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

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

www.mdacoustics.com

January 23, 2024

Ms. Sharon Ying
R.D. Olson Development
520 Newport Center Drive, Ste 600
Newport Beach, CA 92660

Subject: Oak Creek Heritage Lodge– Noise Study and Abatement Recommendations
City of Sedona, AZ

Dear Ms. Ying:

MD Acoustics, LLC (MD) is pleased to provide this noise study and recommendations report as it relates to proposed development of the Oak Creek Heritage Lodge located at 115 Schnebly Hill Road, Sedona, AZ. This study has been prepared based on the comments from the owner regarding operations at the proposed small unique boutique hotel. The project was assessed with regard to potential operations and event noise, such as weddings, and other gatherings. For your reference, Appendix A contains a glossary of acoustical terms.

1.0 Assessment Overview

This assessment evaluates the Project Noise Levels from the event lawn and outdoor pool areas and compares the projected noise levels to the local noise regulations. Figure 1 below shows the site location, with a red box around the area under evaluation.

Figure 1: Site Location

MD traveled to the project site and performed short-term baseline noise measurements to gather the existing ambient condition. In addition to measuring the existing ambient condition, MD simulated event noise at the location of the proposed event lawn and measured the noise propagation at the property line. Using SoundPlan acoustical modeling software, MD generated noise contours to demonstrate how the sound will propagate from the project location to the surroundings once the project is built out. Recommendations are provided to ensure that the project operations meet the acoustical requirements of the City's noise ordinance.

2.0 Local Acoustical Requirements

The City of Sedona Municipal Code addresses noise in terms of nuisances, disturbances, and reasonability.

Section 8-25-030 (B) of the Muncipal Code states: "For the purpose of enforcement of the provisions of this section, noise level shall be measured on the A-weighted scale with a sound level meter. The meter shall be set for slow response speed, except that for impulse noises or rapidly varying sound levels, fast response speed may be used. Prior to measurement, the meter shall be verified, and adjusted according to the manufacturer's specifications by means of an acoustical calibrator."

Section 8-25-030 (C) of the City Code says the following: "It is unlawful for any person to create any noise which would cause the noise level measured from any location at or within the property line of the complainant's property to exceed the following community noise standards for more than 15 minutes in commercial areas and industrial areas and for more than five minutes in residential areas:

Table 1: Community Noise Standards

Zone	Time	Noise Standard Maximum dB(A)
Residential Area	10:00 p.m. – 7:00 a.m.	50
	7:00 a.m. - 10:00 p.m.	60
Commercial Area	10:00 p.m. – 7:00 a.m.	65
	7:00 a.m. - 10:00 p.m.	65
Industrial Area	10:00 p.m. – 7:00 a.m.	65
	7:00 a.m. - 10:00 p.m.	70

If the measurement location is on a boundary between two zoning districts, the lower noise standard shall apply. [Ord. 2021-08 § 1, 11-9-2021; Res. 2021-28 Exh. A, 11-9-2021]."

3.0 Study Method and Procedure

Existing Noise Condition/Baseline

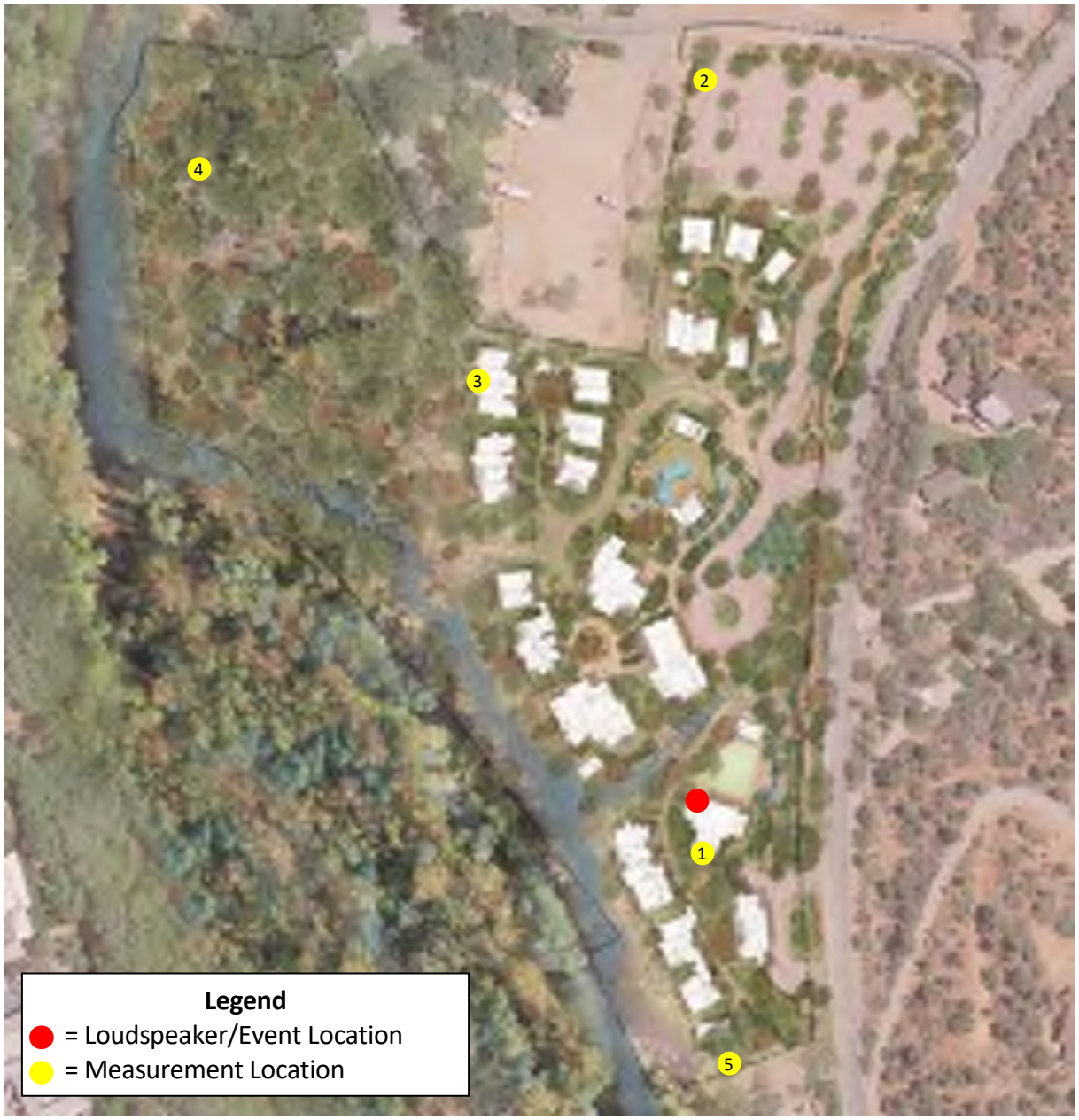
MD utilized Type 1 sound level meters that meet ANSI S1.4 engineering standards to record second-by-second noise data. Six (6) short-term, five-minute measurements were conducted at the project site from 11:50 AM to 1:50 PM on August 3, 2022. Noise data indicate that the ambient noise level ranged from 47 to 51 dBA Leq. Additional field notes and photographs of the ambient condition measurements are provided in Appendix B.

The project site is surrounded by commercial property to the south, by commercial and lodging property to the west across Oak Creek, by residential to the northeast across Bear Wallow Lane, and by residential to the east across Schnebly Hill Road.

Simulated Event Measurement

While at the project site, MD simulated a live event at the location of the proposed event lawn between 12:30 PM and 1:30 PM on August 3, 2022. Two (2) Thump 15 loudspeakers were set up at the approximate location of the event lawn, and the noise was measured at five (5) points around the property. Figure 2 indicates the location of the audio equipment and measurement locations for the simulated event. Additional field notes and photographs of the simulated event measurements are provided in Appendix B.

Figure 2: Simulated Wedding Event



The noise levels were calibrated to 93 dBA at a distance of 3 ft from the speakers. At receptor locations R2, R3, and R4, the noise from the simulated event was less than the background noise level. At location R5, the noise from the simulated event was about the same as the background noise level.

Figure 3 shows pictures of the simulated event measurements near receptors 1 and 2. More detailed pictures and field measurements are available in Appendix B.

Figure 3: Simulated Event Measurements

Stationary Noise Level Prediction Modeling

SoundPlan Acoustic Modeling Software (SP) was utilized to model the operational noise levels from the project site. SP acoustical modeling software is capable of evaluating stationary noise sources (e.g., loudspeakers for live events, DJs, parking lots, crowds, loading/unloading, patios, etc.) and much more. SP's software utilizes algorithms (based on inverse square law) 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. In addition, SP can model the noise sources as point sources, line sources, and area sources. SP is typically accurate within ± 3 dB.

The future worst-case noise level projections were modeled using measured sound level data for the stationary on-site sources. The model incorporates the topography at the project site, building heights, and shows how sound propagates to the surrounding area. Table 1 below outlines the reference noise levels used to calibrate the models. Potential solutions to reduce the noise impact to adjacent properties were compared using these reference sound levels as a baseline condition and evaluated based on the noise level projections. See Appendix C for the modeling outputs for each of the scenarios explored.

Table 1: Reference Sound Level Measurements for SoundPlan Model

Measurement Location	Measured Sound Level[2] (dBA)
3 ft from speakers[1]	93
3 ft from pool area	64

Notes:

1. See Figure 2 for the speaker locations.

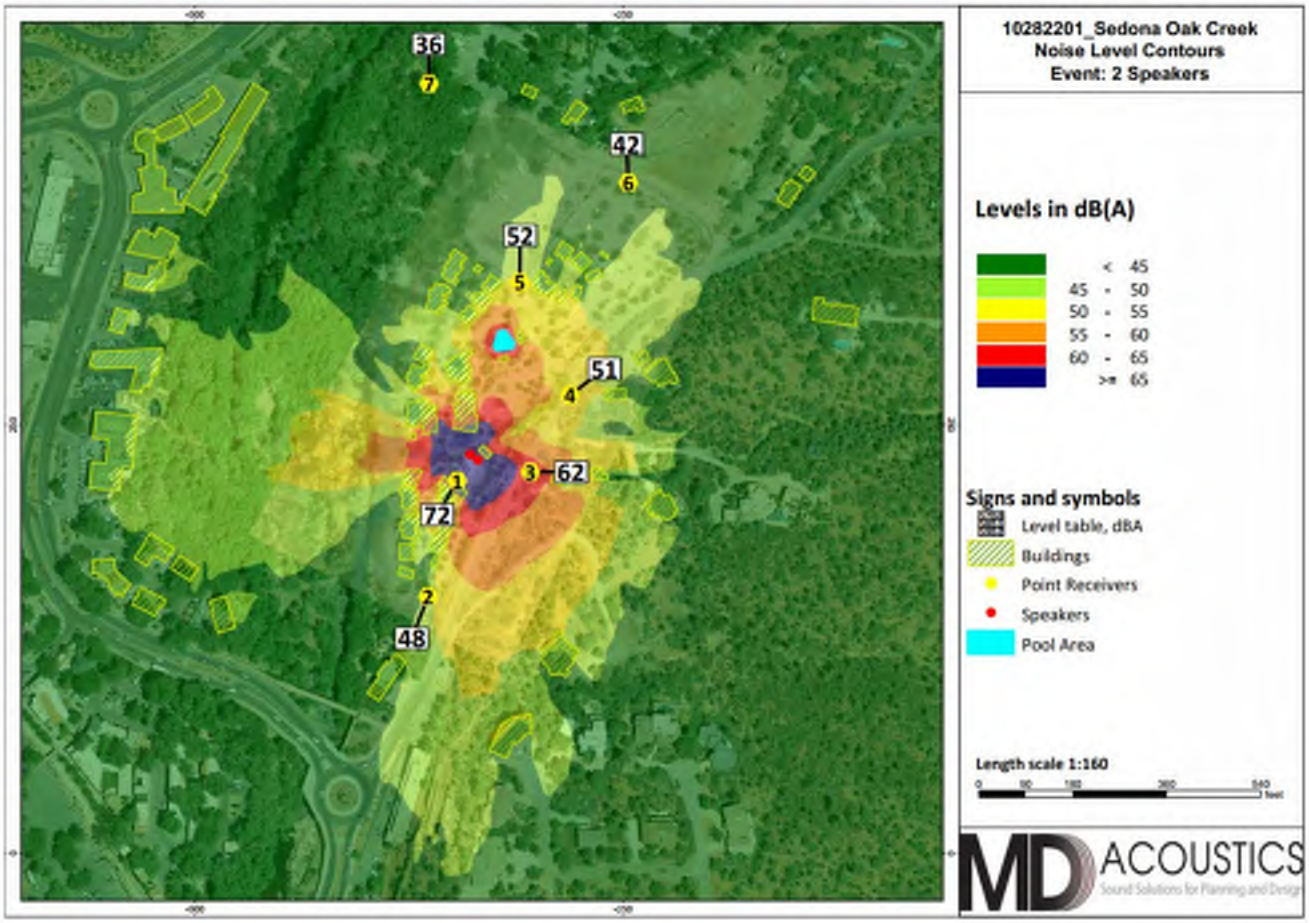
2. The measured levels used to calibrate the model are based on real-world sound level measurements.

