Appendix F

Noise Memo

MD ACOUSTICS
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May 5, 2023

Clement Balser
Blackpoint Properties, LLC
1129 Industrial Ave. Ste. 205
Petaluma, CA 94952

Subject: Highway 111 & Dune Palms Road – Cumulative Impact Memo, City of La Quinta, CA

Dear Mr. Balser:

MD Acoustics, LLC (MD) has completed a cumulative evaluation of the impacts of operational, traffic, and construction noise for the proposed Chick-fil-A and Quick Quack Car Wash proposed on the corner of Dune Palms Road and Highway 111 in the City of La Quinta, CA. The individual site impacts are presented in "Acoustical Analysis Report for Chick-fil-A – Highway 111 & Dune Palms" (Eilar Associates Inc., December 2022) and "Quick Quack Car Wash (Store #43-049)" (MD Acoustics, LLC, January 2023).

Operational

The minimum ambient noise levels were determined using the closest ambient noise measurement taken during the operational hours of both sites (7AM to 9PM). The Chick-fil-A operational levels and ambient levels at R3-R5 are provided in the December 2022 report. The Car Wash levels were determined by moving the receivers from the Quick Quack model to identical locations as the December 2022 report for comparison. Ambient levels from R1-R2 and R6-R11 are provided in the January 2023 report.

Table 1: Cumulative Operational Noise Level (dBA, Leq)

Receiver Number	Receiver Location	Noise Level					Daytime Limit
		Ambient	Chick-fil-A	Car Wash	Cumulative	Ambient Increase	
R1	Far North Property Line	53	38	46	**54**	1	**75**
R2	North Residential Property	55	34	40	**55**	0	**65**
R3	South Property Line	63	46	47	**63**	0	**75**
R4	Southeast Property	63	39	49	**63**	0	**75**
R5	Southwest Property	63	43	42	**63**	0	**75**
R6	South Residential Property	53	34	37	**53**	0	**65**
R7	East Property Line	57	42	56	**60**	3	**75**
R8	West Property Line	57	46	45	**58**	1	**75**
R9	North Future Residential	53	48	62	**63**	10	**65**
R10	North Future Residential	53	45	62	**63**	10	**65**
R11	North Future Residential	53	42	62	**63**	10	**65**

As shown in Table 1, the cumulative noise levels from both portions of the project do not exceed the residential or commercial daytime limits at the receivers. The existing adjacent residential properties are not anticipated to increase as a result of the project. The existing adjacent commercial properties are

anticipated to increase up to 3 dB as a result of the project. As the cumulative project plus ambient are within the daytime limits for residential and nonresidential properties, the impact is less than significant.

Traffic

Per the ITE Trip Generation Manual, 11th Edition, an automatic car wash generates 775 daily trips. The Chick-fil-A portion of the project is expected to generate 1.700 daily trips. The cumulative trips are added to the current ADTs as provided in the December 2022 report. A significant increase would occur if cumulative project increases resulted in an audible increase of 3 dB.

Table 2: Cumulative Traffic Noise Increase

Roadway	Traffic Volume (ADT)		Sound Level Increase (dB)
	Current	Current Plus Projects	
Dune Palms Road	8,373	10,848	1.1
Highway 111	38,037	40,512	0.3

As shown in Table 2, the cumulative increase is anticipated to be less than 3 dB at the adjacent roadways. The impact is, therefore, less than significant.

Construction

Construction noise levels from the construction of the Chick-fil-A portion of the project were determined using levels from the UK Department for Environment, Food and Rural Affairs (DEFRA) as presented in the December 2022 report. Construction noise levels from the construction of the car wash portion of the project were determined using levels from the Federal Highway Administration (FHWA). The cumulative analysis assumes that the loudest portions of construction will occur simultaneously. The threshold of 75 dBA Leq as used in the December 2022 report is also used for this analysis.

Table 3: Cumulative Construction Noise Levels

Receiver	Location	Typical Noise Limit (dBA)	Grading/Utilities		Paving/Building Construction	
			Car Wash Noise Level (dBA)	Cumulative Noise Level (dBA)	Car Wash Noise Level (dBA)	Cumulative Noise Level (dBA)
R1	North Property Line	75	56	56	53	54
R2	North Residential Property	75	50	50	47	48
R3	South Property Line	75	60	61	58	60
R4	Southeast Property	75	63	63	61	61
R5	Southwest Property	75	55	57	53	57
R6	South Residential Property	75	52	52	50	50
R7	East Property Line	75	70	70	68	68
R8	West Property Line	75	57	60	54	60

As shown in Table 3, the cumulative noise levels will be 48-52 dBA Leq at the adjacent residential sites and 54-70 dBA Leq at the adjacent commercial sites. These levels are below the typical 75 dBA Leq construction noise threshold. The impact is, therefore, less than significant.

Construction must occur during the permitted hours as outlined in Section 6.08.050 of the City of La Quinta Municipal Code. Additionally, the "good practice" policies presented in the December 2022 study should be practiced at both sites. These policies are as follows:

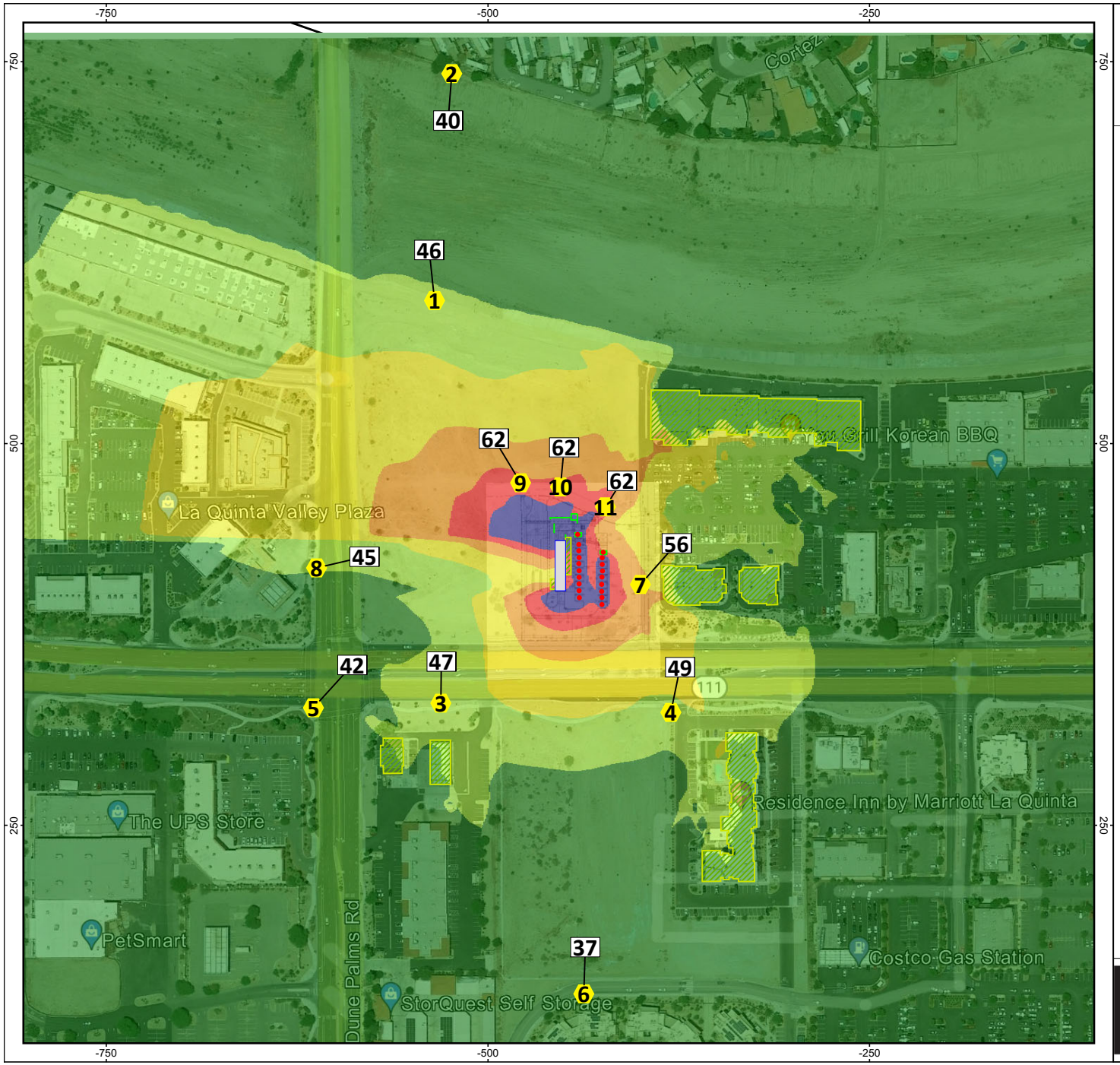
1. Turn off equipment when not in use.
2. Limit the use of enunciators or public address systems, except for emergency notifications.
3. Equipment used in construction should be maintained in proper operating condition, and all loads should be properly secured to prevent rattling and banging.
4. Schedule 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.

MD is pleased to provide this Cumulative Noise Impact Study for the retail portion of the Highway 111 and Dune Palms Road Mixed-Use Project. If you have any questions regarding this analysis, please don't hesitate to call us at (805) 426-4477.

Sincerely,
MD Acoustics, LLC

Claire Pincock
Acoustical Consultant, INCE-USA

Appendix A:
Previous Noise Impact Reports



03622227_QQ 43-049 La Quinta
Noise Level Contours
12 Sonny Blower System
Standard Tunnel

Levels in dB(A)

<	45
45 -	50
50 -	55
55 -	60
60 -	65
>=	65

Signs and symbols

- Level table, dBA
- Buildings
- Tunnel Enclosure
- Point Souce: (Vacuums)
- Wall
- Point receiver

Length scale 1:209

0 100 200 400 600 feet

MD ACOUSTICS
Sound Solutions for Planning and Design

Appendix B:
Car Wash SoundPLAN Model

R3

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Edge of Site to Receptor, feet	Center of Site to Receptor, feet	Item Usage Percent[1]	Ground Factor[2]	Usage Factor	Receptor Item Lmax, dBA	Recptor. Item Leq, dBA
Grading/Utilities									
Grader	1	85	450	600	40	0.66	0.40	59.6	52.3
Dozer	1	82	450	600	40	0.66	0.40	56.6	49.3
Tractor	1	84	450	600	40	0.66	0.40	58.6	51.3
Crane	1	81	450	600	16	0.66	0.16	55.6	44.3
Front End Loader	1	79	450	600	40	0.66	0.40	53.6	46.3
								59.6	56.6
Paving/Building Construction									
Crane	1	81	450	600	16	0.66	0.16	55.6	44.3
Man lift	1	75	450	600	20	0.66	0.20	49.6	39.3
Generator	1	81	450	600	50	0.66	0.50	55.6	49.3
Tractor	1	84	450	600	40	0.66	0.40	58.6	51.3
Welder/Torch	1	74	450	600	40	0.66	0.40	48.6	41.3
								58.6	54.3

[1]FHWA Construction Noise Handbook: Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

R3

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Edge of Site to Receptor, feet	Center of Site to Receptor, feet	Item Usage Percent[1]	Ground Factor[2]	Usage Factor	Receptor Item Lmax, dBA	Recptor. Item Leq, dBA
Grading/Utilities									
Grader	1	85	50	185	40	0.66	0.40	85.0	65.9
Dozer	1	82	50	185	40	0.66	0.40	82.0	62.9
Tractor	1	84	50	185	40	0.66	0.40	84.0	64.9
Crane	1	81	50	185	16	0.66	0.16	81.0	57.9
Front End Loader	1	79	50	185	40	0.66	0.40	79.0	59.9
								85.0	70.2
Paving/Building Construction									
Crane	1	81	50	185	16	0.66	0.16	81.0	57.9
Man lift	1	75	50	185	20	0.66	0.20	75.0	52.9
Generator	1	81	50	185	50	0.66	0.50	81.0	62.9
Tractor	1	84	50	185	40	0.66	0.40	84.0	64.9
Welder/Torch	1	74	50	185	40	0.66	0.40	74.0	54.9
								84.0	67.9

[1]FHWA Construction Noise Handbook: Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

R3

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Edge of Site to Receptor, feet	Center of Site to Receptor, feet	Item Usage Percent[1]	Ground Factor[2]	Usage Factor	Receptor Item Lmax, dBA	Recptor. Item Leq, dBA
Grading/Utilities									
Grader	1	85	750	900	40	0.66	0.40	53.7	47.6
Dozer	1	82	750	900	40	0.66	0.40	50.7	44.6
Tractor	1	84	750	900	40	0.66	0.40	52.7	46.6
Crane	1	81	750	900	16	0.66	0.16	49.7	39.7
Front End Loader	1	79	750	900	40	0.66	0.40	47.7	41.6
								53.7	52.0
Paving/Building Construction									
Crane	1	81	750	900	16	0.66	0.16	49.7	39.7
Man lift	1	75	750	900	20	0.66	0.20	43.7	34.6
Generator	1	81	750	900	50	0.66	0.50	49.7	44.6
Tractor	1	84	750	900	40	0.66	0.40	52.7	46.6
Welder/Torch	1	74	750	900	40	0.66	0.40	42.7	36.6
								52.7	49.6

[1]FHWA Construction Noise Handbook: Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

R3

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Edge of Site to Receptor, feet	Center of Site to Receptor, feet	Item Usage Percent[1]	Ground Factor[2]	Usage Factor	Receptor Item Lmax, dBA	Recptor. Item Leq, dBA
Grading/Utilities									
Grader	1	85	500	675	40	0.66	0.40	58.4	51.0
Dozer	1	82	500	675	40	0.66	0.40	55.4	48.0
Tractor	1	84	500	675	40	0.66	0.40	57.4	50.0
Crane	1	81	500	675	16	0.66	0.16	54.4	43.0
Front End Loader	1	79	500	675	40	0.66	0.40	52.4	45.0
								58.4	55.3
Paving/Building Construction									
Crane	1	81	500	675	16	0.66	0.16	54.4	43.0
Man lift	1	75	500	675	20	0.66	0.20	48.4	37.9
Generator	1	81	500	675	50	0.66	0.50	54.4	47.9
Tractor	1	84	500	675	40	0.66	0.40	57.4	50.0
Welder/Torch	1	74	500	675	40	0.66	0.40	47.4	40.0
								57.4	52.9

[1]FHWA Construction Noise Handbook: Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

R3

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Edge of Site to Receptor, feet	Center of Site to Receptor, feet	Item Usage Percent[1]	Ground Factor[2]	Usage Factor	Receptor Item Lmax, dBA	Recptor. Item Leq, dBA
Grading/Utilities									
Grader	1	85	150	350	40	0.66	0.40	72.3	58.5
Dozer	1	82	150	350	40	0.66	0.40	69.3	55.5
Tractor	1	84	150	350	40	0.66	0.40	71.3	57.5
Crane	1	81	150	350	16	0.66	0.16	68.3	50.6
Front End Loader	1	79	150	350	40	0.66	0.40	66.3	52.5
								72.3	62.9
Paving/Building Construction									
Crane	1	81	150	350	16	0.66	0.16	68.3	50.6
Man lift	1	75	150	350	20	0.66	0.20	62.3	45.5
Generator	1	81	150	350	50	0.66	0.50	68.3	55.5
Tractor	1	84	150	350	40	0.66	0.40	71.3	57.5
Welder/Torch	1	74	150	350	40	0.66	0.40	61.3	47.5
								71.3	60.5

[1]FHWA Construction Noise Handbook: Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Edge of Site to Receptor, feet	Center of Site to Receptor, feet	Item Usage Percent[1]	Ground Factor[2]	Usage Factor	Receptor Item Lmax, dBA	Recptor. Item Leq, dBA
Grading/Utilities									
Grader	1	85	250	440	40	0.66	0.40	66.4	55.9
Dozer	1	82	250	440	40	0.66	0.40	63.4	52.9
Tractor	1	84	250	440	40	0.66	0.40	65.4	54.9
Crane	1	81	250	440	16	0.66	0.16	62.4	47.9
Front End Loader	1	79	250	440	40	0.66	0.40	60.4	49.9
								66.4	60.2
Paving/Building Construction									
Crane	1	81	250	440	16	0.66	0.16	62.4	47.9
Man lift	1	75	250	440	20	0.66	0.20	56.4	42.9
Generator	1	81	250	440	50	0.66	0.50	62.4	52.9
Tractor	1	84	250	440	40	0.66	0.40	65.4	54.9
Welder/Torch	1	74	250	440	40	0.66	0.40	55.4	44.9
								65.4	57.9

[1]FHWA Construction Noise Handbook: Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

R2

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Edge of Site to Receptor, feet	Center of Site to Receptor, feet	Item Usage Percent[1]	Ground Factor[2]	Usage Factor	Receptor Item Lmax, dBA	Recptor. Item Leq, dBA
Grading/Utilities									
Grader	1	85	900	1100	40	0.66	0.40	51.6	45.3
Dozer	1	82	900	1100	40	0.66	0.40	48.6	42.3
Tractor	1	84	900	1100	40	0.66	0.40	50.6	44.3
Crane	1	81	900	1100	16	0.66	0.16	47.6	37.3
Front End Loader	1	79	900	1100	40	0.66	0.40	45.6	39.3
								51.6	49.6
Paving/Building Construction									
Crane	1	81	900	1100	16	0.66	0.16	47.6	37.3
Man lift	1	75	900	1100	20	0.66	0.20	41.6	32.3
Generator	1	81	900	1100	50	0.66	0.50	47.6	42.3
Tractor	1	84	900	1100	40	0.66	0.40	50.6	44.3
Welder/Torch	1	74	900	1100	40	0.66	0.40	40.6	34.3
								50.6	47.3

[1]FHWA Construction Noise Handbook: Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

R1

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Edge of Site to Receptor, feet	Center of Site to Receptor, feet	Item Usage Percent[1]	Ground Factor[2]	Usage Factor	Receptor Item Lmax, dBA	Recptor. Item Leq, dBA
Grading/Utilities									
Grader	1	85	450	650	40	0.66	0.40	59.6	51.4
Dozer	1	82	450	650	40	0.66	0.40	56.6	48.4
Tractor	1	84	450	650	40	0.66	0.40	58.6	50.4
Crane	1	81	450	650	16	0.66	0.16	55.6	43.4
Front End Loader	1	79	450	650	40	0.66	0.40	53.6	45.4
								59.6	55.7
Paving/Building Construction									
Crane	1	81	450	650	16	0.66	0.16	55.6	43.4
Man lift	1	75	450	650	20	0.66	0.20	49.6	38.4
Generator	1	81	450	650	50	0.66	0.50	55.6	48.4
Tractor	1	84	450	650	40	0.66	0.40	58.6	50.4
Welder/Torch	1	74	450	650	40	0.66	0.40	48.6	40.4
								58.6	53.4

[1]FHWA Construction Noise Handbook: Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Appendix C:
Construction Noise Calculations

Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

Acoustical Analysis Report for Chick-fil-A – Highway 111 & Dune Palms

Prepared for:
Chick-fil-A, Inc.
Attention: Don Ikeler
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Irvine, California 92618
Phone: 949-923-8243

Prepared by:
Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025
Phone: 760-738-5570
info@eilarassociates.com

Job # S221005

December 2, 2022

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F.	CadnaA Analysis Data and Results

1.0 Executive Summary

The proposed project, Chick-fil-A – Highway 111 and Dune Palms, consists of the construction of a new standalone Chick-fil-A fast-food restaurant. The project site is located at the northeast corner of Highway 111 and Dune Palms Road in the City of La Quinta, 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 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 La Quinta 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 La Quinta at all surrounding properties. 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 La Quinta 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 La Quinta 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.

2.0 Introduction

This acoustical analysis report is submitted to satisfy the noise requirements of the City of La Quinta 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 La Quinta 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 – Highway 111 and Dune Palms, consists of the construction of a new standalone Chick-fil-A restaurant (4,839 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.

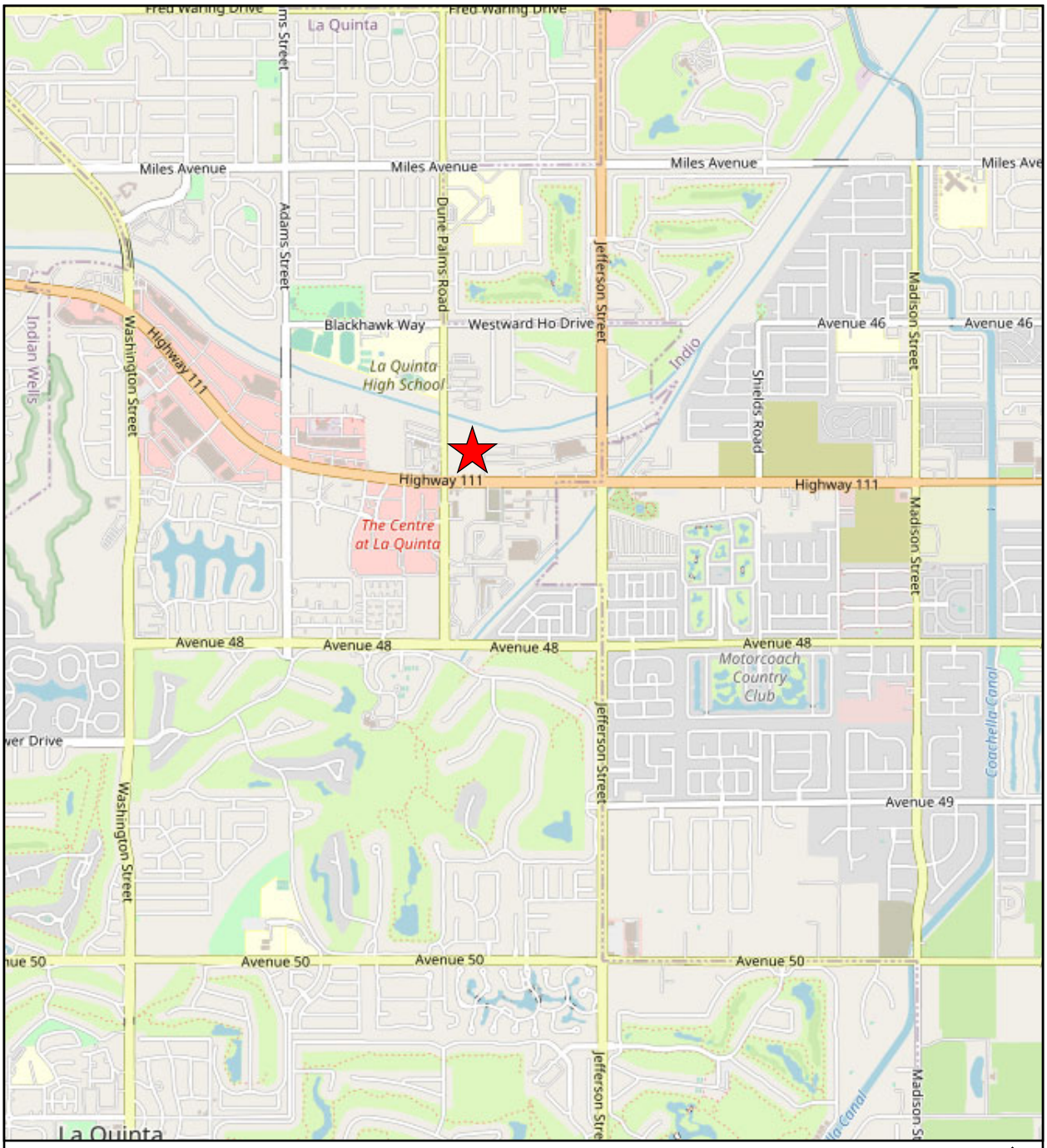
2.2 Project Location

The subject property is located at the northeast corner of Highway 111 and Dune Palms Road in the City of La Quinta, California. The Assessor's Parcel Number (APN) for the site is 600-300-018. The site is currently unoccupied. The site is surrounded by commercial uses to the south (across Highway 111), east, and west (across Dune Palms Road). Residential uses are located beyond vacant areas to the north and south. For a graphical representation of the site, please refer to the Vicinity Map, Assessor's Parcel Map, and Satellite Aerial Photograph, provided as Figures 1 through 3, 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. Section 9.100.210 of the City of La Quinta Municipal Code states that on-site noise sources should not exceed applicable noise limits at off-site receivers. The noise limit for noise-sensitive properties (defined as residential property, schools, hospitals, and churches) are 65 dBA between the hours of 7 a.m. and 10 p.m. and 50 dBA between 10 p.m. and 7 a.m. Other nonresidential uses have a noise limit of 75 dBA between 7 a.m. and 10 p.m. and 65 dBA between 10 p.m. and 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 50 dBA at adjacent noise sensitive property lines and 65 dBA at nonresidential property lines in order to meet City of La Quinta Municipal Code limits.



Source: Open Street Map, 2022.

N

Project Location

Figure 1.

Vicinity Map

Job # S221005

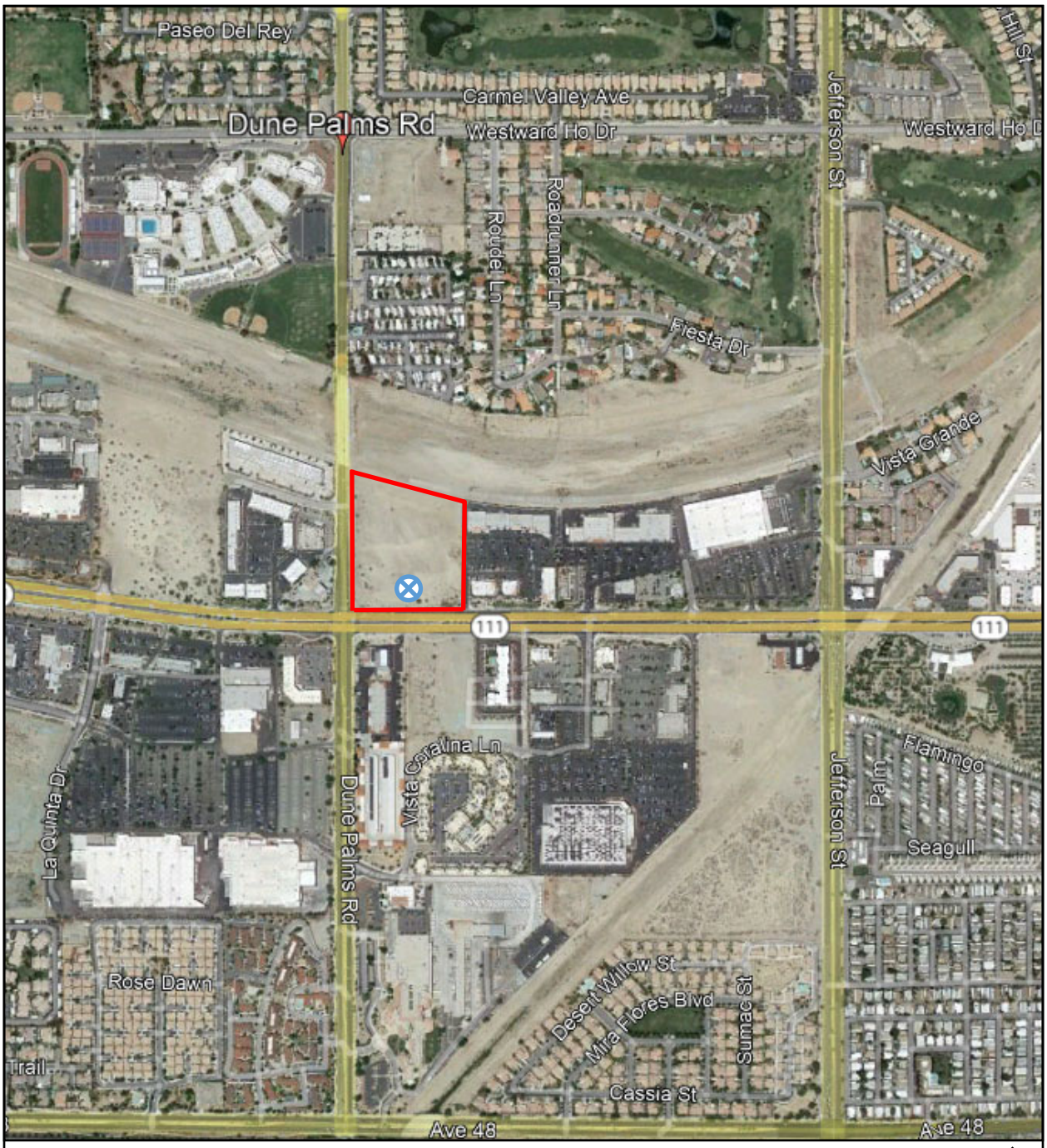
Source: RCIT, County of Riverside, 2022.

Project Location

Figure 2.

Assessor's Parcel Map

Job # S221005



Source: Google Earth Pro, 2022.

N

Noise Measurement Location

Project Location

Figure 3.

Satellite Aerial Photograph

Job # S221005

Section 6.08.050 of the City of La Quinta Municipal Code also contains general requirements for temporary construction noise impacts. The City of La Quinta restricts construction activity to the hours of 7 a.m. to 5:30 p.m. on Mondays through Fridays between October 1 and April 30, and the hours of 6 a.m. to 7 p.m. on Mondays through Fridays between May 1 and September 30. Construction is allowable on Saturdays between 8 a.m. and 5 p.m. but is prohibited on Sundays and holidays. 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 La Quinta Municipal Code are provided as Appendix B.

