

Environmental Noise Assessment

Bloomfield Flowers

4707 Bloomfield Road, Petaluma, California (APN: 027-050-022)

BAC Job # 2025-021

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Introduction

Bloomfield Flowers (project) proposes the development of a commercial cannabis cultivation facility located on a 113-acre parcel (APN: 027-050-022) zoned Land Extensive Agriculture (LEA) located at 4707 Bloomfield Road, Petaluma, California in unincorporated Sonoma County.

It is the understanding of Bollard Acoustical Consultants, Inc. (BAC) that Sonoma County planning staff has requested that a noise analysis be prepared to address the potential for project-related noise impacts. In response to this request, BAC was contracted to prepare this noise assessment. Specifically, the purposes of this noise assessment are to identify sensitive receptors in the project vicinity; characterize the baseline ambient noise conditions at the receptors; predict project-generated noise levels at the receptors; identify impacts and appropriate noise-mitigation measures where project noise levels would exceed applicable standards of significance at the sensitive receptors; and provide estimates of the effectiveness of proposed mitigation. This assessment has been prepared in accordance with the requirements of Permit Sonoma *Guidelines for the Preparation of Noise Analysis* (Sonoma County, 2019, version 2).

It should be noted that specific equipment models and configurations were unknown at the time of preparing this report. As a result, the following assessment of project-related noise utilizes conservative assumptions for equipment and operations. Thus, at the time when specific equipment models and configurations have been selected for the project, it is BAC's recommendation that an additional analysis and/or revisions to this preliminary assessment be conducted by a qualified acoustical consultant to ensure compliance with applicable Sonoma County noise standards.

Fundamentals of Noise

Noise is often described as unwanted sound. Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and thus are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, or Hertz (Hz).

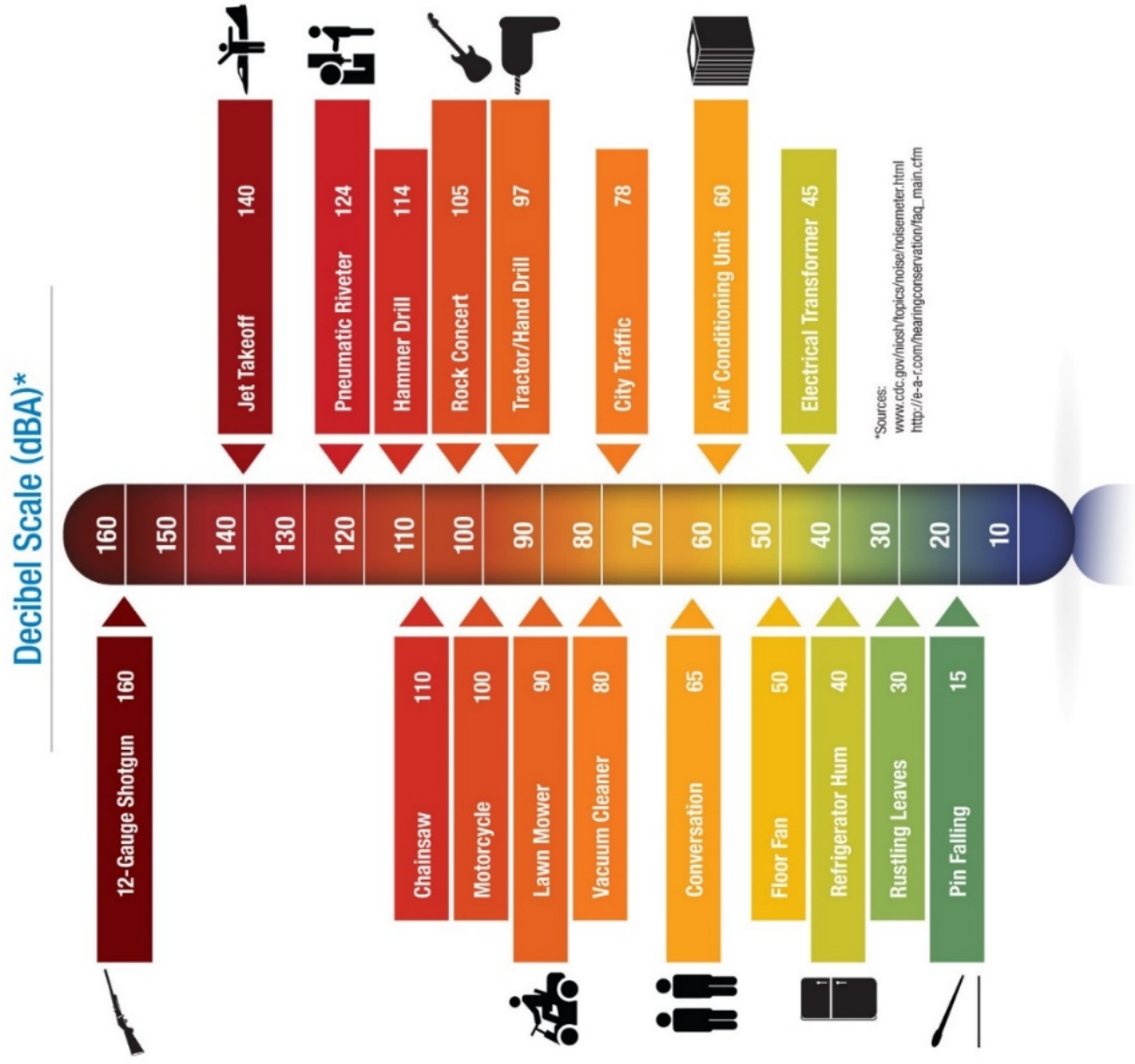
Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale utilizes the hearing threshold (20 micropascals of pressure) as a point of reference, defined as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers within a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dBA. Another useful aspect of the decibel scale is that changes in levels (dBA) correspond closely to human perception of relative loudness. Appendix A contains definitions of Acoustical Terminology. Figure 1 shows common noise levels associated with various sources.

The ambient noise level is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}) over a given time period (usually one hour). The L_{eq} is the foundation of the Day-Night Average Level noise descriptor, DNL, and shows very good correlation with community response to noise.

The Day-Night Average Level (DNL) is based upon the average noise level over a 24-hour day, with a +10-decibel weighting applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because DNL represents a 24-hour average, it tends to disguise short-term variations in the noise environment. DNL based noise standards are commonly used to assess noise impacts associated with traffic, railroad and aircraft noise sources.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by weighing the frequency response of a sound level meter by means of the standardized A-weighting network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this assessment are in terms of A-weighted levels in decibels.

Figure 1
Typical A-Weighted Sound Levels of Common Noise Sources



Effects of Noise on People

The effects of noise on people can be divided into three categories:

- Subjective effects of annoyance, nuisance, dissatisfaction;
- Interference with activities such as speech, sleep, and learning; and
- Physiological effects such as hearing loss or sudden startling.

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the third category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise.

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An important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment (or ambient noise) to which one has adapted. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur (Caltrans, 2013):

- It is widely accepted that the average healthy ear can barely perceive noise level changes of 3 dBA;
- A change in level of 5 dBA is a readily perceptible increase in noise level; and
- A 10 dBA change is recognized as twice as loud as the original source.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. Noise levels are measured on a logarithmic scale, instead of a linear scale. On a logarithmic scale, the sum of two noise sources of equal loudness is 3 dBA greater than the noise generated by only one of the noise sources (e.g., a noise source of 60 dBA plus another noise source of 60 dBA generate a composite noise level of 63 dBA). To apply this formula to a specific noise source, in areas where existing levels are dominated by traffic, a doubling in traffic volume will increase ambient noise levels by 3 dBA. Similarly, a doubling in heavy equipment use, such as the use of two pieces of equipment where one formerly was used, would also increase ambient noise levels by 3 dBA.

Single-Event Noise & Sleep Disturbance

A single event is an individual distinct loud activity, such as a blasting event, an aircraft overflight, a train or truck passage, or any other brief and discrete noise-generating activity. Noise exposure quantified in terms of 24-hour-averaged descriptors, such as L_{dn} or CNEL, can mask the potential for annoyance or sleep disturbance associated with individual loud events due to the averaging process.

Extensive studies have been conducted regarding the effects of single-event noise on sleep disturbance, with the Sound Exposure Level (SEL) metric being a common metric used for such assessments. SEL represents the entire sound energy of a given single-event normalized into a one-second period regardless of event duration. As a result, the single-number SEL metric contains information pertaining to both event duration and intensity. Another descriptor utilized to assess single-event noise is the maximum, or L_{max} , noise level associated with the event. A problem with utilizing L_{max} to assess single events is that the duration of the event is not considered.

Due to the wide variation in test subjects' reactions to noises of various levels (some test subjects were awakened by indoor SEL values of 50 dB, whereas others slept through indoor SEL values exceeding 80 dB), no definitive consensus has been reached with respect to a universal criterion to apply to environmental noise assessments. The Federal Interagency Committee on Aviation Noise (FICAN) has provided estimates of the percentage of people expected to be awakened when exposed to specific SEL inside a home (FICAN 1997). According to the FICAN study, an estimated 5 to 10% of the population is affected when interior SEL noise levels are between 65 and 81 dB, and few sleep awakenings (less than 5%) are predicted if the interior SEL is less than 65 dB.

Noise Attenuation with Distance

Stationary "point" sources of noise, attenuate (lessen) at a rate of approximately 6 dBA per doubling of distance from the source, not accounting for environmental conditions (i.e., atmospheric conditions, noise barriers, ground type, vegetation, topography, etc.). Surface traffic (a "moving point" source), would typically attenuate at a lower rate, approximately 4.5 dBA per doubling distance from the source (also dependent upon environmental conditions).

Atmospheric (Molecular) Absorption and Anomalous Excess Attenuation

Air absorbs sound energy. The amount of absorption is dependent on the temperature and humidity of the air, as well as the frequency of the sound. Families of curves have been developed which relate these variables to molecular absorption coefficients, frequently expressed in terms of dB per thousand feet. For standard day atmospheric conditions, defined as 59 degrees Fahrenheit and 70% relative humidity, the molecular absorption coefficient at 1000 hertz is 1.5 dB per thousand feet. Molecular absorption is greater at higher frequencies, and reduced at lower frequencies. In addition, for drier conditions, the molecular absorption coefficients generally increase. Similarly, as temperature increases, molecular absorption coefficients typically increase as well.

Anomalous excess attenuation caused by variations in wind speed, wind direction, and thermal gradients in the air can typically be estimated using an attenuation rate of 1.5 dB per thousand feet for a noise source generating a 1,000 hertz signal. As with molecular absorption, anomalous excess attenuation typically decreases with lower frequencies and increases with higher frequencies.

Effects of Topographic Shielding

A noise barrier is any impediment which intercepts the path of sound as it travels from source to receiver. Such impediments can be natural, such as a hill or other naturally occurring topographic feature which blocks the receiver's view of the source. Impediments can also be vegetative, such as heavy tree cover which similarly blocks the source from view of the receiver. In addition, impediments can be man-made, such as an aggregate stockpile, solid wall, earthen berm, or structure constructed between the noise source and receiver. Regardless of the type of impediment, the physical properties of sound are such that, at the point where the line-of-sight between the source and receiver is interrupted by a barrier, a 5 dB reduction in sound occurs.

The effectiveness of a barrier is a function of the difference in distance sound travels on a straight-line path from source to receiver versus the distance it must travel from source to barrier, then barrier to receiver. This difference is referred to as the "path length difference" and is used to calculate the Fresnel Number. A barrier's effectiveness is a function of the Fresnel number and frequency content of the source. In general, the more acute the angle of the sound path created by the introduction of a barrier, the greater the noise reduction provided by the barrier.

There is substantial topographic relief at the project site due to it being located in an old quarry. This topography can act as a noise barrier if line-of-sight is interrupted between the project site and any receiver.

Effects of Ground Cover

Ground cover also affects sound propagation. For example, soft ground is more acoustically absorptive than paved surfaces and vegetated ground is more absorptive still. For this analysis, the area surrounding the project site is moderately vegetated, primarily with grass and some intervening oak trees. The greater the distance between the project site and the sensitive receptors, the greater the amount of intervening vegetation and the higher the degree of sound absorption.

Description of the Proposed Development

Project Location and Existing Land Uses

The proposed project site is located in unincorporated Sonoma County at 4707 Bloomfield Road in Petaluma, California. The project site consists of an approximately 113-acre area located within APN 027-050-022. The project site is zoned Land Extensive Agriculture (LEA).

Existing land uses within the immediate project vicinity include other agricultural and residential uses. The nearest residence to the project site is located approximately 300 feet to the west

across Bloomfield Road. The project area with aerial imagery, including identification of nearby noise-sensitive receptors and property lines, is shown in Figure 2. The project site plan is presented in Figure 3.

The project parcel was once an old quarry site, and since the project applicant has improved the property and turned it into a working farm. The farms current operations include bee keeping, equestrian activities, livestock grazing and traditional organic agriculture. There are existing structures on the project parcel that support farm operations including a historic barn, livestock facilities, a greenhouse for traditional agriculture, and several outbuildings. None of the existing structures are proposed to be used for cannabis cultivation and activities.

Proposed Project Objectives

The objectives of the proposed project are to:

1. Develop the old quarry site into a cannabis cultivation facility, capable of cultivating up to 10,000 square feet of mature plant canopy using mixed-light cultivation, 5,000 square feet of mature plant canopy using indoor cultivation, and
2. Utilize up to 3,000 square feet of the proposed 15,000 square feet of cultivation area for propagation of immature plants, and
3. Process the cannabis cultivated at the facility, including a small amount of product provided by other local cultivators, including drying, curing, grading, packaging, labeling and storing of cannabis.

Proposed Project Construction

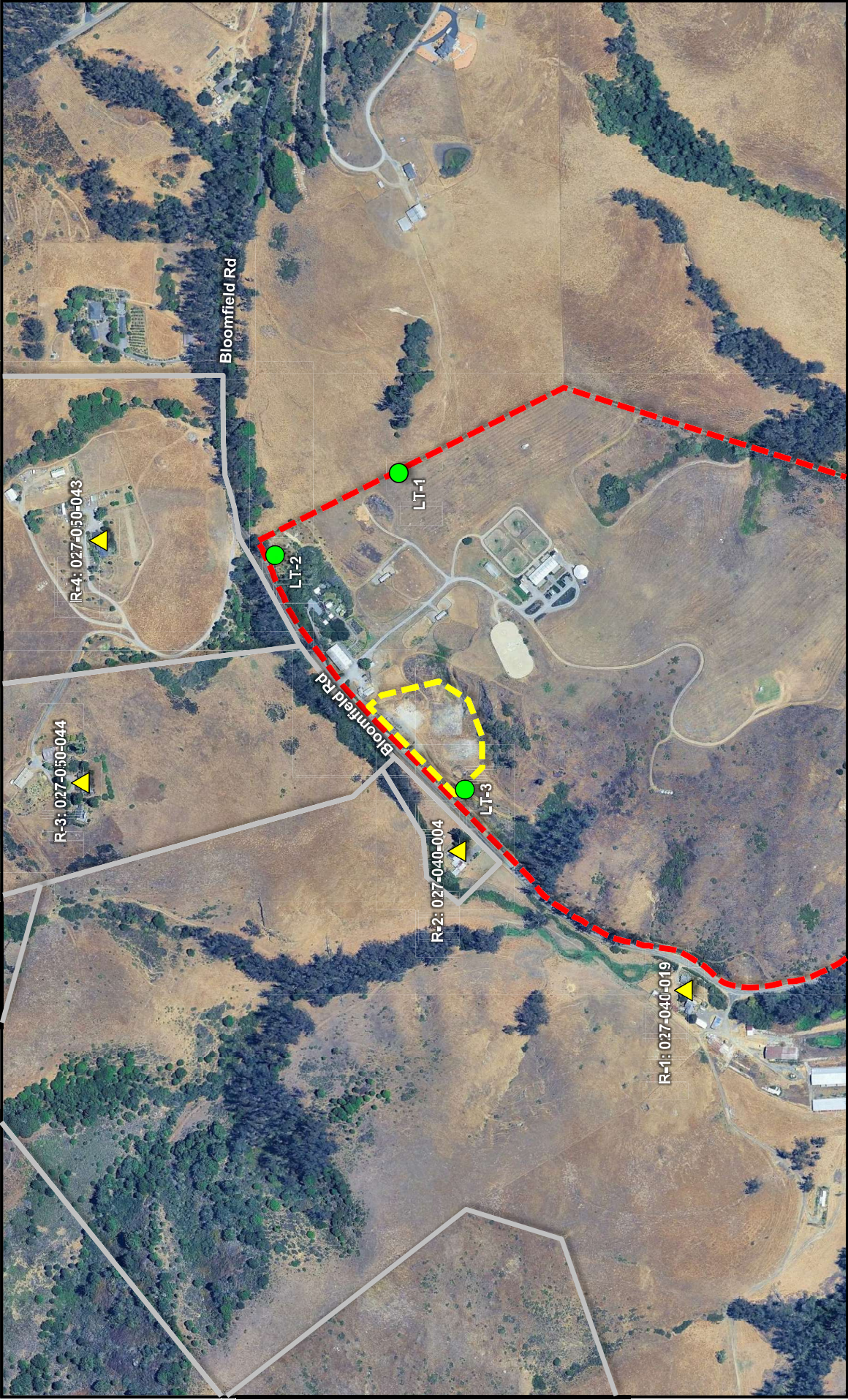
The project proposes the construction of three new structures: a Greenhouse, a Large Warehouse, and a Small Warehouse.