4.0 Findings and Recommendations

4.1 Baseline Condition

Figure 4 illustrates the Baseline Condition SP model. This represents the noise level when an outdoor wedding reception is held and when the pool is occupied simultaneously. The pool area includes the water and the surrounding deck areas where people are talking. The speakers for the outdoor reception are oriented to face Receptor 1. The noise levels modeled are typical of other wedding events that MD has monitored at similar venues.

Figure 4: Existing Condition/Baseline



Receptors 2 through 7 represent the nearest property lines. The noise levels due to the boutique hotel are below the residential and commercial daytime (7 am to 10 pm) limits of 60 dBA and 65 dBA, respectively, at Receptors 2, 4, 5, 6, and 7. The noise levels due to the boutique hotel have the potential to exceed the 60 dBA limit at Receptor 3; therefore, MD evaluated three (3) potential noise abatement options and compared them to the baseline condition shown in Figure 4.

Sound Barrier: This situation was modeled to show the effect of placing a sound barrier to screen the event from the surroundings. This scenario assumes an 8' tall sound wall designed to lower the noise level at the properties to the east of the event lawn. See Figure 5 below.

Figure 5: Sound Barrier Scenario

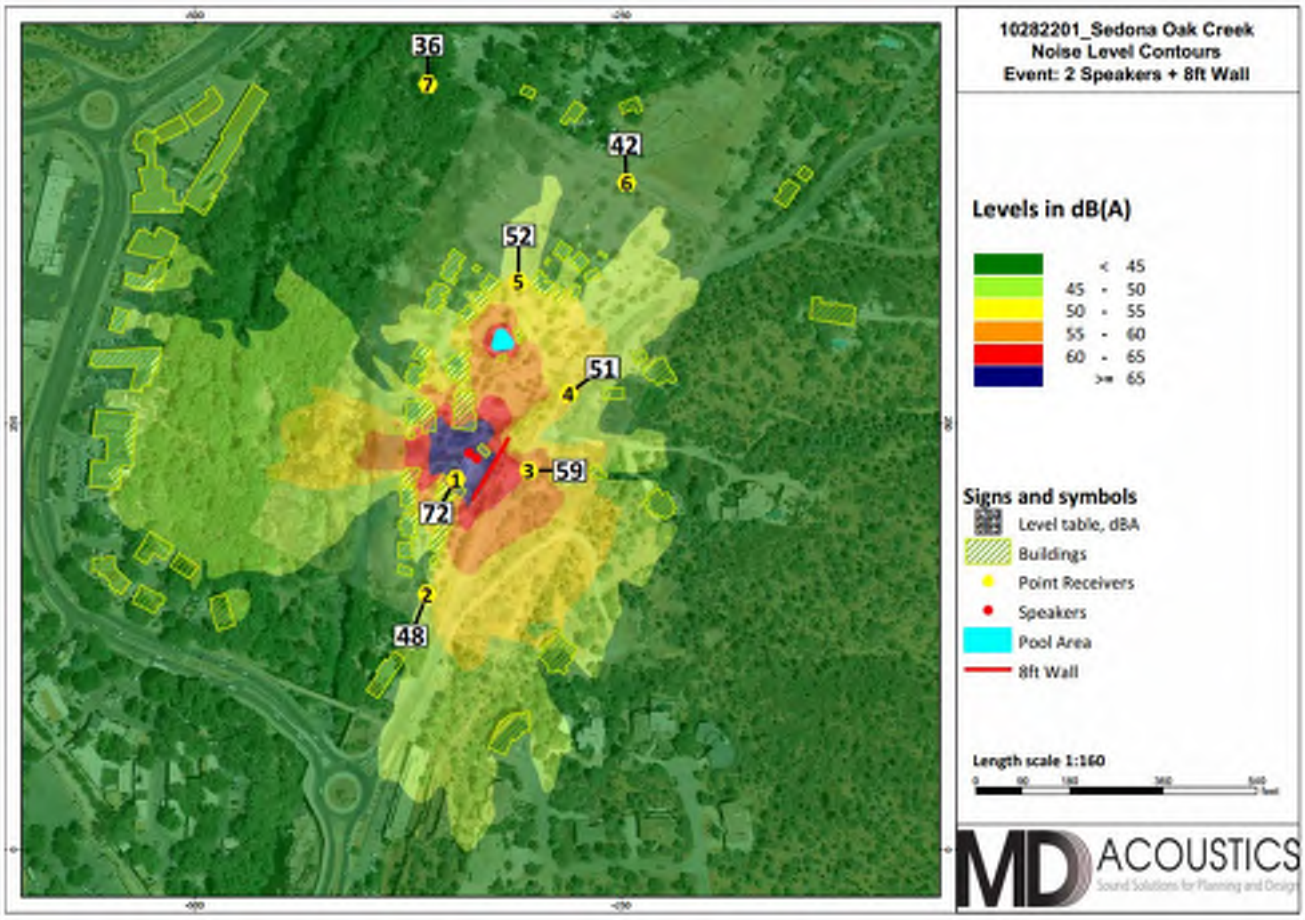


Table 2 provides the characteristics associated with changes in noise levels. When evaluating different scenarios, a 1-2 dB improvement is nominal (i.e., not noticeable), a 3-5 dB improvement is good, and a 10-15 dB improvement is excellent.

Table 2: Change in Noise Level Characteristics[1]

Changes in Intensity Level, dBA	Changes in Apparent Loudness
1	Not perceptible
3	Just perceptible
5	Clearly noticeable
10	Twice (or half) as loud

1. https://www.fhwa.dot.gov/environMent/noise/regulations_and_guidance/polguide/polguide02.cfm

This solution provides a three (3) dBA decrease in sound level at Receptor 3, in the acoustic shadow zone of the wall, which would be just perceptible. The wall could consist of an 8 ft tall wall or a 3 ft tall berm with a 5 ft tall wall. With the wall in place, the noise level at all adjacent uses complies with the Sedona residential and commercial daytime limits.

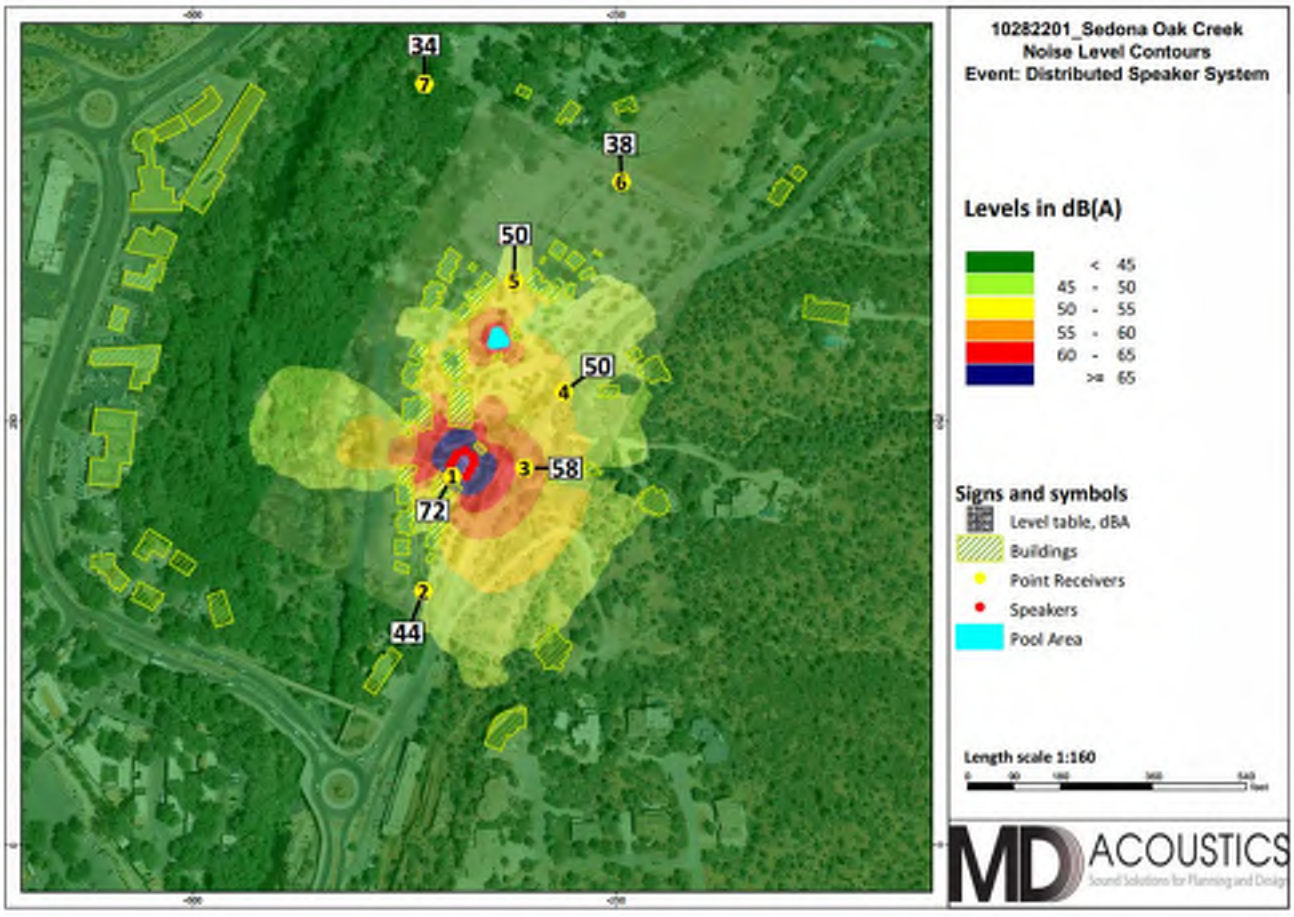
Distributed Audio System: This situation was modeled to show the effect of having more loudspeakers distributed around the space with a lower output volume. This system would be installed and owned by the small unique boutique hotel, and music providers would plug into the house system, which would include noise limiters to prevent exceeding a certain noise level. This system incorporates more loudspeakers, each set at a lower volume to bring the amplified sound closer to its audience. Table 3 below compares the sound level of each speaker from the baseline condition to the sound level of each speaker in the distributed audio scenario.

Table 3: Speaker Level at 3 ft

Scenario	Source Level (dBA @ 3 ft)
Existing Condition/Baseline	93
Distributed Audio System	83

Figure 6 shows the effect of implementing a distributed audio system around the event space to lower the overall noise levels.

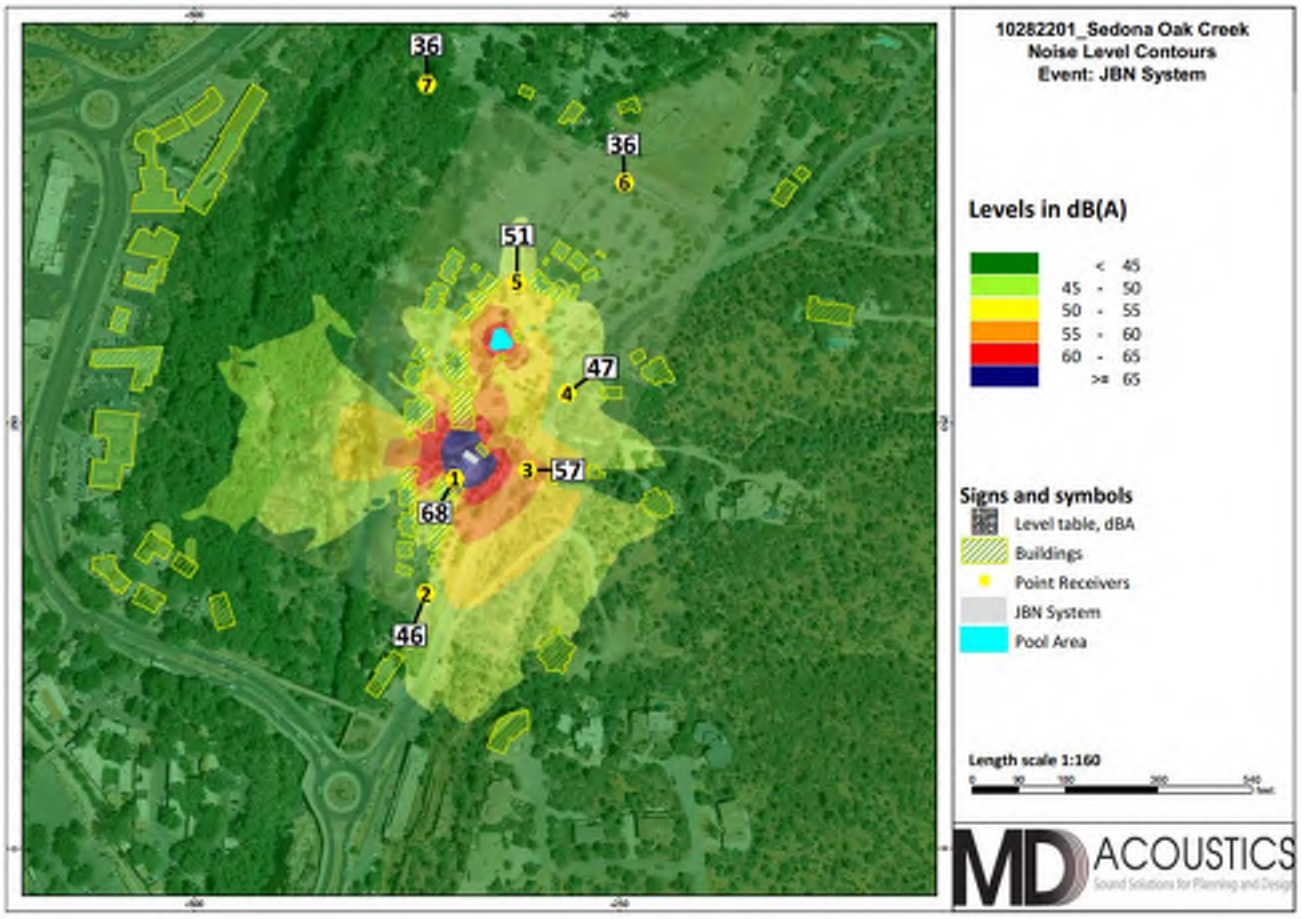
Figure 6: Distributed Audio Scenario



As shown in Figure 6, the noise levels are below the residential and commercial noise limits at all adjacent uses.

