

# Draft Environmental Impact Report

SCH# 2022110504

## Volume 6

Appendices M through N

### **BULLHEAD SOLAR PROJECT** by EDF Renewables, LLC (*PP22404*)

GPA No. 8, Map No. 214; CUP No. 48, Map No. 214;  
CUP No. 49, Map No. 214; Ag Exclusion Map No. 214;  
SPA No. 42, Map No. 231; SPA No. 43, Map 231;  
ZCC No. 158, Map No. 231; CUP No. 121, Map No. 231;  
CUP No. 122, Map No. 231; Vacation Public Access Easements 03 098 232,  
Map No. 232; SPA No. 35, Map No. 232;  
SPA No. 36, Map No. 232; ZCC No. 36, Map No. 232;  
CUP No. 49, Map No. 232; CUP No. 50, Map No. 232.



Kern County  
Planning and Natural Resources Department  
Bakersfield, California

November 2023

*This page intentionally left blank*

# Draft Environmental Impact Report

SCH# 2022110504

## Volume 6

Appendices M through N

### **BULLHEAD SOLAR PROJECT** by EDF Renewables, LLC (*PP22404*)

GPA No. 8, Map No. 214; CUP No. 48, Map No. 214;  
CUP No. 49, Map No. 214; Ag Exclusion Map No. 214;  
SPA No. 42, Map No. 231; SPA No. 43, Map 231;  
ZCC No. 158, Map No. 231; CUP No. 121, Map No. 231;  
CUP No. 122, Map No. 231; Vacation Public Access Easements 03 098 232,  
Map No. 232; SPA No. 35, Map No. 232;  
SPA No. 36, Map No. 232; ZCC No. 36, Map No. 232;  
CUP No. 49, Map No. 232; CUP No. 50, Map No. 232.



Kern County  
Planning and Natural Resources Department  
Bakersfield, California

Technical Assistance by:  
PlaceWorks

November 2023

*This page intentionally left blank*



# Appendices - Volume 6

## NOTE TO REVIEWER OF ELECTRONIC FILES:

To assist you in reviewing this electronic document, "bookmarks" and/or "links" have been provided for easier navigation between sections. When available, bookmarks are located in the panel to the left. Links are highlighted in **BLUE** in the Table of Contents. Clicking on either the bookmarks or links will take you to the selected item. This document may consist of multiple linked PDF files. If saving this document to your computer, you must save all corresponding files to a directory on your hard drive to maintain the manner in which these PDF documents are linked.

## TABLE OF CONTENTS

[Appendix M: Traffic Investigation](#)

[Appendix N: Noise Technical Report](#)

*This page intentionally left blank*

# Appendix M: **Traffic Investigation**

*This page intentionally left blank*



1800 30<sup>th</sup> Street, Suite 260  
Bakersfield, CA 93301  
(661) 327-1969

August 9, 2022

372-11  
Electronic Mail

Ellen Miille  
ICF Jones & Stokes, Inc.  
9300 Lee Highway  
Fairfax, VA 22031

**RE: Traffic Investigation for Proposed Bullhead Solar Project in Rosamond, CA**

Dear Ms. Miille:

The purpose of this letter is to evaluate potential traffic impacts resulting from the construction and operation of the Bullhead Solar Project (project) that EDF Renewables (EDFR) proposes for Rosamond, California. This investigation includes an evaluation of the proposed project trip generation for the construction phase, a description of the proposed trip distribution for the anticipated construction traffic, an analysis of roadway and intersection capacities near the project, and an investigation of the average trip length, or average vehicle miles traveled (VMT), for construction traffic accessing the project. Primary access for the project will be from Tehachapi Willow Springs Road at Dawn Road, with secondary access from 120<sup>th</sup> Street West through the approved and adjacent BigBeau project.

The project is a solar energy generation facility located near Rosamond, California, approximately 8 miles west of State Route (SR) 14 (see **Figure 1**). The project site is generally bounded by Favorito Avenue to the south, Champagne Avenue to the north, 110<sup>th</sup> Street West to the west, and 80<sup>th</sup> Street West to the east. The east side of the project site is bisected by Tehachapi Willow Springs Road/90<sup>th</sup> Street West.

The project will produce up to 270 megawatts (MW) of alternating current (AC) of solar photovoltaic (PV) and up to 270 megawatts (MW) of battery energy storage capacity.

## **EXISTING AND BUILD YEAR CUMULATIVE TRAFFIC**

Existing AM and PM peak hour turning-movement volumes were field-measured at the study intersections in March 2021, and historical counts were used from 2014. Counts were compared to pre-COVID turning-movement volumes, and it was determined that no adjustment was needed because traffic generally was similar. Counts were then grown out to represent 2022 volumes using the growth rates determined from the Kern Council of Governments (COG) model. The following intersections are included in the study area analysis:

1. Tehachapi Willow Springs Road and Backus Road
2. 170<sup>th</sup> Street West and Rosamond Boulevard
3. 90<sup>th</sup> Street West/Tehachapi Willow Springs Road and Rosamond Boulevard
4. SR 14 Southbound Ramps and Rosamond Boulevard
5. SR 14 Northbound Ramps and Rosamond Boulevard

The potential project traffic utilizing the secondary access route of 120<sup>th</sup> Street West is expected to be below thresholds of analysis; therefore, only a qualitative review of the route is included in the impact analysis section. In order to analyze traffic for the build-year scenario, existing volumes were projected out to the year 2026, using growth rates ranging from 0.72 to 7.41 percent. Growth rates were determined from the Kern COG model.

The Kern County Planning and Natural Resources Department provided a list of cumulative (i.e., past, present, and reasonably foreseeable) projects in the vicinity of the Bullhead Solar Project, which was supplemented by other known projects in the study area (see Attachment A, *Cumulative Projects*, for the list and map). To determine cumulative project traffic, trip generation was completed for four of the six projects on the cumulative projects list. These four cumulative projects were included due to their proximity to the project and the use of the study area intersections. The Raceway Solar project was excluded from cumulative projects analysis because the estimated date of completion does not overlap with the construction of Bullhead Solar. The High Speed Rail project, which is proposed to cross through the Bullhead Solar project site, is not included in the analysis because it is not expected to begin construction until after the Bullhead Solar project construction is completed, and timing and funding is speculative. The finalized trip generation traffic was then distributed over the five project intersections. Based on the locations and types of projects provided in the cumulative list, resultant peak-hour turning-movement volumes were added to the 2026 volumes to account for these cumulative impacts. The 2026 cumulative traffic volumes are shown in **Figure 5** and **Figure 6**, attached.

## **PROJECT TRIP GENERATION AND DISTRIBUTION**

### ***Construction Phase***

Traffic generated during the construction phase would include personnel vehicles and heavy trucks. Onsite workforce is expected to average 201 workers per day, with a peak of up to 627 workers. Construction would occur primarily during daylight hours, Monday through Friday, between 6:00 a.m. and 5:00 p.m. Several specialized construction contractors would

construct the proposed project, with construction activities taking place as specified in the County’s Code of Ordinances, Chapter 8.36, as required to meet the construction schedule. Construction activities are allowable between the hours of 6:00 a.m. and 9:00 p.m. on weekdays and between the hours of 8:00 a.m. and 9:00 p.m. on weekends. These vehicles will access the project by way of Tehachapi Willow Springs Road, with secondary access via 120<sup>th</sup> Street West. Analysis was conducted in order to capture the highest impact the project may have on the adjacent roadway system. Trip generation estimates for construction traffic utilizing these roadways are presented in Tables 1a and 1b.

**Table 1a  
 Construction Phase Project Trip Generation**

Traffic Type	Variable	ADT	AM Peak Hour Trips		PM Peak Hour Trips	
			In Trips	Out Trips	In Trips	Out Trips
Personnel	627 (peak per day)	1,254	100%	0%	0%	100%
			627	0	0	627
Heavy Trucks	167 (peak per day)	334	100%	0%	0%	100%
			28	0	0	28
Total Trips	–	1,588	655	0	0	655

As noted above, based on the trip estimates that EDFR provided, it is anticipated that during the peak of construction operations, an average of 201 workers will be onsite daily, with a peak of 627 workers and 167 heavy trucks. This assumption results in 1,588 daily vehicle trips (combined inbound and outbound). Should there be any workers that carpool, the number would be reduced and therefore reduce impacts.

Following the *Highway Capacity Manual* guidelines, heavy truck volumes were converted to passenger-car equivalent volumes using a factor of 1.7 trips per day to account for the effective reduction in free-flow speed (i.e., mean traffic speed under low-flow conditions) that the presence of heavy vehicles in the traffic flow can cause. The results are shown in Table 1b. Heavy truck trips were estimated to be 568 per day, based on assumptions regarding daily deliveries of materials, equipment, and water anticipated for construction. It was assumed that the trucks would enter the facility throughout the day, and therefore only a portion of the trucks are estimated to be traveling during the peak AM and PM hours.

**Table 1b  
 Construction Phase Project Trip Generation with Adjusted Truck Trips**

Traffic Type	Variable	ADT	AM Peak Hour Trips		PM Peak Hour Trips	
			In Trips	Out Trips	In Trips	Out Trips
Personnel	627 (peak per day)	1,254	100%	0%	0%	100%
			627	0	0	627
Heavy Trucks	167 (peak per day)	568 <sup>1</sup>	100%	0%	0%	100%
			47	0	0	47
Total Trips	–	1,822	674	0	0	674

<sup>1</sup>Represents passenger-car equivalent for heavy truck traffic using a factor of 1.7.

Traffic accessing the project is anticipated to result mainly from surrounding population centers, such as Rosamond, Tehachapi, Lancaster, and Palmdale, as well as from other nearby population centers. Peak hour traffic under the following scenarios are shown in **Figure 2** through **Figure 6**: project traffic, existing 2022 traffic, existing 2022 plus project traffic, build-year (2026) cumulative traffic, and build-year (2026) cumulative plus project traffic.

***Operation & Maintenance Phase***

On completion of the construction and testing phases, approximately 15 part-time and/or full-time staff, located at the adjacent BigBeau Operations & Maintenance (O&M) facility, would operate the proposed project. O&M staff would visit various parts of the site for inspection, security, maintenance, and system-monitoring purposes. It is anticipated that the panels will be washed once per year, using water from offsite sources, and transported to the site in water trucks. The project will require up to 11 acre-feet per year of water for operational demands. This will include, but is not limited to, panel washing, fire suppression, and dust suppression, with the majority of water being used for annual panel washing. It is anticipated that the washing will use up to 8 acre-feet of water over a 3-month period. Using 5,000-gallon trucks, this equates to approximately nine trucks a day.

Trip generation estimates for traffic accessing the project site are presented in Table 2.

**Table 2  
 Operation & Maintenance Phase Project Trip Generation**

Traffic Type	Variable	ADT	AM Peak Hour Trips		PM Peak Hour Trips	
			In Trips	Out Trips	In Trips	Out Trips
Personnel	15 (per day)	30	100%	0%	0%	100%
			15	0	0	15
Heavy Trucks	9 (per day)	18	100%	0%	0%	100%
			1	0	0	1
Total Trips	–	48	16	0	0	16



## IMPACT ANALYSIS

Refer to Attachment B, *Modeling Data*, for supporting traffic modeling data.

### ***Construction Phase Intersection LOS***

An analysis was performed to determine the level of service (LOS) of the intersections during the construction phase of the project. The guidelines in the Caltrans publication *Guide for the Preparation of Traffic Impact Studies*, dated December 2002, states that a facility is required to be analyzed when a project will generate more than 50 peak hour trips at a facility operating at or below a LOS C. Per the *Kern County General Plan*, Section 2.3.2, *Traffic Levels of Service (LOS)*, LOS D is an acceptable standard for county-maintained roads, unless the roads are part of an adopted specific plan. 120<sup>th</sup> Street West is not paved, and has negligible amounts of existing background traffic. Average daily traffic (ADT) on Rosamond Boulevard near the intersection with 120<sup>th</sup> Street West is approximately 2,600. It is anticipated that a maximum of 10 percent of the project construction traffic may access the project using 120<sup>th</sup> Street West, which would equate to approximately 67 peak-hour trips. Although slightly over the 50-trips threshold, with low existing volumes, the addition of project traffic at this location is not expected to cause an impact on this intersection or Rosamond Boulevard. Although the secondary access point of 120<sup>th</sup> Street West may be used at certain times, project volumes will be low (if any) and are not expected to reach thresholds of significance.

Also included in the LOS analysis is the cumulative traffic generated by other projects, as provided by Kern County, within a 6-mile radius of the project. Based on a review of the project's location and the surrounding roadway network (Attachment A), it was determined that project traffic generated by other projects farther than 6 miles from the project site would not have a significant impact on the study intersections and roadway segments.

Table 3 and Table 4 show the results of the analysis for project-related construction traffic at key study area intersections during the AM and PM peak hours, respectively.

**Table 3**  
**Intersection Level of Service**  
**AM Peak Hour**

#	Intersection	Control Type	2022	2022+ Project	2026	2026+ Project
1	Tehachapi Willow Springs Road & Backus Road	EB WB	A A	B A	B A	B B
2	170 <sup>th</sup> Street West & Rosamond Boulevard	AWSC	A	A	A	A
3	Tehachapi Willow Springs Road/90 <sup>th</sup> Street West & Rosamond Boulevard	AWSC	A	B	A	B
4	SR 14 SB Off Ramp & Rosamond Boulevard	Signal	B	B	B	B

#	Intersection	Control Type	2022	2022+ Project	2026	2026+ Project
5	SR 14 NB Off Ramp & Rosamond Boulevard	Signal	B	B	B	B

**Table 4  
 Intersection Level of Service  
 PM Peak Hour**

#	Intersection	Control Type	2022	2022+ Project	2026	202+ Project
1	Tehachapi Willow Springs Road & Backus Road	EB WB	A A	A A	A A	B A
2	170 <sup>th</sup> Street West & Rosamond Boulevard	AWSC	A	A	A	A
3	Tehachapi Willow Springs Road/90 <sup>th</sup> Street West & Rosamond Boulevard	AWSC	A	C	A	D
4	SR 14 SB Off Ramp & Rosamond Boulevard	Signal	A	A	A	A
5	SR 14 NB Off Ramp & Rosamond Boulevard	Signal	C	C	C	C

As shown in Table 3 and Table 4, all intersections currently operate at acceptable LOS during both AM and PM peak hours and will continue to do so with the addition of project construction traffic.

***Operation & Maintenance Phase Intersection LOS***

As shown in Table 2, the O&M phase of the proposed project will generate considerably less traffic than the construction phase. Therefore, using the same criteria as the construction phase to determine the need to study roadway facilities, no further analysis is required for the operational phase of the proposed project.

**Roadway Capacity**

Table 5 contains roadway ADT and analysis results for roadway segments in the vicinity of the project. A volume-to-capacity ratio (v/c) of greater than 0.80 corresponds to a LOS of less than C, as defined in the *Highway Capacity Manual*. The same guidelines used for intersection analysis from the Caltrans guidelines were used to determine the extent of the roadway study area for this analysis. Four road segments were evaluated, as listed in Table 5. The projected volumes, ADTs, and v/c ratios for the four traffic scenarios are also provided in Table 5 and represent construction traffic only.

**Table 5**  
**Road Segment Analysis – Construction Traffic**

Street	2022 <sup>1</sup>	Project ADT	Cum <sup>2</sup> ADT	2022+ Project	2026 Cum <sup>2</sup>	2026 Cum <sup>2</sup> + Project ADT	Existing Capacity	v/c 2022	v/c 2022+ Project	v/c 2026 Cum <sup>2</sup>	v/c 2026 Cum <sup>2</sup> + Project
Tehachapi Willow Springs Re: Hamilton Rd to Rosamond Blvd	2,411	1,114	155	3,525	2,615	3,729	15,000	0.16	0.24	0.17	.025
Rosamond Blvd: 170 <sup>th</sup> St W to 130 <sup>th</sup> St W	2,776	289	163	3,065	3,857	4,146	15,000	0.19	0.20	0.26	0.28
Rosamond Blvd: 130 <sup>th</sup> St W to 90 <sup>th</sup> St W	2,311	825	387	3,136	3,043	3,868	15,000	0.15	0.21	0.20	0.26
Rosamond Blvd: 90 <sup>th</sup> St W to SR 14	5,731	825	592	6,556	6,822	7,647	15,000	0.38	0.44	0.45	0.51

<sup>1</sup> Data not available; traffic grown out from most recent year available.

<sup>2</sup> Cum = Other project traffic added to future background volumes.

All roadway segments within the project study area are projected to operate within acceptable levels of service under existing-year conditions (2022) and projected to continue to do so with the addition of cumulative and project construction traffic in 2026.

## **VEHICLE MILES TRAVELED (VMT) EVALUATION**

In accordance with the California Environmental Quality Act (CEQA), an evaluation of the average VMT for the project's construction traffic was conducted.

In order to establish a baseline for daily VMT in the Kern County area, Kern COG provided VMT data that is estimated based on Select Zone Analyses conducted for the region for establishing traffic models of existing and future land development projects. Based on household and employment populations in the greater Kern County area, as well as travel patterns throughout the region, Kern COG data shows an average VMT per trip of 43.2 miles.

In order to establish the anticipated VMT profile for the project, an investigation into the personnel trips involved in the construction process was conducted. The primary factor involved in this evaluation is the location of the project site in relation to the surrounding population centers and points of origin for equipment, supplies, and personnel. Heavy truck trips were screened out of the VMT analysis per Office of Planning and Research guidelines.

Based on the information gathered, it is anticipated that up to 50 percent of the construction personnel would be hired from the local population, which is considered to be the cities and communities of Lancaster, Rosamond, and Mojave. It is anticipated that approximately 30 percent of personnel would relocate temporarily to one of these population centers for the duration of the project. The remaining 20 percent or more of the construction personnel would be considered non-local and is anticipated to come from Bakersfield, Tehachapi, and other areas outside of Antelope Valley. Based on the location of the various communities and the distribution described above, an approximation of the directional split is provided in Table 6.

The average trip length for construction personnel traveling to and from the site was determined to be approximately 26.5 miles, as shown in Table 6. The directional percentages shown in Table 6 were determined based on the assumptions of where personnel would be travelling to or from. The average VMT of 26.5 miles per vehicle per day is less than the baseline average VMT of 43.2. Therefore, the project is not expected to result in a significant transportation impact.

**Table 6**  
**VMT Analysis – Construction Traffic**

<b>Vehicle Type</b>	<b>Direction</b>	<b>Percentage of Total Trips (%)</b>	<b>Average Trip Length Passenger Vehicles (miles)</b>	<b>Total Trips<sup>1</sup></b>	<b>Weighted Average Trip Length (miles)</b>
Passenger Vehicles	North	25	32.96	367.0	26.53
	South	40	15.95	587.2	
	East	25	28.91	367.0	
	West	10	46.81	146.8	

<sup>1</sup> Based on 1,588 average daily trips, as shown in Table 1.

***Operation & Maintenance Phase VMT Analysis***

The California Governor’s Office of Planning and Research advisory provides *screening thresholds* for identifying whether a land use project should be expected to result in a less-than-significant transportation impact under CEQA. Projects meeting one or more of these criteria would not be required to undergo a detailed VMT analysis. According to the advisory, projects that generate fewer than 110 trips per day may be assumed to cause a less-than-significant transportation impact.

Therefore, because traffic would be below the 110 average daily trips threshold, the O&M vehicle trips would be screened out of this process. Therefore, no VMT analysis is necessary, and it is assumed that the operation and maintenance traffic will not cause a significant transportation impact.

**CONCLUSION**

On review of the project and corresponding analysis, it is concluded that the project would not create direct or cumulative impacts to any of the intersections or roadway segments anticipated to be used for the project during the construction phase and would not create a significant VMT impact. In addition, given the very low number of O&M trips, direct and cumulative traffic impacts over the long term are not considered significant. Therefore, the proposed project is projected to result in less-than-significant traffic impacts.

Please contact me should you have any questions.