The Greenhouse will be comprised of four sections (each measuring 30' x 108') with a total of 12,960 square feet. Cannabis plants will be grown in raised beds that can be measured and restricted to the maximum allowable 10,000 square feet of cultivation area. The remaining 2,960 square feet will be used for equipment, ventilation systems, humidity controls, walkways, storage of inputs, extra soil, etc.

The Large Warehouse will be a 10,000 square foot metal structure, measuring 80' x 125'. The warehouse will include approximately 3,000 square feet of propagation area. The remainder of the space will be for processing, employee facilities, storage and general administrative activities.

The Small Warehouse will be a 6,480 square foot structure measuring 108' x 60', which will allocate 5,000 square feet for indoor cultivation. The remaining 1,480 square feet will be for storage, workspace, and equipment.

The project will include the construction of an access road and parking lot (21 parking spaces) for employees and vendors, with required clearance for fire truck turnaround.



Legend

- - - Project Area Boundary (Approximate)
- - - Proposed Project Development Area (Approximate)
- Neighboring Parcel Property Lines (Approximate)
- Ambient Noise Level Survey Locations
- ▲ Residential Receivers



Bloomfield Flowers
Sonoma County, California

Project Area

Figure 2



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Legend

Proposed Structures

Proposed Air Conditioning Equipment

Proposed Generator



Scale (Feet)



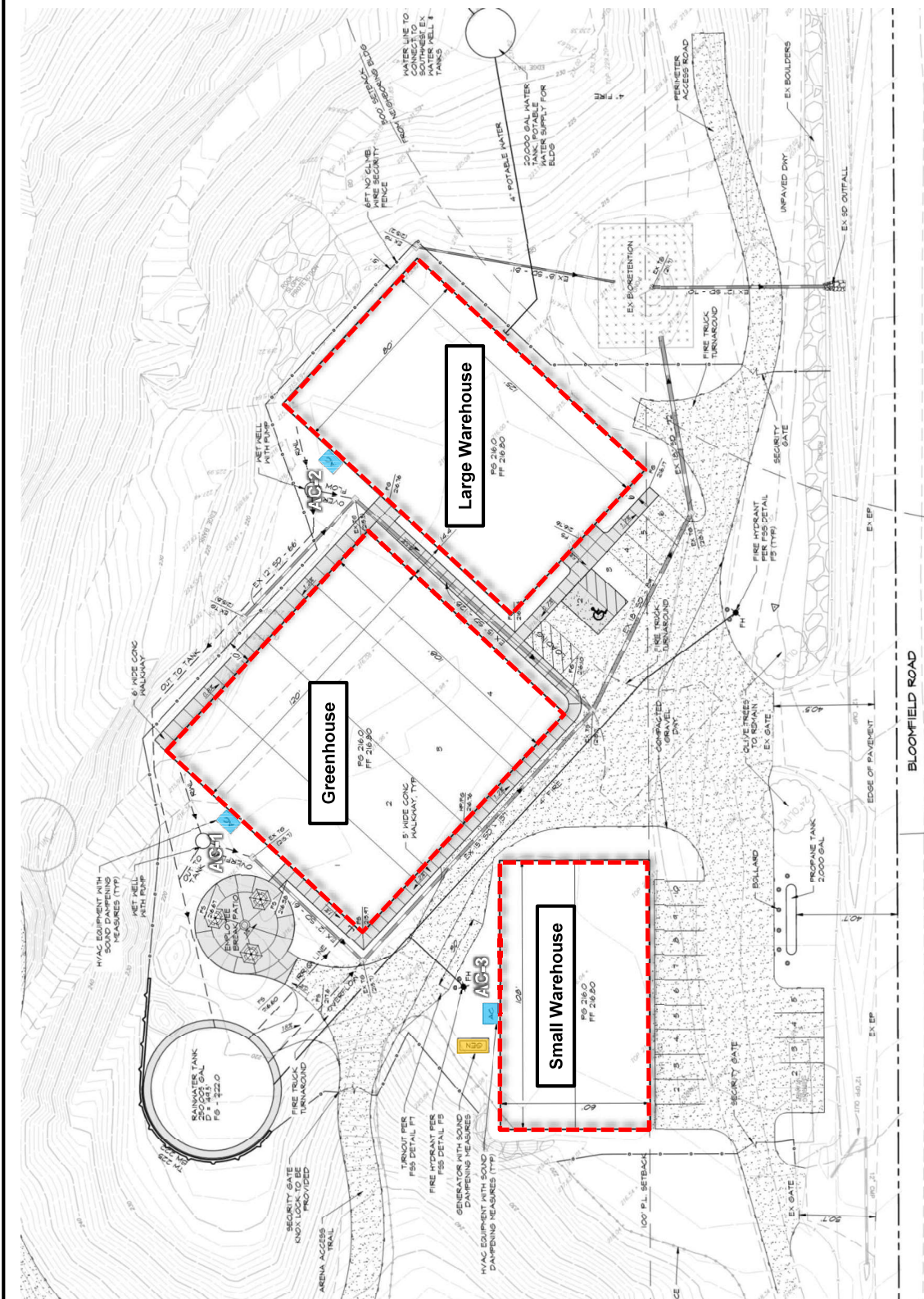
Bloomfield Flowers
Sonoma County, California

Project Site Plan

Figure 3



Acoustical Consultants



Proposed Project Operations

The proposed project facilities (e.g., indoor and mixed-light cultivation and processing) will operate from 24 hours per day, seven days per week, as needed. Typical facility operations will occur during daytime hours (e.g., 8:00 a.m. to 5:00 p.m.). At peak operations, the project applicant anticipates hiring a maximum of 19 employees. Vendor deliveries would be limited to 8:00 a.m. to 5:00 p.m. Monday through Friday. Management will be on-call 24 hours a day, seven days per week, to address any operational or emergency issues. The project does not propose any public access or retail sales.

Thresholds

Sonoma County General Plan Noise Element

The Sonoma County Noise Element of the 2020 General Plan sets forth guidance in the form of policies and implementation measures for determining land use compatibility with respect to varying noise environments. The Noise Element Policies which are most pertinent to this project are reproduced below.

Policy NE-1a: Designate areas within Sonoma County as noise impacted if they are exposed to existing or projected exterior noise levels exceeding 60 dB L_{dn}, 60 dB CNEL, or the performance standards of Table NE-2 (reproduced below as Table 1).

Policy NE-1c: Control non-transportation related noise from new projects. The total noise level resulting from new sources shall not exceed the standards in General Plan Table NE-2 (reproduced below as Table 1), of the recommended revised policies as measured at the exterior property line of any adjacent noise sensitive land use. Limit exceptions to the following:

- (1) If the ambient noise level exceeds the standard in Table 1, adjust the standard to equal the ambient level, up to a maximum of 5 dBA above the standard, provided that no measurable increase (i.e., +/- 1.5 dBA) shall be allowed.
- (3) Reduce the applicable standards in Table 1 by 5 decibels if the proposed use exceeds the ambient level by 10 or more decibels.
- (5) Noise levels may be measured at the location of the outdoor activity of the noise sensitive land use, instead of at the exterior property line of the adjacent noise sensitive use where:
 - a. The property on which the noise sensitive use is located has already been substantially developed pursuant to its existing zoning, and
 - b. There is available open land on those noise sensitive lands for noise attenuation.

**Table 1
Maximum Allowable Noise Exposures for Non-Transportation Sources**

Hourly Noise Metric ¹	Maximum Exterior Noise Level Standards, dBA	
	Daytime: 7 AM to 10 PM	Nighttime: 10 PM to 7 AM
L ₅₀ (30 minutes in any hour)	50	45
L ₂₅ (15 minutes in any hour)	55	50
L ₀₈ (5 minutes in any hour)	60	55
L ₀₂ (1 minute in any hour)	65	60

¹ The sound level exceeded n% of the time in any hour. For example, the L₅₀ is the value exceeded 50% of the time or 30 minutes in any hour; this is the median noise level. The L₀₂ is the sound level exceeded 1 minute in any hour.

Source: Sonoma County General Plan Noise Element, Table NE-2

Existing Noise Environment at the Project Site

Noise Analysis Study Area

This noise analysis study area encompasses all properties and sensitive receptors within a minimum 1,200-foot minimum distance of the project site, specifically, the project cultivation facilities, as required by the Permit Sonoma *Guidelines for the Preparation of Noise Analysis* (page 12). For the purposes of this analysis, all sensitive receptors within a 1,500-foot radius of the project cultivation site are analyzed.

Surrounding Land Uses & Identification of Existing Sensitive Receivers

The project site is zoned Land Extensive Agriculture. All parcels surrounding the project site carry the same zoning designation. Bloomfield Road is immediately adjacent to the project site to the northwest and west. This roadway is in a rural area and does not carry significant traffic volumes. However, given the proximity of Bloomfield Road, traffic noise contributes to the ambient noise level environment within the project vicinity.

BAC utilized aerial imagery and site inspections to identify the nearest potentially affected sensitive receptors to the project site. There is a total of four (4) residential structures that were identified within a 1,500-foot radius from the project site. The locations of the nearest sensitive receivers evaluated in this analysis are shown in Figure 2, identified as receivers R-1 through R-4. It should be noted that there are no existing residences on the parcel that is being developed and owned by the project applicant.

Existing Ambient Noise Environment in the Project Vicinity

The existing ambient noise environment at the project site is defined primarily by traffic on Bloomfield Road and secondarily by agricultural operations (e.g., livestock, tractors, etc.) To quantify the existing ambient noise environment at the project site, BAC conducted a long-term (96-hour) ambient noise survey from Wednesday, April 9th through Saturday, April 12th, 2025. This provided the minimum 24-hour weekday and 24-hour weekend measurements required by the Sonoma County guidelines. The noise survey locations are shown in Figure 2, identified as sites LT-1 through LT-3. Photographs of the noise level measurement locations are provided in Appendix B.

BAC noise survey site LT-1 was specifically selected to capture ambient noise levels at the eastern property line boundary, in a largely agricultural area removed from Bloomfield Road. BAC noise survey site LT-2 was specifically selected to capture the noise level environment at the northern property line boundary. BAC noise survey site LT-3 was located approximately 90 feet from the centerline of Bloomfield Road, and was specifically selected to capture the ambient noise level environment at the location of the project site nearest to the closest residential receiver.

Weather conditions present during the ambient noise survey were typical for the period, with daytime high temperatures ranging from 70 to 78-degrees Fahrenheit, calm to light (8-12 mph) winds, consistent high humidity (80%), and clear to partially cloudy skies. There were no identified anomalous atmospheric conditions present during the noise survey which could have affected the accuracy of the ambient noise survey results.

Larson-Davis Laboratories (LDL) precision (Type 1) integrating sound level meters were used to complete the ambient noise level survey. The meters were calibrated immediately before and after use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4). The long-term ambient noise level survey results are summarized in Table 2. The detailed results of the ambient noise survey are contained in Appendix C in tabular format and graphically in Appendix D.

**Table 2
Summary of Long-Term Noise Survey Measurement Results at Project Site¹**

Site Description ²	Date	DNL (dB)	Average Measured Hourly Noise Levels (dB)					
			Daytime ³			Nighttime ⁴		
			L ₅₀	L ₉₀	L ₉₅	L ₅₀	L ₉₀	L ₉₅
LT-1	Wednesday, April 9, 2025	43	38	33	29	27		
	Thursday, April 10, 2025	46	41	36	32	27		
	Friday, April 11, 2025	46	40	36	32	27		
	Saturday, April 12, 2025	45	38	33	31	26		
LT-2	Wednesday, April 9, 2025	49	36	32	31	29		
	Thursday, April 10, 2025	51	38	33	30	29		
	Friday, April 11, 2025	49	37	33	30	28		
	Saturday, April 12, 2025	49	34	31	29	27		
LT-3	Wednesday, April 9, 2025	52	38	33	34	31		
	Thursday, April 10, 2025	53	41	36	35	31		
	Friday, April 11, 2025	52	39	35	34	31		
	Saturday, April 12, 2025	52	35	32	32	29		

¹ Detailed summaries of the noise monitoring results are provided in Appendices C and D.

² Long-term noise survey locations are identified in Figure 1.

³ Daytime hours: 7:00 a.m. to 10:00 p.m.

⁴ Nighttime hours: 10:00 p.m. to 7:00 a.m.

Source: Bollard Acoustical Consultants, Inc. (2025)

Noise Impact Analysis

The project as currently designed proposes the following separate noise-producing components:

- Sound generated due to packaged air conditioning systems for air cycling within the Greenhouse, Large Warehouse and Small Warehouse
- Sound generated due to typical on-site traffic (e.g., employee vehicles arriving/departing, doors opening/closing, engines starting, etc.)
- Sound generated due to short-term project construction activities
- Sound generated due to emergency generator

The noise generation of each of these noise sources is evaluated in the following section. As it is not clear at the time of writing this report whether or not Policy NE-1c.5 is applicable (i.e., if the property on which the noise sensitive use is located has already been substantially developed pursuant to its existing zoning, and there is available open land on those noise sensitive lands for noise attenuation), project noise levels are conservatively predicted at *both* the property lines and outdoor activity areas of the nearest sensitive receptors to each source. The resulting project-generated noise levels are compared against the applicable noise standards specified in Table 1.

Packaged Air Conditioning System Noise Generation

The project proposes utilizing packaged air conditioning (AC) systems at the Greenhouse, Large Warehouse, and Small Warehouse to provide continuous ventilation and temperature regulation for the indoor cultivation spaces. Because project cooling systems are expected to operate continuously and generate a steady-state acoustic output, noise emissions were appropriately assessed relative to the County's median (L_{50}) noise level descriptor standards. It is the understanding of BAC that the project proposes hours of operation for the cooling fans to be 24-hours per day.