JBN Sound Ceiling System: This situation was modeled to show the effect of having a JBN Sound Ceiling (https://jbnsoundsolutions.com/products-%26-installations) designed and installed at the location of the dance floor. This system incorporates loudspeaker panels designed to produce a very directional sound field. This enables venues to produce sound levels in the 95 dB range immediately under the system while minimizing acoustical impact to the surroundings. See Figure 7 below.

Figure 7: JBN Sound Ceiling Scenario



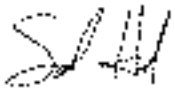
5.0 Conclusions

MD is pleased to provide this noise study and recommendations for the Oak Creek Heritage Lodge. The existing ambient noise condition was measured at several locations around the property to establish the baseline noise levels at the project site. An event was simulated on 8/3/2022 to provide real-world reference sound levels, and the measured noise levels were used to evaluate potential noise control solutions using SoundPlan acoustical modeling software.

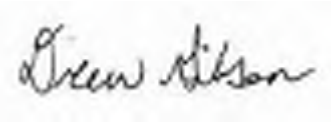
The noise levels due to the Oak Creek Heritage Lodge were compared with the residential and commercial noise limits set forth in the Sedona Municipal Code. Several design options were provided to ensure that the project will comply with the City Code.

If you have any questions regarding this analysis, please call our office at (602) 774-1950.

Sincerely,
MD Acoustics, LLC



Samuel Hord, INCE
Acoustical Consultant



Drew Gibson
Acoustical Consultant

Appendix A

Glossary of Acoustical Terms

Glossary of Terms

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.

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

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

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

dB(Z): Z-weighted sound level (see definition of dB 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.

Human Sensitivity to Sound: In general, the healthy human ear can hear between 20 Hz to 20,000 Hz. Frequencies below 125 Hz are typically associated with low frequencies or bass. Frequencies between 125 Hz and 5,000 Hz are typically associated with mid-range tones. Finally, frequencies between 5,000 and 20,000Hz are typically associated with higher range tones.

The human ear is sensitive to changes in noise levels, depending on the frequency. Generally speaking, the healthy human ear is most sensitive to sounds between 1,000 Hz and 5,000 Hz (A-weighted scale) and perceives a sound within that range as being more intense than a sound with a higher or lower frequency with the same magnitude. At lower and higher frequencies, the ear can become less sensitive depending on a number of factors. Table 1 provides a brief summary of how humans perceive changes in noise levels.

Table 1: Change in Noise Level Characteristics[1]

Changes in Intensity Level, dBA	Changes in Apparent Loudness
1	Not perceptible
3	Just perceptible
5	Clearly noticeable
10	Twice (or half) as loud

https://www.fhwa.dot.gov/environMent/noise/regulations_and_guidance/polguide/polguide02.cfm

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 and L99, etc.

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

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.

Appendix B
Field Sheets

5-Minute Continuous Noise Measurement Datasheet

Project Name: Sedona Oak Creek

Project: #/Name: 1028-2022-001

Site Address/Location: 155 Schnebly Hill Rd

Date: 08/03/2022

Field Tech/Engineer: Drew Gibson, Matthew Gyles (ambient)

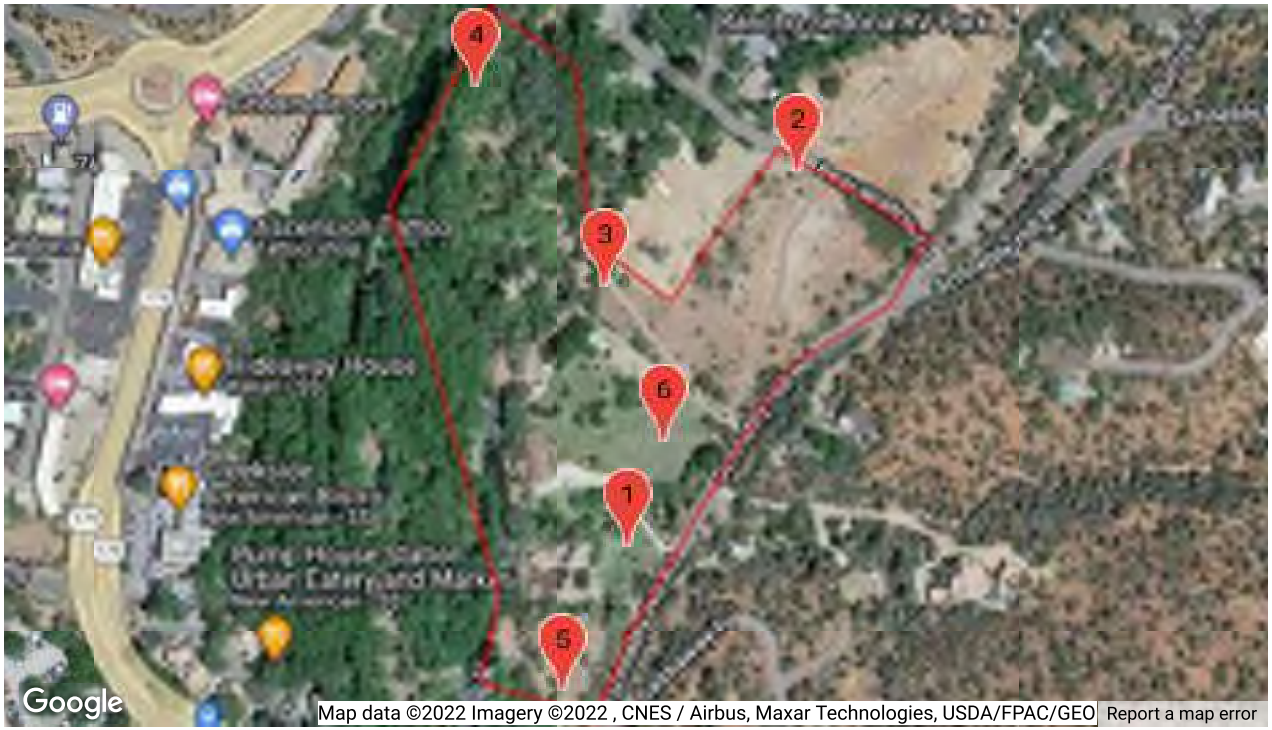
Site Observations:

Mostly sunny. Some clouds during the later measurements. Slight winds off and on throughout entire measurement period.

Sound Meter: XL2, NTI **SN:** A2A-16164-E0, A2

Settings: A-weighted, slow, 1-sec, 5-minute interval

Site Id: R1 Speaker Location, Ambient, R2 Northern PL Road, Ambient, R3 South of RV park, Ambient, R4 Northern PL Creek, Ambient, R5 Southern PL, R6 115 Lawn, Ambient



MD ACOUSTICS

5-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name: Sedona Oak Creek

Site Address/Location: 155 Schnebly Hill Rd

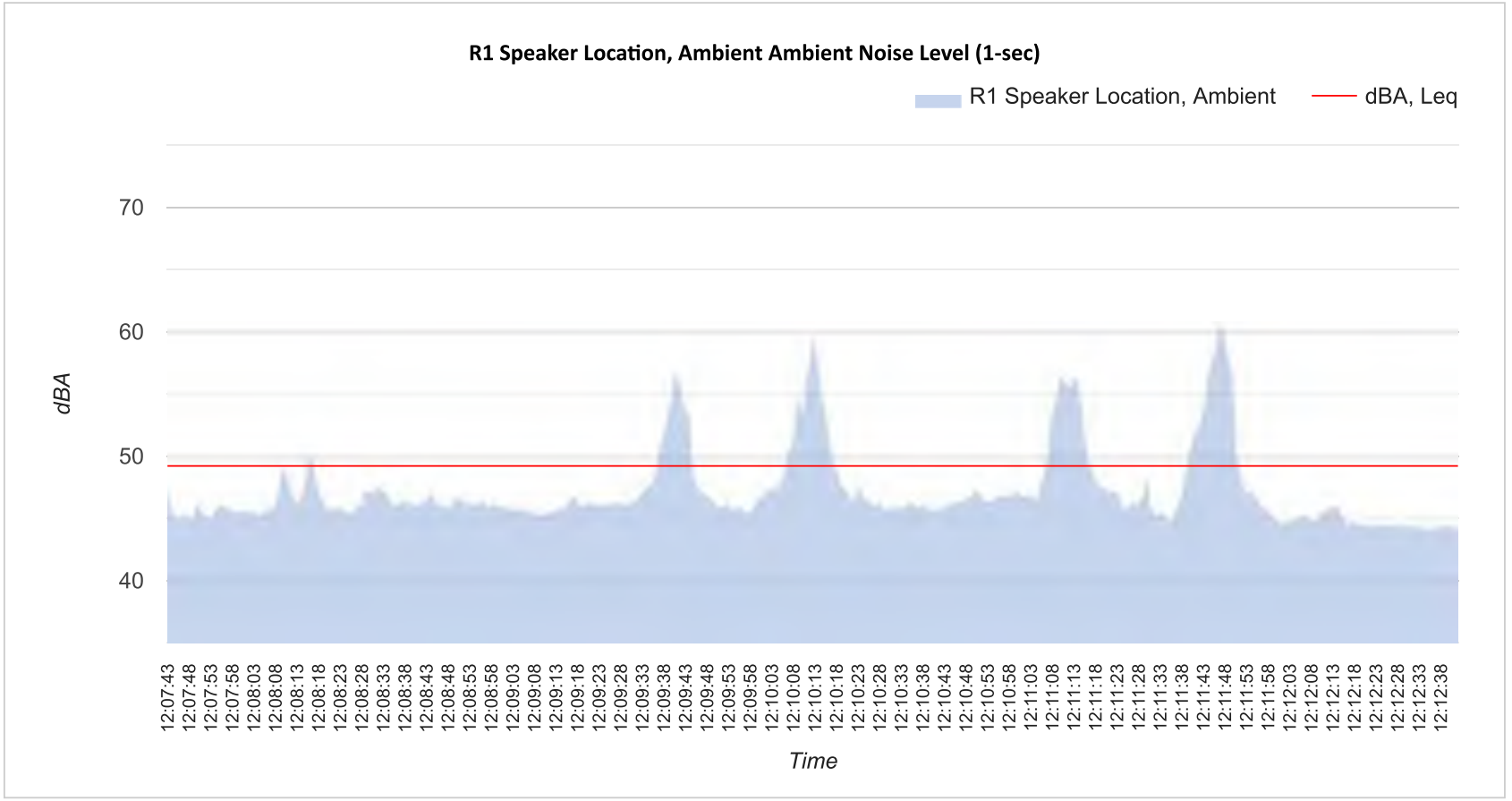
Site Id: R1 Speaker Location, Ambient, R2 Northern PL Road, Ambient, R3 South of RV park, Ambient, R4 Northern PL Creek, Ambient, R5 Southern PL, R6 115 Lawn, Ambient

Table 1: Baseline Noise Measurement Summary

Location	Start	Stop	Leq	Lmax	Lmin	L2	L8	L25	L50	L90
R1 Speaker Location, Ambient	12:07 PM	12:13 PM	49.2	60.1	44.1	57.4	53.6	47.2	46.2	44.9
R2 Northern PL Road, Ambient	12:09 PM	12:15 PM	47	57.0	44.9	52.2	48.8	46.6	45.9	45.2
R3 South of RV park, Ambient	1:26 PM	1:32 PM	46.7	55.1	45.6	48.9	47.6	46.8	46.4	46
R4 Northern PL Creek, Ambient	1:36 PM	1:42 PM	49.8	50.9	49.4	50.4	50.1	49.9	49.8	49.6
R5 Southern PL	11:55 AM	12:01 PM	51	61.5	47.6	57.6	53.7	50.1	49.1	48.1
R6 115 Lawn, Ambient	11:52 AM	11:58 AM	49.5	65.1	45.4	55.5	53.1	48.4	46.7	45.8

5-Minute Continuous Noise Measurement Datasheet - Cont.

