

NOTE - Entire perimeter of unit base requires support when elevated above the mounting surface.

[1] **Service Clearance** - Required for removal of serviceable parts.
Clearance to Combustibles - Required clearance to combustible material.
Minimum Operation Clearance - Required clearance for proper unit operation.

OUTDOOR SOUND DATA

Unit Model Number	Octave Band Sound Power Levels dBA, re 10^{-12} Watts - Center Frequency - Hz							[1] Sound Rating Number (dBA)
	125	250	500	1000	2000	4000	8000	
156	71	78	81	81	76	71	63	86
180	80	83	87	88	84	80	71	93
210, 240, 300	79	84	88	89	85	82	73	94

Note - The octave sound power data does not include tonal corrections.

[1] Sound Rating Number according to AHRI Standard 370-2001 (includes pure tone penalty). Sound Rating Number is the overall A-Weighted Sound Power Level, (LWA), dBA (100 Hz to 10,000 Hz).

Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

Appendix E

Pertinent Sections of the Traffic Impact Analysis

TABLE 5-1

PROJECT TRAFFIC GENERATION RATES AND FORECAST[10]

ITE Land Use Code / Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Generation Rates:							
▪ 934: Fast-Food Restaurant with Drive-Thru Window (TE/TSF)	467.48	51%	49%	44.61	52%	48%	33.03
Proposed Project Generation Forecast:							
▪ Chick-fil-A with Drive-Through Window (4,839 SF)	2,262	110	106	216	83	77	160
Pass-by Trips (25% Daily, 50% AM, 55% PM)[11]	-566	-55	-53	-108	-46	-42	-88
Total Proposed Project Trip Generation Forecast	***1,696***	**55**	**53**	**108**	**37**	**35**	**72**

Note:

- TE/TSF = Trip End per Thousand Square Feet

[10] Source: *Trip Generation*, 11th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2021).

[11] Source: *Trip Generation Manual*, 11th *Edition*, Institute of Transportation Engineers, (ITE) [Washington, D.C. (2021)]. Based on the *Trip Generation Manual,* the AM peak hour and PM peak hour pass-by for ITE Land Use 934: Fast-Food Restaurant with Drive-Through Window is 50% and 55%, respectively. The daily pass-by percentage was estimated to be 25%.

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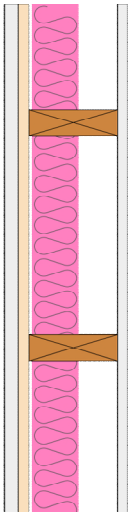
Appendix F

Sound Insulation Prediction Results

Sound Insulation Prediction (v9.0.20)

Margin of error is generally within STC ±3 dB
- Key No. 1866
Job Name:
Job No.: Initials:mouwenga
Date:8/26/2020
File Name:

Notes:



STC 38
OITC 30

Mass-air-mass resonant frequency = =45 Hz

Panel Size = 8.9 ft x 13.1 ft

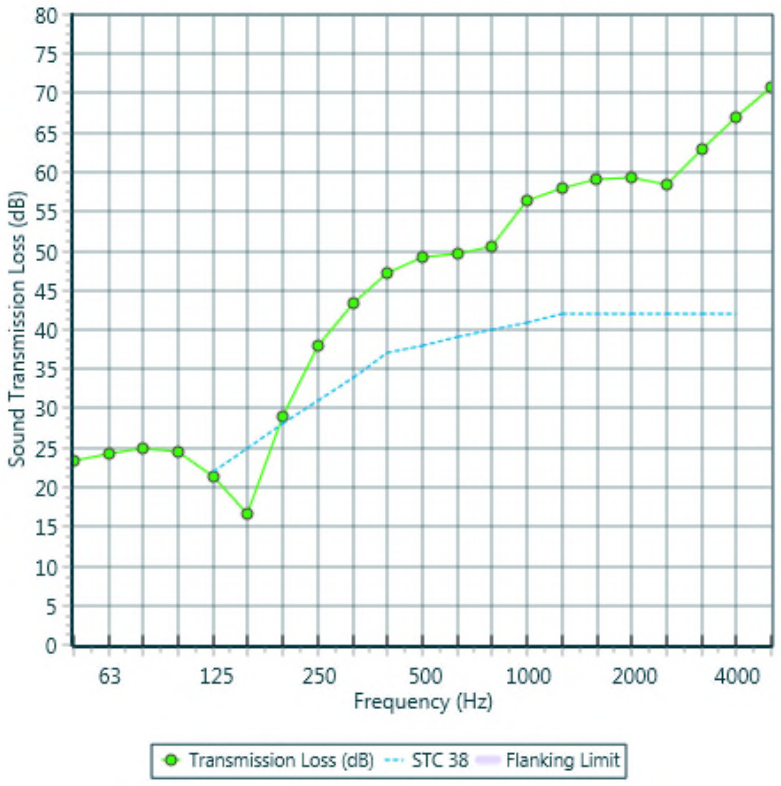
Partition surface mass = 14.4 lb/ft2

System description

Panel 1 : 1 x 0.87 in -Coat Plaster (sand:gypsum =3:1) + 1 x 0.6902 in Plywood

Frame: Timber stud (5.7 in x 1.8 in), Stud spacing 16 in ; Cavity Width 5.67 in , 1 x fiberglass (0.6 lb/ft3) Thickness 3.0 in
Panel 2 : 1 x 0.6299 in Type X Gypsum Board

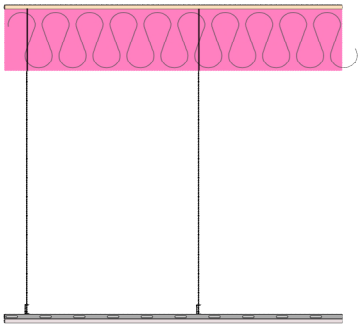
freq.(Hz)	TL(dB)	TL(dB)
50	23	
63	24	24
80	25	
100	25	
125	21	20
160	17	
200	29	
250	38	33
315	43	
400	47	
500	49	49
630	50	
800	51	
1000	56	54
1250	58	
1600	59	
2000	59	59
2500	58	
3150	63	
4000	67	66
5000	71	



Sound Insulation Prediction (v9.0.20)

Margin of error is generally within STC ±3 dB
- Key No. 1866
Job Name:
Job No.: Initials:
Date:8/26/2020
File Name:

Notes:



STC 49
OITC 39

Mass-air-mass resonant frequency = =29 Hz

Panel Size = 8.9 ft x 13.1 ft

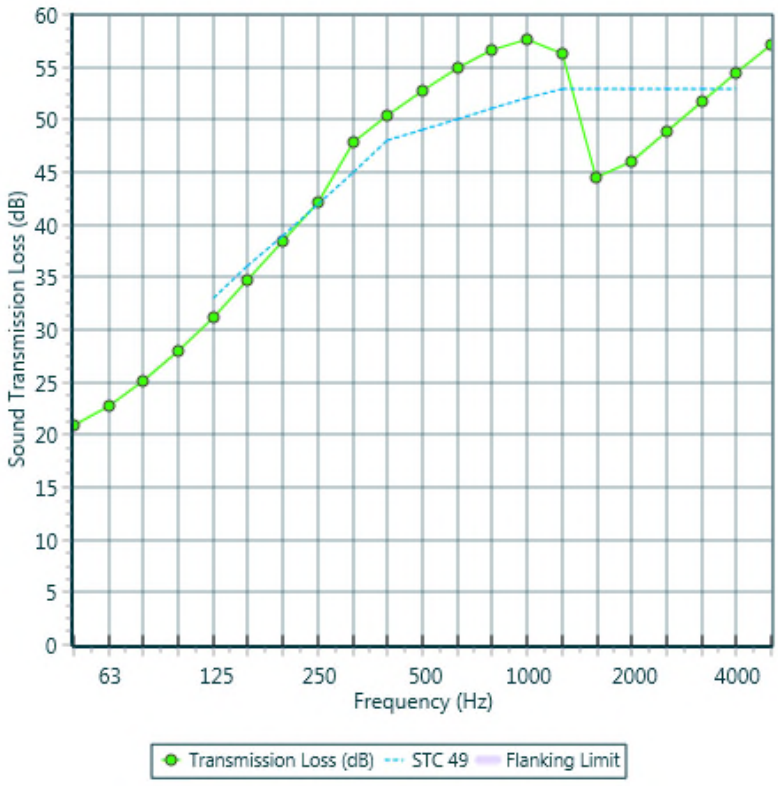
Partition surface mass = 3.65 lb/ft2

System description

Panel 1 : 1 x 0.63 in Plywood

Frame: Timber stud (48 in x 1.6 in), Stud spacing 24 in ; Cavity Width 48 in , 1 x fiberglass (1.4 lb/ft3) Thickness 9.5 in
Panel 2 : 1 x 0.6252 in Mineral fiber ceiling tile (Generic 0.8lbs/ft

freq.(Hz)	TL(dB)	TL(dB)
50	21	
63	23	23
80	25	
100	28	
125	31	30
160	35	
200	38	
250	42	41
315	48	
400	50	
500	53	52
630	55	
800	57	
1000	58	57
1250	56	
1600	45	
2000	46	46
2500	49	
3150	52	
4000	55	54
5000	57	



Sound Insulation Prediction (v9.0.23)

Margin of error is generally within STC ±3 dB
- Key No. 1866
Job Name:
Job No.: Initials:mouwenga
Date:11/18/2021
File Name:1-inch Insulated Glazing.ixl

Notes:

STC 36
OITC 29

Mass-air-mass resonant frequency = =189 Hz

Panel Size = 6.6 ft x 4.9 ft

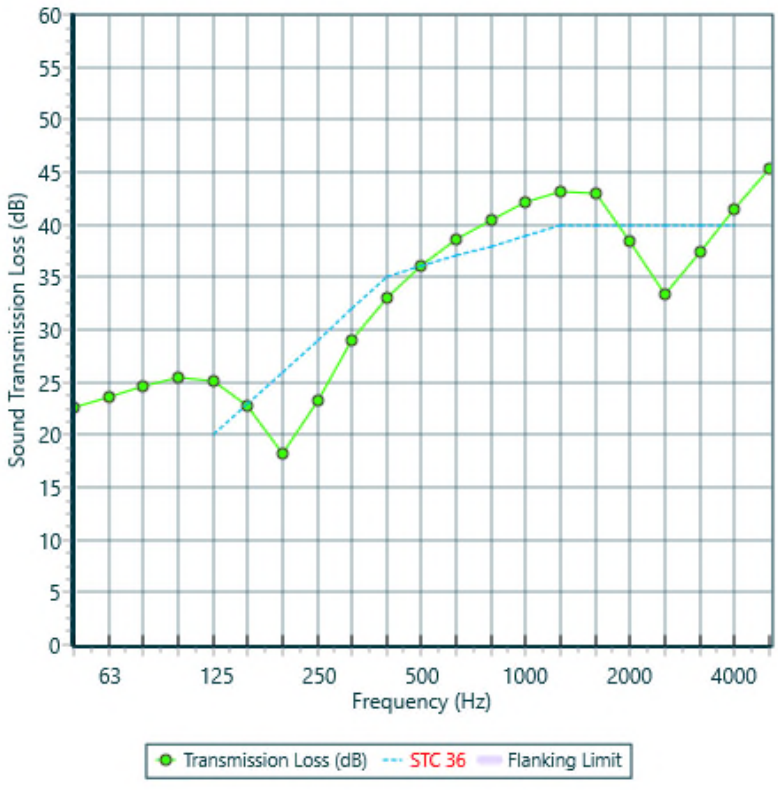
Partition surface mass = 6.44 lb/ft2

System description

Pane 1 : 1 x 0.25 in Glass

air: 0.5 in
Pane 2 : 1 x 0.25 in Glass

freq.(Hz)	TL(dB)	TL(dB)
50	23	
63	24	24
80	25	
100	25	
125	25	24
160	23	
200	18	
250	23	21
315	29	
400	33	
500	36	35
630	39	
800	41	
1000	42	42
1250	43	
1600	43	
2000	38	37
2500	33	
3150	37	
4000	41	40
5000	45	



Sound Insulation Prediction (v9.0.23)

Margin of error is generally within STC ±3 dB
- Key No. 1866
Job Name:
Job No.: Initials:mouwenga
Date:11/18/2021
File Name:Quarter-Inch Glazing.ixl

Notes:

STC 32
OITC 28

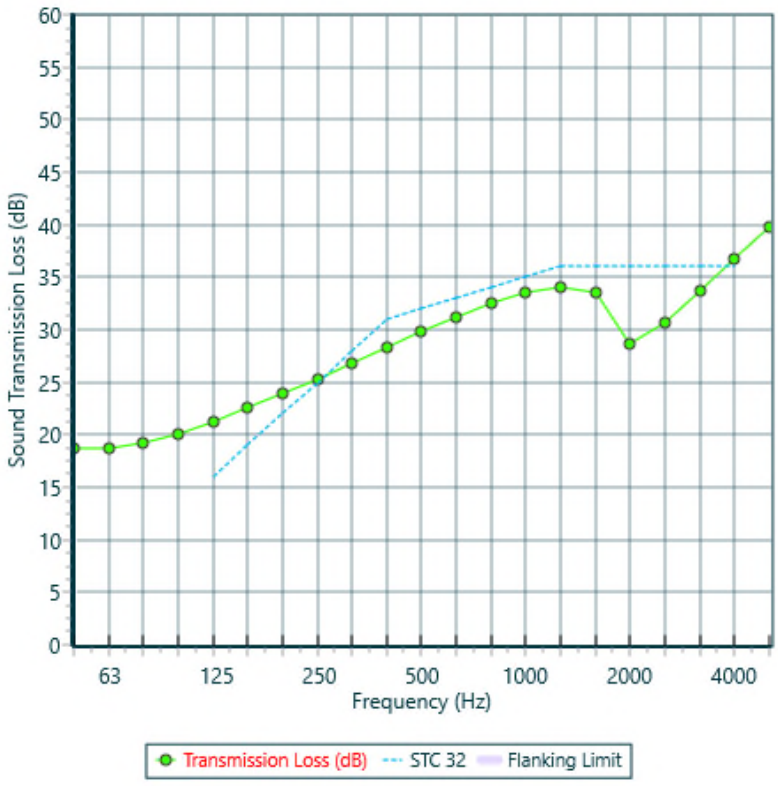
Panel Size = 6.6 ft x 4.9 ft

Partition surface mass = 3.16 lb/ft2

System description

Pane 1 : 1 x 0.25 in Glass

freq.(Hz)	TL(dB)	TL(dB)
50	19	
63	19	19
80	19	
100	20	
125	21	21
160	23	
200	24	
250	25	25
315	27	
400	28	
500	30	30
630	31	
800	32	
1000	33	33
1250	34	
1600	33	
2000	29	31
2500	31	
3150	34	
4000	37	36
5000	40	



Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

Appendix G

Exterior-to-Interior Noise Analysis

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Santa Anita & I-10
Project # : L210603
Room Name: CFA - Dining

Wall 1 of 3

Room Type : **Medium**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	0.8	0.8	0.8	0.8	0.7	0.7	: Fairly Absorptive Room
Room Absorption (Sabins) :	927	927	927	927	1159	1159	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**76.8**	**dBA**	60.1	65.6	68.1	72.1	72.1	66.1	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**76.8**	**dBA**	60.1	65.6	68.1	72.1	72.1	66.1	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 38 Exterior Stucco Wall	N	46	12	1	384.0	20	33	49	54	59	66
1" insulated glass (1/4 + 1/2 + 1/4)	N	6	7	4	168.0	22	19	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **28** ft　　**Overall Area:** **552** ft²
Volume: **15456** ft³

Number of Impacted Walls: **3**

Windows Open
Interior Noise Level: **42.8** **dBA**

Windows Closed
Interior Noise Level: **42.8** **dBA**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
60.1	65.6	68.1	72.1	72.1	66.1	: Exterior Wall Noise Exposure
20.5	23.8	42.4	49.1	45.0	49.1	: Transmission Loss
27.4	27.4	27.4	27.4	27.4	27.4	: Wall Surface Area Factor
29.7	29.7	29.7	29.7	30.6	30.6	: Absorption
37.3	39.6	23.4	20.8	23.8	13.8	: Noise Level
41.8	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
60.1	65.6	68.1	72.1	72.1	66.1	: Exterior Wall Noise Exposure
20.5	23.8	42.4	49.1	45.0	49.1	: Transmission Loss
27.4	27.4	27.4	27.4	27.4	27.4	: Wall Surface Area Factor
29.7	29.7	29.7	29.7	30.6	30.6	: Absorption
37.3	39.6	23.4	20.8	23.8	13.8	: Noise Level
41.8	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Santa Anita & I-10 **Wall 2 of 3**
Project # : L210603
Room Name: CFA - Dining

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**66.9**	**dBA**	50.2	55.7	58.2	62.2	62.2	56.2	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**66.9**	**dBA**	50.2	55.7	58.2	62.2	62.2	56.2	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 38 Exterior Stucco Wall	N	28	12	1	252.0	20	33	49	54	59	66
1" insulated glass (1/4 + 1/2 + 1/4)	N	6	7	2	84.0	22	19	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **336** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
50.2	55.7	58.2	62.2	62.2	56.2	: Exterior Wall Noise Exposure
20.4	24.5	43.1	49.6	45.9	49.9	: Transmission Loss
25.3	25.3	25.3	25.3	25.3	25.3	: Wall Surface Area Factor
29.7	29.7	29.7	29.7	30.6	30.6	: Absorption
25.4	26.8	10.7	8.2	11.0	0.9	: Noise Level
29.3	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
50.2	55.7	58.2	62.2	62.2	56.2	: Exterior Wall Noise Exposure
20.4	24.5	43.1	49.6	45.9	49.9	: Transmission Loss
25.3	25.3	25.3	25.3	25.3	25.3	: Wall Surface Area Factor
29.7	29.7	29.7	29.7	30.6	30.6	: Absorption
25.4	26.8	10.7	8.2	11.0	0.9	: Noise Level
29.3	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Santa Anita & I-10 **Wall 3 of 3**
Project # : L210603
Room Name: CFA - Dining

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**77.8**	**dBA**	61.1	66.6	69.1	73.1	73.1	67.1	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**77.8**	**dBA**	61.1	66.6	69.1	73.1	73.1	67.1	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 49 Typical Roof	N	46	28	1	1288.0	30	41	52	57	46	54
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **1288** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
61.1	66.6	69.1	73.1	73.1	67.1	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
31.1	31.1	31.1	31.1	31.1	31.1	: Wall Surface Area Factor
29.7	29.7	29.7	29.7	30.6	30.6	: Absorption
32.5	27.0	18.5	17.5	27.6	13.6	: Noise Level
34.8	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
61.1	66.6	69.1	73.1	73.1	67.1	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
31.1	31.1	31.1	31.1	31.1	31.1	: Wall Surface Area Factor
29.7	29.7	29.7	29.7	30.6	30.6	: Absorption
32.5	27.0	18.5	17.5	27.6	13.6	: Noise Level
34.8	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Santa Anita & I-10
Project # : L210603
Room Name: CFA - Serving

Wall 1 of 2

Room Type : **Medium**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	0.8	0.8	0.8	0.8	0.7	0.7	: Fairly Absorptive Room
Room Absorption (Sabins) :	424	424	424	424	530	530	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**66.9**	**dBA**	50.2	55.7	58.2	62.2	62.2	56.2	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**66.9**	**dBA**	50.2	55.7	58.2	62.2	62.2	56.2	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 38 Exterior Stucco Wall	N	31	12	1	246.0	20	33	49	54	59	66
1" insulated glass (1/4 + 1/2 + 1/4)	N	6	7	3	126.0	22	19	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **19** ft　　**Overall Area:** **372** ft²
Volume: **7068** ft³