Very truly yours,



Ian J. Parks

IJP/SSH  
attachments



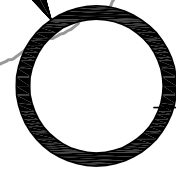
# FIGURES

VICINITY MAP  
FIGURE 1

CITY OF BAKERSFIELD

SR 58

PROJECT  
SITE



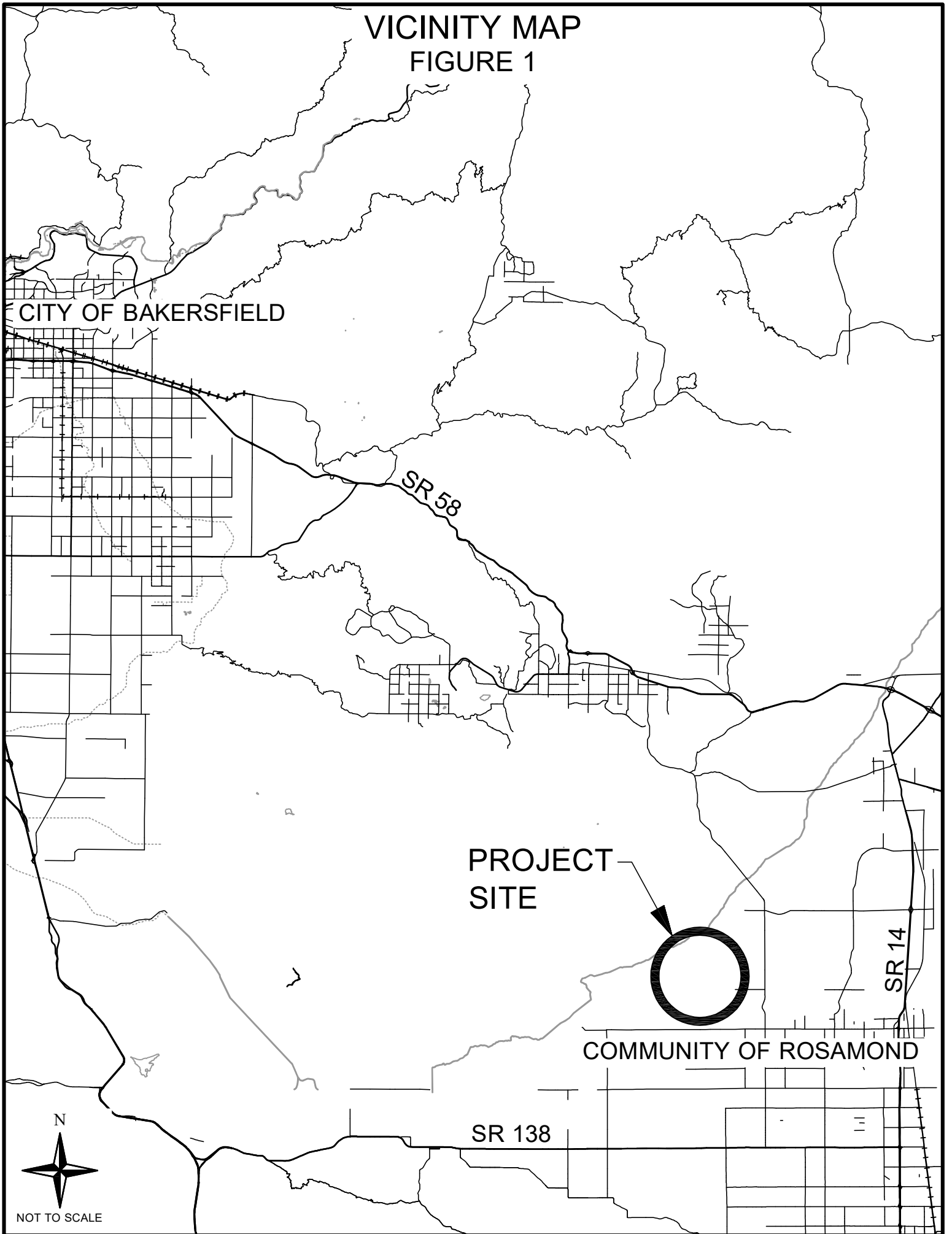
SR 14

COMMUNITY OF ROSAMOND

SR 138



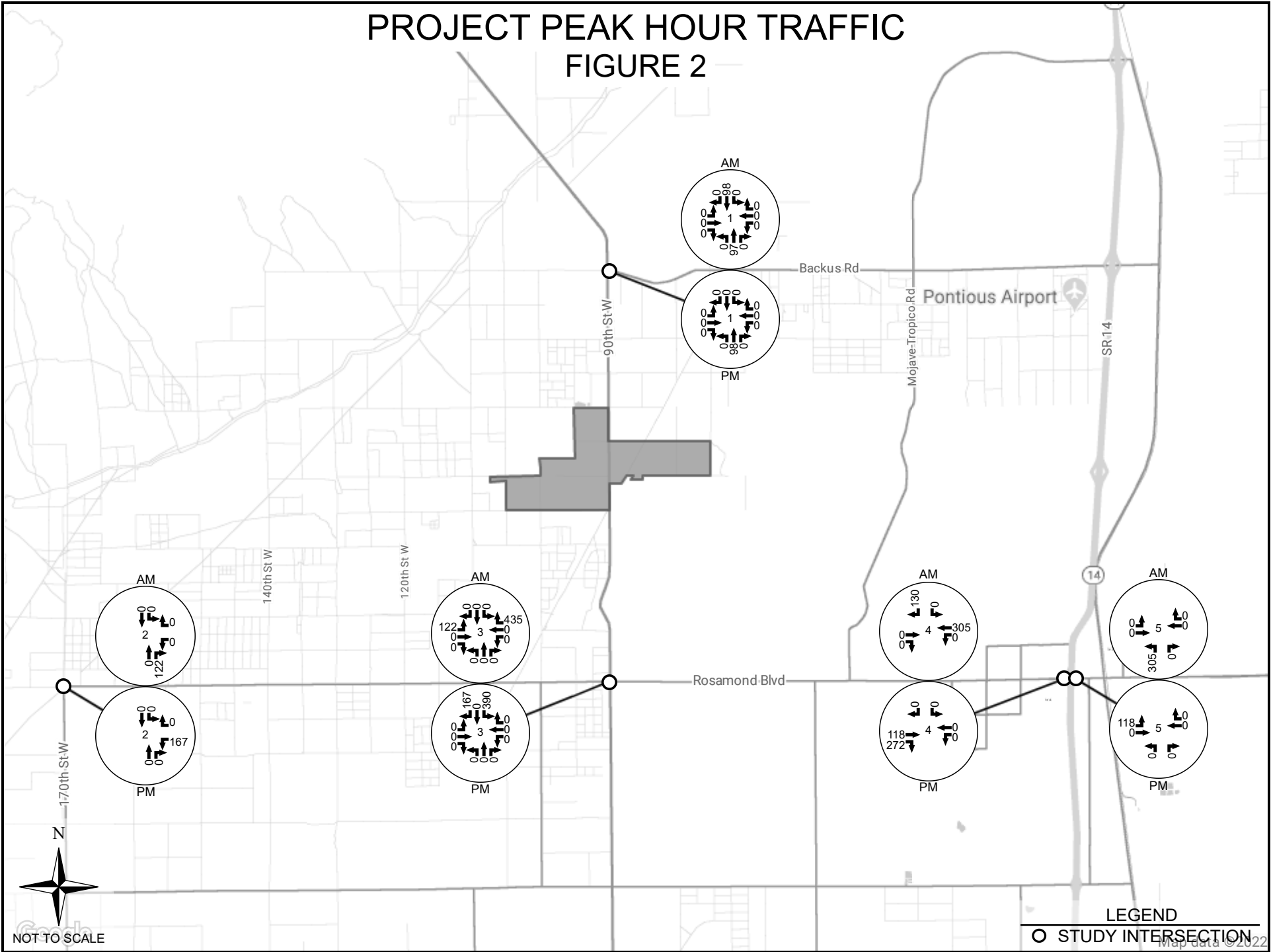
NOT TO SCALE





# PROJECT PEAK HOUR TRAFFIC

## FIGURE 2

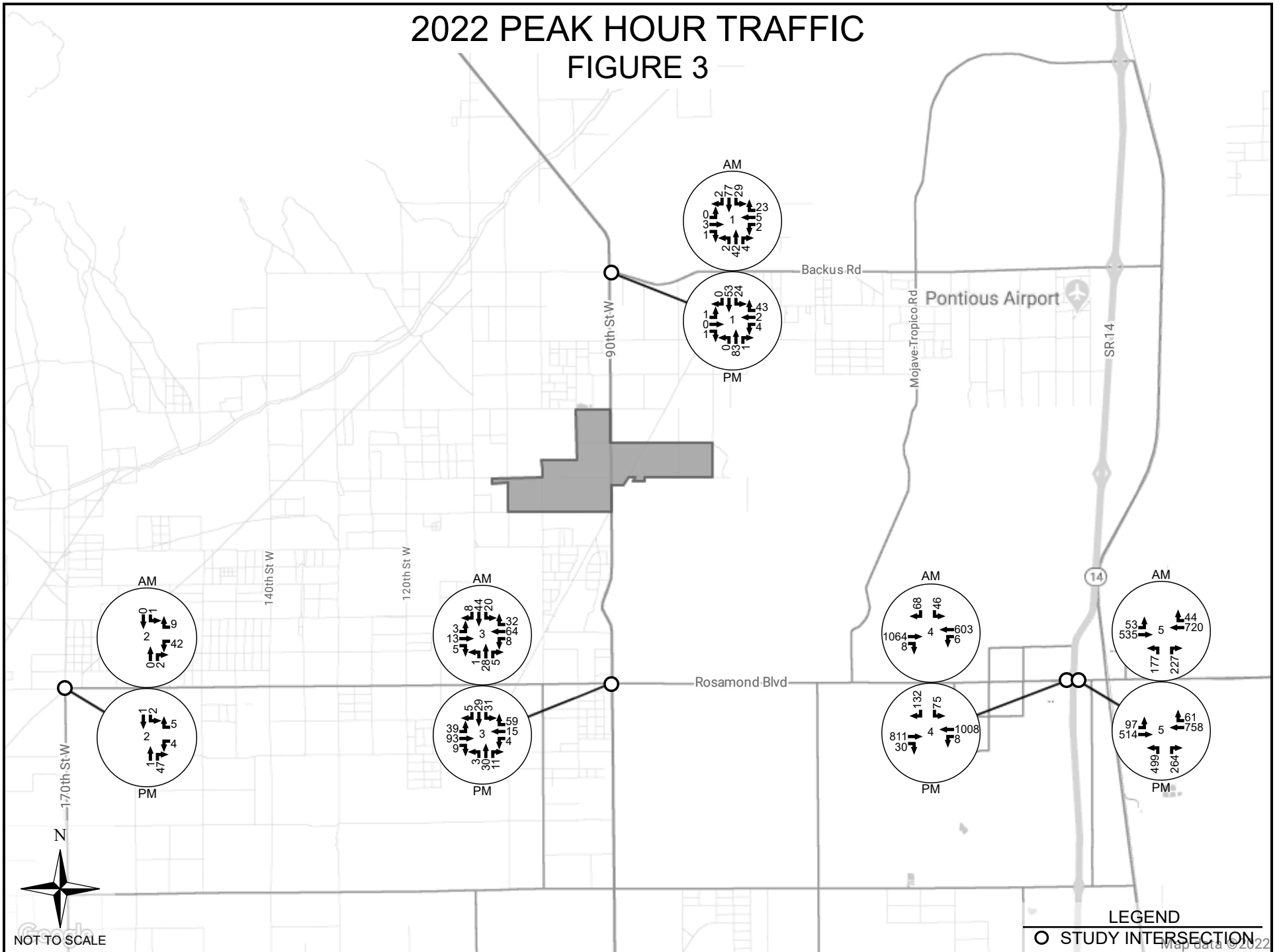


NOT TO SCALE

LEGEND  
 ○ STUDY INTERSECTION  
 Map data © 2022

# 2022 PEAK HOUR TRAFFIC

## FIGURE 3

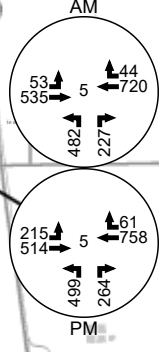
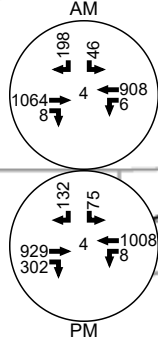
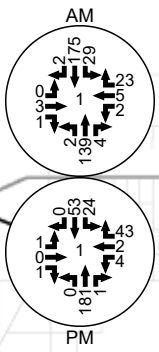
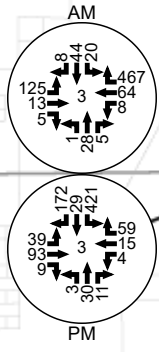
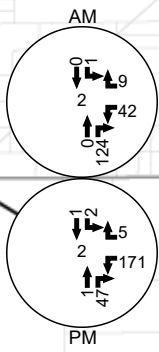
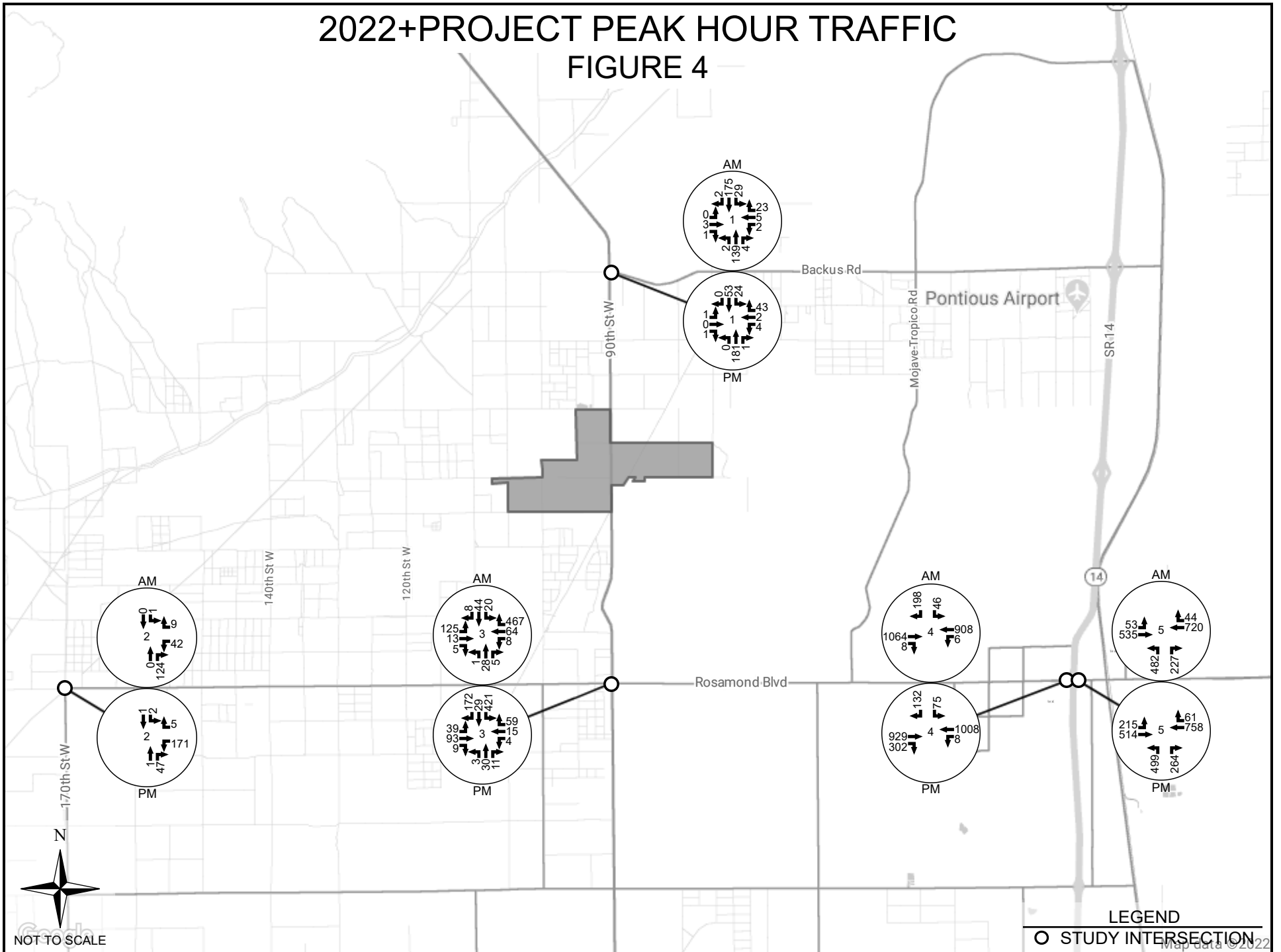


NOT TO SCALE

Map data © 2022

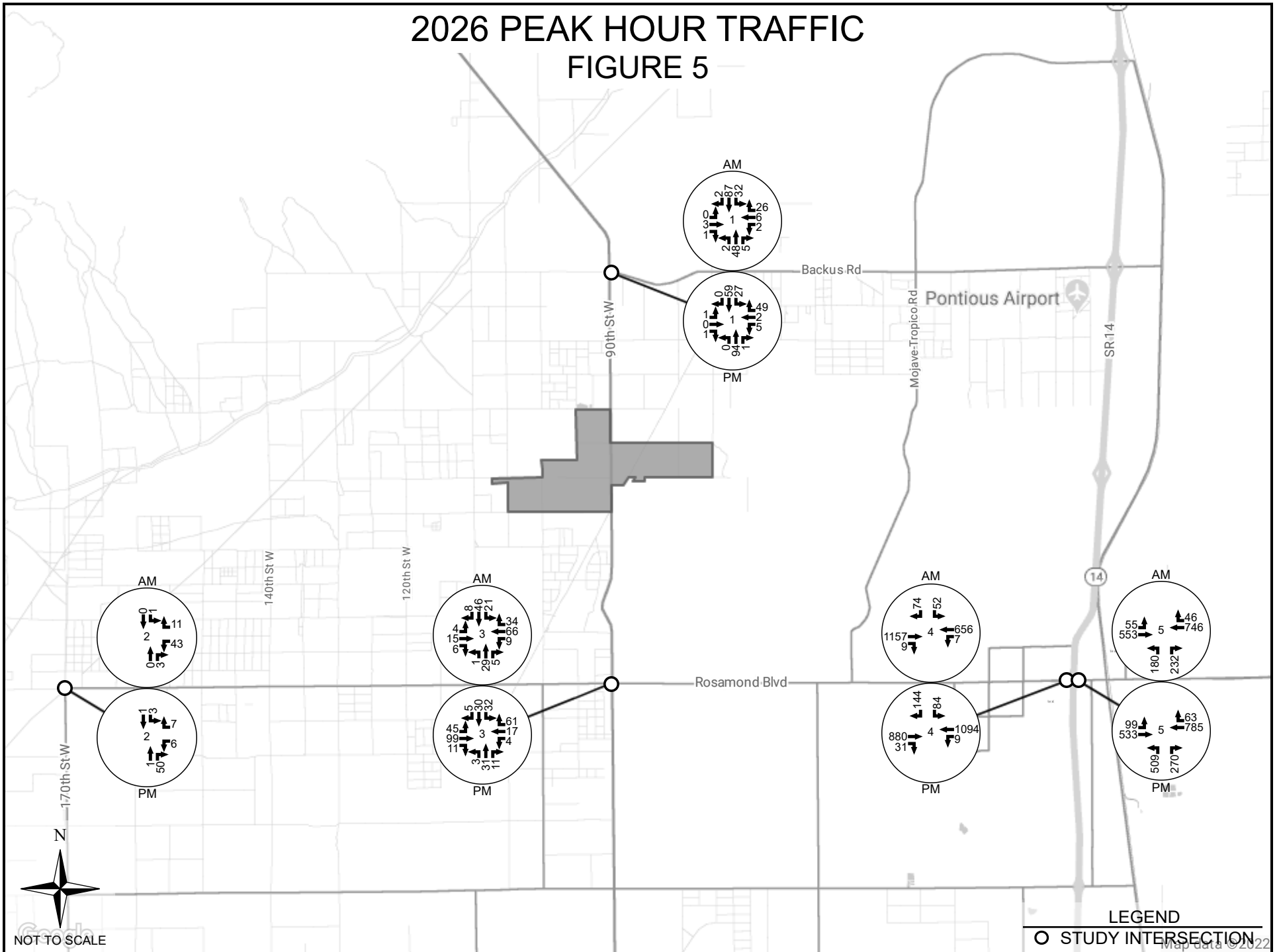
# 2022+PROJECT PEAK HOUR TRAFFIC

## FIGURE 4



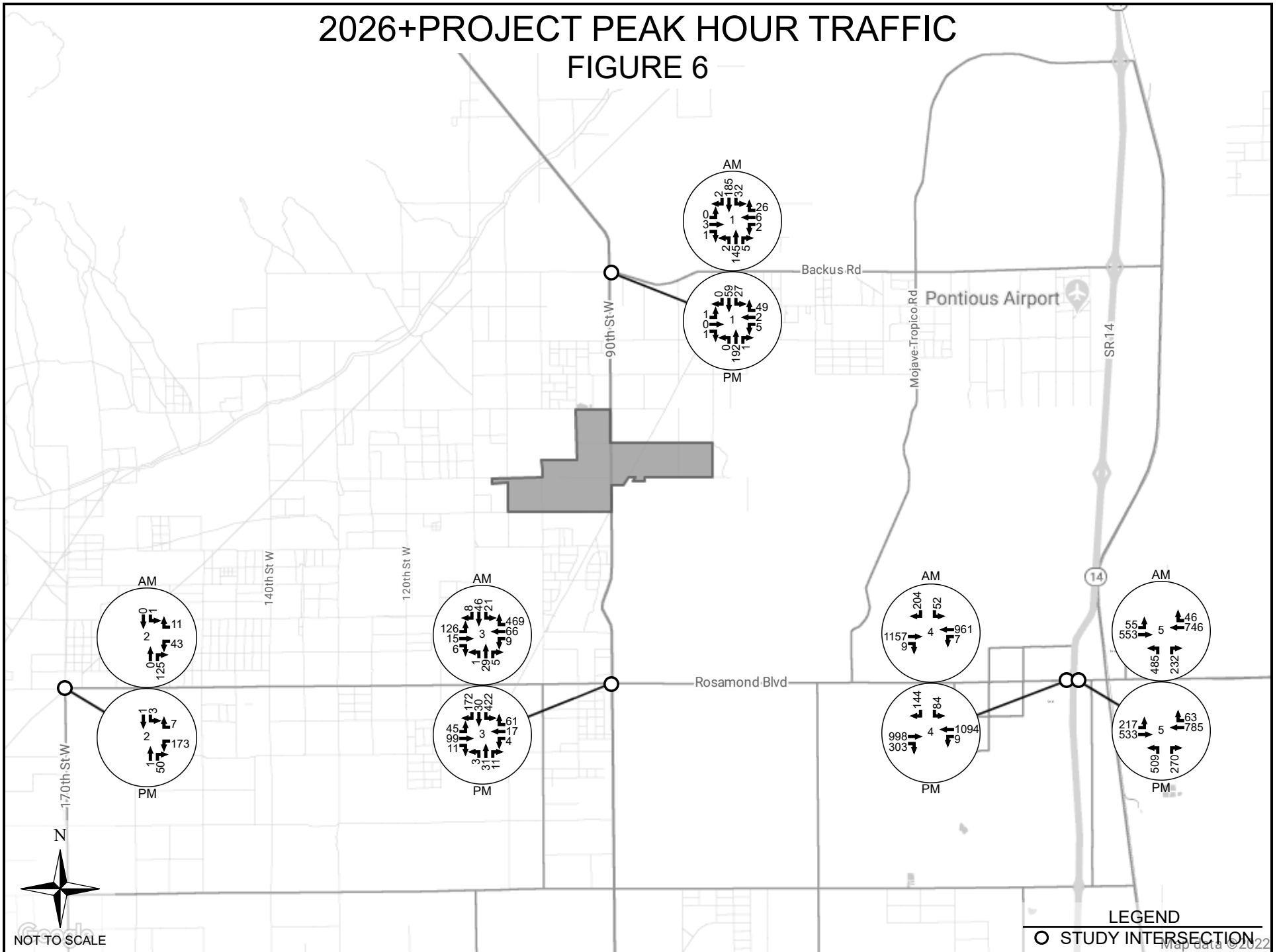
# 2026 PEAK HOUR TRAFFIC

## FIGURE 5



# 2026+PROJECT PEAK HOUR TRAFFIC

## FIGURE 6





**ATTACHMENT A**  
**CUMULATIVE PROJECTS**





**Table 1. Cumulative Projects List**

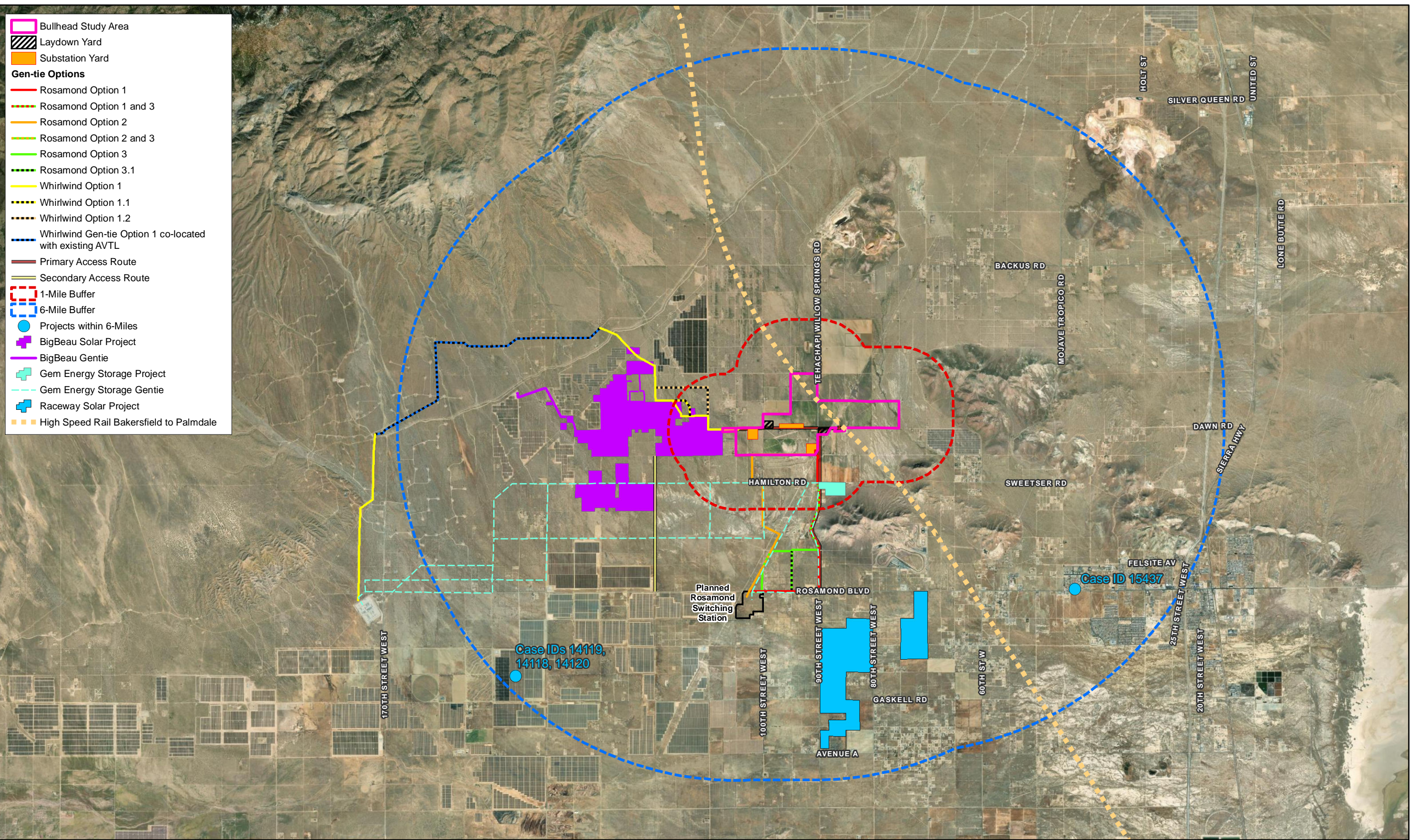
Distance from Bullhead Solar (Within)	CaseID/ Map ID	Applicant/Project Name	Project Location	Project Description	Case Type	Project Site APN	Project Phase/Schedule	Acreage/SF/Miles	Project Status	MW
1-Mile	-	EDFR/Big Beau Solar Project	North of Ave. to the Stars, South of 125 <sup>th</sup> /Champagne Ave, East of 135 <sup>th</sup> W., West of 105 <sup>th</sup> St W.	128 MW AC photovoltaic solar and associated infrastructure, Gen-Tie Line, and 60 MW Battery Energy Storage System	ZCC, CUPs	Multiple	Under construction (10-14 months. Will be in full operation by time Bullhead is under construction in 2024.	2,285 acres	Approved Construction Phase	128
1-Mile	-	California High Speed Rail Authority, High Speed Rail Bakersfield to Palmdale Section	This segment of HSR is approximately 80 miles in length, with a stretch of approximately 1.5 miles crossing through the project study area in a northwest to southeast direction.	The High Speed Rail project in total consists of Phase 1 which is 520 miles connecting San Francisco to Los Angeles and Anaheim through the Central Valley of California. Phase 2 is approximately 300 miles connecting the Central Valley to Sacramento, Los Angeles and San Diego. The segment crossing through the Bullhead site is part of Phase 1. The HSR would consist of state-of-the-art, electrically powered, high-speed, steel wheel on steel wheel technology capable of operating up to 220 miles per hour over a fully grad-separated dedicated track.	N/A	346-032-20, 346-032-21, 346-032-52, 346-032-53, 315-050-40	A joint CEQA/NEPA document was completed in August 2021 with a Notice of Determination and NEPA Record of Decision. Would this segment be funded for construction, a portion of the alignment crosses through part of the Bullhead Solar project site and accommodations may need to be made to reconfigure panels in that area should it become necessary. Construction of the Bakersfield to Palmdale segment is not projected to commence until after the Bullhead Solar project is operational.	1.5 miles in study area (80 miles in total length)	CEQA Approved. Construction funding and start is to be determined.	N/A
1-Mile	-	Hydrostar Gem A-CAES, LLC/Gem Energy Storage Center	South of Hamilton Road, east of Tehachapi Willow Springs Road. Transmission line alternatives generally follow Hamilton Road, Irone Avenue, 150 <sup>th</sup> Street W., and Fisher Ave heading toward existing Whirlwind Substation.	An Application for Certification is being processed with the California Energy Commission (CEC) for the development of an advanced compressed air energy storage facility. Gem would include all-electric air compressor trains, air driven power turbine generators, underground compressed air storage cavern, a 31-acre hydrostatically compensating water reservoir, an onsite 230kV substation, and up to 10.9 miles of transmission line to the Whirlwind substation, among other infrastructure.	ZC, CUP	315-081-01, 315-011-09, 315-081-09	Under review by the CEC. Anticipated construction to commence in Q3 or Q4 2023 and would be operational before Bullhead is constructed.	71 acres plus 40-acre laydown area.	Anticipated CEC approvals by July 2023	500

Distance from Bullhead Solar (Within)	CaseID/Map ID	Applicant/Project Name	Project Location	Project Description	Case Type	Project Site APN	Project Phase/Schedule	Acreage/SF/Miles	Project Status	MW
6-Miles	15437	Investment Concepts	NE corner of Rosamond and Sedona	A CUP to construct an 18-unit apartment complex in a C-1 zone.	CUP	252-161-492	Construction phase not available; assumed overlap with Bullhead construction.	18 units	Approved	NA
6-Miles	14119, 14118, 14120	SGS Antelope Valley Development/Rosamond Solar Modification Project	East side of 150th Street W, approximately 1/2 mile south of Rosamond Boulevard and 1/2 mile north of Avenue A in the Rosamond area.	Addition of 100 MW of solar power on 400 adjacent acres to original project.	SPA, ZCC, CUP Mod	Multiple	Construction phase not available; assumed overlap with Bullhead construction.	1,360 acres	Approved	100
6-Miles	-	Raceway Solar	Between Rosamond Blvd. and Avenue A and between 70th Street W and 90th Street W.	Two solar photovoltaic projects on six sites totaling 1,330 acres, with 291 MW of electricity and 291 MWh energy storage.	SPA, ZCC, CUPs	Multiple	Construction underway. Will be completed by 2023; project will not overlap with Bullhead Solar construction.	1,330 acres	Approved	291

(-) not available. N/A = Not Applicable



\\PDC\ITRDS\GIS2\Projects\_4\EDF\00049\_21\_Bullhead\_Solar\00049\_21\Figures\Misc\Fig00\_CumulativeProjects\_v3.mxd Date: 7/16/2022 2:51:19







**ATTACHMENT B**  
**MODELING DATA**

Lanes, Volumes, Timings  
1: Tehachapi Willow Springs Rd & Backus Rd

AM 2022  
8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	0	3	1	2	5	23	2	42	4	29	77	2
Future Volume (vph)	0	3	1	2	5	23	2	42	4	29	77	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.966			0.895			0.990			0.998	
Flt Protected					0.997			0.998			0.987	
Satd. Flow (prot)	0	1799	0	0	1662	0	0	1840	0	0	1835	0
Flt Permitted					0.997			0.998			0.987	
Satd. Flow (perm)	0	1799	0	0	1662	0	0	1840	0	0	1835	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2416			36000			31732			896	
Travel Time (s)		30.0			446.3			393.4			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	3	1	2	5	25	2	46	4	32	84	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	4	0	0	32	0	0	52	0	0	118	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.6%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings  
2: 170th St W & Rosamond Blvd

AM 2022  
8/9/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	42	9	0	2	1	0
Future Volume (vph)	42	9	0	2	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.976		0.865			
Flt Protected	0.961					0.950
Satd. Flow (prot)	1747	0	1611	0	0	1770
Flt Permitted	0.961					0.950
Satd. Flow (perm)	1747	0	1611	0	0	1770
Link Speed (mph)	55		55			55
Link Distance (ft)	42395		4864			5376
Travel Time (s)	525.6		60.3			66.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	10	0	2	1	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	56	0	2	0	0	1
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.3% ICU Level of Service A
Analysis Period (min)	15

Lanes, Volumes, Timings  
 3: 90th St West/Tehachapi Willow Springs Rd & Rosamond Blvd

AM 2022  
 8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	3	13	5	8	64	32	1	28	5	20	44	8
Future Volume (vph)	3	13	5	8	64	32	1	28	5	20	44	8
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.969			0.959			0.981			0.985	
Fl <sub>t</sub> Protected		0.993			0.996			0.999			0.986	
Satd. Flow (prot)	0	1792	0	0	1779	0	0	1826	0	0	1809	0
Fl <sub>t</sub> Permitted		0.993			0.996			0.999			0.986	
Satd. Flow (perm)	0	1792	0	0	1779	0	0	1826	0	0	1809	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		42395			41			7938			31732	
Travel Time (s)		525.6			0.5			98.4			393.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	14	5	9	70	35	1	30	5	22	48	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	0	0	114	0	0	36	0	0	79	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.9%
Analysis Period (min)	15
	ICU Level of Service A