3.0 Environmental Setting

3.1 Existing Noise Environment

An on-site inspection and long-term noise measurement were made beginning the afternoon of Thursday, November 17, 2022 and running through the night of Friday, November 18, 2022. 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 at approximately 180 feet north of the Highway 111 centerline and approximately 400 feet east of the Dune Palms Road 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 1, and the measurement location is shown graphically in Figure 3.

Table 1. Long-Term Measured Noise Levels on Site

Date	Time	Hourly Average Noise Level (dBA L_{EQ})
November 17, 2022	1 p.m. – 2 p.m.	62.6
	2 p.m. – 3 p.m.	63.6
	3 p.m. – 4 p.m.	64.2
	4 p.m. – 5 p.m.	64.8
	5 p.m. – 6 p.m.	64.0
	6 p.m. – 7 p.m.	63.8
	7 p.m. – 8 p.m.	66.8
	8 p.m. – 9 p.m.	64.4
	9 p.m. – 10 p.m.	61.9
	10 p.m. – 11 p.m.	60.8
	11 p.m. – 12 a.m.	57.8

Table 1. Long-Term Measured Noise Levels on Site		
Date	**Time**	**Hourly Average Noise Level (dBA L_{EQ})**
November 18, 2022	12 a.m. – 1 a.m.	56.4
	1 a.m. – 2 a.m.	55.4
	2 a.m. – 3 a.m.	51.5
	3 a.m. – 4 a.m.	53.1
	4 a.m. – 5 a.m.	57.4
	5 a.m. – 6 a.m.	60.1
	6 a.m. – 7 a.m.	64.1
	7 a.m. – 8 a.m.	64.9
	8 a.m. – 9 a.m.	64.6
	9 a.m. – 10 a.m.	63.5
	10 a.m. – 11 a.m.	64.1
	11 a.m. – 12 p.m.	63.6
	12 p.m. – 1 p.m.	63.4
	1 p.m. – 2 p.m.	63.4
	2 p.m. – 3 p.m.	64.3
	3 p.m. – 4 p.m.	63.2
	4 p.m. – 5 p.m.	63.8
	5 p.m. – 6 p.m.	64.5
	6 p.m. – 7 p.m.	63.6
	7 p.m. – 8 p.m.	62.9
	8 p.m. – 9 p.m.	62.7
	9 p.m. – 10 p.m.	62.0
	10 p.m. – 11 p.m.	62.6
	11 p.m. – 12 a.m.	59.8

Measured noise levels were observed to range from a minimum of 51.5 dBA between the hours of 2 a.m. and 3 a.m. on November 18 to a maximum of 66.8 dBA between 7 p.m. and 8 p.m. on November 17. The minimum noise level measured during hours of operation was 60.8 dBA between the hours of 10 p.m. and 11 p.m. on November 17.

3.2 Future Noise Environment

3.2.1 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 C: 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 2. Please refer to Appendix C for additional information.

Table 2. 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 Dune Palms Road, park near the restaurant building, then proceed to exit from the same Dune Palms Road driveway. Noise measurement data is shown in Table 3.

Table 3. 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.

3.2.2 Project-Generated Traffic

Project-generated traffic for this project was analyzed by Linscott, Law & Greenspan, Engineers in a Traffic Impact Analysis Report for the Highway 111 and Dune Palms Road Mixed-Use Project, which includes the Chick-fil-A project as well as a 180-unit multi-family residential development and an express car wash. This traffic analysis gives project generated traffic volumes as a result of each element of the mixed-use project. According to the analysis, the Chick-fil-A portion of the mixed-use project is expected to generate 1,700 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.

3.2.3 Temporary Construction Equipment

During permissible hours of operation, the City of La Quinta 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: grading, utilities, paving, and building construction. As some of these stages will occur concurrently, grading and utilities were evaluated as a single stage. Please refer to Table 4 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 4. Anticipated Construction Activity and Equipment Noise Levels			
Activity Stage(s)	**Duty Cycle (%)[1]**	**Noise Level at 50 feet (dBA)[2]**	**Equipment**
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 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.

4.1.2 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.

4.1.3 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 # P0222042801
- 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

Noise monitoring was performed at the project site and is detailed in Section 3.1. As shown in Table 1, the maximum hourly average noise impact at the project site was 66.8 dBA between 7 p.m. and 8 p.m. on November 17. All other hours during which representative ambient noise levels were measured were observed to have lesser noise impacts. For a graphical representation of the noise measurement location, please refer to Figure 3.

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 the project site 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 not included in this evaluation as the roof will not be exposed to a significant amount of noise.

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. 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 5 for interior noise level results and refer to Appendix D for additional information.

Table 5. Peak Hour Traffic Noise Levels in Nonresidential Spaces

Room	Maximum Facade Impact (dBA L_{EQ})	Interior Noise Level (dBA L_{EQ})
Dining/Serving/Play Area	66.8	38.2
Drive-Through	66.8	37.0
Kitchen	66.8	35.2
Office	66.8	38.0
Team Member Room	66.8	36.7

Calculations show that, with the proposed exterior wall assembly 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). 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 E: Recommended Products.

The proposed project was analyzed for worst-case exterior noise impacts. With the anticipated exterior wall assembly 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

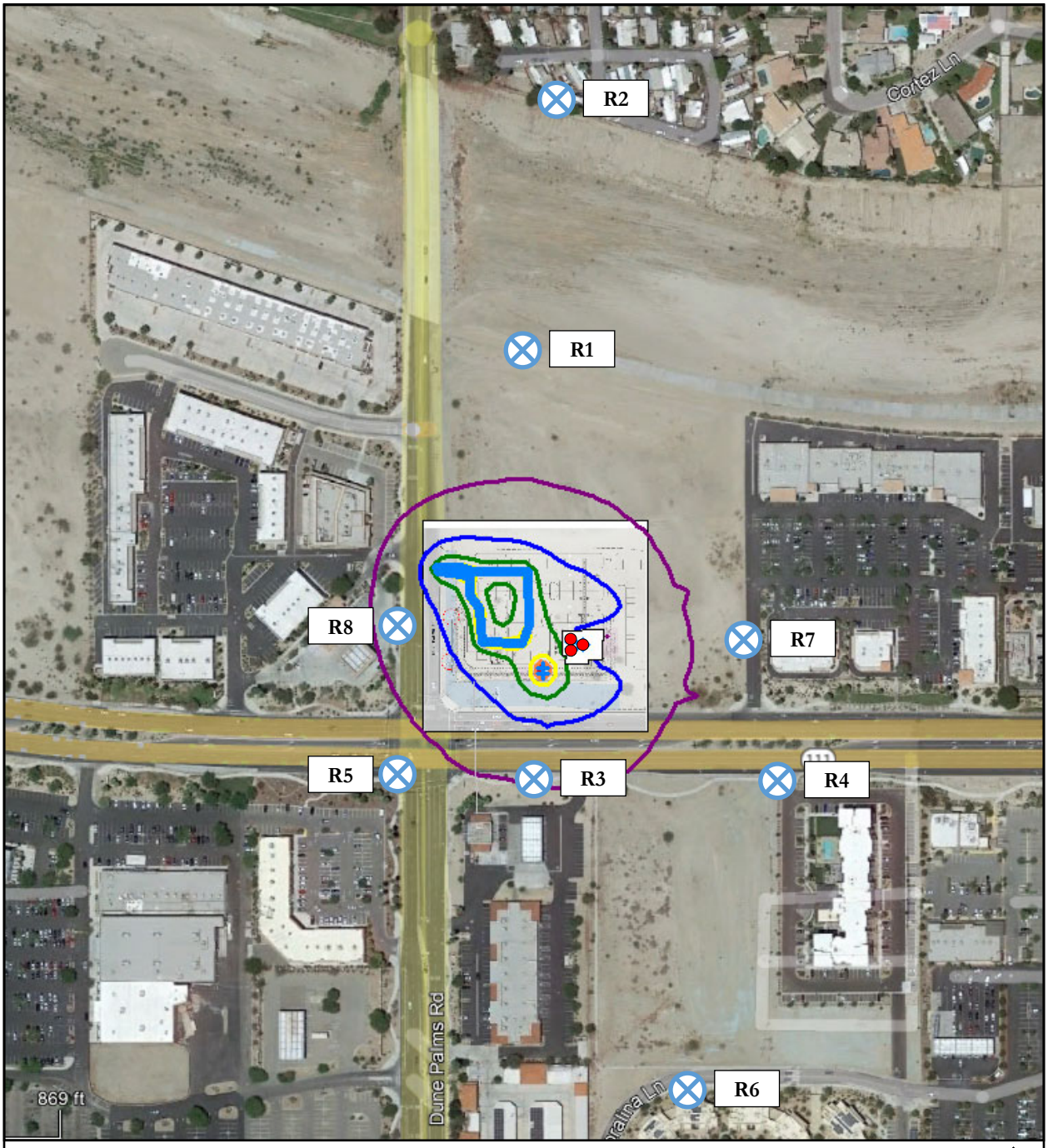
Noise levels of the proposed drive-through intercom, rooftop HVAC equipment, and truck deliveries were calculated using CadnaA at the nearest surrounding property lines. All other noise-sensitive receivers are located at a further distance from the equipment, and therefore are expected to have lower 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. Results of the analysis are shown in Table 6. Noise contours showing equipment noise levels and receiver locations are shown in Figure 4. Additional information can be found in Appendix F: CadnaA Analysis Data and Results.

Table 6. 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	65	38.1
R2	North Residential Property	50	33.7
R3	South Property Line	65	45.5
R4	Southeast Property	65	38.7
R5	Southwest Property	65	43.0
R6	South Residential Property	50	34.3
R7	East Property Line	65	41.7
R8	West Property Line	65	46.4

As shown above, as currently designed, noise levels from the on-site operations will be in compliance with City of La Quinta daytime and nighttime 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.



Source: CRHO Architects, Google Earth Pro, 2022.

Receiver Location

≥ 45 dB

≥ 50 dB

≥ 55 dB

≥ 60 dB

Delivery Truck Route

Drive-Through Intercoms

HVAC Locations

Figure 4.

Equipment Noise Contours

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5.3.2 Project-Generated Traffic Noise

As detailed in Section 3.2.2, 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 receivers immediately surrounding the project site using current traffic volumes from the City of La Quinta General Plan Update Traffic Impact Analysis (see reference). 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 existing traffic volumes to existing plus project traffic volumes using the calculation methodology shown in Section 4.1.3. Project-generated traffic noise increases are shown in Table 7.

Table 7. Anticipated Traffic Noise Increases with Project-Generated Traffic

Roadway	Traffic Volume (ADT)		Sound Level Increase (dB)
	Current	Current Plus Project	
Dune Palms Road	8,373	10,073	0.8
Highway 111	38,037	39,737	0.2

As shown in Table 7, the noise level increase from project-generated traffic is expected to be less than 3 dB at 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 La Quinta restricts construction activity to the hours of 7 a.m. to 5:30 p.m. on Mondays through Fridays between October 1 and April 30, and the hours of 6 a.m. to 7 p.m. on Mondays through Fridays between May 1 and September 30. Construction is allowable on Saturdays between 8 a.m. and 5 p.m. but is prohibited on Sundays and holidays. 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 surrounding properties. 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. Mobile construction noise sources were evaluated as a point source moving around the construction area to estimate the average noise levels as the equipment moves around the project site. Stationary noise sources were evaluated as a single point source at the proposed building. 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 8. Detailed calculations are provided in Appendix F. Receivers are shown graphically in Figure 4.

Table 8. Project-Generated Noise Levels at Surrounding Property Lines				
Receiver	**Location**	**Typical Noise Limit (dBA)**	**Construction Noise Level (dBA)**	
			Grading/Utilities	**Paving/Building Construction**
R1	North Property Line	75	43.7	46.1
R2	North Residential Property	75	38.8	41.2
R3	South Property Line	75	53.8	56.3
R4	Southeast Property	75	44.0	46.4
R5	Southwest Property	75	51.4	54.0
R6	South Residential Property	75	37.6	40.2
R7	East Property Line	75	48.7	51.1
R8	West Property Line	75	56.0	58.4

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 La Quinta 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 9.

Table 9. 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	60.8	38.1	60.8	0.0	Less than Significant
R2	North Residential Property	60.8	33.7	60.8	0.0	Less than Significant
R3	South Property Line	60.8	45.5	60.9	0.1	Less than Significant
R4	Southeast Property	60.8	38.7	60.8	0.0	Less than Significant
R5	Southwest Property	60.8	43.0	60.9	0.1	Less than Significant
R6	South Residential Property	60.8	34.3	60.8	0.0	Less than Significant
R7	East Property Line	60.8	41.7	60.9	0.1	Less than Significant
R8	West Property Line	60.8	46.4	61.0	0.2	Less than Significant

The results in Table 9 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 La Quinta requirements. For these reasons, this impact is deemed to be less than significant.

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 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 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 an occupied structure would be approximately 160 feet from the nearest commercial structure when the roller is used near the southwest corner of the site. Calculations show that, at this minimum distance, the PPV would be approximately 0.013 inches/second at this receiver. These levels of vibration fall well below the building damage PPV criteria of 0.5 inches/second. This impact would be classified as "barely perceptible." As construction vibration is not anticipated to cause damage to off-site buildings and would be classified as "barely perceptible" for a very short period of time when work is performed near the southwest corner 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 not located within two miles of any public airport or public use airport. Therefore, 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 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.

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 La Quinta Municipal Code at all surrounding properties. 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 La Quinta 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 La Quinta 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.

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 – Highway 111 and Dune Palms project, located at the northeast corner of Highway 111 and Dune Palms Road in the City of La Quinta, California. This report was prepared by Mo Ouwenga and Amy Hool.

Mo Ouwenga, INCE
Acoustical Consultant

Amy Hool, INCE
President/CEO

8.0 References

California Green Building Code, Nonresidential Mandatory Measures.

City of La Quinta Municipal Code, Chapter 8.36 – Noise Control.

Linscott, Law & Greenspan, Engineers, Traffic Impact Analysis Report for Highway 111 and Dune Palms Road Mixed-Use Project.

Department for Environment Food and Rural Affairs (DEFRA), Update of Noise Database for Prediction of Noise on Construction and Open Sites, 2005.

U.S. Department of Transportation Federal Highway Administration, Construction Noise Handbook, Construction Equipment Noise Levels and Ranges.

DataKustik, CadnaA (Computer Aided Noise Abatement), Version 2022.

U.S. Environmental Protection Agency Office of Noise Abatement and Control, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare With an Adequate Margin of Safety, March 1974.

Marshall Day Acoustics, INSUL Version 9.0.

California Environmental Quality Act (CEQA), Statute and Guidelines, 2019.

Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018.

California Department of Transportation (Caltrans), Transportation and Construction Vibration Guidance Manual, September 2013.

Iteris, City of La Quinta General Plan Circulation Element Update, Traffic Impact Analysis, May 2012.

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Acoustical and Environmental Consulting Services

Appendix A
Project Plans

EASEMENT NOTES

(3) AN EASEMENT FOR PUBLIC ROAD AND UTILITY AND INCIDENTAL PURPOSES IN THE DOCUMENT RECORDED MARCH 22, 1933 AS BOOK 122, PAGE 374 OF OFFICIAL RECORDS.

(5) AN EASEMENT FOR PIPELINE AND INCIDENTAL PURPOSES IN THE DOCUMENT RECORDED FEBRUARY 10, 2006 AS INSTRUMENT NO. 2006-103470 OF OFFICIAL RECORDS.

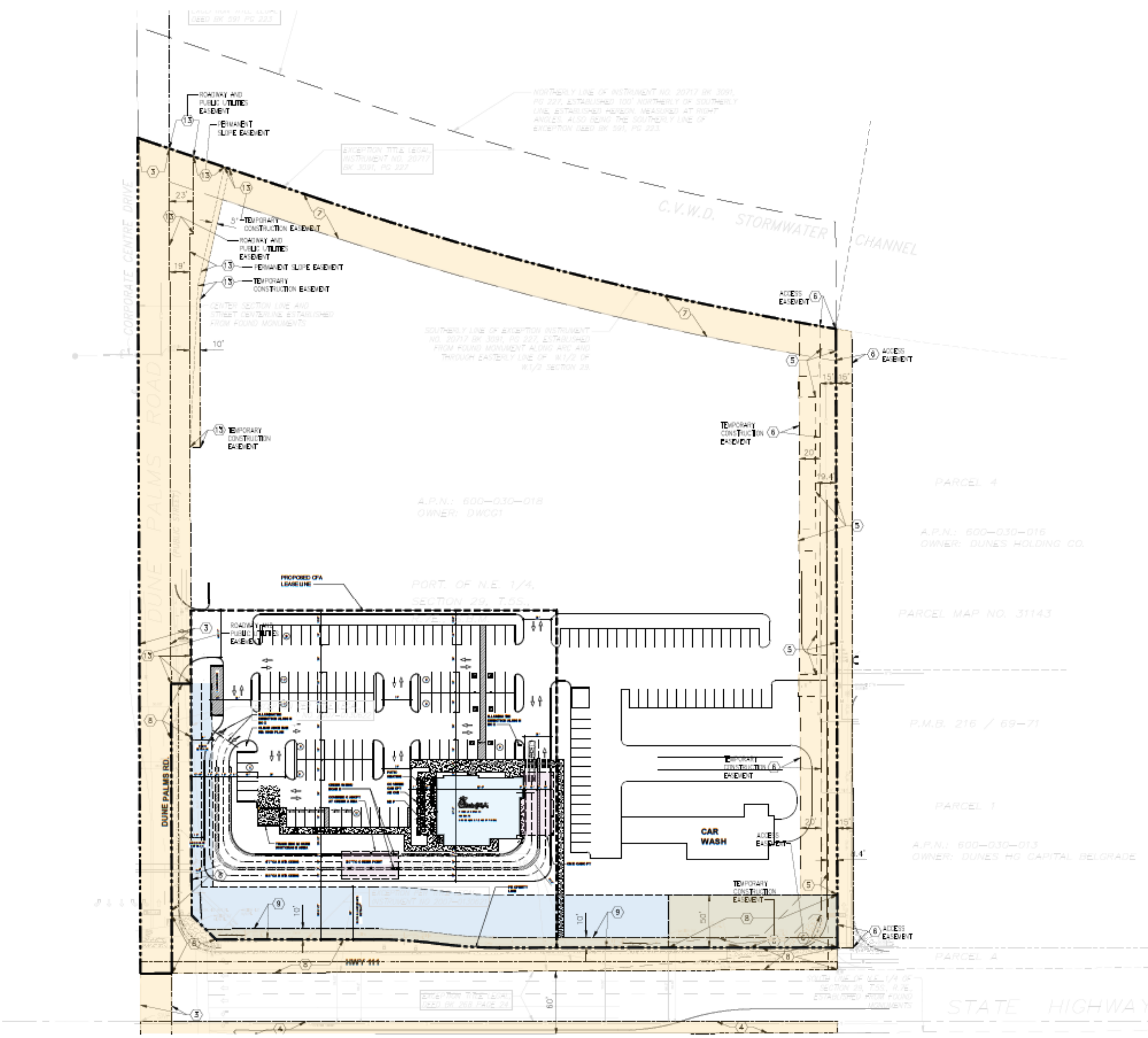
(6) THE TERMS, PROVISIONS AND EASEMENT(S) CONTAINED IN THE DOCUMENT ENTITLED "RECIPROCAL EASEMENT AND ACCESS AGREEMENT" RECORDED MARCH 28, 2006 AS INSTRUMENT NO. 2006-219365 OF OFFICIAL RECORDS.

(7) AN EASEMENT FOR PIPELINE AND INCIDENTAL PURPOSES IN THE DOCUMENT RECORDED MARCH 29, 2006 AS INSTRUMENT NO. 2006-224094 OF OFFICIAL RECORDS.

(8) AN EASEMENT FOR HIGHWAY 111 WIDENING (RETENTION BASIN) AND INCIDENTAL PURPOSES IN THE DOCUMENT RECORDED FEBRUARY 01, 2007 AS INSTRUMENT NO. 2007-76267 OF OFFICIAL RECORDS.
THE ABOVE DOCUMENT WAS RE-RECORDED FEBRUARY 26, 2007 IN/AS INSTRUMENT NO. 2007-130623 OF OFFICIAL RECORDS.

(9) AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES IN THE DOCUMENT RECORDED MAY 10, 2007 AS INSTRUMENT NO. 2007-312586 OF OFFICIAL RECORDS.

(13) AN EASEMENT FOR ROADWAY AND PUBLIC UTILITIES, SLOPE EASEMENT AND TEMPORARY CONSTRUCTION EASEMENT AND INCIDENTAL PURPOSES, RECORDED MARCH 31, 2022 AS INSTRUMENT NO. 2022-154402 OF OFFICIAL RECORDS.



PRELIMINARY OVERALL SITE PLAN
1" = 50'-0"

NORTH

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

crho architects
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3rd Floor - Suite 301
Santa Ana, CA 92705
Phone 714.832.1834

CHICK-FIL-A
HWY 111 & DUNE PALMS FSU
NEC OF HWY 111 & DUNES PALM RD.
LA QUINTA, CA

STORE # 05420

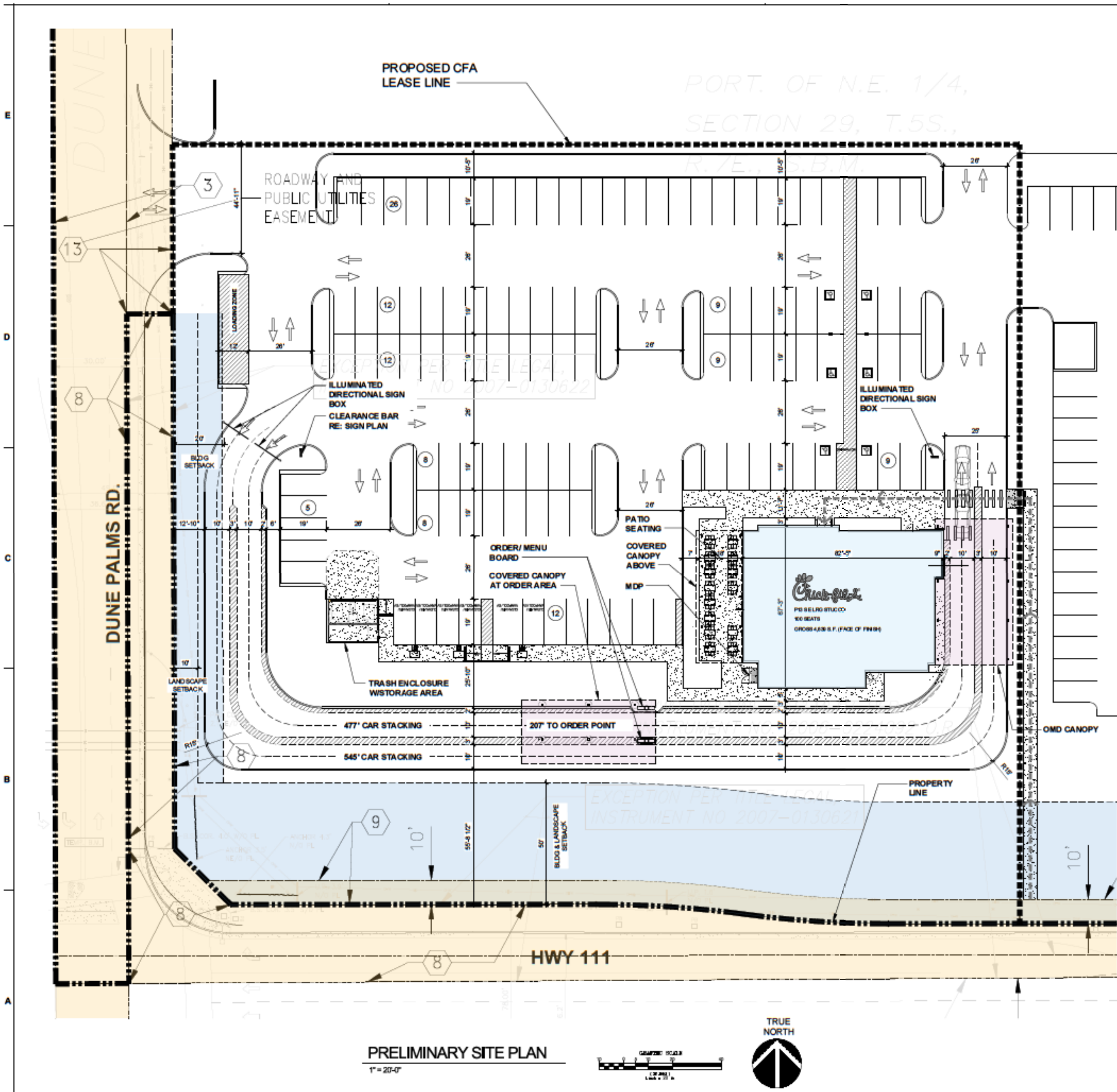
REVISION SCHEDULE

NO.	DATE	DESCRIPTION
	09-06-22	PSP 01A
	09-07-22	PSP 02A
	10-07-22	PSP 04A
	10-25-22	PSP 06A
	10-26-22	PSP 07A
	10-31-22	PSP 08A
	11-01-22	PSP 09A
	11-03-22	PSP 10A

ARCHITECTS PROJECT # 22-204
PRINTED FOR Plan'g, Building, Etc.
DATE 09-06-22
DRAWN BY SL

SHEET
PRELIMINARY SITE PLAN

SHEET NUMBER
PSP-10A



PRELIMINARY SITE PLAN

1" = 20'-0"

TRUE NORTH

SITE INFORMATION

SIR:	YES/ NO	DATE: 10-05-22
SURVEY:	YES/ NO	DATE: XX-XX-XX
4G PM:	KELSEY WU	
BUILDING SETBACK:	N: 0' INTERIOR PL S: 50' HWY 111 E: 0' INTERIOR PL W: 20' DUNE PALMS RD.	
LANDSCAPE SETBACK:	N: 0' INTERIOR PL S: 50' HWY 111 E: 0' INTERIOR PL W: 10' DUNE PALMS RD.	
#OF PARKING STALLS REQUIRED:	1 SPACE/ 100 SF (4,850 + 388) / 100 = 53	
DO PATIO SEATS COUNT TOWARD PARKING?	YES, AND INCLUDED IN THE ABOVE	
D/T STACKING:	MIN. 7 CAR LENGTHS. EXITS FROM D/T SHALL BE AT LEASE 3 CAR LENGTHS. THE DRIVE AISLE SHALL BE A MIN 12' IN WIDTH	
STANDARD 90° STALL SIZE:	9' W X 19' L	
COMPACT 90° STALL SIZE:	-	
DRIVE AISLE WIDTH:	26'- 90°	
OVERHANG ALLOWED?	YES. UP TO 2'	
BIKE REQUIREMENT:	YES. MIN. 5 BICYCLE PARKING SPACES	
NEW CURB CUT?	LL SCOPE. NO NEW CURB CUTS PROPOSED SOLELY FOR CFA	
LOADING ZONING:	YES, 1 LOADING BERTH. MIN DIMENSION ARE 45' L X 12' W X 14'H	
TE FRONT OR SIDE LOADING:	FRONT LOADING	
LANDSCAPE ISLAND:	TO BE DETERMINED FOLLOWING LL'S PRE-APP REVIEW. AT LEAST 5% OF THE NET PARKING AREA SHALL BE LANDSCAPED. ALL LANDSCAPE PLANTER BEDS NOT CONTAINING TREES SHALL BE AT LEAST 3' IN WIDTH OR DIAMETER	