Number of Impacted Walls: **2**

Windows Open
Interior Noise Level: **37.3** **dBA**

Windows Closed
Interior Noise Level: **37.3** **dBA**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
50.2	55.7	58.2	62.2	62.2	56.2	: Exterior Wall Noise Exposure
20.6	23.4	42.1	48.7	44.6	48.6	: Transmission Loss
25.7	25.7	25.7	25.7	25.7	25.7	: Wall Surface Area Factor
26.3	26.3	26.3	26.3	27.2	27.2	: Absorption
29.1	31.8	15.6	12.9	16.1	6.0	: Noise Level

33.8 **dBA** WINDOWS OPEN

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
50.2	55.7	58.2	62.2	62.2	56.2	: Exterior Wall Noise Exposure
20.6	23.4	42.1	48.7	44.6	48.6	: Transmission Loss
25.7	25.7	25.7	25.7	25.7	25.7	: Wall Surface Area Factor
26.3	26.3	26.3	26.3	27.2	27.2	: Absorption
29.1	31.8	15.6	12.9	16.1	6.0	: Noise Level

33.8 **dBA** WINDOWS CLOSED

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Santa Anita & I-10 **Wall 2 of 2**
Project # : L210603
Room Name: CFA - Serving

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**77.8**	**dBA**	61.1	66.6	69.1	73.1	73.1	67.1	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**77.8**	**dBA**	61.1	66.6	69.1	73.1	73.1	67.1	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 49 Typical Roof	N	31	19	1	589.0	30	41	52	57	46	54
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **589** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
61.1	66.6	69.1	73.1	73.1	67.1	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
27.7	27.7	27.7	27.7	27.7	27.7	: Wall Surface Area Factor
26.3	26.3	26.3	26.3	27.2	27.2	: Absorption
32.5	27.0	18.5	17.5	27.6	13.6	: Noise Level
34.8	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
61.1	66.6	69.1	73.1	73.1	67.1	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
27.7	27.7	27.7	27.7	27.7	27.7	: Wall Surface Area Factor
26.3	26.3	26.3	26.3	27.2	27.2	: Absorption
32.5	27.0	18.5	17.5	27.6	13.6	: Noise Level
34.8	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Santa Anita & I-10
Project # : L210603
Room Name: CFA - Drive-Through

Wall 1 of 3

Room Type : **Medium**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	0.8	0.8	0.8	0.8	0.7	0.7	: Fairly Absorptive Room
Room Absorption (Sabins) :	139	139	139	139	173	173	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**73.6**	**dBA**	56.9	62.4	64.9	68.9	68.9	62.9	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**73.6**	**dBA**	56.9	62.4	64.9	68.9	68.9	62.9	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 38 Exterior Stucco Wall	N	18.5	12	1	173.0	20	33	49	54	59	66
1" insulated glass (1/4 + 1/2 + 1/4)	N	7	7	1	49.0	22	19	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **10.4** ft

Overall Area: **222** ft²
Volume: **2309** ft³

Number of Impacted Walls: **3**

Windows Open		
Interior Noise Level:	**43.4**	**dBA**
Windows Closed		
Interior Noise Level:	**43.4**	**dBA**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
56.9	62.4	64.9	68.9	68.9	62.9	: Exterior Wall Noise Exposure
20.4	25.0	43.5	50.0	46.4	50.5	: Transmission Loss
23.5	23.5	23.5	23.5	23.5	23.5	: Wall Surface Area Factor
21.4	21.4	21.4	21.4	22.4	22.4	: Absorption
38.6	39.5	23.5	21.0	23.6	13.5	: Noise Level
42.2	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
56.9	62.4	64.9	68.9	68.9	62.9	: Exterior Wall Noise Exposure
20.4	25.0	43.5	50.0	46.4	50.5	: Transmission Loss
23.5	23.5	23.5	23.5	23.5	23.5	: Wall Surface Area Factor
21.4	21.4	21.4	21.4	22.4	22.4	: Absorption
38.6	39.5	23.5	21.0	23.6	13.5	: Noise Level
42.2	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Santa Anita & I-10 **Wall 2 of 3**
Project # : L210603
Room Name: CFA - Drive-Through

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**66.9**	**dBA**	50.2	55.7	58.2	62.2	62.2	56.2	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**66.9**	**dBA**	50.2	55.7	58.2	62.2	62.2	56.2	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 38 Exterior Stucco Wall	N	10.4	12	1	94.8	20	33	49	54	59	66
1" insulated glass (1/4 + 1/2 + 1/4)	N	3	3	1	9.0	22	19	38	45	40	44
Glass Door with 1/4" Single Pane	N	3	7	1	21.0	22	24	29	32	30	36
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **124.8** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
50.2	55.7	58.2	62.2	62.2	56.2	: Exterior Wall Noise Exposure
20.4	27.1	36.3	39.5	37.5	43.4	: Transmission Loss
21.0	21.0	21.0	21.0	21.0	21.0	: Wall Surface Area Factor
21.4	21.4	21.4	21.4	22.4	22.4	: Absorption
29.4	28.2	21.4	22.2	23.3	11.3	: Noise Level
33.1	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
50.2	55.7	58.2	62.2	62.2	56.2	: Exterior Wall Noise Exposure
20.4	27.1	36.3	39.5	37.5	43.4	: Transmission Loss
21.0	21.0	21.0	21.0	21.0	21.0	: Wall Surface Area Factor
21.4	21.4	21.4	21.4	22.4	22.4	: Absorption
29.4	28.2	21.4	22.2	23.3	11.3	: Noise Level
33.1	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Santa Anita & I-10
Project # : L210603
Room Name: CFA - Drive-Through

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**77.8**	**dBA**	61.1	66.6	69.1	73.1	73.1	67.1	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**77.8**	**dBA**	61.1	66.6	69.1	73.1	73.1	67.1	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 49 Typical Roof	N	18.5	10.4	1	192.4	30	41	52	57	46	54
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **192.4** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
61.1	66.6	69.1	73.1	73.1	67.1	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
22.8	22.8	22.8	22.8	22.8	22.8	: Wall Surface Area Factor
21.4	21.4	21.4	21.4	22.4	22.4	: Absorption
32.5	27.0	18.5	17.5	27.6	13.6	: Noise Level
34.8	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
61.1	66.6	69.1	73.1	73.1	67.1	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
22.8	22.8	22.8	22.8	22.8	22.8	: Wall Surface Area Factor
21.4	21.4	21.4	21.4	22.4	22.4	: Absorption
32.5	27.0	18.5	17.5	27.6	13.6	: Noise Level
34.8	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Santa Anita & I-10
Project # : L210603
Room Name: CFA - Office

