KPC EHS Consultants, LLC

Technical Memorandum

To: EPC Environmental, Inc. Ernest Perea

From: Kevin P. Carr, MS., KPC EHS Consultants

Date: August 30, 2023

Re: EPC 23-18- Cassia & Daisy - Industrial Development Project – Noise Assessment

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1.0 Purpose

The purpose of this memorandum is to document the impacts of construction, mobile, operational noise, and vibration as it relates to the potential environmental impacts associated with the construction and operation of the proposed industrial project on approximately 9.11 acres.

2.0 Project Location & Description

2.1 Project Location: The proposed project site is located in the City of Adelanto, San Bernardino, California on the southeast corner of Cassia Road and Daisy Road, and is referred to as APN: 3128-111-06.

2.2 Description: The Applicant is proposing to develop twelve (12) 10,000 square foot (sf) industrial buildings with associated parking, water quality basins, and landscaping on an approximately 9.11-acre vacant parcel.

3.0 Noise Impacts

3.1 Ambient Noise:

The primary sources for existing ambient noise in the Project area is from traffic and industrial uses. Industrial noise is primarily from Contech Engineered Solutions located to the north as well as traffic generate from adjacent and nearby roadways. The Southern California Logistics Airport is located approximately 3.1 miles northeast. Industrial uses surrounding the Project area are listed in Table 3.1 below with approximate distance(s) to the site.

Table 3.1 Occupied Structures / Receptors

Business/Residential	Location	Distance
Residential	East	725 feet
AmeriGas Propane	North	1,015 feet
Contech Engineered Solutions	North	1,365 feet
Merit Aluminum Foundry	North	2,000 feet
Adelanto Power Conversion Station	Northwest	1,875 feet
Copart	Southwest	2,290 feet

3.1.1 Existing Ambient Noise Level Measurements: To assess the existing noise level environment short-term noise measurements were obtained from 4 locations in the Project study area. Exhibit 3-A Noise Monitoring Map, provides the locations of the noise level measurements. Table 3.1.1 Ambient Noise Level Measurements provides the noise measurements.

Exhibit 3-A Noise Monitoring Map

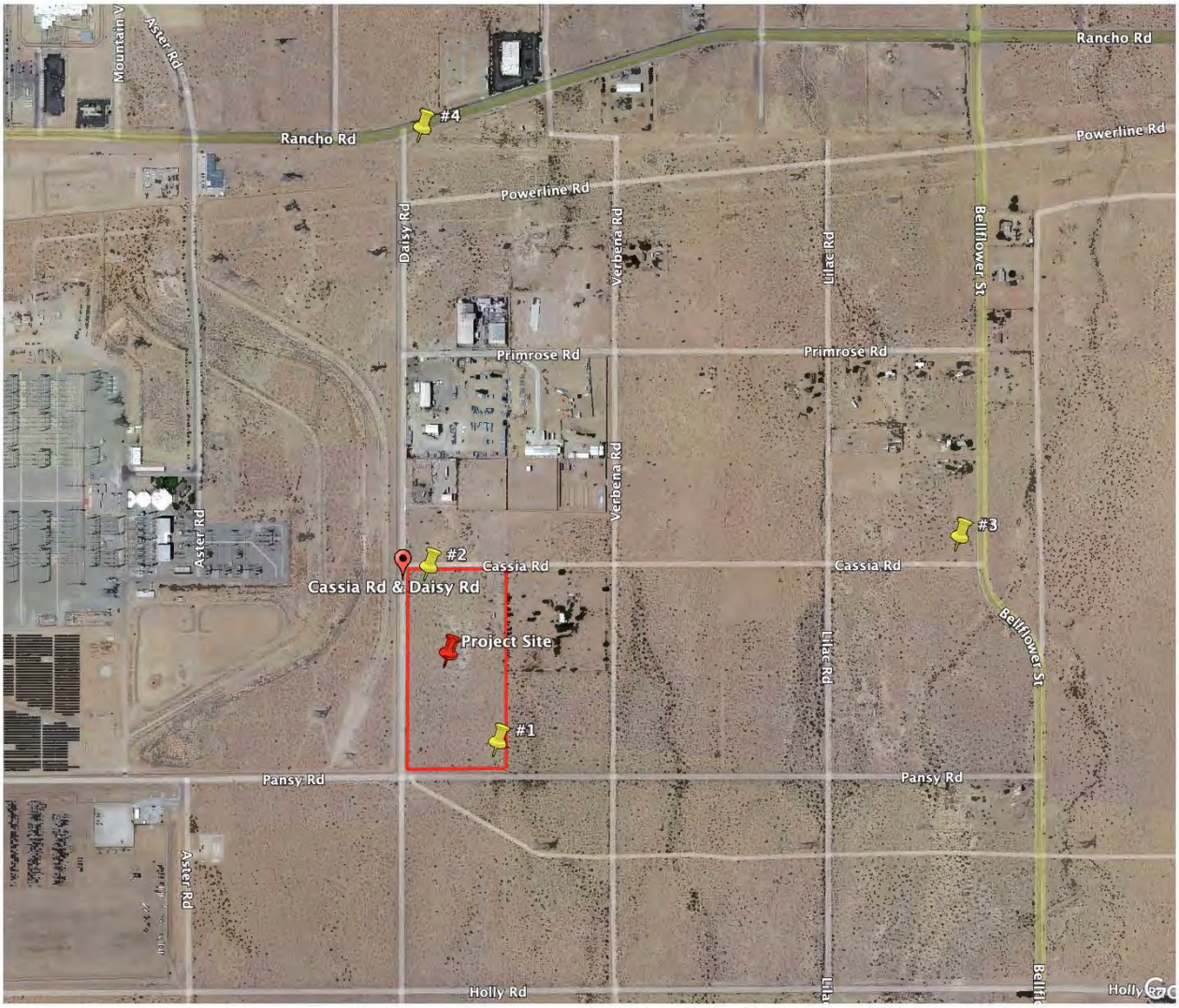
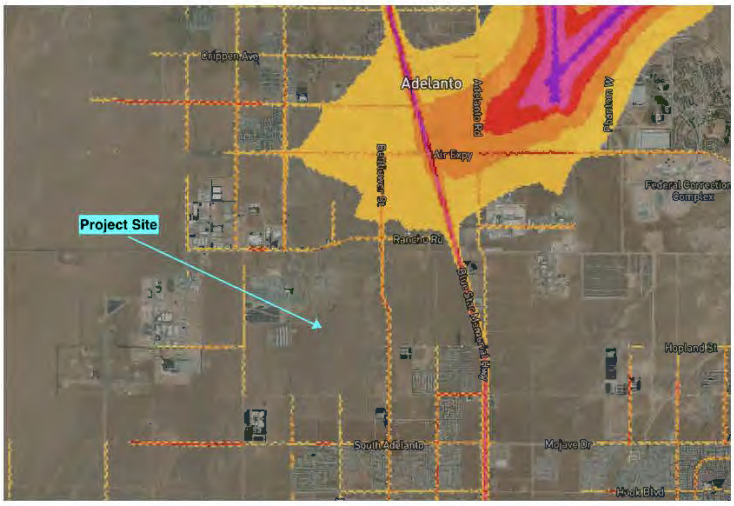


Table 3.1.1 Ambient Noise Level Measurements

Location	Distance to Project Center	Description	Average Noise Level dBA (Leq)	Maimum Noise Level (Lmax)
#1	680 ft.	Southeast Corner of Site	45.3	54.6
#2	680 ft	Northwest Corner of Site	50.6	57.8
#3	3,275 ft	Cassia Road & Bellflower Street	48.6	57.2
#4	3,262 ft	Daisy Road & Adelanto Road	51.4	58.6

The Bureau of Transportation Statistics provides the National Transportation Noise Map as a basis for understanding what-if scenarios and helping policy makers and planners to prioritize noise-related transportation investments.[1] The data on the noise map allows for viewing the potential exposure to aviation, highway, and rail noise. The current data for the Adelanto Area is from the 2016 – 2018 noise map and is presented in Exhibit 3-B. The Noise Map contours are representative of the measured ambient noise measurements as presented in Table 3.1.1.

Exhibit 3-B National Transportation Noise Map: Adelanto Area



3.1.2 Sensitive Receptors (Noise Sensitive Land Uses): Noise-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, churches, nursing homes, auditoriums, concert halls, amphitheaters, playgrounds, and parks are considered noise sensitive. The nearest sensitive receptor to the Project site is a residence located at 11051 Cassia Road, approximately located 725 feet east of the property center and approximately 360 feet from the eastern boundary. The nearest

[1] Bureau of Transportation Statistics, National Transportation Noise Map: https://www.bts.gov/geospatial/national-transportation-noise-map accessed August 29, 2023.

school is the Victoria Magathan Elementary School located approximately 4,800 feet to the southeast.

3.2 Construction Noise:

Construction activities that would create noise include: site preparation, grading, building construction, paving, and architectural coating. Noise levels associated with the construction will vary with the different types of construction equipment, the duration of the activity, and distance from the source. Construction noise will have a temporary or periodic increase in the ambient noise level above the existing levels within the Project vicinity. The nearest sensitive receptor to the Project site is the residence located approximately 725 feet east of the property center and approximately 360 feet from the eastern boundary. The closest school the Victoria Magathan Elementary School is located approximately 4,800 feet to the southeast. To estimate the potential impact of construction noise at the nearest sensitive receptors, equipment that is expected to be used during construction was input into the Federal Highway Administration Roadway Construction Noise Model (RCNM) version 1.1 to generate anticipated noise levels. The RCNM generates the maximum noise levels (Lmax) and the equivalent continuous sound level (Leq). The Leq is a calculation of the anticipated steady sound pressure level which, over a given time period (day, evening, night) has the same total energy as the actual fluctuating noise. The RCNM also uses an acoustical use factor in the noise calculations. The acoustical use factor is the percentage of time each piece of construction equipment is assumed to be operating at the full power level and is used to estimate the Leq values from the Lmax values. For example, 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 the site preparation and grading phases. Table 3.2, Construction Equipment Noise Levels at the Nearest Receptor, identifies the level of noise generated by construction equipment.