SITE STATISTICS

115 SPACES TOTAL
PROPOSED PARCEL AREA: 109,158 S.F.
CAR STACK LENGTH: 1,022 FT TOTAL
ORDER POINT: 207 FT INNER LANE

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LA QUINTA, CA

STORE # 05420

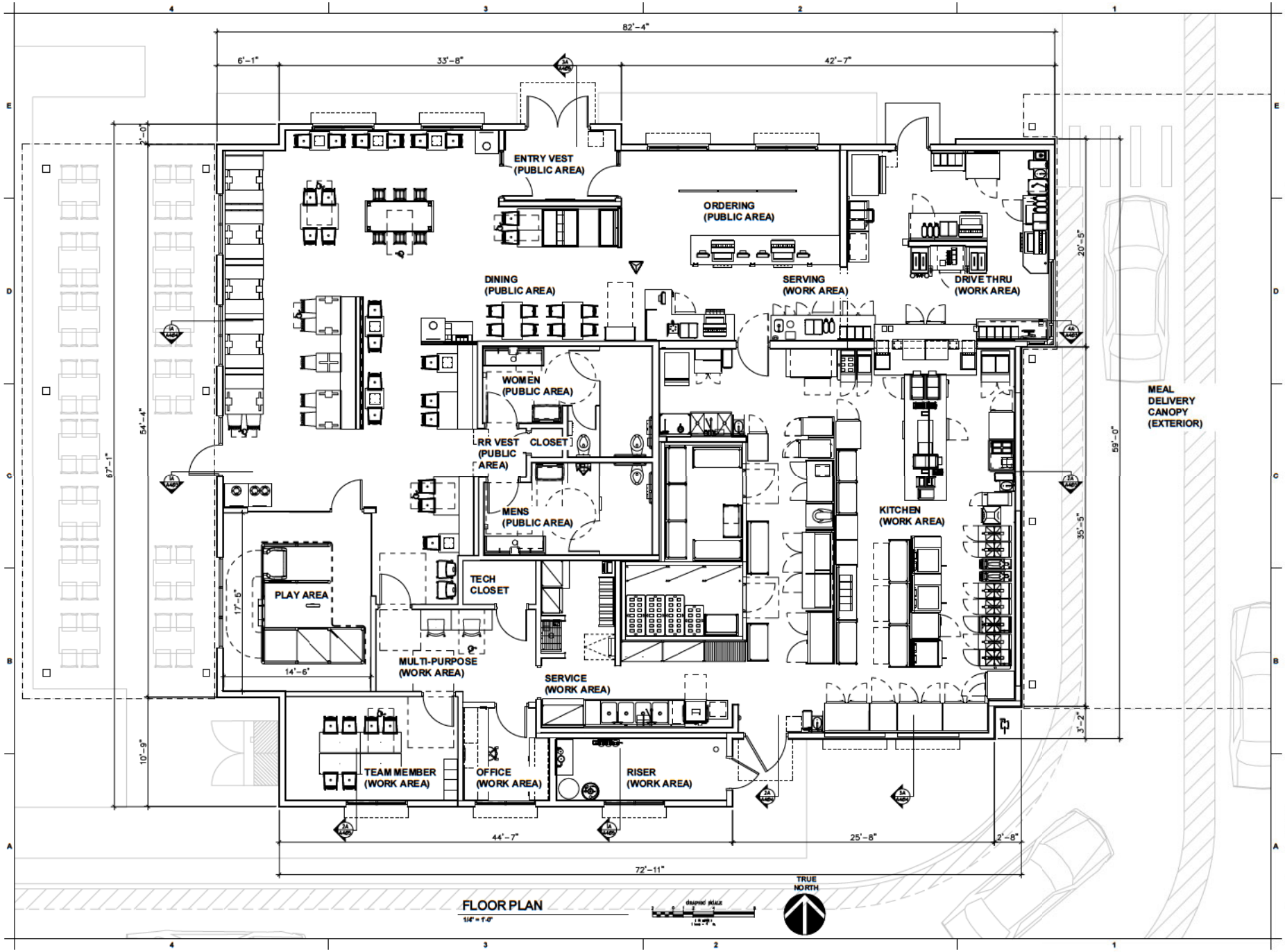
REVISION SCHEDULE

NO. DATE	DESCRIPTION
09-06-22	PSP 01
09-07-22	PSP 02
10-06-22	PSP 03
10-07-22	PSP 04
10-25-22	PSP 06
10-26-22	PSP 07
10-31-22	PSP 08
11-01-22	PSP 09
11-03-22	PSP 10

ARCHITECTS PROJECT # 22-204
PRINTED FOR Planning, Building, Etc
DATE 09-06-22
DRAWN BY SL

SHEET
PRELIMINARY SITE PLAN

SHEET NUMBER
PSP-10



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STORE # 05420

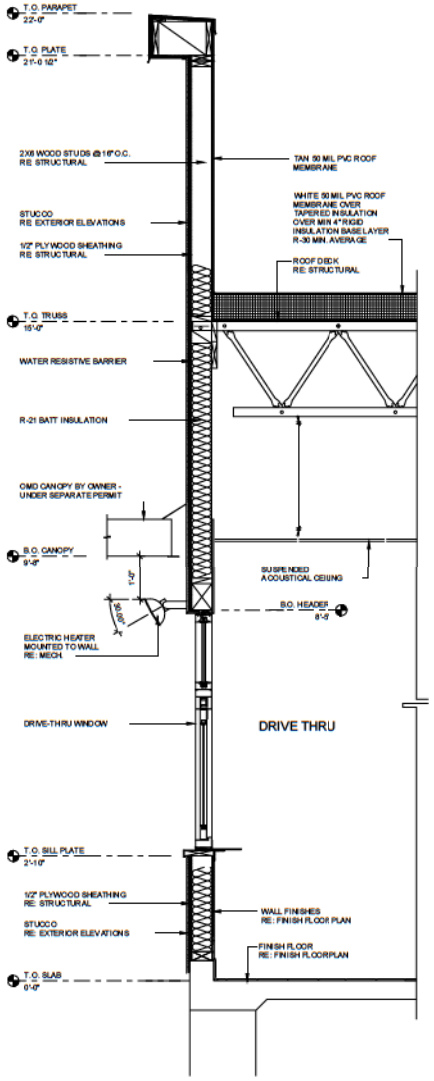
REVISION SCHEDULE

NO.	DATE	DESCRIPTION
	11-01-22	Preapplication

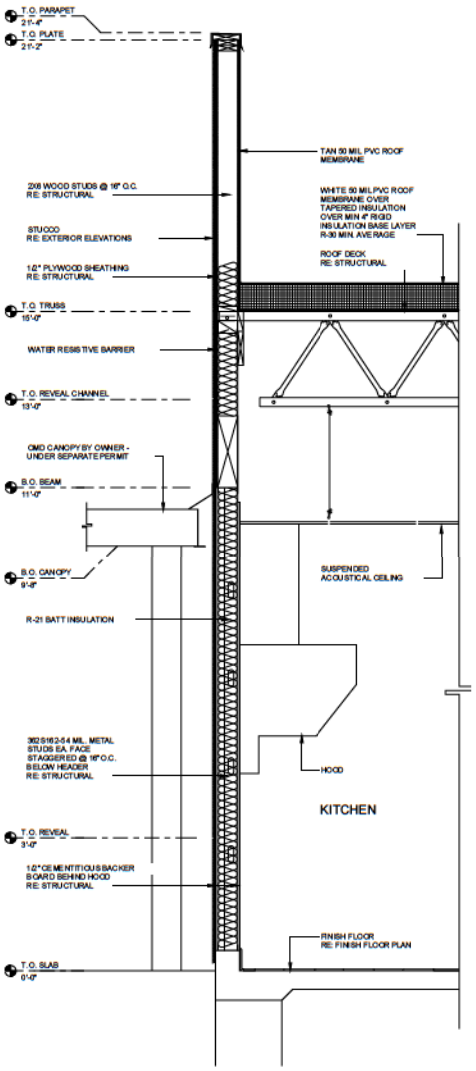
ARCHITECT'S PROJECT # 20-004
PRINTED FOR Planning, Building, Etc.
DATE 11-01-22
DRAWN BY YC

FLOOR PLAN

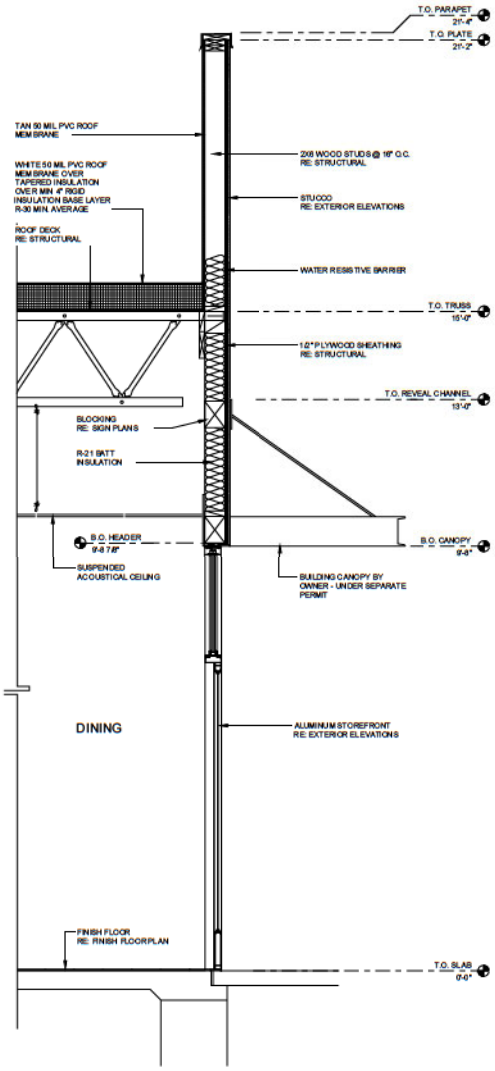
A-110



4A KEY WALL SECTION - DRIVE THRU 1
3/4" = 1'-0"



2A KEY WALL SECTION - KITCHEN 1
3/4" = 1'-0"



1A KEY WALL SECTION - DINING 2
3/4" = 1'-0"

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STORE # 05420

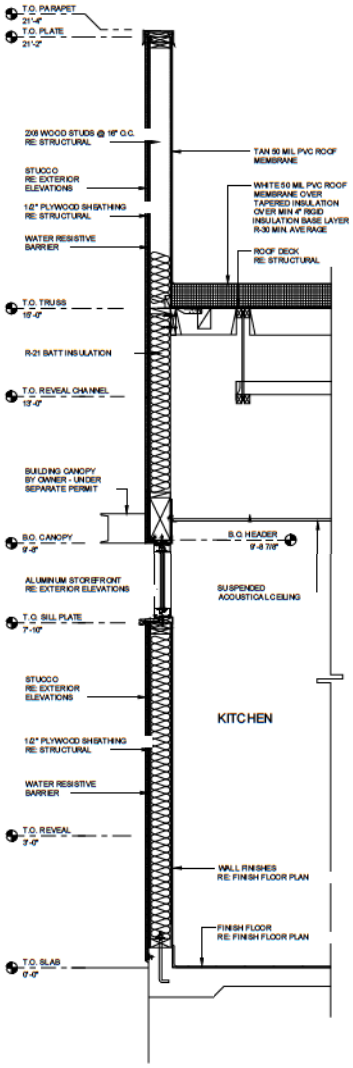
REVISION SCHEDULE

NO.	DATE	DESCRIPTION
	11-01-02	Resubmittal

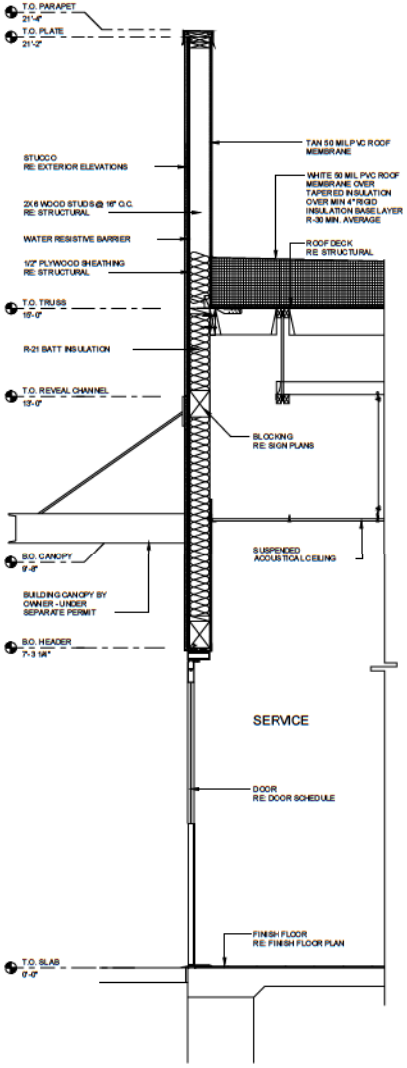
ARCHITECT'S PROJECT # 03-004
PRINTED FOR Planning, Building, Etc.
DATE 11-01-02
DRAWN BY YC

SHEET
KEY WALL SECTIONS

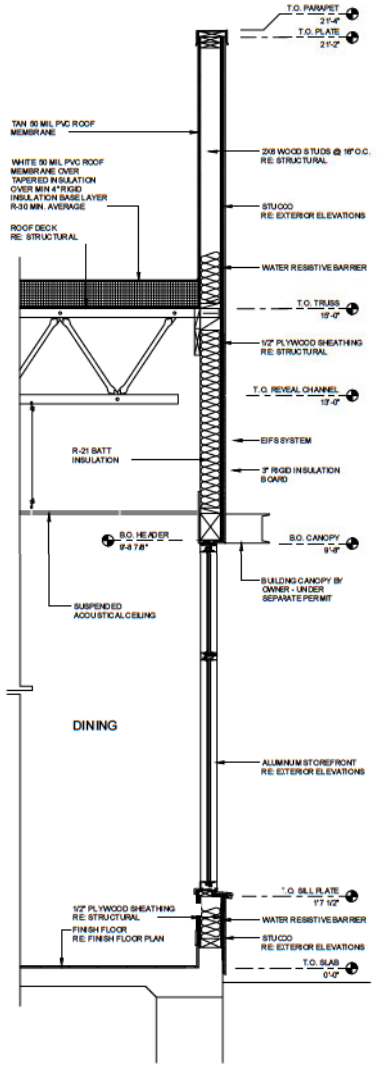
SHEET NUMBER
A-403



3A KEY WALL SECTION - KITCHEN 2
3/4" = 1'-0"



2A KEY WALL SECTION - SERVICE
3/4" = 1'-0"



1A KEY WALL SECTION - DINING 1
3/4" = 1'-0"

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LA QUINTA, CA

STORE # 05420

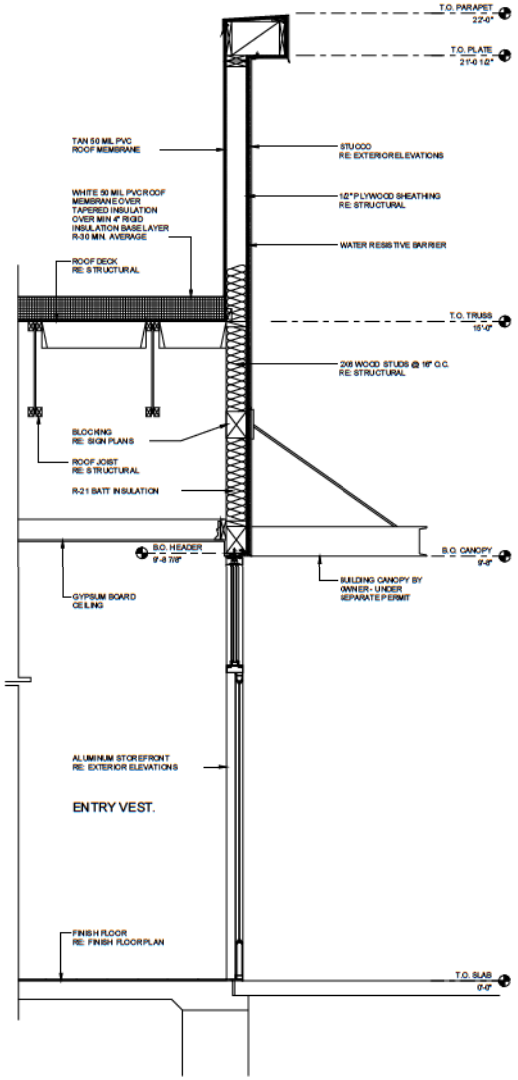
REVISION SCHEDULE

NO.	DATE	DESCRIPTION
	11-01-02	Prospective

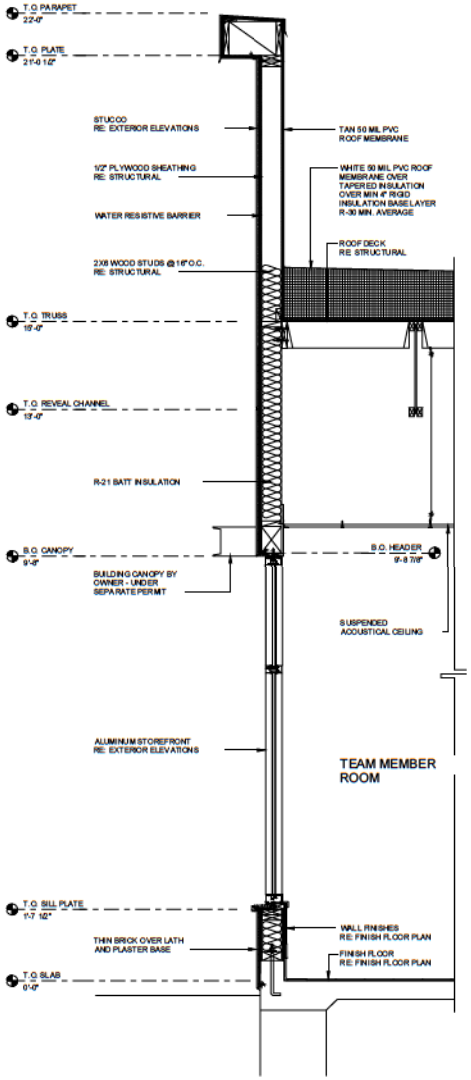
ARCHITECT'S PROJECT # 03-004
PRINTED FOR Planning, Building, Etc.
DATE 11-01-02
DRAWN BY TC

SHEET
KEY WALL SECTIONS

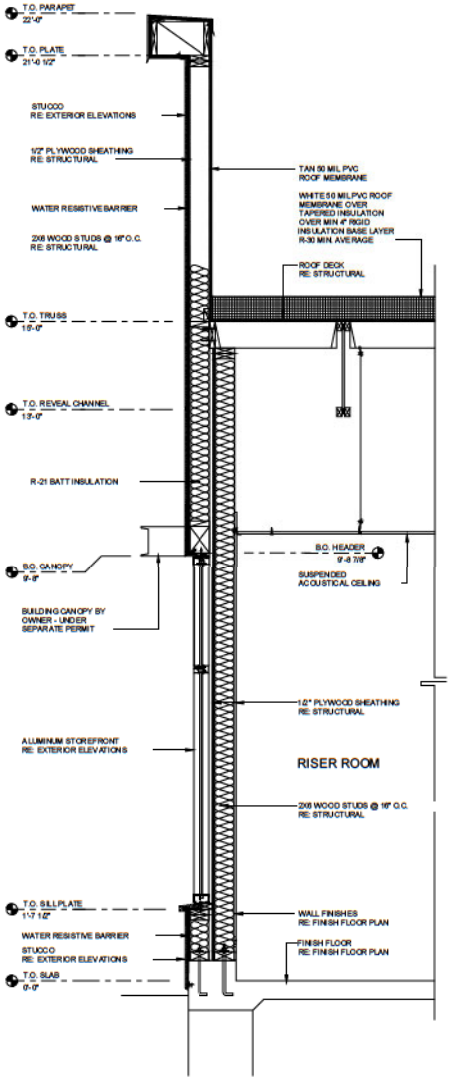
SHEET NUMBER
A-404



3A KEY WALL SECTION - ENTRY
3/4" = 1'-0"



2A KEY WALL SECTION - TEAM MEMBER
3/4" = 1'-0"



1A KEY WALL SECTION - RISER ROOM
3/4" = 1'-0"

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LA QUINTA, CA

STORE # 05420

REVISION SCHEDULE

NO.	DATE	DESCRIPTION
	11-01-02	Resubmittal

ARCHITECT'S PROJECT # 03-004
PRINTED FOR Planning, Building, Etc.
DATE 11-01-02
DRAWN BY YC

KEY WALL SECTIONS

SHEET NUMBER
A-405

NORTH ELEVATION

WEST ELEVATION

SOUTH ELEVATION

EAST ELEVATION

PRELIMINARY ELEVATIONS
HWY 111 & Dune Palms FSU - La Quinta, CA

1:-02-22

File Name: 22-204 Color Elevations

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

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Eilar Associates, Inc.
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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.

						D

Source: California Department of Health Services, "Guidelines for the Preparation and Content of the Noise Element of the General Plan," 1990.

Chart Legend

A Normally Acceptable: With no special noise reduction requirements assuming standard construction.

B Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirement is made and needed noise insulation features included in the design.

C Normally Unacceptable: New construction is discouraged. If new construction does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

D Clearly Unacceptable: New construction or development should generally not be undertaken.

Exterior Noise Standards

Receiving Land Use	Noise Standard	Time Period
Noise sensitive	65 dB(A)	7:00 a.m.—10:00 p.m.
	50 dB(A)	10:00 p.m.—7:00 a.m.
Other nonresidential	75 dB(A)	7:00 a.m.—10:00 p.m.
	65 dB(A)	10:00 p.m.—7:00 a.m.

If the noise consists entirely of impact noise, simple tone noise, speech or music, or any combination thereof, each of the noise levels specified in the table in this section shall be reduced by five (5) dB(A).

C. Noise Limits. It is unlawful for any person at any location within the city to create any noise, or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, when such noise causes the noise level, when measured on any adjacent property, to exceed:

1. The noise standard for a cumulative period of more than thirty (30) minutes in any hour;
2. The noise standard plus five (5) dB(A) for a cumulative period of more than fifteen (15) minutes in any hour;
3. The noise standard plus ten (10) dB(A) for a cumulative period of more than five (5) minutes in any hour;
4. The noise standard plus fifteen (15) dB(A) for a cumulative period of more than one (1) minute in any hour; or
5. The noise standard plus twenty (20) dB(A) for any period of time.

For purposes of this section, the term "cumulative period" means the number of minutes that a noise occurs within any hour, whether such minutes are consecutive or not.

D. Ambient Noise Level. If the ambient or background noise level exceeds any of the preceding noise categories, no increase above such ambient noise level shall be permitted.

E. Exemptions. The following are exempt from the noise restrictions of this section:

1. Emergency vehicles or other emergency operations.
2. City maintenance, construction or similar activities.
3. Construction activities regulated by Section 6.08.050 of the La Quinta Municipal Code.
4. Golf course maintenance activities between 5:30 a.m. and ending no later than 8:00 p.m. on any given day.

F. Enforcement. The city manager or designee shall have the responsibility and authority to enforce the provisions of this section.

(Ord. 565 § 1, 2017; Ord. 550 § 1, 2016; Ord. 284 § 1, 1996)

6.08.050 - Disturbances by construction noises.

A. It is a nuisance and it is unlawful, for any person to be engaged or employed, or for any person to cause any other person to be engaged or employed, in any work of construction, erection, alteration, repair, addition to, or improvement to realty, except between the hours set forth as follows:

October 1st through April 30th	Monday—Friday:	7:00 a.m. to 5:30 p.m.
	Saturday:	8:00 a.m. to 5:00 p.m.
	Sunday:	none
	Holidays*:	none
May 1st through September 30th	Monday—Friday:	6:00 a.m. to 7:00 p.m.
	Saturday:	8:00 a.m. to 5:00 p.m.
	Sunday:	none
	Holidays*:	none

*For purposes of this section, the following shall be considered Holidays:
New Year's Day (January 1st)
Dr. Martin Luther King Jr. Day (third Monday in January)
President's Day (third Monday in February formerly Washington's birthday)
Memorial Day (last Monday in May)
Independence Day (July 4th)
Labor Day (first Monday in September)
Veteran's Day (November 11th)
Thanksgiving (fourth Thursday in November)
Christmas Day (December 25th)

B. No person doing or causing work prohibited by subsection A of this section, after being informed orally or in writing that the work is in violation of subsection A, shall fail, refuse or neglect to cease said work.

Exceptions:

1. Emergency repair of existing installations or equipment or appliances;
2. Construction work complying with the terms of a written early work permit which may be issued by the city manager or designee, upon a showing of sufficient need due to hot or inclement weather, or the use of an unusually long process material, or other circumstances of unusual and compelling nature.

(Ord. 393 § 1, 2003; Ord. 18 § 1, 1982)

Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

Appendix C

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

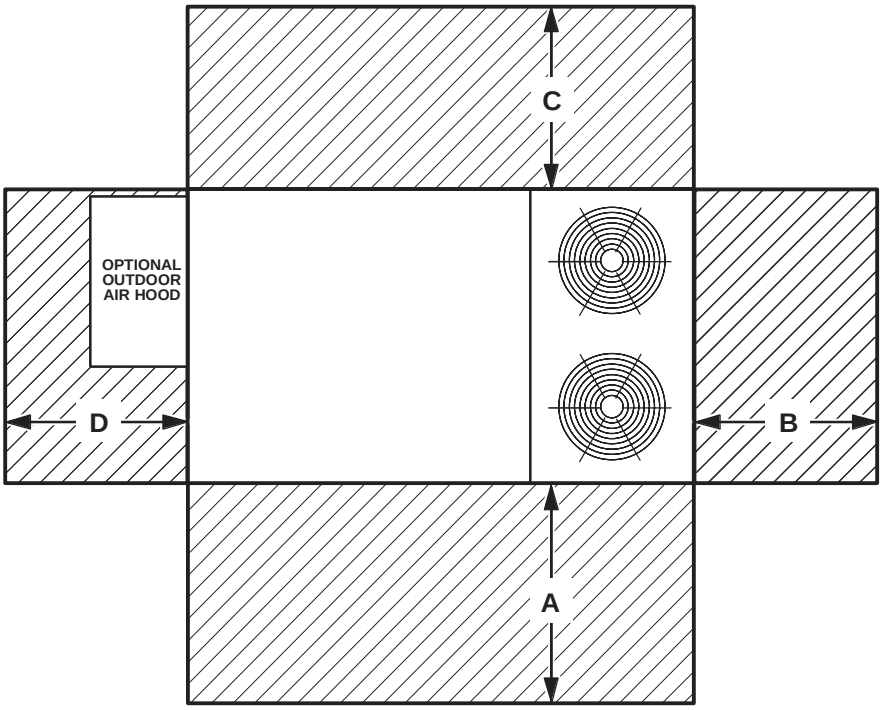
7.5 to 12.5 Tons
Net Cooling Capacity – 90,000 to 138,000 Btuh
Gas Input Heat Capacity – 130,000 to 240,000 Btuh

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

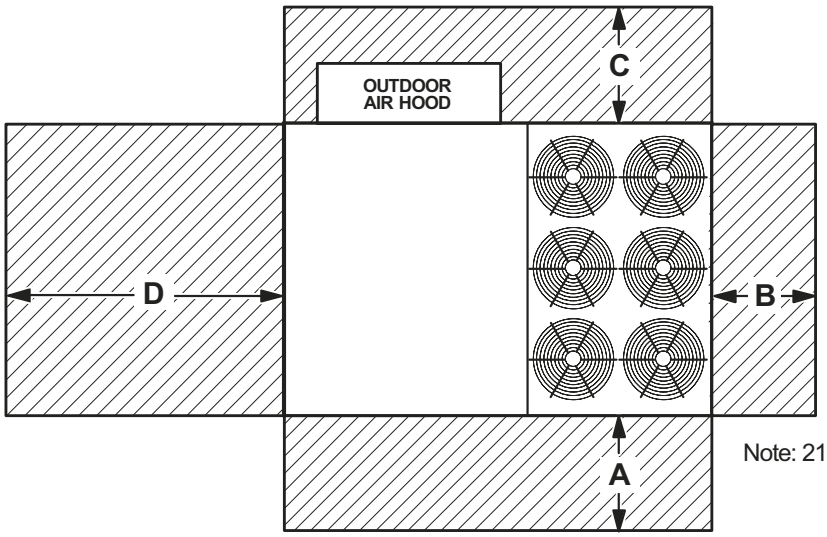
Heating Type
L = Low Gas Heat, 1 Stage
S = Standard Gas Heat, 2 Stage
M = Medium Gas Heat, 2 Stage
H = High Gas Heat, 2 Stage

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 D

Exterior-to-Interior Noise Analysis

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Hwy 111 & Dune Palms
Project # : S221005
Room Name: CFA - Dining

Wall 1 of 2

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) :	480	480	480	480	600	600	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**66.8**	**dBA**	50.1	55.6	58.1	62.1	62.1	56.1	: 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:		**66.8**	**dBA**	50.1	55.6	58.1	62.1	62.1	56.1	: 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	60	10	1	408.0	20	33	49	54	59	66
1" insulated glass (1/4 + 1/2 + 1/4)	N	6	8	4	192.0	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: **20** ft **Overall Area:** **600** ft²
Volume: **12000** ft³

Number of Impacted Walls: **2**

Windows Open		
Interior Noise Level:	**38.2**	**dBA**
Windows Closed		
Interior Noise Level:	**38.2**	**dBA**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
50.1	55.6	58.1	62.1	62.1	56.1	: Exterior Wall Noise Exposure
20.5	23.6	42.3	48.9	44.8	48.9	: Transmission Loss
27.8	27.8	27.8	27.8	27.8	27.8	: Wall Surface Area Factor
26.8	26.8	26.8	26.8	27.8	27.8	: Absorption
30.5	33.0	16.8	14.2	17.3	7.2	: Noise Level
35.1	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
50.1	55.6	58.1	62.1	62.1	56.1	: Exterior Wall Noise Exposure
20.5	23.6	42.3	48.9	44.8	48.9	: Transmission Loss
27.8	27.8	27.8	27.8	27.8	27.8	: Wall Surface Area Factor
26.8	26.8	26.8	26.8	27.8	27.8	: Absorption
30.5	33.0	16.8	14.2	17.3	7.2	: Noise Level
35.1	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Hwy 111 & Dune Palms **Wall 2 of 2**
Project # : S221005
Room Name: CFA - Dining

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**66.8**	**dBA**	50.1	55.6	58.1	62.1	62.1	56.1	: 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:		**66.8**	**dBA**	50.1	55.6	58.1	62.1	62.1	56.1	: 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	55	10	1	324.4	20	33	49	54	59	66
1" insulated glass (1/4 + 1/2 + 1/4)	N	6	8	2	96.0	22	19	38	45	40	44
1" insulated glass (1/4 + 1/2 + 1/4)	N	3	2.5	1	7.5	22	19	38	45	40	44
1" insulated glass (1/4 + 1/2 + 1/4)	N	3	9.7	1	29.1	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
1" insulated glass (1/4 + 1/2 + 1/4)	N	9	8	1	72.0	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