Wall 1 of 2

Room Type : **Medium Soft**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	0.6	0.6	0.6	0.6	0.5	0.5	: Moderately Absorptive Room
Room Absorption (Sabins) :	79	79	79	79	95	95	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**78.3**	**dBA**	61.6	67.1	69.6	73.6	73.6	67.6	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**78.3**	**dBA**	61.6	67.1	69.6	73.6	73.6	67.6	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 38 Exterior Stucco Wall	N	8.5	12	1	60.0	20	33	49	54	59	66
1" insulated glass (1/4 + 1/2 + 1/4)	N	6	7	1	42.0	22	19	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **9.5** ft **Overall Area:** **102** ft²
Volume: **969** ft³

Number of Impacted Walls: **2**

Windows Open
Interior Noise Level: 47.5 dBA

Windows Closed
Interior Noise Level: 47.5 dBA

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
61.6	67.1	69.6	73.6	73.6	67.6	: Exterior Wall Noise Exposure
20.7	22.6	41.4	48.1	43.8	47.8	: Transmission Loss
20.1	20.1	20.1	20.1	20.1	20.1	: Wall Surface Area Factor
19.0	19.0	19.0	19.0	19.8	19.8	: Absorption
42.0	45.6	29.3	26.6	30.1	20.1	: Noise Level

47.4 **dBA** WINDOWS OPEN

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
61.6	67.1	69.6	73.6	73.6	67.6	: Exterior Wall Noise Exposure
20.7	22.6	41.4	48.1	43.8	47.8	: Transmission Loss
20.1	20.1	20.1	20.1	20.1	20.1	: Wall Surface Area Factor
19.0	19.0	19.0	19.0	19.8	19.8	: Absorption
42.0	45.6	29.3	26.6	30.1	20.1	: Noise Level

47.4 **dBA** WINDOWS CLOSED

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Santa Anita & I-10
Project # : L210603
Room Name: CFA - Office

Wall 2 of 2

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**77.8**	**dBA**	61.1	66.6	69.1	73.1	73.1	67.1	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**77.8**	**dBA**	61.1	66.6	69.1	73.1	73.1	67.1	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 49 Typical Roof	N	8.5	9.5	1	80.8	30	41	52	57	46	54
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **80.75** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
61.1	66.6	69.1	73.1	73.1	67.1	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
19.1	19.1	19.1	19.1	19.1	19.1	: Wall Surface Area Factor
19.0	19.0	19.0	19.0	19.8	19.8	: Absorption
31.2	25.7	17.2	16.2	26.4	12.4	: Noise Level
33.5	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
61.1	66.6	69.1	73.1	73.1	67.1	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
19.1	19.1	19.1	19.1	19.1	19.1	: Wall Surface Area Factor
19.0	19.0	19.0	19.0	19.8	19.8	: Absorption
31.2	25.7	17.2	16.2	26.4	12.4	: Noise Level
33.5	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Santa Anita & I-10
Project # : L210603
Room Name: CFA - Team Member Room

Wall 1 of 3

Room Type : **Medium Soft**	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	0.6	0.6	0.6	0.6	0.5	0.5	: Moderately Absorptive Room
Room Absorption (Sabins) :	208	208	208	208	250	250	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**78.3**	**dBA**	61.6	67.1	69.6	73.6	73.6	67.6	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**78.3**	**dBA**	61.6	67.1	69.6	73.6	73.6	67.6	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 38 Exterior Stucco Wall	N	17	12	1	162.0	20	33	49	54	59	66
1" insulated glass (1/4 + 1/2 + 1/4)	N	6	7	1	42.0	22	19	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **12.5** ft **Overall Area:** **204** ft²
Volume: **2550** ft³
Number of Impacted Walls: **3**

Windows Open		
Interior Noise Level:	**46.7**	**dBA**
Windows Closed		
Interior Noise Level:	**46.7**	**dBA**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
61.6	67.1	69.6	73.6	73.6	67.6	: Exterior Wall Noise Exposure
20.3	25.2	43.7	50.1	46.7	50.8	: Transmission Loss
23.1	23.1	23.1	23.1	23.1	23.1	: Wall Surface Area Factor
23.2	23.2	23.2	23.2	24.0	24.0	: Absorption
41.2	41.8	25.8	23.4	26.1	16.0	: Noise Level
44.7	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
61.6	67.1	69.6	73.6	73.6	67.6	: Exterior Wall Noise Exposure
20.3	25.2	43.7	50.1	46.7	50.8	: Transmission Loss
23.1	23.1	23.1	23.1	23.1	23.1	: Wall Surface Area Factor
23.2	23.2	23.2	23.2	24.0	24.0	: Absorption
41.2	41.8	25.8	23.4	26.1	16.0	: Noise Level
44.7	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Santa Anita & I-10
Project # : L210603
Room Name: CFA - Team Member Room

Wall 2 of 3

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**76.8**	**dBA**	60.1	65.6	68.1	72.1	72.1	66.1	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**76.8**	**dBA**	60.1	65.6	68.1	72.1	72.1	66.1	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 38 Exterior Stucco Wall	N	10	12	1	78.0	20	33	49	54	59	66
1" insulated glass (1/4 + 1/2 + 1/4)	N	6	7	1	42.0	22	19	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **120** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
60.1	65.6	68.1	72.1	72.1	66.1	: Exterior Wall Noise Exposure
20.6	23.2	42.0	48.6	44.5	48.5	: Transmission Loss
20.8	20.8	20.8	20.8	20.8	20.8	: Wall Surface Area Factor
23.2	23.2	23.2	23.2	24.0	24.0	: Absorption
37.1	40.0	23.8	21.1	24.5	14.4	: Noise Level
42.0	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
60.1	65.6	68.1	72.1	72.1	66.1	: Exterior Wall Noise Exposure
20.6	23.2	42.0	48.6	44.5	48.5	: Transmission Loss
20.8	20.8	20.8	20.8	20.8	20.8	: Wall Surface Area Factor
23.2	23.2	23.2	23.2	24.0	24.0	: Absorption
37.1	40.0	23.8	21.1	24.5	14.4	: Noise Level
42.0	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Santa Anita & I-10 **Wall 3 of 3**
Project # : L210603
Room Name: CFA - Team Member Room

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**77.8**	**dBA**	61.1	66.6	69.1	73.1	73.1	67.1	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**77.8**	**dBA**	61.1	66.6	69.1	73.1	73.1	67.1	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 49 Typical Roof	N	17	12.5	1	212.5	30	41	52	57	46	54
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **212.5** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
61.1	66.6	69.1	73.1	73.1	67.1	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
23.3	23.3	23.3	23.3	23.3	23.3	: Wall Surface Area Factor
23.2	23.2	23.2	23.2	24.0	24.0	: Absorption
31.2	25.7	17.2	16.2	26.4	12.4	: Noise Level
33.5	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
61.1	66.6	69.1	73.1	73.1	67.1	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
23.3	23.3	23.3	23.3	23.3	23.3	: Wall Surface Area Factor
23.2	23.2	23.2	23.2	24.0	24.0	: Absorption
31.2	25.7	17.2	16.2	26.4	12.4	: Noise Level
33.5	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Santa Anita & I-10
Project # : L210603
Room Name: CFA - Kitchen