Table 3.2 on next page

Table 3.2 Construction Equipment Noise Levels at the Nearest Sensitive Receptor (Adelanto Medical Center)

Source	Approximate Distance to Nearest Receptor [1] (Property Line to Construction Site) (feet)	Sound Level at Nearest Receptor		
		Lmax	Acoustical Use Factor (%)	Leq
Backhoe	360	60.4	40	56.4
Concrete Mixer Truck	360	61.7	40	57.7
Compressor (air)	360	60.5	40	56.5
Concrete Pump Truck	360	64.3	20	57.3
Crane	360	63.4	16	55.4
Dozer	360	64.5	40	60.5
Dump Truck	360	59.3	40	55.3
Excavator	360	63.6	40	59.6
Flat Bed Truck	360	57.1	40	53.1
Front End Loader	360	62.0	40	58.0
Generator	360	63.5	50	60.5
Grader	360	67.9	40	63.9
Man Lift	360	57.6	20	50.6
Paver	360	60.1	50	57.1
Pickup Truck	360	57.9	40	53.9
Pneumatic Tools	360	68.0	50	65.0
Roller	360	62.9	20	55.9
Scraper	360	66.4	40	62.9
Tractor	360	66.9	40	62.9
Welder / Torch	360	56.9	40	52.9

Source: FHWA – RCNM Version 1.1

Table 3.3 on next page

Table 3.3 Construction Equipment Noise Levels at the Nearest Sensitive Receptor (Western States Wholesale Building Materials)

Source	Approximate Distance to Nearest Receptor [1] (Property Line to Construction Site) (feet)	Sound Level at Nearest Receptor		
		Lmax	Acoustical Use Factor (%)	Leq
Backhoe	4,800	37.9	40	33.9
Concrete Mixer Truck	4,800	39.2	40	35.2
Compressor (air)	4,800	38.0	40	34.0
Concrete Pump Truck	4,800	41.8	20	34.8
Crane	4,800	40.9	16	32.9
Dozer	4,800	42.0	40	38.0
Dump Truck	4,800	36.8	40	32.8
Excavator	4,800	41.1	40	37.1
Flat Bed Truck	4,800	34.6	40	30.6
Front End Loader	4,800	39.5	40	35.5
Generator	4,800	41.0	50	38.0
Grader	4,800	45.4	40	41.4
Man Lift	4,800	35.1	20	28.1
Paver	4,800	37.6	50	34.6
Pickup Truck	4,800	35.4	40	31.4
Pneumatic Tools	4,800	45.5	50	42.5
Roller	4,800	40.4	20	33.4
Scraper	4,800	43.9	40	40.0
Tractor	4,800	44.4	40	40.4
Welder / Torch	4,800	34.4	40	30.4

Source: FHWA – RCNM Version 1.1

The majority of properties immediately adjacent and surrounding the Project site are industrial uses or vacant undeveloped parcels (zoned Industrial), nearest sensitive receptor is at 11051 Cassia Road, approximately located 725 feet east of the property center and approximately 360 feet from the eastern boundary. The highest anticipated construction noise levels would be from the use of pneumatic tools with a level of 68 dBA Lmax and 65 dBA Leq.

The City of Adelanto has set restrictions to control noise impacts from construction activities. Section 17.90.020(d)(1) of the Adelanto Municipal Code restricts construction activities between the hours of 7:00 AM to dusk on weekdays, and construction will not occur on weekends or state holidays.

Noise generation related to construction activities is addressed in §17.90.020(d) of the Zoning Ordinance which requires construction projects to list general noise reduction practices as "General Notes" on the construction drawings as part of the Project's conditions of approval (COA). These mandatory conditions are described as follows:

17.90.020 (d) Construction Practices

To reduce potential noise and air quality nuisances, the following items shall be listed as "General Notes" on the construction drawings:

(1) Construction activity and equipment maintenance is limited to the hours between 7:00 a.m. to dusk on weekdays. Construction may not occur on weekends or State holidays, without prior consent of the Building Official. Non-noise generating activities (e.g., interior painting) are not subject to these restrictions. City and State construction projects, such as road re-building or resurfacing, and any construction activity that is in response to an emergency, shall be exempt from this requirement.

(2) Stationary construction equipment that generates noise in excess of sixty-five (65) dBA at the project boundaries must be acoustically shielded and located at least one hundred feet (100') from occupied residences. The equipment area with appropriate acoustic shielding shall be designated on building and grading plans. Equipment and shielding shall remain in the designated location throughout construction activities.

(3) Construction routes are limited to City of Adelanto designated truck routes.

(4) Water trucks or sprinkler systems shall be used during clearing, grading, earth moving, excavation, or transportation of cut or fill materials to prevent dust from leaving the site and to create a crust after each day's activities cease. At a minimum, this would include wetting down such areas in the later morning and after work is completed for the day and whenever wind exceeds fifteen (15) miles per hour.

(5) A person or persons shall be designated to monitor the dust control program and to order increased watering as necessary to prevent transport of dust off-site. The name and telephone number of such person(s) shall be provided to the City.

(6) All grading equipment shall be kept in good working order per factory specifications.

With implementation of the above standard conditions of approval, construction noise impacts would be less than significant.

While the City establishes limits to the hours during which construction activity may take place, it does not identify specific noise level limits for construction noise levels. Therefore, to evaluate whether the Project will generate a substantial increase in the short-term noise levels at the offsite sensitive receptors (residences), the construction-related noise level threshold is based on the National Institute for Occupational Safety and Health (NIOSH) recommended exposure limit (REL) for occupation noise exposure at 85 dBA, as an 8-hour time-weighted average (85 dBA – 8-hr TWA). Using the equipment from the Air Quality GHG Technical Memorandum CalEEMod data for the Site Preparation and Grading Phases, each piece of equipment operating at the same

time in the same location for a full 8-hour period was calculated with results provided in Table 3.3, Worse Case Construction Noise Levels (Site Preparation & Grading).

Table 3.4 Worse Case Construction Noise Levels (Site Preparation & Grading)

Phase	Equipment Type	Number of Units	Leq dBA/unit	Leq dBA Total
Site Preparation	Tractor/Loader/Backhoe	4	56.4	62.4
Site Preparation	Rubber Tired Dozer	3	60.5	66.5
Site Preparation	**Total Noise Level**			**67.9**
Grading	Grader	1	63.9	63.9
Grading	Tractor/Loader/Backhoe	3	56.4	61.2
Grading	Rubber Tired Dozer	1	60.5	60.5
Grading	Excavator	1	59.6	59.6
Grading	**Total Noise Level**			**67.6**

The highest individual equipment noise level at the nearest sensitive receptor as indicated in Table 3.2 will be at 68.0 dBA (Lmax) and 65.0 dBA (LEQ). During the construction phase the noise levels will be the highest during site preparation and grading as heavy equipment pass along the Project site boundaries. During the site preparation and grading phases, which produce the highest noise levels, equipment will not be stationary, rather equipment will be moving throughout the site at varying speeds and power levels and as a result not operating at the maximum noise level for the entire workday.

The levels of noise at the nearest sensitive receptor as indicated in Table 3.2, 3.3, and 3.4 are all below the NIOSH REL of 85 dBA 8-hour TWA and would be less than significant. Construction noise is of short-term duration and will not present any long-term impacts on the project site or the surrounding area.

3.3 Operational Noise:

3.3.1 Offsite Traffic Noise Impacts.

Vehicle noise is a combination of the noises produced by the engine, exhaust, and tires. The primary source of noise generated by the Project will be from the vehicle traffic generated by the vehicle ingress and egress to the Project site. Under existing conditions, the site does not generate any traffic noise that impacts the surrounding area.

According to the Federal Highway Administration*, Highway Traffic Noise Analysis and Abatement Policy and Guidance,* the level of roadway traffic noise depends on three things: (1) the volume of the traffic, (2) the speed of the traffic, and (3) the number of trucks in the flow of the traffic. Generally, the loudness of traffic noise is increased by heavier traffic volumes, higher speeds, and greater numbers of trucks. These factors are discussed below.

- *The Volume of the Traffic*

Upon buildout, the proposed Project is expected to generate approximately 404 average daily vehicle trips. The morning and afternoon peak hours will produce the largest increase in traffic from the project. Using the Development Levels Expectation Table LC-3 from the Adelanto North 2035 Comprehensive Sustainable Plan of 2.6 employees per 1,000 SF of LM or MI Development the number of employees expected will be 312 employees commuting to/from the site. This additional traffic generated during the peak hours will increase the ambient traffic noise levels in the vicinity of the Project site in comparison to the existing site conditions (industrial and vacant land).

As there is currently no known tenants of the future development the number of truck trips for the Project was calculated using the South Coast AQMDs Warehouse Truck Trip Study with a truck trip rate of 0.53 per 1,000 SF. The average daily trips total is estimated to be 64 truck trips per day.

The current average daily vehicle trips along Rancho Road north of Air Expressway is approximately 1,180 average daily vehicle trips (ADT), assuming all the Project traffic 404 ADT from employees take Rancho Road the results would not be a doubling of traffic volume.

According to Caltrans, the human ear can begin to detect sound level increases of 3 decibels (dB) in typical noisy environments.[2] A doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3-dBA increase in sound, would generally be barely detectable. Implementation of the Project will increase traffic volumes in the area occurring along Inland Center Drive and Hillcrest Avenue but not to the extent that traffic volumes will be doubled creating a +3dBA noise increase or result in a perceivable noise increase. Therefore, operational noise impacts would be less than significant.

- *The Speed of Traffic*

Rancho Road is a 4-lane divided road classified as a Major Street and has a speed limit of 55 mph. Daisy Road is a 2-lane road, paved north of Pansy Road and unpaved (dirt) south of Pansy. Daisy is classified as a Major Boulevard with future improvements to 4 lanes. (North 2035 Plan) Cassia Road south of the Project site is undeveloped unpaved (dirt) road. Daisy and Cassia Roads have a prima facia speed limit of 25 mph. These low levels of speeds do not result in vehicles generating high levels of noise.

- *The Number of Trucks in the Flow of the Traffic*

The Project is a general industrial development in an industrial area and although it will generate noise from large trucks, the site is located in an industrial area with similar truck and traffic uses. Based on the number of daily vehicle trips of 340 and 64 truck trips per day the total number of daily trips from both passenger cars and trucks is calculated to be 404 ADT.

[2] Caltrans, Traffic Noise Analysis Protocol, April 2020, p.7-1.

Truck traffic will also be required to use the City's designated truck routes which include Holly Road, Air Expressway, and Highway 395. The use of the truck routes will also decrease the impacts on sensitive receptors such as residential uses.

Future Traffic Noise Levels along Existing Roadways Segments

The roadway noise impacts from vehicular traffic were projected using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108 (the "FHWA Model"). The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period.

The Community Noise Equivalent Level (CNEL) is the 24-hour A-weighted average for sound, with corrections for evening and nighttime hours. The corrections require an addition of 5 decibels to sound levels in the evening hours between 7:00 p.m. and 10:00 p.m. and an addition of 10 decibels to sound levels at nighttime hours between 10:00 p.m. and 7:00 a.m. These additions are made to account for the increased sensitivity during the evening and nighttime hours when sound appears louder.

A vehicle's noise level is a combination of the noise produced by the engine, exhaust, and tires. The cumulative traffic noise levels along a roadway segment are based on three primary factors: the amount of traffic, the travel speed of the traffic, and the vehicle mix ratio or number of medium and heavy trucks. The intensity of traffic noise is increased by higher traffic volumes, greater speeds, and increased number of trucks.

Future construction of the proposed Project would increase the ADT by approximately 214 trips of which 64 trips per day would be from trucks.