Overall Area: **550** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
50.1	55.6	58.1	62.1	62.1	56.1	: Exterior Wall Noise Exposure
20.7	22.9	39.4	44.2	41.2	46.1	: Transmission Loss
27.4	27.4	27.4	27.4	27.4	27.4	: Wall Surface Area Factor
26.8	26.8	26.8	26.8	27.8	27.8	: Absorption
30.0	33.3	19.3	18.5	20.5	9.6	: Noise Level

35.3 **dBA** WINDOWS OPEN

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
50.1	55.6	58.1	62.1	62.1	56.1	: Exterior Wall Noise Exposure
20.7	22.9	39.4	44.2	41.2	46.1	: Transmission Loss
27.4	27.4	27.4	27.4	27.4	27.4	: Wall Surface Area Factor
26.8	26.8	26.8	26.8	27.8	27.8	: Absorption
30.0	33.3	19.3	18.5	20.5	9.6	: Noise Level

35.3 **dBA** WINDOWS CLOSED

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Hwy 111 & Dune Palms
Project # : S221005
Room Name: CFA - Drive-Through

Wall 1 of 2

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Room Type : **Medium Hard**							
Reverberation Time (sec) :	1.2	1.2	1.2	1.2	1.0	1.0	: Moderately Reflective Room
Room Absorption (Sabins) :	164	164	164	164	205	205	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**66.8**	**dBA**	50.1	55.6	58.1	62.1	62.1	56.1	: 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:		**66.8**	**dBA**	50.1	55.6	58.1	62.1	62.1	56.1	: 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	20.5	10	1	156.0	20	33	49	54	59	66
1" insulated glass (1/4 + 1/2 + 1/4)	N	2	5	1	10.0	22	19	38	45	40	44
1" insulated glass (1/4 + 1/2 + 1/4)	N	7.8	5	1	39.0	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

Room Depth: **20** ft **Overall Area:** **205** ft²
Volume: **4100** ft³

Number of Impacted Walls: **2**

Windows Open Interior Noise Level:	**37.0**	**dBA**
Windows Closed Interior Noise Level:	**37.0**	**dBA**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
50.1	55.6	58.1	62.1	62.1	56.1	: Exterior Wall Noise Exposure
20.4	24.7	43.2	49.8	46.0	50.1	: Transmission Loss
23.1	23.1	23.1	23.1	23.1	23.1	: Wall Surface Area Factor
22.1	22.1	22.1	22.1	23.1	23.1	: Absorption
30.7	31.9	15.8	13.3	16.1	6.0	: Noise Level
34.5	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
50.1	55.6	58.1	62.1	62.1	56.1	: Exterior Wall Noise Exposure
20.4	24.7	43.2	49.8	46.0	50.1	: Transmission Loss
23.1	23.1	23.1	23.1	23.1	23.1	: Wall Surface Area Factor
22.1	22.1	22.1	22.1	23.1	23.1	: Absorption
30.7	31.9	15.8	13.3	16.1	6.0	: Noise Level
34.5	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Hwy 111 & Dune Palms **Wall 2 of 2**
Project # : S221005
Room Name: CFA - Drive-Through

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**66.8**	**dBA**	50.1	55.6	58.1	62.1	62.1	56.1	: 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:		**66.8**	**dBA**	50.1	55.6	58.1	62.1	62.1	56.1	: 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	20	10	1	171.5	20	33	49	54	59	66
1" insulated glass (1/4 + 1/2 + 1/4)	N	3	2.5	1	7.5	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: **200** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
50.1	55.6	58.1	62.1	62.1	56.1	: Exterior Wall Noise Exposure
20.2	28.8	38.3	41.5	39.6	45.5	: Transmission Loss
23.0	23.0	23.0	23.0	23.0	23.0	: Wall Surface Area Factor
22.1	22.1	22.1	22.1	23.1	23.1	: Absorption
30.7	27.7	20.7	21.5	22.4	10.5	: Noise Level
33.4	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
50.1	55.6	58.1	62.1	62.1	56.1	: Exterior Wall Noise Exposure
20.2	28.8	38.3	41.5	39.6	45.5	: Transmission Loss
23.0	23.0	23.0	23.0	23.0	23.0	: Wall Surface Area Factor
22.1	22.1	22.1	22.1	23.1	23.1	: Absorption
30.7	27.7	20.7	21.5	22.4	10.5	: Noise Level
33.4	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Hwy 111 & Dune Palms
Project # : S221005
Room Name: CFA - Kitchen

Wall 1 of 2

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) :	304	304	304	304	380	380	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**66.8**	**dBA**	50.1	55.6	58.1	62.1	62.1	56.1	: 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:		**66.8**	**dBA**	50.1	55.6	58.1	62.1	62.1	56.1	: 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	38	10	1	380.0	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: **20** ft　**Overall Area:** **380** ft²
Volume: **7600** ft³
Number of Impacted Walls: **2**

Windows Open Interior Noise Level:	**35.2**	**dBA**
Windows Closed Interior Noise Level:	**35.2**	**dBA**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
50.1	55.6	58.1	62.1	62.1	56.1	: Exterior Wall Noise Exposure
20.0	33.0	49.0	54.0	59.0	66.0	: Transmission Loss
25.8	25.8	25.8	25.8	25.8	25.8	: Wall Surface Area Factor
24.8	24.8	24.8	24.8	25.8	25.8	: Absorption
31.1	23.6	10.1	9.1	3.1	-9.9	: Noise Level

31.8 **dBA** WINDOWS OPEN

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
50.1	55.6	58.1	62.1	62.1	56.1	: Exterior Wall Noise Exposure
20.0	33.0	49.0	54.0	59.0	66.0	: Transmission Loss
25.8	25.8	25.8	25.8	25.8	25.8	: Wall Surface Area Factor
24.8	24.8	24.8	24.8	25.8	25.8	: Absorption
31.1	23.6	10.1	9.1	3.1	-9.9	: Noise Level

31.8 **dBA** WINDOWS CLOSED

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Hwy 111 & Dune Palms **Wall 2 of 2**
Project # : S221005
Room Name: CFA - Kitchen

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**66.8**	**dBA**	50.1	55.6	58.1	62.1	62.1	56.1	: 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:		**66.8**	**dBA**	50.1	55.6	58.1	62.1	62.1	56.1	: 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	29	10	1	244.0	20	33	49	54	59	66
1" insulated glass (1/4 + 1/2 + 1/4)	N	6	1.5	2	18.0	22	19	38	45	40	44
Glass Door with 1/4" Single Pane	N	4	7	1	28.0	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: **290** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
50.1	55.6	58.1	62.1	62.1	56.1	: Exterior Wall Noise Exposure
20.3	28.0	38.5	41.8	39.8	45.7	: Transmission Loss
24.6	24.6	24.6	24.6	24.6	24.6	: Wall Surface Area Factor
24.8	24.8	24.8	24.8	25.8	25.8	: Absorption
29.6	27.4	19.4	20.1	21.1	9.2	: Noise Level
32.5	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
50.1	55.6	58.1	62.1	62.1	56.1	: Exterior Wall Noise Exposure
20.3	28.0	38.5	41.8	39.8	45.7	: Transmission Loss
24.6	24.6	24.6	24.6	24.6	24.6	: Wall Surface Area Factor
24.8	24.8	24.8	24.8	25.8	25.8	: Absorption
29.6	27.4	19.4	20.1	21.1	9.2	: Noise Level
32.5	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Hwy 111 & Dune Palms
Project # : S221005
Room Name: CFA - Office

Wall 1 of 1

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) :	48	48	48	48	60	60	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**66.8**	**dBA**	50.1	55.6	58.1	62.1	62.1	56.1	: 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:		**66.8**	**dBA**	50.1	55.6	58.1	62.1	62.1	56.1	: 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	8	10	1	32.0	20	33	49	54	59	66
1" insulated glass (1/4 + 1/2 + 1/4)	N	6	8	1	48.0	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** ft
Overall Area: **80** ft²
Volume: **800** ft³
Number of Impacted Walls: **1**

Windows Open		
Interior Noise Level:	**38.0**	**dBA**
Windows Closed		
Interior Noise Level:	**38.0**	**dBA**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
50.1	55.6	58.1	62.1	62.1	56.1	: Exterior Wall Noise Exposure
21.1	21.1	40.0	46.9	42.2	46.2	: Transmission Loss
19.0	19.0	19.0	19.0	19.0	19.0	: Wall Surface Area Factor
16.8	16.8	16.8	16.8	17.8	17.8	: Absorption
31.2	36.7	20.3	17.5	21.2	11.2	: Noise Level
38.0	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
50.1	55.6	58.1	62.1	62.1	56.1	: Exterior Wall Noise Exposure
21.1	21.1	40.0	46.9	42.2	46.2	: Transmission Loss
19.0	19.0	19.0	19.0	19.0	19.0	: Wall Surface Area Factor
16.8	16.8	16.8	16.8	17.8	17.8	: Absorption
31.2	36.7	20.3	17.5	21.2	11.2	: Noise Level
38.0	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Hwy 111 & Dune Palms
Project # : S221005
Room Name: CFA - Team Member

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) :	121	121	121	121	151	151	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**66.8**	**dBA**	50.1	55.6	58.1	62.1	62.1	56.1	: 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:		**66.8**	**dBA**	50.1	55.6	58.1	62.1	62.1	56.1	: 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	17.5	10	1	127.0	20	33	49	54	59	66
1" insulated glass (1/4 + 1/2 + 1/4)	N	6	8	1	48.0	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: **11.5** ft

Overall Area: **175** ft²
Volume: **2013** ft³

Number of Impacted Walls: **2**

Windows Open Interior Noise Level:	**36.7**	**dBA**
Windows Closed Interior Noise Level:	**36.7**	**dBA**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
50.1	55.6	58.1	62.1	62.1	56.1	: Exterior Wall Noise Exposure
20.5	24.2	42.8	49.4	45.5	49.5	: Transmission Loss
22.4	22.4	22.4	22.4	22.4	22.4	: Wall Surface Area Factor
20.8	20.8	20.8	20.8	21.8	21.8	: Absorption
31.3	33.0	16.9	14.3	17.3	7.2	: Noise Level

35.4 **dBA** WINDOWS OPEN

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
50.1	55.6	58.1	62.1	62.1	56.1	: Exterior Wall Noise Exposure
20.5	24.2	42.8	49.4	45.5	49.5	: Transmission Loss
22.4	22.4	22.4	22.4	22.4	22.4	: Wall Surface Area Factor
20.8	20.8	20.8	20.8	21.8	21.8	: Absorption
31.3	33.0	16.9	14.3	17.3	7.2	: Noise Level

35.4 **dBA** WINDOWS CLOSED

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Hwy 111 & Dune Palms | **Wall 2 of 2**
Project # : S221005
Room Name: CFA - Team Member

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**66.8**	**dBA**	50.1	55.6	58.1	62.1	62.1	56.1	: 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:		**66.8**	**dBA**	50.1	55.6	58.1	62.1	62.1	56.1	: 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	11.5	10	1	115.0	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

Overall Area: **115** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
50.1	55.6	58.1	62.1	62.1	56.1	: Exterior Wall Noise Exposure
20.0	33.0	49.0	54.0	59.0	66.0	: Transmission Loss
20.6	20.6	20.6	20.6	20.6	20.6	: Wall Surface Area Factor
20.8	20.8	20.8	20.8	21.8	21.8	: Absorption
29.9	22.4	8.9	7.9	1.9	-11.1	: Noise Level
30.7	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
50.1	55.6	58.1	62.1	62.1	56.1	: Exterior Wall Noise Exposure
20.0	33.0	49.0	54.0	59.0	66.0	: Transmission Loss
20.6	20.6	20.6	20.6	20.6	20.6	: Wall Surface Area Factor
20.8	20.8	20.8	20.8	21.8	21.8	: Absorption
29.9	22.4	8.9	7.9	1.9	-11.1	: Noise Level
30.7	**dBA**	WINDOWS CLOSED				

Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

Appendix E
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
Supersedes: November 13, 2015
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.

OSI Tougher than the Elements. For Professional Use Only. The Battle will be Fierce.
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For Technical Assistance call: 1-800-624-7767 – Mon-Fri - 9:00a – 4:00p ET
www.ositough.com

OSI Brand is part of the Henkel family of brands. Founded in 1876, Henkel is a global leader in the consumer and industrial businesses. Henkel operates worldwide with leading brands and technologies in three business areas: Laundry & Home Care, Beauty Care and Adhesive Technologies.

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

PECORA CORPORATION
www.pecora.com
PEOPLE • PRODUCTS • PERFORMANCE

HARLEYSVILLE, PA
165 Wambold Road, Harleysville, PA 19438
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DALLAS, TX
11501 Hillguard Road, Dallas, TX 75243
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Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

Appendix F

CadnaA Analysis Data and Results

Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025-4230
Phone: (760) 738-5570
Date: 02 Dec 2022

Calculation Configuration

Configuration	
Parameter	Value
General	
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.01
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	0.50
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)
North PL		R1	38.1	37.6	0.0	0.0		x	Total	5.00	r	1803.80	1572.61	57.38
North Res		R2	33.7	33.1	0.0	0.0		x	Total	5.00	r	1861.80	2072.18	63.23
South PL		R3	45.5	44.7	0.0	0.0		x	Total	5.00	r	1822.04	727.33	67.00
Southeast		R4	38.7	38.6	0.0	0.0		x	Total	5.00	r	2314.23	716.39	62.89
Southwest		R5	43.0	41.8	0.0	0.0		x	Total	5.00	r	1546.13	733.68	67.00
South Res		R6	34.3	34.1	0.0	0.0		x	Total	5.00	r	2130.26	96.15	61.30
East		R7	41.7	41.4	0.0	0.0		x	Total	5.00	r	2242.04	992.02	64.04
West		R8	46.4	43.7	0.0	0.0		x	Total	5.00	r	1544.22	1024.83	67.00

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		S1	90.5	90.5	90.5	Lw	AC1		0.0	0.0	0.0							0.0		(none)	18.00	r	1893.55	994.82	80.00
HVAC		S2	93.5	93.5	93.5	Lw	AC2		0.0	0.0	0.0							0.0		(none)	18.00	r	1894.85	979.62	80.00
HVAC		S3	93.5	93.5	93.5	Lw	AC2		0.0	0.0	0.0							0.0		(none)	18.00	r	1915.69	988.30	80.00
DT		S4	84.5	84.5	84.5	Lw	DT		0.0	0.0	0.0							0.0	500	(none)	4.00	r	1835.83	929.58	66.00
DT		S4	84.5	84.5	84.5	Lw	DT		0.0	0.0	0.0							0.0	500	(none)	4.00	r	1835.69	942.84	66.00

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			Speed
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft²)		(min)	(min)	(min)	(dB)	(Hz)		Day	Evening	Night	(mph)
Ref Truck		LS_1	89.2	-10.8	-10.8	66.5	-33.5	-33.5	PWL-Pt	RT		0.0	0.0	0.0							0.0		(none)	1.0	0.0	0.0	10.0

Geometry - Line Sources

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
Ref Truck	6.00	r			1623.35	1142.98	68.00	62.00
					1674.57	1143.42	68.00	62.00
					1697.57	1133.44	68.00	62.00
					1805.21	1135.17	68.00	62.00
					1808.25	1026.23	68.00	62.00
					1796.10	990.64	68.00	62.00
					1714.50	993.24	68.00	62.00
					1709.72	1059.22	68.00	62.00
					1691.06	1087.86	68.00	62.00
					1691.06	1120.85	68.00	62.00
					1674.33	1130.05	68.00	62.00
					1626.39	1133.44	68.00	62.00

Buildings

Name	M.	ID	RB	Residents	Absorption	Height	
						Begin	
						(ft)	
CFA		BL_1	x	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		BL_1	x	0		15.00	r	1875.99	1017.22	77.00	62.00
								1958.06	1018.04	77.00	62.00
								1958.61	996.15	77.00	62.00
								1953.96	996.42	77.00	62.00
								1953.96	957.31	77.00	62.00
								1926.33	958.13	77.00	62.00
								1926.60	950.74	77.00	62.00
								1881.74	950.47	77.00	62.00
								1882.01	965.51	77.00	62.00
								1875.72	965.24	77.00	62.00

Terrain Contours

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
C1				62.00		2087.39	1196.00	62.00
						1538.29	1189.26	62.00
						1526.86	641.74	62.00
						2098.06	637.40	62.00
						2088.74	1199.59	62.00
C2						118.57	2167.53	60.00
						938.04	1861.97	57.00
						1583.89	1625.85	52.00
						1951.96	1528.62	53.00
						2247.10	1462.65	56.00
						2816.56	1414.04	52.00
						3455.47	1507.79	50.00
						4233.27	1719.60	56.00
C3						332.94	2591.89	63.00
						1003.66	2351.95	64.00
						1649.51	2115.83	58.00
						2017.58	2018.61	59.00
						2312.73	1952.63	63.00
						2882.19	1904.02	52.00
						3521.09	1997.77	50.00
						4246.39	2196.46	54.00
C4						-61.21	2476.10	44.00
						472.52	2274.85	42.00
						1518.11	1885.49	41.00
						2309.96	1684.25	30.00
						2738.69	1605.50	28.00
						3202.43	1684.25	28.00
						4252.39	1981.74	29.00
C5						43.79	1451.87	67.00
						1299.37	1237.51	63.00
						1461.24	1001.26	65.00
						1465.62	423.78	66.00
						1115.63	305.66	67.00
						43.79	415.03	67.00
C6						3429.82	1426.53	60.00
						2823.50	1296.99	56.00
						2294.35	1018.64	58.00
						2418.37	660.36	56.00
						1825.83	472.95	62.00
						2131.75	45.77	56.00
						3294.78	150.50	54.00
						3936.93	541.85	55.00
C7						1868.78	72.28	62.00
						1151.30	46.03	66.00

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
						554.13	144.47	66.00
						131.95	98.53	69.00
C8						1103.18	1498.49	63.00
						1586.60	1421.93	62.00
						2275.64	1290.68	59.00

Sound Level Spectra

Name	ID	Type	1/3 Oktave Spectrum (dB)											Source
			Weight.	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.
210 South Juniper Street, Suite 100
Escondido, California 92025-4230
Phone: (760) 738-5570
Date: 02 Dec 2022

Calculation Configuration

Configuration	
Parameter	Value
General	
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.01
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	0.50
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)
North PL		R1	43.7	-80.2	0.0	0.0		x	Total	5.00	r	1803.80	1572.61	57.38
North Res		R2	38.8	-80.2	0.0	0.0		x	Total	5.00	r	1861.80	2072.18	63.23
South PL		R3	53.8	-80.2	0.0	0.0		x	Total	5.00	r	1822.04	727.33	67.00
Southeast		R4	44.0	-80.2	0.0	0.0		x	Total	5.00	r	2314.23	716.39	62.89
Southwest		R5	51.4	-80.2	0.0	0.0		x	Total	5.00	r	1546.13	733.68	67.00
South Res		R6	37.6	-80.2	0.0	0.0		x	Total	5.00	r	2130.26	96.15	61.30
East		R7	48.7	-80.2	0.0	0.0		x	Total	5.00	r	2242.04	992.02	64.04
West		R8	56.0	-80.2	0.0	0.0		x	Total	5.00	r	1544.22	1024.83	67.00

Area 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		
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft²)		(min)	(min)	(min)	(dB)	(Hz)		Day	Evening	Night
Backhoe		S1	98.8	-1.2	-1.2	59.6	-40.4	-40.4	PWL-Pt	L1		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	1.0	0.0	0.0
Skid Steer		S2	98.8	-1.2	-1.2	59.6	-40.4	-40.4	PWL-Pt	L2		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	1.0	0.0	0.0
Dump Truck		S3	107.1	7.1	7.1	67.9	-32.1	-32.1	PWL-Pt	L3		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	1.0	0.0	0.0
Mini-Excavator		S4	96.1	-3.9	-3.9	56.9	-43.1	-43.1	PWL-Pt	L4		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	1.0	0.0	0.0

Geometry - Area Sources

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
Backhoe	5.00	r			1658.45	1178.01	67.00	62.00
					1655.70	912.74	67.00	62.00
					1991.94	909.98	67.00	62.00
					1989.19	1180.77	67.00	62.00
Skid Steer	5.00	r			1658.45	1178.01	67.00	62.00
					1655.70	912.74	67.00	62.00
					1991.94	909.98	67.00	62.00
					1989.19	1180.77	67.00	62.00
Dump Truck	5.00	r			1658.45	1178.01	67.00	62.00
					1655.70	912.74	67.00	62.00
					1991.94	909.98	67.00	62.00
					1989.19	1180.77	67.00	62.00
Mini-Excavator	5.00	r			1658.45	1178.01	67.00	62.00
					1655.70	912.74	67.00	62.00
					1991.94	909.98	67.00	62.00
					1989.19	1180.77	67.00	62.00

Terrain Contours

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
C1				62.00		2087.39	1196.00	62.00
						1538.29	1189.26	62.00
						1526.86	641.74	62.00
						2098.06	637.40	62.00
						2088.74	1199.59	62.00
C2						118.57	2167.53	60.00
						938.04	1861.97	57.00
						1583.89	1625.85	52.00
						1951.96	1528.62	53.00
						2247.10	1462.65	56.00
						2816.56	1414.04	52.00
						3455.47	1507.79	50.00
						4233.27	1719.60	56.00
C3						332.94	2591.89	63.00
						1003.66	2351.95	64.00
						1649.51	2115.83	58.00
						2017.58	2018.61	59.00
						2312.73	1952.63	63.00
						2882.19	1904.02	52.00
						3521.09	1997.77	50.00
						4246.39	2196.46	54.00
C4						-61.21	2476.10	44.00
						472.52	2274.85	42.00
						1518.11	1885.49	41.00
						2309.96	1684.25	30.00
						2738.69	1605.50	28.00
						3202.43	1684.25	28.00
						4252.39	1981.74	29.00
C5						43.79	1451.87	67.00
						1299.37	1237.51	63.00
						1461.24	1001.26	65.00
						1465.62	423.78	66.00
						1115.63	305.66	67.00
						43.79	415.03	67.00
C6						3429.82	1426.53	60.00
						2823.50	1296.99	56.00
						2294.35	1018.64	58.00
						2418.37	660.36	56.00
						1825.83	472.95	62.00
						2131.75	45.77	56.00
						3294.78	150.50	54.00
						3936.93	541.85	55.00
C7						1868.78	72.28	62.00
						1151.30	46.03	66.00

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
						554.13	144.47	66.00
						131.95	98.53	69.00
C8						1103.18	1498.49	63.00
						1586.60	1421.93	62.00
						2275.64	1290.68	59.00

Sound Level Spectra

Name	ID	Type	1/3 Oktave Spectrum (dB)											Source
			Weight.	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.
210 South Juniper Street, Suite 100
Escondido, California 92025-4230
Phone: (760) 738-5570
Date: 02 Dec 2022

Calculation Configuration

Configuration	
Parameter	Value
General	
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.01
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	0.50
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)
North PL		R1	46.1	-80.2	0.0	0.0		x	Total	5.00	r	1803.80	1572.61	57.38
North Res		R2	41.2	-80.2	0.0	0.0		x	Total	5.00	r	1861.80	2072.18	63.23
South PL		R3	56.3	-80.2	0.0	0.0		x	Total	5.00	r	1822.04	727.33	67.00
Southeast		R4	46.4	-80.2	0.0	0.0		x	Total	5.00	r	2314.23	716.39	62.89
Southwest		R5	54.0	-80.2	0.0	0.0		x	Total	5.00	r	1546.13	733.68	67.00
South Res		R6	40.2	-80.2	0.0	0.0		x	Total	5.00	r	2130.26	96.15	61.30
East		R7	51.1	-80.2	0.0	0.0		x	Total	5.00	r	2242.04	992.02	64.04
West		R8	58.4	-80.2	0.0	0.0		x	Total	5.00	r	1544.22	1024.83	67.00

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)
Compressor		S8	96.5	96.5	96.5	Lw	L6		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	5.00	r	1914.08	1006.97	67.00

Area 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		
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft²)		(min)	(min)	(min)	(dB)	(Hz)		Day	Evening	Night
Backhoe		S5	105.8	5.8	5.8	66.6	-33.4	-33.4	PWL-Pt	L5		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	1.0	0.0	0.0
Paver		S6	106.6	6.6	6.6	67.4	-32.6	-32.6	PWL-Pt	L7		0.0	0.0	0.0				30.00	0.00	0.00	0.0		(none)	1.0	0.0	0.0
Roller		S7	106.0	6.0	6.0	66.8	-33.2	-33.2	PWL-Pt	L8		0.0	0.0	0.0				12.00	0.00	0.00	0.0		(none)	1.0	0.0	0.0

Geometry - Area Sources

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
Backhoe	5.00	r			1658.45	1178.01	67.00	62.00
					1655.70	912.74	67.00	62.00
					1991.94	909.98	67.00	62.00
					1989.19	1180.77	67.00	62.00
Paver	5.00	r			1658.45	1178.01	67.00	62.00
					1655.70	912.74	67.00	62.00
					1991.94	909.98	67.00	62.00
					1989.19	1180.77	67.00	62.00
Roller	5.00	r			1658.45	1178.01	67.00	62.00
					1655.70	912.74	67.00	62.00
					1991.94	909.98	67.00	62.00
					1989.19	1180.77	67.00	62.00

Terrain Contours

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
C1				62.00		2087.39	1196.00	62.00
						1538.29	1189.26	62.00
						1526.86	641.74	62.00
						2098.06	637.40	62.00
						2088.74	1199.59	62.00
C2						118.57	2167.53	60.00
						938.04	1861.97	57.00
						1583.89	1625.85	52.00
						1951.96	1528.62	53.00
						2247.10	1462.65	56.00
						2816.56	1414.04	52.00
						3455.47	1507.79	50.00
						4233.27	1719.60	56.00
C3						332.94	2591.89	63.00
						1003.66	2351.95	64.00
						1649.51	2115.83	58.00
						2017.58	2018.61	59.00
						2312.73	1952.63	63.00
						2882.19	1904.02	52.00
						3521.09	1997.77	50.00
						4246.39	2196.46	54.00
C4						-61.21	2476.10	44.00
						472.52	2274.85	42.00
						1518.11	1885.49	41.00
						2309.96	1684.25	30.00
						2738.69	1605.50	28.00
						3202.43	1684.25	28.00
						4252.39	1981.74	29.00
C5						43.79	1451.87	67.00
						1299.37	1237.51	63.00
						1461.24	1001.26	65.00
						1465.62	423.78	66.00
						1115.63	305.66	67.00
						43.79	415.03	67.00
C6						3429.82	1426.53	60.00
						2823.50	1296.99	56.00
						2294.35	1018.64	58.00
						2418.37	660.36	56.00
						1825.83	472.95	62.00
						2131.75	45.77	56.00
						3294.78	150.50	54.00
						3936.93	541.85	55.00
C7						1868.78	72.28	62.00
						1151.30	46.03	66.00

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
						554.13	144.47	66.00
						131.95	98.53	69.00
C8						1103.18	1498.49	63.00
						1586.60	1421.93	62.00
						2275.64	1290.68	59.00

Sound Level Spectra

Name	ID	Type	1/3 Oktave Spectrum (dB)											Source
			Weight.	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

Quick Quack Car Wash (Store #43-049)

Noise Impact Study

City of La Quinta, CA

Prepared for:

Quick Quack Development II, LLC
Vance Shannon
1380 Lead Hill Blvd #260
Roseville, CA 95661

Prepared by:

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Date: 5/5/2023

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1.0 Executive Summary

This report has been prepared to provide the calculated noise projections from the proposed Quick Quack Car Wash ("Project") located near the northeast corner of Dune Palms Road and Highway 111 in the City of La Quinta, CA. All calculations are compared to the City of La Quinta's noise ordinance as well as the existing ambient condition. The Project proposes to construct a 108-foot covered car wash tunnel with 16 vacuum stalls.

1.1 Findings and Conclusions

Three (3) baseline 15-minute ambient measurements were performed at the Project site and represent the current operational noise and ambient levels within the Project vicinity. Ambient noise levels were also taken from the noise study done by Eilar Associates, Inc in December 2022. The predominant source of noise impacting the existing site is traffic noise propagating from Highway 111 and Dune Palms Road and commercial noise.

This study compares the Project's operational noise levels to two (2) different noise assessment scenarios: 1) Project only operational noise level projections, and 2) Project plus ambient noise level projections.

Project-only operational noise levels are anticipated to be 37-62 dBA Leq at the adjacent receptors. Project plus ambient noise level projections are anticipated to measure 53-63 dBA Leq at commercial receptors and 54-63 dBA Leq at residential receptors, which meets the limits outlined within the City's Municipal Code (see Section 4.3).

This assessment evaluates the baseline noise condition and compares the Project's worst-case operational noise level to the measured noise level (during the Project's proposed hours of operation).