Lanes, Volumes, Timings  
4: SR 14 SB Off Ramp & Rosamond Blvd

AM 2022  
8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑		↖		↖	↖	↑	
Traffic Volume (vph)	0	1064	8	6	603	0	0	0	0	46	0	68
Future Volume (vph)	0	1064	8	6	603	0	0	0	0	46	0	68
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	0		0	100		0	0		50	160		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00										
Frt		0.999									0.850	
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	3535	0	1630	3539	0	1716	0	1716	1630	1583	0
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	3535	0	1630	3539	0	1716	0	1716	1630	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1									329	
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		35219			915			1530			1498	
Travel Time (s)		436.6			11.3			29.8			29.2	
Confl. Peds. (#/hr)			5									
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1157	9	7	655	0	0	0	0	50	0	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1166	0	7	655	0	0	0	0	50	74	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1		1	1		1		1	1	1	
Detector Template												
Leading Detector (ft)		50		50	50		50		50	50	50	
Trailing Detector (ft)		0		0	0		0		0	0	0	
Detector 1 Position(ft)		0		0	0		0		0	0	0	
Detector 1 Size(ft)		50		50	50		50		50	50	50	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Detector 1 Queue (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Detector 1 Delay (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Turn Type		NA		Prot	NA		Prot		Perm	Prot	NA	
Protected Phases		4		3	8		5			1	6	
Permitted Phases									2			
Detector Phase		4		3	8		5		2	1	6	
Switch Phase												

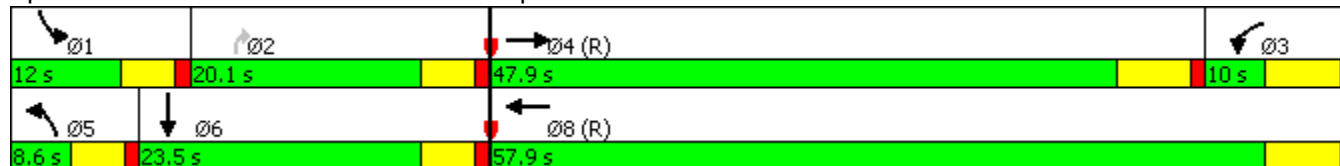


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	
Minimum Split (s)		23.6		10.0	21.5		8.6		20.1	8.6	20.1	
Total Split (s)		47.9		10.0	57.9		8.6		20.1	12.0	23.5	
Total Split (%)		53.2%		11.1%	64.3%		9.6%		22.3%	13.3%	26.1%	
Maximum Green (s)		41.9		4.0	51.9		4.0		15.5	7.4	18.9	
Yellow Time (s)		5.0		5.0	5.0		3.6		3.6	3.6	3.6	
All-Red Time (s)		1.0		1.0	1.0		1.0		1.0	1.0	1.0	
Lost Time Adjust (s)		-2.0		-2.0	-2.0		-0.6		-0.6	-0.6	-0.6	
Total Lost Time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	
Lead/Lag		Lead		Lag			Lead		Lag	Lead	Lag	
Lead-Lag Optimize?		Yes		Yes			Yes		Yes	Yes	Yes	
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	
Recall Mode		C-Max		None	C-Max		None		Min	None	Min	
Walk Time (s)		5.0										
Flash Dont Walk (s)		12.6										
Pedestrian Calls (#/hr)		5										
Act Effct Green (s)		66.7		6.0	68.7					7.5	13.3	
Actuated g/C Ratio		0.74		0.07	0.76					0.08	0.15	
v/c Ratio		0.45		0.06	0.24					0.37	0.14	
Control Delay		6.5		36.2	1.0					46.8	0.6	
Queue Delay		0.0		0.0	0.0					0.0	0.0	
Total Delay		6.5		36.2	1.0					46.8	0.6	
LOS		A		D	A					D	A	
Approach Delay		6.5			1.4						19.2	
Approach LOS		A			A						B	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	14 (16%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	65
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.45
Intersection Signal Delay:	5.6
Intersection LOS:	A
Intersection Capacity Utilization	40.5%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: SR 14 SB Off Ramp & Rosamond Blvd



Lanes, Volumes, Timings  
5: SR 14 NB Off Ramp & Rosamond Blvd

AM 2022  
8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	535	0	0	720	44	177	0	227	0	0	0
Future Volume (vph)	53	535	0	0	720	44	177	0	227	0	0	0
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	110		0	0		0	250		0	0		0
Storage Lanes	1		0	0		0	2		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					1.00							
Frt					0.991				0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1630	1863	0	0	3500	0	3162	0	1458	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	1630	1863	0	0	3500	0	3162	0	1458	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					11				247			
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		915			3331			1125			1281	
Travel Time (s)		11.3			41.3			21.9			25.0	
Confl. Peds. (#/hr)							5					
Confl. Bikes (#/hr)							2					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	58	582	0	0	783	48	192	0	247	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	582	0	0	831	0	192	0	247	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1		1			
Detector Template												
Leading Detector (ft)	50	50			50		50		50			
Trailing Detector (ft)	0	0			0		0		0			
Detector 1 Position(ft)	0	0			0		0		0			
Detector 1 Size(ft)	50	50			50		50		50			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0		0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0		0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0		0.0			
Turn Type	Prot	NA			NA		Prot		Free			
Protected Phases	7	4			8		5					
Permitted Phases									Free			
Detector Phase	7	4			8		5					
Switch Phase												

Lanes, Volumes, Timings  
5: SR 14 NB Off Ramp & Rosamond Blvd

AM 2022  
8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	4.0			4.0		4.0					
Minimum Split (s)	10.0	21.5			22.0		8.6					
Total Split (s)	16.0	69.0			53.0		21.0					
Total Split (%)	17.8%	76.7%			58.9%		23.3%					
Maximum Green (s)	10.0	63.0			47.0		16.4					
Yellow Time (s)	5.0	5.0			5.0		3.6					
All-Red Time (s)	1.0	1.0			1.0		1.0					
Lost Time Adjust (s)	-2.0	-2.0			-2.0		-0.6					
Total Lost Time (s)	4.0	4.0			4.0		4.0					
Lead/Lag	Lag				Lead							
Lead-Lag Optimize?	Yes				Yes							
Vehicle Extension (s)	3.0	3.0			3.0		3.0					
Recall Mode	None C-Max				C-Max				None			
Walk Time (s)					5.0							
Flash Dont Walk (s)					8.4							
Pedestrian Calls (#/hr)					5							
Act Effct Green (s)	11.1	70.6			57.8		11.4		90.0			
Actuated g/C Ratio	0.12	0.78			0.64		0.13		1.00			
v/c Ratio	0.29	0.40			0.37		0.48		0.17			
Control Delay	34.3	1.9			9.1		40.2		0.3			
Queue Delay	0.0	0.0			0.0		0.0		0.0			
Total Delay	34.3	1.9			9.1		40.2		0.3			
LOS	C	A			A		D		A			
Approach Delay					4.9				9.1			
Approach LOS	A				A							

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 8 (9%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 45  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.48  
 Intersection Signal Delay: 9.7  
 Intersection LOS: A  
 Intersection Capacity Utilization 40.3%  
 ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 5: SR 14 NB Off Ramp & Rosamond Blvd



Lanes, Volumes, Timings  
1: Tehachapi Willow Springs Rd & Backus Rd

AM 2026  
8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	0	3	1	2	6	26	2	48	5	32	87	2
Future Volume (vph)	0	3	1	2	6	26	2	48	5	32	87	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.966			0.898			0.989			0.998	
Flt Protected					0.997			0.998			0.987	
Satd. Flow (prot)	0	1799	0	0	1668	0	0	1839	0	0	1835	0
Flt Permitted					0.997			0.998			0.987	
Satd. Flow (perm)	0	1799	0	0	1668	0	0	1839	0	0	1835	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2416			36000			31732			896	
Travel Time (s)		30.0			446.3			393.4			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	3	1	2	7	28	2	52	5	35	95	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	4	0	0	37	0	0	59	0	0	132	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.6%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings  
2: 170th St W & Rosamond Blvd

AM 2026  
8/9/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	43	11	0	3	1	0
Future Volume (vph)	43	11	0	3	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.973		0.865			
Flt Protected	0.962					0.950
Satd. Flow (prot)	1744	0	1611	0	0	1770
Flt Permitted	0.962					0.950
Satd. Flow (perm)	1744	0	1611	0	0	1770
Link Speed (mph)	55		55			55
Link Distance (ft)	42395		4864			5376
Travel Time (s)	525.6		60.3			66.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	47	12	0	3	1	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	59	0	3	0	0	1
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.3%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings  
 3: 90th St West/Tehachapi Willow Springs Rd & Rosamond Blvd

AM 2026  
 8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	4	15	6	9	66	34	1	29	5	21	46	8
Future Volume (vph)	4	15	6	9	66	34	1	29	5	21	46	8
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.965			0.958			0.982			0.985	
Flt Protected		0.993			0.996			0.999			0.986	
Satd. Flow (prot)	0	1785	0	0	1777	0	0	1827	0	0	1809	0
Flt Permitted		0.993			0.996			0.999			0.986	
Satd. Flow (perm)	0	1785	0	0	1777	0	0	1827	0	0	1809	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		42395			41			7938			31732	
Travel Time (s)		525.6			0.5			98.4			393.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	16	7	10	72	37	1	32	5	23	50	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	27	0	0	119	0	0	38	0	0	82	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	24.4%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings  
4: SR 14 SB Off Ramp & Rosamond Blvd

AM 2026  
8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑		↖		↖	↖	↑	
Traffic Volume (vph)	0	1157	9	7	656	0	0	0	0	52	0	74
Future Volume (vph)	0	1157	9	7	656	0	0	0	0	52	0	74
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	0		0	100		0	0		50	160		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00										
Frt		0.999									0.850	
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	3535	0	1630	3539	0	1716	0	1716	1630	1583	0
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	3535	0	1630	3539	0	1716	0	1716	1630	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1									304	
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		35219			915			1530			1498	
Travel Time (s)		436.6			11.3			29.8			29.2	
Confl. Peds. (#/hr)			5									
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1258	10	8	713	0	0	0	0	57	0	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1268	0	8	713	0	0	0	0	57	80	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1		1	1		1		1	1	1	
Detector Template												
Leading Detector (ft)		50		50	50		50		50	50	50	
Trailing Detector (ft)		0		0	0		0		0	0	0	
Detector 1 Position(ft)		0		0	0		0		0	0	0	
Detector 1 Size(ft)		50		50	50		50		50	50	50	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Detector 1 Queue (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Detector 1 Delay (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Turn Type		NA		Prot	NA		Prot		Perm	Prot	NA	
Protected Phases		4		3	8		5			1	6	
Permitted Phases									2			
Detector Phase		4		3	8		5		2	1	6	
Switch Phase												





Lanes, Volumes, Timings  
5: SR 14 NB Off Ramp & Rosamond Blvd

AM 2026  
8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	553	0	0	746	46	180	0	232	0	0	0
Future Volume (vph)	55	553	0	0	746	46	180	0	232	0	0	0
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	110		0	0		0	250		0	0		0
Storage Lanes	1		0	0		0	2		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					1.00							
Frt					0.991				0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1630	1863	0	0	3500	0	3162	0	1458	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	1630	1863	0	0	3500	0	3162	0	1458	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					10				252			
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		915			3331			1125			1281	
Travel Time (s)		11.3			41.3			21.9			25.0	
Confl. Peds. (#/hr)							5					
Confl. Bikes (#/hr)							2					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	601	0	0	811	50	196	0	252	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	601	0	0	861	0	196	0	252	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1		1			
Detector Template												
Leading Detector (ft)	50	50			50		50		50			
Trailing Detector (ft)	0	0			0		0		0			
Detector 1 Position(ft)	0	0			0		0		0			
Detector 1 Size(ft)	50	50			50		50		50			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0		0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0		0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0		0.0			
Turn Type	Prot	NA			NA		Prot		Free			
Protected Phases	7	4			8		5					
Permitted Phases									Free			
Detector Phase	7	4			8		5					
Switch Phase												

Lanes, Volumes, Timings  
5: SR 14 NB Off Ramp & Rosamond Blvd

AM 2026  
8/9/2022

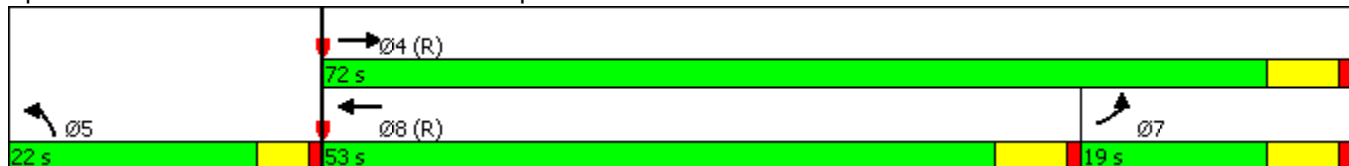


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	4.0			4.0		4.0					
Minimum Split (s)	10.0	21.5			22.0		8.6					
Total Split (s)	19.0	72.0			53.0		22.0					
Total Split (%)	20.2%	76.6%			56.4%		23.4%					
Maximum Green (s)	13.0	66.0			47.0		17.4					
Yellow Time (s)	5.0	5.0			5.0		3.6					
All-Red Time (s)	1.0	1.0			1.0		1.0					
Lost Time Adjust (s)	-2.0	-2.0			-2.0		-0.6					
Total Lost Time (s)	4.0	4.0			4.0		4.0					
Lead/Lag	Lag				Lead							
Lead-Lag Optimize?	Yes				Yes							
Vehicle Extension (s)	3.0	3.0			3.0		3.0					
Recall Mode	None C-Max				C-Max				None			
Walk Time (s)					5.0							
Flash Dont Walk (s)					8.4							
Pedestrian Calls (#/hr)					5							
Act Effct Green (s)	13.5	74.3			59.1		11.7		94.0			
Actuated g/C Ratio	0.14	0.79			0.63		0.12		1.00			
v/c Ratio	0.26	0.41			0.39		0.50		0.17			
Control Delay	33.7	1.7			10.5		42.4		0.3			
Queue Delay	0.0	0.0			0.0		0.0		0.0			
Total Delay	33.7	1.7			10.5		42.4		0.3			
LOS	C	A			B		D		A			
Approach Delay					4.6				10.5			
Approach LOS	A				B							

Intersection Summary

Area Type:	Other
Cycle Length:	94
Actuated Cycle Length:	94
Offset:	16 (17%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.50
Intersection Signal Delay:	10.4
Intersection LOS:	B
Intersection Capacity Utilization	41.3%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 5: SR 14 NB Off Ramp & Rosamond Blvd



Lanes, Volumes, Timings  
1: Tehachapi Willow Springs Rd & Backus Rd

AM 2022+Project  
8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	0	3	1	2	5	23	2	139	4	29	175	2
Future Volume (vph)	0	3	1	2	5	23	2	139	4	29	175	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.966			0.895			0.997			0.999	
Flt Protected					0.997			0.999			0.993	
Satd. Flow (prot)	0	1799	0	0	1662	0	0	1855	0	0	1848	0
Flt Permitted					0.997			0.999			0.993	
Satd. Flow (perm)	0	1799	0	0	1662	0	0	1855	0	0	1848	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2416			36000			31732			896	
Travel Time (s)		30.0			446.3			393.4			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	3	1	2	5	25	2	151	4	32	190	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	4	0	0	32	0	0	157	0	0	224	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	32.1% ICU Level of Service A
Analysis Period (min)	15



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	42	9	0	124	1	0
Future Volume (vph)	42	9	0	124	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.976		0.865			
Flt Protected	0.961					0.950
Satd. Flow (prot)	1747	0	1611	0	0	1770
Flt Permitted	0.961					0.950
Satd. Flow (perm)	1747	0	1611	0	0	1770
Link Speed (mph)	55		55			55
Link Distance (ft)	42395		4864			5376
Travel Time (s)	525.6		60.3			66.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	10	0	135	1	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	56	0	135	0	0	1
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Stop

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	17.7%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings  
 3: 90th St West/Tehachapi Willow Springs Rd & Rosamond Blvd

AM 2022+Project  
 8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	125	13	5	8	64	467	1	28	5	20	44	8
Future Volume (vph)	125	13	5	8	64	467	1	28	5	20	44	8
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.883			0.981			0.985	
Flt Protected		0.958			0.999			0.999			0.986	
Satd. Flow (prot)	0	1777	0	0	1643	0	0	1826	0	0	1809	0
Flt Permitted		0.958			0.999			0.999			0.986	
Satd. Flow (perm)	0	1777	0	0	1643	0	0	1826	0	0	1809	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		42395			41			7938			31732	
Travel Time (s)		525.6			0.5			98.4			393.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	136	14	5	9	70	508	1	30	5	22	48	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	155	0	0	587	0	0	36	0	0	79	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	61.1% ICU Level of Service B
Analysis Period (min)	15

Lanes, Volumes, Timings  
4: SR 14 SB Off Ramp & Rosamond Blvd

AM 2022+Project  
8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑		↖		↖	↖	↑	
Traffic Volume (vph)	0	1064	8	6	908	0	0	0	0	46	0	198
Future Volume (vph)	0	1064	8	6	908	0	0	0	0	46	0	198
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	0		0	100		0	0		50	160		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00										
Frt		0.999									0.850	
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	3535	0	1630	3539	0	1716	0	1716	1630	1583	0
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	3535	0	1630	3539	0	1716	0	1716	1630	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1									201	
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		35219			915			1530			1498	
Travel Time (s)		436.6			11.3			29.8			29.2	
Confl. Peds. (#/hr)			5									
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1157	9	7	987	0	0	0	0	50	0	215
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1166	0	7	987	0	0	0	0	50	215	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1		1	1		1		1	1	1	
Detector Template												
Leading Detector (ft)		50		50	50		50		50	50	50	
Trailing Detector (ft)		0		0	0		0		0	0	0	
Detector 1 Position(ft)		0		0	0		0		0	0	0	
Detector 1 Size(ft)		50		50	50		50		50	50	50	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Detector 1 Queue (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Detector 1 Delay (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Turn Type		NA		Prot	NA		Prot		Perm	Prot	NA	
Protected Phases		4		3	8		5			1	6	
Permitted Phases									2			
Detector Phase		4		3	8		5		2	1	6	
Switch Phase												





Lanes, Volumes, Timings  
5: SR 14 NB Off Ramp & Rosamond Blvd

AM 2022+Project  
8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	535	0	0	720	44	482	0	227	0	0	0
Future Volume (vph)	53	535	0	0	720	44	482	0	227	0	0	0
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	110		0	0		0	250		0	0		0
Storage Lanes	1		0	0		0	2		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					1.00							
Frt					0.991				0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1630	1863	0	0	3500	0	3162	0	1458	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	1630	1863	0	0	3500	0	3162	0	1458	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					9				247			
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		915			3331			1125			1281	
Travel Time (s)		11.3			41.3			21.9			25.0	
Confl. Peds. (#/hr)							5					
Confl. Bikes (#/hr)							2					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	58	582	0	0	783	48	524	0	247	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	582	0	0	831	0	524	0	247	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1		1			
Detector Template												
Leading Detector (ft)	50	50			50		50		50			
Trailing Detector (ft)	0	0			0		0		0			
Detector 1 Position(ft)	0	0			0		0		0			
Detector 1 Size(ft)	50	50			50		50		50			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0		0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0		0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0		0.0			
Turn Type	Prot	NA			NA		Prot		Free			
Protected Phases	7	4			8		5					
Permitted Phases									Free			
Detector Phase	7	4			8		5					
Switch Phase												

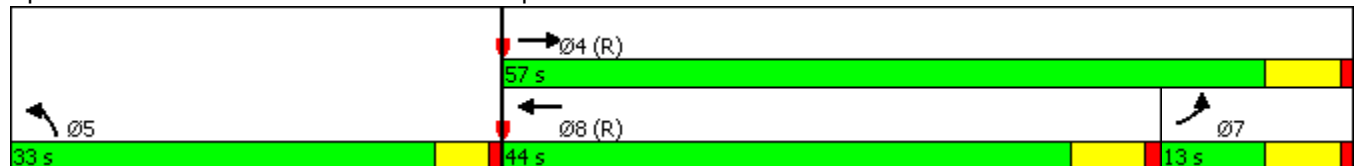


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	4.0			4.0		4.0					
Minimum Split (s)	10.0	21.5			22.0		8.6					
Total Split (s)	13.0	57.0			44.0		33.0					
Total Split (%)	14.4%	63.3%			48.9%		36.7%					
Maximum Green (s)	7.0	51.0			38.0		28.4					
Yellow Time (s)	5.0	5.0			5.0		3.6					
All-Red Time (s)	1.0	1.0			1.0		1.0					
Lost Time Adjust (s)	-2.0	-2.0			-2.0		-0.6					
Total Lost Time (s)	4.0	4.0			4.0		4.0					
Lead/Lag	Lag				Lead							
Lead-Lag Optimize?	Yes				Yes							
Vehicle Extension (s)	3.0	3.0			3.0		3.0					
Recall Mode	None C-Max				C-Max				None			
Walk Time (s)					5.0							
Flash Dont Walk (s)					8.4							
Pedestrian Calls (#/hr)					5							
Act Effct Green (s)	8.7	61.1			50.7		20.9		90.0			
Actuated g/C Ratio	0.10	0.68			0.56		0.23		1.00			
v/c Ratio	0.37	0.46			0.42		0.71		0.17			
Control Delay	37.8	4.0			13.4		37.1		0.3			
Queue Delay	0.0	0.0			0.0		0.0		0.0			
Total Delay	37.8	4.0			13.4		37.1		0.3			
LOS	D	A			B		D		A			
Approach Delay					7.0				13.4			
Approach LOS	A				B							

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	24 (27%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.71
Intersection Signal Delay:	15.7
Intersection LOS:	B
Intersection Capacity Utilization	49.8%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 5: SR 14 NB Off Ramp & Rosamond Blvd



Lanes, Volumes, Timings  
1: Tehachapi Willow Springs Rd & Backus Rd

AM 2026+Project  
8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	0	3	1	2	6	26	2	145	5	32	185	2
Future Volume (vph)	0	3	1	2	6	26	2	145	5	32	185	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.966			0.898			0.996			0.999	
Flt Protected					0.997			0.999			0.993	
Satd. Flow (prot)	0	1799	0	0	1668	0	0	1853	0	0	1848	0
Flt Permitted					0.997			0.999			0.993	
Satd. Flow (perm)	0	1799	0	0	1668	0	0	1853	0	0	1848	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2416			36000			31732			896	
Travel Time (s)		30.0			446.3			393.4			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	3	1	2	7	28	2	158	5	35	201	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	4	0	0	37	0	0	165	0	0	238	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	33.4%
Analysis Period (min)	15
	ICU Level of Service A



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	43	11	0	125	1	0
Future Volume (vph)	43	11	0	125	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.973		0.865			
Flt Protected	0.962					0.950
Satd. Flow (prot)	1744	0	1611	0	0	1770
Flt Permitted	0.962					0.950
Satd. Flow (perm)	1744	0	1611	0	0	1770
Link Speed (mph)	55		55			55
Link Distance (ft)	42395		4864			5376
Travel Time (s)	525.6		60.3			66.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	47	12	0	136	1	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	59	0	136	0	0	1
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Stop

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	17.7%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings  
 3: 90th St West/Tehachapi Willow Springs Rd & Rosamond Blvd

AM 2026+Project  
 8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	126	15	6	9	66	469	1	29	5	21	46	8
Future Volume (vph)	126	15	6	9	66	469	1	29	5	21	46	8
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994			0.884			0.982			0.985	
Flt Protected		0.959			0.999			0.999			0.986	
Satd. Flow (prot)	0	1776	0	0	1645	0	0	1827	0	0	1809	0
Flt Permitted		0.959			0.999			0.999			0.986	
Satd. Flow (perm)	0	1776	0	0	1645	0	0	1827	0	0	1809	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		42395			41			7938			31732	
Travel Time (s)		525.6			0.5			98.4			393.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	137	16	7	10	72	510	1	32	5	23	50	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	160	0	0	592	0	0	38	0	0	82	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	61.8%
ICU Level of Service	B
Analysis Period (min)	15

Lanes, Volumes, Timings  
4: SR 14 SB Off Ramp & Rosamond Blvd

AM 2026+Project  
8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑		↖		↖	↖	↑	
Traffic Volume (vph)	0	1157	9	7	961	0	0	0	0	52	0	204
Future Volume (vph)	0	1157	9	7	961	0	0	0	0	52	0	204
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	0		0	100		0	0		50	160		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00										
Fr <sub>t</sub>		0.999									0.850	
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	3535	0	1630	3539	0	1716	0	1716	1630	1583	0
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	3535	0	1630	3539	0	1716	0	1716	1630	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1									187	
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		35219			915			1530			1498	
Travel Time (s)		436.6			11.3			29.8			29.2	
Confl. Peds. (#/hr)			5									
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1258	10	8	1045	0	0	0	0	57	0	222
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1268	0	8	1045	0	0	0	0	57	222	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1		1	1		1		1	1	1	
Detector Template												
Leading Detector (ft)		50		50	50		50		50	50	50	
Trailing Detector (ft)		0		0	0		0		0	0	0	
Detector 1 Position(ft)		0		0	0		0		0	0	0	
Detector 1 Size(ft)		50		50	50		50		50	50	50	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Detector 1 Queue (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Detector 1 Delay (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Turn Type		NA		Prot	NA		Prot		Perm	Prot	NA	
Protected Phases		4		3	8		5			1	6	
Permitted Phases									2			
Detector Phase		4		3	8		5		2	1	6	
Switch Phase												



Lanes, Volumes, Timings  
5: SR 14 NB Off Ramp & Rosamond Blvd

AM 2026+Project  
8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	553	0	0	746	46	485	0	232	0	0	0
Future Volume (vph)	55	553	0	0	746	46	485	0	232	0	0	0
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	110		0	0		0	250		0	0		0
Storage Lanes	1		0	0		0	2		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					1.00							
Frt					0.991				0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1630	1863	0	0	3500	0	3162	0	1458	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	1630	1863	0	0	3500	0	3162	0	1458	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					9				252			
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		915			3331			1125			1281	
Travel Time (s)		11.3			41.3			21.9			25.0	
Confl. Peds. (#/hr)							5					
Confl. Bikes (#/hr)							2					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	601	0	0	811	50	527	0	252	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	601	0	0	861	0	527	0	252	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1		1			
Detector Template												
Leading Detector (ft)	50	50			50		50		50			
Trailing Detector (ft)	0	0			0		0		0			
Detector 1 Position(ft)	0	0			0		0		0			
Detector 1 Size(ft)	50	50			50		50		50			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0		0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0		0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0		0.0			
Turn Type	Prot	NA			NA		Prot		Free			
Protected Phases	7	4			8		5					
Permitted Phases									Free			
Detector Phase	7	4			8		5					
Switch Phase												



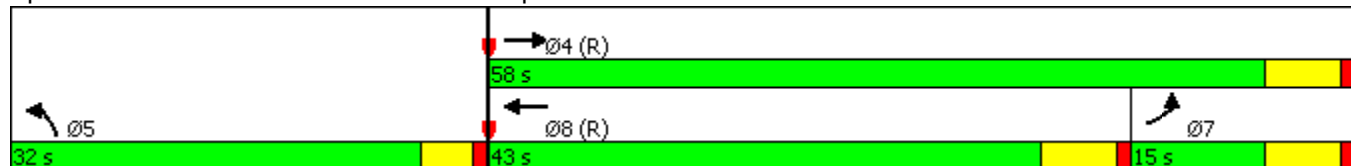


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	4.0			4.0		4.0					
Minimum Split (s)	10.0	21.5			22.0		8.6					
Total Split (s)	15.0	58.0			43.0		32.0					
Total Split (%)	16.7%	64.4%			47.8%		35.6%					
Maximum Green (s)	9.0	52.0			37.0		27.4					
Yellow Time (s)	5.0	5.0			5.0		3.6					
All-Red Time (s)	1.0	1.0			1.0		1.0					
Lost Time Adjust (s)	-2.0	-2.0			-2.0		-0.6					
Total Lost Time (s)	4.0	4.0			4.0		4.0					
Lead/Lag	Lag				Lead							
Lead-Lag Optimize?	Yes				Yes							
Vehicle Extension (s)	3.0	3.0			3.0		3.0					
Recall Mode	None C-Max				C-Max				None			
Walk Time (s)					5.0							
Flash Dont Walk (s)					8.4							
Pedestrian Calls (#/hr)					5							
Act Effct Green (s)	10.3	61.1			49.1		20.9		90.0			
Actuated g/C Ratio	0.11	0.68			0.55		0.23		1.00			
v/c Ratio	0.32	0.48			0.45		0.72		0.17			
Control Delay	34.8	3.9			14.8		37.2		0.3			
Queue Delay	0.0	0.0			0.0		0.0		0.0			
Total Delay	34.8	3.9			14.8		37.2		0.3			
LOS	C	A			B		D		A			
Approach Delay					6.7				14.8			
Approach LOS	A				B							