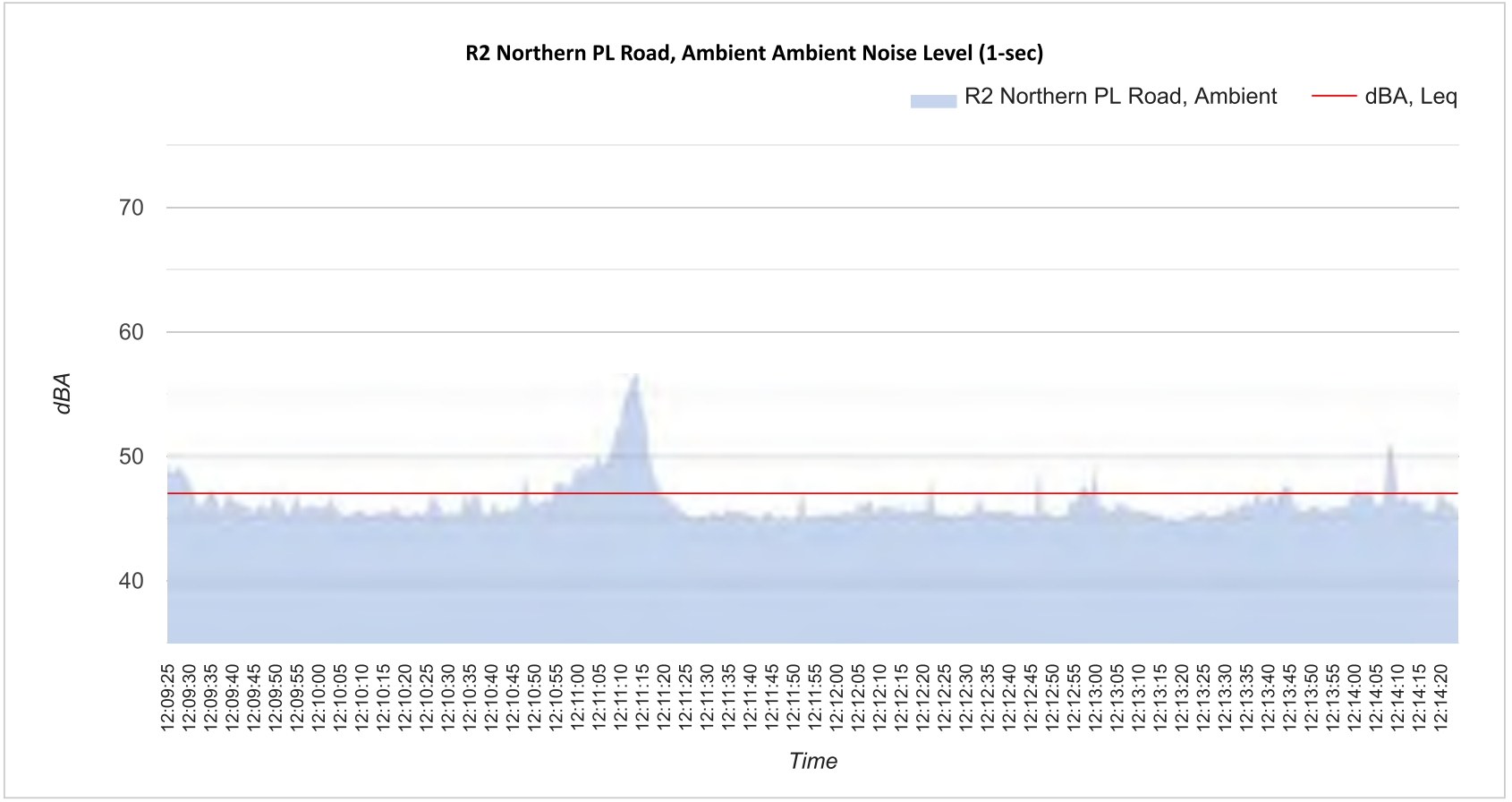
Project Name:	Sedona Oak Creek	**Site Topo:**	mostly flat	**Noise Source(s) w/ Distance:**	
Site Address/Location:	155 Schnebly Hill Rd	**Meteorological Cond.:**	Mostly sunny, slight winds	Traffic	
Site Id:	R1 Speaker Location, Ambient	**Ground Type:**	Grass		



MD ACOUSTICS

5-Minute Continuous Noise Measurement Datasheet - Cont.

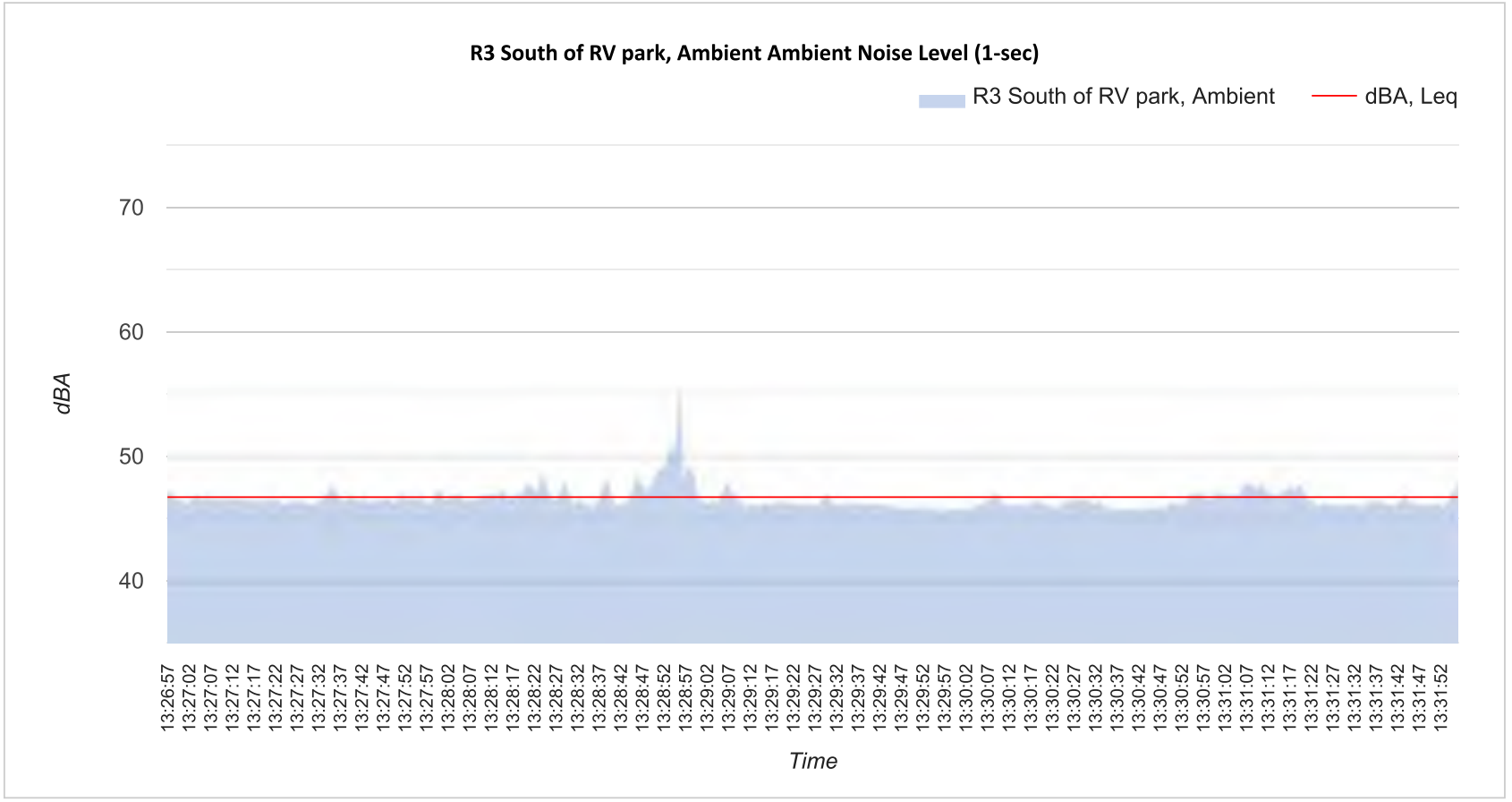
Project Name:	Sedona Oak Creek	**Site Topo:**	slopes up toward main road, R2 o	**Noise Source(s) w/ Distance:**	
Site Address/Location:	155 Schnebly Hill Rd	**Meteorological Cond.:**	Mostly sunny, slight winds	Traffic	
Site Id:	R2 Northern PL Road, Ambient	**Ground Type:**	Dirt		



MD ACOUSTICS

5-Minute Continuous Noise Measurement Datasheet - Cont.

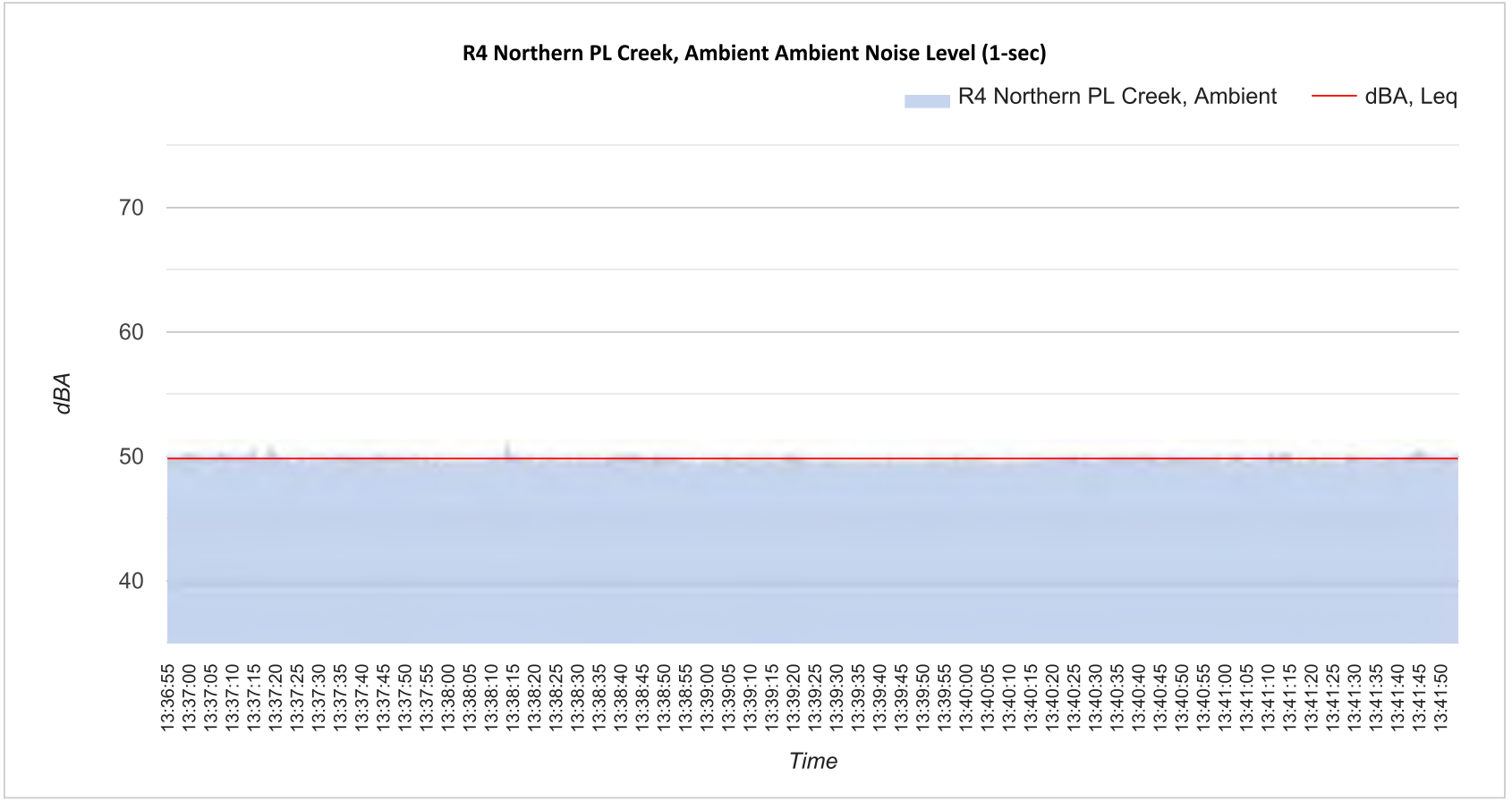
Project Name:	Sedona Oak Creek	**Site Topo:**	mostly flat, trees to east	**Noise Source(s) w/ Distance:**	
Site Address/Location:	155 Schnebly Hill Rd	**Meteorological Cond.:**	Mostly sunny, slight winds	Traffic, Creek	
Site Id:	R3 South of RV park, Ambient	**Ground Type:**	Grass and dirt		