The following outlines the project design features:

1. The Project will incorporate a 12 Sonny's blower system with the silencer package installed or equivalent to meet these acoustical benchmarks.
2. An acoustic liner (Acoustiblok perforated metal panels or equivalent) will line 15' of the exit (see Appendix C).
3. The Project will include 6' high masonry sound attenuation walls near the exit.

2.0 Introduction

2.1 Purpose of Analysis and Study Objectives

This noise impact study aims to evaluate the potential noise impacts for the Project study area and recommend noise mitigation measures, if necessary, to minimize the potential noise impacts. The assessment was conducted and compared to potentially applicable noise standards set forth by the State and/or local agencies. Consistent with the City's Noise Guidelines, the Project must demonstrate compliance with the applicable noise zoning ordinance and sound attenuation requirements.

The following is provided in this report:

- A description of the study area and the proposed Project
- Information regarding the fundamentals of noise
- A description of the local noise guidelines and standards
- An evaluation of the existing ambient noise environment
- An analysis of stationary noise impact (e.g., blowers and vacuums) from the Project site to adjacent land uses
- An analysis of construction noise to adjacent uses

2.2 Site Location and Study Area

The Project site is located near the northeast corner of Dune Palms Road and Highway 111 in the City of La Quinta, California, as shown in Exhibit A. The land uses directly surrounding the Project are commercial to the south, east, and west, with Highway 111 to the south and Dune Palms Road to the west. Other land uses that may be impacted by the project are residential uses and open space further north. To the north is future planned residential.

2.3 Proposed Project Description

The Project proposes to develop a 108-foot car wash tunnel and 16 covered vacuum stall systems. The site plan used for this is illustrated in Exhibit B. The Project operational hours are assumed to be between 7 AM to 9 PM, seven days per week.

Exhibit A

Location Map

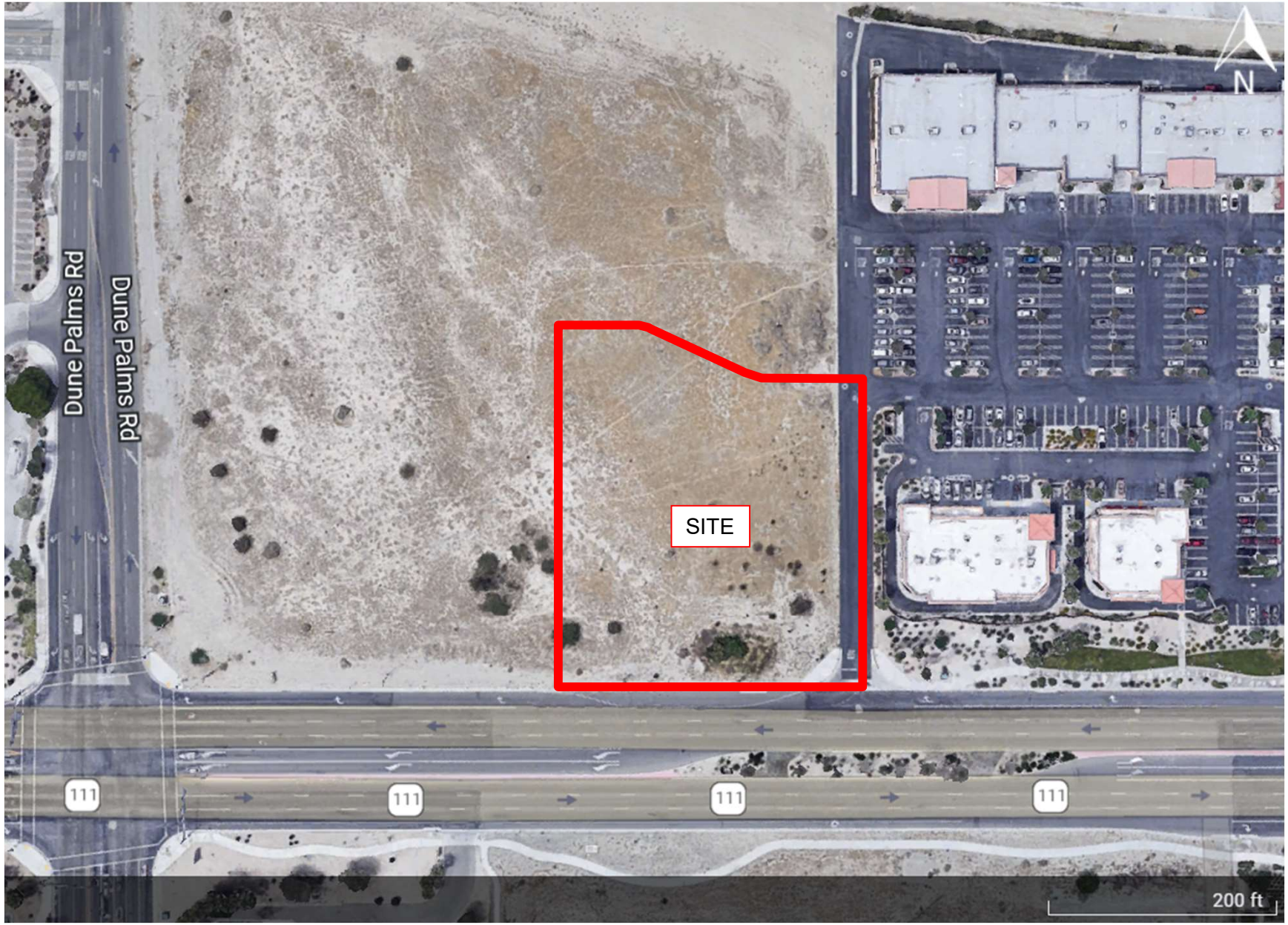
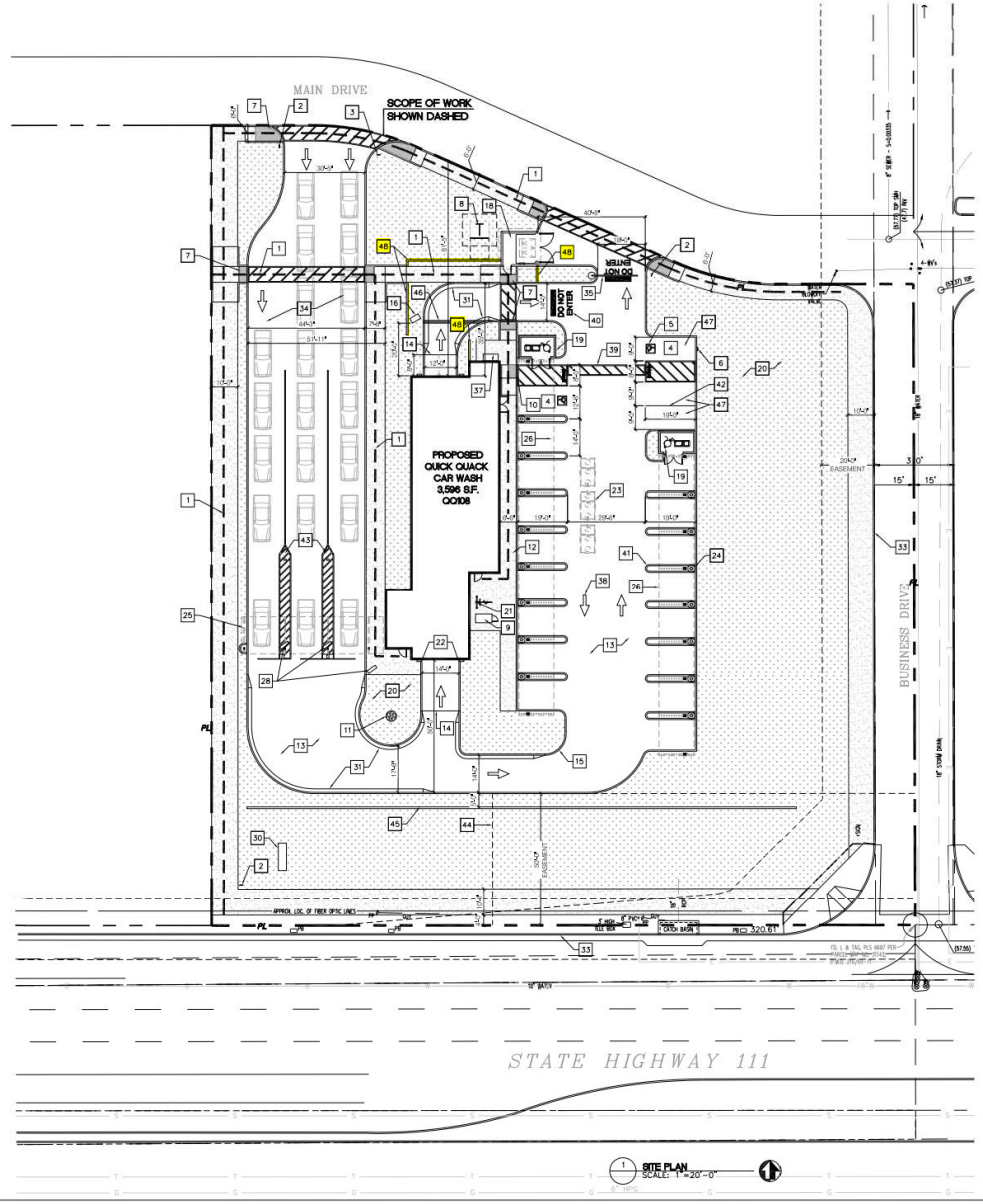


Exhibit B

Site Plan



KEYNOTES

1. ADA PATH OF TRAVEL SHOWN DASHED.
2. NEW POLE MOUNTED INTERNATIONAL SYMBOL OF ACCESSIBILITY AT ACCESSIBLE PATH OF TRAVEL.
3. NEW TOW AWAY ACCESSIBILITY PARKING SIGN AT ENTRANCE
4. NEW VAN ACCESSIBLE PARKING STALL – PAINT ACCESSIBLE LOADING ZONE WITH 4" WIDE STRIPING WITH TWO COATS OF HIGHWAY BLUE PAVEMENT MARKING PAINT. PAINT THE WORDS "NO PARKING" IN 12" HIGH LETTERS WITHIN THE LOADING ZONE.
5. NEW INTERNATIONAL SYMBOL AT PARKING STALL (TYP. 2 PLACES)
6. NEW ACCESSIBLE PARKING SIGN. (TYPICAL 2 PLACES)
7. NEW TRUNCATED DOMES (TYPICAL ALL PLACES)
8. PROPOSED ELECTRICAL TRANSFORMER LOCATION. FINAL APPROVED LOCATION PER UTILITY COMPANY
9. NEW LONG TERM BIKE LOCKER
10. NEW FLUSH SURFACE AT TRANSITION (TYPICAL)
11. FLAG POLE PROVIDED AND INSTALLED BY VENDOR. GC TO INSTALL FOOTING
12. NEW 4" THICK CONCRETE WALK, MEDIUM BROOM FINISH PERPENDICULAR TO PATH OF TRAVEL. SLOPE NOT TO EXCEED 5% IN DIRECTION OF TRAVEL. CROSS SLOPE NOT TO EXCEED 2%.
13. NEW CONCRETE DRIVE – SEE CIVIL DRAWINGS
14. GRADE BREAK LINE – SEE CIVIL DRAWINGS
15. NEW 6" CONCRETE CURB (TYPICAL)
16. NEW WAIT/GO SIGN.
17. NOT USED
18. NEW TRASH ENCLOSURE
19. NEW VACUUM EQUIPMENT ENCLOSURE
20. NEW LANDSCAPING – SEE LANDSCAPE DRAWINGS
21. NEW BICYCLE RACK
22. NEW 4" CONCRETE FILLED PIPE BOLLARD AT ENTRANCE (TYPICAL 2 PLACES)
23. NEW UNDERGROUND RECLAIM TANKS – SEE CIVIL DRAWINGS
24. NEW TRASH RECEPTACLES
25. NEW PAY CANOPY. SEE SHEET A5.00
26. NEW VACUUM CANOPY. SEE SHEET A5.01
27. NOT USED
28. NEW MENU BOARD.
29. PROPOSED NEW DRIVEWAY BY OTHERS
30. NEW MONUMENT SIGN – CONTRACTOR TO COORDINATE INSTALLATION OF MONUMENT SIGN FOOTING PRIOR TO LANDSCAPE WORK MONUMENT SIGN AND BUILDING SIGNS UNDER A SEPARATE PERMIT
31. 24" ROLLED CONCRETE CURB
32. NOT USED
33. EXISTING PUBLIC CONCRETE CURB, AND GUTTER TO REMAIN (REPAIR AS REQUIRED BY PUBLIC WORKS)
34. NEW DRIVE AISLE. REFER TO CIVIL DRAWINGS
35. NEW POND GATE
36. NOT USED
37. ELECTRICAL SWITCH GEAR
38. NEW DIRECTIONAL ARROW
39. NEW PEDESTRIAN STRIPING
40. NEW "DO NOT ENTER" PAVEMENT MARKING
41. NEW VACUUM PARKING STRIPING
42. NEW PARKING STRIPING PER CITY STANDARDS (TYP)
43. NEW DRIVEWAY LANE STRIPING
44. EASEMENT FOR HIGHWAY 111 WIDENING (RETENTION BASIN) INSTRUMENT NO. 2007-76267 OF OFFICIAL RECORDS.
45. LANDSCAPE WALL AS REQUIRED BY CITY, TO MATCH ADJACENT.
46. NEW TRENCH DRAIN
47. NEW TEAM MEMBER PARKING STALL
48. NEW 6'-0" HIGH MASONRY SOUND ATTENUATION WALL

Quick Quack Car Wash
1380 LEAD HILL BLVD., STE. 260, ROSEVILLE, CA 95661

QUICK QUACK
STORE # 43-049
DUNE PALMS RD AND
HIGHWAY 111
LA QUINTA, CA 92253
RIVERSIDE COUNTY

REVISIONS

#	DATE	DESCRIPTION
1	-	-

TAIT
SINCE 1964
1801 Lampton Lane
Norco, CA 92860
P: 951.477.5300
www.tait.com

LICENSED ARCHITECT
DANIEL W. WINKELMAN
No. C-27416
Exp. 08-31-23
STATE OF CALIFORNIA

ARCHITECTURAL SITE PLAN

DATE: FEBRUARY 14, 2023
TAIT JOB #: QQ0037

PLANNING PACKAGE

A1.01

3.0 Fundamentals of Noise

This section of the report provides basic information about noise and presents some of the terms used within the report.

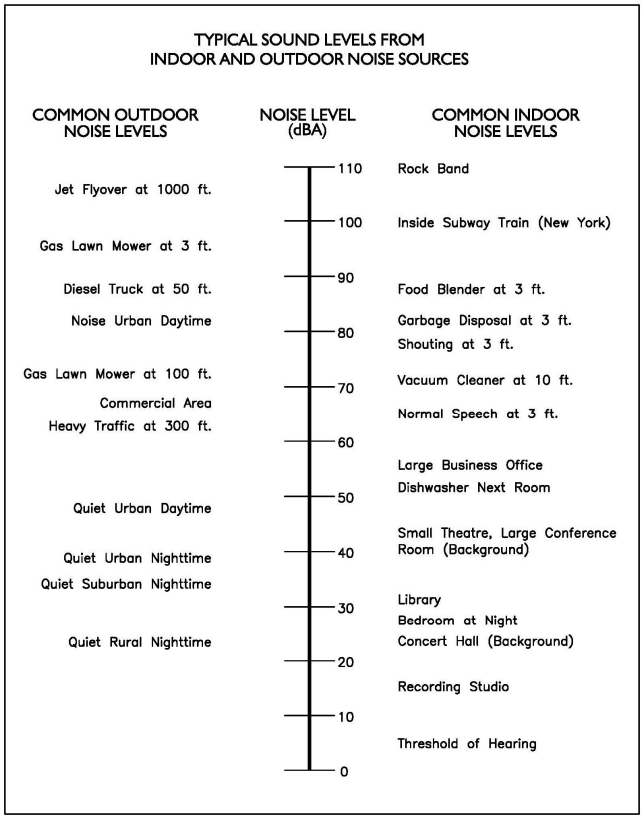
3.1 Sound, Noise, and Acoustics

Sound is a disturbance created by a moving or vibrating source and is capable of being detected by the hearing organs. Sound may be thought of as the mechanical energy of a moving object transmitted by pressure waves through a medium to a human ear. For traffic or stationary noise, the medium of concern is air. *Noise* is defined as sound that is loud, unpleasant, unexpected, or unwanted.

3.2 Frequency and Hertz

A continuous sound is described by its *frequency* (pitch) and *amplitude* (loudness). Frequency relates to the number of pressure oscillations per second. Low-frequency sounds are low in pitch (bass sounding), and high-frequency sounds are high in pitch (squeak). These oscillations per second (cycles) are commonly referred to as Hertz (Hz). The human ear can hear from the bass pitch starting at 20 Hz to the high pitch of 20,000 Hz.

Exhibit C: Typical A-Weighted Noise Levels



3.3 Sound Pressure Levels and Decibels

The *amplitude* of a sound determines its loudness. The loudness of sound increases or decreases as the amplitude increases or decreases. Sound pressure amplitude is measured in units of micro-Newton per square meter ($\mu N/m^2$), also called micro-Pascal (μPa). One μPa is approximately one hundred billionths (0.00000000001) of normal atmospheric pressure. Sound pressure level (SPL or L_p) is used to describe in logarithmic units the ratio of actual sound pressures to a reference pressure squared. These units are called decibels, abbreviated dB. Exhibit C illustrates reference sound levels for different noise sources.

3.4 Addition of Decibels

Because decibels are on a logarithmic scale, sound pressure levels cannot be added or subtracted by simple plus or minus addition. When two sounds or equal SPL are combined, they will produce an SPL 3 dB greater than the original single SPL. In other words, sound energy must be doubled to produce a 3 dB increase. If two sounds differ by approximately 10 dB, the higher sound level is the predominant sound.

3.5 Human Response to Changes in Noise Levels

Generally, the healthy human ear is most sensitive to sounds between 1,000 Hz and 5,000 Hz (A-weighted scale). It perceives a sound within that range as being more intense than a sound with a higher or lower frequency with the same magnitude. For purposes of this report as well as with most environmental documents, the A-scale weighting is typically reported in terms of A-weighted decibel (dBA). Typically, the human ear can barely perceive the change in the noise level of 3 dB. A change in 5 dB is readily perceptible, and a change in 10 dB is perceived as being twice or half as loud. As previously discussed, a doubling of sound energy results in a 3 dB increase in sound, which means that a doubling of sound energy (e.g., doubling the traffic volume on a highway) would result in a barely perceptible change in sound level.

3.6 Noise Descriptors

Noise in our daily environment fluctuates over time. Some noise levels occur in regular patterns; others are random. Some noise levels are constant, while others are sporadic. Noise descriptors were created to describe the different time-varying noise levels.

A-Weighted Sound Level: The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high-frequency components of the sound in a manner similar to the response of the human ear. A numerical method of rating human judgment of loudness.

Ambient Noise Level: The composite of noise from all sources, near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

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

Decibel (dB): A unit for measuring the amplitude of a sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micro-pascals.

dB(A): A-weighted sound level (see definition above).

Equivalent Sound Level (LEQ): The sound level corresponding to a steady noise level over a given sample period with the same amount of acoustic energy as the actual time-varying noise level. The energy average noise level during the sample period.

Habitable Room: Any room meeting the requirements of the Uniform Building Code or other applicable regulations which is intended to be used for sleeping, living, cooking, or dining purposes, excluding such enclosed spaces as closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms, and similar spaces.

L(n): The A-weighted sound level exceeded during a certain percentage of the sample time. For example, L10 in the sound level exceeded 10 percent of the sample time. Similarly, L50, L90, L99, etc.

Noise: *A*ny unwanted sound or sound which is undesirable because it interferes with speech and hearing, is intense enough to damage hearing, or is otherwise annoying. The State Noise Control Act defines noise as "...excessive undesirable sound...".

Outdoor Living Area: Outdoor spaces that are associated with residential land uses typically used for passive recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, jacuzzi areas, etc. associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship which have a significant role in services or other noise-sensitive activities; and outdoor school facilities routinely used for educational purposes which may be adversely impacted by noise. Outdoor areas usually not included in this definition are: front yard areas, driveways, greenbelts, maintenance areas and storage areas associated with residential land uses; exterior areas at hospitals that are not used for patient activities; outdoor areas associated with places of worship and principally used for short-term social gatherings; and, outdoor areas associated with school facilities that are not typically associated with educational uses prone to adverse noise impacts (for example, school play yard areas).

Percent Noise Levels: See L(n).

Sound Level (Noise Level): The weighted sound pressure level obtained by use of a sound level meter having a standard frequency filter for attenuating part of the sound spectrum.

Sound Level Meter: An instrument, including a microphone, an amplifier, an output meter, and frequency weighting networks for the measurement and determination of noise and sound levels.

Single Event Noise Exposure Level (SENEL): The dB(A) level, which, if it lasted for one second, would produce the same A-weighted sound energy as the actual event.

3.7 Sound Propagation

As sound propagates from a source, it spreads geometrically. Sound from a small, localized source (i.e., a point source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates at a rate of 6 dB per doubling of distance. The movement of vehicles down a roadway makes the source of the sound appear to propagate from a line (i.e., line source) rather than a point source. This line source results in the noise propagating from a roadway in a cylindrical spreading versus a spherical spreading that results from a point source. The sound level attenuates for a line source at a rate of 3 dB per doubling of distance.

As noise propagates from the source, it is affected by the ground and atmosphere. Noise models use hard site (reflective surfaces) and soft site (absorptive surfaces) to help calculate predicted noise levels. Hard site conditions assume no excessive ground absorption between the noise source and the receiver. Soft site conditions such as grass, soft dirt, or landscaping attenuate noise at a rate of 1.5 dB per doubling of distance. When added to the geometric spreading, the excess ground attenuation results in an overall

noise attenuation of 4.5 dB per doubling of distance for a line source and 7.5 dB per doubling of distance for a point source.

Research has demonstrated that atmospheric conditions can have a significant effect on noise levels when noise receivers are located at least 200 feet from a noise source. Wind, temperature, air humidity, and turbulence can further impact how far sound can travel.

4.0 Ground-Borne Vibration Fundamentals

4.1 Vibration Descriptors

Ground-borne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of ground-borne vibrations typically only cause a nuisance to people, but at extreme vibration levels, damage to buildings may occur. Although ground-borne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Ground-borne noise is an effect of ground-borne vibration and only exists indoors since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

Several different methods are used to quantify vibration amplitude.

PPV – Known as the peak particle velocity (PPV) which is the maximum instantaneous peak in vibration velocity, typically given in inches per second.

RMS – Known as root mean squared (RMS) can be used to denote vibration amplitude

VdB – A commonly used abbreviation to describe the vibration level (VdB) for a vibration source.

4.2 Vibration Perception

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Outdoor sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible ground-borne noise or vibration. To counter the effects of ground-borne vibration, the Federal Transit Administration (FTA) has published guidance relative to vibration impacts. According to the FTA, fragile buildings can be exposed to ground-borne vibration levels of 0.3 inches per second without experiencing structural damage.

4.3 Vibration Propagation

There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wavefront, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wavefront. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wavefront. However, unlike P-waves, the particle motion is transverse, or side-to-side and perpendicular to the direction of propagation.

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil but has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

5.0 Regulatory Setting

The proposed Project is located in the City of La Quinta, California, and noise regulations are addressed through the efforts of various federal, state, and local government agencies. The agencies responsible for regulating noise are discussed below.

5.1 Federal Regulations

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Publicize noise emission standards for interstate commerce
- Assist state and local abatement efforts
- Promote noise education and research

The Federal Office of Noise Abatement and Control (ONAC) was originally tasked with implementing the Noise Control Act. However, it was eventually eliminated, leaving other federal agencies and committees to develop noise policies and programs. Some examples of these agencies are as follows: The Department of Transportation (DOT) assumed a significant role in noise control through its various agencies. The Federal Aviation Agency (FAA) is responsible for regulating noise from aircraft and airports. The Federal Highway Administration (FHWA) is responsible for regulating noise from the interstate highway system. The Occupational Safety and Health Administration (OSHA) is responsible for the prohibition of excessive noise exposure to workers. The Housing and Urban Development (HUD) is responsible for establishing noise regulations as it relates to exterior/interior noise levels for new HUD-assisted housing developments near high-noise areas.

The federal government advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that "noise sensitive" uses are either prohibited from being constructed adjacent to a highway or that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by the transportation source, the City is restricted to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning.

5.2 State Regulations

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regularity tools to control and abate noise for use by local agencies. One significant model is the "Land Use Compatibility for Community Noise Environments Matrix." The matrix allows the local jurisdiction to clearly delineate the compatibility of sensitive uses with various incremental levels of noise.

The State of California has established noise insulation standards as outlined in Title 24 of the California Building Code (CBC), which in some cases requires acoustical analyses to outline exterior noise levels and

to ensure interior noise levels do not exceed the interior threshold. The state mandates that the legislative body of each county and City adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable, as illustrated in Exhibit D.

5.3 City of La Quinta Noise Regulations

The City of La Quinta outlines their noise regulations and standards within the Noise Element from the General Plan and Municipal Code. For purposes of this analysis, the City's General Plan and Noise Ordinance (Section 9.100.210) is used to evaluate the stationary noise impacts from the proposed Project. The Noise Element outlines Goals and Polices and establishes Noise/Land Use Compatibility Criteria. The project impacts were compared to the City's residential and commercial noise standards.

City of La Quinta General Plan

Applicable policies and standards governing environmental noise in the City are set forth in Chapter IV of the General Plan, Environmental Hazards, Noise. Table IV-3 (Exhibit D of this report) of the City's Noise Element outlines the exterior noise standards for community noise environments.

In addition to the noise standards, the City has outlined goals, policies, and implementation measures to reduce potential noise impacts, which are presented below:

Goals, Policies, and Implementation Measures

Applicable policies, goals, and implementation program measures from the Noise Element that would mitigate potential impacts on noise include the following.

Goal N-1: A healthful noise environment which complements the City's residential and resort character.

Policy N.1.3: New non-residential development located adjacent to existing residential development, sensitive receptors or residentially designated land, shall be required to submit a noise impact analysis in conjunction with the first Planning Department application, which demonstrates that it will not significantly impact the adjacent residential development or residential land.

Policy N.1.5: All noise impact analysis will include, at a minimum, short-term construction noise and noise generated by the daily operation of the project at build out.

Policy N.1.6: The City may require remedial noise control plans and/or improvements for areas experiencing noise in excess of adopted City standards.

Program N1.6.a: Remedial improvements will be included in the Capital Improvement Program.

Policy N.1.7: Noise impact analysis shall be included in all City Capital Improvement Plan (CIP) and developer-required roadway widening projects to demonstrate compliance with City noise standards.

Exhibit D: Land Use Compatibility Guidelines

Table IV-3
Land Use Compatibility for Community Noise Environments

Land Uses	CNEL (dBA) 50	55	60	65	70	75	80
Residential - Single Family Dwellings, Duplex, Mobile Homes	A	B			C	D	
Residential – Multiple Family		A	B		C	D	
Transient Lodging: Hotels and Motels	A		B		C		D
School Classrooms, Libraries, Churches, Hospitals, Nursing Homes and Convalescent Hospitals	A		B		C		D
Auditoriums, Concert Halls, Amphitheaters	B			C			
Sports Arenas, Outdoor Spectator Sports	B				C		
Playgrounds, Neighborhood Parks	A				C	D	
Golf Courses, Riding Stables, Water Recreation, Cemeteries	A				C		D
Office Buildings, Business, Commercial and Professional	A			B		D	
Industrial, Manufacturing, Utilities, Agriculture	A				B	D	

Source: *California Department of Health Services, "Guidelines for the Preparation and Content of the Noise Element of the General Plan," 1990*

A **Normally Acceptable:** With no special noise reduction requirements assuming standard construction.

B **Conditionally Acceptable:** New construction or development should be undertaken only after a detailed analysis of the noise reduction requirement is made and needed noise insulation features included in the design

C **Normally Unacceptable:** New construction is discouraged. If new construction does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

D **Clearly Unacceptable:** New construction or development should generally not be undertaken.

City of La Quinta Municipal Code

Section 9.100.210 of the City's Municipal Code outlines the City's noise ordinance.

Section 9.100.210 – Noise Control

A. Purpose. The noise control standards for nonresidential land use districts set forth in this section are established to prevent excessive sound levels which are detrimental to the public health, welfare and safety or which are contrary to the public interest.

B. Noise Standards. Exterior noise standards are set forth below (Exhibit D in this report). Residential property, schools, hospitals, and churches are considered noise sensitive land uses, regardless of the land use district in which they are located. All other uses shall comply with the "other nonresidential" standard. All noise measurements shall be taken using standard noise measuring instruments. Measurements shall be taken within the receiving property at locations determined by director to be most appropriate to the individual situation.

All ambient noise measurements shall commence at the base ambient noise levels in decibels within the respective times and zones as follows:

Table 1: Exterior Noise Standards

Receiving Land Use	Noise Standard (dBA)	
	7:00 a.m. - 10:00 p.m.	10:00 p.m. - 7:00 a.m.
Noise sensitive	65	50
Other nonresidential	75	65

If the noise consists entirely of impact noise, simple tone noise, speech or music, or any combination thereof, each of the noise levels specified in the table in this section shall be reduced by five (5) dB(A).