At the time of writing this report, HVAC plans and specifications have not yet been developed. However, the provided project site plans (Figure 2) indicate that the HVAC equipment will have a sound enclosure around the HVAC equipment. To provide a reasonable and conservative assessment of potential noise impacts due to project AC system operations, BAC established the following assumptions to estimate required system sizes:

- 1 ton of cooling per 250 square feet of indoor space dedicated to cannabis cultivation or propagation, reflecting the elevated thermal loads from lighting, plant transpiration, and humidity control systems
- 1 ton of cooling per 450 square feet of non-cultivation areas such as administration offices, storage and support areas, etc., which is consistent with typical commercial HVAC design guidelines
- 15 dB of noise reduction provided by an acoustical enclosure installed around each set of HVAC equipment

- A 10% factor of safety

To quantify noise levels associated with the packaged air conditioning systems within the proposed Greenhouse and Warehouses, BAC utilized the assumptions outlined above to first calculate the estimated cooling loads for each structure. The estimated cooling loads were then utilized to calculate the total sound power output for each system from each structure. The resulting sound power levels for each unit were used to calculate a cumulative sound power output due to operations of all packaged air conditioning systems. The cumulative sound levels were projected to the property line and noise-sensitive receptor based on a 6 dB decrease in sound levels per each doubling of distance from the noise source. A summary of these projections is provided in Tables 3 and 4.

**Table 3
Summary of AC Noise Level Predictions at Property Lines**

APN ¹	Distance to Property Line (ft) ²			Projected Noise Levels, L ₅₀ (dBA) ³			
	AC-1	AC-2	AC-3	AC-1	AC-2	AC-3	Cumulative ⁴
027-040-019	615	465	645	33	34	29	37
027-040-004	270	240	185	40	38	40	44
027-050-044	300	310	200	41	36	39	44
027-050-043	660	790	565	32	28	30	35

¹ Sensitive receptors are identified on Figure 1.
² Distances were scaled using provided project site plans and aerial imagery.
³ Projected noise levels based on the following cooling load calculations and sound power levels: AC-1: 51-ton unit with 98 dB at 1'; AC-2: 30-ton unit with 96 dB at 1'; AC-3: 26-ton unit with 95 dB at 1'.
⁴ Calculated combined equipment noise levels (logarithmic sum).

Source: *Bollard Acoustical Consultants, Inc. (2025)*

**Table 4
Summary of AC Noise Level Predictions at Nearby Residential Receivers**

APN ¹	Distance to Residence (ft) ²			Projected Noise Levels, L ₅₀ (dBA) ^{3,4}			
	AC-1	AC-2	AC-3	AC-1	AC-2	AC-3	Cumulative ⁵
027-040-019	1,350	1,200	1,420	26	24	22	29
027-040-004	540	410	550	34	33	30	38
027-050-044	1,390	1,440	1,260	26	23	23	29
027-050-043	1,400	1,500	1,300	26	22	23	29

¹ Sensitive receptors are identified on Figure 1.
² Distances were scaled using provided project site plans and aerial imagery.
³ Projected noise levels based on the following cooling load calculations and sound power levels: AC-1: 51-ton unit with 98 dB at 1'; AC-2: 30-ton unit with 96 dB at 1'; AC-3: 26-ton unit with 95 dB at 1'.
⁴ Negative offsets were applied in certain instances to account for reduced view of AC units due to building envelope screening.
⁵ Calculated combined equipment noise levels (logarithmic sum).

Source: *Bollard Acoustical Consultants, Inc. (2025)*

The Table 3 and 4 data indicates that cumulative AC noise level exposure at both the property lines and closest sensitive structures (residential receivers) is calculated to be 44 dB L₅₀ or less.

Because the operations of the project AC equipment would be 24 hours a day, the project applicant would have to demonstrate compliance with both the County's daytime 50 dB L₅₀ noise level standard and nighttime 45 dB L₅₀ noise level standard. As a result, impacts associated with noise from project packaged air conditioning systems is identified as being **less than significant**. However, the predicted compliance is based on the assumptions outlined in this section. Should the HVAC system that is ultimately installed differ from these assumptions, an additional analysis would be warranted to ensure future compliance.

On-Site Traffic Noise Generation

As indicated in Figure 2, the project proposes the construction of 21 parking stalls. The proposed layout of the parking stalls is indicated in Figure 3 – with six parking stalls located adjacent to the Large Warehouse, and 15 stalls located adjacent the Small Warehouse. Of the 15 stalls located adjacent to the Small Warehouse, five of them are about Bloomfield Road with the other 10 located immediately adjacent the structure. Figure 2 also indicates that access to the site is provided directly from Bloomfield Road.

As a means of determining potential noise exposure due to project parking area activities, BAC utilized specific parking lot noise level measurements conducted by BAC. Specifically, a series of individual noise measurements were conducted of multiple vehicle types arriving and departing a parking area, including engines starting and stopping, car doors opening and closing, and persons conversing as they entered and exited the vehicles. The results of those measurements revealed that individual parking lot movements generated mean noise levels of approximately 70 dBA SEL at a reference distance of 50 feet.

To compute parking-generated median (L₅₀) noise levels relative to the County's applicable noise level criteria, the approximate number of hourly operations in any given area and distance to the effective noise center of those activities must be known or assumed. As previously mentioned, the project site plans indicate that the parking area contains approximately 21 parking stalls. For this analysis, it was conservatively assumed that all 21 stalls could fill or empty during a given peak daytime or nighttime busy hour of operations (believed to be "worst-case" noise exposure associated with this source).

$$\text{Peak Hour } L_{50} = 70 + 10 * \log(N) - 35.6$$

Where 70 is the SEL for a single vehicle parking operation, N is the number of parking operations in a peak hour (specifically, 21 for this project), and 35.6 is 10 times the logarithm of the number of seconds in an hour. Using the information provided above, project parking activity noise exposure at the property line and noise-sensitive receptor was calculated. The results of the calculations are summarized in Table 5.

**Table 5
On-Site Traffic Noise Level Predictions at Property Lines and Nearby Residential Receivers**

APN ¹	Distance to		Projected Noise Levels, L ₅₀ (dBA) ³	
	Property Line (ft) ²	Receiver (ft) ²	Property Line	Receptor
027-040-019	560	1,350	32	26
027-040-004	90	450	44	33
027-050-044	120	1,230	42	27
027-050-043	615	1,340	31	26

¹ Sensitive receptors are identified on Figure 1.
² Distances were scaled from effective noise center of parking lot using provided project site plans and aerial imagery.
³ Noise level measurements were obtained at a reference distance of 50' from the noise source.

Source: Bollard Acoustical Consultants, Inc. (2025)

Table 5 data indicates that worst-case parking area median noise level exposure is predicted to be 44 dB L₅₀ or less at a property line or residential receiver. As previously mentioned, typical day-to-day operations will occur from 8:00 a.m. to 5:00 p.m., however, the project facilities will be permitted to operate 24-hours per day. Regardless, the predicted worst-case hour noise level exposure of 44 dB L₅₀ complies with both the County's daytime noise level standard of 50 dB L₅₀ and nighttime noise level standard of 45 dB L₅₀ at the nearest residential use. In other words, the entire parking lot could fill or empty within a given hour at any point throughout a 24-hour period, and the project would be in compliance with both daytime and nighttime noise level standards. As a result, the impact associated with noise generated from on-site traffic is identified as being **less than significant**.

Temporary Project Construction Noise

The proposed location of the Greenhouse, Large Warehouse and Small Warehouse is in a largely flat area with no notable slope. As such, the project applicant does not believe that substantial earthwork or grading would be necessary for the development of the project. However, heavy equipment would be necessary for foundation work, paving, hauling and deliveries, and building construction (e.g., framing, exterior/interior finishing), which would increase ambient noise levels in the immediate vicinity of the work area when in use. Noise levels would vary depending on the construction phase of the project, type of equipment used, how it is operated, and how well it is maintained. Noise exposure at any single point outside the project work area would also vary depending upon the proximity of equipment activities to that point. Table 6 includes the range of maximum noise levels for equipment commonly used in general construction projects at a full-power operation at a distance of 50 feet. It should be noted that not all of the listed construction activities would be required for this project.

**Table 6
Maximum Reference Noise Levels for Typical Construction Equipment**

Equipment Description	Reference Noise Level at 50 feet, L _{max} (dBA)
Air compressor	80
Backhoe	80
Ballast equalizer	82
Ballast tamper	83
Compactor	82
Concrete mixer	85
Concrete pump	82
Concrete vibrator	76
Crane, mobile	83
Dozer	85
Excavator	85
Generator	82
Grader	85
Impact wrench	85
Loader	80
Paver	85
Pneumatic tool	85
Pump	77
Saw	76
Scraper	85
Shovel	82
Spike driver	77
Tie cutter	84
Truck	84

Source: 2018 FTA Transit Noise and Vibration Impact Assessment Manual, Table 7-1

The Table 6 data indicates that maximum construction noise levels can range from 76 to 85 dB L_{max} at a reference distance of 50 feet. Figure 1 identifies the proposed development area. It is reasonable to assume that construction activities could occur at any location within the development area, and therefore the projections assume that construction operations are occurring at the nearest point within the proposed development area to nearby noise-sensitive receptors to represent a worst-case scenario. The nearest residence to on-site construction activities is receiver R-2 (shown in Figure 1), located approximately 185 feet from the nearest point within the proposed development area. The reference construction maximum noise levels in Table 6 were projected to the R-2 residence based on a 6 dB decrease per doubling of distance from the noise source.

At a distance of 185 feet from the nearest point within the project development area, construction noise levels would be approximately 11 dB less, which would result in maximum noise levels ranging from range from 65 to 74 dB L_{max} at receiver R-2. When construction activities occur towards the interior of the site, the noise-generating equipment would be further from the property line and therefore noise levels at the surrounding sensitive receptors would be reduced. As previously mentioned, noise measurement site LT-3 was selected to capture the ambient noise level environment at the location of the project site nearest to the closest residential receiver, R-2. As indicated in Appendix C-9 through C-12, the measured daytime maximum noise levels (L_{max}) ranged from 66 to 83 dB L_{max} during the survey period. The measured maximum noise levels

routinely meet or exceed the predicted worst-case scenario noise levels due to construction activities, and therefore the impact associated with noise generated from temporary on-site construction operations is identified as being **less than significant**. Nonetheless, to reduce the potential impact from construction noise levels on sensitive receptors, the following measures should be incorporated into project on-site construction operations to the extent feasible:

- All on-site noise-generating construction activities (e.g., construction, alteration, or repair activities) should avoid early morning and evening hours and be limited to daytime hours of 7:00 a.m. to 7:00 p.m. on weekdays and 7:00 a.m. to 5:00 p.m. on weekends, or should occur pursuant to County planning staff direction.
- All noise-producing project equipment and vehicles using internal-combustion engines should be equipped with manufacturers-recommended mufflers and be maintained in good working condition.
- All mobile or fixed noise-producing equipment used on the project site that are regulated for noise output by a federal, state, or local agency shall comply with such regulations while in the course of project activity.
- Electrically powered equipment should be used instead of pneumatic or internal-combustion-powered equipment, where feasible.
- Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive uses.
- All equipment and vehicles should be powered off when not in use. Unnecessary idling of internal combustion engines should be prohibited.
- The construction contractor shall designate a “noise disturbance coordinator” who will be responsible for responding to any local complaints about construction noise. The disturbance coordinator shall be responsible for determining the cause of the noise complaint (e.g., starting too early, poor muffler, etc.) and instituting reasonable measures as warranted to correct the problem. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site.

Emergency Generator Noise

The project proposes the installation of an emergency backup generator immediately adjacent to the Small Warehouse (shown in Figure 3). The project site plans indicate that the generator will be enclosed within a dedicated sound-attenuating enclosure. At the time of writing this report, mechanical plans and specifications had not yet been developed, and a specific generator and/or sound enclosure had not been formally selected or sized. However, based on information provided by the project applicant, a Generac Industrial Power Systems Model SD050 diesel standby generator is being considered for the project. Therefore, for the purposes of this analysis, it was assumed that this model would be used.

According to the project applicant, the generator would only operate during emergencies (power outages) and brief daytime periods for periodic maintenance/lubrication. The emergency generator would not operate at night, except during power outages.

Table 7 contains sound level data for the Generac SD050 diesel generator in two configurations: Open Set (no enclosure) and equipped with a manufacturer-produced Level 1 acoustic enclosure.

Table 7
Summary of Generac SD050 Diesel Generator Sound Levels by Configuration

Enclosure Type	Reference Distance (ft)	Reference Sound Level, L ₅₀ (dBA) ¹
Open Set	25	~ 83
Level 1	25	~ 70

¹ Sound level data obtained from specification sheets published by the equipment manufacturer (Generac).

Source: Bollard Acoustical Consultants, Inc. (2025)

Using the reference sound level data provided in Table 7, and based on a 6 dB decrease in sound levels per each doubling of distance from the noise source, generator noise level exposure was projected to the property lines and closest sensitive receptors. A summary of those projections is provided in Tables 8 and 9.

Table 8
Summary of Generator Noise Level Predictions at Property Lines

APN ¹	Distance to Property Line (ft) ²	Projected Noise Levels, L ₅₀ (dBA) ^{3,4}	
		Open Set	Level 1 Enclosure
027-040-019	270	53	40
027-040-004	195	55	42
027-050-044	220	54	41
027-050-043	550	46	33

¹ Sensitive receptors are identified on Figure 1.
² Distances were scaled using provided project site plans and aerial imagery.
³ Projected noise levels based on the reference noise levels indicated in Table 7.
⁴ Negative offsets were applied in certain instances to account for reduced view of generator due to building envelope screening.

Source: Bollard Acoustical Consultants, Inc. (2025)

Table 9
Summary of Generator Noise Level Predictions at Nearby Sensitive Receivers

APN ¹	Distance to Residence (ft) ²	Projected Noise Levels, L ₅₀ (dBA) ³	
		Open Set	Level 1 Enclosure
027-040-019	1,440	38	25
027-040-004	555	46	33
027-050-044	1,250	39	26
027-050-043	1,290	39	26

¹ Sensitive receptors are identified on Figure 1.

² Distances were scaled using provided project site plans and aerial imagery.

³ Projected noise levels based on the reference noise levels indicated in Table 7.

⁴ Negative offsets were applied in certain instances to account for reduced view of generator due to building envelope screening.

Source: Bollard Acoustical Consultants, Inc. (2025)

The Table 8 and 9 data indicate that predicted generator noise levels without the addition of a Level 1 acoustic enclosure would exceed the applicable Sonoma County daytime noise standard (Table 1). However, with the project generator equipped with a Level 1 acoustic enclosure, predicted generator noise levels would comply with the applicable Sonoma County daytime noise standard at both the closest property lines and receivers (residences) constructed on those properties. Therefore, provided that the project generator (SD050) is equipped with a Level 1 acoustic enclosure, noise impacts from the project generator are identified as being **less than significant**.

Should a different emergency backup generator be ultimately selected for installation, an acoustical consultant should review the specifications of the proposed unit to verify that it complies with applicable County noise standards.

Noise Exposure from All Analyzed Sources

To evaluate compliance of all on-site operations with the noise level standards of Table 1, the combined noise level exposure from the noise sources associated with normal daily on-site operations (i.e., packaged air conditioning units and on-site traffic) was calculated. The project back-up emergency generator was excluded from this analysis, as it reasonably considered to be not a component of normal daily operations.

As previously mentioned, the packaged air conditioning systems are expected to operate continuously, 24-hours per day. Onsite traffic would mostly occur only during daytime hours; however, the project facilities will be permitted to operate 24-hours per day. Therefore, combined project noise exposure due to air conditioning systems and onsite traffic was evaluated against Sonoma County daytime 50 dB L₅₀ and nighttime 45 dB L₅₀ noise standards identified in Table 1.