MD ACOUSTICS

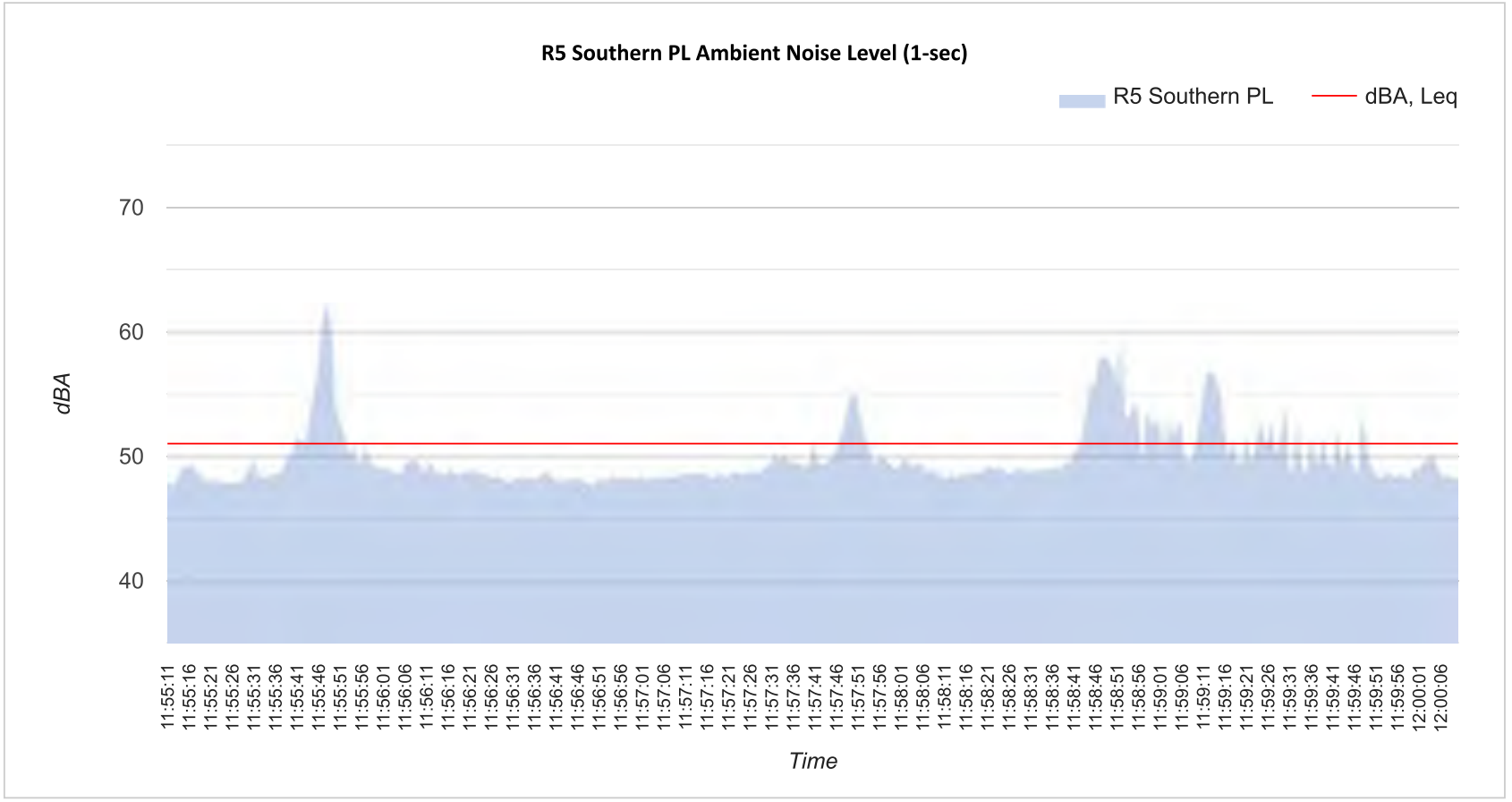
5-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name:	Sedona Oak Creek	**Site Topo:**	Flat overall, under tree canopy	**Noise Source(s) w/ Distance:**	
Site Address/Location:	155 Schnebly Hill Rd	**Meteorological Cond.:**	Mostly sunny, slight winds	Creek	
Site Id:	R4 Northern PL Creek, Ambient	**Ground Type:**	Dirt, rocks, tree debris (leaves, sticks, fallen logs, etc.)		



5-Minute Continuous Noise Measurement Datasheet - Cont.

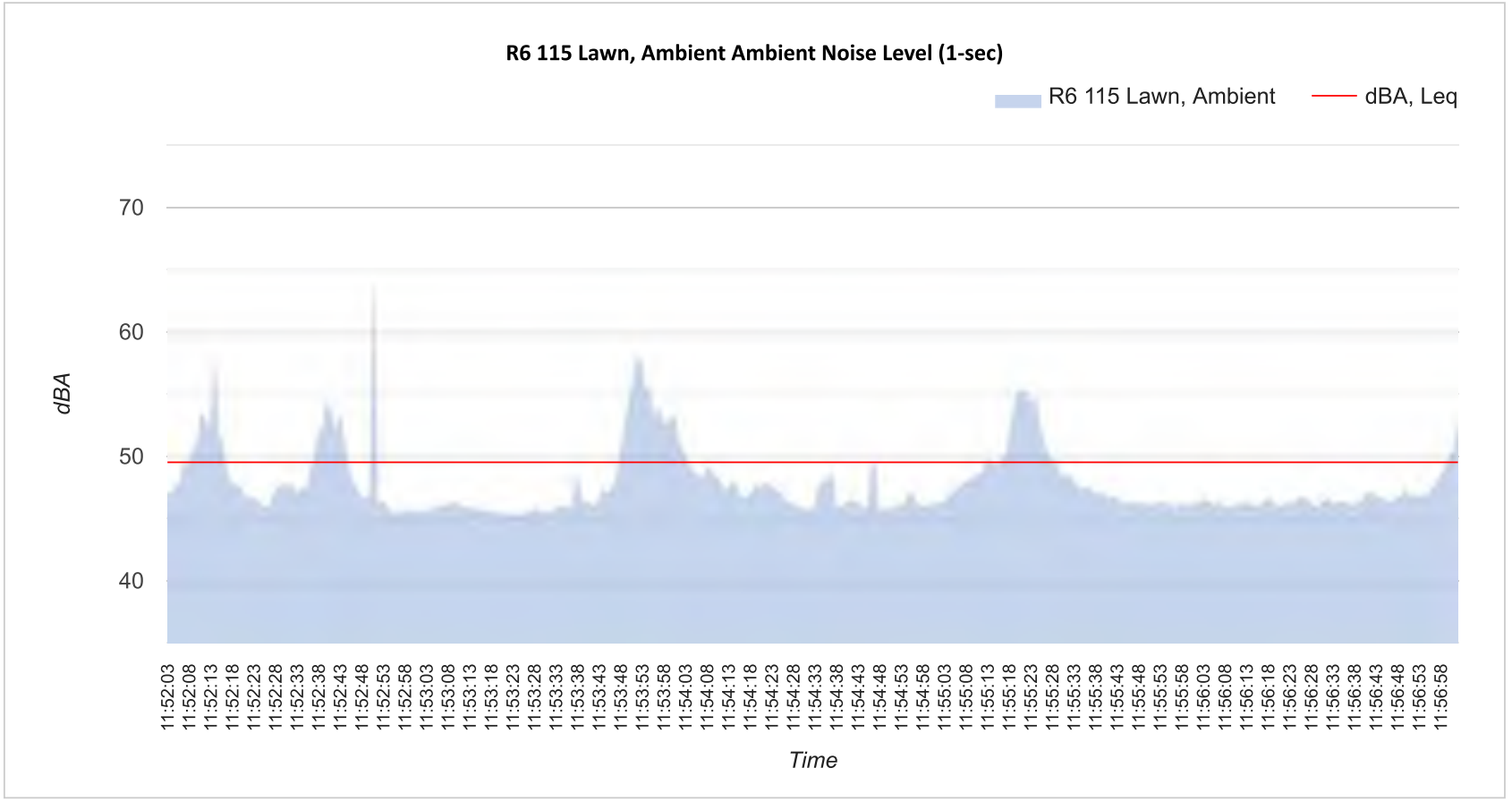
Project Name:	Sedona Oak Creek	**Site Topo:**	mostly flat	**Noise Source(s) w/ Distance:**	
Site Address/Location:	155 Schnebly Hill Rd	**Meteorological Cond.:**	Mostly sunny, slight winds	Traffic	
Site Id:	R5 Southern PL	**Ground Type:**	Grass, dirt		



MD ACOUSTICS

5-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name:	Sedona Oak Creek	**Site Topo:**	R6 on higher part, lower part to	**Noise Source(s) w/ Distance:**	
Site Address/Location:	155 Schnebly Hill Rd	**Meteorological Cond.:**	Mostly sunny, slight winds	Traffic	
Site Id:	R6 115 Lawn, Ambient	**Ground Type:**	Grass		



MD ACOUSTICS

5-Minute Continuous Noise Measurement Datasheet

Project Name: Sedona Oak Creek

Project: #/Name: 1028-2022-001

Site Address/Location: 155 Schnebly Hill Rd

Date: 08/03/2022

Field Tech/Engineer: Drew Gibson, Matthew Gyles (Drum 1)

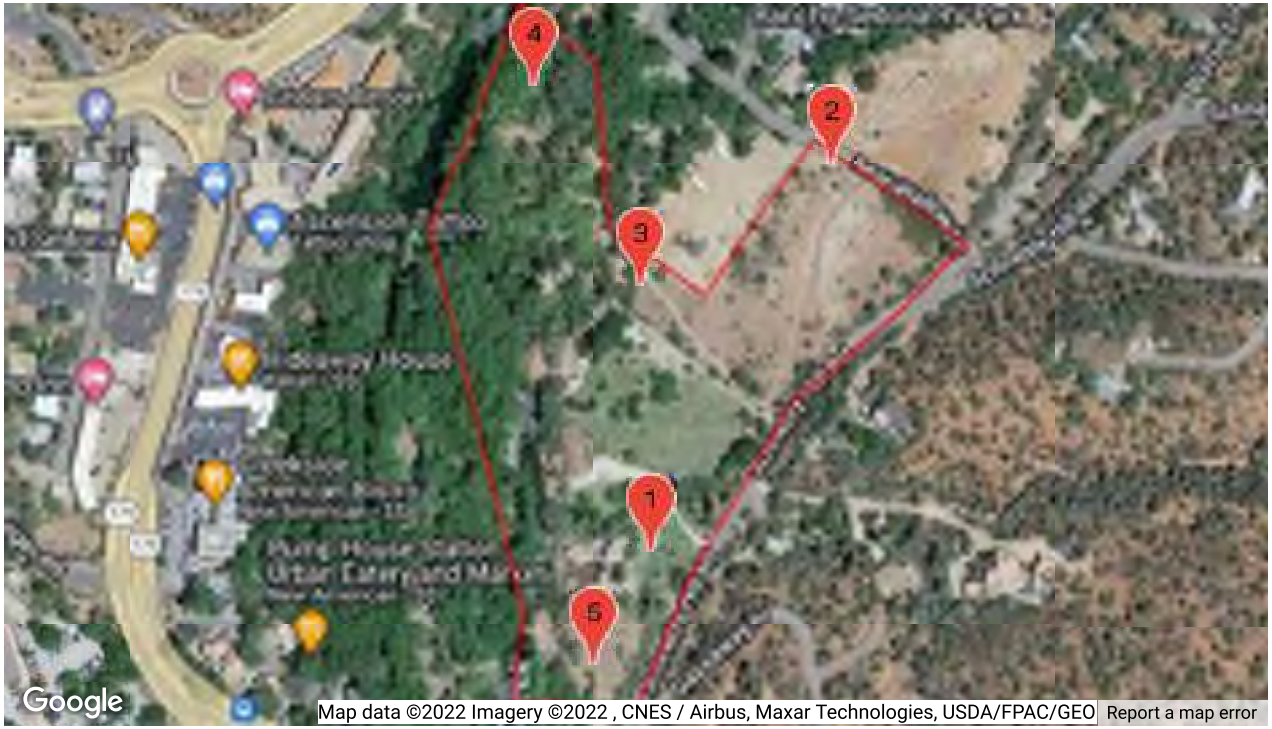
Site Observations:

Mostly sunny. Some clouds towards end of measurements. Slightly windy.