Figure 3.3-1 is the noise contour map generated from the Federal Highway Administration (FHWA) Traffic Noise Model 3.5 showing the estimated traffic noise that will be generated with the current traffic along Rancho Road with the Project. To determine the noise impacts traffic data from the Adelanto North 2035 Plan FEIR future buildout traffic estimates were used for Rancho Road the segment between Koala Road and US 395 which indicated a daily traffic volume of 5,904 vehicles per day. Average Daily Traffic counts were converted to peak hour estimates at a rate of 0.075 ADT. Traffic vehicle mix was estimated at 97 percent automobile, 2 percent light truck, and 1 percent heavy truck at 55 miles per hour roadway speed limit. Additionally, all the

340 vehicle trips and 64 truck trips were included using the same formula for calculating peak hour traffic to estimate the Project impact.

As indicated in Exhibit 3-C and 3-D the noise contours for Rancho Road shows the proposed Project's impacts do not incease the noise levels. As indicated in the noise contour exhibits impacts along the roadway segments in the Project Area will not result in new significant noise impacts.

Exhibit 3-C Existing Traffic Noise Contours

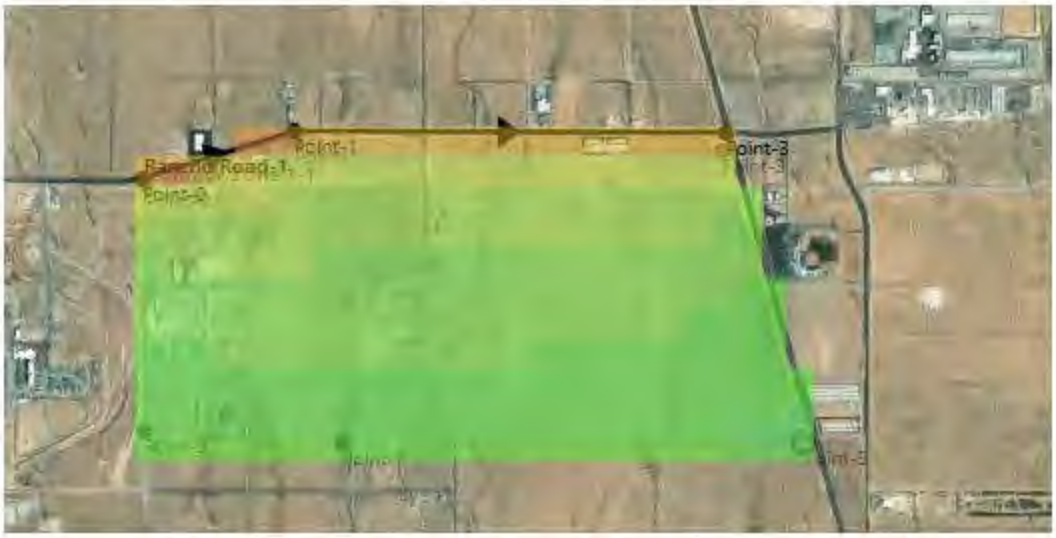
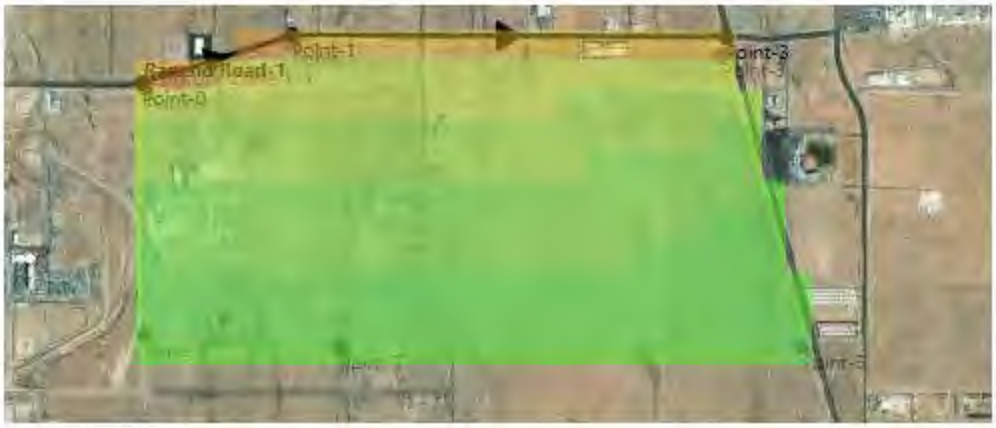


Exhibit 3-D Existing Plus Project Traffic Noise Contours



3.3.2 Facility Operations (Stationary Noise).

At the time this noise analysis was prepared, the future tenants of the proposed Project were unknown. The on-site Project-related noise sources are expected to include roof-top heating ventilation and air conditioning units (HVAC), idling trucks, truck activities, backup alarms, as well as loading and unloading and on-site movement of steel beams, as well as employee and visitor

parking lot vehicle movements. This noise analysis is intended to describe noise level impacts associated with the expected typical operational (stationary source) activities at the Project site.

Table 3.4 Reference Noise Level Measurements

Noise Source	Reference Distance (feet)	Reference Noise Level (dBA)	Distance to Receptor (feet)	Noise Level (dBA)
Rooftop HVAC [1]	1 ‘	88	100 ‘	48.0
Truck Loading Dock Activity [2]	50 ‘	63.6	500 ‘	43.6
Truck Backup Alarm [2]	50 ‘	75.0	500 ‘	55.0
Parking Lot Activity [2]	25 ‘	54.4	100 ‘	42.4
Forklift Operations	25’	61.0	500’	34.98

[1] Reference Level Lennox 10-ton air handler unit (AHU) manufacturer specifications.

[2] Reference Level collected at Amazon Fulfillment Center ONT-6 (24208 San Michele Rd., Moreno Valley)

The proposed Industrial facility will include truck loading and unloading. To determine the noise level impacts of the Project short-term reference noise level measurements were collected at the Amazon Fulfillment Center located at 24208 San Michele Road in the City of Moreno Valley. The noise measurements represent a typical weekday warehouse loading/unloading operation on a large single building distribution center, approximately 1.2 million square feet with 200 trailer parking spaces and 90 docks. Operations during the noise measurements included multiple trucks being loaded/unloaded, forklift and truck/trailer movement. The Herrick Steel Facility includes significantly less truck traffic and therefore the truck loading activities reference noise level represents a worse-case scenario.

The loading/unloading operations noise measurements were taken over a 15 – minute period from an area approximately at the center of the docking stations at 50’ feet from the building. The reference noise measurement obtained was 63.6 dBA L_{eq} and calculated attenuation for 500-foot distance at 43.6 dBA L_{eq}. The 500-foot distance is the closest distance from the estimated noise activities to the closest occupied building on the adjacent Northwest Pipe Company property. No attenuation for shielding from buildings or walls was calculated as no detailed information on boundary walls/fencing was available for the Project at the time of the analysis.

Trucks at the Project site would utilize backup alarms during the loading/unloading activities, which according to ECCO, the first manufacturer of backup alarms, depending on the model, typically produce a noise level of 87 to 112 dBA at 1 feet[3] and at 500 feet with no sound barriers (walls or buildings) the noise level would be between 33.02 to 58.0 dBA. Reference noise level measurements taken at 50 feet during truck movement and backup alarm operation were measured at 75 dBA which would result in a 55.0 dBA noise level at 500 feet with no perimeter walls or buildings as shielding.

[3] ECCO Backup alarm manufacturer resources: https://www.eccoesg.com/us/en/SearchResults?searchText=backup+alarm+noise+levels accessed August 6, 2023.

Parking lot areas for passenger vehicles and trailer parking were estimated to be located on the west and south sides of the proposed Fabrication and Office structures. Traffic associated with parking lots is typically not at a sufficient level to exceed the community noise standards. The total parking spaces estimated for the Project 12 truck stalls, the reference noise levels were taken at a parking lot that can accommodate approximately 1,000 truck stalls. The Project's parking lots are substantially smaller, and no significant noise impacts offsite from the parking lot use would be anticipated.

The USEPA identifies noise levels affecting health and welfare as exposure levels over 70 dBA over a 24-hour period. Noise levels for various levels are identified according to the use of the area. Levels of 45 dBA are associated with indoor residential areas, hospitals, and schools, whereas 55 dBA is identified for outdoor areas where typical residential human activity takes place. According to the USEPA levels of 55 dBA outdoors and 45 dBA indoors are identified as levels of noise considered to permit spoken conversation and other activities such as sleeping, working, and recreation, which are part of the daily human condition.[4] Levels exceeding 55 dBA in a residential setting are normally short in duration and not significant in affecting health and welfare of residents. As the Project site is located in an industrialized area that is zoned and planned for future industrial development. The nearest exiting sensitive receptor is the residential structure approximately 750 feet from the eastern project site boundary and no significant noise impacts are expected at that distance.

3.4 Vibration

During construction the operation and movement of heavy equipment create seismic waves that radiate along the ground-surface in all directions. These waves are felt as ground vibrations. Vibrations from construction can result in effects ranging from annoyance to people to structure damage. Vibration levels are impacted by geology, distance, and frequencies. According to the Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018[5], while ground vibrations from construction activities do not often reach the levels that can damage structures, construction vibration may result in building damage or prolonged annoyance from activities such as blasting, piledriving, vibratory compaction, demolition, and drilling or excavation near sensitive structures. The Project does not require these types of construction activities.

Vibration amplitude and impact decreases with distance and perceptible ground-borne vibration is generally limited to areas within one to two hundred feet of the construction activity.

The vibration standard used for the City is that no ground vibration shall be allowed that can be felt without the aid of instruments at or beyond the subject property line, nor will any vibration be permitted that produces a particle velocity greater than or equal to two-tenths of an inch per second measured at or beyond the lot line.

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[4] USEPA "EPA Identifies Noise Levels Affecting Health and Welfare. https://www.epa.gov/archive/epa/aboutepa/epa-identifies-noise-levels-affecting-health-and-welfare.html Accessed August 6, 2023.

[5] https://www.transit.dot.gov/research-innovation/transit-noise-and-vibration-impact-assessment-manual-report-0123

Table 3.6 Vibration Source Levels for Construction Equipment

Equipment	PPV (in/sec) at 25 feet
Small bulldozer	0.003
Jackhammer	0.035
Loaded Trucks	0.076
Large bulldozer	0.089

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

The closest sensitive receptor to the Project property line is minimally 750 feet from the property line. The estimated construction vibration level from a large bulldozer (worst case scenario) measured at 15-feet would create a vibration level of 0.191 in/sec which does not exceed the 0.2 in/sec threshold. Therefore, the vibrations at the nearest sensitive receptor will remain well below the strongly perceptible annoyance criteria and potential residential vibration damage criteria thresholds listed in the City of Adelanto Municipal Code Section 17.90.030 (vibration). This threshold requires that no vibration greater than 0.2 PPV be felt at or beyond the lot line. The proposed Project therefore is not considered to result in exposure of people to excessive ground vibration.

During operations of the Project following construction the primary source of vibration would be from vehicle traffic, primarily truck traffic. Truck vibration levels are dependent on vehicle characteristics, load, speed, and pavement conditions. Typical vibration levels from heavy truck activity at normal traffic speeds are in the order of 0.004 in/sec PPV at 25 feet based on the FTA's Transit Noise Impact and Vibration Assessment (2018). Trucks once on site will be travelling at very low speeds and it is expected that truck vibration impacts off site would not exceed the 0.2 in/sec PPV threshold.