The combined noise levels were calculated at both the property lines and closest sensitive receptors to the project site. A summary of the calculations is provided in Tables 10 and 11.

Table 10
Combined Noise Level Exposure at Property Lines^{2,3}

APN ¹	Predicted Noise Levels, L ₅₀ (dBA)				Calculated Combined, L ₅₀ (dBA)	
	Air Conditioning	On-Site Traffic (Daytime)	On-Site Traffic (Nighttime) ⁴	On-Site Traffic (Nighttime) ⁴	Daytime	Nighttime
027-040-019	37	32	29	29	38	38
027-040-004	44	44	41	41	47	45
027-050-044	44	42	39	39	46	45
027-050-043	35	31	28	28	36	36

¹ Sensitive receptors are identified on Figure 1.
² Daytime hours: 7:00 a.m. to 10:00 p.m.
³ Nighttime hours: 10:00 p.m. to 7:00 a.m.
⁴ Nighttime onsite traffic L₅₀ was calculated using 50% of worst-case daytime hour traffic.

Source: Bollard Acoustical Consultants, Inc. (2025)

Table 11
Combined Noise Level Exposure at Residential Receptors^{2,3}

APN ¹	Predicted Noise Levels, L ₅₀ (dBA)				Calculated Combined, L ₅₀ (dBA)	
	Air Conditioning	On-Site Traffic (Daytime)	On-Site Traffic (Nighttime) ⁴	On-Site Traffic (Nighttime) ⁴	Daytime	Nighttime
027-040-019	29	26	23	23	31	30
027-040-004	38	33	31	31	39	39
027-050-044	29	27	24	24	31	30
027-050-043	29	26	23	23	31	30

⁵ Sensitive receptors are identified on Figure 1.
⁶ Daytime hours: 7:00 a.m. to 10:00 p.m.
⁷ Nighttime hours: 10:00 p.m. to 7:00 a.m.
⁸ Nighttime onsite traffic L₅₀ was calculated using 50% of worst-case daytime hour traffic.

Source: Bollard Acoustical Consultants, Inc. (2025)

As indicated in Tables 10 and 11, the calculated combined L₅₀ noise levels are in compliance with the Table 1 daytime and nighttime noise level standards for Sonoma County. As a result, impacts associated with combined noise generation from analyzed on-site operations is identified as being **less than significant**.

Conclusions

Noise generated at the Bloomfield Flowers project would result primarily from three separate project components: packaged air conditioning units, on-site traffic, emergency generator operations. Additionally, short-term construction related activities would also generate noise, but only for short-term durations. Based on the analysis presented in this assessment, all four of these noise producing components are predicted to comply with applicable Sonoma County noise level standards. As a result, impacts associated with the analyzed noise-producing components of this project is identified as being **less than significant**.

These conclusions are based on BAC's measured long-term ambient noise level data, the BAC assumptions specified within this report, BAC reference file data for on-site traffic, the provided project site plans, and operations information provided by the project. Deviations from the resources cited herein could cause future noise levels to differ from those predicted in this assessment.

This concludes BAC's environmental noise assessment for the Bloomfield Flowers project in Petaluma (Sonoma County), California. Please contact BAC at (530) 537-2328 or donb@bacnoise.com with any questions regarding this assessment.

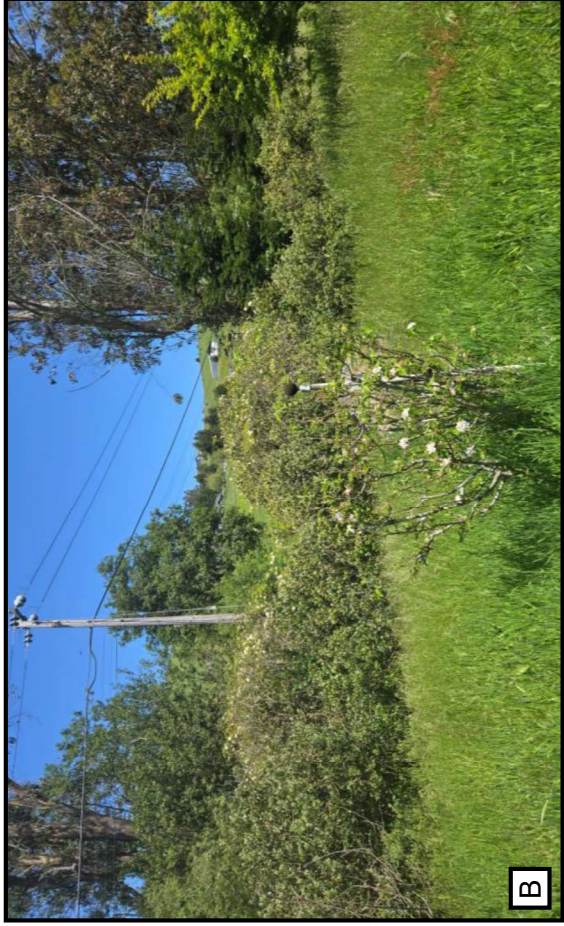
Appendix A Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound. A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.
IIC	Impact Insulation Class (IIC): A single-number representation of a floor/ceiling partition's impact generated noise insulation performance. The field-measured version of this number is the FIIC.
L_{dn}	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
L_{max}	The highest root-mean-square (RMS) sound level measured over a given period of time.
Loudness	A subjective term for the sensation of the magnitude of sound.
Masking	The amount (or the process) by which the threshold of audibility is for one sound is raised by the presence of another (masking) sound.
Noise	Unwanted sound.
Peak Noise	The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the "Maximum" level, which is the highest RMS level.
RT₆₀	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
STC	Sound Transmission Class (STC): A single-number representation of a partition's noise insulation performance. This number is based on laboratory-measured, 16-band (1/3-octave) transmission loss (TL) data of the subject partition. The field-measured version of this number is the FSIC.

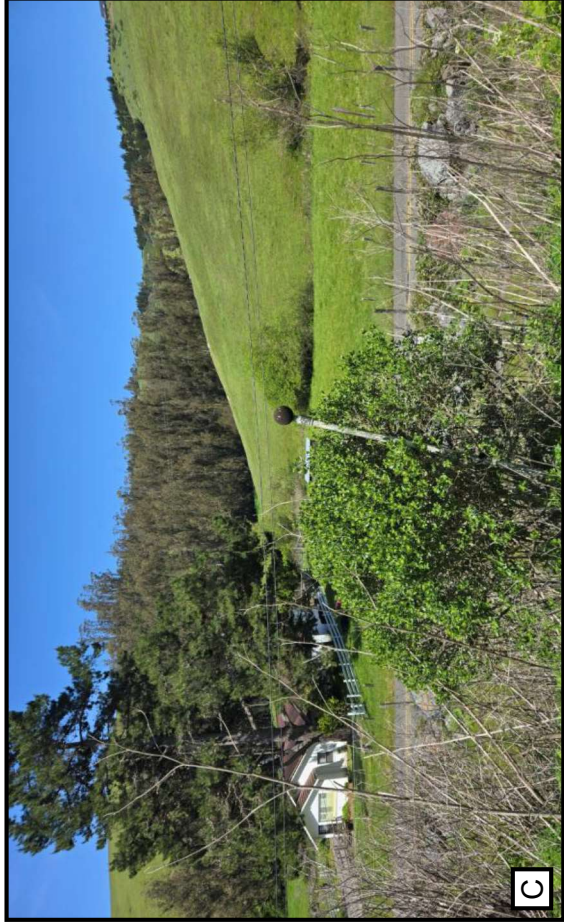




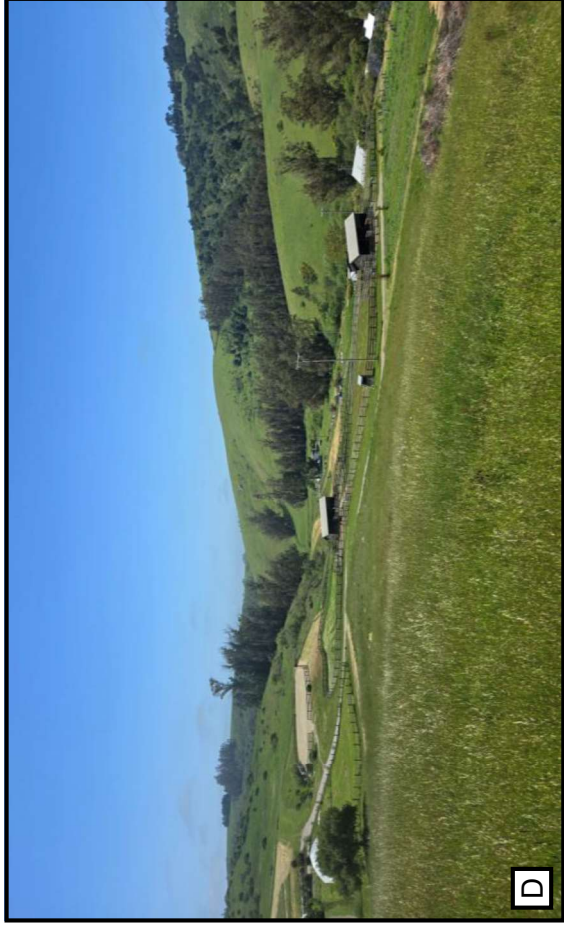
A



B



C



D

Legend

- A** Noise Measurement Site LT-1 Facing Northwest
- B** Noise Measurement Site LT-2 Facing Northeast
- C** Noise Measurement Site LT-3 Facing Northwest Towards Bloomfield Road
- D** Eastern Property Line Boundary Facing West Towards Project Development Area

Bloomfield Flowers
Sonoma County, California

Noise Survey Photographs

Appendix B



BOLLARD
Acoustical Consultants

Appendix C-1
Long-Term Ambient Noise Monitoring Results, LT-1
Bloomfield Flowers - Sonoma County, California
Wednesday, April 9, 2025

Hour	Leq	Lmax	L50	L90
12:00 AM	30	36	30	28
1:00 AM	29	40	28	26
2:00 AM	28	42	26	25
3:00 AM	26	37	25	23
4:00 AM	26	45	24	23
5:00 AM	35	55	26	24
6:00 AM	38	48	35	30
7:00 AM	49	58	48	38
8:00 AM	46	57	43	37
9:00 AM	45	64	39	34
10:00 AM	42	56	39	33
11:00 AM	40	56	36	31
12:00 PM	41	61	38	33
1:00 PM	41	62	38	34
2:00 PM	42	62	39	33
3:00 PM	41	59	39	34
4:00 PM	42	57	40	36
5:00 PM	42	61	37	32
6:00 PM	41	56	36	32
7:00 PM	37	53	32	29
8:00 PM	38	50	36	32
9:00 PM	36	47	34	32
10:00 PM	34	45	33	30
11:00 PM	35	46	33	31

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	49	36	43	38	26	33
Lmax (Maximum)	64	47	57	55	36	44
L50 (Median)	48	32	38	35	24	29
L90 (Background)	38	29	33	31	23	27

Computed DNL, dB	43
% Daytime Energy	94%
% Nighttime Energy	6%

GPS Coordinates	38°20'13.03"N
	122°50'25.13"W

Appendix C-2
Long-Term Ambient Noise Monitoring Results, LT-1
Bloomfield Flowers - Sonoma County, California
Thursday, April 10, 2025

Hour	Leq	Lmax	L50	L90
12:00 AM	34	50	31	27
1:00 AM	31	46	27	24
2:00 AM	30	49	25	23
3:00 AM	32	43	30	26
4:00 AM	36	54	33	27
5:00 AM	35	47	32	27
6:00 AM	39	66	33	29
7:00 AM	50	62	49	41
8:00 AM	50	66	46	38
9:00 AM	42	57	38	34
10:00 AM	40	52	37	34
11:00 AM	40	57	37	32
12:00 PM	43	61	41	35
1:00 PM	44	56	42	36
2:00 PM	48	60	46	42
3:00 PM	49	62	47	42
4:00 PM	50	62	49	44
5:00 PM	45	61	42	36
6:00 PM	41	56	37	33
7:00 PM	38	60	33	29
8:00 PM	39	56	37	33
9:00 PM	39	50	37	34
10:00 PM	39	48	38	34
11:00 PM	38	46	38	31

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	50	38	46	39	30	36
Lmax (Maximum)	66	50	59	66	43	50
L50 (Median)	49	33	41	38	25	32
L90 (Background)	44	29	36	34	23	27

Computed DNL, dB	46
% Daytime Energy	94%
% Nighttime Energy	6%

GPS Coordinates	38°20'13.03"N
	122°50'25.13"W

**Appendix C-3
 Long-Term Ambient Noise Monitoring Results, LT-1
 Bloomfield Flowers - Sonoma County, California
 Friday, April 11, 2025**

Hour	Leq	Lmax	L50	L90
12:00 AM	35	49	33	29
1:00 AM	34	51	32	28
2:00 AM	31	48	29	24
3:00 AM	32	46	28	24
4:00 AM	36	50	31	23
5:00 AM	36	49	31	26
6:00 AM	40	60	36	33
7:00 AM	45	70	37	34
8:00 AM	40	54	38	34
9:00 AM	39	54	36	33
10:00 AM	40	56	37	33
11:00 AM	43	58	40	34
12:00 PM	47	57	45	41
1:00 PM	47	60	46	42
2:00 PM	53	62	52	47
3:00 PM	51	65	49	44
4:00 PM	44	58	40	33
5:00 PM	40	60	37	33
6:00 PM	41	59	35	32
7:00 PM	46	76	35	32
8:00 PM	37	49	36	34
9:00 PM	39	51	38	36
10:00 PM	37	50	36	31
11:00 PM	34	50	33	29

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	53	37	46	40	31	36
Lmax (Maximum)	76	49	59	60	46	50
L50 (Median)	52	35	40	36	28	32
L90 (Background)	47	32	36	33	23	27

Computed DNL, dB	46
% Daytime Energy	95%
% Nighttime Energy	5%

GPS Coordinates	38°20'13.03"N 122°50'25.13"W
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Appendix C-4
Long-Term Ambient Noise Monitoring Results, LT-1
Bloomfield Flowers - Sonoma County, California
Saturday, April 12, 2025

Hour	Leq	Lmax	L50	L90
12:00 AM	32	48	31	26
1:00 AM	33	47	30	24
2:00 AM	30	46	26	22
3:00 AM	29	48	26	22
4:00 AM	29	38	27	24
5:00 AM	36	48	33	28
6:00 AM	46	62	39	34
7:00 AM	42	69	35	32
8:00 AM	36	50	34	32
9:00 AM	39	54	36	33
10:00 AM	42	59	37	33
11:00 AM	40	53	37	32
12:00 PM	42	63	39	33
1:00 PM	48	64	46	38
2:00 PM	42	54	40	36
3:00 PM	43	54	41	36
4:00 PM	43	61	41	38
5:00 PM	43	62	39	34
6:00 PM	45	66	37	32
7:00 PM	38	50	36	31
8:00 PM	37	48	36	32
9:00 PM	36	53	34	29
10:00 PM	36	48	34	30
11:00 PM	36	60	33	25

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	48	36	42	46	29	38
Lmax (Maximum)	69	48	57	62	38	49
L50 (Median)	46	34	38	39	26	31
L90 (Background)	38	29	33	34	22	26

Computed DNL, dB	45
% Daytime Energy	82%
% Nighttime Energy	18%

GPS Coordinates	38°20'13.03"N
	122°50'25.13"W

Appendix C-5
Long-Term Ambient Noise Monitoring Results, LT-2
Bloomfield Flowers - Sonoma County, California
Wednesday, April 9, 2025