Sound Meter: XL2, NTI **SN:** A2A-16164-E0, A2

Settings: A-weighted, slow, 1-sec, 5-minute interval

Site Id: R1 Speaker Location, Drum 1, R2 Northern PL Road, Drum 1, R3 South of RV park, Drum 1, R4 Northern PL Creek, Drum 1, R5 Southern PL, Drum 1



MD ACOUSTICS

5-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name: Sedona Oak Creek

Site Address/Location: 155 Schnebly Hill Rd

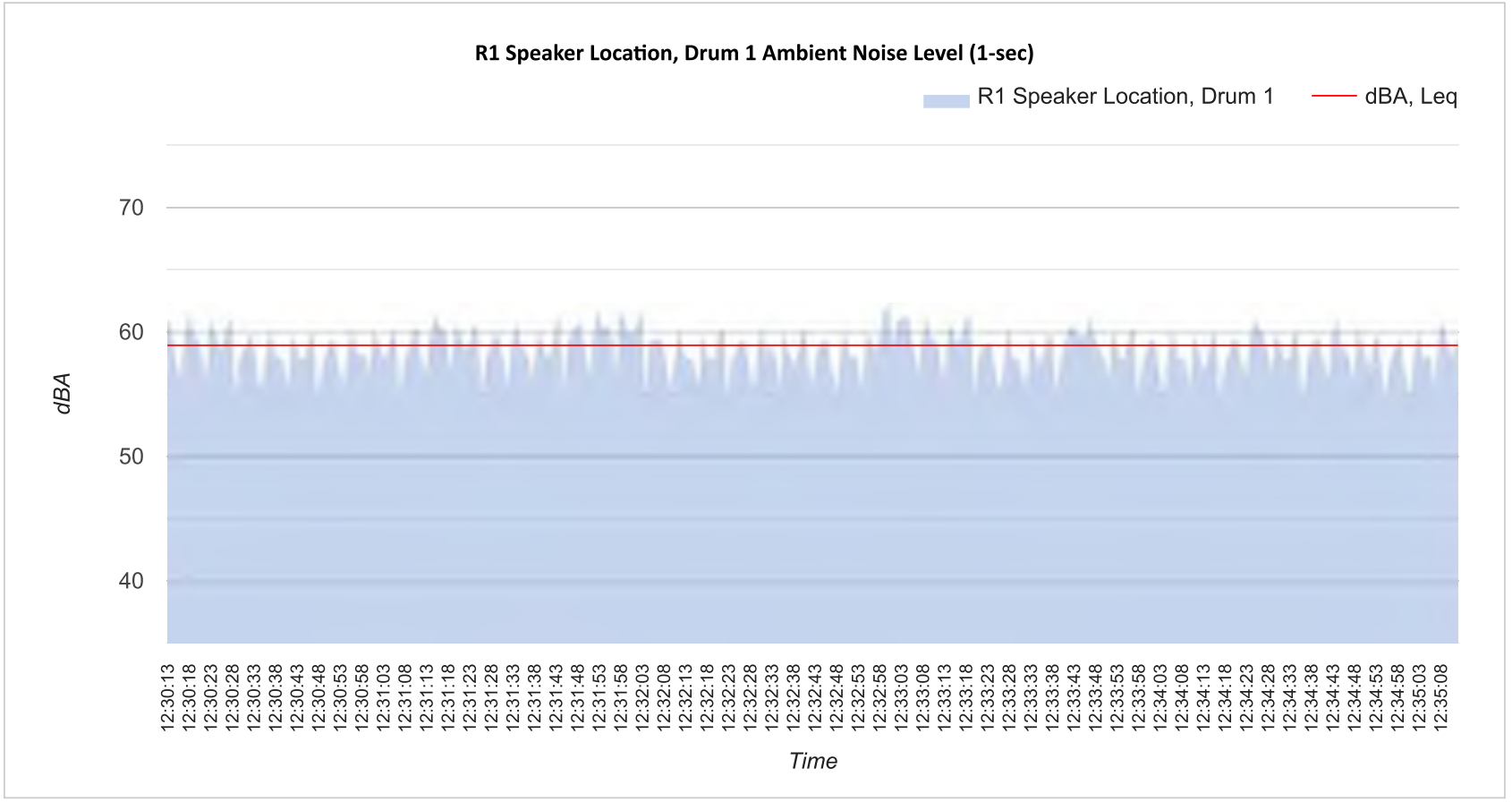
Site Id: R1 Speaker Location, Drum 1, R2 Northern PL Road, Drum 1, R3 South of RV park, Drum 1, R4 Northern PL Creek, Drum 1, R5 Southern PL, Drum 1

Table 1: Baseline Noise Measurement Summary

Location	Start	Stop	Leq	Lmax	Lmin	L2	L8	L25	L50	L90
R1 Speaker Location, Drum 1	12:30 PM	12:36 PM	58.9	62.5	55.9	61.3	60.8	59.9	58.8	55.7
R2 Northern PL Road, Drum 1	12:29 PM	12:35 PM	47.8	60.3	45.3	53.9	49	46.8	46.3	45.6
R3 South of RV park, Drum 1	1:10 PM	1:16 PM	46.2	48.4	45.2	48.1	47.2	46.4	45.9	45.5
R4 Northern PL Creek, Drum 1	1:45 PM	1:51 PM	50.2	55.6	49.3	53.5	51.3	50.1	49.8	49.5
R5 Southern PL, Drum 1	1:09 PM	1:15 PM	49.7	56.1	47.8	54.1	51.1	49.7	49.2	48.4

5-Minute Continuous Noise Measurement Datasheet - Cont.

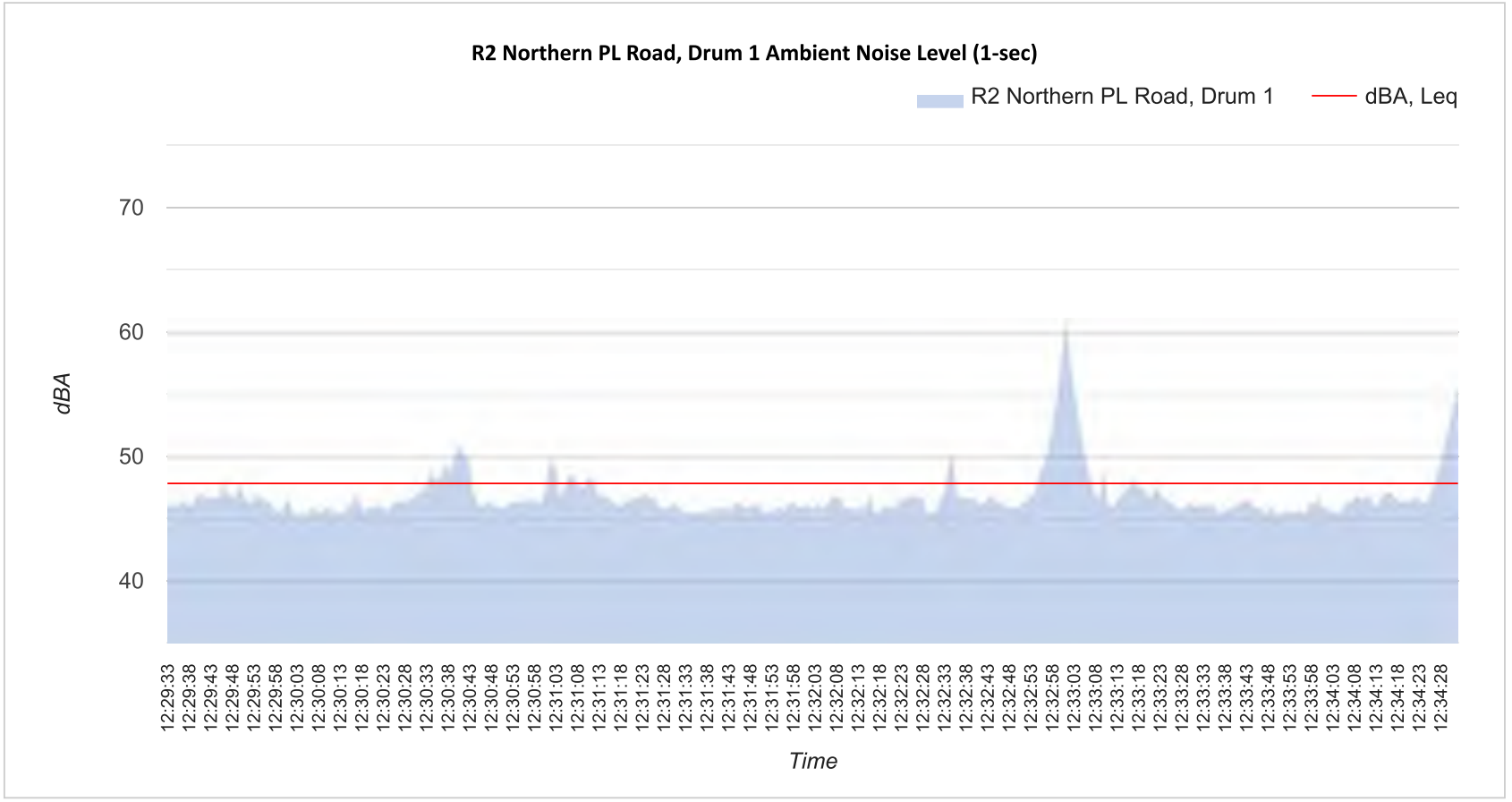
Project Name:	Sedona Oak Creek	**Site Topo:**	mostly flat	**Noise Source(s) w/ Distance:**	
Site Address/Location:	155 Schnebly Hill Rd	**Meteorological Cond.:**	Mostly sunny, slight winds	Speakers, Traffic	
Site Id:	R1 Speaker Location, Drum 1	**Ground Type:**	Grass		



MD ACOUSTICS

5-Minute Continuous Noise Measurement Datasheet - Cont.

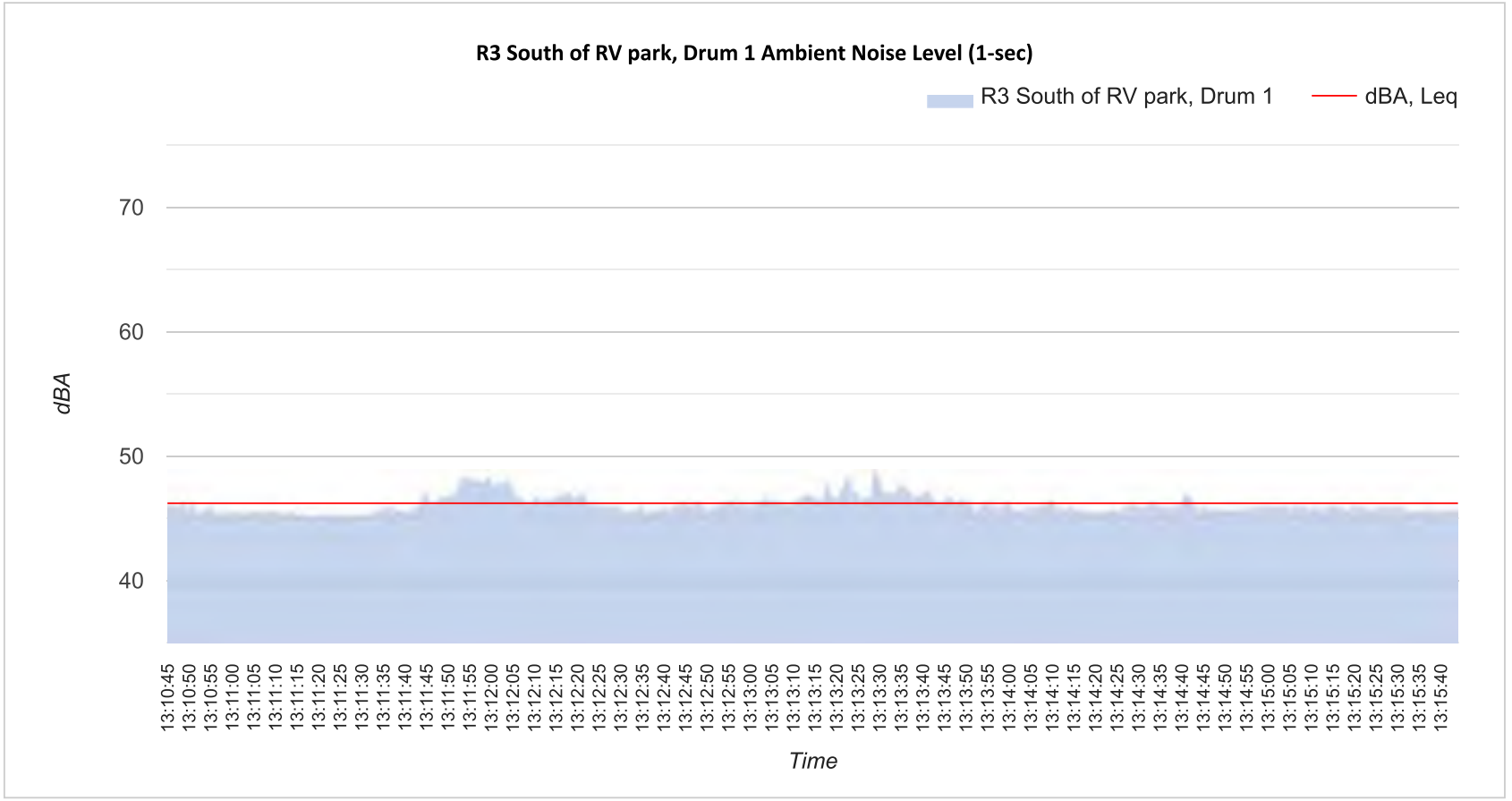
Project Name:	Sedona Oak Creek	**Site Topo:**	slopes up toward main road, R2 o	**Noise Source(s) w/ Distance:**	
Site Address/Location:	155 Schnebly Hill Rd	**Meteorological Cond.:**	Mostly sunny, slight winds	Traffic, Speakers	
Site Id:	R2 Northern PL Road, Drum 1	**Ground Type:**	Dirt		