Ground-borne vibration levels from automobile traffic are generally overshadowed by vibration generated by heavy trucks that roll over the same uneven roadway surfaces. However, due to the rapid drop-off rate of ground-borne vibration and the short duration of the associated events, vehicular traffic-induced ground-borne vibration is rarely perceptible beyond the roadway right-of-way, and rarely results in vibration levels that would cause annoyance to people or damage to buildings in the vicinity.

4.0 Conclusion

Based on the assessment in Section 3.0 through compliance with mandatory City requirements and ordinances to reduce noise during construction, the Project's construction noise impacts will not result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project. In addition, the Project's construction and operations vibration impacts as well as operational noise for mobile and operational noise impacts to the environment are less than significant.

APPENDIX – A
Ambient
Noise Measurements

Session Report

Location #1

Information Panel

Name	S065_BIJ050019_25082023_150618
Start Time	8/23/2023 10:37:35 AM
Stop Time	8/23/2023 10:52:35 AM
Device Name	BIJ050019
Model Type	SoundPro DL
Device Firmware Rev	R.13H
Comments	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	45.3 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Bandwidth	1	OFF
Exchange Rate	2	5 dB	Weighting	2	A
Response	2	FAST			

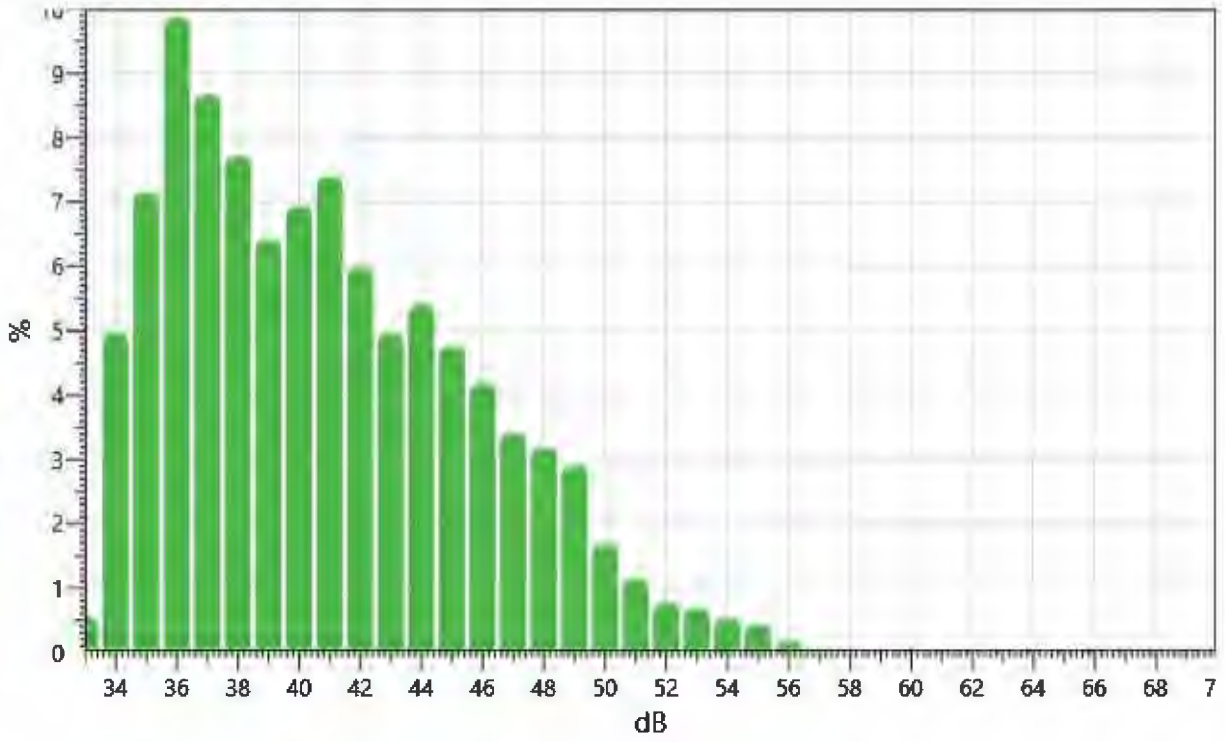
Statistics Table

dB:	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
33:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.24	0.27	0.55
34:	0.26	0.49	0.31	0.31	0.55	0.42	0.52	0.73	0.81	0.55	4.95
35:	0.68	0.47	0.53	0.45	0.70	0.72	0.74	0.80	0.99	1.07	7.15
36:	1.07	0.56	0.65	0.90	1.18	1.33	1.39	1.07	0.99	0.73	9.87
37:	0.82	0.78	0.83	1.02	0.97	0.80	0.83	0.92	0.99	0.72	8.67
38:	0.73	0.89	0.78	0.87	0.67	0.86	0.79	0.72	0.72	0.70	7.72
39:	0.69	0.60	0.53	0.53	0.71	0.69	0.72	0.67	0.60	0.66	6.41
40:	0.78	0.73	0.69	0.64	0.64	0.65	0.64	0.69	0.79	0.66	6.92
41:	0.74	0.74	0.67	0.74	0.75	0.64	0.73	0.83	0.82	0.73	7.39
42:	0.76	0.51	0.52	0.67	0.62	0.59	0.76	0.59	0.47	0.49	5.98
43:	0.46	0.45	0.44	0.47	0.49	0.45	0.53	0.56	0.49	0.60	4.94
44:	0.56	0.57	0.54	0.46	0.54	0.59	0.53	0.54	0.54	0.53	5.40
45:	0.55	0.53	0.36	0.45	0.57	0.44	0.47	0.47	0.42	0.49	4.76
46:	0.49	0.44	0.40	0.46	0.52	0.41	0.43	0.34	0.36	0.32	4.18

47:	0.31	0.37	0.32	0.32	0.33	0.31	0.32	0.35	0.35	0.41	3.41
48:	0.41	0.32	0.20	0.29	0.31	0.35	0.34	0.32	0.35	0.27	3.18
49:	0.33	0.35	0.32	0.27	0.26	0.27	0.25	0.27	0.29	0.29	2.89
50:	0.24	0.24	0.15	0.13	0.17	0.15	0.12	0.16	0.17	0.15	1.68
51:	0.17	0.16	0.08	0.10	0.10	0.10	0.12	0.13	0.08	0.09	1.13
52:	0.11	0.09	0.08	0.07	0.07	0.08	0.08	0.05	0.06	0.07	0.75
53:	0.06	0.05	0.04	0.04	0.10	0.10	0.08	0.07	0.07	0.08	0.68
54:	0.08	0.04	0.04	0.06	0.04	0.04	0.05	0.05	0.05	0.07	0.52
55:	0.07	0.07	0.06	0.03	0.04	0.05	0.03	0.03	0.02	0.03	0.42
56:	0.02	0.02	0.02	0.02	0.02	0.03	0.01	0.01	0.01	0.01	0.16
57:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
58:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
59:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
60:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
61:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
62:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
63:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
64:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
65:	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
66:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
67:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02

Statistics Chart

S065_BIJ050019_25082023_150618: Statistics Chart

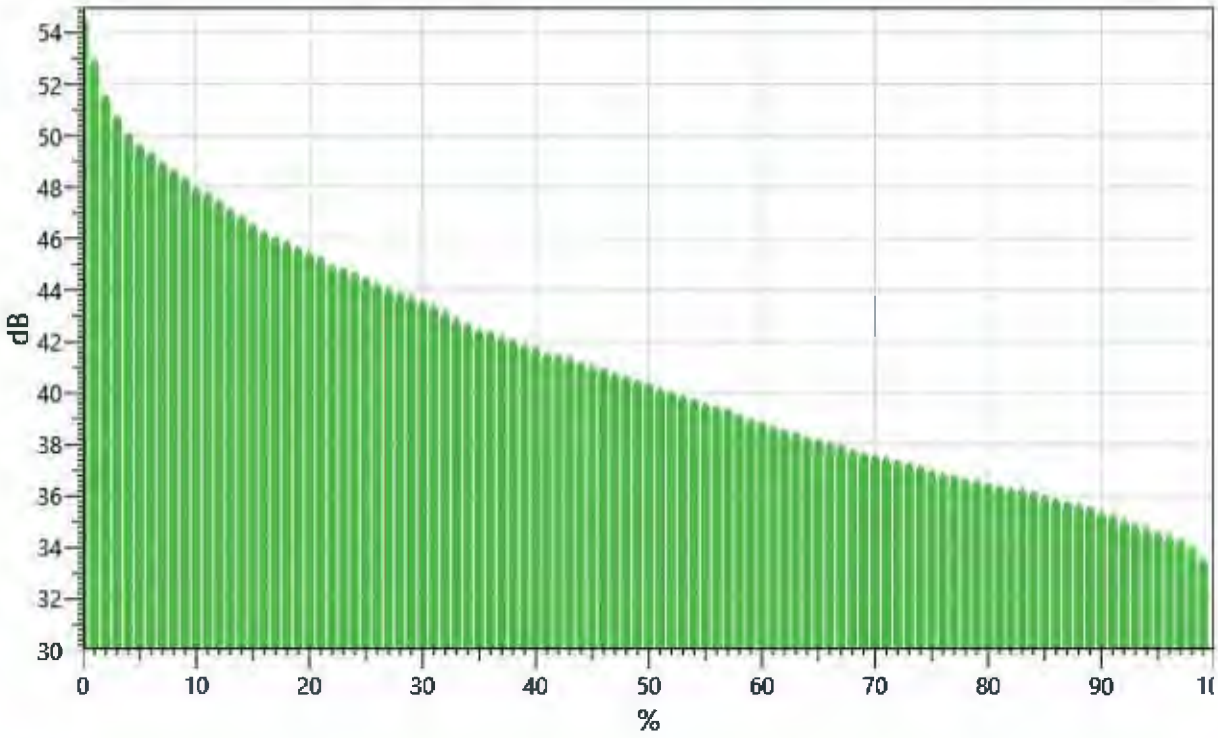


Exceedance Table

.	0%	1%	2%	3%	4%	5%	6%	%7	%8	%9
0%:		54.6	53.0	51.6	50.8	50.1	49.7	49.4	49.0	48.7
10%:	48.4	48.0	47.8	47.5	47.2	46.9	46.6	46.3	46.1	45.9
20%:	45.7	45.5	45.3	45.0	44.9	44.7	44.5	44.3	44.1	43.9
30%:	43.8	43.6	43.4	43.2	42.9	42.7	42.5	42.4	42.2	42.1
40%:	41.9	41.8	41.6	41.5	41.4	41.2	41.1	41.0	40.8	40.7
50%:	40.5	40.4	40.2	40.1	39.9	39.8	39.6	39.5	39.4	39.2
60%:	39.0	38.9	38.7	38.6	38.5	38.3	38.2	38.1	38.0	37.8
70%:	37.7	37.6	37.5	37.4	37.3	37.2	37.0	36.9	36.8	36.7
80%:	36.6	36.5	36.4	36.3	36.3	36.2	36.0	35.9	35.8	35.7
90%:	35.6	35.4	35.3	35.1	34.9	34.8	34.6	34.5	34.3	34.0
100%:	33.6									