C. Noise Limits. It is unlawful for any person at any location within the city to create any noise, or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, when such noise causes the noise level, when measured on any adjacent property, to exceed:

1. The noise standard for a cumulative period of more than thirty (30) minutes in any hour:
2. The noise standard plus five (5) dB(A) for a cumulative period of more than fifteen (15) minutes in any hour;
3. The noise standard plus ten (10) dB(A) for a cumulative period of more than five (5) minutes in any hour;
4. The noise standard plus fifteen (15) dB(A) for a cumulative period of more than one (1) minute in any hour; or

5. The noise standard plus twenty (20) dB(A) for any period of time.

For purposes of this section, the term "cumulative period" means the number of minutes that noise occurs within any hour, whether such minutes are consecutive or not.

D. Ambient Noise Level. If the ambient or background noise level exceeds any of the preceding noise categories, no increase above such ambient noise level shall be permitted.

E. Exceptions. The following are exempt from noise restrictions of this section:

6. Emergency vehicles or other emergency operations.
7. City maintenance, construction or similar activities.
8. Construction activities regulated by Section 6.08.050 of the La Quinta Municipal Code.
9. Golf course maintenance activities between 5:30 a.m. and ending no later than 8:00 p.m. on any given day

F. Enforcement. The city manager or designee shall have the responsibility and authority to enforce the provisions of this section.

Chapter 6.08.050 – Disturbances by construction noises

A. It is a nuisance and it is unlawful, for any person to be engaged or employed, or for any person to cause any other person to be engaged or employed, in any work of construction, erection, alteration, repair, addition to, or improvement to realty, except between the hours set forth as follows:

October 1st through April 30th	Monday – Friday:	7:00 a.m. to 5:30 p.m.
	Saturday:	8:00 a.m. to 5:00 p.m.
	Sunday:	none
	Holidays*:	none
May 1st through September 30th	Monday – Friday:	6:00 a.m. to 7:00 p.m.
	Saturday:	8:00 a.m. to 5:00 p.m.
	Sunday:	none
	Holidays*:	none
*For purposes of this section, the following shall be considered Holidays: New Year's Day (January 1st) Dr. Martin Luther King Jr. Day (third Monday in January) President's Day (third Monday in February formerly Washington's birthday) Memorial Day (last Monday in May) Independence Day (July 4th) Labor Day (first Monday in September) Veteran's Day (November 11th) Thanksgiving (fourth Thursday in November) Christmas Day (December 25th)		

B. No person doing or causing work prohibited by subsection A of this section, after being informed orally or in writing that the work is in violation of subsection A, shall fail, refuse or neglect to cease said work.

Exceptions:

1. Emergency repair of existing installations or equipment or appliances:

2. Construction work complying with the terms of a written early work permit which may be issued by the city manager or designee, upon a showing of sufficient need due to hot or inclement weather, or the use of an unusually long process material, or other circumstances of unusual and compelling nature.

6.0 Study Method and Procedure

The following section describes the noise modeling procedures and assumptions used for this assessment.

6.1 Noise Measurement Procedure and Criteria

MD conducted three (3) short-term noise measurement at the Project site, representing the noise level from the traffic conditions along Highway 111 and Dune Palms Road (see Appendix A for the field sheet data).

6.2 Stationary Noise Modeling

SoundPLAN (SP) acoustical modeling software was utilized to model future worst-case stationary noise impacts to the adjacent land uses. SP is capable of evaluating multiple stationary noise source impacts at various receiver locations. SP's software utilizes algorithms (based on the inverse square law and reference equipment noise level data) to calculate noise level projections. The software allows the user to input specific noise sources, spectral content, sound barriers, building placement, topography, and sensitive receptor locations.

The future worst-case noise level projections were modeled using referenced sound level data for the various stationary on-site sources (vacuums and car wash blowers at the exit). The SP model assumes a total of 16 vacuums and the dryer systems are operating simultaneously (worst-case scenario) when the noise will, in reality, be intermittent and lower in noise level. In addition, the model takes into account planned 6’ walls near the car wash exit. The reference vacuum equipment and blower system sound level data are provided in Appendix C. All other noise-producing equipment (e.g., compressors, pumps) will be housed within mechanical equipment rooms.

The following outlines the project design features:

4. The Project will incorporate a 12 Sonny’s blower system with the silencer package installed or equivalent to meet these acoustical benchmarks.
5. An acoustic liner (Acoustiblok perforated metal panels or equivalent) will line 15’ of the exit (see Appendix C).
6. The Project will include 6’ high masonry sound attenuation walls near the exit.

6.3 FHWA Roadway Construction Noise Model

The construction noise analysis utilizes the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RNCM), together with several key construction parameters. Key inputs include distance to the sensitive receiver, equipment usage, % usage factor, and baseline parameters for the project site. The project was analyzed based on the different construction phases. Construction noise is expected to be loudest during the grading, concrete and building phases of construction. The construction noise calculation output worksheet is located in Appendix D.

7.0 Existing Noise Environment

Three (3) 15-minute ambient noise measurements were taken at the project site to determine the existing ambient noise levels. Noise data indicates that traffic along Highway 111 and Dune Palms Road is the primary source of noise impacting the site and the surrounding area.

7.1 Short-Term Noise Measurement Results

The results of the 15-minute measurements are presented in Table 4.

Table 2: Short-Term Noise Measurement Data (dBA)

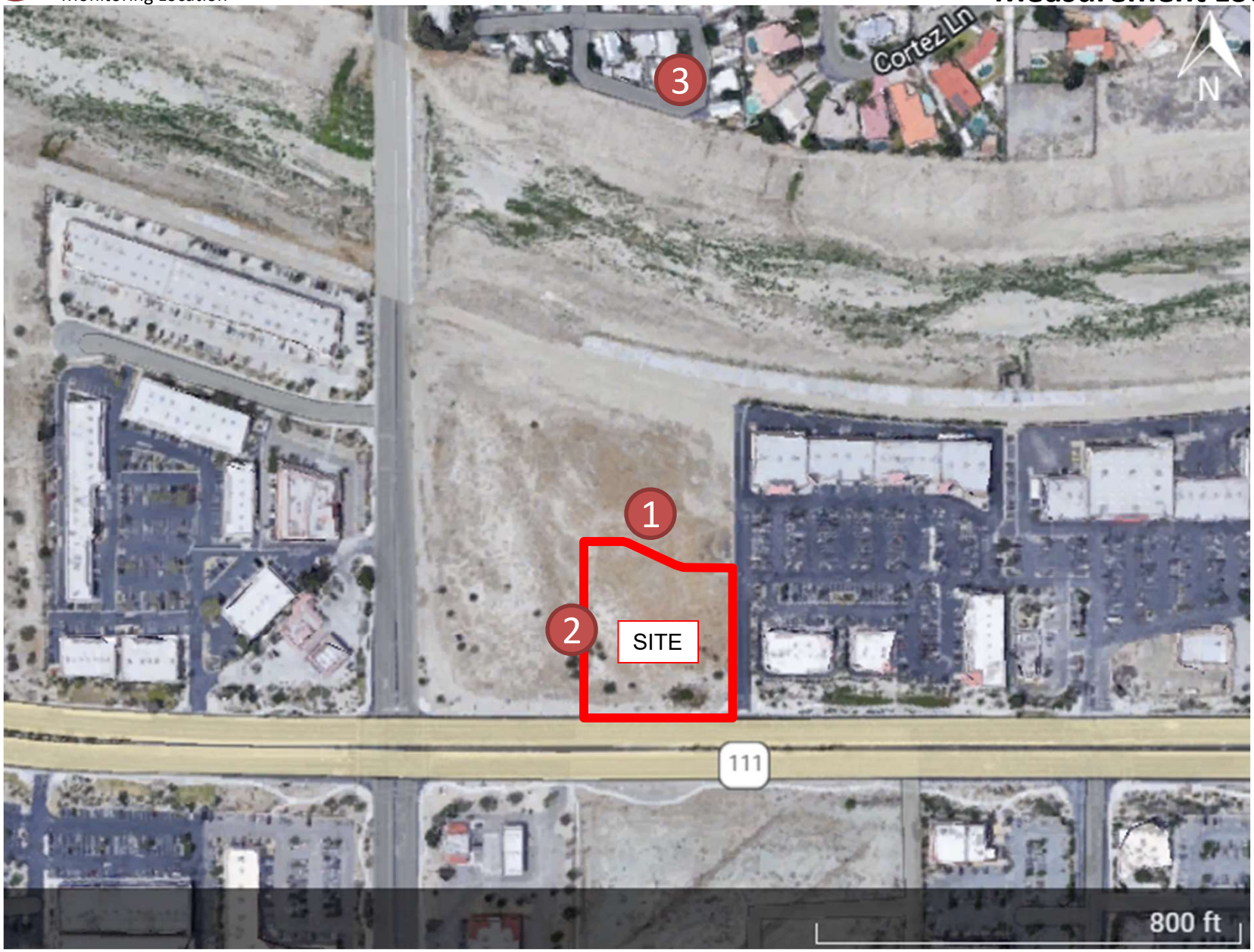
Location	Start Time	Stop Time	Leq	Lmax	Lmin	L(2)	L(8)	L(25)	L(50)	L(90)
ST1	12:54 PM	1:09 PM	52.5	64.8	44.0	58.9	55.4	53.0	50.9	46.7
ST2	1:10 PM	1:25 PM	56.9	68.2	46.2	61.8	60.0	58.1	56.2	50.4
ST3	1:36 PM	1:51 PM	55.2	71.0	41.3	63.6	58.3	54.6	52.0	47.4
Notes: 1. Short-term noise monitoring locations are illustrated in Exhibit E.										

For this evaluation, MD has utilized the measured ambient noise level of 53 to 57 dBA Leq and has compared them to the Project's projected noise levels. MD has also used the ambient measurements taken by Eilar Associates, Inc. from their December 2022 report for the receptors closer to the roadways.

Exhibit E

Measurement Locations

= Short-Term Monitoring Location



8.0 Future Noise Environment Impacts

This assessment analyzes future noise impacts as a result of the Project. The analysis details the estimated exterior noise levels. Stationary noise impacts are analyzed from the noise sources on-site such as dryers/blowers and vacuums.

8.1 Stationary Source Noise

The following sections outline the exterior noise levels associated with the proposed Project.

8.1.1 Noise Impacts to Off-Site Receptors Due to Stationary Sources

Receptors affected by Project operational noise include existing residences to the north and existing commercial to the east, southwest, and southeast. There is planned residential north of the project. The worst-case stationary noise was modeled using SoundPLAN acoustical modeling software. Worst-case assumes the blowers, vacuums, and equipment are always operational when in reality, the noise will be intermittent and cycle on/off depending on the customer usage.

A total of eleven (11) receptors (R1 – R11) were modeled to evaluate the proposed Project's operational impact. This study analyzes the Project-only operational noise level projections and the Project plus ambient noise level projections; see Table 5 below.

Table 3: Worst-Case Predicted Operational Noise Levels (dBA)

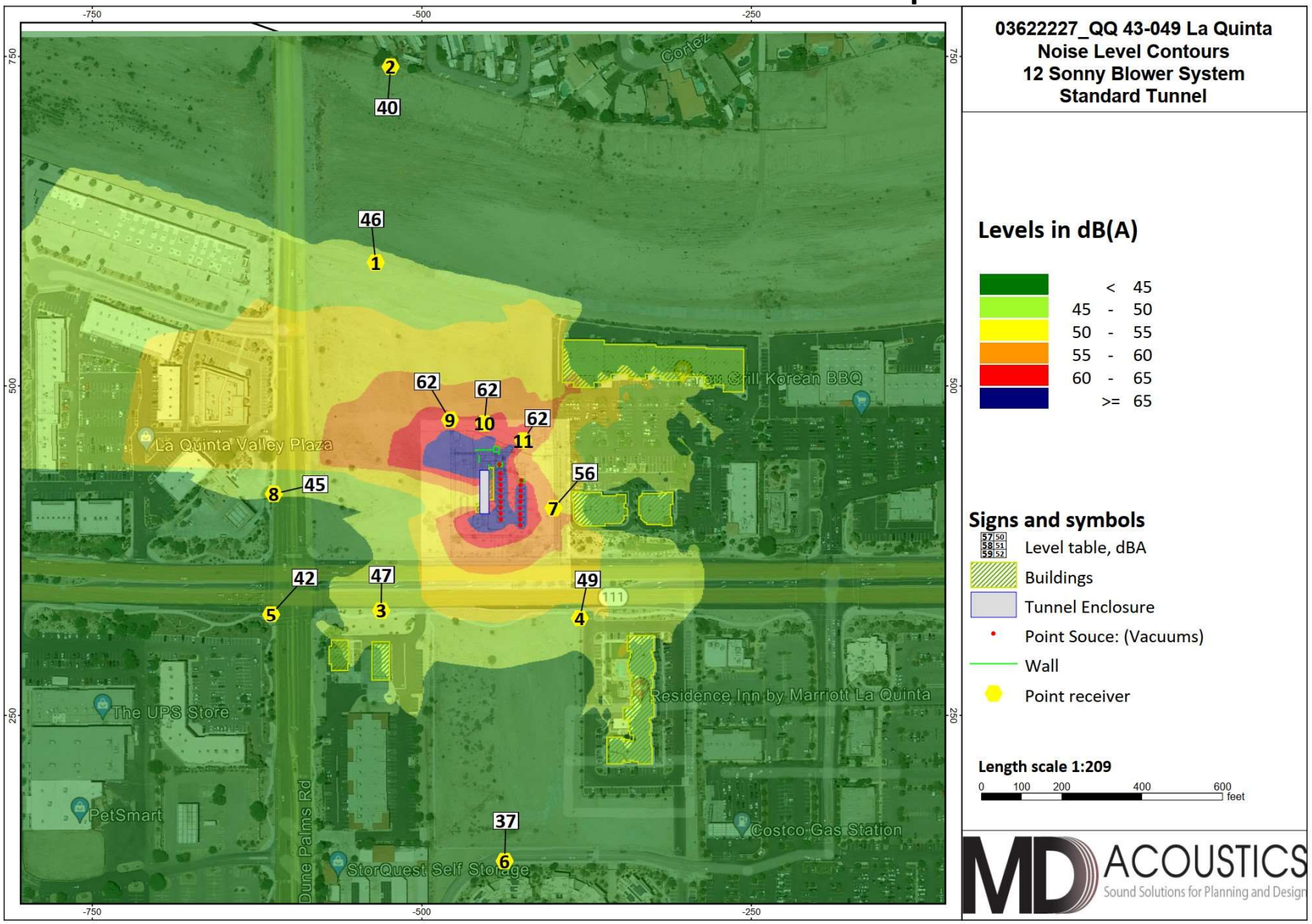
Receptor[1]	Existing Ambient Noise Level (dBA, Leq)[2]	Project Noise Level (dBA, Leq)[3]	Total Combined Noise Level (dBA, Leq)	Daytime (7AM - 10PM) Non Transp. Noise Limit (dBA, Leq)	Change in Noise Level as Result of Project
1	53	46	54	**75**	1
2	55	40	55	**65**	0
3	63	47	63	**75**	0
4	63	49	63	**75**	0
5	63	42	63	**75**	0
6	53	37	53	**65**	0
7	57	56	60	**75**	3
8	57	45	57	**75**	0
9	53	62	63	**65**	10
10	53	62	63	**65**	10
11	53	62	63	**65**	10

Notes:
1. Receptors 1, 3-5, 7, and 8 are nonresidential receptors. Receptors 2, 6, and 9-11 are residential receptors.
2. See Appendix A for the ambient noise measurement.
3. See Exhibit F for the operational noise level projections at said receptors.

The model indicates that the project-only noise level will be 45 to 56 dBA at existing commercial uses and 37 to 62 dBA at existing and future residences, which meets the City's residential and nonresidential noise level standards (Section 9.100.210 of the Municipal Code). The project plus ambient noise level will be 54 to 63 dBA at existing commercial receptors and 53 to 63 dBA at the residential receptors. Therefore, the project will increase the existing noise level by up to 3 dBA at the existing residential and nonresidential uses, which will be a barely perceptible difference and will meet the City's noise standard of 65 dBA at residential uses and 75 dBA at nonresidential uses.

Exhibit F

Operational Noise Level Contours



9.0 Construction Noise Impact

The degree of construction noise may vary for different areas of the project site and also vary depending on the construction activities. Noise levels associated with the construction will vary with the different phases of construction.

9.1 Construction Noise

The Environmental Protection Agency (EPA) has compiled data regarding the noise generated characteristics of typical construction activities. The data is presented in Table 4.

Table 4: Typical Construction Equipment Noise Levels[1]

Type	Lmax (dBA) at 50 Feet
Backhoe	80
Truck	88
Concrete Mixer	85
Pneumatic Tool	85
Pump	76
Saw, Electric	76
Air Compressor	81
Generator	81
Paver	89
Roller	74

Notes:
[1] Referenced Noise Levels from FTA noise and vibration manual.

Construction noise is considered a short-term impact and would be considered significant if construction activities are taken outside the allowable times as described in the City's Municipal Code Section 6.08.050. Construction is anticipated to occur during the permissible hours according to the City's Municipal Code. Construction noise will have a temporary or periodic increase in the ambient noise level above the existing within the project vicinity. The impact is considered less than significant, however, construction noise level projections are provided.

Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Noise levels will be loudest during grading phase. A likely worst-case construction noise scenario during grading assumes the use of a grader, a dozer, an excavator, and a backhoe operating at 750 feet from the nearest existing residential property.

Assuming a usage factor of 40 percent for each piece of equipment, unmitigated noise levels have the potential to reach 59 dBA Leq at the nearest existing residential property 750 ft away. Thus, construction noise at residential uses is below the noise level limit of 65 dBA. See Appendix D for calculations.

9.2 Construction Vibration

Construction activities can produce vibration that may be felt by adjacent land uses. The construction of the proposed project would not require the use of equipment such as pile drivers, which are known to generate substantial construction vibration levels. The primary vibration source during construction may be from a bulldozer. A large bulldozer has a vibration impact of 0.089 inches per second peak particle velocity (PPV) at 25 feet which is perceptible but below any risk to architectural damage.

The fundamental equation used to calculate vibration propagation through average soil conditions and distance is as follows:

$$PPV_{equipment} = PPV_{ref} (100/D_{rec})^n$$

Where: PPV_{ref} = reference PPV at 100ft.
D_{rec} = distance from equipment to receiver in ft.
n = 1.1 (the value related to the attenuation rate through ground)

The thresholds from the Caltrans Transportation and Construction Induced Vibration Guidance Manual in Table 5 (below) provides general thresholds and guidelines as to the vibration damage potential from vibratory impacts.

Table 5: Guideline Vibration Damage Potential Threshold Criteria

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1	0.5
Modern industrial/commercial buildings	2	0.5

Source: Table 19, Transportation and Construction Vibration Guidance Manual, Caltrans, Sept. 2013.
Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Table 6 gives approximate vibration levels for particular construction activities. This data provides a reasonable estimate for a wide range of soil conditions.

Table 6: Vibration Source Levels for Construction Equipment[1]

Equipment	Peak Particle Velocity (inches/second) at 25 feet	Approximate Vibration Level LV (dVB) at 25 feet
Pile driver (impact)	1.518 (upper range)	112
	0.644 (typical)	104
Pile driver (sonic)	0.734 upper range	105
	0.170 typical	93
Clam shovel drop (slurry wall)	0.202	94
Hydromill	0.008 in soil	66
(slurry wall)	0.017 in rock	75
Vibratory Roller	0.21	94
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drill	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

[1] Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration, May 2006.

At a distance of 45 feet (distance of nearest structure from the property line), a large bulldozer would yield a worst-case 0.047 PPV (in/sec) which is below any threshold of damage. The impact is less than significant, and no mitigation is required. The vibration calculations are in Appendix D.

10.0 References

State of California General Plan Guidelines: 1998. Governor's Office of Planning and Research

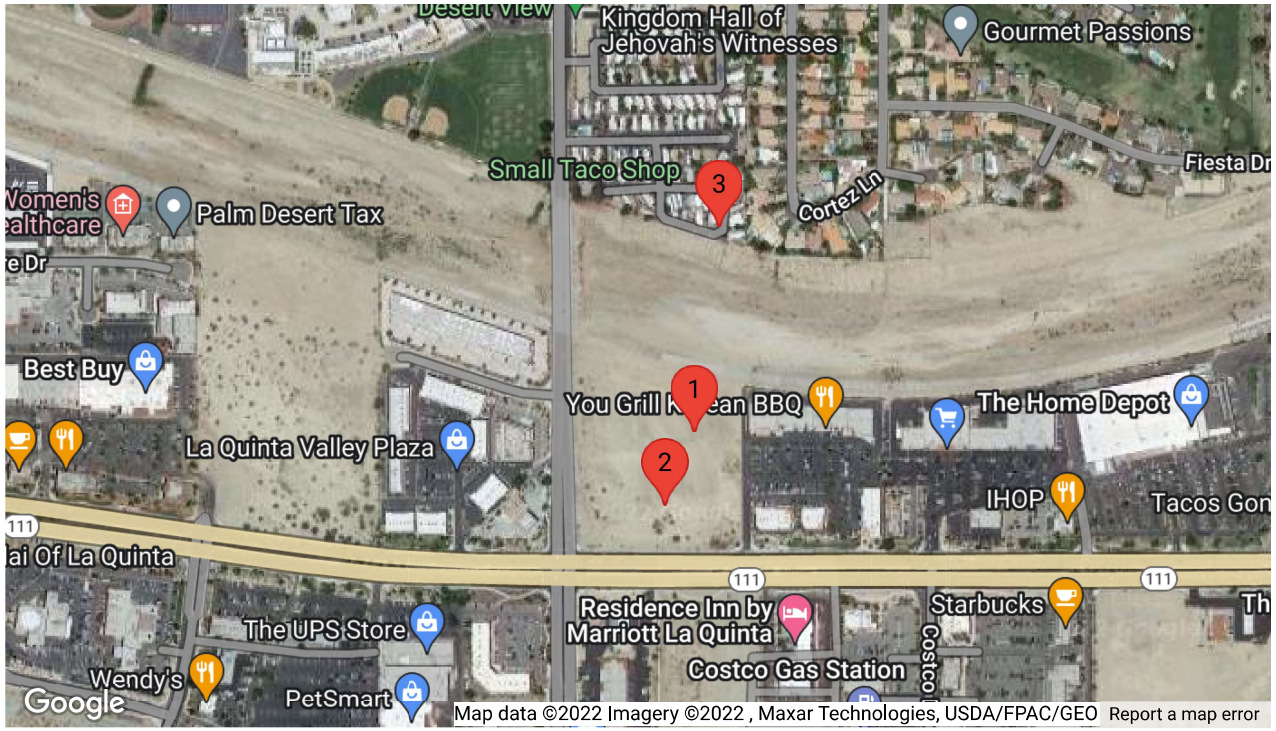
City of La Quinta: General Plan 2035

City of La Quinta: Municipal Code

Appendix A:
Field Measurement Data

15-Minute Continuous Noise Measurement Datasheet

Project Name:	QQ 43-049 La Quinta	**Site Observations:**	
Project: #/Name:	0362-2022-027		
Site Address/Location:	Dune Palms Road & Highway 11		
Date:	12/21/2022		
Field Tech/Engineer:	Jason Schuyler/ Claire Pincock		
Sound Meter:	XL2, NTI	**SN:** A2A-08562-E0	
Settings:	A-weighted, slow, 1-sec, 15-minute interval		
Site Id:	ST1, ST2, ST3		



MD ACOUSTICS

15-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name: QQ 43-049 La Quinta

Site Address/Location: Dune Palms Road & Highway 11

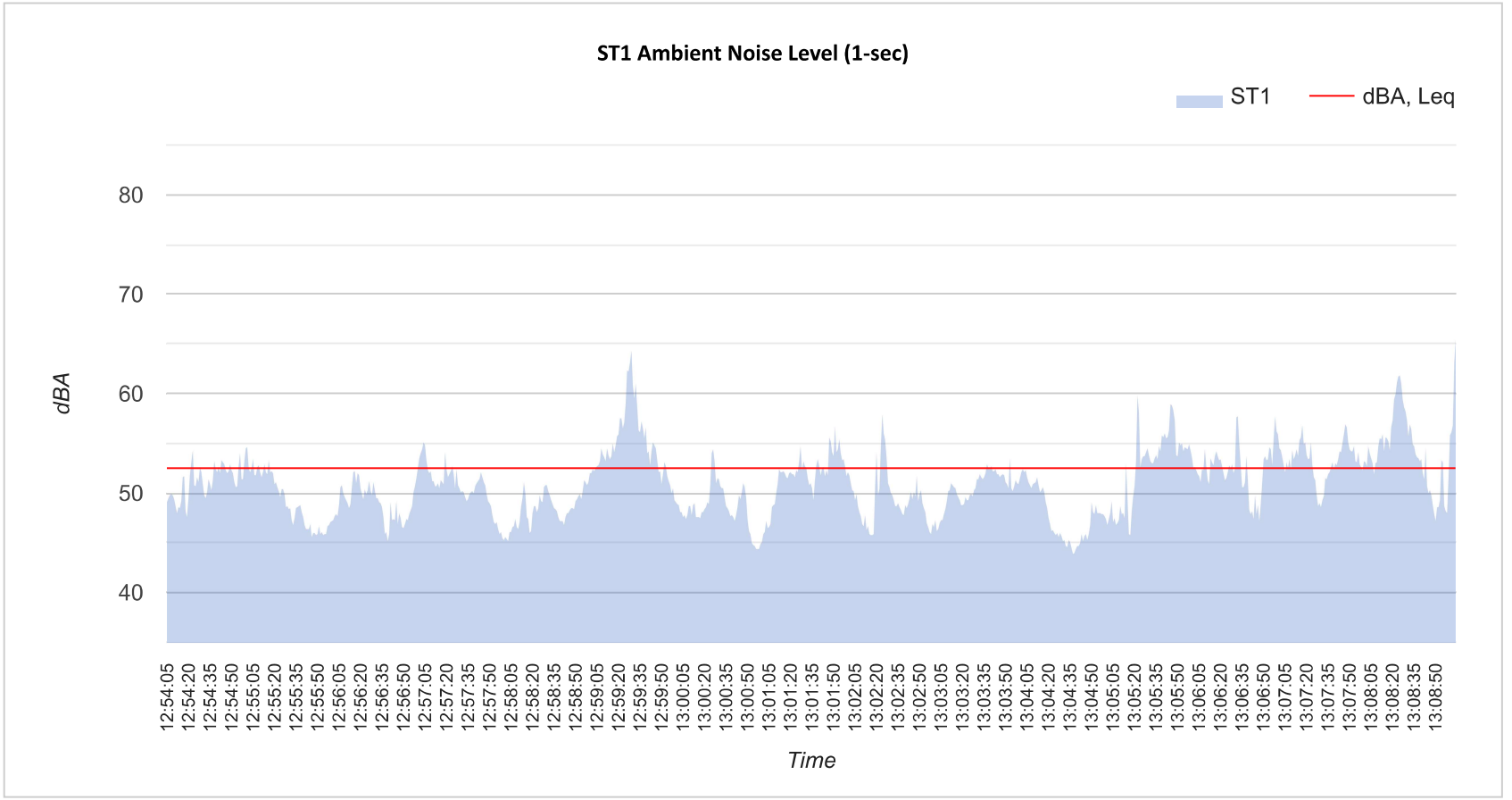
Site Id: ST1, ST2, ST3

Table 1: Baseline Noise Measurement Summary

Location	Start	Stop	Leq	Lmax	Lmin	L2	L8	L25	L50	L90
ST1	12:54 PM	1:09 PM	52.5	64.8	44.0	58.9	55.4	53	50.9	46.7
ST2	1:10 PM	1:25 PM	56.9	68.2	46.2	61.8	60	58.1	56.2	50.4
ST3	1:36 PM	1:51 PM	55.2	71.0	41.3	63.6	58.3	54.6	52	47.4

15-Minute Continuous Noise Measurement Datasheet - Cont.