Wall 1 of 3

Room Type : **Medium Hard**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	1.2	1.2	1.2	1.2	1.0	1.0	: Moderately Reflective Room
Room Absorption (Sabins) :	657	657	657	657	821	821	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**73.6**	**dBA**	56.9	62.4	64.9	68.9	68.9	62.9	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**73.6**	**dBA**	56.9	62.4	64.9	68.9	68.9	62.9	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 38 Exterior Stucco Wall	N	38	12	1	456.0	20	33	49	54	59	66
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **36** ft **Overall Area:** **456** ft²
Volume: **16416** ft³

Number of Impacted Walls: **3**

Windows Open Interior Noise Level:	**43.0**	**dBA**
Windows Closed Interior Noise Level:	**43.0**	**dBA**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
56.9	62.4	64.9	68.9	68.9	62.9	: Exterior Wall Noise Exposure
20.0	33.0	49.0	54.0	59.0	66.0	: Transmission Loss
26.6	26.6	26.6	26.6	26.6	26.6	: Wall Surface Area Factor
28.2	28.2	28.2	28.2	29.1	29.1	: Absorption
35.3	27.8	14.3	13.3	7.4	-5.6	: Noise Level
36.1	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
56.9	62.4	64.9	68.9	68.9	62.9	: Exterior Wall Noise Exposure
20.0	33.0	49.0	54.0	59.0	66.0	: Transmission Loss
26.6	26.6	26.6	26.6	26.6	26.6	: Wall Surface Area Factor
28.2	28.2	28.2	28.2	29.1	29.1	: Absorption
35.3	27.8	14.3	13.3	7.4	-5.6	: Noise Level
36.1	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Santa Anita & I-10 **Wall 2 of 3**
Project # : L210603
Room Name: CFA - Kitchen

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**78.3**	**dBA**	61.6	67.1	69.6	73.6	73.6	67.6	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**78.3**	**dBA**	61.6	67.1	69.6	73.6	73.6	67.6	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 38 Exterior Stucco Wall	N	29	12	1	324.0	20	33	49	54	59	66
1" insulated glass (1/4 + 1/2 + 1/4)	N	6	2	2	24.0	22	19	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **348** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
61.6	67.1	69.6	73.6	73.6	67.6	: Exterior Wall Noise Exposure
20.1	28.7	46.4	52.3	50.9	55.3	: Transmission Loss
25.4	25.4	25.4	25.4	25.4	25.4	: Wall Surface Area Factor
28.2	28.2	28.2	28.2	29.1	29.1	: Absorption
38.7	35.6	20.4	18.5	18.9	8.6	: Noise Level
40.6	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
61.6	67.1	69.6	73.6	73.6	67.6	: Exterior Wall Noise Exposure
20.1	28.7	46.4	52.3	50.9	55.3	: Transmission Loss
25.4	25.4	25.4	25.4	25.4	25.4	: Wall Surface Area Factor
28.2	28.2	28.2	28.2	29.1	29.1	: Absorption
38.7	35.6	20.4	18.5	18.9	8.6	: Noise Level
40.6	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Santa Anita & I-10 **Wall 3 of 3**
Project # : L210603
Room Name: CFA - Kitchen

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**77.8**	**dBA**	61.1	66.6	69.1	73.1	73.1	67.1	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**77.8**	**dBA**	61.1	66.6	69.1	73.1	73.1	67.1	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 49 Typical Roof	N	38	36	1	1368.0	30	41	52	57	46	54
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **1368** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
61.1	66.6	69.1	73.1	73.1	67.1	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
31.4	31.4	31.4	31.4	31.4	31.4	: Wall Surface Area Factor
28.2	28.2	28.2	28.2	29.1	29.1	: Absorption
34.3	28.8	20.3	19.3	29.3	15.3	: Noise Level
36.6	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
61.1	66.6	69.1	73.1	73.1	67.1	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
31.4	31.4	31.4	31.4	31.4	31.4	: Wall Surface Area Factor
28.2	28.2	28.2	28.2	29.1	29.1	: Absorption
34.3	28.8	20.3	19.3	29.3	15.3	: Noise Level
36.6	**dBA**	WINDOWS CLOSED				

Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

Appendix H
Recommended Products

TECHNICAL DATA SHEET

Revision: August 7, 2018
Supersedes: November 13, 2015
Ref. #: 518327

DRAFT & ACOUSTICAL SOUND SEALANT

SC175

DESIGNED FOR USE ON SOUND-RATED WALL SYSTEMS

OSI SC175 Draft & Acoustical Sound Sealant is a non-flammable, latex-based sealant specially designed to reduce sound transmissions and drafts in all types of wall systems where a sound-rated assembly is required. Its primary function is to achieve and maintain the specific STC (Sound Transmission Class) value of the system designed. This paintable sealant remains flexible and adheres firmly to wood, metal studs, concrete, gypsum board and most other building materials. It is easy-to-use and cleans up easily with soap and water.

Available As:

Item #	Size	Color
1496542	28 fl oz (828 ml) cartridge	White

FEATURES & BENEFITS

- Designed for Use on Sound-Rated Wall Systems
- Reduces Draft & Sound Transmission
- Tested to UL 1479 and UL 2079 *****
- Tested to ASTM E84
- Stays Permanently Flexible
- VOC Compliant

RECOMMENDED FOR

- Developed primarily for commercial construction utilizing light weight cavity walls and floor systems
- Used for exposed and unexposed applications at perimeter joints, floor and ceiling runners, cutouts in gypsum board, veneer plaster systems and other areas where a sound rated assembly is required
- Sealant can also be applied or buttered around all electrical boxes and outlets, cold air returns, heating and air conditioning ducts and other utility equipment penetrating wall surfaces for increased acoustical performance
- Works well for sealing sill and base plates in residential construction and non-fire rated systems

LIMITATIONS

- SC175 must be applied in accordance with ASTM C919 (Standard Practice for Use of Sealants in Acoustical Applications
- Non-fire rated and fire rated systems. Refer to UL Fire Resistance Directory for testing details *****
- Not for use in underwater applications or permanent water immersion
- Do not use in applications requiring temperature resistance greater than 170°F
- Do not use on metals that will corrode
- Consult with manufacturer of adjoining materials for compatibility, including CPVC materials
- Not recommended for bonding two non-porous surfaces
- Not recommended for use with polyethylene, polypropylene, polytetrafluoroethylene (PTFE)/Teflon® or nylon

COVERAGE

For a 28 fl. oz. (825 ml) cartridge:	
▪ A 1/4” (6 mm) bead extrudes approximately 86 ft. (26 m)	▪ A 3/8” (9.5 mm) bead extrudes approximately 38 ft. (12 m)