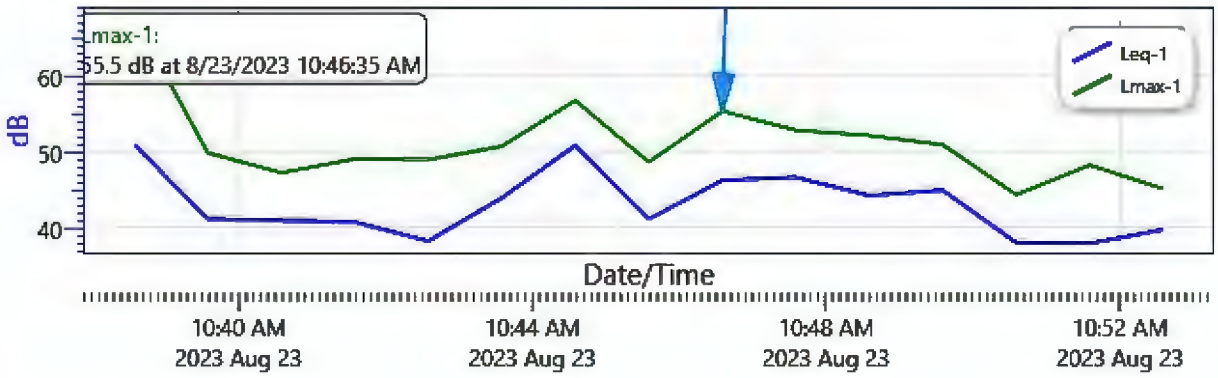
Exceedance Chart

S065_BIJ050019_25082023_150618: Exceedance Chart



Logged Data Chart

S065_BIJ050019_25082023_150618: Logged Data Chart



Session Report

Location #2

Information Panel

Name	S066_BIJ050019_25082023_150621
Start Time	8/23/2023 10:56:00 AM
Stop Time	8/23/2023 11:11:00 AM
Device Name	BIJ050019
Model Type	SoundPro DL
Device Firmware Rev	R.13H
Comments	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	50.6 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Bandwidth	1	OFF
Exchange Rate	2	5 dB	Weighting	2	A
Response	2	FAST			

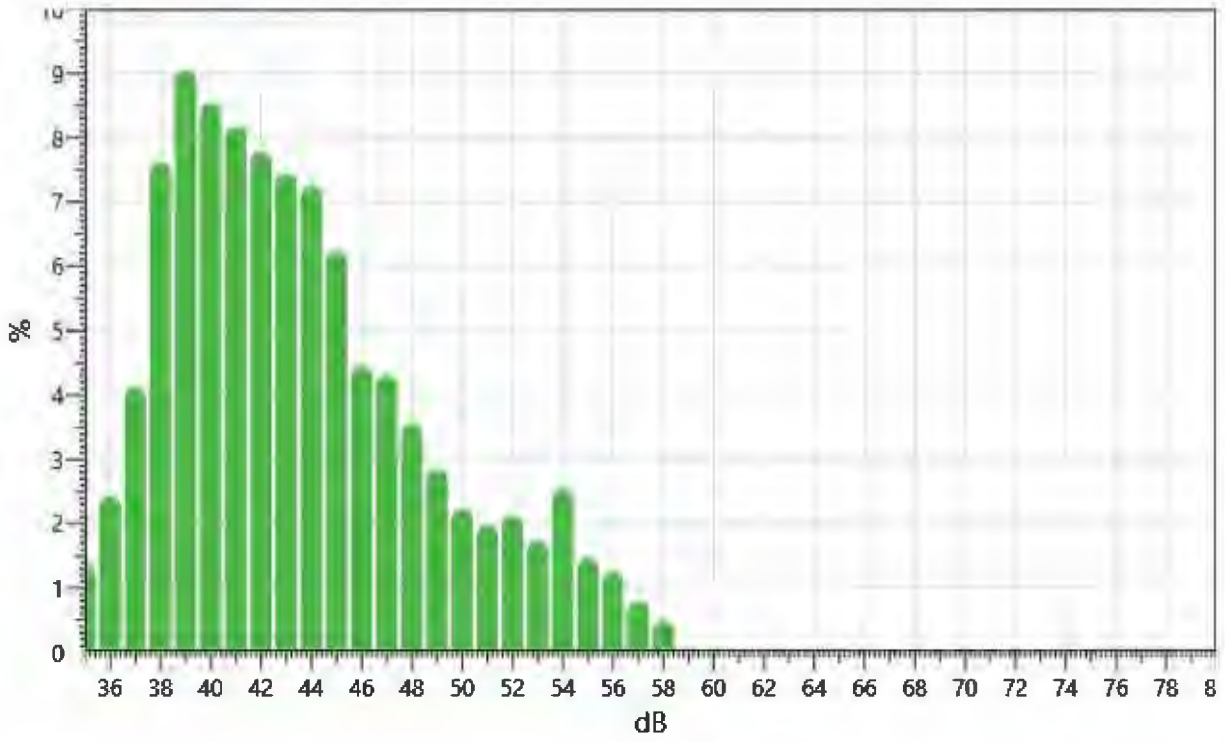
Statistics Table

dB:	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
35:	0.00	0.00	0.00	0.04	0.08	0.14	0.21	0.36	0.28	0.25	1.35
36:	0.21	0.07	0.16	0.37	0.29	0.27	0.25	0.23	0.24	0.32	2.42
37:	0.44	0.44	0.42	0.23	0.33	0.39	0.36	0.50	0.46	0.55	4.11
38:	0.55	0.55	0.81	0.65	0.80	0.82	0.78	0.74	0.85	1.05	7.61
39:	1.07	0.67	0.81	1.02	1.09	0.94	0.88	0.78	0.97	0.82	9.04
40:	0.92	1.13	1.11	0.88	0.84	0.80	0.72	0.68	0.71	0.76	8.53
41:	0.72	0.74	0.66	0.71	0.79	0.83	0.93	0.90	0.95	0.93	8.18
42:	1.04	0.77	0.76	0.85	0.85	0.65	0.62	0.68	0.74	0.82	7.78
43:	0.79	0.77	0.67	0.62	0.80	0.73	0.73	0.81	0.75	0.75	7.43
44:	0.69	0.76	0.85	0.75	0.70	0.72	0.65	0.70	0.67	0.75	7.24
45:	0.83	0.69	0.57	0.65	0.65	0.72	0.54	0.58	0.45	0.55	6.22
46:	0.52	0.56	0.50	0.41	0.35	0.39	0.43	0.43	0.44	0.40	4.44
47:	0.37	0.37	0.37	0.36	0.41	0.47	0.45	0.45	0.51	0.53	4.30
48:	0.53	0.47	0.27	0.45	0.36	0.32	0.27	0.27	0.29	0.31	3.54

49:	0.30	0.27	0.34	0.27	0.26	0.27	0.24	0.33	0.34	0.24	2.85
50:	0.25	0.20	0.19	0.25	0.20	0.20	0.20	0.25	0.23	0.23	2.21
51:	0.18	0.17	0.10	0.17	0.17	0.18	0.22	0.18	0.29	0.31	1.96
52:	0.24	0.20	0.26	0.25	0.22	0.16	0.19	0.22	0.18	0.19	2.11
53:	0.18	0.16	0.15	0.17	0.19	0.14	0.14	0.15	0.19	0.24	1.72
54:	0.27	0.25	0.21	0.29	0.25	0.30	0.32	0.28	0.21	0.15	2.53
55:	0.14	0.15	0.15	0.15	0.19	0.13	0.13	0.13	0.13	0.16	1.45
56:	0.11	0.10	0.10	0.09	0.16	0.18	0.17	0.10	0.09	0.13	1.24
57:	0.10	0.08	0.04	0.07	0.07	0.14	0.10	0.07	0.05	0.05	0.78
58:	0.07	0.07	0.05	0.05	0.07	0.04	0.03	0.04	0.05	0.01	0.47
59:	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
60:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
61:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
62:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
63:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
64:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
65:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
66:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
67:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
68:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
69:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
70:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
71:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
72:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
73:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
74:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
75:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
76:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03

Statistics Chart

S066_BIJ050019_25082023_150621: Statistics Chart

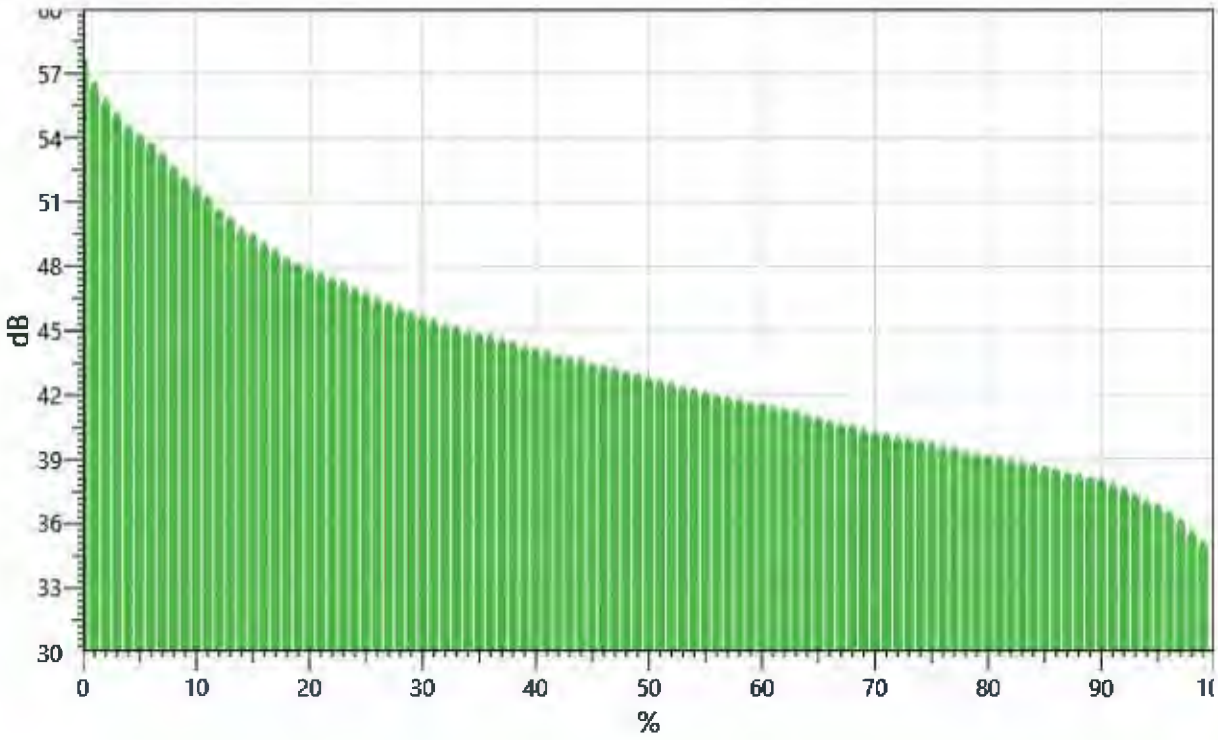


Exceedance Table

.	0%	1%	2%	3%	4%	5%	6%	%7	%8	%9
0%:		57.8	56.6	55.8	55.2	54.6	54.2	53.8	53.3	52.7
10%:	52.2	51.8	51.3	50.7	50.3	49.8	49.5	49.1	48.8	48.4
20%:	48.2	47.9	47.7	47.5	47.3	47.0	46.8	46.5	46.3	46.1
30%:	45.9	45.7	45.5	45.3	45.2	45.0	44.9	44.8	44.6	44.5
40%:	44.3	44.2	44.1	43.9	43.8	43.7	43.5	43.4	43.3	43.1
50%:	43.0	42.8	42.7	42.6	42.4	42.3	42.2	42.0	41.9	41.8
60%:	41.7	41.6	41.5	41.4	41.3	41.1	41.0	40.8	40.7	40.6
70%:	40.4	40.3	40.2	40.1	40.0	39.9	39.8	39.7	39.6	39.4
80%:	39.3	39.2	39.1	39.0	38.9	38.8	38.7	38.6	38.4	38.3
90%:	38.2	38.1	37.9	37.7	37.4	37.1	36.9	36.6	36.2	35.7
100%:	35.2									