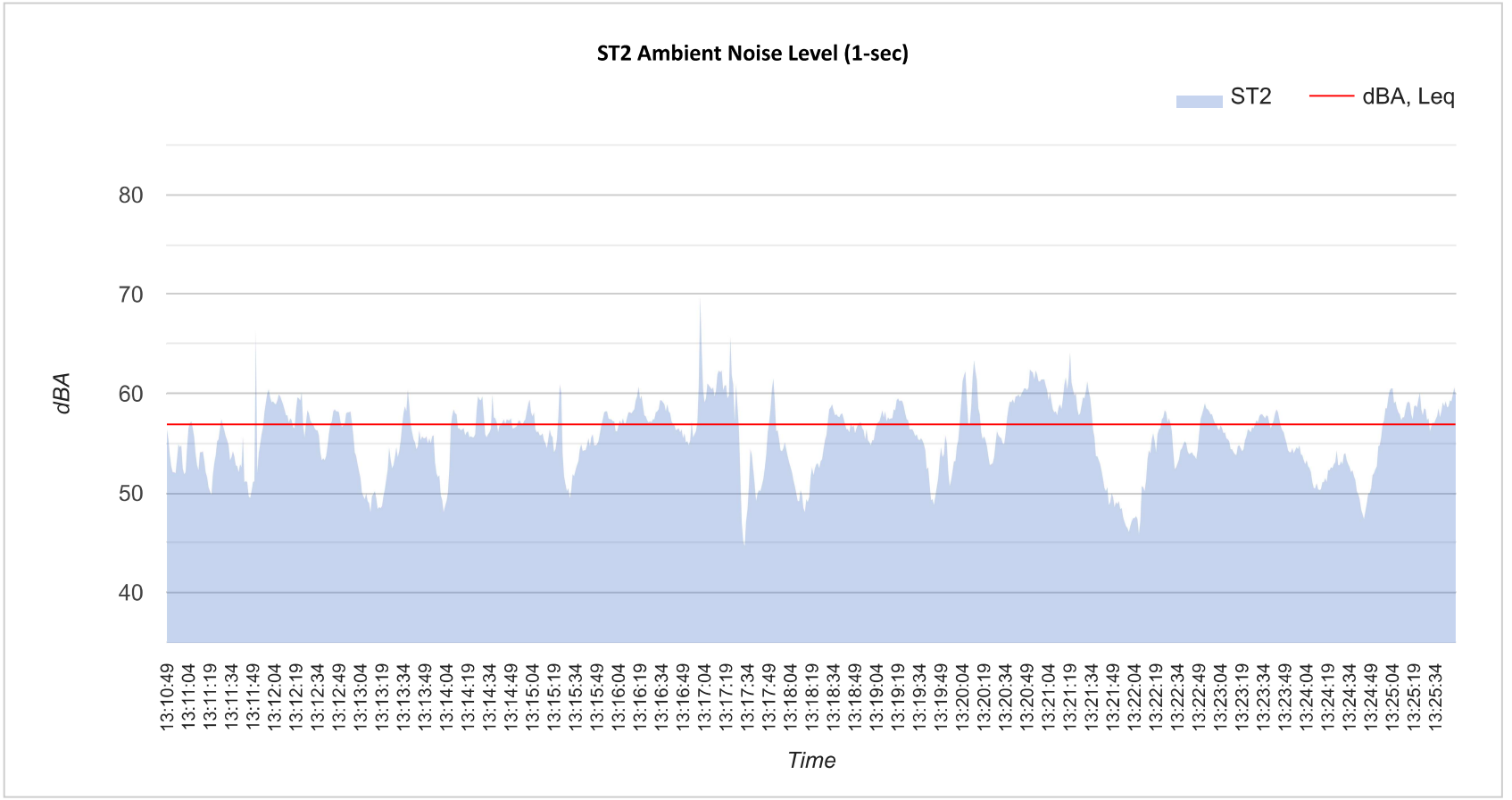
Project Name:	QQ 43-049 La Quinta	**Site Topo:**	Buildings 1-2 stories tall site	**Noise Source(s) w/ Distance:**	
Site Address/Location:	Dune Palms Road & Highway 11	**Meteorological Cond.:**	56F Clear sky's winds 1-3MPH	Road and commercial noise	
Site Id:	ST1	**Ground Type:**	buildings and asphalt		



MD ACOUSTICS

15-Minute Continuous Noise Measurement Datasheet - Cont.

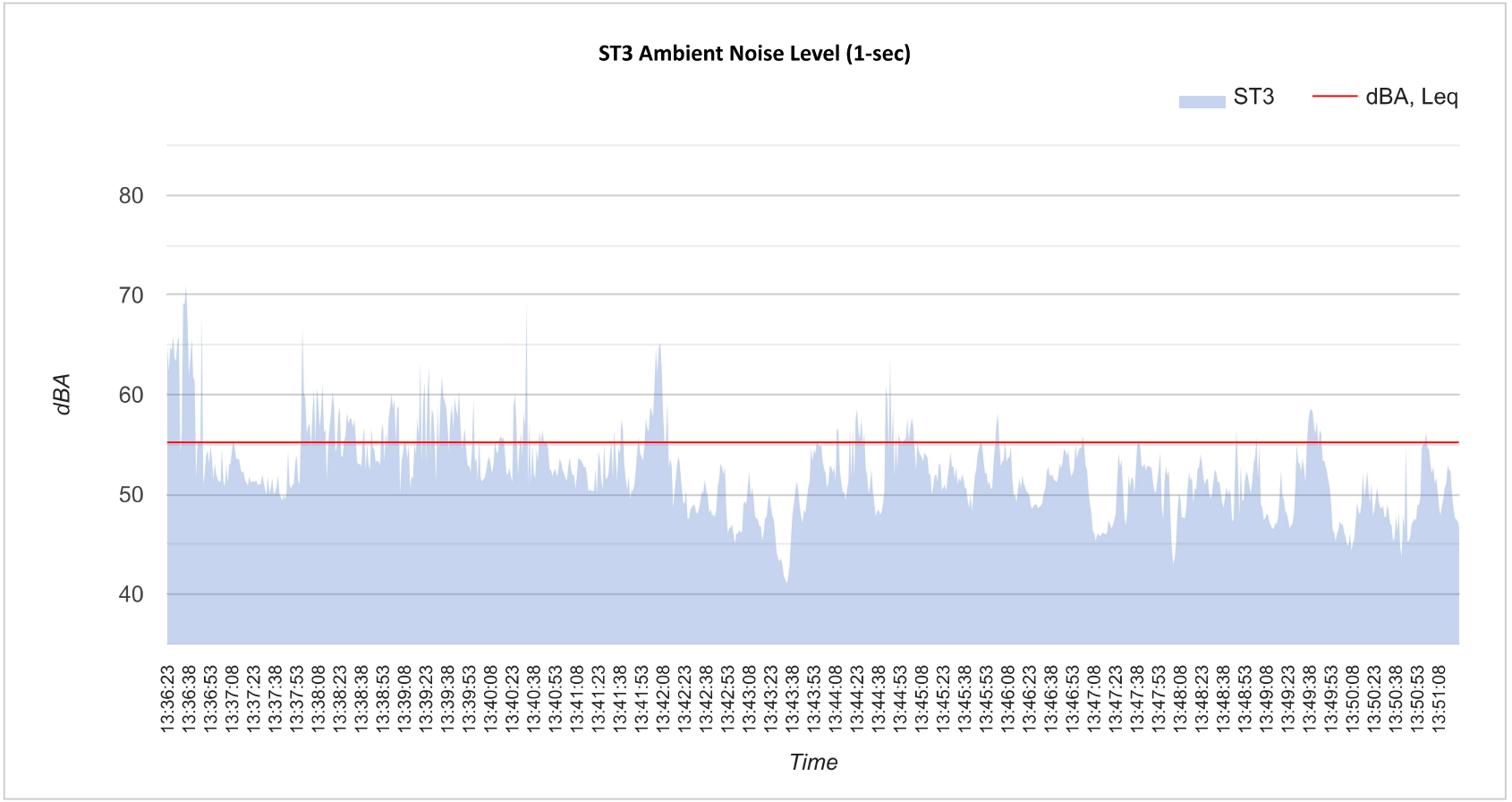
Project Name:	QQ 43-049 La Quinta	**Site Topo:**	Buildings 1-2 stories tall site	**Noise Source(s) w/ Distance:**	
Site Address/Location:	Dune Palms Road & Highway 11	**Meteorological Cond.:**	60F Winds 1-3MPH clear skys	Road and commercial noise	
Site Id:	ST2	**Ground Type:**	Sandy soil and clay		

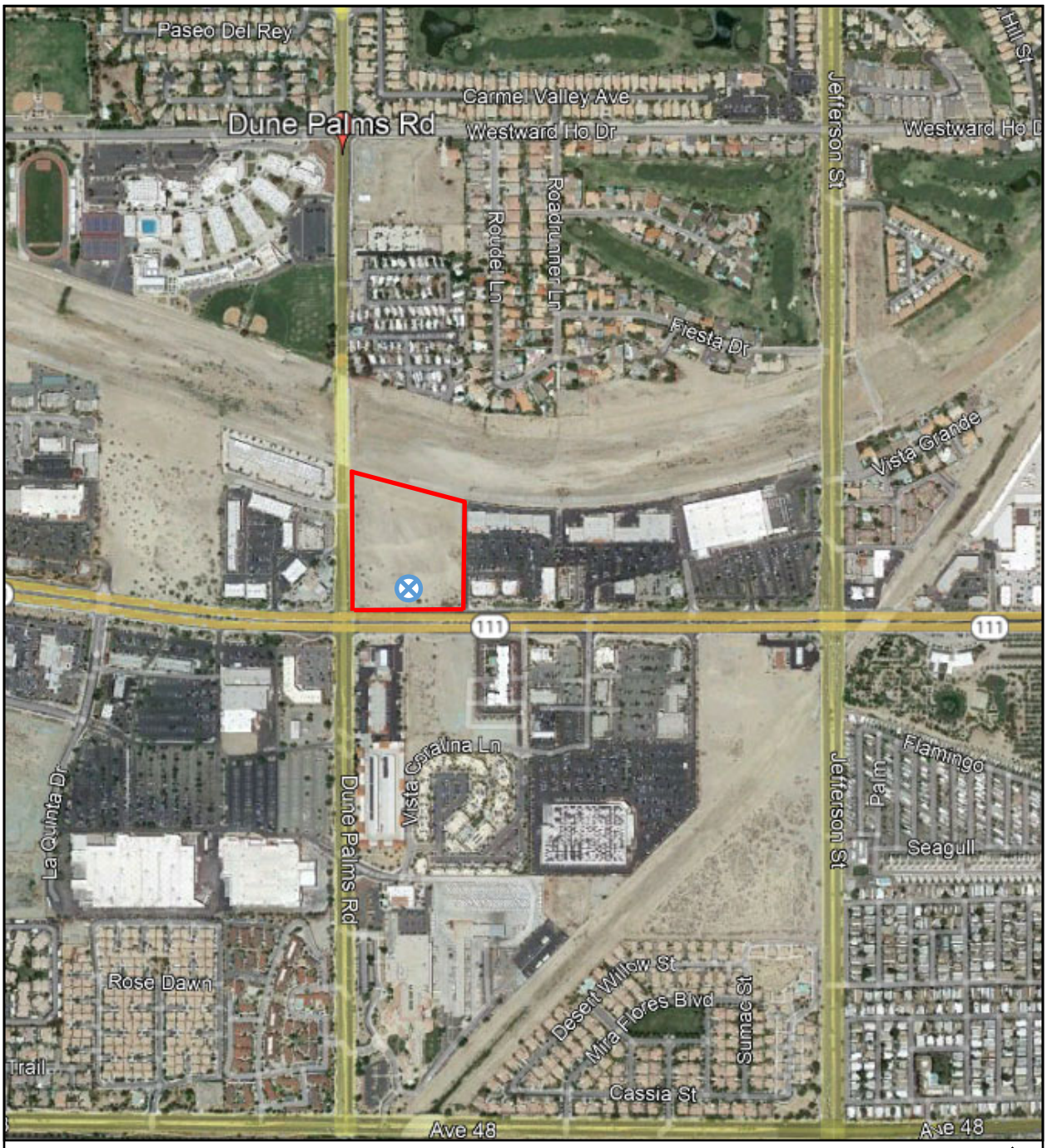


MD ACOUSTICS

15-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name:	QQ 43-049 La Quinta	**Site Topo:**	Buildings 1-2 stories tall site	**Noise Source(s) w/ Distance:**	
Site Address/Location:	Dune Palms Road & Highway 11	**Meteorological Cond.:**	61F winds 1-3Mph	Road and commercial noise	
Site Id:	ST3	**Ground Type:**	buildings and asvault that back up onto a city wash area		





Source: Google Earth Pro, 2022.

N

Noise Measurement Location

Project Location

Figure 3.

Satellite Aerial Photograph

Job # S221005

Section 6.08.050 of the City of La Quinta Municipal Code also contains general requirements for temporary construction noise impacts. The City of La Quinta restricts construction activity to the hours of 7 a.m. to 5:30 p.m. on Mondays through Fridays between October 1 and April 30, and the hours of 6 a.m. to 7 p.m. on Mondays through Fridays between May 1 and September 30. Construction is allowable on Saturdays between 8 a.m. and 5 p.m. but is prohibited on Sundays and holidays. 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 La Quinta Municipal Code are provided as Appendix B.

3.0 Environmental Setting

3.1 Existing Noise Environment

An on-site inspection and long-term noise measurement were made beginning the afternoon of Thursday, November 17, 2022 and running through the night of Friday, November 18, 2022. 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 at approximately 180 feet north of the Highway 111 centerline and approximately 400 feet east of the Dune Palms Road 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 1, and the measurement location is shown graphically in Figure 3.

Table 1. Long-Term Measured Noise Levels on Site

Date	Time	Hourly Average Noise Level (dBA L_{EQ})
November 17, 2022	1 p.m. – 2 p.m.	62.6
	2 p.m. – 3 p.m.	63.6
	3 p.m. – 4 p.m.	64.2
	4 p.m. – 5 p.m.	64.8
	5 p.m. – 6 p.m.	64.0
	6 p.m. – 7 p.m.	63.8
	7 p.m. – 8 p.m.	66.8
	8 p.m. – 9 p.m.	64.4
	9 p.m. – 10 p.m.	61.9
	10 p.m. – 11 p.m.	60.8
	11 p.m. – 12 a.m.	57.8

Table 1. Long-Term Measured Noise Levels on Site		
Date	**Time**	**Hourly Average Noise Level (dBA L_{EQ})**
November 18, 2022	12 a.m. – 1 a.m.	56.4
	1 a.m. – 2 a.m.	55.4
	2 a.m. – 3 a.m.	51.5
	3 a.m. – 4 a.m.	53.1
	4 a.m. – 5 a.m.	57.4
	5 a.m. – 6 a.m.	60.1
	6 a.m. – 7 a.m.	64.1
	7 a.m. – 8 a.m.	64.9
	8 a.m. – 9 a.m.	64.6
	9 a.m. – 10 a.m.	63.5
	10 a.m. – 11 a.m.	64.1
	11 a.m. – 12 p.m.	63.6
	12 p.m. – 1 p.m.	63.4
	1 p.m. – 2 p.m.	63.4
	2 p.m. – 3 p.m.	64.3
	3 p.m. – 4 p.m.	63.2
	4 p.m. – 5 p.m.	63.8
	5 p.m. – 6 p.m.	64.5
	6 p.m. – 7 p.m.	63.6
	7 p.m. – 8 p.m.	62.9
	8 p.m. – 9 p.m.	62.7
	9 p.m. – 10 p.m.	62.0
	10 p.m. – 11 p.m.	62.6
	11 p.m. – 12 a.m.	59.8

Measured noise levels were observed to range from a minimum of 51.5 dBA between the hours of 2 a.m. and 3 a.m. on November 18 to a maximum of 66.8 dBA between 7 p.m. and 8 p.m. on November 17. The minimum noise level measured during hours of operation was 60.8 dBA between the hours of 10 p.m. and 11 p.m. on November 17.

Appendix B:

SoundPLAN Input/Outputs

QQ 43-049 La Quinta
Octave spectra of the sources in dB(A) - 01-12 Sonny-Standard-IndoorSP

Name	Source type	L'w dB(A)	Lw dB(A)	DO-Wall dB	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)	16kHz dB(A)	
Point source 01	Point	120.0	120.0	0	12 Silenced Sonny Blowers	83.3	92.1	105.2	113.5	115.1	115.5	107.5	97.9	85.5	
Point source 02	Point	114.0	114.0	0	12 Silenced Sonny Blowers	77.3	86.1	99.2	107.5	109.1	109.5	101.5	91.9	79.5	
Point source 03	Point	114.0	114.0	0	12 Silenced Sonny Blowers	77.3	86.1	99.2	107.5	109.1	109.5	101.5	91.9	79.5	

Source	Source group	Source ty	Tr. lane	Leq,d dB(A)	A dB
Receiver Rec 1 Fl G Lr,lim dB(A) Leq,d 68.7 dB(A) Sigma(Leq,d) 0.0 dB(A)					
12 Sonny-Standard Tunnel-Transmissive area 02	Default industrial noise	Area		68.6	0.0
12 Sonny-Standard Tunnel-Transmissive area 01	Default industrial noise	Area		41.2	0.0
Vac 10	Default industrial noise	Point		33.3	0.0
Vac 9	Default industrial noise	Point		33.1	0.0
Vac 16	Default industrial noise	Point		32.9	0.0
Vac 15	Default industrial noise	Point		32.4	0.0
Vac 11	Default industrial noise	Point		32.3	0.0
Vac 5	Default industrial noise	Point		32.1	0.0
Vac 12	Default industrial noise	Point		32.0	0.0
Vac 6	Default industrial noise	Point		31.8	0.0
Vac 13	Default industrial noise	Point		31.6	0.0
Vac 7	Default industrial noise	Point		31.5	0.0
Vac 2	Default industrial noise	Point		31.4	0.0
Vac 14	Default industrial noise	Point		31.3	0.0
Vac 3	Default industrial noise	Point		31.0	0.0
Vac 4	Default industrial noise	Point		30.8	0.0
Vac 8	Default industrial noise	Point		29.1	0.0
Vac 1	Default industrial noise	Point		27.5	0.0
12 Sonny-Standard Tunnel-Facade 03	Default industrial noise	Area		18.5	0.0
12 Sonny-Standard Tunnel-Roof 01	Default industrial noise	Area		18.4	0.0
12 Sonny-Standard Tunnel-Facade 02	Default industrial noise	Area		17.9	0.0
Vac Turbine 1	Default industrial noise	Point		13.4	0.0
12 Sonny-Standard Tunnel-Facade 04	Default industrial noise	Area		12.9	0.0
Vac Turbine 2	Default industrial noise	Point		12.1	0.0
12 Sonny-Standard Tunnel-Facade 01	Default industrial noise	Area		-0.1	0.0
Receiver Rec 2 Fl G Lr,lim dB(A) Leq,d 68.5 dB(A) Sigma(Leq,d) 0.0 dB(A)					
12 Sonny-Standard Tunnel-Transmissive area 02	Default industrial noise	Area		68.0	0.0
12 Sonny-Standard Tunnel-Transmissive area 01	Default industrial noise	Area		57.0	0.0
Vac 16	Default industrial noise	Point		45.1	0.0
Vac 15	Default industrial noise	Point		45.0	0.0
Vac 14	Default industrial noise	Point		44.7	0.0
Vac 13	Default industrial noise	Point		44.3	0.0
Vac 12	Default industrial noise	Point		43.7	0.0
Vac 11	Default industrial noise	Point		43.0	0.0
Vac 5	Default industrial noise	Point		42.4	0.0
Vac 10	Default industrial noise	Point		42.3	0.0
Vac 4	Default industrial noise	Point		42.2	0.0
Vac 3	Default industrial noise	Point		42.1	0.0
Vac 6	Default industrial noise	Point		42.0	0.0
Vac 7	Default industrial noise	Point		42.0	0.0
Vac 2	Default industrial noise	Point		41.7	0.0
Vac 1	Default industrial noise	Point		41.5	0.0
Vac 9	Default industrial noise	Point		40.2	0.0

Source	Source group	Source ty	Tr. lane	Leq,d dB(A)	A dB
Vac 8	Default industrial noise	Point		35.5	0.0
12 Sonny-Standard Tunnel-Facade 02	Default industrial noise	Area		29.6	0.0
12 Sonny-Standard Tunnel-Roof 01	Default industrial noise	Area		26.0	0.0
Vac Turbine 2	Default industrial noise	Point		25.0	0.0
Vac Turbine 1	Default industrial noise	Point		21.1	0.0
12 Sonny-Standard Tunnel-Facade 04	Default industrial noise	Area		16.5	0.0
12 Sonny-Standard Tunnel-Facade 01	Default industrial noise	Area		13.8	0.0
12 Sonny-Standard Tunnel-Facade 03	Default industrial noise	Area		13.0	0.0
Receiver Rec 3 Fl G Lr,lim dB(A) Leq,d 59.9 dB(A) Sigma(Leq,d) 0.0 dB(A)					
12 Sonny-Standard Tunnel-Transmissive area 01	Default industrial noise	Area		59.6	0.0
12 Sonny-Standard Tunnel-Transmissive area 02	Default industrial noise	Area		45.6	0.0
Vac 4	Default industrial noise	Point		31.6	0.0
Vac 5	Default industrial noise	Point		31.6	0.0
Vac 1	Default industrial noise	Point		31.4	0.0
Vac 8	Default industrial noise	Point		30.7	0.0
Vac 7	Default industrial noise	Point		30.7	0.0
Vac 3	Default industrial noise	Point		30.7	0.0
Vac 16	Default industrial noise	Point		30.6	0.0
Vac 12	Default industrial noise	Point		30.6	0.0
Vac 11	Default industrial noise	Point		30.3	0.0
Vac 15	Default industrial noise	Point		30.3	0.0
Vac 14	Default industrial noise	Point		30.0	0.0
Vac 9	Default industrial noise	Point		29.9	0.0
Vac 2	Default industrial noise	Point		29.8	0.0
Vac 6	Default industrial noise	Point		29.8	0.0
Vac 13	Default industrial noise	Point		29.8	0.0
Vac 10	Default industrial noise	Point		29.0	0.0
12 Sonny-Standard Tunnel-Facade 02	Default industrial noise	Area		20.6	0.0
12 Sonny-Standard Tunnel-Roof 01	Default industrial noise	Area		17.0	0.0
12 Sonny-Standard Tunnel-Facade 01	Default industrial noise	Area		11.2	0.0
Vac Turbine 2	Default industrial noise	Point		10.6	0.0
Vac Turbine 1	Default industrial noise	Point		10.3	0.0
12 Sonny-Standard Tunnel-Facade 04	Default industrial noise	Area		9.8	0.0
12 Sonny-Standard Tunnel-Facade 03	Default industrial noise	Area		4.0	0.0
Receiver Rec 4 Fl G Lr,lim dB(A) Leq,d 60.1 dB(A) Sigma(Leq,d) 0.0 dB(A)					
12 Sonny-Standard Tunnel-Transmissive area 01	Default industrial noise	Area		59.7	0.0
12 Sonny-Standard Tunnel-Transmissive area 02	Default industrial noise	Area		49.3	0.0
Vac 8	Default industrial noise	Point		29.2	0.0
Vac 7	Default industrial noise	Point		29.0	0.0
Vac 6	Default industrial noise	Point		28.8	0.0
Vac 13	Default industrial noise	Point		28.4	0.0
Vac 12	Default industrial noise	Point		28.2	0.0
Vac 16	Default industrial noise	Point		28.2	0.0
Vac 15	Default industrial noise	Point		28.0	0.0

Source	Source group	Source ty	Tr. lane	Leq,d dB(A)	A dB
Vac 14	Default industrial noise	Point		27.8	0.0
Vac 11	Default industrial noise	Point		25.2	0.0
Vac 10	Default industrial noise	Point		23.6	0.0
Vac 9	Default industrial noise	Point		22.5	0.0
12 Sonny-Standard Tunnel-Facade 04	Default industrial noise	Area		22.4	0.0
Vac 5	Default industrial noise	Point		21.0	0.0
Vac 1	Default industrial noise	Point		20.3	0.0
Vac 4	Default industrial noise	Point		18.7	0.0
12 Sonny-Standard Tunnel-Roof 01	Default industrial noise	Area		16.9	0.0
Vac 3	Default industrial noise	Point		15.2	0.0
Vac 2	Default industrial noise	Point		12.6	0.0
12 Sonny-Standard Tunnel-Facade 01	Default industrial noise	Area		11.3	0.0
12 Sonny-Standard Tunnel-Facade 02	Default industrial noise	Area		10.2	0.0
Vac Turbine 2	Default industrial noise	Point		8.9	0.0
12 Sonny-Standard Tunnel-Facade 03	Default industrial noise	Area		6.6	0.0
Vac Turbine 1	Default industrial noise	Point		2.6	0.0
Receiver Rec 5 Fl G Lr,lim dB(A) Leq,d 57.8 dB(A) Sigma(Leq,d) 0.0 dB(A)					
12 Sonny-Standard Tunnel-Transmissive area 02	Default industrial noise	Area		57.8	0.0
12 Sonny-Standard Tunnel-Transmissive area 01	Default industrial noise	Area		27.5	0.0
Vac 16	Default industrial noise	Point		19.7	0.0
Vac 15	Default industrial noise	Point		18.9	0.0
Vac 14	Default industrial noise	Point		18.6	0.0
Vac 10	Default industrial noise	Point		18.5	0.0
Vac 9	Default industrial noise	Point		18.5	0.0
Vac 12	Default industrial noise	Point		18.5	0.0
Vac 13	Default industrial noise	Point		18.4	0.0
Vac 11	Default industrial noise	Point		18.4	0.0
Vac 8	Default industrial noise	Point		14.9	0.0
Vac 7	Default industrial noise	Point		14.9	0.0
Vac 6	Default industrial noise	Point		14.8	0.0
Vac 5	Default industrial noise	Point		14.7	0.0
Vac 4	Default industrial noise	Point		14.5	0.0
Vac 3	Default industrial noise	Point		14.2	0.0
Vac 2	Default industrial noise	Point		13.6	0.0
Vac 1	Default industrial noise	Point		12.5	0.0
12 Sonny-Standard Tunnel-Facade 02	Default industrial noise	Area		8.5	0.0
12 Sonny-Standard Tunnel-Facade 04	Default industrial noise	Area		7.9	0.0
12 Sonny-Standard Tunnel-Roof 01	Default industrial noise	Area		7.7	0.0
12 Sonny-Standard Tunnel-Facade 03	Default industrial noise	Area		7.6	0.0
Vac Turbine 1	Default industrial noise	Point		0.0	0.0
Vac Turbine 2	Default industrial noise	Point		-0.4	0.0
12 Sonny-Standard Tunnel-Facade 01	Default industrial noise	Area		-10.7	0.0

QQ 43-049 La Quinta
Octave spectra of the sources in dB(A) - 01-12 Sonny-Standard-OutdoorSP

Name	Source type	l or A	Li	R'w	L'w	Lw	DO-Wall	Emission spectrum	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	16kHz	
		m,m²	dB(A)	dB	dB(A)	dB(A)	dB		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
12 Sonny-Standard Tunnel-Facade 01	Area	25.69	96.1	57.0	45.4	59.5	3	24_Facade 01_	47.9	42.0	56.0	56.1	42.2	28.2	6.8	-7.2		
12 Sonny-Standard Tunnel-Facade 02	Area	197.19	104.1	57.0	49.9	72.9	3	25_Facade 02_	62.1	56.8	67.7	69.8	61.3	56.6	44.5	33.9		
12 Sonny-Standard Tunnel-Facade 03	Area	32.00	107.3	57.0	52.3	67.3	3	26_Facade 03_	56.7	51.5	61.5	64.3	56.8	52.6	40.5	30.5		
12 Sonny-Standard Tunnel-Facade 04	Area	197.19	104.1	57.0	49.9	72.9	3	27_Facade 04_	62.1	56.8	67.7	69.8	61.3	56.6	44.5	33.9		
12 Sonny-Standard Tunnel-Roof 01	Area	226.19	104.0	57.0	49.8	73.4	0	22_Roof 01_	62.6	57.3	68.2	70.3	61.8	57.1	45.0	34.5		
12 Sonny-Standard Tunnel-Transmissive area 01	Area	15.61	95.9	0.0	95.9	107.8	3	60_Transmissive area 01_	75.5	83.6	99.7	105.8	100.7	90.5	72.2	56.7		
12 Sonny-Standard Tunnel-Transmissive area 02	Area	9.29	107.4	0.0	107.4	117.1	3	61_Transmissive area 02_	81.3	90.1	102.2	111.0	112.5	112.3	103.3	91.5		
Vac 1	Point				81.0	81.0	0	Vacutech - in car	62.4	69.2	75.8	72.6	71.3	73.2	72.6	67.8	59.2	
Vac 2	Point				81.0	81.0	0	Vacutech - in car	62.4	69.2	75.8	72.6	71.3	73.2	72.6	67.8	59.2	
Vac 3	Point				81.0	81.0	0	Vacutech - in car	62.4	69.2	75.8	72.6	71.3	73.2	72.6	67.8	59.2	
Vac 4	Point				81.0	81.0	0	Vacutech - in car	62.4	69.2	75.8	72.6	71.3	73.2	72.6	67.8	59.2	
Vac 5	Point				81.0	81.0	0	Vacutech - in car	62.4	69.2	75.8	72.6	71.3	73.2	72.6	67.8	59.2	
Vac 6	Point				81.0	81.0	0	Vacutech - in car	62.4	69.2	75.8	72.6	71.3	73.2	72.6	67.8	59.2	
Vac 7	Point				81.0	81.0	0	Vacutech - in car	62.4	69.2	75.8	72.6	71.3	73.2	72.6	67.8	59.2	
Vac 8	Point				81.0	81.0	0	Vacutech - in car	62.4	69.2	75.8	72.6	71.3	73.2	72.6	67.8	59.2	
Vac 9	Point				81.0	81.0	0	Vacutech - in car	62.4	69.2	75.8	72.6	71.3	73.2	72.6	67.8	59.2	
Vac 10	Point				81.0	81.0	0	Vacutech - in car	62.4	69.2	75.8	72.6	71.3	73.2	72.6	67.8	59.2	
Vac 11	Point				81.0	81.0	0	Vacutech - in car	62.4	69.2	75.8	72.6	71.3	73.2	72.6	67.8	59.2	
Vac 12	Point				81.0	81.0	0	Vacutech - in car	62.4	69.2	75.8	72.6	71.3	73.2	72.6	67.8	59.2	
Vac 13	Point				81.0	81.0	0	Vacutech - in car	62.4	69.2	75.8	72.6	71.3	73.2	72.6	67.8	59.2	
Vac 14	Point				81.0	81.0	0	Vacutech - in car	62.4	69.2	75.8	72.6	71.3	73.2	72.6	67.8	59.2	
Vac 15	Point				81.0	81.0	0	Vacutech - in car	62.4	69.2	75.8	72.6	71.3	73.2	72.6	67.8	59.2	
Vac 16	Point				81.0	81.0	0	Vacutech - in car	62.4	69.2	75.8	72.6	71.3	73.2	72.6	67.8	59.2	
Vac Turbine 1	Point				72.6	72.6	0	Vacutech Turbine	47.3	57.5	54.5	51.9	55.8	59.5	66.1	69.3	65.0	
Vac Turbine 2	Point				72.6	72.6	0	Vacutech Turbine	47.3	57.5	54.5	51.9	55.8	59.5	66.1	69.3	65.0	

QQ 43-049 La Quinta
Assessed receiver spectra in dB(A) - 01-12 Sonny-Standard-OutdoorSP

Time slice	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)	16kHz dB(A)
Receiver Rec 1 Fl G Lr,lim dB(A) Leq,d 68.7 dB(A) Sigma(Leq,d) 0.0 dB(A)									
Leq,d	38.3	44.2	51.5	61.4	64.8	64.1	52.7	34.0	2.0
Receiver Rec 2 Fl G Lr,lim dB(A) Leq,d 68.5 dB(A) Sigma(Leq,d) 0.0 dB(A)									
Leq,d	38.5	45.5	53.3	56.6	53.8	67.5	57.1	41.9	23.6
Receiver Rec 3 Fl G Lr,lim dB(A) Leq,d 59.9 dB(A) Sigma(Leq,d) 0.0 dB(A)									
Leq,d	32.1	38.4	50.8	57.6	53.8	44.9	34.2	21.4	-8.7
Receiver Rec 4 Fl G Lr,lim dB(A) Leq,d 60.1 dB(A) Sigma(Leq,d) 0.0 dB(A)									
Leq,d	32.0	38.2	50.8	57.7	54.1	45.6	36.6	15.8	-17.9
Receiver Rec 5 Fl G Lr,lim dB(A) Leq,d 57.8 dB(A) Sigma(Leq,d) 0.0 dB(A)									
Leq,d	29.8	32.2	37.2	48.3	54.7	53.6	38.2	3.5	

Appendix C:

Equipment Reference Data

MD ACOUSTICS
Sound Solutions for Planning and Design
www.mdacoustics.com

AZ Office
4960 S. Gilbert Rd, Ste 1-461
Chandler, AZ 85249
p. (602) 774-1950

CA Office
1197 Los Angeles Ave, Ste C-256
Simi Valley, CA 93065
p. (805) 426-4477

Project: SuperStar Car Wash Chula Vista
Site Location: 1555 W Warner Rd, Gilbert, AZ 85233
Date: 4/5/2018
Field Tech/Engineer: Robert Pearson
Source/System: Vacutec System

Location: Vac Bay 1
Sound Meter: NTi XL2 **SN:** A2A-05967-E0
Settings: A-weighted, slow, 1-sec, 10-sec duration
Meteorological Cond.: 80 degrees F, 2 mph wind

Site Observations:
Clear sky, measurements were performed within 1.5ft of source. Measurements were performed while the vacuum was positiioned at three (3) different positions. Holstered, unholstered and inside a car. This data is utilized for acoustic modeling purposes and represents an average sound level at a vacuum station.