Hour	Leq	Lmax	L50	L90
12:00 AM	30	38	30	30
1:00 AM	29	36	29	29
2:00 AM	29	33	28	28
3:00 AM	28	34	28	28
4:00 AM	34	62	28	28
5:00 AM	45	72	28	28
6:00 AM	47	67	40	33
7:00 AM	49	67	39	34
8:00 AM	47	66	38	34
9:00 AM	49	69	38	33
10:00 AM	48	66	38	34
11:00 AM	47	69	37	32
12:00 PM	48	67	38	33
1:00 PM	47	65	37	34
2:00 PM	54	83	36	33
3:00 PM	47	64	36	33
4:00 PM	50	72	38	34
5:00 PM	48	65	37	32
6:00 PM	48	70	34	30
7:00 PM	46	74	32	30
8:00 PM	45	65	33	30
9:00 PM	41	63	32	31
10:00 PM	39	62	32	30
11:00 PM	38	62	32	31

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	54	41	48	47	28	40
Lmax (Maximum)	83	63	68	72	33	52
L50 (Median)	39	32	36	40	28	31
L90 (Background)	34	30	32	33	28	29

Computed DNL, dB	49
% Daytime Energy	91%
% Nighttime Energy	9%

GPS Coordinates	38°20'17.63"N
	122°50'29.41"W

Appendix C-6
Long-Term Ambient Noise Monitoring Results, LT-2
Bloomfield Flowers - Sonoma County, California
Thursday, April 10, 2025

Hour	Leq	Lmax	L50	L90
12:00 AM	36	63	30	29
1:00 AM	36	63	28	28
2:00 AM	35	62	27	27
3:00 AM	28	36	28	27
4:00 AM	30	37	30	28
5:00 AM	38	63	29	28
6:00 AM	48	67	38	32
7:00 AM	49	74	38	33
8:00 AM	49	71	38	34
9:00 AM	49	70	38	32
10:00 AM	47	67	37	32
11:00 AM	47	68	35	31
12:00 PM	48	63	43	35
1:00 PM	60	72	50	34
2:00 PM	49	71	42	38
3:00 PM	49	70	40	36
4:00 PM	50	72	40	36
5:00 PM	49	71	36	32
6:00 PM	49	67	35	31
7:00 PM	45	67	31	29
8:00 PM	42	67	32	30
9:00 PM	45	71	31	30
10:00 PM	41	64	31	30
11:00 PM	37	62	30	29

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	60	42	51	48	28	40
Lmax (Maximum)	74	63	69	67	36	57
L50 (Median)	50	31	38	38	27	30
L90 (Background)	38	29	33	32	27	29

Computed DNL, dB	51
% Daytime Energy	95%
% Nighttime Energy	5%

GPS Coordinates	38°20'17.63"N
	122°50'29.41"W

Appendix C-7
Long-Term Ambient Noise Monitoring Results, LT-2
Bloomfield Flowers - Sonoma County, California
Friday, April 11, 2025

Hour	Leq	Lmax	L50	L90
12:00 AM	35	63	29	28
1:00 AM	37	65	29	28
2:00 AM	35	63	28	27
3:00 AM	31	56	28	27
4:00 AM	29	50	28	27
5:00 AM	40	64	29	27
6:00 AM	48	67	39	34
7:00 AM	49	71	35	32
8:00 AM	49	68	35	31
9:00 AM	47	67	36	31
10:00 AM	47	67	36	32
11:00 AM	48	72	36	32
12:00 PM	48	66	40	35
1:00 PM	47	67	43	40
2:00 PM	49	66	45	41
3:00 PM	49	67	44	39
4:00 PM	51	75	39	33
5:00 PM	53	85	33	30
6:00 PM	46	67	33	30
7:00 PM	45	67	32	30
8:00 PM	41	63	33	31
9:00 PM	41	63	33	32
10:00 PM	42	64	31	29
11:00 PM	38	66	30	29

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	53	41	48	48	29	41
Lmax (Maximum)	85	63	69	67	50	62
L50 (Median)	45	32	37	39	28	30
L90 (Background)	41	30	33	34	27	28

Computed DNL, dB	49
% Daytime Energy	91%
% Nighttime Energy	9%

GPS Coordinates	38°20'17.63"N
	122°50'29.41"W

Appendix C-8
Long-Term Ambient Noise Monitoring Results, LT-2
Bloomfield Flowers - Sonoma County, California
Saturday, April 12, 2025

Hour	Leq	Lmax	L50	L90
12:00 AM	37	62	29	28
1:00 AM	34	62	28	27
2:00 AM	35	63	27	26
3:00 AM	29	52	26	26
4:00 AM	27	39	26	26
5:00 AM	37	58	27	26
6:00 AM	48	72	38	32
7:00 AM	45	69	33	30
8:00 AM	45	74	33	29
9:00 AM	48	71	36	31
10:00 AM	47	67	35	31
11:00 AM	48	66	35	31
12:00 PM	47	64	35	31
1:00 PM	49	74	36	32
2:00 PM	47	65	38	34
3:00 PM	48	71	36	33
4:00 PM	47	66	36	33
5:00 PM	49	72	37	32
6:00 PM	47	69	34	30
7:00 PM	45	64	33	28
8:00 PM	44	64	31	29
9:00 PM	43	67	29	28
10:00 PM	42	64	29	28
11:00 PM	40	67	28	27

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	49	43	47	48	27	40
Lmax (Maximum)	74	64	68	72	39	60
L50 (Median)	38	29	34	38	26	29
L90 (Background)	34	28	31	32	26	27

Computed DNL, dB	49
% Daytime Energy	88%
% Nighttime Energy	12%

GPS Coordinates	38°20'17.63"N
	122°50'29.41"W

Appendix C-9
Long-Term Ambient Noise Monitoring Results, LT-3
Bloomfield Flowers - Sonoma County, California
Wednesday, April 9, 2025

Hour	Leq	Lmax	L50	L90
12:00 AM	38	43	37	35
1:00 AM	36	42	36	33
2:00 AM	34	40	33	31
3:00 AM	32	39	31	27
4:00 AM	39	67	28	25
5:00 AM	48	72	28	24
6:00 AM	48	70	38	30
7:00 AM	53	71	39	36
8:00 AM	52	74	38	35
9:00 AM	55	71	50	35
10:00 AM	51	70	38	33
11:00 AM	53	83	35	31
12:00 PM	50	68	34	31
1:00 PM	50	68	35	33
2:00 PM	51	71	35	32
3:00 PM	51	71	36	33
4:00 PM	53	75	38	35
5:00 PM	52	70	36	30
6:00 PM	51	69	34	29
7:00 PM	47	71	35	30
8:00 PM	49	67	44	41
9:00 PM	47	68	42	40
10:00 PM	44	64	40	39
11:00 PM	43	65	40	36

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)		Nighttime (10 p.m. - 7 a.m.)			
	High	Low	Average	High	Low	Average
Leq (Average)	55	47	52	48	32	43
Lmax (Maximum)	83	67	71	72	39	56
L50 (Median)	50	34	38	40	28	34
L90 (Background)	41	29	33	39	24	31

Computed DNL, dB	52
% Daytime Energy	91%
% Nighttime Energy	9%

GPS Coordinates	38°20'10.10"N
	122°50'40.84"W

Appendix C-10
Long-Term Ambient Noise Monitoring Results, LT-3
Bloomfield Flowers - Sonoma County, California
Thursday, April 10, 2025

Hour	Leq	Lmax	L50	L90
12:00 AM	41	64	38	35
1:00 AM	41	66	35	32
2:00 AM	42	70	33	30
3:00 AM	33	39	32	29
4:00 AM	32	42	32	28
5:00 AM	42	68	27	24
6:00 AM	47	70	37	27
7:00 AM	54	81	40	36
8:00 AM	53	70	39	35
9:00 AM	51	75	37	33
10:00 AM	56	70	44	33
11:00 AM	51	72	38	31
12:00 PM	59	70	53	34
1:00 PM	57	69	41	33
2:00 PM	53	77	42	39
3:00 PM	53	76	43	39
4:00 PM	53	74	47	44
5:00 PM	53	72	44	42
6:00 PM	53	76	35	31
7:00 PM	50	74	32	29
8:00 PM	50	80	41	39
9:00 PM	49	70	42	40
10:00 PM	46	67	40	38
11:00 PM	42	63	40	37

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)		Nighttime (10 p.m. - 7 a.m.)			
	High	Low	Average	High	Low	Average
Leq (Average)	59	49	54	47	32	43
Lmax (Maximum)	81	69	74	70	39	61
L50 (Median)	53	32	41	40	27	35
L90 (Background)	44	29	36	38	24	31

Computed DNL, dB	53
% Daytime Energy	95%
% Nighttime Energy	5%

GPS Coordinates	38°20'10.10"N
	122°50'40.84"W

Appendix C-11
Long-Term Ambient Noise Monitoring Results, LT-3
Bloomfield Flowers - Sonoma County, California
Friday, April 11, 2025

Hour	Leq	Lmax	L50	L90
12:00 AM	39	59	38	35
1:00 AM	43	71	36	32
2:00 AM	41	68	32	28
3:00 AM	35	60	29	24
4:00 AM	29	39	28	24
5:00 AM	45	68	28	24
6:00 AM	49	72	39	34
7:00 AM	52	71	37	34
8:00 AM	53	71	37	33
9:00 AM	51	70	37	34
10:00 AM	50	70	38	34
11:00 AM	51	69	36	32
12:00 PM	51	69	42	35
1:00 PM	50	70	42	40
2:00 PM	53	72	47	44
3:00 PM	54	78	46	41
4:00 PM	55	80	40	32
5:00 PM	51	69	34	29
6:00 PM	50	67	35	30
7:00 PM	49	71	34	30
8:00 PM	47	67	42	40
9:00 PM	48	68	45	42
10:00 PM	47	67	40	38
11:00 PM	42	67	38	36

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)		Nighttime (10 p.m. - 7 a.m.)			
	High	Low	Average	High	Low	Average
Leq (Average)	55	47	51	49	29	44
Lmax (Maximum)	80	67	71	72	39	63
L50 (Median)	47	34	39	40	28	34
L90 (Background)	44	29	35	38	24	31

Computed DNL, dB	52
% Daytime Energy	91%
% Nighttime Energy	9%

GPS Coordinates	38°20'10.10"N
	122°50'40.84"W

Appendix C-12
Long-Term Ambient Noise Monitoring Results, LT-3
Bloomfield Flowers - Sonoma County, California
Saturday, April 12, 2025

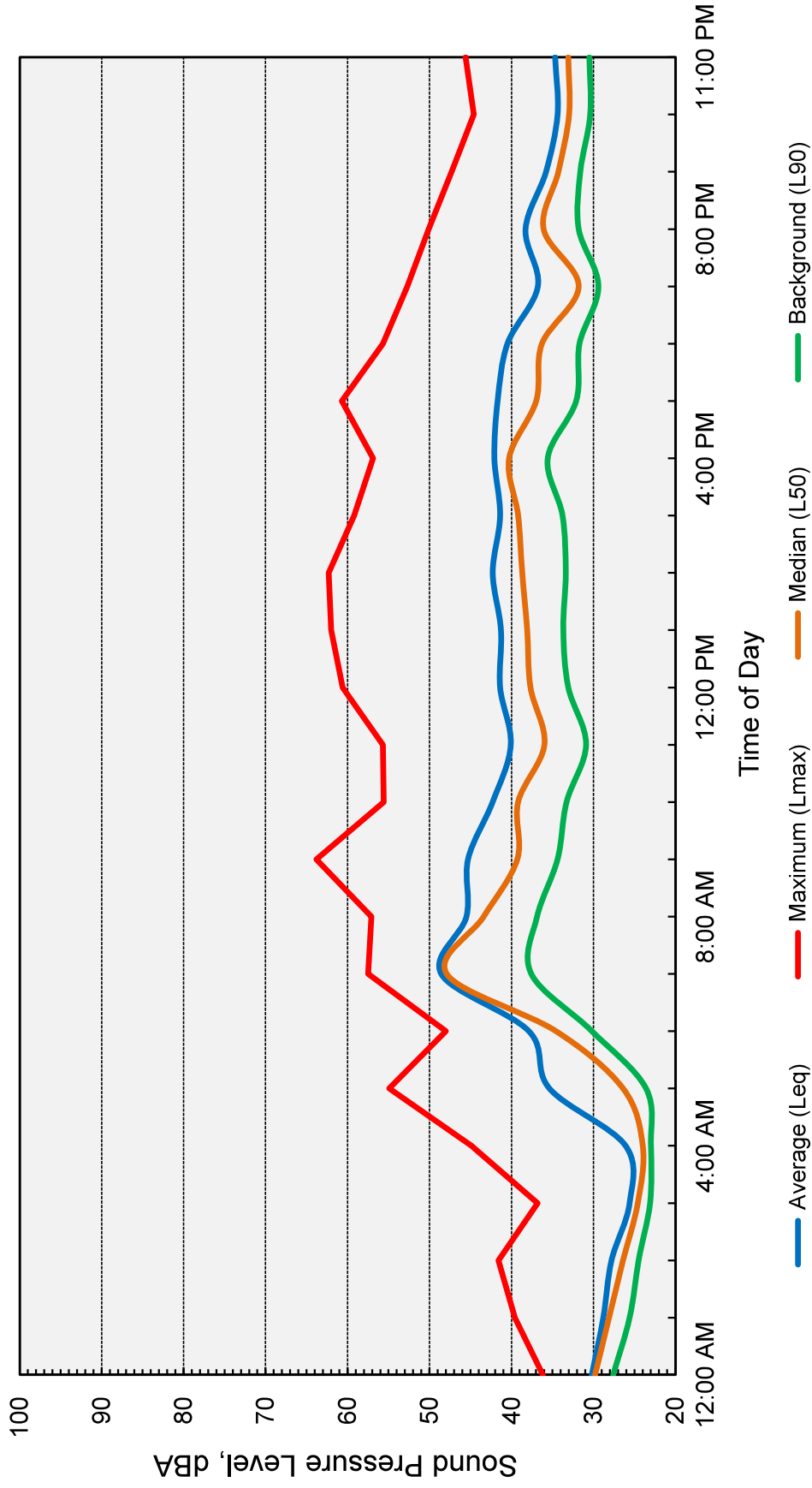
Hour	Leq	Lmax	L50	L90
12:00 AM	43	65	36	33
1:00 AM	39	64	35	31
2:00 AM	40	68	31	26
3:00 AM	33	57	27	23
4:00 AM	30	48	26	24
5:00 AM	35	62	26	24
6:00 AM	49	72	39	35
7:00 AM	48	71	36	33
8:00 AM	47	68	35	32
9:00 AM	51	73	37	33
10:00 AM	51	72	35	32
11:00 AM	52	72	35	31
12:00 PM	52	68	36	31
1:00 PM	53	80	35	32
2:00 PM	51	71	36	33
3:00 PM	51	73	35	32
4:00 PM	50	67	34	31
5:00 PM	52	75	34	29
6:00 PM	51	69	33	29
7:00 PM	49	66	33	29
8:00 PM	47	67	37	34
9:00 PM	48	70	37	35
10:00 PM	47	68	34	32
11:00 PM	45	70	33	29

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)		Nighttime (10 p.m. - 7 a.m.)			
	High	Low	Average	High	Low	Average
Leq (Average)	53	47	51	49	30	43
Lmax (Maximum)	80	66	71	72	48	64
L50 (Median)	37	33	35	39	26	32
L90 (Background)	35	29	32	35	23	29