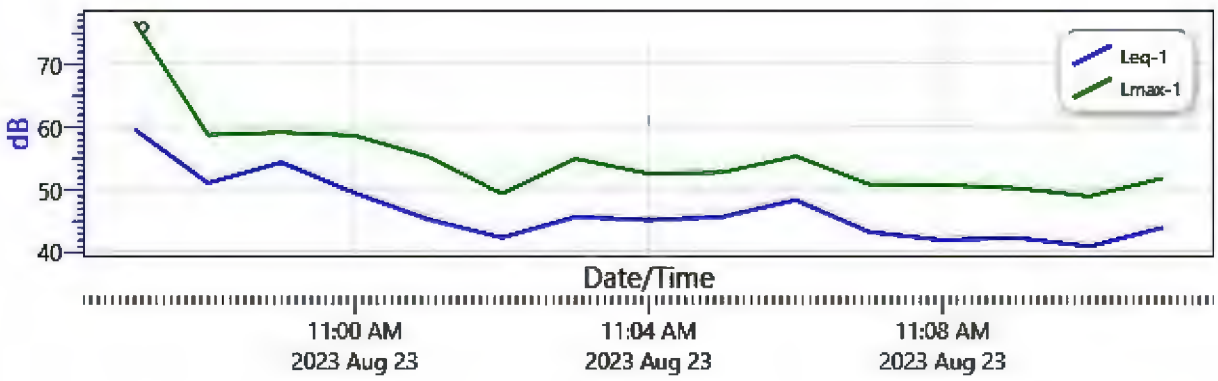
Exceedance Chart

S066_BIJ050019_25082023_150621: Exceedance Chart



Logged Data Chart

S066_BIJ050019_25082023_150621: Logged Data Chart



Session Report

Location #3

Information Panel

Name	S068_BIJ050019_25082023_150625
Start Time	8/23/2023 11:40:38 AM
Stop Time	8/23/2023 11:55:38 AM
Device Name	BIJ050019
Model Type	SoundPro DL
Device Firmware Rev	R.13H
Comments	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	48.6 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Bandwidth	1	OFF
Exchange Rate	2	5 dB	Weighting	2	A
Response	2	FAST			

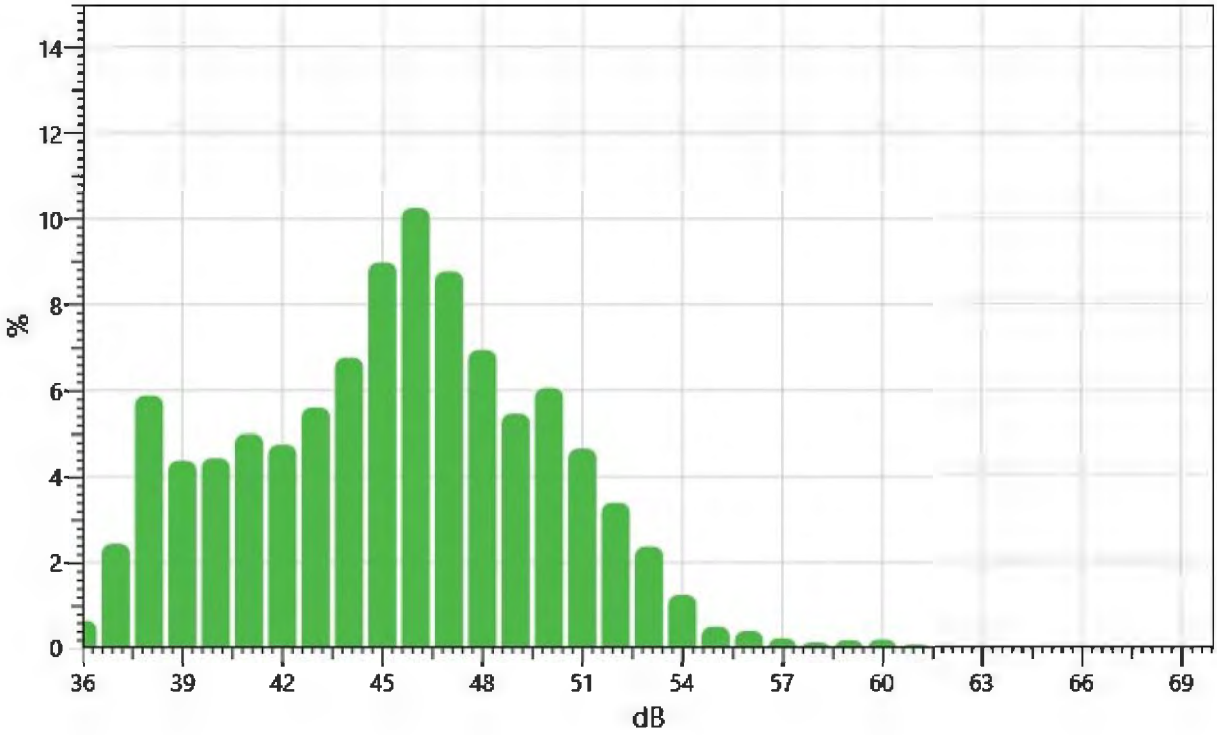
Statistics Table

dB:	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
36:	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.13	0.17	0.25	0.64
37:	0.36	0.19	0.14	0.16	0.10	0.13	0.17	0.25	0.46	0.47	2.44
38:	0.60	0.61	0.49	0.61	0.58	0.68	0.73	0.48	0.56	0.55	5.88
39:	0.48	0.35	0.39	0.37	0.39	0.42	0.57	0.60	0.48	0.34	4.37
40:	0.53	0.38	0.41	0.42	0.41	0.44	0.47	0.44	0.40	0.53	4.43
41:	0.49	0.38	0.43	0.40	0.39	0.47	0.55	0.59	0.72	0.59	5.00
42:	0.42	0.40	0.43	0.49	0.54	0.50	0.53	0.49	0.46	0.48	4.75
43:	0.50	0.48	0.59	0.49	0.55	0.57	0.61	0.58	0.53	0.72	5.60
44:	0.73	0.64	0.67	0.66	0.52	0.65	0.59	0.63	0.79	0.89	6.76
45:	1.13	0.84	0.68	0.88	0.94	0.84	0.96	0.86	0.95	0.91	8.98
46:	1.00	0.96	1.08	0.97	0.95	0.94	1.03	1.05	1.09	1.20	10.25
47:	1.10	0.99	0.81	0.71	0.87	0.87	0.87	0.83	0.92	0.82	8.77
48:	0.85	0.96	0.57	0.74	0.67	0.59	0.66	0.65	0.64	0.61	6.94
49:	0.61	0.56	0.61	0.45	0.45	0.44	0.46	0.71	0.57	0.59	5.46

50:	0.65	0.65	0.62	0.49	0.56	0.67	0.52	0.56	0.67	0.67	6.06
51:	0.58	0.60	0.48	0.74	0.37	0.41	0.40	0.43	0.33	0.31	4.66
52:	0.28	0.33	0.52	0.50	0.30	0.38	0.35	0.24	0.24	0.26	3.39
53:	0.21	0.29	0.23	0.21	0.19	0.22	0.23	0.31	0.24	0.24	2.37
54:	0.27	0.22	0.17	0.12	0.12	0.09	0.08	0.06	0.07	0.05	1.25
55:	0.06	0.06	0.05	0.04	0.04	0.04	0.04	0.06	0.06	0.05	0.51
56:	0.04	0.03	0.03	0.02	0.07	0.04	0.07	0.06	0.03	0.03	0.41
57:	0.03	0.03	0.02	0.04	0.02	0.03	0.02	0.02	0.02	0.01	0.23
58:	0.02	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.02	0.01	0.14
59:	0.01	0.01	0.01	0.02	0.03	0.02	0.02	0.01	0.02	0.03	0.19
60:	0.05	0.03	0.01	0.02	0.02	0.01	0.01	0.02	0.01	0.02	0.21
61:	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.09
62:	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.06
63:	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.05
64:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
65:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
66:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
67:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
68:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Statistics Chart