TECHNICAL DATA

Typical Uncured Physical Properties:

Color:	White	**VOC Content:**	<1.0% by weight CARB 45 g/l SCAQMD rule 1168
Appearance:	Non-slumping paste		
Base:	Synthetic latex rubber	**Shelf Life:**	24 months from date of manufacture (unopened)
Odor:	Mild acrylic odor	**Lot Code Explanation**	**YYDDD** **YY=** Last two digits of year of manufacture **DDD=** Day of manufacture based on 365 days in a year
Specific Gravity:	1.59		
Flashpoint:	800.6° F (427°C)		
Freeze/Thaw Stability	3 Freeze/Thaw Cycles Unaffected by freezing once cured	**Example:**	18061 = 61st day of 2018 = March 2, 2018

Typical Application Properties:

Application Temperature:	Above 40°F (4°C)	
Open/Tooling Time	15 minutes*	
Tack-free Time:	30 minutes	
Cure Time:	2-7 days or longer*	* Cure time is dependent on temperature, humidity and depth of sealant applied
Sag or Slump:	0.10 inches	ASTM D2202

Typical Cured Performance Properties:

Color:	White	
Service Temperature:	-5°F (-21°C) to 170°F (77°C)	
Water Resistant:	Yes	
Paintable:	Yes, after 24 hours	
Surface Burning Characteristics:	Flame Spread Index: 0 Smoke Development: 0	ASTM E 84 Inorganic reinforced cement board
Sound Transmission Class:	Unsealed partition: STC = 15 Single bead of sealant used at top and bottom runners only – both sides of partition system: STC = 24 Single bead of sealant used at top, bottom and perimeter joints – both sides of system: STC = 45 Double Bead of Sealant used at top, bottom, and all perimeter edges - both sides of partition system: STC = 55	ASTM E 90
Low Temperature Flexibility After Artificial Weathering:	Pass with no cracking or adhesion loss	ASTM C734
Consistency Test:	300	ASTM D217
180° Peel Adhesion:		ASTM C794
Aluminum:	10.0 pli	7day cure @ 73°F & day cure @ 122°F
Wood:	8.0 pli	

TECHNICAL DATA SHEET

Revision: August 7, 2018
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Ref. #: 518327

TECHNICAL DATA

Specifications:

UL File Number R39256

FILL, VOID OR CAVITY MATERIAL
FOR USE IN THROUGH-PENETRATION FIRESTOP
SYSTEMS & JOINT SYSTEMS
SEE UL FIRE RESISTANCE DIRECTORY
Control No. # R39256

Tested to or conforms to:

- **ASTM C834** – Standard Specification for Latex Sealants
- **ASTM E84, Class A** – Standard Test Method for Surface Burning Characteristics of Building Materials (Tested at UL under research project)
- **ASTM E90** – Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
- **ASTM C919** – Standard Practice for Use of Sealants in Acoustical Applications
- **ASTM D217** – Standard Test Methods for Cone Penetration of Lubricating Grease
- *** UL 1479** (ASTM E814) – Standard for Fire Tests of Penetration Firestops
- *** UL 2079** (ASTM E1966) – Standard for Tests for Fire Resistance of Building Joint Systems
- GreenGuard® Certified

*** Refer to UL Fire Resistance Directory for design systems**

DIRECTIONS

Tools Typically Required:
Utility knife, caulking gun and tool to puncture inside seal of cartridge.

Safety Precautions:
Wear gloves.

Preparation:
The temperature of the product, the surfaces and the working area must be above 40°F (4°C). For best performance, apply sealant at 70°F (21°C). Ensure surfaces to be sealed are clean, dry, structurally sound and free of dust, grease, oil, and other foreign contaminants. Cut off tip of cartridge at a 45° angle to desired bead size (3/8" recommended). Puncture inside seal of cartridge.

Application:
Sealant should be applied as specified in the sound-rated system being installed (either wood or metal studs). Sealant must be applied in accordance with ASTM C 919. Maximum joint size should not exceed 5/8" (15.9 mm) width x ½" (12.7 mm) depth. If necessary, sealant can be painted as applicable to meet project requirements after 24 hours.

Bottom and Top Runners:
Apply a continuous 3/8" (9.5 mm) round bead of sealant on runners before setting gypsum board. Press gypsum board firmly into sealant, ensuring complete contact with adjacent materials. Fill joint on top runners to complete the seal. Repeat procedure for double-layer applications.

Cut-Outs and Perimeter Joints:
Backs of electrical boxes, pipes, duct systems and other types of utility equipment penetrating wall surfaces shall be buttered with sealant. Seal all joints at perimeter edges including abutting surfaces and corner joints.

For further application information, refer to ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications.

Clean-up:
Clean tools and uncured adhesive residue immediately with warm water and soap. Cured sealant may be carefully cut away with a sharp-edged tool.

STORAGE & DISPOSAL

DAMAGED BY FREEZING. Store in a cool, dry location at room temperature. For maximum shelf life store at 75°F (24°C). Take unwanted product to an approved household hazardous waste transfer facility. Hardened material may be disposed of with

LABEL PRECAUTIONS

CAUTION! Contains ethylene glycol, mineral spirits, and crystalline silica. May cause skin, eye and respiratory irritation. Avoid contact with eyes and skin. Avoid breathing vapors. Use with adequate ventilation. Do not swallow. FIRST AID: If swallowed do not induce vomiting, call a physician or Poison Control center immediately. For eye contact, flush with water for 15 minutes, call a physician. For skin contact, wash thoroughly with soap and water. **KEEP OUT OF REACH OF CHILDREN.**

WARNING: Cancer and Reproductive Harm – www.P65Warnings.ca.gov.

Refer to the Safety Data Sheet (SDS) for further information.

LIMITED WARRANTY

This product is warranted to be free from defects in materials when used as directed. Henkel's sole obligation shall be, at its option, to replace or refund the purchase price of product proven to be defective. Henkel makes no other warranty, express or implied, including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE and will not be liable for consequential or incidental damages. This limited warranty gives you specific legal rights, which vary from state to state

DISCLAIMER

The information and recommendations contained herein are based on our research and are believed to be accurate, but no warranty, express or implied, is made or should be inferred. Henkel recommends purchasers/users should test the products to determine acceptable quality and suitability for the intended use. All adhesive/sealant applications should be tested under simulated or actual end use conditions to ensure the adhesive/sealant meets or exceeds all required project specifications. Since assembly conditions may be critical to adhesive/sealant performance, it is also recommended that testing be performed on specimens assembled under simulated or actual production conditions. Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute a permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of the patent.