Computed DNL, dB	52
% Daytime Energy	90%
% Nighttime Energy	10%

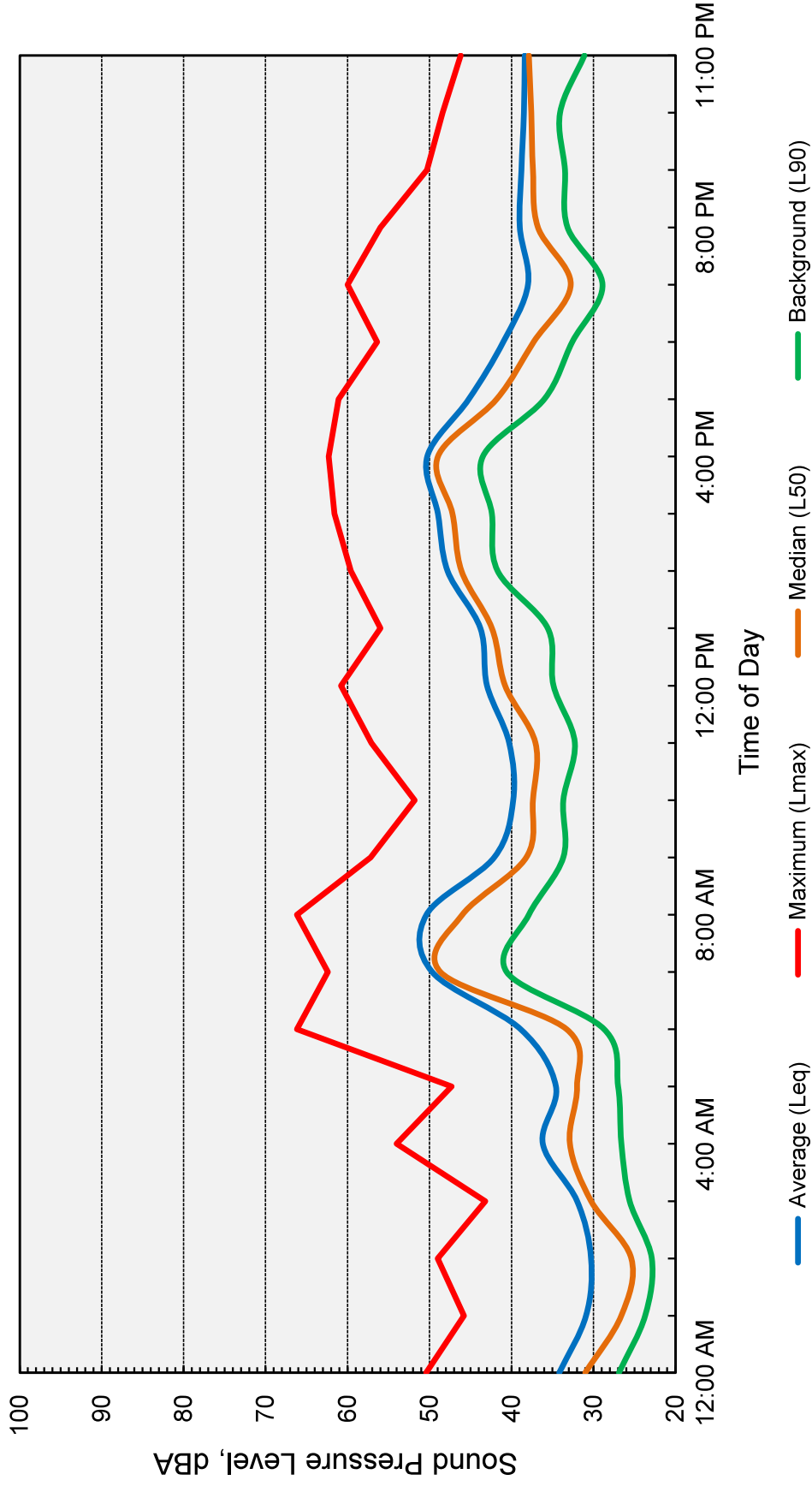
GPS Coordinates	38°20'10.10"N
	122°50'40.84"W

Appendix D-1
Long-Term Ambient Noise Monitoring Results, LT-1
Bloomfield Flowers - Sonoma County, California
Wednesday, April 9, 2025



Computed DNL = 43 dB

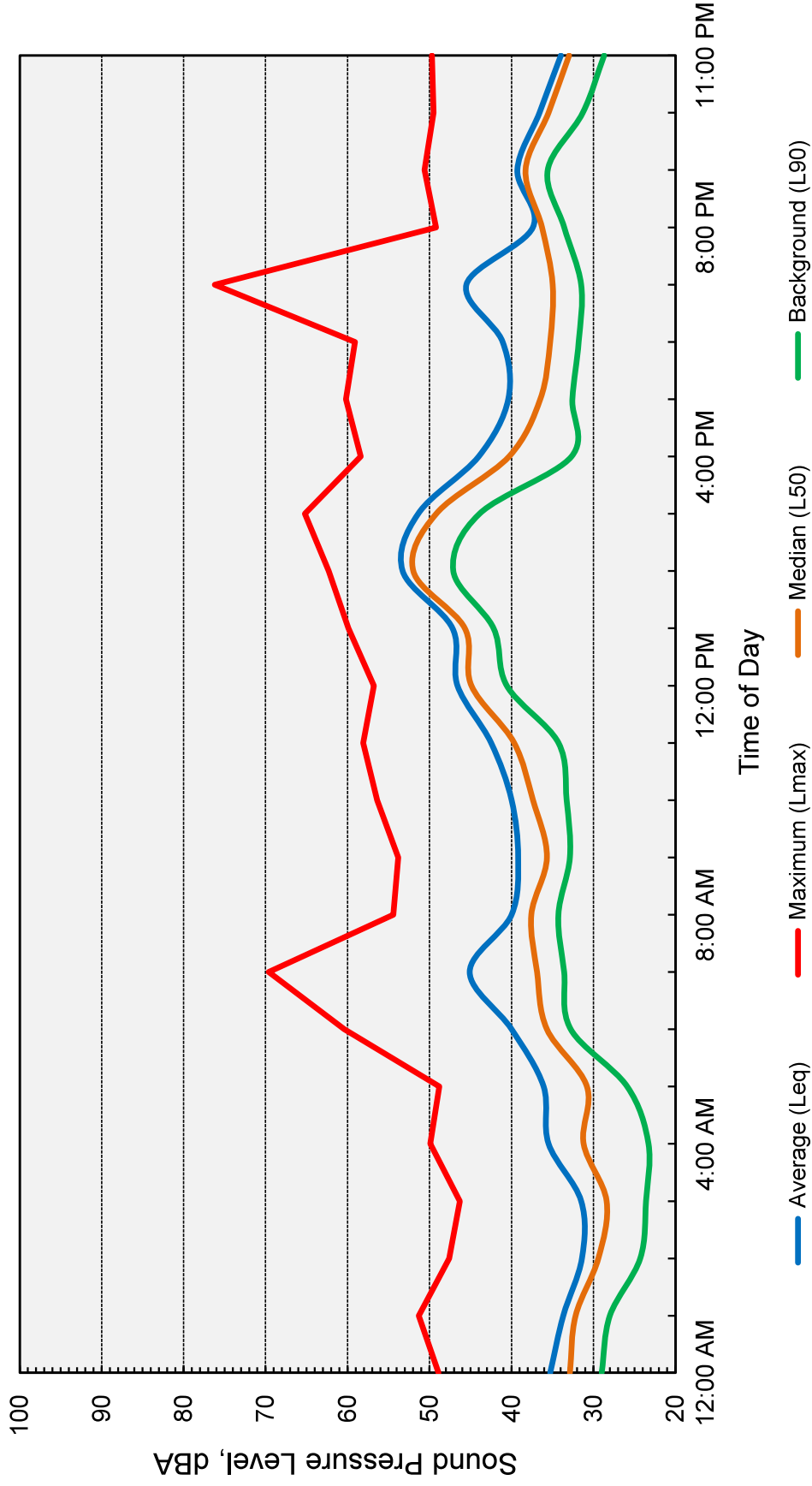
Appendix D-2
Long-Term Ambient Noise Monitoring Results, LT-1
Bloomfield Flowers - Sonoma County, California
Thursday, April 10, 2025



Computed DNL = 46 dB



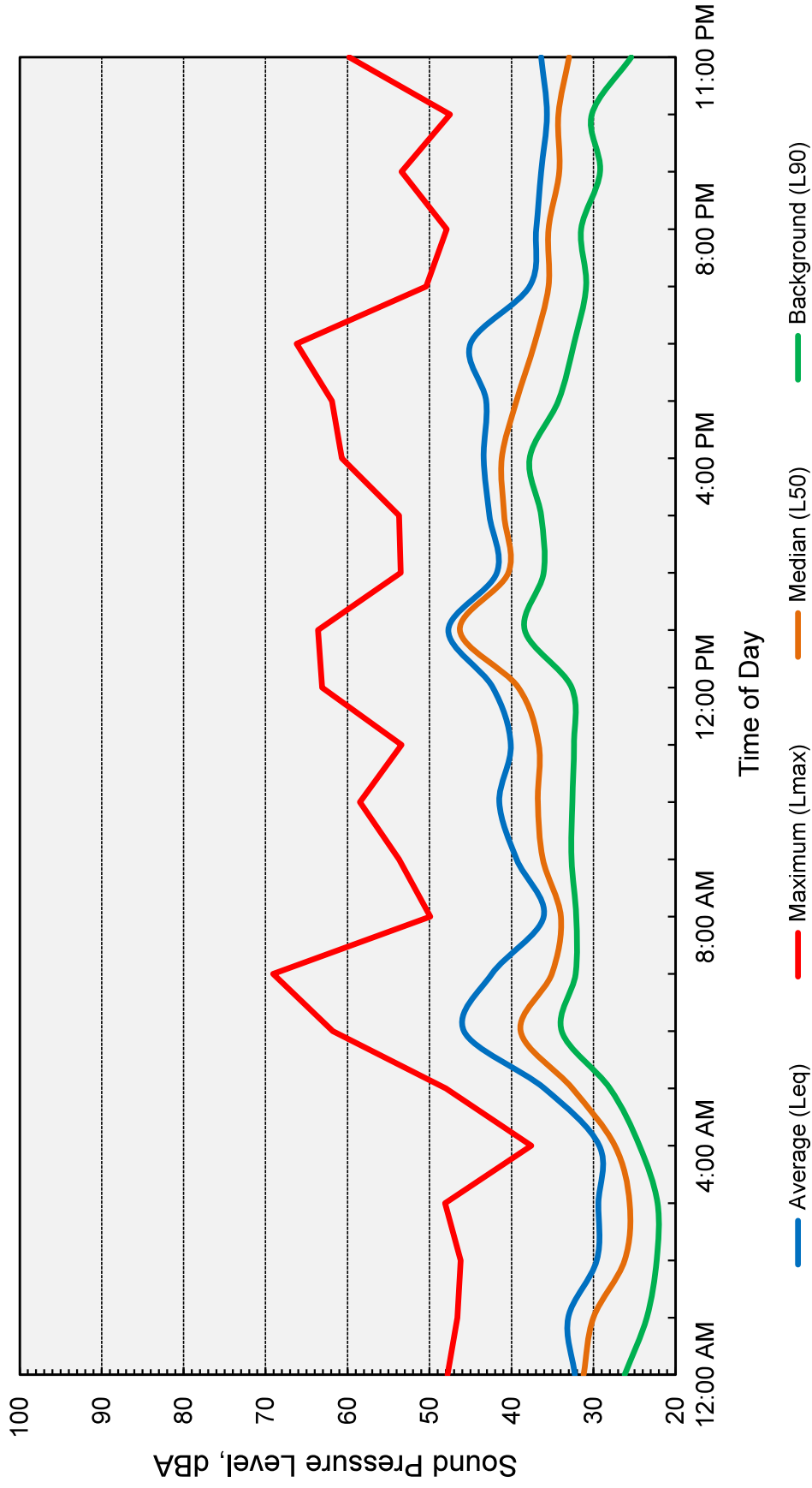
Appendix D-3
Long-Term Ambient Noise Monitoring Results, LT-1
Bloomfield Flowers - Sonoma County, California
Friday, April 11, 2025



Computed DNL = 46 dB



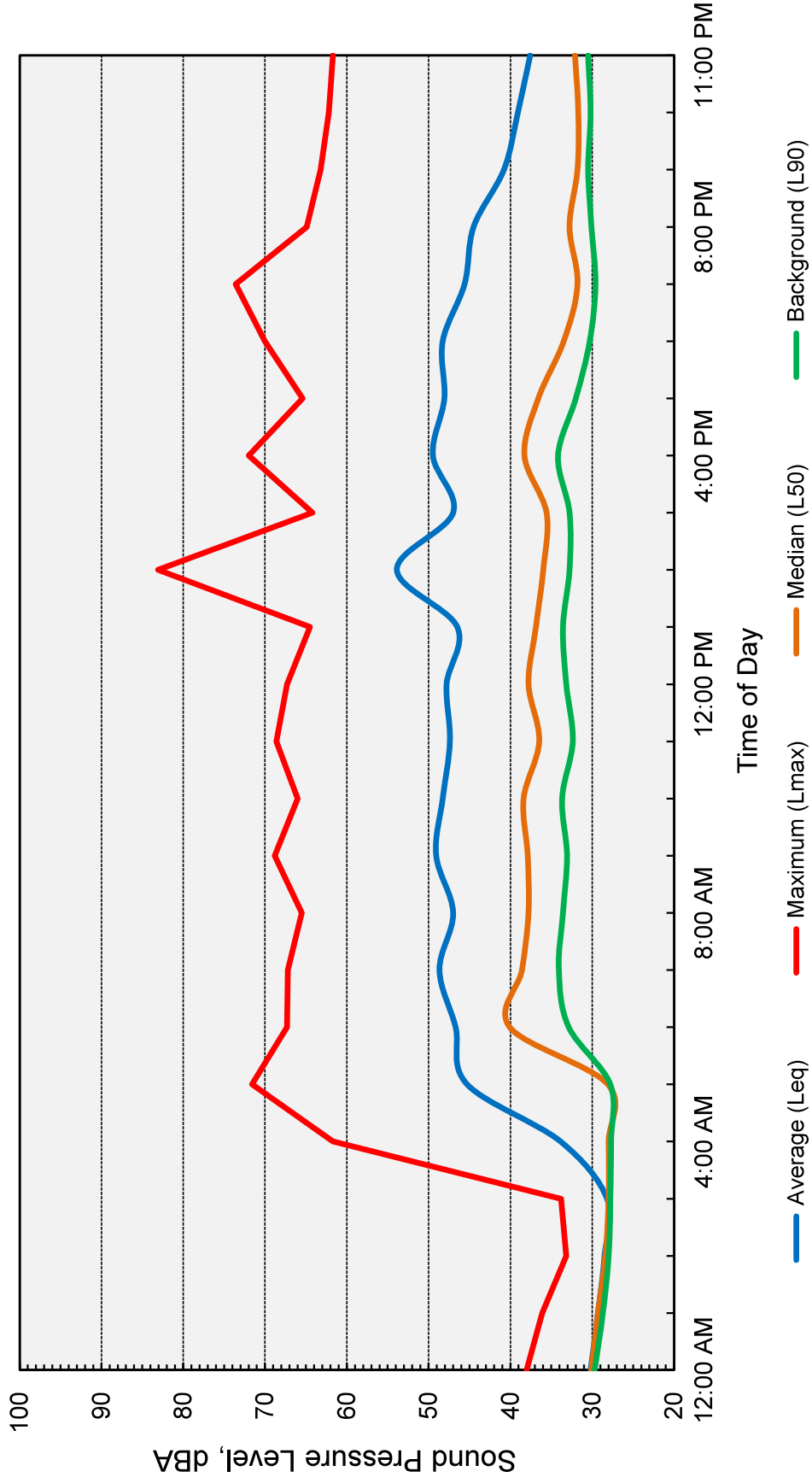
Appendix D-4
Long-Term Ambient Noise Monitoring Results, LT-1
Bloomfield Flowers - Sonoma County, California
Saturday, April 12, 2025