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	24 (27%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.72
Intersection Signal Delay:	16.0
Intersection LOS:	B
Intersection Capacity Utilization	50.8%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 5: SR 14 NB Off Ramp & Rosamond Blvd



Lanes, Volumes, Timings  
1: Tehachapi Willow Springs Rd & Backus Rd

PM 2022  
8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	1	0	1	4	2	43	0	83	1	24	53	0
Future Volume (vph)	1	0	1	4	2	43	0	83	1	24	53	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.932			0.880			0.999				
Flt Protected		0.976			0.996						0.985	
Satd. Flow (prot)	0	1694	0	0	1633	0	0	1861	0	0	1835	0
Flt Permitted		0.976			0.996						0.985	
Satd. Flow (perm)	0	1694	0	0	1633	0	0	1861	0	0	1835	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2416			36000			31732			896	
Travel Time (s)		30.0			446.3			393.4			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	0	1	4	2	47	0	90	1	26	58	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	53	0	0	91	0	0	84	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.8%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings  
2: 170th St W & Rosamond Blvd

PM 2022  
8/9/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	5	1	47	2	1
Future Volume (vph)	4	5	1	47	2	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.925		0.868			
Flt Protected	0.978					0.968
Satd. Flow (prot)	1685	0	1617	0	0	1803
Flt Permitted	0.978					0.968
Satd. Flow (perm)	1685	0	1617	0	0	1803
Link Speed (mph)	55		55			55
Link Distance (ft)	42395		4864			5376
Travel Time (s)	525.6		60.3			66.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	5	1	51	2	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	0	52	0	0	3
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.3%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings  
 3: 90th St West/Tehachapi Willow Springs Rd & Rosamond Blvd

PM 2022  
 8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	39	93	9	4	15	59	3	30	11	31	29	5
Future Volume (vph)	39	93	9	4	15	59	3	30	11	31	29	5
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.991			0.897			0.966			0.990	
Fl <sub>t</sub> Protected		0.986			0.998			0.997			0.977	
Satd. Flow (prot)	0	1820	0	0	1668	0	0	1794	0	0	1802	0
Fl <sub>t</sub> Permitted		0.986			0.998			0.997			0.977	
Satd. Flow (perm)	0	1820	0	0	1668	0	0	1794	0	0	1802	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		42395			41			7938			31732	
Travel Time (s)		525.6			0.5			98.4			393.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	101	10	4	16	64	3	33	12	34	32	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	153	0	0	84	0	0	48	0	0	71	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	31.1%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings  
4: SR 14 SB Off Ramp & Rosamond Blvd

PM 2022  
8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↵	↑↑		↵		↵	↵	↑	
Traffic Volume (vph)	0	811	30	8	1008	0	0	0	0	75	0	132
Future Volume (vph)	0	811	30	8	1008	0	0	0	0	75	0	132
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	0		0	100		0	0		50	160		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00										
Fr <sub>t</sub>		0.995									0.850	
Fl <sub>t</sub> Protected				0.950						0.950		
Satd. Flow (prot)	0	3517	0	1630	3539	0	1716	0	1716	1630	1583	0
Fl <sub>t</sub> Permitted				0.950						0.950		
Satd. Flow (perm)	0	3517	0	1630	3539	0	1716	0	1716	1630	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5									167	
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		35219			915			1530			1498	
Travel Time (s)		436.6			11.3			29.8			29.2	
Confl. Peds. (#/hr)			5									
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	882	33	9	1096	0	0	0	0	82	0	143
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	915	0	9	1096	0	0	0	0	82	143	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1		1	1		1		1	1	1	
Detector Template												
Leading Detector (ft)		50		50	50		50		50	50	50	
Trailing Detector (ft)		0		0	0		0		0	0	0	
Detector 1 Position(ft)		0		0	0		0		0	0	0	
Detector 1 Size(ft)		50		50	50		50		50	50	50	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Detector 1 Queue (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Detector 1 Delay (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Turn Type		NA		Prot	NA		Prot		Perm	Prot	NA	
Protected Phases		4		3	8		5			1	6	
Permitted Phases									2			
Detector Phase		4		3	8		5		2	1	6	
Switch Phase												

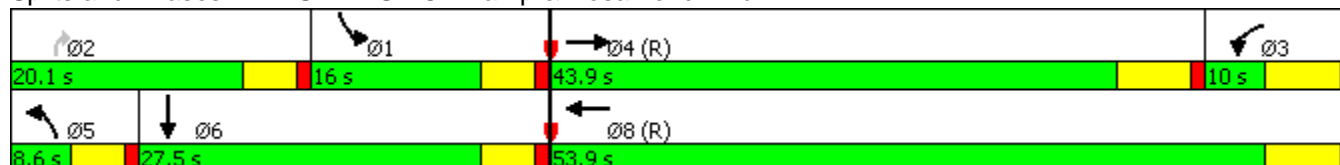


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	
Minimum Split (s)		23.6		10.0	21.5		8.6		20.1	8.6	20.1	
Total Split (s)		43.9		10.0	53.9		8.6		20.1	16.0	27.5	
Total Split (%)		48.8%		11.1%	59.9%		9.6%		22.3%	17.8%	30.6%	
Maximum Green (s)		37.9		4.0	47.9		4.0		15.5	11.4	22.9	
Yellow Time (s)		5.0		5.0	5.0		3.6		3.6	3.6	3.6	
All-Red Time (s)		1.0		1.0	1.0		1.0		1.0	1.0	1.0	
Lost Time Adjust (s)		-2.0		-2.0	-2.0		-0.6		-0.6	-0.6	-0.6	
Total Lost Time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	
Lead/Lag		Lead		Lag			Lead		Lead	Lag	Lag	
Lead-Lag Optimize?		Yes		Yes			Yes		Yes	Yes	Yes	
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	
Recall Mode		C-Max		None	C-Max		None		Min	None	Min	
Walk Time (s)		5.0										
Flash Dont Walk (s)		12.6										
Pedestrian Calls (#/hr)		5										
Act Effct Green (s)		61.6		6.0	63.6					10.4	18.4	
Actuated g/C Ratio		0.68		0.07	0.71					0.12	0.20	
v/c Ratio		0.38		0.08	0.44					0.44	0.31	
Control Delay		8.1		34.2	2.3					43.5	4.9	
Queue Delay		0.0		0.0	0.0					0.0	0.0	
Total Delay		8.1		34.2	2.3					43.5	4.9	
LOS		A		C	A					D	A	
Approach Delay		8.1			2.6						19.0	
Approach LOS		A			A						B	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	14 (16%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	65
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.44
Intersection Signal Delay:	6.5
Intersection LOS:	A
Intersection Capacity Utilization	42.7%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: SR 14 SB Off Ramp & Rosamond Blvd



Lanes, Volumes, Timings  
5: SR 14 NB Off Ramp & Rosamond Blvd

PM 2022  
8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑			↑↑		↘↘		↘			
Traffic Volume (vph)	97	514	0	0	758	61	499	0	264	0	0	0
Future Volume (vph)	97	514	0	0	758	61	499	0	264	0	0	0
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	110		0	0		0	250		0	0		0
Storage Lanes	1		0	0		0	2		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					1.00							
Frt					0.989				0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1630	1863	0	0	3490	0	3162	0	1458	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	1630	1863	0	0	3490	0	3162	0	1458	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					11				287			
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		915			3331			1125			1281	
Travel Time (s)		11.3			41.3			21.9			25.0	
Confl. Peds. (#/hr)							5					
Confl. Bikes (#/hr)							2					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	105	559	0	0	824	66	542	0	287	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	105	559	0	0	890	0	542	0	287	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1		1			
Detector Template												
Leading Detector (ft)	50	50			50		50		50			
Trailing Detector (ft)	0	0			0		0		0			
Detector 1 Position(ft)	0	0			0		0		0			
Detector 1 Size(ft)	50	50			50		50		50			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0		0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0		0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0		0.0			
Turn Type	Prot	NA			NA		Prot		Free			
Protected Phases	7	4			8		5					
Permitted Phases									Free			
Detector Phase	7	4			8		5					
Switch Phase												

Lanes, Volumes, Timings  
5: SR 14 NB Off Ramp & Rosamond Blvd

PM 2022  
8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	4.0			4.0		4.0					
Minimum Split (s)	10.0	21.5			22.0		8.6					
Total Split (s)	18.0	59.0			41.0		31.0					
Total Split (%)	20.0%	65.6%			45.6%		34.4%					
Maximum Green (s)	12.0	53.0			35.0		26.4					
Yellow Time (s)	5.0	5.0			5.0		3.6					
All-Red Time (s)	1.0	1.0			1.0		1.0					
Lost Time Adjust (s)	-2.0	-2.0			-2.0		-0.6					
Total Lost Time (s)	4.0	4.0			4.0		4.0					
Lead/Lag	Lag				Lead							
Lead-Lag Optimize?	Yes				Yes							
Vehicle Extension (s)	3.0	3.0			3.0		3.0					
Recall Mode	None C-Max				C-Max				None			
Walk Time (s)					5.0							
Flash Dont Walk (s)					8.4							
Pedestrian Calls (#/hr)					5							
Act Effct Green (s)	12.9	60.7			46.3		21.3		90.0			
Actuated g/C Ratio	0.14	0.67			0.51		0.24		1.00			
v/c Ratio	0.45	0.45			0.49		0.72		0.20			
Control Delay	36.6	3.8			17.3		37.2		0.3			
Queue Delay	0.0	0.0			0.0		0.0		0.0			
Total Delay	36.6	3.8			17.3		37.2		0.3			
LOS	D	A			B		D		A			
Approach Delay					9.0				17.3			
Approach LOS	A				B							

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	16 (18%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.72
Intersection Signal Delay:	17.5
Intersection LOS:	B
Intersection Capacity Utilization	54.2%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 5: SR 14 NB Off Ramp & Rosamond Blvd





Lanes, Volumes, Timings  
 1: Tehachapi Willow Springs Rd & Backus Rd

PM 2026  
 8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	1	0	1	5	2	49	0	94	1	27	59	0
Future Volume (vph)	1	0	1	5	2	49	0	94	1	27	59	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.932			0.881			0.999				
Fl <sub>t</sub> Protected		0.976			0.996						0.985	
Satd. Flow (prot)	0	1694	0	0	1635	0	0	1861	0	0	1835	0
Fl <sub>t</sub> Permitted		0.976			0.996						0.985	
Satd. Flow (perm)	0	1694	0	0	1635	0	0	1861	0	0	1835	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2416			36000			31732			896	
Travel Time (s)		30.0			446.3			393.4			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	0	1	5	2	53	0	102	1	29	64	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	60	0	0	103	0	0	93	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	21.4%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings  
2: 170th St W & Rosamond Blvd

PM 2026  
8/9/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	6	7	1	50	3	1
Future Volume (vph)	6	7	1	50	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.928		0.867			
Flt Protected	0.977					0.964
Satd. Flow (prot)	1689	0	1615	0	0	1796
Flt Permitted	0.977					0.964
Satd. Flow (perm)	1689	0	1615	0	0	1796
Link Speed (mph)	55		55			55
Link Distance (ft)	42395		4864			5376
Travel Time (s)	525.6		60.3			66.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	8	1	54	3	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	15	0	55	0	0	4
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.3%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings  
 3: 90th St West/Tehachapi Willow Springs Rd & Rosamond Blvd

PM 2026  
 8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	45	99	11	4	17	61	3	31	11	32	30	5
Future Volume (vph)	45	99	11	4	17	61	3	31	11	32	30	5
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.990			0.899			0.967			0.991	
Fl <sub>t</sub> Protected		0.986			0.998			0.997			0.977	
Satd. Flow (prot)	0	1818	0	0	1671	0	0	1796	0	0	1804	0
Fl <sub>t</sub> Permitted		0.986			0.998			0.997			0.977	
Satd. Flow (perm)	0	1818	0	0	1671	0	0	1796	0	0	1804	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		42395			41			7938			31732	
Travel Time (s)		525.6			0.5			98.4			393.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	108	12	4	18	66	3	34	12	35	33	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	169	0	0	88	0	0	49	0	0	73	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	32.0%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings  
4: SR 14 SB Off Ramp & Rosamond Blvd

PM 2026  
8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑		↖		↖	↖	↑	
Traffic Volume (vph)	0	880	31	9	1094	0	0	0	0	84	0	144
Future Volume (vph)	0	880	31	9	1094	0	0	0	0	84	0	144
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	0		0	100		0	0		50	160		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00										
Frt		0.995									0.850	
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	3517	0	1630	3539	0	1716	0	1716	1630	1583	0
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	3517	0	1630	3539	0	1716	0	1716	1630	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5									165	
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		35219			915			1530			1498	
Travel Time (s)		436.6			11.3			29.8			29.2	
Confl. Peds. (#/hr)			5									
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	957	34	10	1189	0	0	0	0	91	0	157
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	991	0	10	1189	0	0	0	0	91	157	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1		1	1		1		1	1	1	
Detector Template												
Leading Detector (ft)		50		50	50		50		50	50	50	
Trailing Detector (ft)		0		0	0		0		0	0	0	
Detector 1 Position(ft)		0		0	0		0		0	0	0	
Detector 1 Size(ft)		50		50	50		50		50	50	50	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Detector 1 Queue (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Detector 1 Delay (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Turn Type		NA		Prot	NA		Prot		Perm	Prot	NA	
Protected Phases		4		3	8		5			1	6	
Permitted Phases									2			
Detector Phase		4		3	8		5		2	1	6	
Switch Phase												

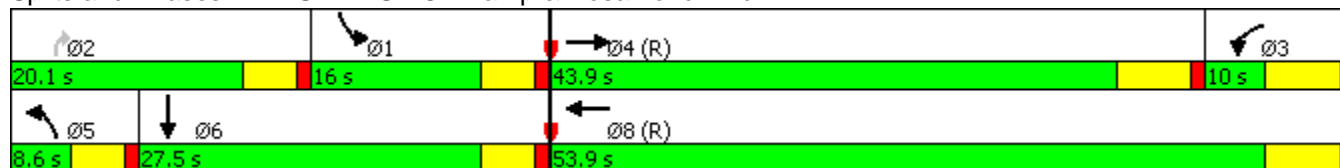


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	
Minimum Split (s)		23.6		10.0	21.5		8.6		20.1	8.6	20.1	
Total Split (s)		43.9		10.0	53.9		8.6		20.1	16.0	27.5	
Total Split (%)		48.8%		11.1%	59.9%		9.6%		22.3%	17.8%	30.6%	
Maximum Green (s)		37.9		4.0	47.9		4.0		15.5	11.4	22.9	
Yellow Time (s)		5.0		5.0	5.0		3.6		3.6	3.6	3.6	
All-Red Time (s)		1.0		1.0	1.0		1.0		1.0	1.0	1.0	
Lost Time Adjust (s)		-2.0		-2.0	-2.0		-0.6		-0.6	-0.6	-0.6	
Total Lost Time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	
Lead/Lag		Lead		Lag			Lead		Lead	Lag	Lag	
Lead-Lag Optimize?		Yes		Yes			Yes		Yes	Yes	Yes	
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	
Recall Mode		C-Max		None	C-Max		None		Min	None	Min	
Walk Time (s)		5.0										
Flash Dont Walk (s)		12.6										
Pedestrian Calls (#/hr)		5										
Act Effct Green (s)		61.2		6.0	63.2					10.9	18.8	
Actuated g/C Ratio		0.68		0.07	0.70					0.12	0.21	
v/c Ratio		0.41		0.09	0.48					0.46	0.34	
Control Delay		8.7		34.6	2.6					43.6	6.1	
Queue Delay		0.0		0.0	0.0					0.0	0.0	
Total Delay		8.7		34.6	2.6					43.6	6.1	
LOS		A		C	A					D	A	
Approach Delay		8.7			2.9						19.9	
Approach LOS		A			A						B	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	23 (26%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	65
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.48
Intersection Signal Delay:	7.0
Intersection LOS:	A
Intersection Capacity Utilization	45.8%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: SR 14 SB Off Ramp & Rosamond Blvd



Lanes, Volumes, Timings  
5: SR 14 NB Off Ramp & Rosamond Blvd

PM 2026  
8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑			↑↑		↘↘		↘			
Traffic Volume (vph)	99	533	0	0	785	63	509	0	270	0	0	0
Future Volume (vph)	99	533	0	0	785	63	509	0	270	0	0	0
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	110		0	0		0	250		0	0		0
Storage Lanes	1		0	0		0	2		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					1.00							
Frt					0.989				0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1630	1863	0	0	3490	0	3162	0	1458	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	1630	1863	0	0	3490	0	3162	0	1458	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					11				293			
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		915			3331			1125			1281	
Travel Time (s)		11.3			41.3			21.9			25.0	
Confl. Peds. (#/hr)							5					
Confl. Bikes (#/hr)							2					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	108	579	0	0	853	68	553	0	293	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	108	579	0	0	921	0	553	0	293	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1		1			
Detector Template												
Leading Detector (ft)	50	50			50		50		50			
Trailing Detector (ft)	0	0			0		0		0			
Detector 1 Position(ft)	0	0			0		0		0			
Detector 1 Size(ft)	50	50			50		50		50			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0		0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0		0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0		0.0			
Turn Type	Prot	NA			NA		Prot		Free			
Protected Phases	7	4			8		5					
Permitted Phases									Free			
Detector Phase	7	4			8		5					
Switch Phase												



Lanes, Volumes, Timings  
1: Tehachapi Willow Springs Rd & Backus Rd

PM 2022+Project  
8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	1	0	1	4	2	43	0	181	1	24	53	0
Future Volume (vph)	1	0	1	4	2	43	0	181	1	24	53	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.932			0.880			0.999				
Flt Protected		0.976			0.996						0.985	
Satd. Flow (prot)	0	1694	0	0	1633	0	0	1861	0	0	1835	0
Flt Permitted		0.976			0.996						0.985	
Satd. Flow (perm)	0	1694	0	0	1633	0	0	1861	0	0	1835	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2416			36000			31732			896	
Travel Time (s)		30.0			446.3			393.4			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	0	1	4	2	47	0	197	1	26	58	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	53	0	0	198	0	0	84	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	27.0%
Analysis Period (min)	15
	ICU Level of Service A





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	171	5	1	47	2	1
Future Volume (vph)	171	5	1	47	2	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.996		0.868			
Flt Protected	0.954					0.968
Satd. Flow (prot)	1770	0	1617	0	0	1803
Flt Permitted	0.954					0.968
Satd. Flow (perm)	1770	0	1617	0	0	1803
Link Speed (mph)	55		55			55
Link Distance (ft)	42395		4864			5376
Travel Time (s)	525.6		60.3			66.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	186	5	1	51	2	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	191	0	52	0	0	3
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Stop

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	19.8%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings  
 3: 90th St West/Tehachapi Willow Springs Rd & Rosamond Blvd

PM 2022+Project  
 8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	39	93	9	4	15	59	3	30	11	421	29	172
Future Volume (vph)	39	93	9	4	15	59	3	30	11	421	29	172
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.991			0.897			0.966			0.963	
Fl <sub>t</sub> Protected		0.986			0.998			0.997			0.967	
Satd. Flow (prot)	0	1820	0	0	1668	0	0	1794	0	0	1735	0
Fl <sub>t</sub> Permitted		0.986			0.998			0.997			0.967	
Satd. Flow (perm)	0	1820	0	0	1668	0	0	1794	0	0	1735	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		42395			41			7938			31732	
Travel Time (s)		525.6			0.5			98.4			393.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	101	10	4	16	64	3	33	12	458	32	187
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	153	0	0	84	0	0	48	0	0	677	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	62.9%
ICU Level of Service	B
Analysis Period (min)	15

Lanes, Volumes, Timings  
4: SR 14 SB Off Ramp & Rosamond Blvd

PM 2022+Project  
8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↵	↑↑		↵		↵	↵	↑	
Traffic Volume (vph)	0	929	302	8	1008	0	0	0	0	75	0	132
Future Volume (vph)	0	929	302	8	1008	0	0	0	0	75	0	132
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	0		0	100		0	0		50	160		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99										
Frnt		0.963									0.850	
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	3380	0	1630	3539	0	1716	0	1716	1630	1583	0
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	3380	0	1630	3539	0	1716	0	1716	1630	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		67									173	
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		35219			915			1530			1498	
Travel Time (s)		436.6			11.3			29.8			29.2	
Confl. Peds. (#/hr)			5									
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1010	328	9	1096	0	0	0	0	82	0	143
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1338	0	9	1096	0	0	0	0	82	143	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1		1	1		1		1	1	1	
Detector Template												
Leading Detector (ft)		50		50	50		50		50	50	50	
Trailing Detector (ft)		0		0	0		0		0	0	0	
Detector 1 Position(ft)		0		0	0		0		0	0	0	
Detector 1 Size(ft)		50		50	50		50		50	50	50	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Detector 1 Queue (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Detector 1 Delay (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Turn Type		NA		Prot	NA		Prot		Perm	Prot	NA	
Protected Phases		4		3	8		5			1	6	
Permitted Phases									2			
Detector Phase		4		3	8		5		2	1	6	
Switch Phase												



Lanes, Volumes, Timings  
5: SR 14 NB Off Ramp & Rosamond Blvd

PM 2022+Project  
8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	215	514	0	0	758	61	499	0	264	0	0	0
Future Volume (vph)	215	514	0	0	758	61	499	0	264	0	0	0
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	110		0	0		0	250		0	0		0
Storage Lanes	1		0	0		0	2		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					1.00							
Frt					0.989				0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1630	1863	0	0	3490	0	3162	0	1458	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	1630	1863	0	0	3490	0	3162	0	1458	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					10				287			
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		915			3331			1125			1281	
Travel Time (s)		11.3			41.3			21.9			25.0	
Confl. Peds. (#/hr)							5					
Confl. Bikes (#/hr)							2					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	234	559	0	0	824	66	542	0	287	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	234	559	0	0	890	0	542	0	287	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1		1			
Detector Template												
Leading Detector (ft)	50	50			50		50		50			
Trailing Detector (ft)	0	0			0		0		0			
Detector 1 Position(ft)	0	0			0		0		0			
Detector 1 Size(ft)	50	50			50		50		50			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0		0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0		0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0		0.0			
Turn Type	Prot	NA			NA		Prot		Free			
Protected Phases	7	4			8		5					
Permitted Phases									Free			
Detector Phase	7	4			8		5					
Switch Phase												



Lanes, Volumes, Timings  
1: Tehachapi Willow Springs Rd & Backus Rd

PM 2026+Project  
8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	1	0	1	5	2	49	0	192	1	27	59	0
Future Volume (vph)	1	0	1	5	2	49	0	192	1	27	59	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.932			0.881			0.999				
Fl <sub>t</sub> Protected		0.976			0.996						0.985	
Satd. Flow (prot)	0	1694	0	0	1635	0	0	1861	0	0	1835	0
Fl <sub>t</sub> Permitted		0.976			0.996						0.985	
Satd. Flow (perm)	0	1694	0	0	1635	0	0	1861	0	0	1835	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2416			36000			31732			896	
Travel Time (s)		30.0			446.3			393.4			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	0	1	5	2	53	0	209	1	29	64	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	60	0	0	210	0	0	93	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	28.2%
Analysis Period (min)	15
	ICU Level of Service A



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	173	7	1	50	3	1
Future Volume (vph)	173	7	1	50	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.994		0.867			
Flt Protected	0.954					0.964
Satd. Flow (prot)	1766	0	1615	0	0	1796
Flt Permitted	0.954					0.964
Satd. Flow (perm)	1766	0	1615	0	0	1796
Link Speed (mph)	55		55			55
Link Distance (ft)	42395		4864			5376
Travel Time (s)	525.6		60.3			66.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	188	8	1	54	3	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	196	0	55	0	0	4
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Stop

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.0%
Analysis Period (min)	15
	ICU Level of Service A



Lanes, Volumes, Timings  
 3: 90th St West/Tehachapi Willow Springs Rd & Rosamond Blvd

PM 2026+Project  
 8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	45	99	11	4	17	61	3	31	11	422	30	172
Future Volume (vph)	45	99	11	4	17	61	3	31	11	422	30	172
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.990			0.899			0.967			0.963	
Fl <sub>t</sub> Protected		0.986			0.998			0.997			0.967	
Satd. Flow (prot)	0	1818	0	0	1671	0	0	1796	0	0	1735	0
Fl <sub>t</sub> Permitted		0.986			0.998			0.997			0.967	
Satd. Flow (perm)	0	1818	0	0	1671	0	0	1796	0	0	1735	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		42395			41			7938			31732	
Travel Time (s)		525.6			0.5			98.4			393.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	108	12	4	18	66	3	34	12	459	33	187
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	169	0	0	88	0	0	49	0	0	679	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	63.8%
ICU Level of Service	B
Analysis Period (min)	15

Lanes, Volumes, Timings  
4: SR 14 SB Off Ramp & Rosamond Blvd

PM 2026+Project  
8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑		↖		↖	↖	↑	
Traffic Volume (vph)	0	998	303	9	1094	0	0	0	0	84	0	144
Future Volume (vph)	0	998	303	9	1094	0	0	0	0	84	0	144
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	0		0	100		0	0		50	160		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99										
Frt		0.965									0.850	
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	3388	0	1630	3539	0	1716	0	1716	1630	1583	0
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	3388	0	1630	3539	0	1716	0	1716	1630	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		61									165	
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		35219			915			1530			1498	
Travel Time (s)		436.6			11.3			29.8			29.2	
Confl. Peds. (#/hr)			5									
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1085	329	10	1189	0	0	0	0	91	0	157
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1414	0	10	1189	0	0	0	0	91	157	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1		1	1		1		1	1	1	
Detector Template												
Leading Detector (ft)		50		50	50		50		50	50	50	
Trailing Detector (ft)		0		0	0		0		0	0	0	
Detector 1 Position(ft)		0		0	0		0		0	0	0	
Detector 1 Size(ft)		50		50	50		50		50	50	50	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Detector 1 Queue (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Detector 1 Delay (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Turn Type		NA		Prot	NA		Prot		Perm	Prot	NA	
Protected Phases		4		3	8		5			1	6	
Permitted Phases									2			
Detector Phase		4		3	8		5		2	1	6	
Switch Phase												



Lanes, Volumes, Timings  
5: SR 14 NB Off Ramp & Rosamond Blvd

PM 2026+Project  
8/9/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	217	533	0	0	785	63	509	0	270	0	0	0
Future Volume (vph)	217	533	0	0	785	63	509	0	270	0	0	0
Ideal Flow (vphpl)	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750
Storage Length (ft)	110		0	0		0	250		0	0		0
Storage Lanes	1		0	0		0	2		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					1.00							
Frt					0.989				0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1630	1863	0	0	3490	0	3162	0	1458	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	1630	1863	0	0	3490	0	3162	0	1458	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					10				293			
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		915			3331			1125			1281	
Travel Time (s)		11.3			41.3			21.9			25.0	
Confl. Peds. (#/hr)							5					
Confl. Bikes (#/hr)							2					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	236	579	0	0	853	68	553	0	293	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	236	579	0	0	921	0	553	0	293	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11	1.11	1.00	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1		1			
Detector Template												
Leading Detector (ft)	50	50			50		50		50			
Trailing Detector (ft)	0	0			0		0		0			
Detector 1 Position(ft)	0	0			0		0		0			
Detector 1 Size(ft)	50	50			50		50		50			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0		0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0		0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0		0.0			
Turn Type	Prot	NA			NA		Prot		Free			
Protected Phases	7	4			8		5					
Permitted Phases									Free			
Detector Phase	7	4			8		5					
Switch Phase												