S068_BIJ050019_25082023_150625: Statistics Chart

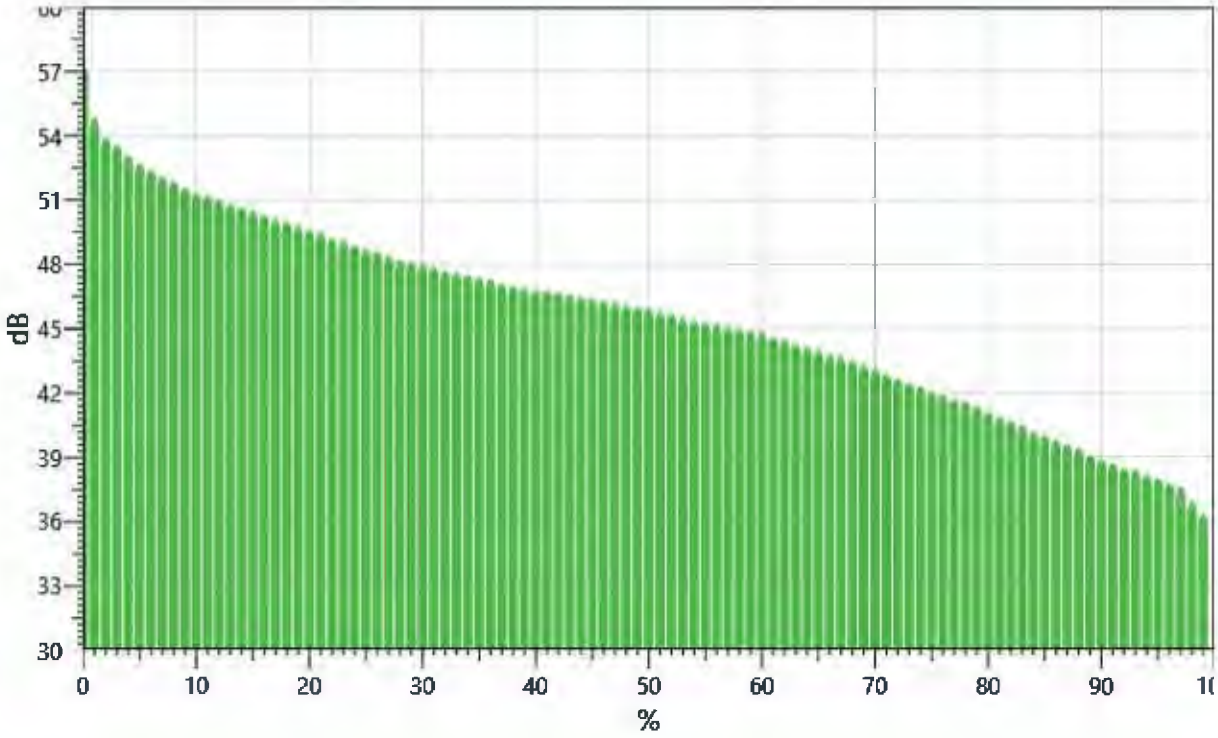


Exceedance Table

.	0%	1%	2%	3%	4%	5%	6%	%7	%8	%9
0%:		57.2	54.8	53.9	53.6	53.1	52.7	52.4	52.1	51.9
10%:	51.6	51.3	51.2	51.0	50.8	50.7	50.5	50.3	50.1	50.0
20%:	49.8	49.6	49.5	49.2	49.1	48.9	48.7	48.6	48.4	48.2
30%:	48.1	48.0	47.9	47.7	47.6	47.5	47.4	47.3	47.1	47.0
40%:	46.9	46.8	46.8	46.7	46.6	46.5	46.4	46.3	46.2	46.1
50%:	46.0	45.9	45.8	45.7	45.5	45.4	45.3	45.2	45.1	45.0
60%:	44.9	44.8	44.6	44.5	44.3	44.1	44.0	43.8	43.7	43.5
70%:	43.3	43.1	42.9	42.7	42.5	42.3	42.1	41.9	41.7	41.6
80%:	41.4	41.1	40.9	40.7	40.5	40.2	40.0	39.8	39.6	39.4
90%:	39.1	38.9	38.7	38.5	38.4	38.2	38.0	37.8	37.6	36.9
100%:	36.3									

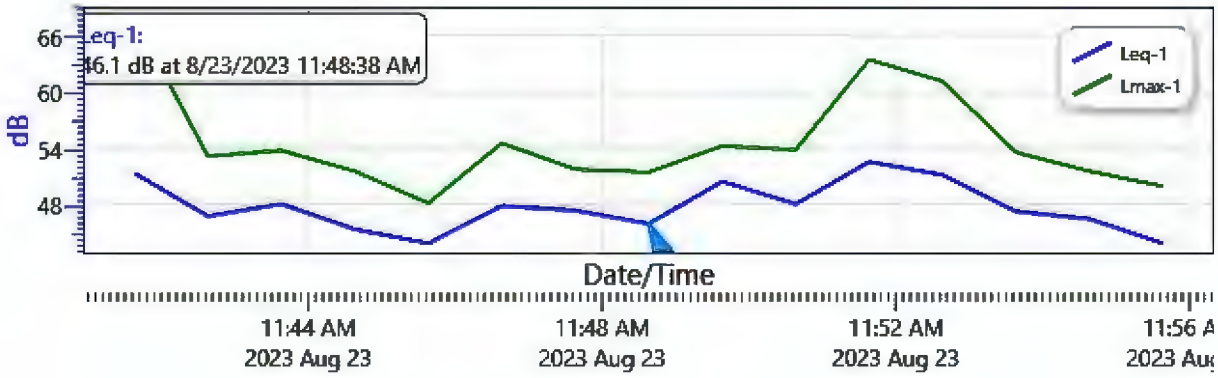
Exceedance Chart

S068_BIJ050019_25082023_150625: Exceedance Chart



Logged Data Chart

S068_BIJ050019_25082023_150625: Logged Data Chart



Session Report

Location #4

Information Panel

Name	S067_BIJ050019_25082023_150623
Start Time	8/23/2023 11:17:15 AM
Stop Time	8/23/2023 11:32:15 AM
Device Name	BIJ050019
Model Type	SoundPro DL
Device Firmware Rev	R.13H
Comments	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	51.4 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Bandwidth	1	OFF
Exchange Rate	2	5 dB	Weighting	2	A
Response	2	FAST			

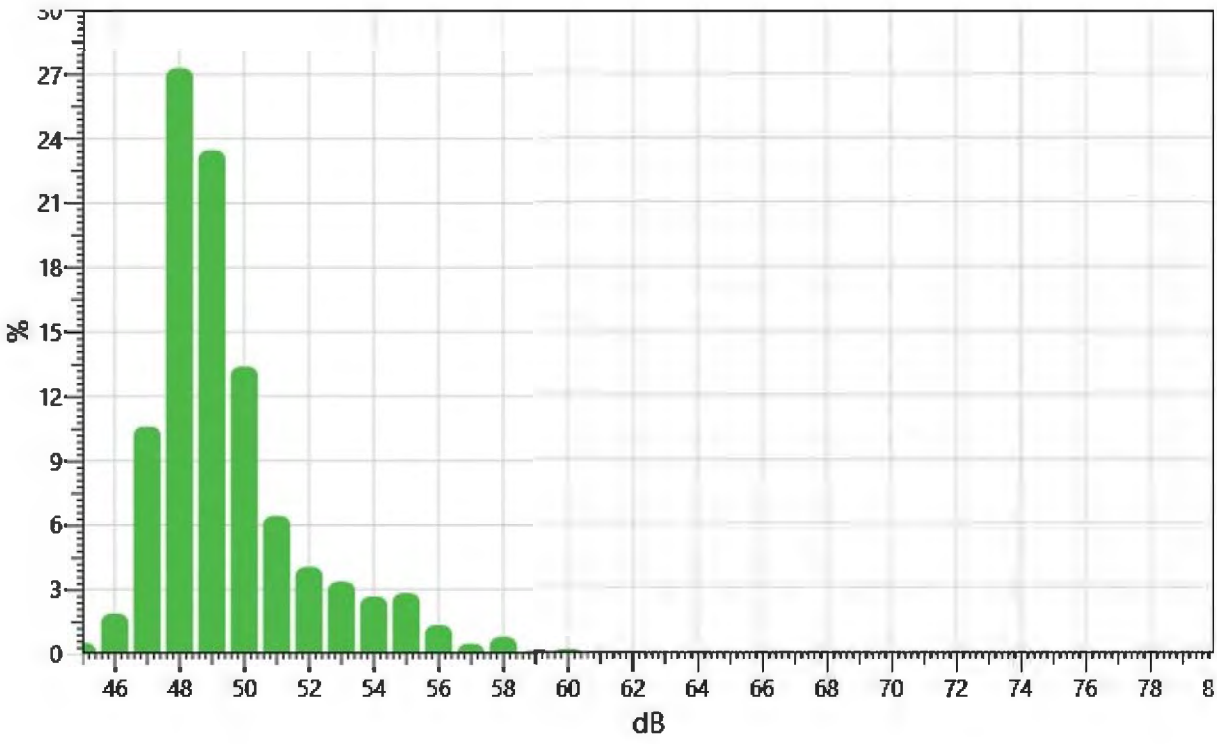
Statistics Table

dB:	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
45:	0.01	0.08	0.04	0.07	0.05	0.04	0.05	0.06	0.04	0.07	0.52
46:	0.09	0.19	0.13	0.18	0.12	0.10	0.21	0.21	0.32	0.33	1.88
47:	0.62	0.85	0.82	0.69	0.77	0.91	0.99	0.90	1.78	2.27	10.60
48:	2.90	3.11	1.79	2.33	2.50	2.71	2.45	2.69	3.46	3.35	27.30
49:	2.86	2.65	2.55	2.97	2.46	2.62	1.97	1.89	1.80	1.69	23.47
50:	1.75	1.34	1.27	1.32	1.09	1.18	1.36	1.45	1.42	1.21	13.39
51:	0.85	0.75	0.49	0.83	0.59	0.63	0.53	0.66	0.56	0.53	6.43
52:	0.55	0.40	0.48	0.47	0.44	0.34	0.33	0.35	0.35	0.36	4.06
53:	0.24	0.31	0.39	0.37	0.29	0.34	0.39	0.37	0.35	0.32	3.37
54:	0.35	0.41	0.18	0.22	0.22	0.23	0.20	0.35	0.28	0.24	2.68
55:	0.24	0.29	0.37	0.38	0.36	0.35	0.23	0.26	0.17	0.19	2.84
56:	0.18	0.17	0.19	0.26	0.12	0.07	0.09	0.07	0.11	0.10	1.35
57:	0.05	0.05	0.03	0.03	0.04	0.05	0.05	0.07	0.07	0.04	0.47
58:	0.07	0.07	0.05	0.11	0.10	0.13	0.09	0.08	0.06	0.05	0.79

59:	0.01	0.02	0.03	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.16
60:	0.02	0.03	0.04	0.02	0.02	0.01	0.01	0.01	0.01	0.02	0.20
61:	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.03	0.15
62:	0.03	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
63:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
64:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
65:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
66:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
67:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
68:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
69:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
70:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
71:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
72:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01