Computed DNL = 45 dB



Appendix D-5
Long-Term Ambient Noise Monitoring Results, LT-2
Bloomfield Flowers - Sonoma County, California
Wednesday, April 9, 2025



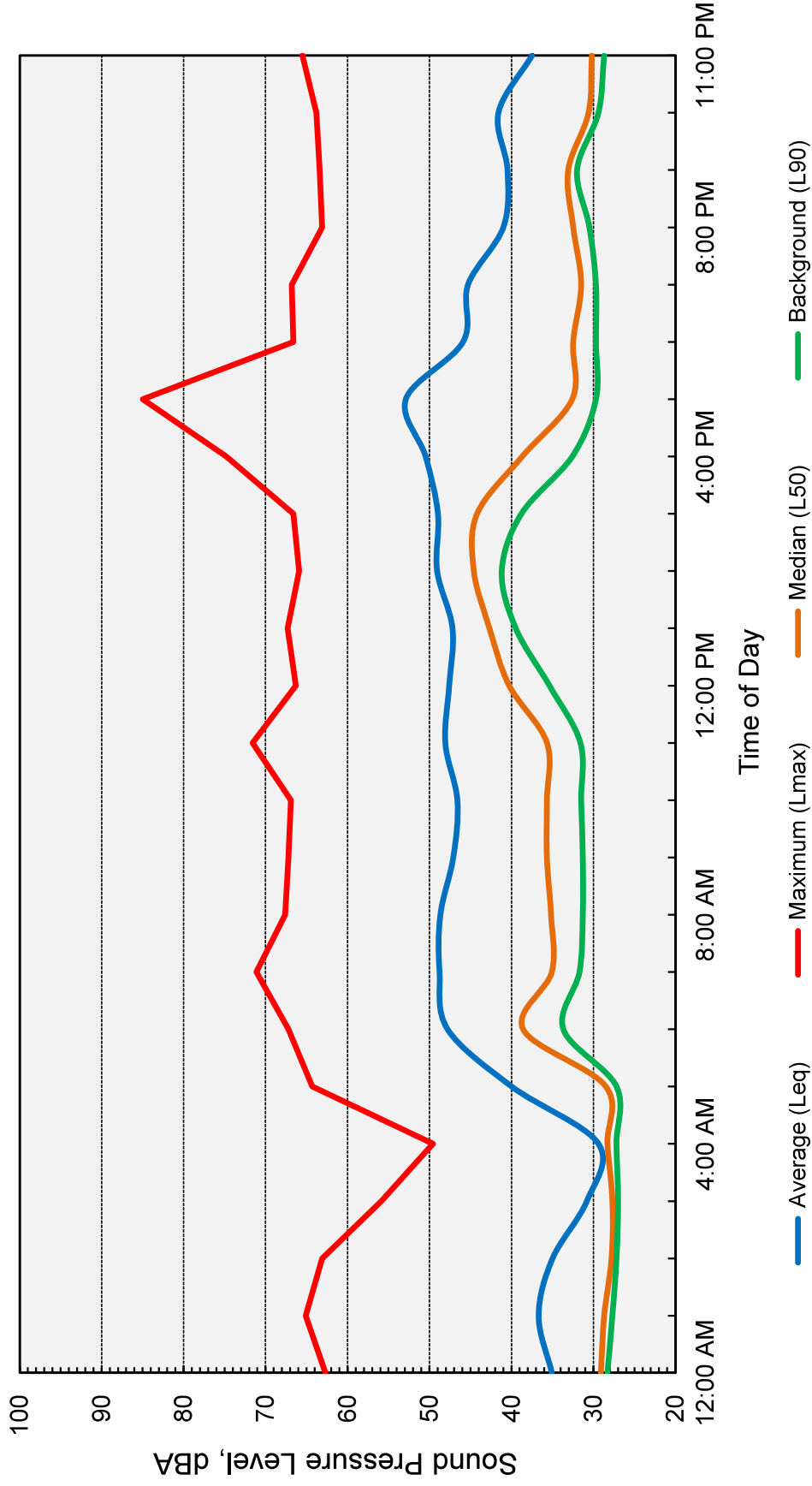
Computed DNL = 49 dB

Appendix D-6
Long-Term Ambient Noise Monitoring Results, LT-2
Bloomfield Flowers - Sonoma County, California
Thursday, April 10, 2025



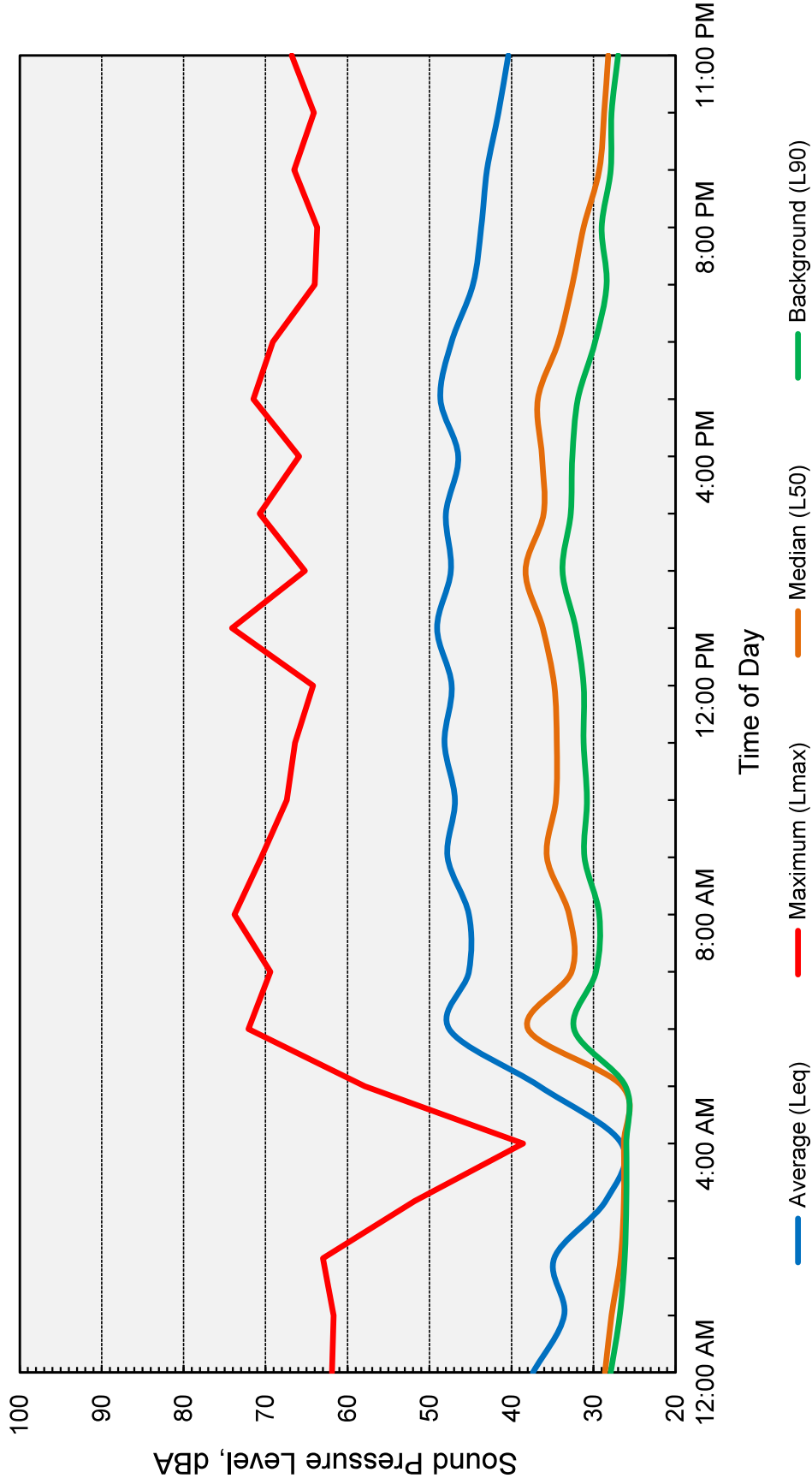
Computed DNL = 51 dB

Appendix D-7
Long-Term Ambient Noise Monitoring Results, LT-2
Bloomfield Flowers - Sonoma County, California
Friday, April 11, 2025



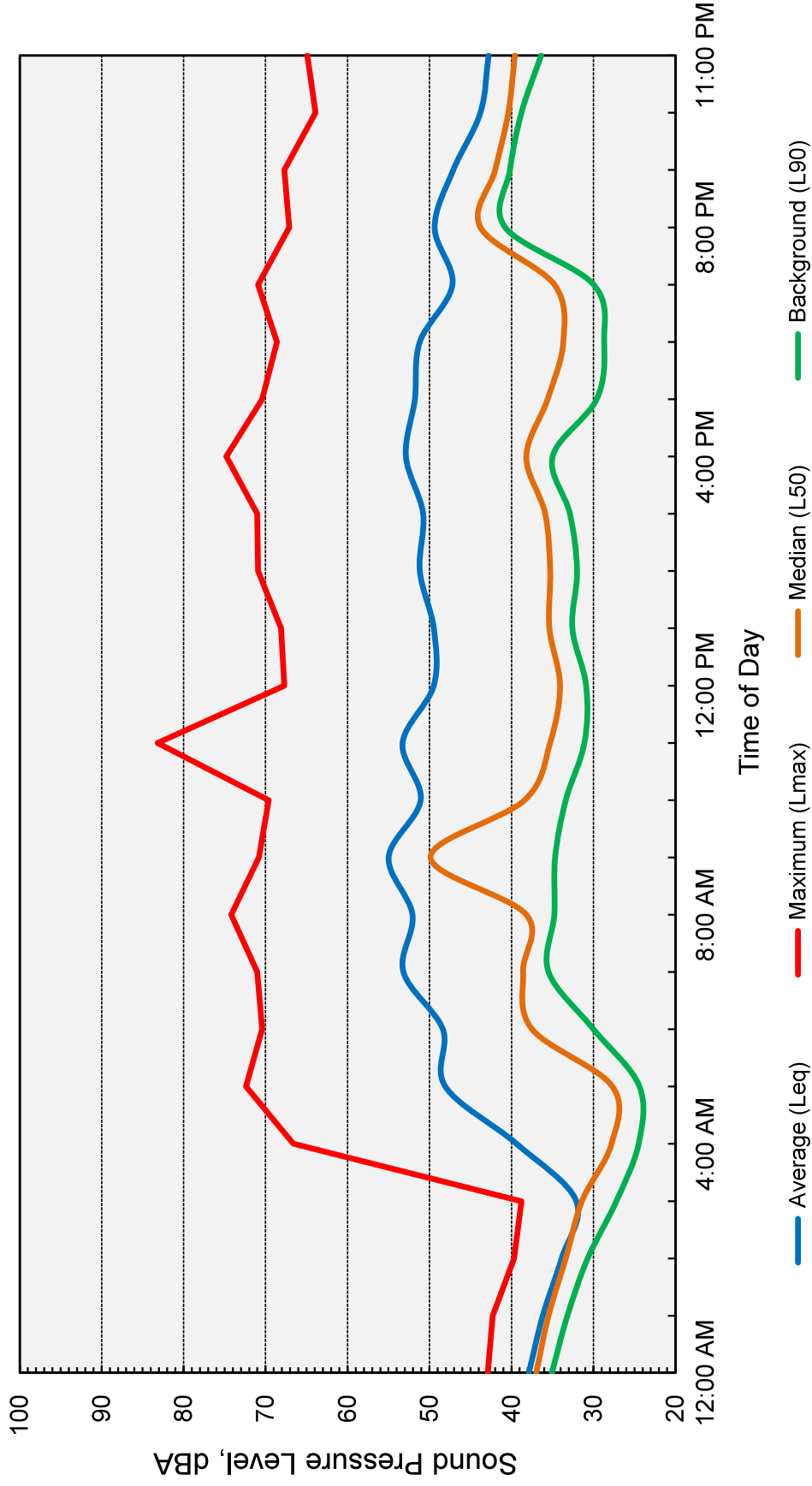
Computed DNL = 49 dB

Appendix D-8
Long-Term Ambient Noise Monitoring Results, LT-2
Bloomfield Flowers - Sonoma County, California
Saturday, April 12, 2025



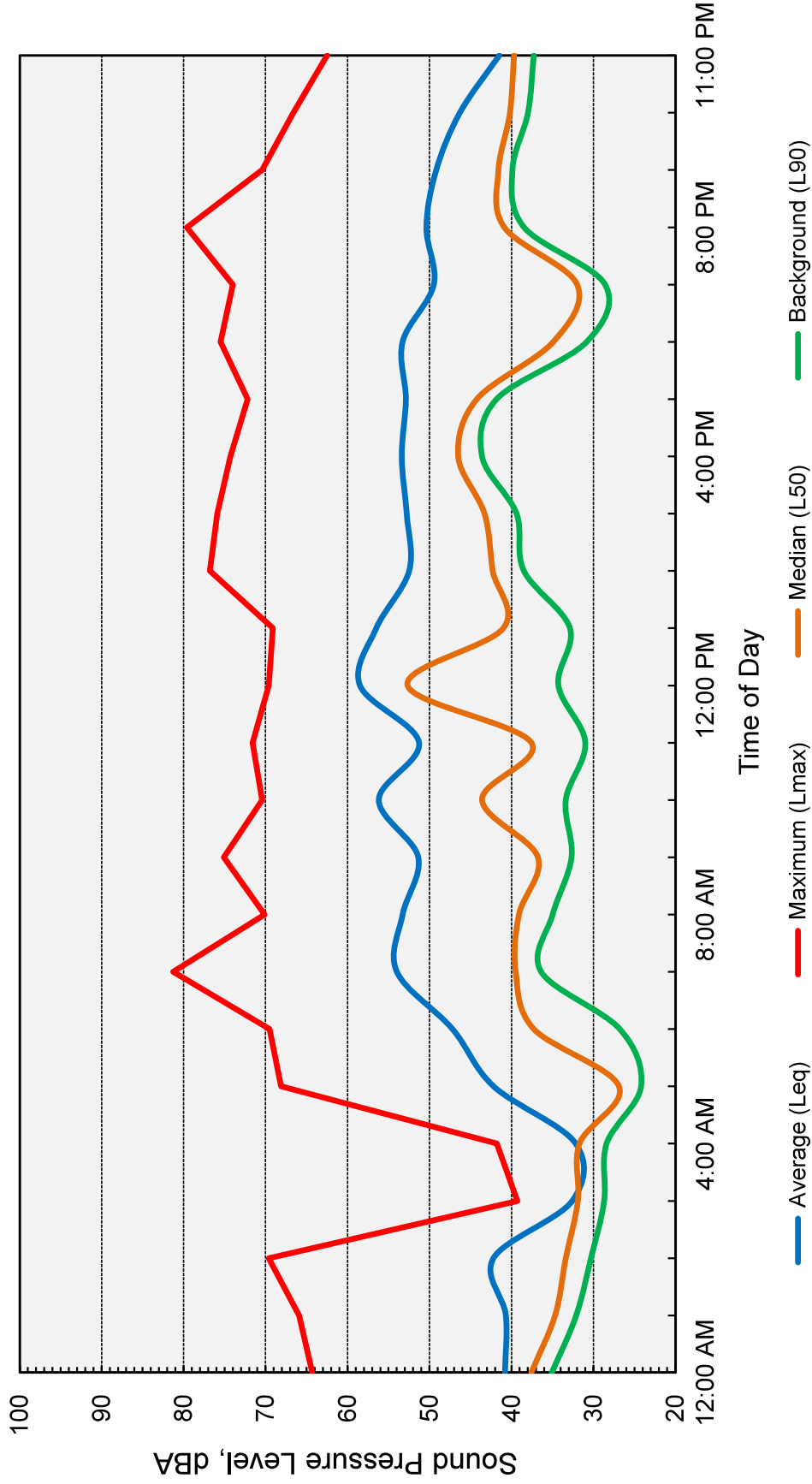
Computed DNL = 49 dB

Appendix D-9
Long-Term Ambient Noise Monitoring Results, LT-3
Bloomfield Flowers - Sonoma County, California
Wednesday, April 9, 2025