Location ID: 1  
 North/South: 90th St W  
 East/West: Rosamond Blvd

Date: 3/2/2021  
 City: Rosamond, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Lanes:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00	3	21	4	7	2	2	2	7	0	0	2	2	52
7:15	3	16	5	8	2	2	2	9	0	2	3	0	52
7:30	0	17	8	4	3	3	3	8	0	1	4	2	53
7:45	2	14	3	3	7	1	1	1	0	1	4	3	40
8:00													
8:15													
8:30													
8:45													

Total Volume:	8	68	20	22	14	8	8	25	0	4	13	7	197
Approach %	8%	71%	21%	50%	32%	18%	24%	76%	0%	17%	54%	29%	

Peak Hr Begin:	7:00												
PHV	8	68	20	22	14	8	8	25	0	4	13	7	197
PHF	0.857			0.917			0.750			0.750			0.929

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Lanes:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	3	18	7	7	2	2	1	14	0	6	12	10	82
16:45	1	10	12	10	3	1	4	17	2	5	5	12	82
17:00	2	17	10	11	5	0	2	23	0	1	6	4	81
17:15	4	12	4	10	0	3	1	15	1	5	7	1	63
17:30													
17:45													

Total Volume:	10	57	33	38	10	6	8	69	3	17	30	27	308
Approach %	10%	57%	33%	70%	19%	11%	10%	86%	4%	23%	41%	36%	

## Turning Movement Count Report AM

Location ID: 1  
 North/South: 170th St W  
 East/West: Rosamond Boulevard

Date: 12/05/18  
 City: Rosamond, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00	0	0	0	1	0	1	1	0	0	0	0	0	3
7:15	0	0	0	2	0	0	1	0	0	0	0	0	3
7:30	0	0	1	4	0	1	0	0	0	0	0	0	6
7:45	0	0	0	1	0	0	0	0	0	0	0	0	1
8:00													
8:15													
8:30													
8:45													

Total Volume:	0	0	1	8	0	2	2	0	0	0	0	0	13
Approach %	0%	0%	100%	80%	0%	20%	100%	0%	0%	0%	0%	0%	

Peak Hr Begin:	7:00												
PHV	0	0	1	8	0	2	2	0	0	0	0	0	13
PHF	0.250			0.500			0.500			0.000			0.542



## Turning Movement Count Report PM

Location ID: 1  
 North/South: 170th St W  
 East/West: Rosamond Boulevard

Date: 12/05/18  
 City: Rosamond, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	0	0	1	0	0	2	1	0	0	0	0	0	4
16:45	0	0	0	2	0	0	3	1	0	0	0	0	6
17:00	0	1	1	1	0	2	1	0	0	0	0	0	6
17:15	0	0	0	2	0	0	2	0	0	0	0	0	4
17:30													
17:45													

Total Volume:	0	1	2	5	0	4	7	1	0	0	0	0	20
Approach %	0%	33%	67%	56%	0%	44%	88%	13%	0%	0%	0%	0%	

Peak Hr Begin:	16:30												
PHV	0	1	2	5	0	4	7	1	0	0	0	0	20
PHF	0.375			0.750			0.500			0.000			0.833

## Turning Movement Count Report AM

Location ID: 5a  
 North/South: State Route 14 SB Off Ramp / Acacia St  
 East/West: Rosamond Boulevard

Date: 12/05/18  
 City: Rosamond, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00	18	0	6	0	125	1	0	0	2	1	232	0	385
7:15	12	0	19	0	174	2	0	0	4	4	312	0	527
7:30	9	0	8	0	124	2	2	0	1	2	287	0	435
7:45	5	0	12	0	168	1	2	0	0	1	211	0	400
8:00													
8:15													
8:30													
8:45													

Total Volume:	44	0	45	0	591	6	4	0	7	8	1042	0	1747
Approach %	49%	0%	51%	0%	99%	1%	36%	0%	64%	1%	99%	0%	

Peak Hr Begin:	7:00												
PHV	44	0	45	0	591	6	4	0	7	8	1042	0	1747
PHF	0.718			0.848			0.688			0.831			0.829

## Turning Movement Count Report PM

Location ID: 0  
 North/South: State Route 14 SB Off Ramp / Acacia St  
 East/West: Rosamond Boulevard

Date: 12/05/18  
 City: Rosamond, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	28	0	10	0	266	2	3	0	1	2	212	0	524
16:45	28	2	25	0	215	2	1	0	1	1	199	0	474
17:00	22	0	22	0	223	2	1	0	2	3	195	0	470
17:15	19	0	16	0	272	2	1	0	1	1	165	0	477
17:30													
17:45													

Total Volume:	97	2	73	0	976	8	6	0	5	7	771	0	1945
Approach %	56%	1%	42%	0%	99%	1%	55%	0%	45%	1%	99%	0%	

Peak Hr Begin:	16:30												
PHV	97	2	73	0	976	8	6	0	5	7	771	0	1945
PHF	0.782			0.898			0.688			0.909			0.928

## Turning Movement Count Report AM

Location ID: 6  
 North/South: State Route 14 NB Ramps  
 East/West: Rosamond Boulevard

Date: 12/05/18  
 City: Rosamond, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00	0	0	0	9	153	0	68	0	28	0	104	9	371
7:15	0	0	0	6	210	0	56	0	37	0	173	15	497
7:30	0	0	0	17	171	0	44	0	37	0	144	19	432
7:45	0	0	0	12	180	0	58	0	50	0	109	10	419
8:00													
8:15													
8:30													
8:45													

Total Volume:	0	0	0	44	714	0	226	0	152	0	530	53	1719
Approach %	0%	0%	0%	6%	94%	0%	60%	0%	40%	0%	91%	9%	

Peak Hr Begin:	7:00												
PHV	0	0	0	44	714	0	226	0	152	0	530	53	1719
PHF	0.000			0.877			0.875			0.775			0.865

## Turning Movement Count Report PM

Location ID: 6  
 North/South: State Route 14 NB Ramps  
 East/West: Rosamond Boulevard

Date: 12/05/18  
 City: Rosamond, CA

	Southbound			Westbound			Northbound			Eastbound			Totals:
	1	2	3	4	5	6	7	8	9	10	11	12	
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00													
16:15													
16:30	0	0	0	15	204	0	80	0	137	0	135	16	587
16:45	0	0	0	20	190	0	64	0	92	0	137	23	526
17:00	0	0	0	14	162	0	59	0	127	0	138	18	518
17:15	0	0	0	11	185	0	60	0	132	0	100	15	503
17:30													
17:45													

Total Volume:	0	0	0	60	741	0	263	0	488	0	510	72	2134
Approach %	0%	0%	0%	7%	93%	0%	35%	0%	65%	0%	88%	12%	

Peak Hr Begin:	16:30												
PHV	0	0	0	60	741	0	263	0	488	0	510	72	2134
PHF	0.000			0.914			0.865			0.909			0.909



# Appendix N: **Noise Technical Report**

*This page intentionally left blank*



# **NOISE TECHNICAL REPORT**

## **BULLHEAD SOLAR PROJECT**

**PREPARED FOR:**

EDF Renewables  
1999 Harrison Street, Suite 675  
Oakland, CA 94612

**PREPARED BY:**

ICF  
49 Discovery, Suite 250  
Irvine, CA 92618

**April 2023**





# Contents

---

<b>Chapter 1 Introduction</b> .....	<b>1-1</b>
1.1    Project Description Summary .....	1-1
<b>Chapter 2 Noise Fundamentals</b> .....	<b>2-1</b>
2.1    Frequency, Amplitude, and Decibels .....	2-1
2.2    Noise Descriptors .....	2-3
2.3    Sound Propagation .....	2-4
2.4    Human Response to Noise .....	2-5
2.5    Noise-Sensitive Land Uses .....	2-7
<b>Chapter 3 Groundborne Vibration Fundamentals</b> .....	<b>3-1</b>
3.1    Displacement, Velocity, and Acceleration .....	3-1
3.2    Frequency and Amplitude.....	3-2
3.3    Vibration Descriptors .....	3-2
3.4    Vibration Propagation.....	3-3
3.5    Effects of Groundborne Vibration .....	3-3
3.6    Vibration-Sensitive Land Uses .....	3-5
<b>Chapter 4 Existing Noise Environment</b> .....	<b>4-1</b>
<b>Chapter 5 Regulatory Framework</b> .....	<b>5-1</b>
5.1    Federal .....	5-1
5.2    State .....	5-1
5.3    Local .....	5-2
<b>Chapter 6 Impacts and Mitigation Measures</b> .....	<b>6-1</b>
6.1    Methodology.....	6-1
6.2    Project Design Features .....	6-6
6.3    Thresholds of Significance .....	6-7
6.4    Project Impacts .....	6-8
<b>Chapter 7 Cumulative Conditions</b> .....	<b>7-1</b>
7.1    Cumulative Construction Noise .....	7-1
7.2    Cumulative Construction Vibration .....	7-2
7.3    Cumulative Operational Noise.....	7-2
7.4    Cumulative Operational Vibration .....	7-3
<b>Chapter 8 References</b> .....	<b>8-1</b>

# Appendices

- Appendix A**    **Survey of Nearby Structures and Residences**
- Appendix B**    **Noise Measurement Field Surveys**
- Appendix C**    **Construction, Operational, and Traffic Noise Levels**
- Appendix D**    **Construction Vibration Levels**
- Appendix E**    **Cumulative Projects List**

## Tables

	Page
Table 2-1. Typical A-Weighted Sound Levels .....	2-3
Table 4-1. Measured Existing Noise Levels in Project Area .....	4-3
Table 5-1. Caltrans Guideline Vibration Damage Criteria .....	5-2
Table 5-2. Caltrans Guideline Vibration Annoyance Criteria .....	5-2
Table 6-1. Construction Equipment Vibration Levels .....	6-3
Table 6-2. Bullhead Equipment Noise Levels .....	6-4
Table 6-3. Construction Activities and Equipment Noise Levels.....	6-9
Table 6-4. Composite Noise Levels for Each Construction Activity .....	6-10
Table 6-5. Estimated Construction Noise Levels at Nearby Sensitive Receptors .....	6-15
Table 6-6. Estimated Noise Increases at Nearby Sensitive Receptors due to Construction .....	6-18
Table 6-7. Offsite Construction Traffic Noise Levels .....	6-20
Table 6-8. Estimated Stationary Equipment Noise Levels at Analyzed Sensitive Receptors, BESS/Substation Option 1 .....	6-23
Table 6-9. Estimated Stationary Equipment Noise Levels at Analyzed Sensitive Receptors, BESS/Substation Option 2 .....	6-24
Table 6-10. Estimated Stationary Equipment Noise Levels at Analyzed Sensitive Receptors, BESS/Substation Option 3 .....	6-25
Table 6-11. Operational Traffic Noise Levels .....	6-27
Table 6-12. Estimated Groundborne Vibration from Project Construction.....	6-27

# Figures

---

	<b>Page</b>
Figure 1-1. Project Site Aerial Location Map.....	1-3
Figure 1-2. Conceptual Site Plan .....	1-5
Figure 4-1. Noise Measurement Locations .....	4-5
Figure 6-1. Analyzed Sensitive Receptor Locations.....	6-13

## Acronyms and Abbreviations

---

μPa	microPascals
BESS	battery energy storage system
BigBeau	BigBeau Solar Project
Caltrans	California Department of Transportation
CNEL	Community Noise Equivalent Level
County	Kern County
CUP	Conditional Use Permit
dB	decibel
dBA	A-weighted decibel
EDFR	EDF Renewables
FHWA	Federal Highway Administration
gen-tie	generation-tie
Hz	Hertz
in/s	inch per second
kHz	kilohertz
L <sub>dn</sub>	day-night sound level
L <sub>eq</sub>	equivalent sound level
L <sub>max</sub>	maximum sound level
L <sub>min</sub>	minimum sound level
LT	long-term
L <sub>v</sub>	vibration velocity level
L <sub>xx</sub>	percentile-exceeded sound level
MW	megawatts
PCS	power conversion station
PDF	project design feature
PPV	peak particle velocity
project	Bullhead Solar Project
PV	photovoltaic
rms	root-mean-square
SCE	Southern California Edison
SLM	sound level meter
SPL	sound pressure level
ST	short-term
TRTP	Tehachapi Renewable Transmission Project
WSSP	Willow Springs Specific Plan

The purpose of this Noise Technical Report is to identify any noise or vibration impacts that may be associated with the proposed Bullhead Solar Project (project), to be developed by EDF Renewables (EDFR) in southern Kern County, central California. The analysis provided in this report evaluates the potential for short- and long-term noise and vibration impacts associated with the construction and operation of the project. The analysis includes a description of the environmental setting for the project, including existing noise conditions, as well as applicable laws and regulations. It also documents the assumptions, methodologies, and findings used to evaluate the impacts.

### 1.1 Project Description Summary

EDFR proposes the project to develop up to 270 megawatts (MW) (alternating current or “AC”) of solar photovoltaic (PV) capacity derived from tracker technology and up to 270 megawatts of battery storage. The project includes solar development with associated PV panels, inverters, converters, generators, foundations, transformers, and preferred and optional generation-tie (gen-tie) routes to the Rosamond Switching Station and the Whirlwind Substation, only one of which would be constructed. Three locations within the project boundaries are under consideration for development of the substation and battery energy storage system (BESS), only one of which would be selected for construction. The precise layout of the BESS/substation is currently unknown, but the boundaries of the BESS/substation areas have been determined. BESS/Substation Option 1 would place the BESS and substation in an area south of Dawn Road, approximately 0.2 mile east of 105<sup>th</sup> Street West. BESS/Substation Option 2 would place the BESS and substation in an area north of Dawn Road, approximately 0.25 mile west of Tehachapi Willow Springs Road. BESS/Substation Option 3 would place the BESS and substation in an area north of Favorito Avenue and west of Tehachapi Willow Springs Road. The project also includes laydown yards, a meteorological station, and a microwave/communication tower.

The proposed project encompasses a study area of approximately 1,359.5 acres of private land (Figure 1-1, Study Area). A larger study area has been provided for evaluation to ensure that all lands potentially affected by the project are included in the analysis. Should the Kern County (County) Board of Supervisors approve the project, then the County would issue Conditional Use Permits (CUPs) and other required approvals on land proposed for development of the solar facilities. The portion of the project subject to the CUPs is 1,349.5 acres; 10 acres are excluded from the CUP boundary, but are included in the study area boundary for purposes of environmental analysis.

As shown on Figure 1-2, Conceptual Site Plan, secondary access to the Bullhead site is provided via 120<sup>th</sup> Street West through the approved and adjacent BigBeau Solar Project (BigBeau). Approximately 422.4 acres of land permitted in connection with BigBeau will be developed around the same time as the proposed project, and those facilities will use the same interconnection infrastructure as the proposed project. The County Board of Supervisors approved BigBeau and certified an EIR for the project in June 2020 (SCH # 2019071059), which is hereby incorporated by

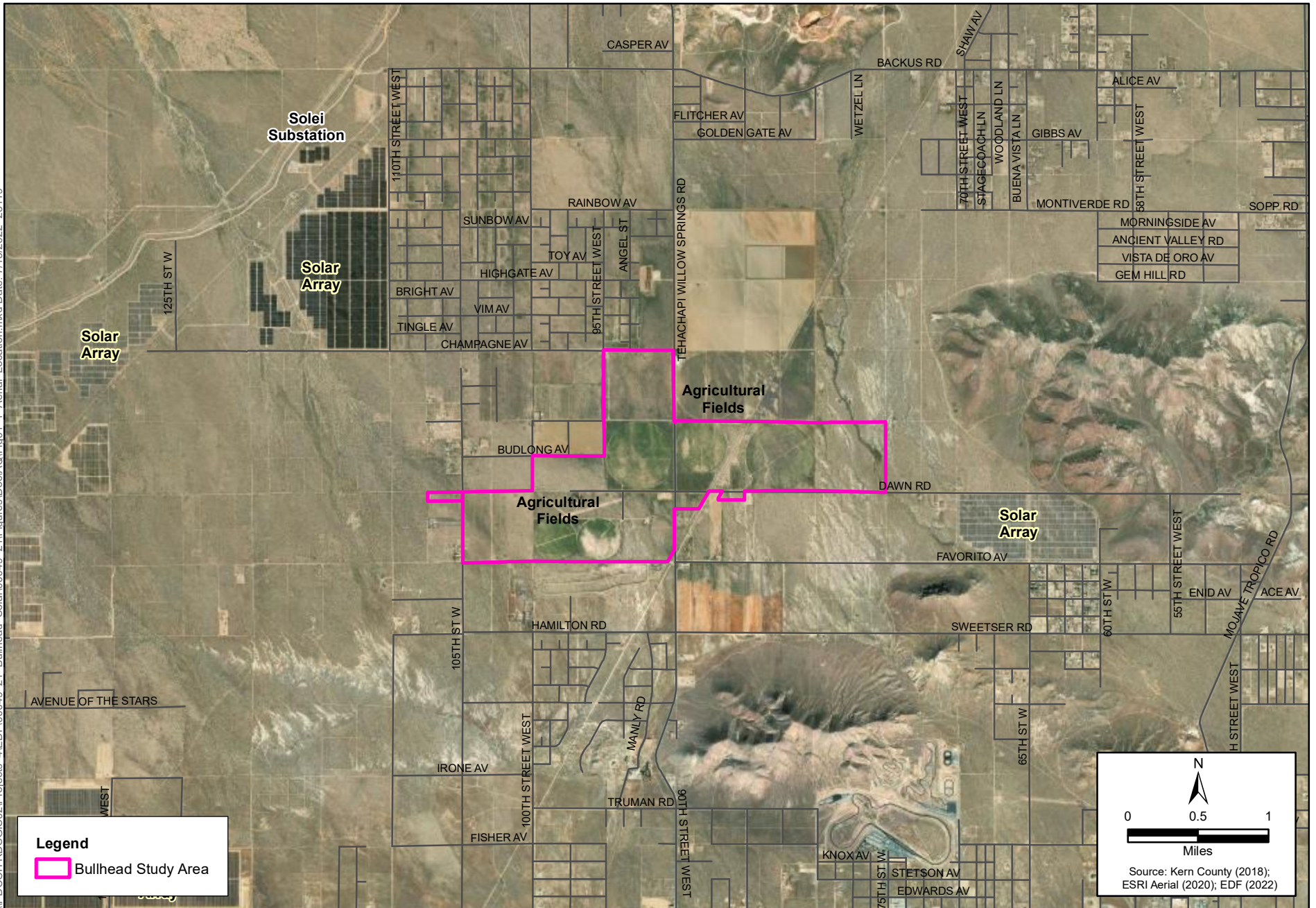
reference. EDFR will comply with all mitigation measures and conditions of approval applicable to BigBeau for any development those lands.

As shown on Figure 1-1 and Figure 1-2, the project's study area consists of a solar array area with three locations under consideration for the development of a BESS/substation facility. CUPs are required for the solar-generation facilities (e.g., the panels) and associated generation equipment (i.e., inverters, substation, and batteries), as well as the communications tower. Therefore, these facilities will be located within the CUP boundary (1,349.50 acres). Several other project components do not require CUPs and would extend beyond the CUP boundary (but would be entirely within the study area). These components include access roads and gen-tie power lines (both collection and transmission). Figure 1-2 shows the project components.

EDFR is committed to creating a state-of-the-art solar energy project that would be constructed in a manner that minimizes environmental impacts to the greatest extent feasible. The project includes four options for gen-tie routes, including two deviations to one option and one deviation to another. Only one route would be constructed. Three project optional gen-tie routes—Rosamond Gen-tie Options 1, 2, and 3, including one deviation identified as Rosamond Gen-tie Option 3.1—would travel south from the project boundary and connect to the Rosamond Switching Station. The Rosamond Switching Station is planned to be constructed by the Los Angeles Department of Water and Power by December 2025. One optional project gen-tie route—Whirlwind Gen-tie Option 1, including two deviation routes identified as Whirlwind Gen-tie Option 1.1 and Whirlwind Gen-tie Option 1.2—would cross underneath Southern California Edison's (SCE's) Tehachapi Renewable Transmission Project (TRTP) to the west of the project site and connect to the existing Whirlwind Substation. SCE's TRTP 220/500-kilovolt corridor travels through Whirlwind Gen-tie Option 1 and connects SCE's Vincent Substation with SCE's Windhub Substation to the south and north of the project site, respectively. Many of the lands surrounding the site have either been approved for, or are in the planning stages of, development for solar or wind energy.



\\PDC\ITRDS\GIS02\Projects\_4\EDF\00049\_21\Bullhead\_Solar\00049\_21\Figures\Doc\AQ\Fig01\_1\_Aerial\_Location.mxd Date: 7/15/2022 25:11:19

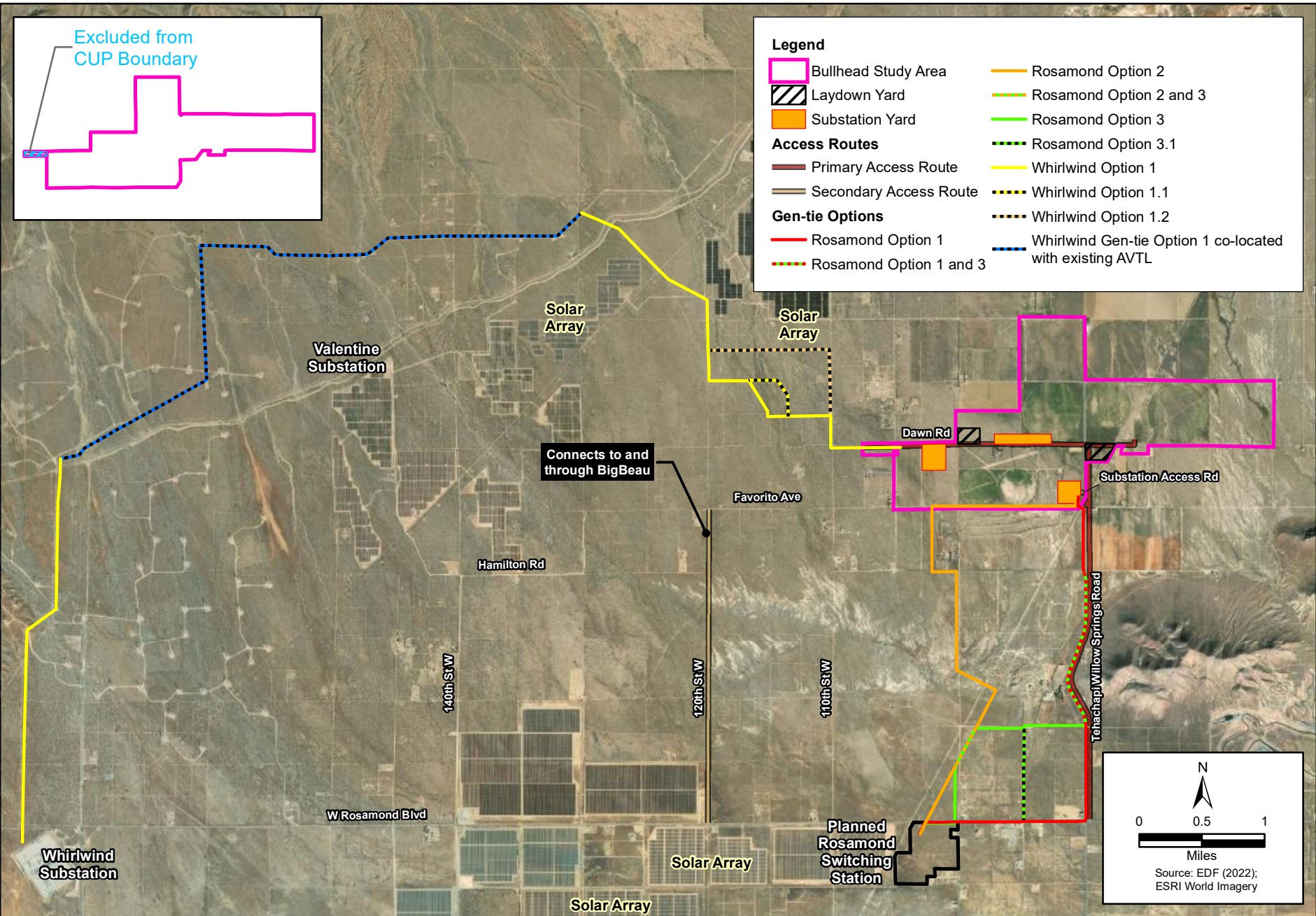


**Figure 1-1**  
**Project Site Aerial Location Map**  
**Bullhead Solar**

*This page intentionally left blank.*



\\PDC\ITRDS\GIS\02\Projects\_4\EDF\00049\_21\Bullhead\_Solar\00049\_21\Figures\Doc\AQ\Fig01\_2\_Conceptual\_SitePlan.mxd Date: 7/15/2022 25119



**Figure 1-2  
Conceptual Site Plan  
Bullhead Solar**

*This page intentionally left blank.*

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is often defined as sound that is objectionable because it is unwanted, disturbing, or annoying.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receptor, and the propagation path between the two. The loudness of the noise source and the obstructions or atmospheric factors, which affect the propagation path to the receptor, determine the sound level and the characteristics of the noise perceived by the receptor.

The following sections provide an explanation of key concepts and acoustical terms used in the analysis of environmental and community noise.

## 2.1 Frequency, Amplitude, and Decibels

Continuous sound can be described by its *frequency* (pitch) and *amplitude* (loudness). A low-frequency sound is perceived as low in pitch; a high-frequency sound is perceived as high-pitched. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

The amplitude of pressure waves generated by a sound source correlates with the loudness of that source. The amplitude of a sound is typically described in terms of *sound pressure level* (SPL), also referred to simply as the sound level. The SPL refers to the root-mean-square (rms)<sup>1</sup> pressure of a sound wave and is measured in units called microPascals ( $\mu\text{Pa}$ ). One  $\mu\text{Pa}$  is approximately one hundred-billionth (0.0000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to over 100,000,000  $\mu\text{Pa}$ . Because of this large range of values, sound is rarely expressed in terms of  $\mu\text{Pa}$ . Instead, a logarithmic scale is used to describe the SPL in terms of decibels, abbreviated dB. The decibel is a logarithmic unit that describes the ratio of the actual sound pressure to a reference pressure (20  $\mu\text{Pa}$  is the standard reference pressure level for acoustical measurements in air). Specifically, an SPL, in dB, is calculated as follows:

$$SPL = 20 \times \log_{10} \left( \frac{X}{20 \mu\text{Pa}} \right)$$

where  $X$  is the actual sound pressure and 20  $\mu\text{Pa}$  is the reference pressure. The threshold of hearing for young people is about 0 dB, which corresponds to 20  $\mu\text{Pa}$ .

---

<sup>1</sup> Root-mean-square (rms) is defined as the square root of the mean (average) value of the squared amplitude of the noise signal.

## 2.1.1 Decibel Calculations

Because decibels represent noise levels using a logarithmic scale, SPLs cannot be added, subtracted, or averaged through ordinary arithmetic. On the dB scale, a doubling of sound energy corresponds to a 3-dB increase. In other words, when two identical sources are each producing sound of the same loudness, their combined sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one bulldozer produces an SPL of 80 dB, two bulldozers would not produce a combined sound level of 160 dB. Rather, they would combine to produce 83 dB. The cumulative sound level of any number of sources, such as excavators, can be determined using decibel addition. The same decibel addition is used for A-weighted decibels described below.