Table 1: Summary Measurement Data

Source	System	Overall dB(A)	3rd Octave Band Data (dBA)																														
			20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1K	1.25K	1.6K	2K	2.5K	3.15K	4K	5K	6.3K	8K	10K	12.5K	16K	20K
Vacutech (Holstered)	Vacuum	63.3	9	17	22	29	31	35	40	41	44	43	46	48	47	49	51	51	51	52	53	52	52	50	52	53	50	47	47	48	45	39	30
Vacutech (Unholstered)	Vacuum	80.7	6	19	22	28	34	37	40	43	47	46	48	48	48	49	54	55	58	58	62	65	68	70	74	75	73	69	67	65	63	60	55
Vacutech (Inside Car)	Vacuum	69.6	16	28	31	38	42	45	49	51	52	55	60	61	57	55	59	53	55	56	54	57	57	57	57	57	55	54	51	48	46	42	36
Average Level*	Vacuum	76.3	13	24	28	34	38	41	45	47	49	51	56	57	53	52	56	54	56	56	59	61	64	66	69	70	68	64	62	60	58	55	50

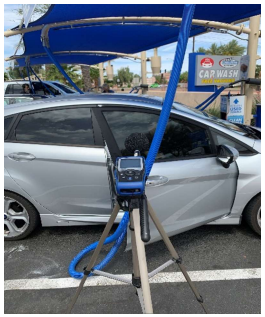
* Refers to the logarithmic average of all measurements. This measurement represents an average of the multiple vacuum positions.

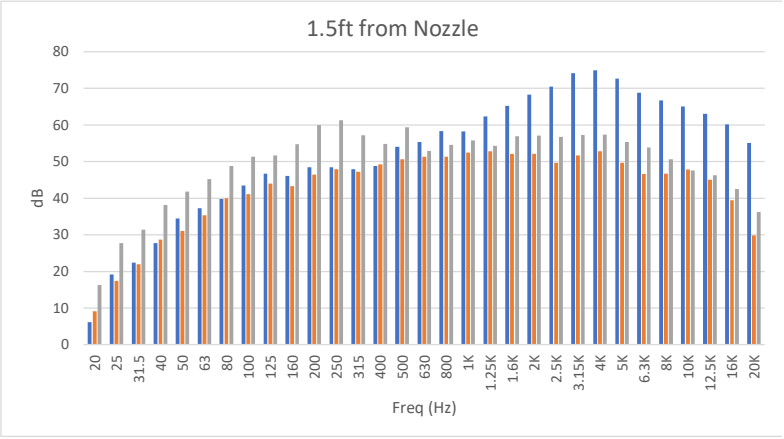
Figure 1: Example Measurement Position

Figure 1: Holstered

Figure 2: Unholstered

Figure 3: Inside Car





SOUND LEVEL METER READINGS

MODEL: FT-DD-T340HP4 (40hp VACSTAR TURBINE VACUUM PRODUCER)

READING ONE: 43 DB-A, 3 FEET FROM TURBINE @ 45° ANGLE
AND NO BACKGROUND NOISE OR OUTSIDE INTERFERENCE.

READING TWO: 36 DB-A, 10 FEET FROM TURBINE @ 45° ANGLE
AND NO BACKGROUND NOISE OR OUTSIDE INTERFERENCE.

READING THREE: 24 DB-A, 20 FEET FROM TURBINE @ 45° ANGLE
AND NO BACKGROUND NOISE OR OUTSIDE INTERFERENCE.

READING FOUR: 12 DB-A, 30 FEET FROM TURBINE @ 45° ANGLE
AND NO BACKGROUND NOISE OR OUTSIDE INTERFERENCE.

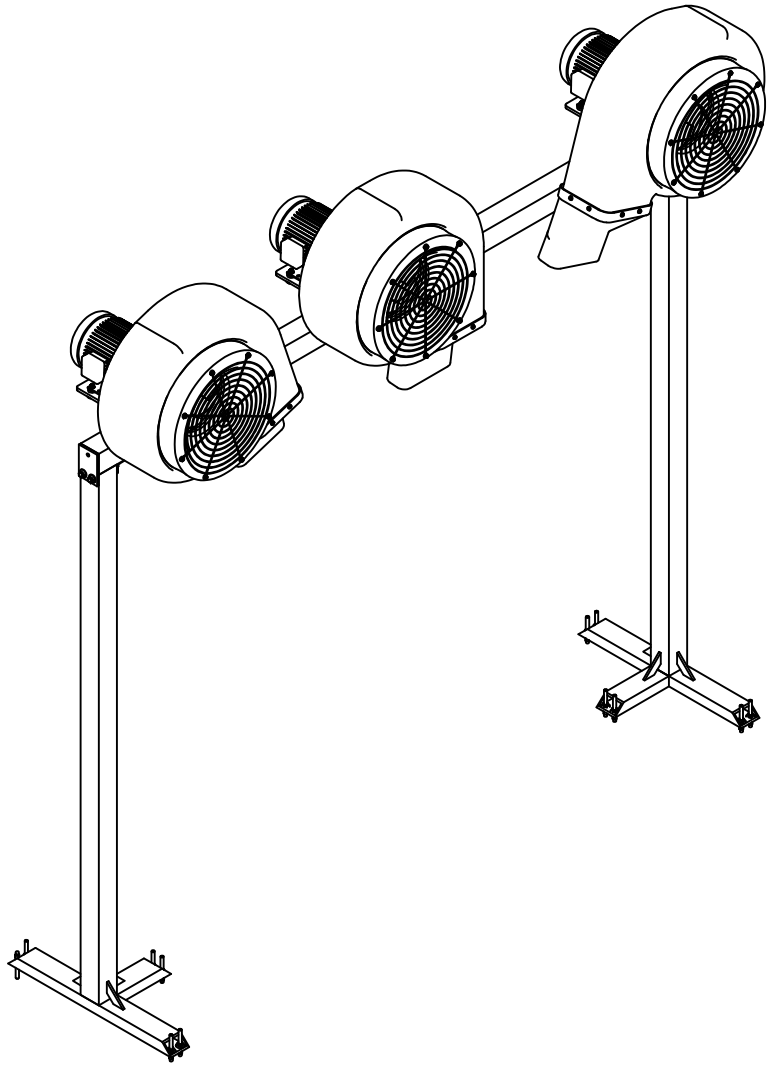
NOTE: THESE READINGS WERE TAKEN OUTSIDE OF 8'x10'x8' CINDER BLOCK ENCLOSURE WITH CONCRETE SLAB AND WOOD JOIST ROOF.

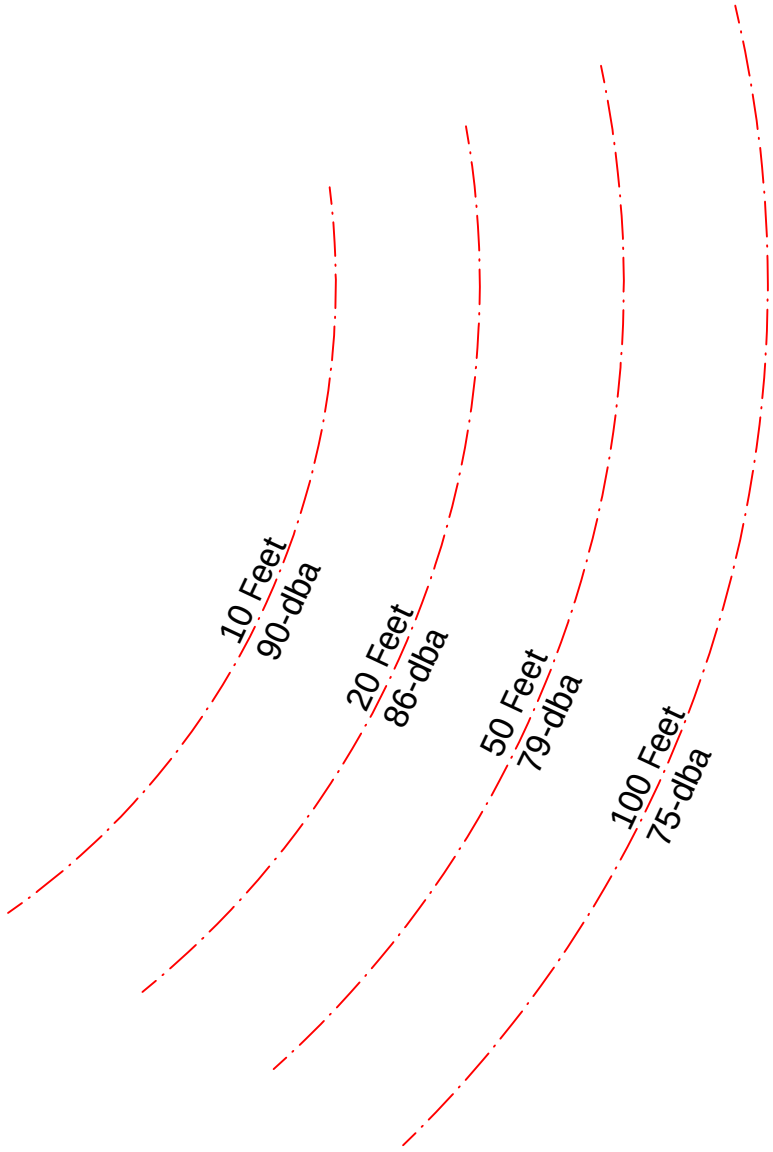
SOUND LEVEL METER USED:

SIMPSON MODEL #40003 – MSHA APPROVED.
MEETS OSHA & WALSH-HEALY REQUIREMENTS FOR NOISE CONTROL.
CONFORMS TO ANSI S1.4-1983, IEC 651 SPECS FOR METER TYPE.

Vacutech
1350 Hi-Tech Drive, Sheridan WY, 82801
PHONE: (800) 917-9444 FAX: (303) 675-1988
EMAIL: info@vacutechllc
WEB SITE: vacutechllc.com

Enviromental Noise with Dryer OFF: 70 dba





THIRD ANGLE PROJECTION	*MACHINING TOLERANCES*	DRAWN LVerdecia	8/26/2011
BREAK ALL SHARP CORNERS. PART TO BE FREE OF BURRS.	FRACTION± 1/16"	APPROVED	8/1/2012
UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES	.XX DECIMAL ± 0.030	CATEGORY BLOWER	
MATERIAL	.XXX DECIMAL ± 0.005		
	ANGULARITY ± 2°		
	FINISH 125		

SONNY'S ENTERPRISES
THE CARWASH FACTORY

DESCRIPTION	BLOWER ASSEMBLY, ONE ARCH 45HP		
PART NUMBER	BL1-45HP-1		
SHEET 2 OF 2	SIZE A	SCALE N.T.S.	

Product Features

- Gain flexibility in complying with noise ordinances that limit the allowable noise levels in some zoned areas.
- Blower Inlet Silencer retrofits to an existing Sonny's blower to reduce noise level by up to 7 decibels at 50 feet (depending on site specific architecture and other variables).
- Available in three colors: **Blue (# 20018006), Black (# 20018005)** and **Red (# 20018008)**



Note: Hardware is not included. Order a self-tapping screw kit (# **10013134**) for each silencer.

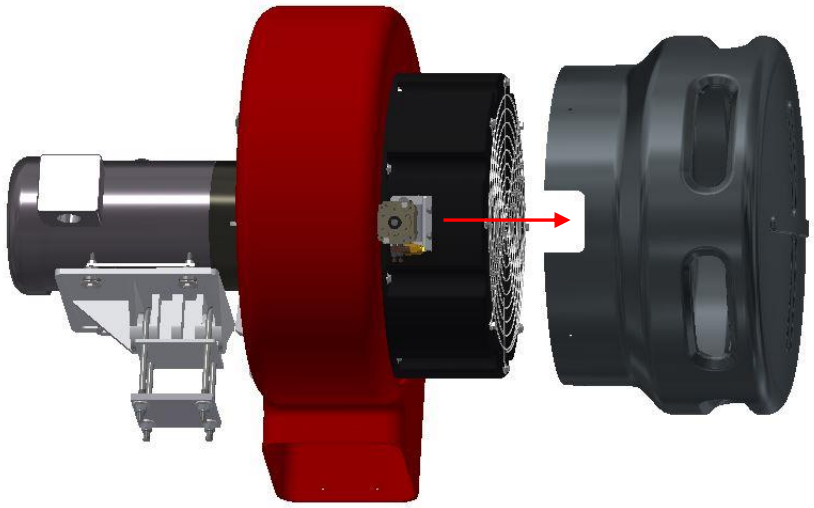
INSTALLATION

Tools
1. Safety Glasses
2. Cordless Drill
3. Drive Socket Set
4. 8' Ladder

Consumables
None

Work Force
Two (2) persons

Time (assuming no problems)
15 - 30 minutes



Caution: You must shut off all power to the conveyor and lock out the Motor Control Center before starting this install.

1. Shut off all power to the conveyor, blowers and lock out the Motor Control Center.
2. Insert the silencer over the venturi. For the gator silencer option, align notches to the gator actuator bracket (as pictured above).
3. Using the existing holes on the Silencer housing, affix the silencer to the gator housing using (8) of the provided self-tapping screws **(# 10013134**).
4. Avoid over-torqueing the self-tapping screws to prevent stripping the plastic housing.

Appendix I

Acoustiblok® quieting the world

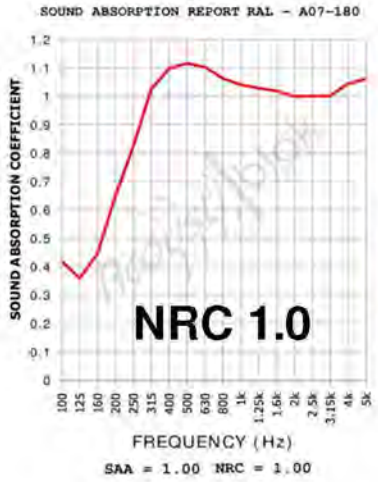
WORLDWIDE MADE IN USA

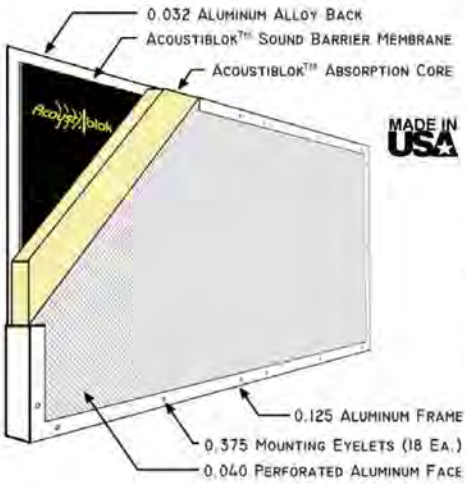
MOLD PROOF 100% CERTIFIED

100% Recyclable

North American Office
Acoustiblok, Inc.
6900 Interbay Boulevard
Tampa, FL 33616 USA
Phone: 813-980-1400
Fax: 813-549-2653
www.acoustiblok.com
sales@acoustiblok.com

Industrial Model All Weather Sound Panel™ (Pat. Pend)
Technical Data





Acoustiblok All Weather Sound Panels™ achieve high STC and NRC ratings. They have been specifically designed to withstand outdoor exposure in full sunlight, extreme weather conditions, and harsh industrial environments. (NRC of 1.0 is the highest sound absorption rating possible)

All Weather Sound Panels include an internal layer of U.L. classified Acoustiblok sound isolation material plus a specifically engineered 2" thick weather proof sound absorbing material.

Specifications:		
NRC (Noise Reduction Coefficient):	1.00 *	Gross dimensions: up to 48" x 120"x 2.423", ± 0.125" custom sizes available on special order.
STC (Sound Transmission Class):	29 *	Frame construction: 0.125" welded corrosion resistant 6063-T5 aluminum, mill finish, eyelets: 0.375" (18 ea.)
Weight: (8' panel)	104 lbs	Front face: 0.040 corrosion resistant 5052-H32 aluminum alloy, 3/32" round holes staggered on 5/32" centers.
UL Std 723 fire resistance: Flame spread 0, smoke developed 0.		Back face: 0.032 corrosion resistant 5052-H32 aluminum alloy, mill finish.
UV tolerant, animal resistant, washable, does not support mold growth.		

* Independent Testing by accredited NVLAP testing facility in compliance with ASTM E90, E 413, and other applicable industry standards.

Subject to change without notice, contact Acoustiblok for details.

Product Data Sheet

Product Name

QuietFiber® Hydrophobic Noise Absorption Material – QF2

For Manufacturer Info:

Contact:
Acoustiblok, Inc.
6900 Interbay Boulevard
Tampa, FL 33616
Call - (813) 980-1400
Fax - (813)849-6347
Email - sales@acoustiblok.com
www.acoustiblok.com

Product Description

Basic Use

QuietFiber hydrophobic noise absorption material is an easily installed solution to many noise problems. It is engineered specifically for maximum noise absorption and is used extensively for industrial and commercial applications and is now being successfully introduced into non-industrial environments where reverberant sound and echo is a problem.

QuietFiber® QF2

QuietFiber is rated at the highest noise reduction level – NRC 1.00. Areas of high noise levels including sound reverberation can be resolved easily and economically by introducing QuietFiber into as much of the area as possible. The amount of noise reduction in highly reflective rooms will be directly relative to how much of the QuietFiber material can be installed into the room.

Unlike other fibrous materials which do not have the same high NRC ratings, QuietFiber is hydrophobic, meaning it will not absorb nor combine with water. Marine noise reduction applications are endless.

QuietFiber® QF2

- Highest noise absorption rating of NRC 1.00
- Non Silica
- Virtually fireproof – Class A fire rating
  - 0 Smoke + 0 Flame Development
- Hydrophobic – will not combine with water
- Will not support mold or mildew growth
- Available in plain, black or white face
- Full outdoor weather and U.V. tolerant
- Significant sound benefit v. fiberglass
- Install on top of acoustical ceiling tiles
- High temperature capable
- Comprised of up to 90% recycled material
- 100% recyclable

Product Data Sheet

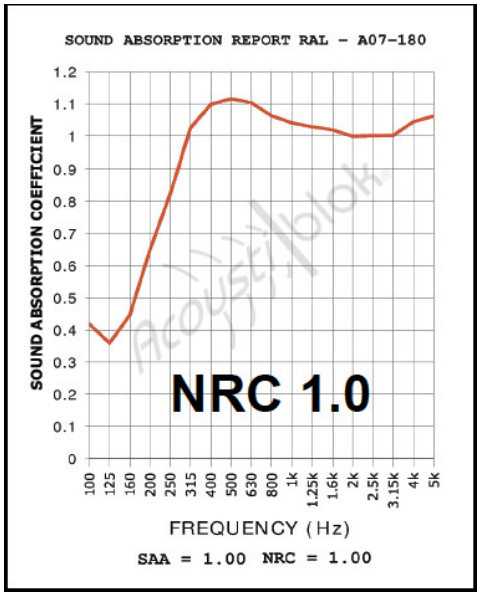
Product Name

QuietFiber® Hydrophobic Noise Absorption Material – QF2

NRC 1.0 Rated	125hz	250hz	500hz	1000hz	2000hz	4000hz
	0.36	0.79	1.15	1.04	1.01	1.04

Technical Data:

- ASTM C 423 – NRC 1.00
- ASTM E 84 – Class 1, 0 Flame 0 Smoke
- ASTM C 518 – R 4.2 per inch
- ASTM C 518 – 0.24 @ 75°F (24°C)



Standards Compliance:

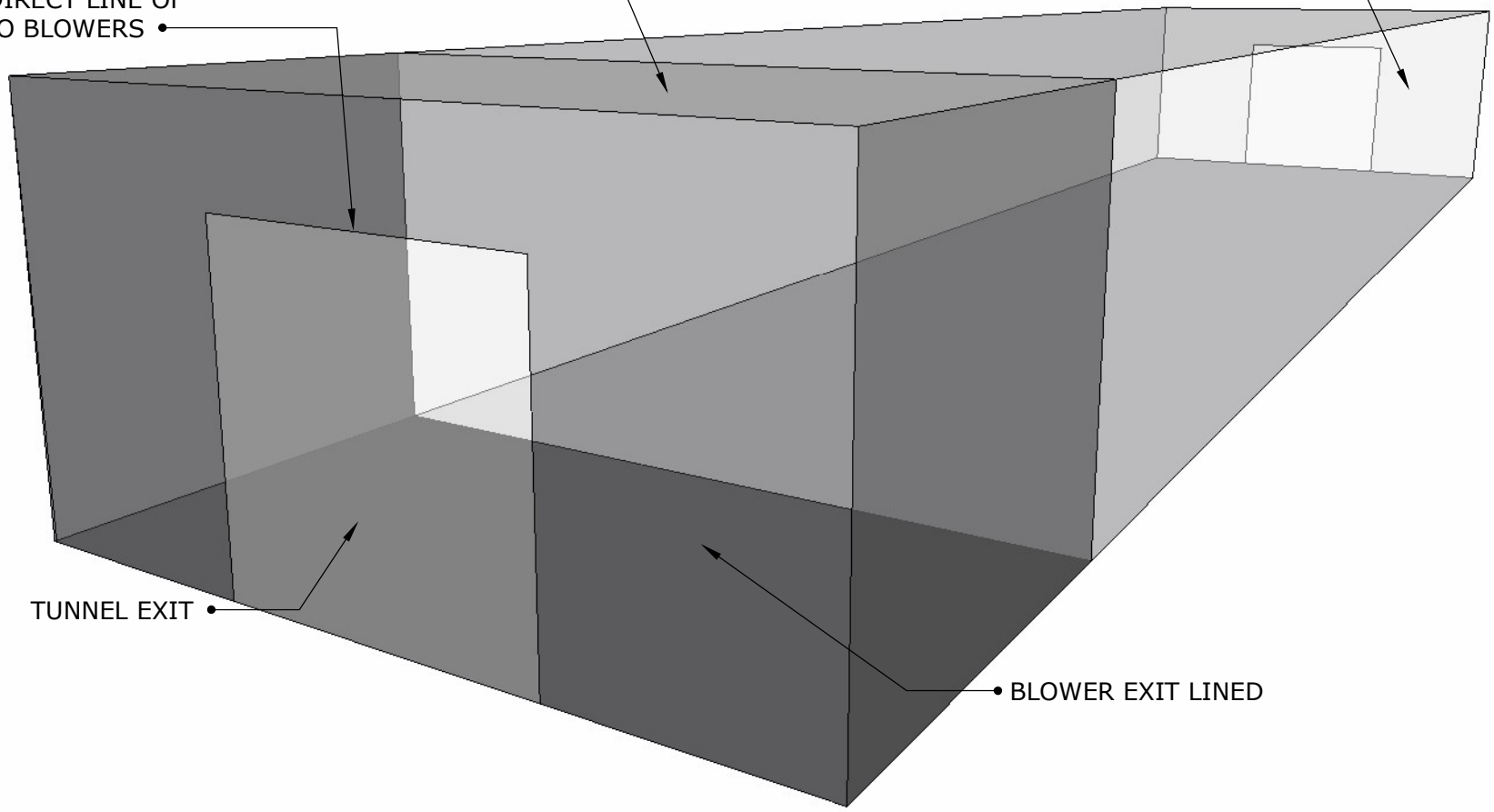
- ASTM C 665 Non-Corrosive Type I
- ASTM C 612 1A, 1B, II, III
- ASTM E 136 Rated Non-combustible per NFPA Standard 220
- ASTM C 1104 Absorption less than 1% by volume
- ASTM C 356 Linear shrinkage <2% @ 1200°F (650°C)

6900 Interbay Blvd
Tampa, Florida USA 33616
Telephone: (813)980-1440
www.Acoustiblok.com
sales@acoustiblok.com

LINE EXIT INTERIOR SECTION
OF BLOWER ROOM W/ 2" THICK ACOUSTIC
MATERIAL W/ NRC 1.0 OR EQUIVALENT.
LINER NEEDS TO BE ADDED
TO ALL SURFACES EXCEPT FLOOR

TUNNEL ENTRANCE

TUNNEL EXIT MUST
BLOCK DIRECT LINE OF
SIGHT TO BLOWERS



TUNNEL EXIT

BLOWER EXIT LINED

MD ACOUSTICS
Sound Solutions for Planning and Design

ACOUSTIC TREATMENTS TO TUNNEL INTERIOR

FOR ILLUSTRATIVE PURPOSES ONLY

Appendix D:

Construction Noise Modeling Output

Activity	L_{eq} at 750 feet dBA	L_{Max} at 750 feet dBA
Grading	55	59
Building Construction	56	58
Paving	55	58

Equipment Summary	Reference (dBA) 50 ft Lmax
Rock Drills	96
Jack Hammers	82
Pneumatic Tools	85
Pavers	80
Dozers	85
Scrappers	87
Haul Trucks	88
Cranes	82
Portable Generators	80
Rollers	80
Tractors	80
Front-End Loaders	86
Hydraulic Excavators	86
Graders	85
Air Compressors	86
Trucks	86

VIBRATION LEVEL IMPACT

Project:	Quick Quack Car Wash (43-049)	Date: 1/3/23
Source:	Large Bulldozer	
Scenario:	Unmitigated	
Location:	Commercial building to the east	
Address:		

PPV = PPVref(25/D)^n (in/sec)

DATA INPUT

Equipment = Type	2	Large Bulldozer	INPUT SECTION IN BLUE
PPVref =	0.089	Reference PPV (in/sec) at 25 ft.	
D =	45.00	Distance from Equipment to Receiver (ft)	
n =	1.10	Vibration attenuation rate through the ground	

Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.

DATA OUT RESULTS

PPV =	**0.047**	IN/SEC	OUTPUT IN RED