MD ACOUSTICS

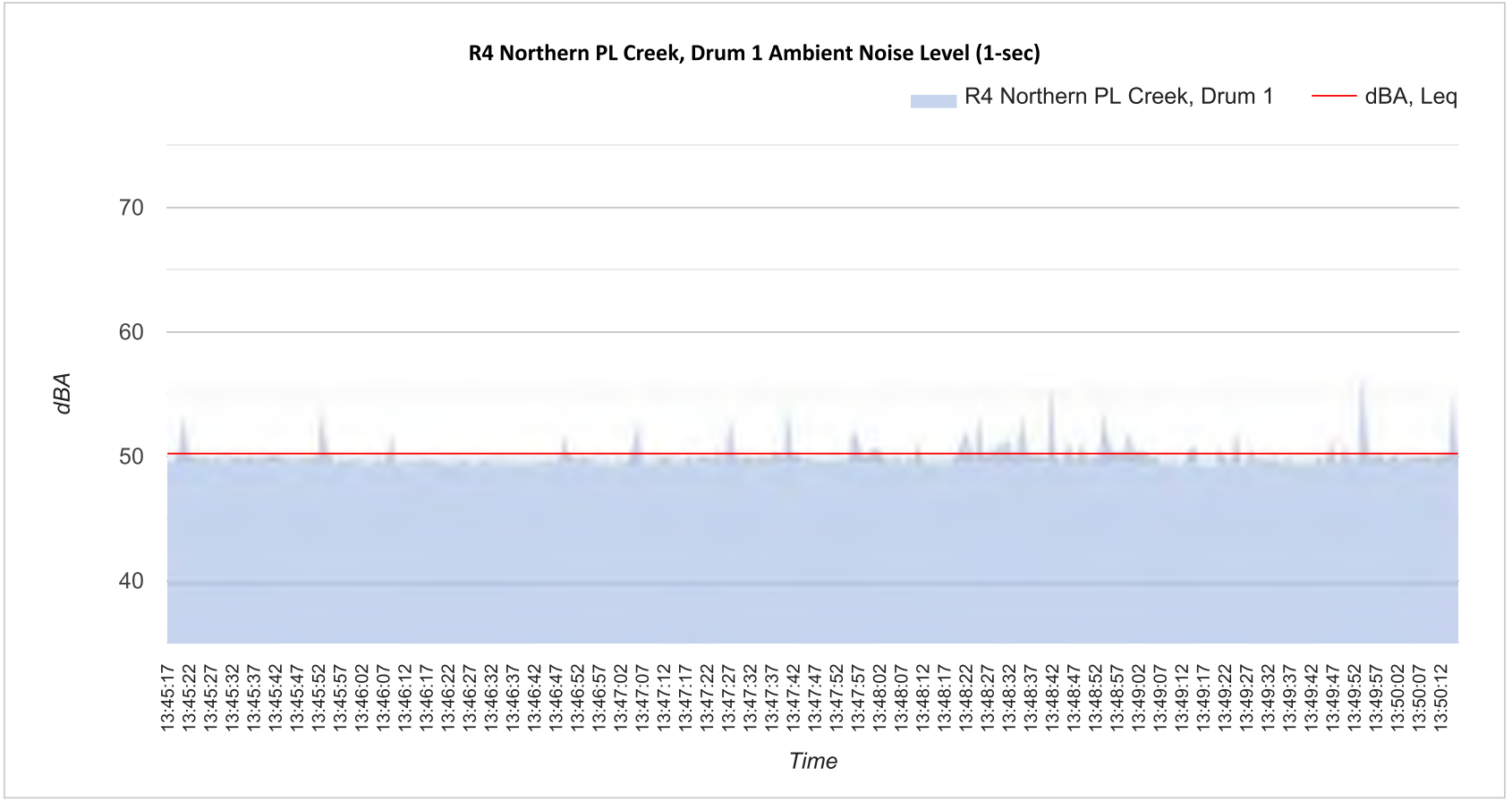
5-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name:	Sedona Oak Creek	**Site Topo:**	mostly flat, trees to east	**Noise Source(s) w/ Distance:**	
Site Address/Location:	155 Schnebly Hill Rd	**Meteorological Cond.:**	Mostly sunny, slight winds	Traffic, Creek, Speakers	
Site Id:	R3 South of RV park, Drum 1	**Ground Type:**	Grass, dirt		



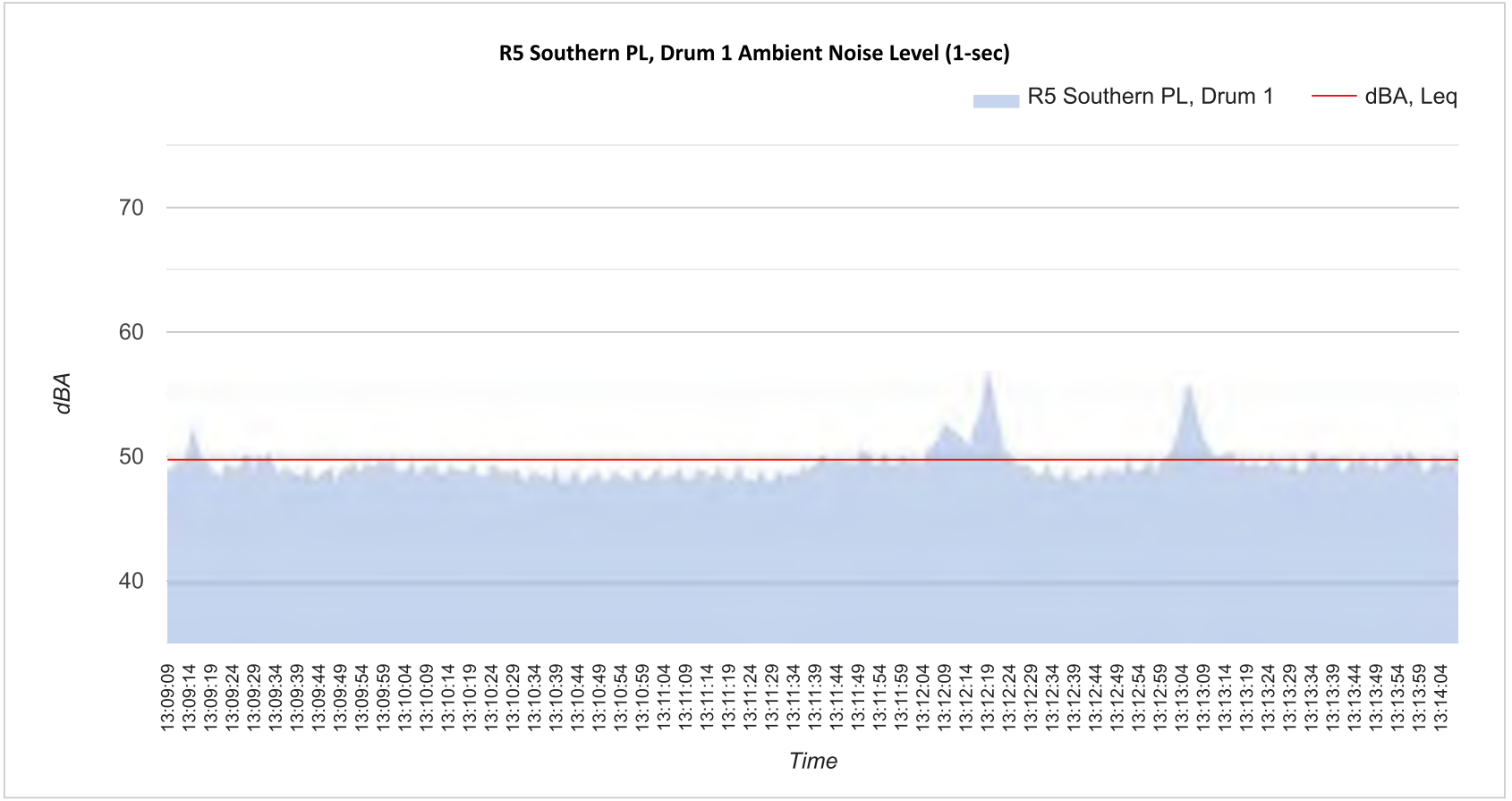
5-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name:	Sedona Oak Creek	**Site Topo:**	mostly flat	**Noise Source(s) w/ Distance:**	
Site Address/Location:	155 Schnebly Hill Rd	**Meteorological Cond.:**	Mostly sunny, slight winds	Creek	
Site Id:	R4 Northern PL Creek, Drum 1	**Ground Type:**	Dirt, rocks, tree debris (leaves, sticks, fallen logs, etc.)		



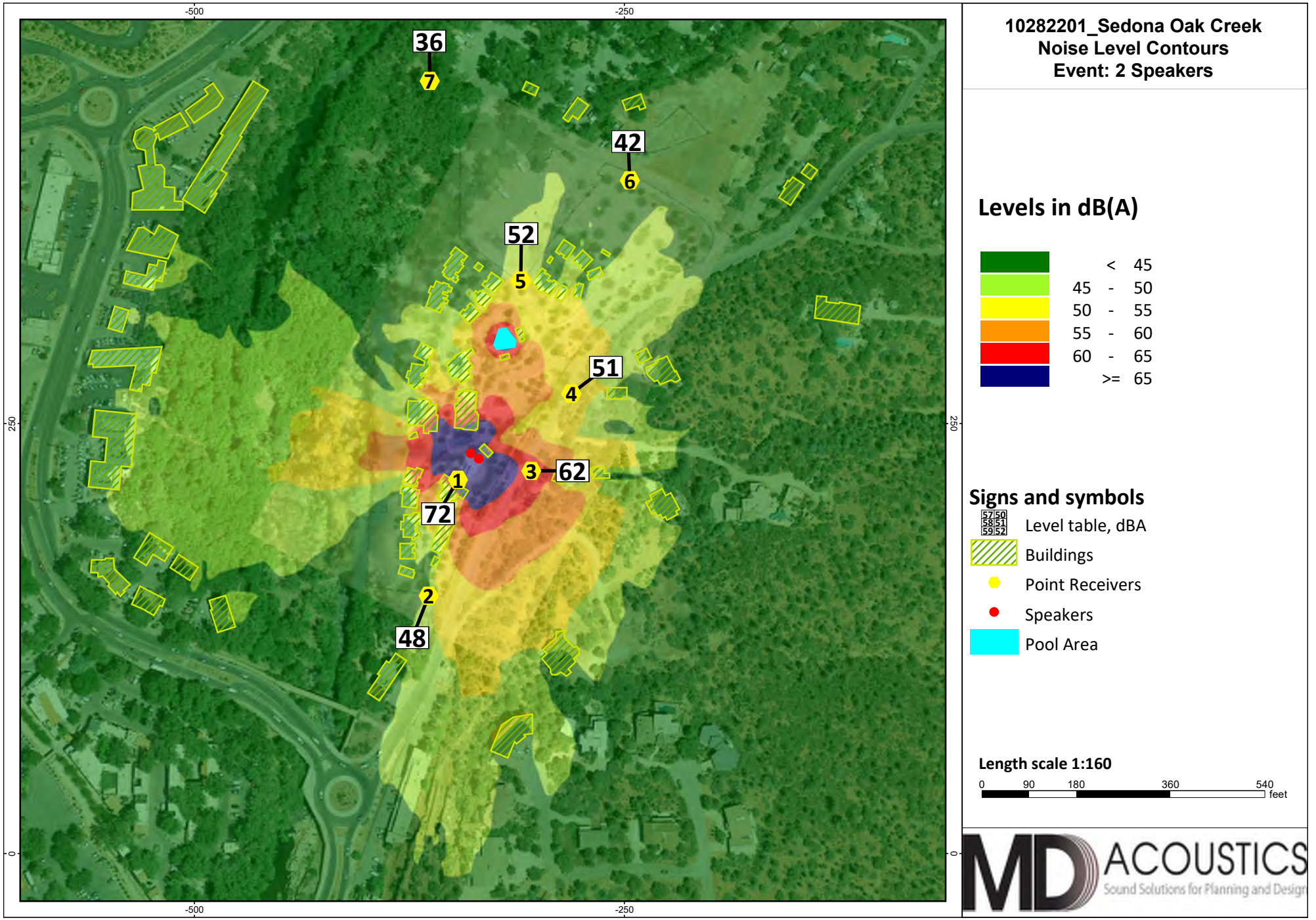
5-Minute Continuous Noise Measurement Datasheet - Cont.