Computed DNL = 52 dB

Appendix D-10
Long-Term Ambient Noise Monitoring Results, LT-3
Bloomfield Flowers - Sonoma County, California
Thursday, April 10, 2025



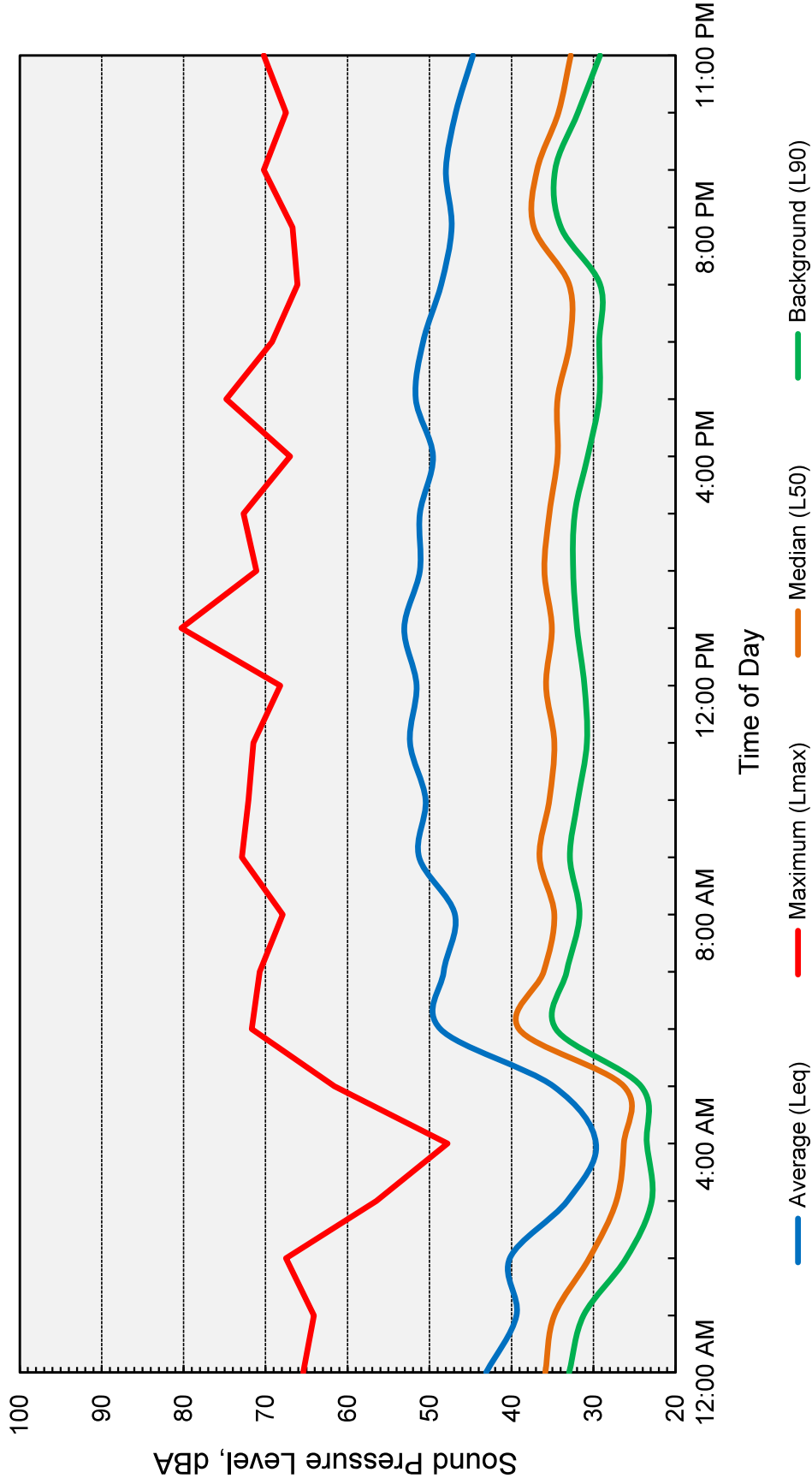
Computed DNL = 53 dB

Appendix D-11
Long-Term Ambient Noise Monitoring Results, LT-3
Bloomfield Flowers - Sonoma County, California
Wednesday, April 9, 2025



Computed DNL = 52 dB

Appendix D-12
Long-Term Ambient Noise Monitoring Results, LT-3
Bloomfield Flowers - Sonoma County, California
Thursday, April 10, 2025



Computed DNL = 53 dB



Memorandum

To: Nick Caston
Financial Prodigy, Inc.
1007b West College Avenue
Santa Rosa, CA 95401

From: Don Bollard, Vice President
Bollard Acoustical Consultants, Inc.
P.O. Box 7968
Auburn, CA 95604

Date: April 7, 2026

Subject: Bloomfield Flowers – Statement of Project-Generated Noise Levels and Associated Compliance with Permit Sonoma

Dear Nick,

Financial Prodigy, Inc. contracted with Bollard Acoustical Consultants, Inc. (BAC) to provide an environmental noise study and analysis of a proposed cannabis cultivation facility located on a 113-acre parcel (APN: 027-050-022). The final report was distributed on July 29, 2025.

It is our understanding that the County issued comments related to the noise assessment in April 2026. Specifically, the County would like clarity on confirming that project operations would not increase ambient noise levels by 10 dBA or more at nearby residential receptors. This technical memorandum serves to provide a clear statement and explanation of how the collected data was used to demonstrate compliance with the Sonoma County General Plan Noise Element noise level standards outlined in Policy NE-1c and Table NE-2.

All of the data and analysis referenced in this memorandum is also included in the BAC Environmental Noise Assessment dated July 29, 2025.

Noise Criteria

Policy NE-1c of the Sonoma County General Plan is reproduced below:

Control non-transportation related noise from new projects. The total noise level resulting from new sources shall not exceed the standards in General Plan Table NE-2 of the recommended revised policies as measured at the exterior property line of any adjacent noise sensitive land use. Limit exceptions to the following:

- (1) *If the ambient noise level exceeds the standard in Table NE-2, adjust the standard to equal the ambient level, up to a maximum of 5 dBA above the standard, provided that no measurable increase (i.e., +/- 1.5 dBA) shall be allowed.*

- (3) *Reduce the applicable standards in Table NE-2 by 5 decibels if the proposed use exceeds the ambient level by 10 or more decibels.*
- (5) *Noise levels may be measured at the location of the outdoor activity of the noise sensitive land use, instead of at the exterior property line of the adjacent noise sensitive use where:*
- a. The property on which the noise sensitive use is located has already been substantially developed pursuant to its existing zoning, and*
 - b. There is available open land on those noise sensitive lands for noise attenuation.*

The nearest noise-sensitive land use is receptor R-2 (APN: 027-040-004). Therefore, demonstration of compliance at receptor R-2, shown on the original report as Figure 2 (included as an attachment to this memorandum), would also demonstrate compliance at the other noise-sensitive receptors outlined in the original report. Per the zoning regulations of receptor R-2, the property is fully developed relative to its zoning. Therefore, pursuant to Policy NE-1c.5a, the noise levels are to be measured at the outdoor activity area of the noise-sensitive receptor rather than at the property line.

Project-Generated Cumulative Noise Exposure

There were four (4) identified noise-producing components of the project:

- Sound generated due to packaged air conditioning systems for air cycling within the Greenhouse, Large Warehouse and Small Warehouse
- Sound generated due to typical on-site traffic (e.g., employee vehicles arriving/departing, doors opening/closing, engines starting, etc.)
- Sound generated due to short-term project construction activities
- Sound generated due to emergency generator

Of these four sources, only two of the sources were identified as being associated with typical daily on-site operations (e.g., packaged air conditioning systems and on-site traffic). Project construction noise would be temporary, and temporary mitigation measures were provided in the BAC Environmental Noise Assessment dated July 29, 2025. Sound generated by an emergency generator was excluded from the cumulative analysis as it was reasonably considered to not be a component of typical daily operations.

Table 11 from the BAC Environmental Noise Assessment dated July 29, 2025 contain the combined noise level exposure at the residential receptors. Table 11 is pasted in below for reference:

Table 11
Combined Noise Level Exposure at Residential Receptors^{2,3}

APN ¹	Predicted Noise Levels, L ₅₀ (dBA)				Calculated Combined, L ₅₀ (dBA)	
	Air Conditioning	On-Site Traffic (Daytime)	On-Site Traffic (Nighttime) ⁴	Daytime	Nighttime	Nighttime
027-040-019	29	26	23	31	30	30
027-040-004	38	33	31	39	39	39
027-050-044	29	27	24	31	30	30
027-050-043	29	26	23	31	30	30

¹ Sensitive receptors are identified on Figure 1.
² Daytime hours: 7:00 a.m. to 10:00 p.m.
³ Nighttime hours: 10:00 p.m. to 7:00 a.m.
⁴ Nighttime onsite traffic L₅₀ was calculated using 50% of worst-case daytime hour traffic.

Source: Ballard Acoustical Consultants, Inc. (2026)

The Table 11 data indicates that the calculated combined project-generated noise levels at the nearest noise-sensitive receptor (R-2, APN: 027-040-004) is 39 dB L₅₀ during both daytime and nighttime periods.

Demonstration of Compliance

Noise measurement site LT-3 was located approximately 80 feet from the centerline of Bloomfield Road. The noise-sensitive receptor R-2 is located between 60 feet and 135 feet from the centerline of Bloomfield Road. Therefore, the measured average noise levels from site LT-3 are considered to be representative of the ambient noise conditions at receptor R-2.

The measured daytime ambient noise level at site LT-3 was 38 dB L₅₀. The calculated combined daytime noise exposure from project operations at receptor R-2 is 39 dB L₅₀. The existing (baseline) plus project noise level is predicted to be approximately 42 dB L₅₀, which represents a four (4) dB net increase in daytime ambient noise levels at the nearest residence.

The measured nighttime ambient noise level at site LT-3 was 34 dB L₅₀. The calculated combined nighttime noise exposure from project operations at receptor R-2 is 39 dB L₅₀. The existing plus project noise level is predicted to be approximately 40 dB L₅₀, which represents a six (6) dB net increase over the existing nighttime ambient noise levels.

Conclusions

Based on the information contained within this memorandum and the original report dated July 29th, 2025, BAC concludes that noise generated by project operations would not increase existing (baseline) ambient noise levels by 10 dB or more at the nearest noise-sensitive receptor to the project site.

These conclusions are based on the data and assumptions contained within the BAC Environmental Noise Assessment dated July 29th, 2025 and the analysis contained within this

Nick Caston
April 7, 2026
Page 4

memorandum. Deviations from the resources cited herein could cause future noise levels to differ from those predicted in this memorandum

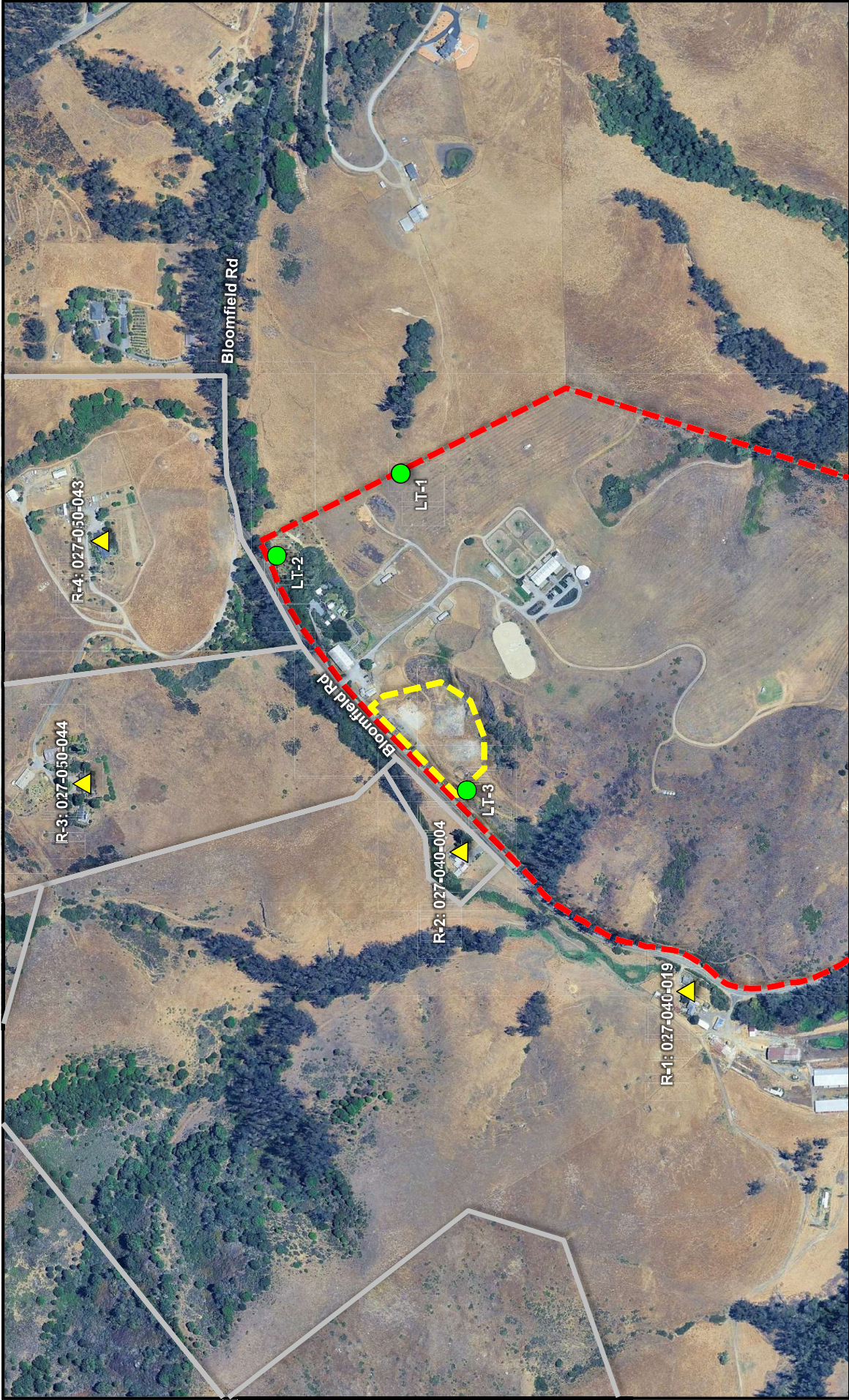
This concludes BAC's memorandum for the Bloomfield Flowers project in Sonoma County, California. Please contact me at (530) 537-2328 or donb@bacnoise.com if you have any questions or require additional information.

Sincerely,

Bollard Acoustical Consultants, Inc.



Don Bollard
Vice President



Legend

- - - Project Area Boundary (Approximate)
- - - Proposed Project Development Area (Approximate)
- Neighboring Parcel Property Lines (Approximate)
- Ambient Noise Level Survey Locations
- ▲ Residential Receivers



Bloomfield Flowers
Sonoma County, California

Project Area

Figure 2