Similarly, the arithmetic mean (average) of a series of noise levels does not accurately represent the overall average noise level. Instead, the values must be averaged using a linear scale before converting the result back into a logarithmic (dB) noise level. This method is typically referred to as calculating the “energy average” of the noise levels.

## 2.1.2 A-Weighting

The dB scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000 to 5,000 Hz and perceive sounds within that range better than sounds of the same amplitude at higher or lower frequencies. To approximate the response of the human ear, sound levels of individual frequency bands are weighted (i.e., adjusted), depending on human sensitivity to those frequencies. The resulting SPL is expressed in A-weighted decibels, or dBA.

The A-weighting scale approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments regarding the relative loudness or annoyance of a sound, their judgments correlate well with the A-weighted sound levels of those sounds. Table 2-1 describes typical A-weighted sound levels for various noise sources.

**Table 2-1. Typical A-Weighted Sound Levels**

Common Outdoor Noise Source	Sound Level (dBA)	Common Indoor Noise Source
	— 110 —	Rock band
Jet flying at 1,000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower at 100 feet	— 70 —	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	— 60 —	
		Large business office
Quiet urban daytime	— 50 —	Dishwasher in next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Source: Caltrans 2013.

## 2.2 Noise Descriptors

Because sound levels can vary markedly over a short period of time, various descriptors or noise “metrics” have been developed to quantify environmental and community noise. These metrics generally describe either the average character of the noise or the statistical behavior of the variations in the noise level. Some of the most common metrics used to describe environmental noise, including those metrics used in this report, are described below.

- **Equivalent Sound Level ( $L_{eq}$ )** is the most common metric used to describe short-term average noise levels. Many noise sources produce levels that fluctuate over time; examples include mechanical equipment that cycles on and off or construction work, which can vary sporadically. The  $L_{eq}$  describes the average acoustical energy content of noise for an identified period of time, commonly 1 hour. Thus, the  $L_{eq}$  of a time-varying noise and that of a steady noise are the same if they deliver the same acoustical energy over the duration of the exposure. For many noise sources, the  $L_{eq}$  will vary depending on the time of day. A prime example is traffic noise, which rises and falls depending on the amount of traffic on a given street or freeway.

- **Maximum Sound Level ( $L_{max}$ )** and **Minimum Sound Level ( $L_{min}$ )** refer to the maximum and minimum sound levels, respectively, that occur during the noise measurement period. More specifically, they describe the rms sound levels that correspond to the loudest and quietest 1-second intervals that occur during the measurement.
- **Percentile-Exceeded Sound Level ( $L_{xx}$ )** describes the sound level exceeded for a given percentage of a specified period. For example, the  $L_{50}$  is the sound level exceeded 50 percent of the time (such as 30 minutes per hour), and  $L_{25}$  is the sound level exceeded 25 percent of the time (such as 15 minutes per hour).
- **Community Noise Equivalent Level (CNEL)** is a measure of the 24-hour average A-weighted noise level that is also time-weighted to “penalize” noise that occurs during the evening and nighttime hours when noise is generally recognized to be more disturbing (because people are trying to rest, relax, and sleep during these times). 5 dBA is added to the  $L_{eq}$  during the evening hours of 7 p.m. to 10 p.m.; 10 dBA is added to the  $L_{eq}$  during the nighttime hours of 10 p.m. to 7 a.m.; and the energy average is then taken for the whole 24-hour day.
- **Day-Night Sound Level ( $L_{dn}$ )** is very similar to the CNEL described above.  $L_{dn}$  is also a time-weighted average of the 24-hour A-weighted noise level. The only difference is that no “penalty” is applied to the evening hours of 7 p.m. to 10 p.m. 10 dBA is added to the  $L_{eq}$  during the nighttime hours of 10 p.m. to 7 a.m., and the energy average is then taken for the whole 24-hour day.

It is noted that various federal, state, and local agencies have adopted CNEL or  $L_{dn}$  as the measure of community noise. While not identical, CNEL and  $L_{dn}$  are normally within 1 dBA of each other when measured in typical community environments, and many noise standards/regulations use the two interchangeably.

## 2.3 Sound Propagation

When sound propagates over a distance, it changes in both level and frequency content. The manner in which noise is reduced with distance depends on the following important factors.

- **Geometric Spreading.** Sound from a single source (i.e., a “point” source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates (or drops off) at a rate of 6 dBA for each doubling of distance. Highway noise is not a single stationary point source of sound. The movement of vehicles on a highway makes the source of the sound appear to emanate from a line (i.e., a “line” source) rather than from a point. This results in cylindrical spreading rather than the spherical spreading resulting from a point source. The change in sound level (i.e., attenuation or decrease) from a line source is 3 dBA per doubling of distance.
- **Ground Absorption.** The noise path between the source and the observer is usually close to the ground. The excess noise attenuation from ground absorption occurs due to acoustic energy losses on sound wave reflection. For acoustically “hard” sites (i.e., sites with a reflective surface, such as a parking lot or a smooth body of water, between the source and the receptor), no excess ground attenuation is assumed because the sound wave is reflected without energy losses. For acoustically absorptive or “soft” sites (i.e., sites with an absorptive ground surface, such as soft



dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dBA per doubling of distance is normally assumed. When added to the geometric spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dBA per doubling of distance for a line source and 7.5 dBA per doubling of distance for a point source.

- **Atmospheric Effects.** Research by the California Department of Transportation (Caltrans) and others has shown that atmospheric conditions can have a major effect on noise levels. Factors include wind, air temperature (including vertical temperature gradients), humidity, and turbulence. Receptors downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas receptors upwind can have lower noise levels. Increased sound levels can also occur over relatively large distances because of temperature inversion conditions (i.e., increasing temperature with elevation).
- **Shielding by Natural or Human-Made Features.** A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. The amount of attenuation provided by this shielding depends on the size of the object, proximity to the noise source and receptor, surface weight, solidity, and the frequency content of the noise source. Natural terrain features (such as hills and dense woods) and human-made features (such as buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receptor with the specific purpose of reducing noise. In addition to the noise that diffracts over the top of a barrier, noise will also diffract around the ends of the barrier leading to “flanking” noise that can reduce the overall efficacy of the barrier. Assuming it is long enough to minimize the effects of flanking noise, a barrier that breaks the line of sight between a source and a receptor will typically result in at least 5 dB of noise reduction. A higher barrier may provide as much as 20 dB of noise reduction.

## 2.4 Human Response to Noise

Noise can have a range of effects on people including hearing damage, sleep interference, speech interference, performance interference, physiological responses, and annoyance. Each of these is briefly described below:

- **Hearing Damage.** A person exposed to high noise levels can suffer either gradual or traumatic hearing damage. Gradual hearing loss occurs with repeated exposure to excessive noise levels and is most commonly associated with occupational noise exposures in heavy industry or other very noisy work environments. Traumatic hearing loss is caused by sudden exposure to an extremely high noise level, such as a gunshot or explosion at very close range. The potential for noise-induced hearing loss is not generally a concern in typical community noise environments. Noise levels in neighborhoods, even in very noisy airport environs, are not sufficiently loud as to cause hearing loss.
- **Sleep Interference.** Exposure to excessive noise levels at night has been shown to cause sleep disturbance. Sleep disturbance refers not only to awakening from sleep, but also to effects on the quality of sleep such as altering the pattern and stages of sleep. World Health Organization guidelines recommend noise limits of 30 dBA  $L_{eq}$  (8-hour average) for continuous noise and 45 dBA  $L_{max}$  for single sound events inside bedrooms at night to minimize sleep disturbance (World Health Organization 1999).

- **Speech Interference.** Speech interference can be a problem in any situation where clear communication is desired, but is often of particular concern in learning environments (such as schools) or situations where poor communication could jeopardize safety. Normal conversational speech inside homes is typically in the range of 50 to 65 dBA (EPA 1977) and any noise in this range or louder may interfere with speech. As background noise levels rise, the intelligibility of speech decreases and the listener will fail to recognize an increasing percentage of the words spoken. A speaker may raise their voice in an attempt to compensate for higher background noise levels, but this in turn can lead to vocal fatigue for the speaker.
- **Performance Interference.** Excessive noise has been found to have various detrimental effects on human performance, including information processing, concentration, accuracy, reaction times, and academic performance. Intrusive noise from individual events can also cause distraction. These effects are of obvious concern for learning and work environments.
- **Physiological Responses.** Acute noise has been shown to cause measurable physiological responses in humans, including changes in stress hormone levels, pulse rate, and blood pressure. The extent to which these responses cause harm or are signs of harm is not clearly defined, but it has been postulated that they could contribute to stress-related diseases, such as hypertension, anxiety, and heart disease. However, research indicates links between environmental noise and permanent health effects are generally weak and inconsistent. Statistically significant health risks have been found for extended exposure to very high noise levels, such as for workers exposed to high levels of industrial noise for 5 to 30 years (World Health Organization 1999).
- **Annoyance.** The subjective effects of annoyance, nuisance, and dissatisfaction are possibly the most difficult to quantify, and no accurate method exists to measure these effects. This difficulty arises primarily from differences in individual sensitivity and habituation to sound, which can vary widely from person to person. What one person considers tolerable can be unbearable to another of equal hearing acuity. An important tool in estimating the likelihood of annoyance due to a new sound is by comparing it to the existing baseline or “ambient” environment to which that person has adapted. In general, the more the level or tonal (frequency) variations of a sound exceed the previously existing ambient sound level or tonal quality, the less acceptable the new sound will be.

In most cases, effects from sounds typically found in the natural environment would be limited to annoyance or interference. Physiological effects and hearing loss would be more commonly associated with human-made noise, such as in an industrial or occupational setting.

Studies have shown that under controlled conditions in an acoustics laboratory, a healthy human ear is able to discern changes in sound levels of 1 dBA. In the normal environment, the healthy human ear can detect changes of about 2 dBA; however, it is widely accepted that a doubling of sound energy, which results in a change of 3 dBA in the normal environment, is considered just noticeable to most people. A change of 5 dBA is readily perceptible, and a change of 10 dBA is perceived as being twice as loud. Accordingly, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) resulting in a 3-dBA increase in sound would generally be barely detectable.

## 2.5 Noise-Sensitive Land Uses

Noise-sensitive land uses are the locations most likely to be adversely affected by excessive noise levels, as well as places where quiet is an essential element of their intended purpose. As defined in the *Kern County General Plan Noise Element*, noise-sensitive land uses include residential areas, schools, convalescent and acute care hospitals, parks and recreational areas, and churches (County of Kern 2009).

*This page intentionally left blank.*

## Chapter 3

# Groundborne Vibration Fundamentals

---

This section describes basic concepts related to groundborne vibration. Groundborne vibration is a small, rapidly fluctuating motion transmitted through the ground. The effects of groundborne vibrations are typically limited to causing nuisance or annoyance to people, but at extreme vibration levels damage to buildings may also occur.

In contrast to airborne sound, groundborne vibration is not a phenomenon that most people experience every day. The ambient groundborne vibration level in residential areas is usually much lower than the threshold of human perception. Most perceptible indoor vibration is caused by sources within buildings, such as mechanical equipment while in operation, people moving, or doors slamming. Typical outdoor sources of perceptible groundborne vibration are heavy construction activity (such as blasting, pile driving, or earthmoving), steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the groundborne vibration from traffic is rarely perceptible, even in locations close to major roads. The strength of groundborne vibration from typical environmental sources diminishes (or attenuates) fairly rapidly over distance.

For the prediction of groundborne vibration, the fundamental model consists of a vibration source, a receptor, and the propagation path between the two. The power of the vibration source and the characteristics and geology of the intervening ground, which affect the propagation path to the receptor, determine the groundborne vibration level and the characteristics of the vibration perceived by the receptor.

The following sections provide an explanation of key concepts and terms used in the analysis of environmental groundborne vibration.

## 3.1 Displacement, Velocity, and Acceleration

When a vibration source (blasting, dynamic construction equipment, train, etc.) impacts the ground it imparts energy to the ground, creating vibration waves that propagate away from the source along the surface and downward into the earth. As vibration waves travel outward from a source, they excite the particles of rock and soil through which they pass and cause them to oscillate. The distance that these particles move is referred to as the *displacement* and is typically very small, usually only a few ten-thousandths to a few thousandths of an inch. *Velocity* describes the instantaneous speed of the motion, and *acceleration* is the instantaneous rate of change of the speed. Each of these measures can be further described in terms of *frequency* and *amplitude*, as discussed below.

Although displacement is generally easier to understand than velocity or acceleration, it is rarely used to describe groundborne vibration because most transducers used to measure vibration directly measure velocity or acceleration, not displacement.

## 3.2 Frequency and Amplitude

The frequency of a vibrating object describes how rapidly it is oscillating. The unit of measurement for the frequency of vibration is Hz (the same as used in the measurement of noise), which describes the number of cycles per second.

The amplitude of displacement describes the distance that a particle moves from its resting (or equilibrium) position as it oscillates and can be measured in inches. The amplitude of vibration velocity (the speed of the movement) can be measured in inches per second (in/s). The amplitude of vibration acceleration (the rate of change of the speed) can be measured in in/s per second.

## 3.3 Vibration Descriptors

As noted above, there are various ways to quantify groundborne vibration based on its fundamental characteristics. Because vibration can vary markedly over a short period of time, various descriptors have been developed to quantify vibration. The two most common descriptors used in the analysis of groundborne vibration are vibration velocity level and peak particle velocity, each of which are described below:

- **Peak Particle Velocity (PPV)** is defined as the maximum instantaneous positive or negative peak amplitude of the vibration velocity. The unit of measurement for PPV is in/s. Unlike many quantities used in the study of environmental acoustics, PPV is typically presented using linear values and does not employ a dB scale. Because it is related to the stresses that are experienced by buildings, PPV is generally accepted as the most appropriate descriptor for evaluating the potential for building damage (both Federal Transit Administration and Caltrans guidelines recommend using PPV for this purpose). It is also used in many instances to evaluate the human response to groundborne vibration (Caltrans guidelines recommend using PPV for this purpose).
- **Vibration Velocity Level ( $L_V$ )** describes the rms vibration velocity. Due to the typically small amplitudes of groundborne vibrations, vibration velocity is often expressed in decibels, calculated as follows.

$$L_V = 20 \times \log_{10} \left( \frac{V}{V_{ref}} \right)$$

where  $V$  is the actual rms velocity amplitude and  $V_{ref}$  is the reference velocity amplitude. It is important to note that there is no universally accepted value for  $V_{ref}$ , but the accepted reference quantity for vibration velocity in the U.S. is 1 micro-inch per second ( $1 \times 10^{-6}$  in/s). The abbreviation VdB is commonly used for vibration decibels to distinguish from noise level decibels.  $L_V$  is often used to evaluate human response to vibration levels (Federal Transit Administration guidelines recommend using  $L_V$  for this purpose).

## 3.4 Vibration Propagation

Vibration energy spreads out as it travels through the ground, causing the vibration level to diminish with distance away from the source. High-frequency vibrations reduce much more rapidly than low frequencies so that low frequencies tend to dominate the spectrum at large distances from the source. The propagation of groundborne vibration is not as simple to model as airborne noise. This is because noise in the air travels through a relatively uniform medium while groundborne vibrations travel through the earth, which may contain significant geological differences. Geological factors that influence the propagation of groundborne vibration include the following:

- **Soil conditions.** The type of soil is known to have a strong influence on the levels of groundborne vibration. Among the most important factors are the stiffness and internal damping of the soil. Hard, dense, and compacted soil; stiff clay soil; and hard rock transmit vibration more efficiently than loose, soft soils; sand; or gravel.
- **Depth to bedrock.** Shallow depth to bedrock has been linked to efficient propagation of groundborne vibration. One possibility is that shallow bedrock acts to concentrate the vibration energy near the surface, reflecting vibration waves back toward the surface that would otherwise continue to propagate farther down into the earth.
- **Soil strata.** Discontinuities in the soil strata (i.e., soil layering) can also cause diffractions or channeling effects that affect the propagation of vibration over long distances.
- **Frost conditions.** Vibration waves typically propagate more efficiently in frozen soils than in unfrozen soils. Propagation also varies depending on the depth of the frost.
- **Water conditions.** The amount of water in the soil can affect vibration propagation. The depth of the water table in the path of the propagation also appears to have substantial effects on groundborne vibration levels.

Specific conditions at the source and receiver locations can also affect the vibration levels. For instance, how the source is connected to the ground (e.g., direct contact, through rails, or via a structure) will affect the amount of energy transmitted into the ground. There are also notable differences when the source is underground (such as in a tunnel) versus on the surface. At the receiver, vibration levels can be affected by variables such as the foundation type, building construction, and acoustical absorption inside the rooms where people are located. When vibration encounters a building, a ground-to-foundation coupling loss will usually reduce the overall vibration level. However, under certain circumstances, the ground-to-foundation coupling may also amplify the vibration level due to structural resonances of the floors and walls.

## 3.5 Effects of Groundborne Vibration

Vibration can result in effects that range from annoyance to structural damage. Annoyance or disturbance of people may occur at vibration levels substantially below those that would pose a risk of damage to buildings. Each of these effects is discussed below.

### 3.5.1 Potential Building Damage

When groundborne vibration encounters a building, vibrational energy is transmitted to the structure, causing it to vibrate. If the vibration levels are high enough, damage to the building may occur. Depending on the type of building and the vibration levels, this damage could range from cosmetic architectural damage (e.g., cracked plaster, stucco, or tile) to more severe structural damage (e.g., cracking of floor slabs, foundations, columns, beams, or wells). Buildings can typically withstand higher levels of vibration from transient sources than from continuous or frequent intermittent sources. Transient sources are those that create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers (impact or vibratory), crack-and-seat equipment, and vibratory compaction equipment. Older, fragile buildings (which may include important historic buildings) are of particular concern. Modern commercial and industrial buildings can generally withstand much higher vibration levels before potential damage occurs.

### 3.5.2 Human Disturbance or Annoyance

Groundborne vibration can be annoying to people and can cause serious concern for nearby neighbors of vibration sources, even when vibration is well below levels that could cause physical damage to structures. Groundborne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors, where the motion may be discernible but there is less adverse reaction without the effects associated with the shaking of a building. The normal frequency range of most groundborne vibration that can be felt generally starts from a low frequency of less than 1 Hz to a high of about 200 Hz.

When groundborne vibration waves encounter a building, vibrational energy is transmitted to the building foundation and then propagates throughout the remainder of the structure, causing building surfaces (walls, floors, and ceilings) to vibrate. This movement may be felt directly by building occupants and may also generate a low-frequency rumbling noise as sound waves are radiated by the vibrating surfaces. At higher frequencies, building vibration can cause other audible effects, such as rattling of windows, building fixtures, or items on shelves or hanging on walls. These audible effects due to groundborne vibration are referred to as groundborne noise. Groundborne vibration levels that result in groundborne noise are often experienced as a combination of perceptible vibration and low-frequency noise. However, sources that have the potential to generate groundborne noise are likely to produce airborne noise impacts that mask the radiated groundborne noise. Any perceptible effect (vibration or groundborne noise) can lead to annoyance. The degree to which a person is annoyed depends on the activity in which they are participating at the time of the disturbance. For example, someone sleeping or reading will be more sensitive than someone who is engaged in any type of physical activity. Reoccurring vibration effects often lead people to believe that the vibration is damaging their home, although vibration levels are well below minimum thresholds for damage potential (Caltrans 2020).

Numerous studies have been conducted to characterize the human response to vibration, and, over the years, numerous vibration criteria and standards have been suggested by researchers, organizations, and governmental agencies. These studies suggest that the thresholds for perception and annoyance vary according to duration, frequency, and amplitude of vibration. For transient vibration sources (single, isolated vibration events such as blasting), the human response to



vibration varies from barely perceptible at a PPV of 0.04 in/s, to distinctly perceptible at a PPV of 0.25 in/s, and severe at a PPV of 2.0 in/s. For continuous or frequent intermittent vibration sources (such as pile driving or vibratory compaction equipment), the human response to vibration varies from barely perceptible at a PPV of 0.01 in/s, to distinctly perceptible at a PPV of 0.04 in/s, and severe at a PPV of 0.4 in/s (Caltrans 2020).

## 3.6 Vibration-Sensitive Land Uses

As noted above, the potential effects of groundborne vibration can be divided into two categories: building damage and potential human annoyance. Because building damage would be considered a permanent negative effect at any building, regardless of land use, any type of building would typically be considered sensitive to this type of impact. Fragile structures, which often include historic buildings, are most susceptible to damage and are of particular concern.

Human annoyance effects from groundborne vibration are typically only considered inside occupied buildings and not at outside areas such as residential yards, parks, or open space. Buildings that would be considered sensitive to human annoyance caused by vibration are generally the same as those that would be sensitive to noise and typically include residences, schools, hospitals, assisted living facilities, mental care facilities, places of worship, libraries, performing arts facilities, and hotels and motels.

*This page intentionally left blank.*

## Chapter 4

# Existing Noise Environment

---

The project is in southern Kern County, central California, in an area of low population density that is mostly traversed by a network of dirt roads. Land uses surrounding the project site currently include sparsely distributed residential dwellings, as well as large areas of vacant and agricultural lands. There are also existing solar projects at various distances to the north, east, and west, as well as farther south, beyond Rosamond Boulevard. To the immediate west of the project site is the BigBeau, which is currently undergoing construction and, beyond that, the Valentine Solar Project farther west of the BigBeau and Catalina Renewable Energy project to the north. The residential dwellings near the project site are at distances ranging from approximately 85 feet to beyond 4,000 feet from the project boundary. A desktop review (via Google Earth) and field survey indicated a total of 60 structures in and around the project study area. The locations of the structures are illustrated in Appendix A. As shown in Appendix A, not all of the structures in the project vicinity are habitable or occupied by residents. In particular, four structures within a half-mile of the project site boundary were observed to be either permanently vacant or abandoned. Additionally, there are three structures within the project boundary. Owned by EDFR, they are all vacant and would be demolished during project construction. The analysis of impacts provided in this technical report focuses solely on the noise-sensitive land uses in the project vicinity, which are the occupied residential structures outside the project boundaries (i.e., those that would still exist after project construction). As explained in Chapter 6, *Methodology*, a subset of 19 sensitive receptor locations in the project vicinity were selected for analysis. The 19 analyzed receptors are numbered consistent with the numbering scheme used in Appendix A.

Furthermore, as discussed previously, the project would include one of four proposed gen-tie line options that would extend outside of the project site boundaries. Three optional gen-tie routes—Rosamond Gen-tie Options 1, 2, and 3, including one deviation identified as Rosamond Gen-tie Option 3.1—would travel south from the project boundary and connect to the Rosamond Switching Station. One optional gen-tie route—Whirlwind Gen-tie Option 1, including two deviation routes identified as Whirlwind Gen-tie Option 1.1 and Whirlwind Gen-tie Option 1.2—would cross underneath SCE’s TRTP to the west of the project site and connect to the existing Whirlwind Substation. Residential dwellings within a quarter-mile of each of these gen-tie routes include:

- **Rosamond Gen-tie Option 1:** Twenty-five residential dwelling units to the east and west sides of Tehachapi Willow Springs Road and the north and south sides of Rosamond Boulevard
- **Rosamond Gen-tie Option 2:** Ten residential dwelling units between Favorito Road and Rosamond Boulevard, east of 105<sup>th</sup> Street West and 100<sup>th</sup> Street West
- **Rosamond Gen-tie Option 3:** Eleven residential dwelling units near the Tehachapi Willow Springs Road and Truman Road intersection, and the Rosamond Boulevard and 100<sup>th</sup> Street West intersection
- **Rosamond Gen-tie Option 3.1:** Eleven residential dwelling units near the Tehachapi Willow Springs Road and Truman Road intersection, and the Rosamond Boulevard and 95<sup>th</sup> Street West intersection

- **Whirlwind Gen-tie Option 1:** Three residential dwelling units south of Dawn Road, west of 150<sup>th</sup> Street West and north of Champagne Avenue, west of 150<sup>th</sup> Street West
- **Whirlwind Gen-tie Option 1.1:** Three residential dwelling units south of Dawn Road, west of 150<sup>th</sup> Street West; and north of Champagne Avenue, west of 150<sup>th</sup> Street West
- **Whirlwind Gen-tie Option 1.2:** Five residential dwelling units north and south of Dawn Road, west of 150<sup>th</sup> Street West; and north of Champagne Avenue, east of 115<sup>th</sup> Street West and west of 150<sup>th</sup> Street West

The existing noise environment in the project vicinity is generally quiet because there are no nearby major noise sources such as freeways, railroads, or industrial activities. The closest freeways are State Route (SR-) 14, which is more than 5 miles east of the project site, and SR-138, which is more than 8 miles south of the project site. The closest railroads are Union Pacific railroads, which are more than 5 miles to the east and 6 miles to the north. The nearest airport is the Rosamond Skypark Airport, which is approximately 3.9 miles southeast of the project site. For sensitive receptors in the vicinity of Tehachapi Willow Springs Road, the existing noise environment is dominated by intermittent vehicular traffic on the roadway. Additional noise sources currently affecting the project area include intermittent aircraft overflights (including jets from Edwards Air Force Base), distant vehicular traffic on area roadways, distant operation of wind turbines, electrical infrastructure associated with existing solar facilities, agricultural-generated noise (e.g., irrigation systems and farming equipment), residential-generated noise (e.g., vehicle operation, dogs barking), and natural background noise (e.g., wind and birds). Twelve noise measurements were used to document existing noise levels in the study area. These were a combination of new measurements conducted in July 2021 and previous measurements conducted in November 2018 in support of the noise analysis for the neighboring BigBeau. These included both short-term (ST) measurements conducted over a period of at least 15 minutes and long-term (LT) noise measurements conducted over a period of at least 24 hours. The measurement locations were distributed throughout the study area with an emphasis on locations that are representative of one or more noise-sensitive receptors (i.e., residential dwellings) near the proposed project site and gen-tie routes.

The instrumentation used to obtain the ST noise measurements consisted of a Type 1 Larson Davis (Model 831) integrating sound level meter (SLM). The instrumentation used to obtain the LT noise measurements consisted of two Type 2 Rion (Model NL-21 and Model NL-22) SLMs and a Type 2 Piccolo II SLM. All SLMs were field-calibrated prior to each measurement to ensure accuracy using a Larson Davis CAL200 acoustical calibrator; the calibration was also rechecked at the conclusion of each measurement. The instruments are maintained to manufacturer specifications to ensure accuracy, in accordance with American National Standards Institute standard S1.4. The SLM microphone was mounted at a height of 5 feet above the ground for all measurements except LT4. LT4 was adjacent to the public right-of-way so a mounting height of approximately 8 feet above the ground was selected for additional security. The noise measurement results are summarized in Table 4-1. All measurement locations are indicated on Figure 4-1. Field noise survey sheets are included in Appendix B of this report. Noise measurements indicate that the daytime ambient noise levels generally ranged between 28 and 59 dBA  $L_{eq}$  in the project area. The LT noise measurements indicate that the average daily noise level ranged from 37 to 64 dBA CNEL in the project area.