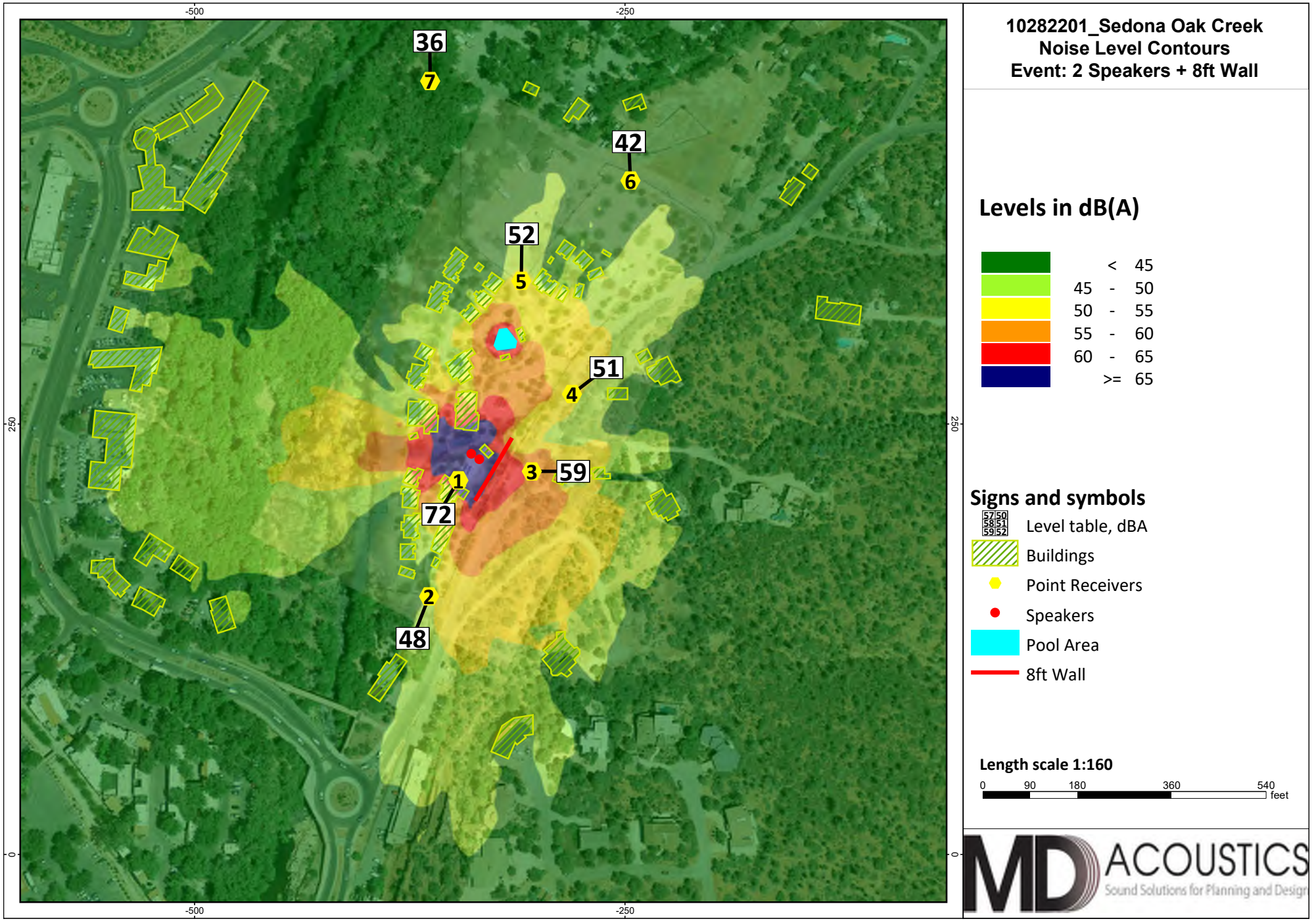
Project Name:	Sedona Oak Creek	**Site Topo:**	Flat overall	**Noise Source(s) w/ Distance:**	
Site Address/Location:	155 Schnebly Hill Rd	**Meteorological Cond.:**	Mostly sunny, slight winds	Traffic, Speakers	
Site Id:	R5 Southern PL, Drum 1	**Ground Type:**	Grass, dirt		

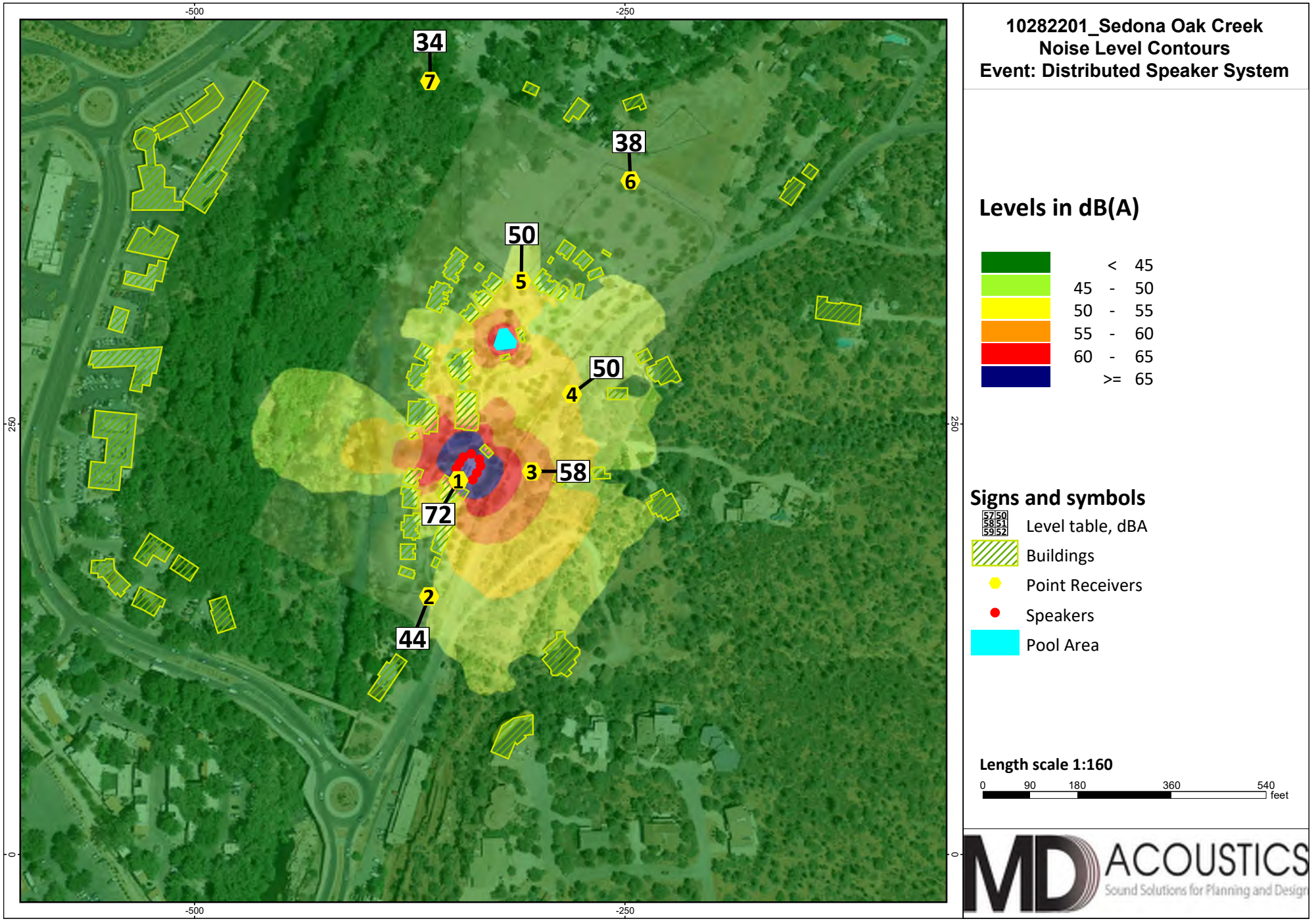


MD ACOUSTICS

Appendix C
Operational Worst Case
Noise Level and Contours


-500
-250
0
250
36
7
42
6
52
5
51
4
62
3
1
72
2
48
10282201_Sedona Oak Creek
Noise Level Contours
Event: 2 Speakers
Levels in dB(A)
< 45
45 - 50
50 - 55
55 - 60
60 - 65
>= 65
Signs and symbols
Level table, dBA
Buildings
Point Receivers
Speakers
Pool Area
Length scale 1:160
0 90 180 360 540
feet
MD ACOUSTICS
Sound Solutions for Planning and Design


-500
-250
250
0
36
7
42
6
52
5
51
4
59
3
1
72
2
48
10282201_Sedona Oak Creek
Noise Level Contours
Event: 2 Speakers + 8ft Wall
Levels in dB(A)
< 45
45 - 50
50 - 55
55 - 60
60 - 65
>= 65
Signs and symbols
Level table, dBA
Buildings
Point Receivers
Speakers
Pool Area
8ft Wall
Length scale 1:160
0 90 180 360 540
feet
MD ACOUSTICS
Sound Solutions for Planning and Design



10282201_Sedona Oak Creek
Noise Level Contours
Event: Distributed Speaker System

Levels in dB(A)

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

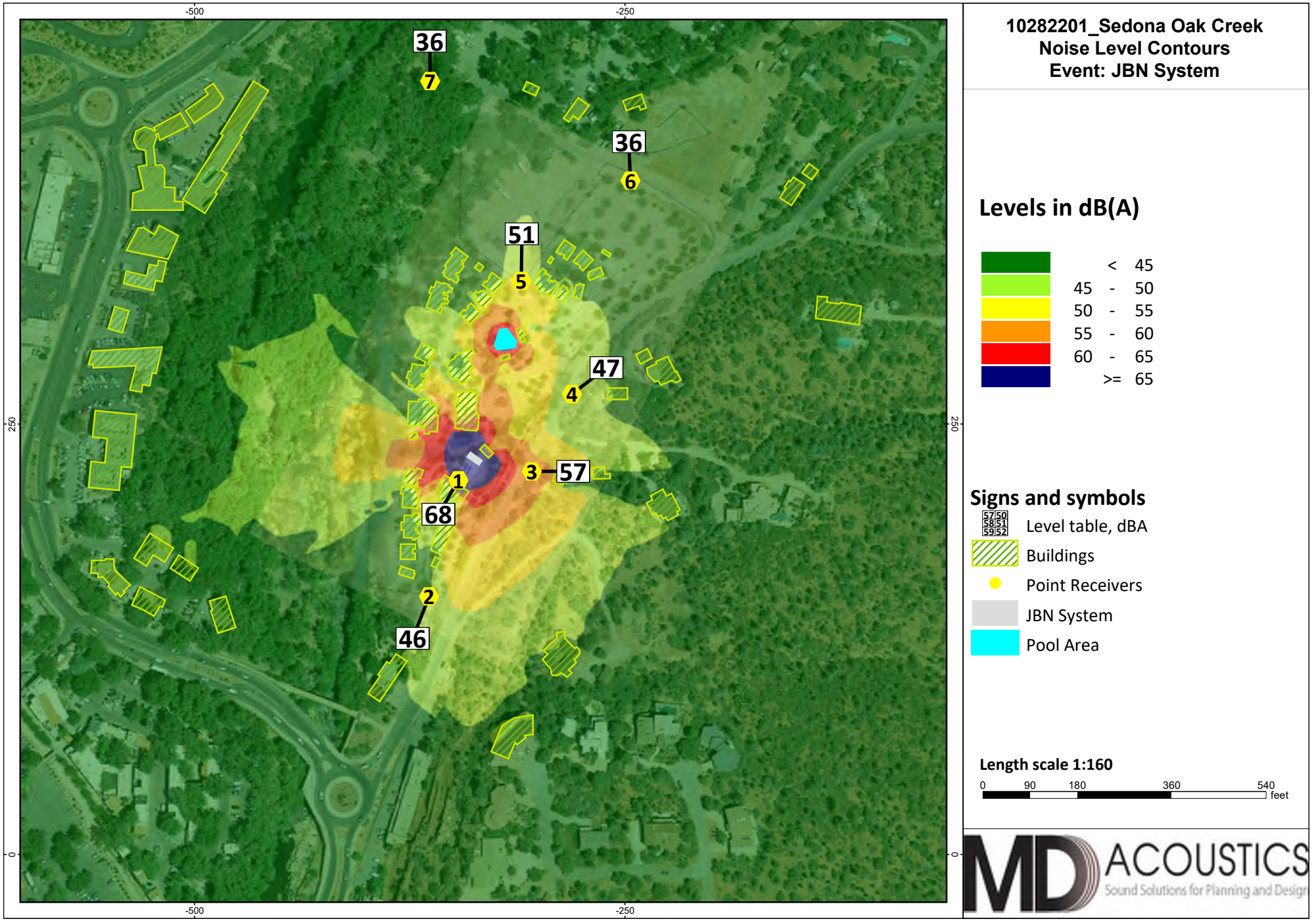
Signs and symbols

- Level table, dBA
- Buildings
- Point Receivers
- Speakers
- Pool Area

Length scale 1:160

0 90 180 360 540 feet

MD ACOUSTICS
Sound Solutions for Planning and Design


-500
-250
250
0
36
7
36
6
51
5
47
4
3
57
1
68
2
46
10282201_Sedona Oak Creek
Noise Level Contours
Event: JBN System
Levels in dB(A)
< 45
45 - 50
50 - 55
55 - 60
60 - 65
>= 65
Signs and symbols
Level table, dBA
Buildings
Point Receivers
JBN System
Pool Area
Length scale 1:160
0 90 180 360 540
feet
MD ACOUSTICS
Sound Solutions for Planning and Design