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OSI works side by side with residential builders, contractors and remodeling professionals who use our products every day on their jobsites. OSI combines this deep understanding with the sophisticated global innovation and manufacturing excellence of Henkel to make the world's best professional-grade caulks, sealants and adhesives.

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Henkel Corporation - Professional & Consumer Adhesives Headquarters - Rocky Hill, CT 06067
www.henkelna.com

AC-20 FTR®

(Fire & Temperature Rated) Acoustical & Insulation Sealant

Specification Data Sheet

PECORA CORPORATION

BASIC USES

• AC-20 FTR® fire-rated systems are suitable for applications in schools, hospitals, churches, high-rise office buildings and hotels, prisons, sports arenas, and other public-use buildings to ensure a safe and orderly evacuation in the event of a fire.

2. MANUFACTURER

Pecora Corporation
165 Wambold Road
Harleysville, PA 19438

Phone: 215-723-6051
800-523-6688
Fax: 215-721-0286
Website: www.pecora.com

3. PRODUCT DESCRIPTION

AC-20 FTR® is a unique acrylic latex sealant that is UL® Classified in firestopping systems for expansion joints and through penetrations. When properly installed, these systems effectively contain fire, smoke, toxic fumes, and water within a given area surrounded by firewalls for a two, three, or four hour period, depending on the design specifications.

Other Uses: Excellent adhesive, flexibility and durability qualities make AC-20 FTR® ideal for insulating and weatherproofing around windows, doors, panels, siding, duct work, base plates, etc. It is compatible with all common building materials including specialties such as polystyrene, polyurethane, cork, vinyl, foamed and fibrous glass.

Used as an acoustical sealant, AC-20 FTR® reduces sound transmission in partition systems to achieve specific STC values by sealing spaces around cut-outs and at perimeters of partitions. The sealant cures to a tough rubber to form a long-lasting acoustical seal.

PACKAGING

• 30 fl. oz. (.887 liter) fiber cartridges
• 5-gallon (18.9 liter) pails

COLOR

• White, Beige-Gray
Special colors available in 250-gallon (946 liter) batches.

4. TECHNICAL DATA

Applicable Standards: ASTM C-834-86 specification for latex sealing compounds.

Fire Rated System: Two-hour Fire and Temperature Rated wall and floor joint systems up to 7" (178mm) wide and four-hour systems up to 4" wide can be designed with AC-20 FTR® in conjunction with Ultra Block fire blocking material in fire-rated walls and floors. Reference: ANSI/UL 263, ASTM E-119, NFPA No. 251.

UL CLASSIFIED

UNDERWRITERS LABORATORIES INC.® CLASSIFIED JOINT TREATMENT MATERIALS FIRE RESISTANCE CLASSIFICATION

DESIGNS J900H (FFS 0006) &U900 "O" (WWS 0010), J900Z (FFS 2002), U900Z-009 (WWS 2008), J900Z-007 (FFS 1010), U900Z-015 (WWS 1012)

AC-20 FTR® in conjunction with Ultra Block® achieves a 2-hour fire rating when sealing around steel or copper pipe and electrical metallic tubing or steel conduit in through penetration systems. Reference: ANSI/UL 1479, ASTM E-814.

FILL, VOID OR CAVITY MATERIALS CLASSIFIED BY UNDERWRITERS LABORATORIES INC. FOR USE IN THROUGH-PENETRATION FIRESTOP SYSTEM NO. CAJ 1093

In addition to its fire-blocking value, Ultra Block® is very efficient acoustically, having a noise reduction coefficient of .75 and sound transmission coefficient of .5 (Ultra Block® is a registered trademark of Backer Rod Mfg. and Supply Co., Denver, CO, USA.)

5. INSTALLATION

Surface Preparation: Surfaces must be free of all contamination. Sealant may be applied to damp, porous surfaces. No priming is required.

Application: Refer to Pecora Firestopping Manual 07270 and UL Fire Resistance Directory for installation details on fire-rated joint and through penetration systems. For insulating and weatherproofing purposes, fill all window, door, and panel perimeter joints using a resilient backer rod to control sealant depth to 1/2" (13mm) maximum. For best results, protect sealant from excessive low temperatures and apply above 40°F (4°C). For acoustical purposes, apply continuous

TYPICAL PHYSICAL PROPERTIES

Test Property	Value	Procedure
Modulus @ 100% (psi)	15-20	ASTM D412
Ultimate Tensile (psi)	30-40	ASTM D412
Ultimate Elongation (%)	400-500	ASTM D412
Movement Capability (%)	±7 1/2	ASTM D412
VOC Content	31 g/L	

beads of sealant to seal perimeters of all sound-rated partitions. Apply sealant in the angles formed by metal components or base-layer panels and abutting surfaces. Apply sealant around all openings formed for outlets; electrical, telephone, light fixtures, etc.

Tooling: Tool material flush with surfaces to allow for expected shrinkage and insure good contact and adhesion to the substrate.

Cleaning: Remove excess material with water or a damp cloth before it cures. Sealant may be painted within 30 minutes after application with a good grade of latex paint.

Shelf Life: AC-20 FTR® has a shelf life well in excess of one year when stored in unopened containers below 80° F (27°C).

Precautions: AC-20 FTR® is non-flammable, non-toxic, non-irritating and environmentally safe. However, do not take internally. Refer to Material Safety Data Sheet for additional information.

Ultra Block® is a non-carcinogenic processed continuous filament textile glass fiber that may cause skin, eye and respiratory irritation. When applying, wear long sleeves, gloves, cap, goggles or safety glasses and NIOSH/MSHA-approved dust respirator. After use bathe with soap and warm water. Wash clothes separately and rinse after use. Refer to Material Safety Data Sheet for additional information.

FOR PROFESSIONAL USE ONLY.
KEEP OUT OF THE REACH OF CHILDREN.

6. AVAILABILITY AND COST

Pecora products are available from our stocking distributors in all major cities. For the name and telephone number of your nearest representative call one of our locations listed below or visit our website at www.pecora.com.

7. WARRANTY

Pecora Corporation warrants its products to be free of defects. Under this warranty, we will provide, at no charge, replacement materials for, or refund the purchase price of, any product proven to be defective when installed in accordance with our published recommendations and in applications considered by us as suitable from this product. This warranty in lieu of any and all other warranties expressed or implied, and in no case will Pecora be liable for incidental or consequential damages.

8. MAINTENANCE

If the sealant is damaged and the bond is intact, cut out the damaged area and recaulk. No primer is required. If the bond has been affected, remove the sealant, clean and prepare the joint in accordance with instructions under "Installation".

9. TECHNICAL SERVICES

Pecora representatives are available to assist you in selecting an appropriate product and to provide on-site application instructions or to conduct jobsite inspections. For further assistance call our Technical Service Department at 800-523-6688.

ISO 9001:2000
KEMA CERTIFICATE
Accredited by ANSI-RAB NAP

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