**Table 4-1. Measured Existing Noise Levels in Project Area**

Location Number: Description	Date	Time	Noise Levels (dBA)		
			L <sub>eq</sub>	L <sub>50</sub>	CNEL
LT1: Northwest of the project site, south of McConnell Avenue between 125 <sup>th</sup> Street West and 126 <sup>th</sup> Street West	11/19/2018	Daytime (7 a.m. to 10 p.m.)	36.5 <sup>1</sup>	29.8 <sup>2</sup>	37.0
	to 11/20/2018	Nighttime (10 p.m. to 7 a.m.)	27.5 <sup>3</sup>	19.3 <sup>4</sup>	
LT2: On the southwestern portion of the project site, north of Favorito Avenue between 120 <sup>th</sup> Street West and 117 <sup>th</sup> Street	07/12/2021	Daytime (7 a.m. to 10 p.m.)	43.6 <sup>1</sup>	42.3 <sup>2</sup>	42.3
	to 07/13/2021	Nighttime (10 p.m. to 7 a.m.)	28.9 <sup>3</sup>	28.1 <sup>4</sup>	
LT3: On the southeastern portion of the project site, west of Tehachapi Willow Springs Road between Dawn Road and Favorito Avenue	07/12/2021	Daytime (7 a.m. to 10 p.m.)	46.1 <sup>1</sup>	43.6 <sup>2</sup>	55.1
	to 07/13/2021	Nighttime (10 p.m. to 7 a.m.)	49.0 <sup>3</sup>	46.2 <sup>4</sup>	
LT4: Near the southeastern portion of the project site, on the north side of Favorito Avenue east of Tehachapi Willow Springs Road	07/12/2021	Daytime (7 a.m. to 10 p.m.)	59.2 <sup>1</sup>	55.6 <sup>2</sup>	64.6
	to 07/13/2021	Nighttime (10 p.m. to 7 a.m.)	58.0 <sup>3</sup>	55.8 <sup>4</sup>	
ST1: North of the project site, on the south side of Champagne Avenue east of 115 <sup>th</sup> Street West	11/20/2018	12:24 p.m. to 12:39 p.m.	30.1	26.0	NM
ST2: North of the project site, on the west side of Tehachapi Willow Springs Road south of Highgate	07/13/2021	10:11 a.m. to 10:31 a.m.	54.2	40.5	NM
ST3: East of the project site boundary along 110 <sup>th</sup> Street West between Budlong Avenue and Dawn Road	07/13/2021	11:01 a.m. to 11:21 a.m.	30.6	24.0	NM
ST4: East of the project site, west of 71 <sup>st</sup> Street and north of Dawn Road	07/12/2021	1:50 p.m. to 2:10 p.m.	42.3	37.9	NM
ST5: Immediately west of the project site boundary along the unpaved roadway north of Favorito Avenue between 105 <sup>th</sup> Street West and 110 <sup>th</sup> Street West	11/20/2018	11:38 a.m. to 11:53 a.m.	32.1	27.1	NM
ST6: South of the project site, east of 105 <sup>th</sup> Street West between Favorito Avenue and Hamilton Road	07/13/2021	8:12 a.m. to 8:32 a.m.	30.6	26.8	NM
ST7: South of the project site, on the north side of Hamilton Road west of 97 <sup>th</sup> Street	11/20/2018	10:58 a.m. to 11:13 a.m.	28.2	24.7	NM
ST8: South of the project site, on the east side on Manly Road south of Hamilton Road	07/13/2021	9:35 a.m. to 9:55 a.m.	31.5	29.1	NM

<sup>1</sup> The value represents the average L<sub>eq</sub> noise level across the daytime period (i.e., 7 a.m. to 10 p.m.).

<sup>2</sup> The value represents the average L<sub>50</sub> noise level across the daytime period (i.e., 7 a.m. to 10 p.m.).

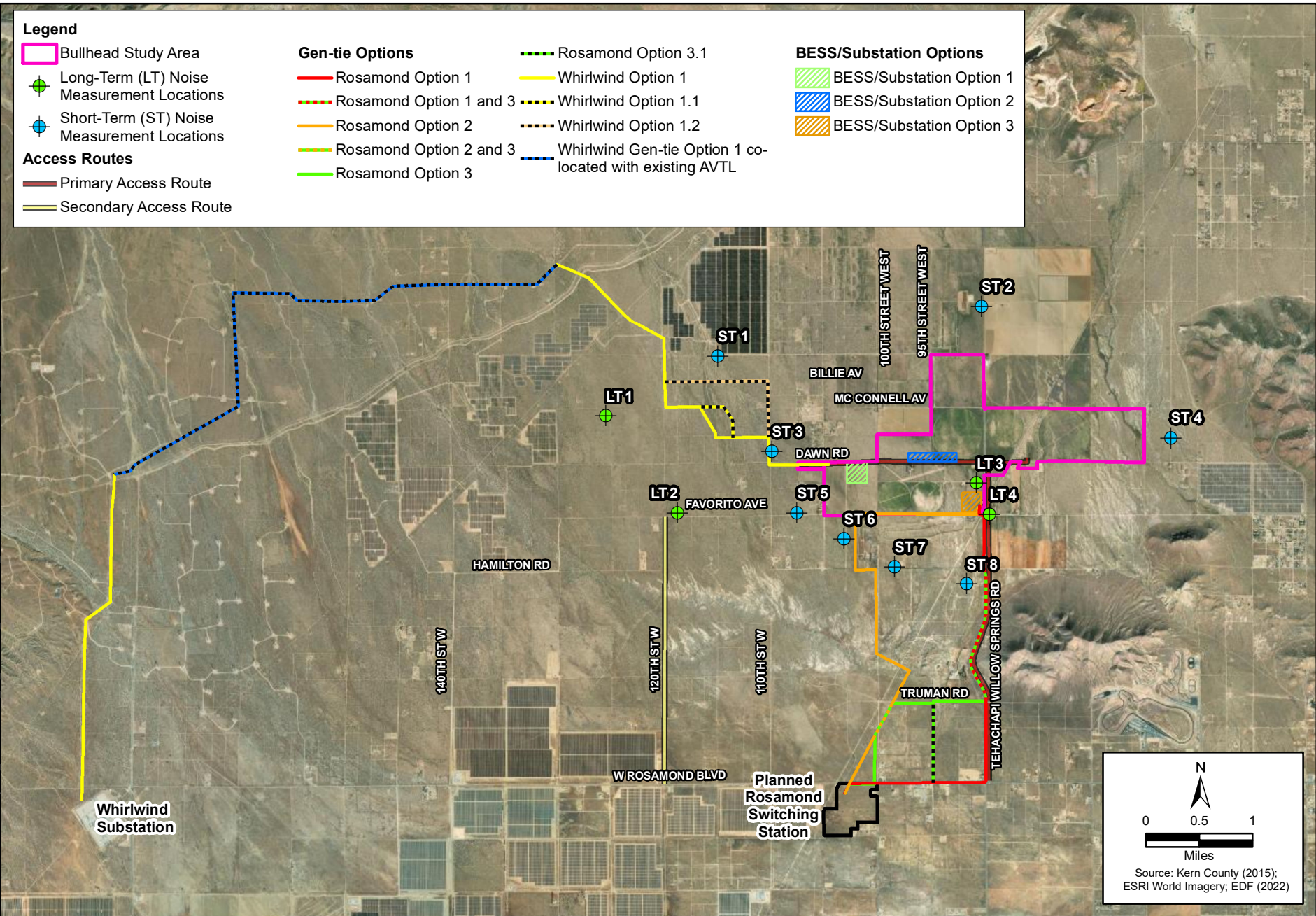
<sup>3</sup> The value represents the average L<sub>eq</sub> noise level across the nighttime period (i.e., 10 p.m. to 7 a.m.).

<sup>4</sup> The value represents the average L<sub>50</sub> noise level across the nighttime period (i.e., 10 p.m. to 7 a.m.).

NM = not measured

*This page intentionally left blank.*

\\PDC\ITRDS\GIS\2\Projects\_4\EDF\00049\_21\Bullhead\_Solar\00049\_21\Figures\Doc\EA\Noise\Fig04\_1\_Noise\_Measurement.mxd Date: 7/15/2022 25119



**Figure 4-1**  
**Noise Measurement Locations**  
**Bullhead Solar**

*This page intentionally left blank.*



## 5.1 Federal

There are no federal noise or vibration regulations that apply to the project.

## 5.2 State

### 5.2.1 Noise

The *State of California General Plan Guidelines*, published and updated by the Governor's Office of Planning and Research, provides guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. These are guidelines for general land use planning that describe noise acceptability categories for different types of land uses considered by the state. California also requires each local government entity to perform noise studies and implement a noise element as part of its general plan. The purpose of the noise element is to limit the exposure of the community to excessive noise levels; the noise element must be used to guide decisions concerning land use. A discussion of relevant noise-related policies in the *Kern County General Plan* (County of Kern 2009) is provided below. The project site straddles the northern boundary of Kern County's *Willow Springs Specific Plan* (WSSP) area such that everything south of Dawn Road, including portions of the project site and the offsite sensitive receptors, is within the WSSP. Therefore, noise-related policies of the WSSP are also discussed below.

### 5.2.2 Vibration

#### California Department of Transportation

There are no state vibration standards that directly apply to the project. As noted below, there are also no quantitative local standards that can be used to assess project-related vibration. Therefore, while the project would not be subject to Caltrans oversight, guidance published by the agency nonetheless provides groundborne vibration criteria that are useful in establishing thresholds of impact. Caltrans' widely referenced *Transportation and Construction Vibration Guidance Manual* (Caltrans 2020) provides guidance for two types of potential impact: (1) damage to structures, and (2) annoyance to people. Guideline criteria for each are provided in Tables 5-1 and 5-2.

**Table 5-1. Caltrans Guideline Vibration Damage Criteria**

Structure and Condition	Maximum PPV (in/s)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Source: Caltrans 2020.

Notes:

Transient sources create a single, isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include pile drivers (impact and vibratory), crack-and-seat equipment, and vibratory compaction equipment.

**Table 5-2. Caltrans Guideline Vibration Annoyance Criteria**

Human Response	Maximum PPV (in/s)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

Source: Caltrans 2020.

Notes:

Transient sources create a single, isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include pile drivers (impact and vibratory), crack-and-seat equipment, and vibratory compaction equipment.

## 5.3 Local

### 5.3.1 Noise

#### Kern County General Plan – Noise Element

The *Kern County General Plan* Noise Element (County of Kern 2009) serves to establish reasonable standards for maximum desired noise levels in the county and to develop policies and implementation measures to effectively protect noise-sensitive land uses from excessive noise levels. The goals, policies, and implementation measures of the Noise Element relevant to the project are provided below.

#### Goals

- 1) Ensure that residents of Kern County are protected from excessive noise and that moderate levels of noise are maintained.

- 2) Protect the economic base of Kern County by preventing the encroachment of incompatible land uses near known noise producing roadways, industries, railroads, airports, oil and gas extraction, and other sources.

## Policies

- 1) Review discretionary industrial, commercial, or other noise-generating land use projects for compatibility with nearby noise-sensitive land uses.
- 3) Encourage vegetation and landscaping along roadways and adjacent to other noise sources in order to increase absorption of noise.
- 4) Utilize good land use planning principles to reduce conflicts related to noise emissions.
- 6) Ensure that new development in the vicinity of airports will be compatible with existing and projected airport noise levels as set forth in the [Airport Land Use Compatibility Plan].
- 7) Employ the best available methods of noise control.

## Implementation Measures

- A) Utilize zoning regulations to assist in achieving noise-compatible land use patterns.
- C) Review discretionary development plans, programs, and proposals, including those initiated by both the public and private sectors, to ascertain and ensure their conformance to the policies outlined in this element.
- E) Review discretionary development plans to ensure compatibility with adopted Airport Land Use Compatibility Plans.
- F) Require proposed commercial and industrial uses or operations to be designed or arranged so that they will not subject residential or other noise sensitive land uses to exterior noise levels in excess of 65 dBA  $L_{dn}$  and interior noise levels in excess of 45 dBA  $L_{dn}$ .
- G) At the time of any discretionary approval, such as a request for a General Plan Amendment, zone change or subdivision, the developer may be required to submit an acoustical report indicating the means by which the developer proposes to comply with the noise standards. The acoustical report shall:
  - a) Be the responsibility of the applicant.
  - b) Be prepared by a qualified acoustical consultant experienced in the fields of environmental noise assessment and architectural acoustics.
  - c) Be subject to the review and approval of the Kern County Planning Department and the Environmental Health Services Department. All recommendations therein shall be complied with prior to final approval of the project.
- I) Noise analyses shall include recommended mitigation, if required, and shall:
  - a) Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.
  - b) Include estimated noise levels, in terms of CNEL, for existing and projected future (10 – 20 years hence) conditions, with a comparison made to the adopted policies of the Noise Element.
  - c) Include recommendations for appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element.
  - d) Include estimates of noise exposure after the prescribed mitigation measures have been implemented. If compliance with the adopted standards and policies of the Noise Element will not be achieved, a rationale for acceptance of the project must be provided.

- J) Develop implementation procedures to ensure that requirements imposed pursuant to the findings of an acoustical analysis are conducted as part of the project permitting process.

## Kern County General Plan – Energy Element

Although the *Kern County General Plan* Energy Element (County of Kern 2009) sets forth goals, policies, and implementation measures primarily to protect the county's energy resources and encourage orderly energy development; Policy #10 in the element pertains to noise, as described below.

### Policy

- 10) The County should require acoustical analysis for energy project proposals that might impact sensitive and highly-sensitive uses in accordance with the Noise Element of the General Plan.

## Willow Springs Specific Plan – Noise Element

The WSSP (County of Kern 2008) is part of the Land Use, Open Space, and Conservation Element of the *Kern County General Plan*. Its goals, policies, and standards are compatible with those of the general plan, but are tailored to the particular needs of the expanded Willow Springs area in the southwestern Kern County portion of Antelope Valley. The proposed project area encompasses approximately 1,525 acres (or approximately 3 percent) of the WSSP area along its outer northern edge. The goals, policies, and implementation measures from the WSSP applicable to the project are provided below.

### Goals

- To protect the health and welfare of Kern County residents.
- To minimize disruption to the quality of life resulting from excessive noise.
- To maintain reasonable noise level standards, consistent with the Kern County Noise Element.

### Policies

- 1) Noise emissions from new development will be controlled and offsite levels limited to the standards of the Kern County General Plan Noise Element.
- 2) Noise attenuation mitigation will be required of all new development within areas subject to excessive noise levels.
- 3) Land uses will be categorized in the following manner, and the noise level standards adopted in accordance with the Kern County Noise Element:

**Insensitive Land Uses.** Noise level does not affect the successful operation of these particular activities. A wide variety of uses can be included in this category, including public utilities, transportation systems, and other noise-related uses.

**Moderately Sensitive Land Uses.** Some degree of noise control must be present if these activities are to be successfully carried out. Included here are general business and recreational uses.

**Sensitive Uses.** Lack of noise control will severely impact these uses, reducing the quality of life. This category primarily contains residential uses.

**Highly Sensitive Uses.** A high degree of noise control is necessary for the successful operation of these activities. Examples include hospitals and churches.

## Implementation Measures

1. The following standards are established as the maximum desired ambient noise levels. Noise shall be attenuated so as not exceed these standards.

Land Use Sensitivity	L <sub>50</sub> dBA		
	Day	Night	L <sub>dn</sub> /CNEL
Insensitive Uses	65	60	75
Moderately Sensitive Uses	60	55	70
Sensitive Uses	55	45	65
Highly Sensitive Uses	50	40	60

2. Attenuation measures shall be required of all new commercial, industrial, and residential development where noise levels exceed adopted standards. These measures shall be required as part of any PD (Precise Development) Plan, conditional use permit, or subdivision or parcel map. Measures may include insulation, berms, walls, and other measures as approved by the Environmental Health Services Department.
3. Definitions:
  - a. **dB(A)**. A unit of sound pressure level corrected according to human sensitivities. One decibel is the approximate minimum change in pressure level detectable by the human ear.
  - b. **A-Weighted Scale**. A sound measurement scale which corrects the pressures of individual frequencies according to human sensitivities. The scale is based upon the fact that the region of highest sensitivity for the average ear is between 2,000 and 4,000 Hz. The unit is decibel(A), or just dBA.
  - c. **L<sub>10</sub>, Statistical A-Weighted Noise Level**. The noise level in dBA which is exceeded 10 percent of the time during which the noise is measured. This measurement scale is commonly utilized for the assessment of traffic noise. It represents the louder sound level occurring during the measurement period. A percentile scale can be used for other levels, such as L<sub>50</sub>, which is the noise level exceeded 50 percent of the time, and so on.
4. In conjunction with building permit applications, individual project applicants shall prepare and submit detailed acoustical reports as determined appropriate by the County on a project-by-project basis.

## Kern County Code of Ordinances

Chapter 8.36 (Noise Control) of the Kern County Code of Ordinances regulates noise levels associated with various sources, including construction activities, public address systems, and musical apparatuses. With respect to construction noise, Section 8.36.020 establishes acceptable hours of construction and limitations on construction-related noise impacts on adjacent sensitive uses. Specifically, construction activities that are audible to a person with average hearing ability at a distance of 150 feet from the construction site, or if the construction site is within 1,000 feet of an occupied residential dwelling, are prohibited between the hours of 9:00 p.m. and 6:00 a.m. on weekdays, and 9:00 p.m. and 8:00 a.m. on weekends, with the following exceptions:

- a) The development services agency director or designated representative may for good cause exempt some construction work for a limited time.

Emergency work is exempt from this section.

With regard to operational noise, the Code of Ordinances does not provide any quantitative standards that would apply.

### **5.3.2 Vibration**

There are currently no local regulatory standards for groundborne vibration that are applicable to the project. However, as discussed previously, Caltrans has published quantitative criteria that can be used to assess potential structural damage risks and human annoyance resulting from groundborne noise and vibration.

## **6.1 Methodology**

### **6.1.1 Analyzed Receptor Locations**

As noted previously, sensitive receptors in the project area consist of sparsely distributed residential dwellings that are on all sides of the project site. Given the size of the project site and the large range of distances to the surrounding receptors (ranging from 0.02 mile [85 feet] to beyond 0.5 mile from the project site boundary), project noise and vibration levels are not calculated for every individual dwelling. Rather, the impacts are analyzed at a representative subset of the surrounding dwelling units. A subset of 19 sensitive receptor locations in the project vicinity were selected for analysis based on their proximity and geographical location relative to the project site, as well as their location relative to the nearest proposed gen-tie routes.<sup>2</sup> These sensitive receptors are identified by their “SR” numbers in the subsequent discussions. The 19 analyzed receptors are numbered consistent with the numbering scheme used in Appendix A. The analyzed sensitive receptor locations are illustrated on Figure 6-1. Aside from being chosen for the purpose of depicting the potential worst-case noise and vibration levels that would be experienced by the receptors closest to the project site, these analyzed receptor locations were also chosen to illustrate the overall range of noise and vibration levels that would be experienced by receptors throughout the project vicinity. Nine of the 19 analyzed sensitive receptors are within 1,000 feet of the project boundary.

### **6.1.2 Construction Noise and Vibration**

A combination of existing literature, baseline noise level measurements, and application of accepted noise and vibration prediction and propagation algorithms were used for the prediction of short-term construction and long-term operational noise levels, as well as for the evaluation of groundborne vibration impacts. The evaluation of potential noise and vibration impacts associated with project construction was based on the construction schedule, phasing, and equipment assumptions developed as part of the air quality analysis for the project.

Using the construction assumptions derived for the project, noise and vibration levels were estimated using the methods described below.

#### **Noise**

Construction-related noise was analyzed using data and modeling methodologies from the Federal Highway Administration’s (FHWA’s) Roadway Construction Noise Model (FHWA 2008), which

---

<sup>2</sup> While potential noise impacts on nearby sensitive receptors from the construction of all gen-tie line options and deviations (i.e., Rosamond Gen-tie Options 1, 2, and 3 [including Rosamond Gen-tie Option 3.1] and Whirlwind Gen-tie Option 1 [including Whirlwind Gen-tie Options 1.1 and 1.2]) are analyzed in this report, only one of the gen-tie line options would be selected for the proposed project.

predicts average noise levels at nearby receptors by analyzing the type of equipment, the distance from source to receptor, usage factor (the fraction of time the equipment is operating in its noisiest mode while in use), and the presence or absence of intervening shielding between source and receptor. This methodology calculates the composite average noise levels for multiple equipment items scheduled during each construction phase for the project, which includes eight separate construction phases. Construction noise levels were predicted assuming an average noise attenuation rate of 7.5 dB per doubling of distance from the source given the soft site nature of the project area (i.e., project area is dominated by undeveloped land consisting of absorptive ground surfaces such as soft dirt and scattered, low-lying vegetation) (WSDOT 2020). The average hourly construction noise level (hourly  $L_{eq}$ ) generated during each phase of construction was calculated at a reference distance of 50 feet. The reference noise levels were then adjusted for each analyzed receptor based on their distance to the construction phase activity.

The source-to-receptor distances used to estimate the project's construction noise levels at each analyzed receptor considered either the closest distance to the residential dwelling or, to reflect the assumed distribution of equipment across the active construction area, the acoustical average distance between the construction area and the dwelling.<sup>3</sup> Given that the gen-tie construction work and access road improvements that may occur on 120<sup>th</sup> Street West would occur in a relatively small construction area on a daily basis as the work progresses in a linear fashion along the public rights-of-way, the closest distance to the residential dwelling was used in the analysis. For all other construction phases, an acoustical average distance was used as described below.

The "move on," "site preparation and grading," "internal roads construction," and "solar array structural, underground and panel, and battery installation" phases would occur over very large areas, but, given that the project site would occupy approximately 1,359.5 acres, construction activities would not occur across the entire site at one time and would instead occur over smaller portions of the site on a daily basis over the course of the construction schedule. To provide a quantitative estimate of construction noise levels at each analyzed receptor due to these phases, construction activities were assumed to occur within the project site across a 4-acre area nearest to each receptor. It should be noted that the use of a 4-acre daily construction area is meant to serve as a reasonable estimate to allow for a quantitative assessment and is not intended to place any restrictions on the actual daily acreage where construction activities can occur at the project site. Given the nature of construction activities, the size of the active construction area would fluctuate on a daily basis, depending on the types of activities and equipment that are involved. The actual construction area may be greater or less than 4 acres. However, while multiple construction phases at different locations within the project site may occur concurrently on a given construction day, the localized nature of noise is such that noise levels generated over a construction area nearest to a given receptor would dominate the noise environment over noise levels generated from a more distant location. Consequently, noise levels estimated at a given receptor from the nearest 4-acre construction area, especially when applied to the loudest construction phases for the project, would be representative of the noise exposure at that receptor during project construction. The closest distance from each receptor to the 4-acre daily construction area for the "move on" and "site preparation and grading" phases was measured from the receptor to the closest project boundary (i.e., it was assumed that these activities could occur anywhere throughout the entire project site).

---

<sup>3</sup> The acoustical average distance is used to represent noise sources that are mobile or distributed over an area (such as the analyzed construction area); it is calculated by multiplying the shortest distance between the receiver and the noise source area by the farthest distance and then taking the square root of the product.



The closest distance from each receptor to the 4-acre daily construction area for the “solar array structural, underground and panel, and battery installation” and “internal roads construction” phases was measured from the receptor to the nearest edge of the fence line surrounding the solar arrays.

For the “electrical substation and microwave tower construction” phase, the acoustical average distance was determined using the nearest and farthest substation boundary line of the potential substation location that is closest to each analyzed sensitive receptor (i.e., the closest of the three potential substation/BESS locations under consideration).

During project construction, noise levels would also be generated from construction-related traffic associated with worker trips and haul truck trips on local roadways. The analysis of roadway noise levels from the project’s construction traffic was conducted using a proprietary traffic noise model, with calculations based on data from the FHWA Traffic Noise Model, Version 2.5, Look-Up Tables (FHWA 2004). This model allows for the calculation of noise levels at specific distances from the center of the roadway based on traffic volumes, posted speed limits, and site environmental conditions. Using this model, the traffic noise levels resulting from the project’s construction-related traffic volumes along the local roadways used during project construction to access the project site were estimated and assessed. The construction-related traffic data for various roadway segments were obtained from the traffic analysis prepared for the project (Ruetters & Schuler Civil Engineers 2022).

## Vibration

Construction-related vibration resulting from the project was analyzed using data and modeling methodologies provided by Caltrans’ *Transportation and Construction Vibration Guidance Manual* (Caltrans 2020). This guidance manual provides typical vibration source levels for various types of construction equipment, as well as methods for estimating the propagation of groundborne vibration over distance. Table 6-1 provides the PPV levels of construction equipment expected to be used for the project; the levels are provided for a reference distance of 25 feet. All of the analyzed equipment is classified as continuous/frequent intermittent vibration sources. Additionally, the solar panels at the project site are assumed to be installed using track-mounted post drivers. The PPV level for this equipment was calculated using methods provided in Caltrans’ *Transportation and Construction Vibration Guidance Manual* (Caltrans 2020) and presented in Table 6-1.

**Table 6-1. Construction Equipment Vibration Levels**

Equipment Item	Reference PPV at 25 feet, in/s <sup>1</sup>
Vibratory roller	0.210
Post driver <sup>2</sup>	0.161
Large bulldozer <sup>3</sup>	0.089
Loaded trucks (on rough terrain)	0.076
Small bulldozer <sup>4</sup>	0.003

Source: Caltrans 2020.

<sup>1</sup> Obtained from Caltrans 2020.

<sup>2</sup> Calculated based on a reference level of 0.65 in/s PPV for a 36,000-foot-pound pile driver and a maximum energy level of 2,200 foot-pounds for post drivers.

<sup>3</sup> Considered representative of other heavy earthmoving equipment such as excavators, graders, backhoes, etc.

<sup>4</sup> Considered representative of smaller equipment such as small skid steers and mini excavators.

The following equation from the guidance manual was used to estimate the change in PPV levels over distance:

$$PPV_{rec} = PPV_{ref} \times (25/D)^n$$

where  $PPV_{rec}$  is the PPV at a receptor;  $PPV_{ref}$  is the reference PPV at 25 feet from the equipment;  $D$  is the distance from the equipment to the receiver, in feet; and  $n$  is a value related to the vibration attenuation rate through ground (the default recommended value for  $n$  is 1.1). This equation was used to estimate the PPV at each of the closest vibration-sensitive receivers based on the worst-case (closest) distance between each source and receiver.

### 6.1.3 Operational Noise

The primary operational noise sources associated with the project would be the BESS, the substation, and the power conversion stations (PCSs) distributed throughout the solar arrays. To evaluate the noise levels that would be generated by these noise sources, acoustical data (i.e., source noise levels) for these items were derived from various sources including manufacturers' specifications sheets, data from previous noise assessments prepared for similar projects, and equipment information provided by the project proponent. Equipment noise level source data is included in Appendix C. Table 6-2 summarizes the equipment considered in the operational noise analysis, as well as the associated sound power.

**Table 6-2. Bullhead Equipment Noise Levels**

Equipment Area	Equipment Item	Stated Noise Level	Stated/ Calculated Sound Power per Unit (SWL) <sup>1</sup>	Total Number of Items
BESS <sup>2</sup>	BESS Container HVAC Unit (Model: Marvair AVPA72AC)	55 dBA @ 50 feet	86.6 dBA	632 (2 per container, 316 containers)
	Inverter (Model: SMA SCS 3950 UP)	67 dBA @ 33 feet <sup>3</sup>	95 dBA	92
Substation	Major Power Transformer (Model: Ilijn 92 MVA ONAF1)	N/A (SWL provided by specifications sheet)	78 dBA	2
	Control House HVAC Unit (Model: Marvair AVPA72AC)	55 dBA @ 50 feet	86.6 dBA	2
Power Conversion Stations <sup>4</sup>	Composite noise level under nighttime (non-load) conditions. See notes for equipment description.	55 dBA @ 10 feet	92.3 dBA	112
	Composite noise level under daytime (full-load) conditions. See notes for equipment description.	70 dBA @ 10 feet	77.3 dBA	112

<sup>1</sup> Sound power, also known as acoustic power, is the total acoustic power radiated by a source in all directions per unit time. Sound power is a physical characteristic of the noise source and is not related to distance.

<sup>2</sup> BESS noise sources (HVAC and inverters) are assumed to operate 100 percent of the time during daytime hours and 75 percent of the time during the nighttime hours.