Statistics Chart

S067_BIJ050019_25082023_150623: Statistics Chart



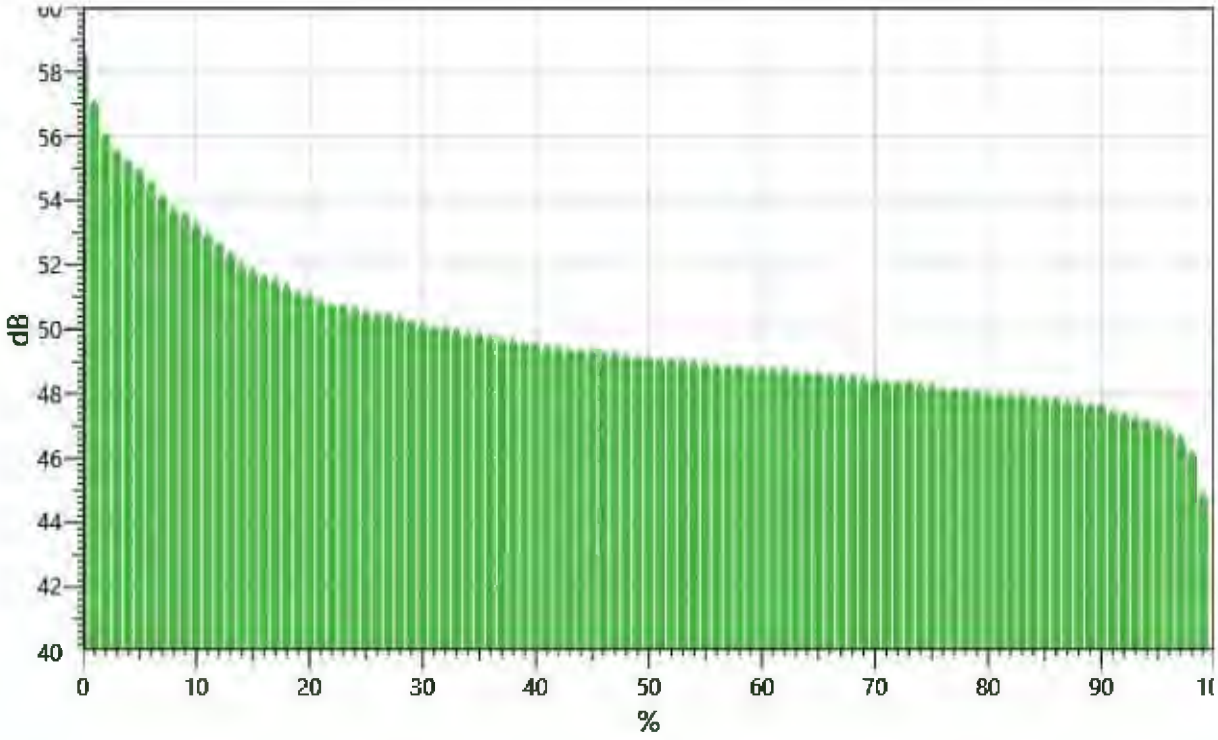
Exceedance Table

.	0%	1%	2%	3%	4%	5%	6%	%7	%8	%9
0%:		58.6	57.1	56.1	55.6	55.3	55.0	54.6	54.2	53.8

10%:	53.6	53.3	53.0	52.7	52.4	52.1	51.9	51.7	51.6	51.4
20%:	51.2	51.1	50.9	50.8	50.8	50.7	50.6	50.5	50.5	50.4
30%:	50.3	50.2	50.1	50.1	50.0	49.9	49.9	49.8	49.7	49.7
40%:	49.6	49.6	49.5	49.5	49.4	49.4	49.4	49.3	49.3	49.2
50%:	49.2	49.2	49.1	49.1	49.1	49.0	49.0	48.9	48.9	48.9
60%:	48.8	48.8	48.8	48.8	48.7	48.7	48.7	48.6	48.6	48.6
70%:	48.5	48.5	48.4	48.4	48.4	48.3	48.3	48.2	48.2	48.2
80%:	48.1	48.0	48.0	48.0	48.0	47.9	47.9	47.9	47.8	47.8
90%:	47.7	47.7	47.5	47.4	47.3	47.2	47.1	46.9	46.7	46.2
100%:	44.9									

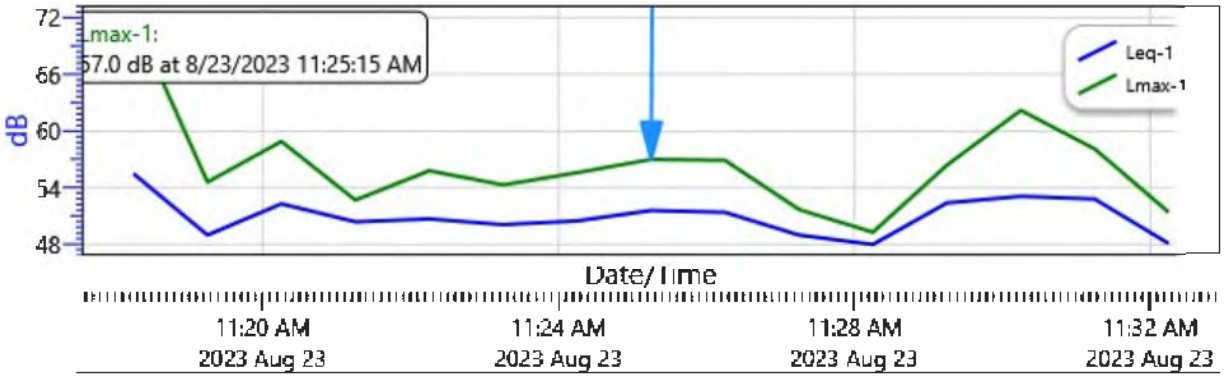
Exceedance Chart

S067_BIJ050019_25082023_150623: Exceedance Chart



Logged Data Chart

S067_BIJ050019_25082023_150623: Logged Data Chart



APPENDIX – B
FHWA - RCNM

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 08/29/2023
Case Description: Cassia and Daisy Industrial Project – Adelanto

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential to east	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	360.0	0.0
Concrete Mixer Truck	No	40		78.8	360.0	0.0
Compressor (air)	No	40		77.7	360.0	0.0
Concrete Pump Truck	No	20		81.4	360.0	0.0
Crane	No	16		80.6	360.0	0.0
Dozer	No	40		81.7	360.0	0.0
Dump Truck	No	40		76.5	360.0	0.0
Excavator	No	40		80.7	360.0	0.0
Flat Bed Truck	No	40		74.3	360.0	0.0
Front End Loader	No	40		79.1	360.0	0.0
Generator	No	50		80.6	360.0	0.0
Grader	No	40	85.0		360.0	0.0
Man Lift	No	20		74.7	360.0	0.0
Paver	No	50		77.2	360.0	0.0
Pickup Truck	No	40		75.0	360.0	0.0
Pneumatic Tools	No	50		85.2	360.0	0.0
Roller	No	20		80.0	360.0	0.0
Scraper	No	40		83.6	360.0	0.0
Tractor	No	40	84.0		360.0	0.0
Welder / Torch	No	40		74.0	360.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Backhoe	60.4	56.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Mixer Truck	61.7	57.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compressor (air)	60.5	56.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Pump Truck	64.3	57.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	63.4	55.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	64.5	60.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	59.3	55.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	63.6	59.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	57.1	53.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	62.0	58.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	63.5	60.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	67.9	63.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	57.6	50.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	60.1	57.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	57.9	53.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pneumatic Tools	68.0	65.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	62.9	55.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	66.4	62.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	66.9	62.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	56.9	52.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	68.0	72.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Elementary School	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	4800.0	0.0
Concrete Mixer Truck	No	40		78.8	4800.0	0.0
Compressor (air)	No	40		77.7	4800.0	0.0
Concrete Pump Truck	No	20		81.4	4800.0	0.0
Crane	No	16		80.6	4800.0	0.0
Dozer	No	40		81.7	4800.0	0.0
Dump Truck	No	40		76.5	4800.0	0.0
Excavator	No	40		80.7	4800.0	0.0
Flat Bed Truck	No	40		74.3	4800.0	0.0
Front End Loader	No	40		79.1	4800.0	0.0
Generator	No	50		80.6	4800.0	0.0
Grader	No	40	85.0		4800.0	0.0
Man Lift	No	20		74.7	4800.0	0.0
Paver	No	50		77.2	4800.0	0.0
Pickup Truck	No	40		75.0	4800.0	0.0
Pneumatic Tools	No	50		85.2	4800.0	0.0
Roller	No	20		80.0	4800.0	0.0
Scraper	No	40		83.6	4800.0	0.0
Tractor	No	40	84.0		4800.0	0.0
Welder / Torch	No	40		74.0	4800.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	37.9	33.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Mixer Truck	39.2	35.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compressor (air)	38.0	34.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Pump Truck	41.8	34.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	40.9	32.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	42.0	38.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	36.8	32.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	41.1	37.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	34.6	30.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	39.5	35.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	41.0	38.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	45.4	41.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	35.1	28.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	37.6	34.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	35.4	31.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pneumatic Tools	45.5	42.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	40.4	33.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	43.9	40.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	44.4	40.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	34.4	30.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	45.5	49.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

APPENDIX – C
Traffic Noise Model

REPORT:	**Results: Sound Levels - No Barrier Objects**		
TNM VERSION	3.1.7970.37608	REPORT DATE:	30 August 2023
CALCULATED WITH:	3.1.7970.37608	CALCULATION DATE:	8/30/2023 3:46:58 PM
CASE:	Cassia & Daisey Existing	ORGANIZATION:	KPC EHS Consultants
UNITS:	English	ANALYSIS BY:	kpcarr
DEFAULT GROUND TYPE:	HardSoil	PROJECT/CONTRACT	
ATMOSPHERICS:	68°F, 50%Average	Average pavement type shall be used unless a state highway agency substantiates the use of a different type with approval FHWA.	
PAVEMENT TYPE(S) USED:			

Receiver				Modeled Traffic Noise Levels				
				LAeq		Increase over Existing		
Name	No.	Nb. R.R.	Existing LAeq	Calc.	Absolute Criterion	Calc.	Relative Criterion	Type of Impact
			dBA	dBA	dBA	dBA	dBA	
R-1	1	1	---	62.9	0.0	---	---	Sound Level
R-2	2	1	---	61.5	0.0	---	---	Sound Level
R-3	3	1	---	65.9	0.0	---	---	Sound Level
R-4	4	1	---	64.4	0.0	---	---	Sound Level
R-5	5	1	---	57.4	0.0	---	---	Sound Level
R-6	6	1	---	60.8	0.0	---	---	Sound Level
R-7	7	1	---	61.0	0.0	---	---	Sound Level

REPORT:	**Results: Sound Levels - No Barrier Objects**		
TNM VERSION	3.1.7970.37608	REPORT DATE:	30 August 2023
CALCULATED WITH:	3.1.7970.37608	CALCULATION DATE:	8/30/2023 3:46:58 PM
CASE:	Cassia & Daisey Existing + Project	ORGANIZATION:	KPC EHS Consultants
UNITS:	English	ANALYSIS BY:	kpcarr
DEFAULT GROUND TYPE:	HardSoil	PROJECT/CONTRACT	
ATMOSPHERICS:	68°F, 50%Average	Average pavement type shall be used unless a state highway agency substantiates the use of a different type with approval FHWA.	
PAVEMENT TYPE(S) USED:			

Receiver				Modeled Traffic Noise Levels				
				LAeq		Increase over Existing		
Name	No.	Nb. R.R.	Existing LAeq	Calc.	Absolute Criterion	Calc.	Relative Criterion	Type of Impact
			dBA	dBA	dBA	dBA	dBA	
R-1	1	1	---	62.9	0.0	---	---	Sound Level
R-2	2	1	---	61.5	0.0	---	---	Sound Level
R-3	3	1	---	65.9	0.0	---	---	Sound Level
R-4	4	1	---	64.4	0.0	---	---	Sound Level
R-5	5	1	---	57.4	0.0	---	---	Sound Level
R-6	6	1	---	60.8	0.0	---	---	Sound Level
R-7	7	1	---	61.0	0.0	---	---	Sound Level