<sup>3</sup> Original data was provided for a distance of 10 meters, which is equal to 32.8 feet.

<sup>4</sup> PCS noise data obtained from the *Noise & Groundborne Vibration Impact Assessment for the Proposed Valentine Solar Project* (Ambient Air Quality & Noise Consulting 2015). Representative daytime and nighttime noise levels include noise generated by two inverters within an enclosed structure, one transformer mounted at the exterior of the structure, an exterior-mounted HVAC system, and an exhaust fan. Sound power calculation assumes this equipment is distributed across a 30-foot-long equipment pad.

HVAC = heating, ventilating, and air conditioning; MVA = megavolt-ampere; N/A = not applicable; SWL = sound power level

To analyze noise from onsite operations, a three-dimensional computer noise model was developed using SoundPLAN software. The model considers many important variables, including the sound power of each noise source, the heights of the noise sources and receivers, the distance to noise-sensitive receivers, site topography, barrier effects of structures (e.g., buildings, walls) and terrain (e.g., slopes, hills), and local ground cover conditions. The geometry and terrain for the model were based on the proposed project site boundaries and publicly available mapping, aerial photography, and topographical data (i.e., U.S. Geological Survey, OpenStreetMap, Google Earth). Because the precise site layout is currently unknown, it was assumed that the PCSs would be distributed across the entire project site and that the BESS and substation equipment would be distributed across the each identified BESS/substation area. The battery container structures were modeled to account for the acoustical shielding that they would provide. Based on guidance from EDFR, it was assumed that no onsite stationary noise sources would be located within 150 feet of the project site boundary. Ground conditions were modeled as acoustically “soft” to account for the unpaved nature of the ground between the BESS and the nearest residences, as well as the noise attenuation that would be provided in many cases by the rows of PV panels between the noise sources and the receivers. It was assumed that the substation equipment would run 100 percent of the time. It was assumed that the BESS equipment (heating, ventilating, and air conditioning units and inverters) would run 100 percent of the time during the daytime hours of 7:00 a.m. to 7:00 p.m. and 75 percent of the time during the nighttime hours of 10:00 p.m. to 7:00 a.m. It was assumed that the PCSs distributed throughout the solar arrays would emit full-load noise levels during the daytime hours and non-load noise levels during the nighttime hours.

The project would use tracker technology and intermittent noise would be generated from the operation of electrical motors used to power the trackers to tilt the PV panels to follow the course of the sun and optimize the incident angle of sunlight on their surface. The contribution to overall hourly and daily noise levels would be negligible because noise levels would be very low and would occur only periodically for brief durations throughout the daytime hours at the project site.

Corona discharge noise emanating from the gen-tie lines may be audible at close range and is analyzed based on data from prior noise studies for nearby solar projects. Occasional noise would also be generated by periodic maintenance activities, such as panel washing.

There would be a diesel generator at the selected substation site to provide emergency power in the event of a power outage. Because this noise source would only run for periodic testing and in the event of an emergency, its noise impacts are evaluated separately, and this item is not included in the noise modeling for typical project operations.

The analysis of traffic noise in the project area was based on data from the traffic analysis prepared for the project (Ruetters & Schuler Civil Engineers 2022). The analysis was conducted using a proprietary traffic noise model, with calculations based on data from the FHWA Traffic Noise Model, Version 2.5, Look-Up Tables (FHWA 2004). This model allows for the calculation of noise levels at specific distances from the center of the roadway based on traffic volumes, average speeds, and site

environmental conditions. To quantify the effects of the project, the roadway noise level that would be generated by the project's operational traffic volumes along a local roadway used to access the project site were estimated and assessed against Kern County's average-daily noise level standard.

## 6.2 Project Design Features

The following project design features (PDF) would be implemented as part of the project:

**PDF-NOI-1:** The following measures will be employed during project construction and decommissioning to reduce short-term noise levels:

- Construction and decommissioning activities will comply with the hourly restrictions for noise-generating construction activities, as specified in Kern County's Code of Ordinances, Chapter 8.36. Accordingly, construction activities will be prohibited between the hours of 9:00 p.m. and 6:00 a.m. on weekdays and between 9:00 p.m. and 8:00 a.m. on weekends. These hourly limitations will not apply to activities where hourly limitations would result in increased safety risk to workers or the public, such as commissioning and maintenance activities that must occur after dark to ensure PV arrays are not energized, unanticipated emergencies requiring immediate attention, or security patrols.
- Equipment staging and laydown areas will be located at the farthest practical distance from nearby residential land uses.
- Construction equipment will be fitted with noise-reduction features such as mufflers and engine shrouds that are no less effective than those originally installed by the manufacturer.
- Haul trucks will not be allowed to idle for periods greater than 5 minutes, except as needed to perform a specified function (e.g., concrete mixing).
- Onsite vehicle speeds will be limited to 15 miles per hour or less (except in cases of emergency).
- Back-up beepers for all construction equipment and vehicles will be broadband sound alarms or adjusted to the lowest noise levels possible, provided that Occupational Safety and Health Administration's and the California Division of Occupational Safety and Health's safety requirements are not violated. On vehicles where back-up beepers are not available, alternative safety measures such as escorts and spotters will be employed.
- A designated point of contact will be identified to address noise-related complaints during construction and decommissioning. The noise disturbance coordinator will be responsible for responding to any local complaints about construction or decommissioning noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., starting too early, bad muffler) and will be required to implement reasonable measures such that the complaint is resolved.
- Advance notice of construction and decommissioning will be provided to nearby residential land uses. Notices will be provided to all landowners within 1,000 feet of the project boundary a minimum of 2 weeks prior to the start of construction or decommissioning activities. The notice will identify anticipated construction schedule(s), provide tips on reducing noise intrusion (e.g., closing windows facing the planned construction), and provide a point of contact for any noise complaints.

**PDF-NOI-2:** The final equipment layout within the project site will include a minimum 150-foot setback buffer between the project parcel boundary and all onsite stationary noise sources, including the substation equipment, BESS containers, inverters, and power-conversion stations.

## 6.3 Thresholds of Significance

In accordance with Appendix G of the California Environmental Quality Act Guidelines, the project would be considered to have a significant effect if it would result in any of the conditions listed below.

- a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies
- b) Generation of excessive groundborne vibration or groundborne noise levels
- c) For a project located within the vicinity of a private airstrip or Kern County Airport Land Use Compatibility Plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, the project would expose people residing or working in the project area to excessive noise levels

With respect to threshold (c) indicated above, the project site is not within 2 miles of a public airport or public use airport as identified in the Kern County *Airport Land Use Compatibility Plan* (County of Kern 2012). The nearest public use airport to the project site is the Rosamond Skypark Airport approximately 3.9 miles southeast of the project site. The only private airstrip in the project vicinity is Lloyd's Landing Airport, which is a private-use airstrip for a single-engine aircraft served by two dirt runways (City-Data 2018). Lloyd's Landing Airport is entirely within the proposed project boundaries and would be demolished during project construction.<sup>4</sup> As such, the project would not expose people working in the project area to excessive noise levels resulting from either a public or public use airport or private airstrip. Therefore, noise impacts under this criterion do not apply and no further discussion is included in this report.

### 6.3.1 Short-Term Construction Noise Criteria

Kern County regulates construction noise levels per the requirements of Chapter 8.36 (Noise Control) in the Kern County Code of Ordinances, which establishes acceptable hours of construction and limitations on construction-related noise impacts on adjacent sensitive uses. Specifically, construction activities that are audible to a person with average hearing ability at a distance of 150 feet from the construction site, or if the construction site is within 1,000 feet of an occupied residential dwelling, are prohibited between the hours of 9:00 p.m. and 6:00 a.m. on weekdays and between 9:00 p.m. and 8:00 a.m. on weekends. Given that a 5-dBA change in the community noise environment is considered to be readily perceptible by the human ear, construction activities occurring outside of the acceptable construction hours established by Kern County that increase the ambient noise levels at a noise-sensitive land use by 5 dBA or more are considered to be a violation of Kern County's construction noise regulations.

---

<sup>4</sup> Lloyd's Landing Airport was used in the past for agricultural operations. However, since the sale of the land to EDFR, the airstrip has become inoperable, and EDFR has no intentions of using the airport before it is demolished.

### 6.3.2 Long-Term Operational Noise Criteria

As discussed previously, the *Kern County General Plan* Noise Element requires that proposed commercial and industrial uses or operations be designed or arranged so that they will not subject residential or other noise-sensitive land uses to exterior noise levels in excess of 65 dBA  $L_{dn}$  and interior noise levels in excess of 45 dBA  $L_{dn}$ . Additionally, the WSSP further identifies both daytime and nighttime noise standards for land uses in the WSSP area. For sensitive land uses, which include residential uses, the WSSP has established operational noise limitations of 55 dBA  $L_{50}$  during daytime hours and 45 dBA  $L_{50}$  during nighttime hours. The WSSP also identifies an average daily (24-hour) noise level limit of 65 dBA  $L_{dn}$  CNEL for residential uses, which is consistent with the *Kern County General Plan* Noise Element. Therefore, in assessing the potential noise impacts resulting from the project's use of stationary operational equipment, all nearby noise-sensitive land uses are evaluated based on Kern County's average daily noise level limit of 65 dBA  $L_{dn}$ . In addition, the nearby noise-sensitive land uses that are within the WSSP area are evaluated relative to the daytime and nighttime noise level limits established by the WSSP. Therefore, operational noise impacts from stationary equipment are assessed by determining if the project would result in a substantial increase in ambient noise levels that would exceed the applicable Kern County and WSSP noise standards at the outdoor activity area of the nearest noise-sensitive land use. The assessment of transportation impacts (i.e., roadway noise) is based on the average-daily noise metric (in dBA  $L_{dn}$  CNEL).

### 6.3.3 Groundborne Vibration Criteria

As there are currently no local regulatory standards for groundborne vibration that are applicable to the project, the quantitative criteria published by Caltrans to assess potential structural damage risks and human annoyance resulting from groundborne noise and vibration (refer to Tables 5-1 and 5-2) are used for the purposes of this analysis.

## 6.4 Project Impacts

**Impact Noise-1: Would the project generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?**

### Construction Noise

#### Onsite Construction Activities

Construction activities associated with the project are anticipated to last approximately 18 months. During this time, temporary increases in noise levels in the project area would occur due to the operation of various construction equipment within the proposed project site and in the areas outside of the site where access roads need to be improved and where gen-tie lines need to be installed. As discussed previously, given the size of the project site (approximately 1,359.5 acres), construction activities would not occur across the entire site at one time and would instead occur

over smaller portions of the site on a daily basis over the course of the construction schedule. For any individual offsite receptor, noise levels experienced over the project construction period would fluctuate depending on the type of construction activity and the location of that activity occurring within the project site. The noise levels generated by each individual piece of construction equipment associated with each of the different construction activities that would occur as part of the project are shown in Table 6-3.

**Table 6-3. Construction Activities and Equipment Noise Levels**

Phase	Equipment	Quantity <sup>1</sup>	Individual Equipment Noise Levels (dBA) at 50 Feet	
			L <sub>eq</sub>	L <sub>max</sub>
Move On	Forklifts	6	68	75
	Generator sets	6	78	81
	Grader	6	81	85
	Off-highway trucks	7	73	77
	Carts/all-terrain vehicles	6	71	75
	Rollers	3	73	80
	Rubber-tired dozers	3	78	82
	Scrapers	3	80	84
	Tractors/loaders/backhoes	6	74	78
	Trenchers	3	77	80
Site Preparation and Grading	Graders	6	81	85
	Off-highway trucks	7	73	77
	Other Construction equipment	4	82	85
	Carts/all-terrain vehicles	6	71	75
	Rollers	6	73	80
	Rubber-tired dozers	6	78	82
	Scrapers	4	80	84
	Tractors/loaders/backhoes	6	74	78
Access Road Improvements	Graders	6	81	85
	Off-highway trucks	7	73	77
	Other construction equipment	3	82	85
	Carts/all-terrain vehicles	2	71	75
	Rollers	6	73	80
	Rubber-tired dozers	4	78	82
	Scrapers	4	80	84
Internal Roads Construction	Graders	3	81	85
	Off-highway trucks	5	73	77
	Carts/all-terrain vehicles	2	71	75
	Rollers	3	73	80
	Tractors/loaders/backhoes	3	74	78
	Forklifts	8	68	75
	Generator sets	15	78	81

Phase	Equipment	Quantity <sup>1</sup>	Individual Equipment Noise Levels (dBA) at 50 Feet	
			L <sub>eq</sub>	L <sub>max</sub>
Solar Array Structural, Underground, Panel, and Battery Installation	Off-highway trucks	5	73	77
	Carts/all-terrain vehicles	9	71	75
	Rollers	3	73	80
	Skid steers	12	74	78
	Post drivers	15	81	88
	Tractors/loaders/backhoes	3	74	78
	Trenchers	7	77	80
Electrical Substation and Microwave Tower Construction	Aerial lifts	4	68	75
	Cranes	3	73	81
	Forklifts	3	68	75
	Off-highway trucks	2	73	77
	Carts/all-terrain vehicles	2	71	75
	Tractors/loaders/backhoes	7	74	78
Gen-Tie Line Construction	Trenchers	7	77	80
	Aerial lifts	4	68	75
	Cranes	4	73	81
	Crawler tractors	3	80	84
	Forklifts	3	68	75
	Generator sets	3	78	81
	Off-highway trucks	3	73	77
	Carts/all-terrain vehicles	2	71	75
	Tractors/loaders/backhoes	4	74	78

Source: Ambient Air Quality & Noise Consulting 2015; FHWA 2008.

<sup>1</sup>The quantity of each type of equipment anticipated to operate at the project site during each construction phase.

For the purposes of this analysis, the composite hourly average noise levels for all equipment items associated with each construction activity shown in Table 6-3 were calculated at a reference distance of 50 feet for use in estimating the noise levels at sensitive offsite receptors. The composite hourly average noise levels for each construction activity are shown in Table 6-4.

**Table 6-4. Composite Noise Levels for Each Construction Activity**

Construction Activity	Average Composite Hourly Noise Level (L <sub>eq</sub> ) at 50 feet, dBA
Move on	93
Site preparation and grading	94
Access road improvements	93
Internal roads construction	89
Solar array structural, underground and panel, and battery installation	96
Electrical substation and microwave tower construction	88
Gen-tie line construction	89



As shown in Table 6-4, the average hourly noise levels for the project's construction activities would range from 80 to 96 dBA  $L_{eq}$  at the reference distance of 50 feet. The highest noise levels would be associated with installation of the solar array system, primarily due to the use of numerous post drivers to install the solar panels.

As discussed previously, potential construction-related noise impacts, including the estimated noise increases relative to ambient conditions, were assessed at 19 representative sensitive receptors nearest to and surrounding the project site as well as the proposed gen-tie routes and access road improvements, as shown on Figure 6-1.<sup>5</sup> While not all sensitive receptors in the project vicinity are analyzed for their noise exposure levels resulting from project construction, the noise levels at these receptors would be no worse than those predicted at the 19 analyzed receptor locations. Detailed calculations for each of the project's proposed construction phases are provided in Appendix C, and the estimated worst-case construction noise levels at each sensitive receptor are summarized in in Table 6-5. Because project construction would occur only within the hours permitted by the Kern County Code of Ordinances<sup>6</sup> (this is a requirement of **PDF-NOI-1**) there would be no specific threshold related to noise increases. Nonetheless, estimated worst-case noise increases due to construction are summarized in Table 6-6 for informational purposes.

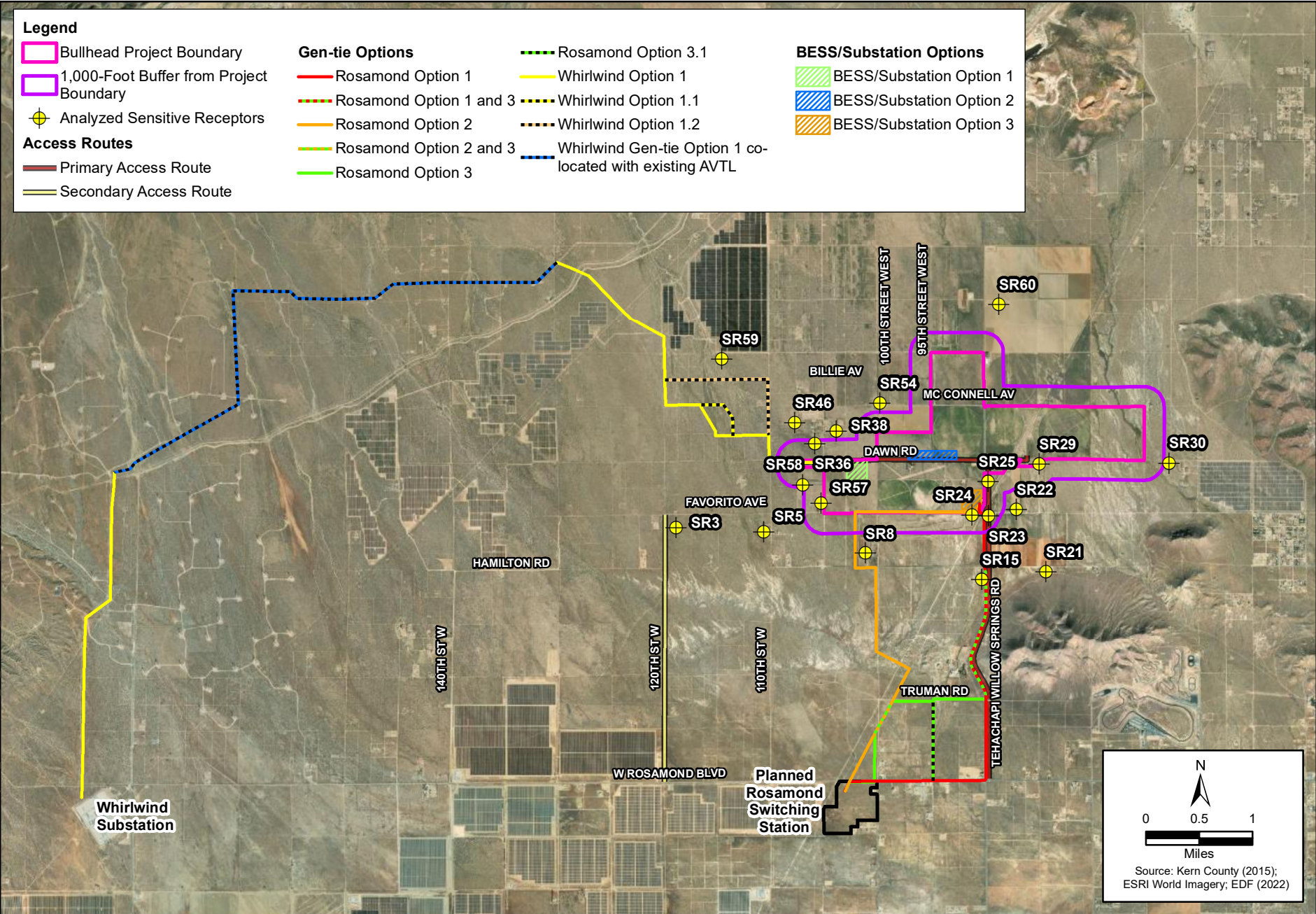
---

<sup>5</sup> Refer to Section 6.1.1, *Analyzed Receptor Locations*, for additional discussion of the 19 representative sensitive receptors selected for analysis.

<sup>6</sup> Some substation testing will be required prior to the completion of project construction. This testing will include nighttime operation because the substation equipment must be tested continuously for 72 hours for safety reasons. Nighttime operation of the substation and other electrical equipment is analyzed in Section 6.4, *Project Impacts, Impact Noise-1, Project Operation, Stationary Noise Sources, Onsite Electrical Equipment*.

*This page intentionally left blank.*

\\PDC\ITRDS\GIS\2\Projects\_4\EDF\00049\_21\Figures\Doc\EAI\Noise\Fig06\_1\_Sens\_Recp.mxd Date: 7/15/2022 25:119



**Figure 6-1**  
**Analyzed Sensitive Receptor Locations**  
**Bullhead Solar**

*This page intentionally left blank.*

**Table 6-5. Estimated Construction Noise Levels at Nearby Sensitive Receptors**

Receptor Description/Location	Distance to Project Site <sup>1</sup>	Located within WSSP Area?	Highest Estimated Average Hourly Noise Level (dBA L <sub>eq</sub> )	Applicable Threshold
<b>SR3:</b> Residential dwelling southeast of the Favorito Avenue and 120 <sup>th</sup> Street West intersection, approximately 4,915 feet south of the closest proposed gen-tie route (Whirlwind Gen-tie Option 1)	Approximately 7,345 feet west of nearest project site boundary	Yes	68	N/A <sup>2</sup>
<b>SR5:</b> Residential dwelling south of Favorito Avenue and west of 110 <sup>th</sup> Street West, approximately 3,440 feet south of the closest proposed gen-tie route (Whirlwind Gen-tie Option 1)	Approximately 3,090 feet southwest of nearest project site boundary	Yes	50	N/A <sup>2</sup>
<b>SR8:</b> Residential dwelling on 90 <sup>th</sup> Street, north of Hamilton Road, approximately 535 feet from the closest proposed gen-tie route (Rosamond Gen-tie Option 2)	Approximately 2,000 feet south of nearest project site boundary	Yes	63	N/A <sup>2</sup>
<b>SR15:</b> Residential dwelling on Sweetser Road, east of Tehachapi Willow Springs Road, approximately 205 feet from the closest proposed gen-tie route (Rosamond Gen-tie Option 1)	Approximately 3,300 feet south of nearest project site boundary	Yes	73	N/A <sup>2</sup>
<b>SR21:</b> Residential dwelling on Tehachapi Willow Springs Road, south of Hamilton Road, approximately 2,970 feet from the closest proposed gen-tie route (Rosamond Gen-tie Option 1)	Approximately 4,245 feet southeast of nearest project site boundary	Yes	47	N/A <sup>2</sup>
<b>SR22:</b> Residential dwelling on Favorito Avenue, east of Tehachapi Willow Springs Road, approximately 1,620 feet from the closest proposed gen-tie route, Rosamond Gen-tie Option 1, and 1,860 feet from Rosamond Gen-tie Option 2	Approximately 1,600 feet east of nearest project site boundary	Yes	57	N/A <sup>2</sup>
<b>SR23:</b> Residential dwelling southeast of the Favorito Avenue and Tehachapi Willow Springs Road intersection, approximately 150 feet from the closest proposed gen-tie route, Rosamond Gen-tie Option 1, and 405 feet from Rosamond Gen-tie Option 2	Approximately 360 feet southeast of nearest project site boundary	Yes	77	N/A <sup>2</sup>
<b>SR24:</b> Residential dwelling southwest of the Favorito Avenue and Tehachapi Willow Springs Road intersection, approximately 120 feet from the closest proposed gen-tie route, Rosamond Gen-tie Option 2, and 430 feet from Rosamond Gen-tie Option 1	Approximately 85 feet south of nearest project site boundary	Yes	80	N/A <sup>2</sup>

Receptor Description/Location	Distance to Project Site <sup>1</sup>	Located within WSSP Area?	Highest Estimated Average Hourly Noise Level (dBA L <sub>eq</sub> )	Applicable Threshold
<b>SR25:</b> Residential dwelling east of Tehachapi Willow Springs Road and south of Dawn Road, approximately 1,180 feet from the closest proposed gen-tie routes, Rosamond Gen-tie Option 1 and Rosamond Gen-tie Option 2	Approximately 220 feet east of nearest project site boundary	Yes	74	N/A <sup>2</sup>
<b>SR29:</b> Residential dwelling at the Dawn Road and 85 <sup>th</sup> Street intersection, approximately 3,540 feet from the closest proposed gen-tie routes, Rosamond Gen-tie Option 1 and Rosamond Gen-tie Option 2	Approximately 100 feet east of nearest project site boundary	Yes	79	N/A <sup>2</sup>
<b>SR30:</b> Residential dwelling south of the intersection of Dawn Road and 71 <sup>st</sup> Street, approximately 9,575 feet from the closest proposed gen-tie route, Rosamond Gen-tie Option 1, and 9,680 feet from Rosamond Gen-tie Option 2	Approximately 1,280 feet east of nearest project site boundary	Yes	59	N/A <sup>2</sup>
<b>SR36:</b> Residential dwelling on 105 <sup>th</sup> Street, north of Dawn Road, approximately 1,100 feet from the closest proposed gen-tie route, Whirlwind Gen-tie Option 1, and 2,195 feet from Whirlwind Gen-tie Option 1.2	Approximately 1,100 feet north of nearest project site boundary	No	60	N/A <sup>2</sup>
<b>SR38:</b> Residential dwelling east of 105 <sup>th</sup> Street, north of Dawn Road, approximately 1,650 feet from the closest proposed gen-tie route, Whirlwind Gen-tie Option 1, and 3,180 feet from Whirlwind Gen-tie Option 1.2	Approximately 1,505 feet north of nearest project site boundary	No	57	N/A <sup>2</sup>
<b>SR46:</b> Residential dwelling between 105 <sup>th</sup> Street and 110 <sup>th</sup> Street, north of Dawn Road, approximately 1,255 feet from the closest proposed gen-tie route, Whirlwind Gen-tie Option 1.2, and 1,410 feet from Whirlwind Gen-tie Option 1	Approximately 2,375 feet northeast of nearest project site boundary	No	54	N/A <sup>2</sup>
<b>SR54:</b> Residential dwelling at the west end of McConnell Avenue, approximately 3,840 feet from the closest proposed gen-tie route, Whirlwind Gen-tie Option 1, and 5,470 feet from Whirlwind Gen-tie Option 1.2	Approximately 1,435 feet north of nearest project site boundary	No	58	N/A <sup>2</sup>
<b>SR57:</b> Residential dwelling on 105 <sup>th</sup> Street, north of Favorito Avenue, approximately 1,705 feet from the closest proposed gen-tie route, Rosamond Gen-tie Option 2, and 2,000 feet from Whirlwind Gen-tie Option 1	Approximately 135 feet west of nearest project site boundary	Yes	77	N/A <sup>2</sup>
<b>SR58:</b> Residential dwelling on 105 <sup>th</sup> Street, south of Dawn Road, approximately 985 feet from the closest proposed gen-tie route (Whirlwind Gen-tie Option 1)	Approximately 1,005 feet east of nearest project site boundary	Yes	61	N/A <sup>2</sup>

Receptor Description/Location	Distance to Project Site <sup>1</sup>	Located within WSSP Area?	Highest Estimated Average Hourly Noise Level (dBA L <sub>eq</sub> )	Applicable Threshold
<b>SR59:</b> Residential dwelling on Champagne Avenue, east of 115 <sup>th</sup> Street, approximately 1,025 feet from the closest proposed gen-tie route, Whirlwind Gen-tie Option 1.2, 2,305 feet from Whirlwind Gen-tie Option 1.1, and 2,535 feet from Whirlwind Gen-tie Option 1	Approximately 7,200 feet north of nearest project site boundary	No	56	N/A <sup>2</sup>
<b>SR60:</b> Residential dwelling along Highgate, east of Tehachapi Willow Springs Road, approximately 10,005 feet from the closest proposed gen-tie routes, Rosamond Gen-tie Option 1 and Rosamond Gen-tie Option 2, and 10,715 feet from Whirlwind Gen-tie Option 1	Approximately 2,585 feet north of nearest project site boundary	No	52	N/A <sup>2</sup>

<sup>1</sup> The distances are measured from façade of the residential dwelling locations.

<sup>2</sup> Neither the *Kern County General Plan* nor the WSSP have identified noise limits pertaining to construction noise. Instead, construction noise is currently regulated in Chapter 8.36 (Noise Control) of the Kern County Code of Ordinances through the establishment of acceptable hours of construction and limitations on construction-related noise impacts on adjacent sensitive uses. Implementation of **PDF-NOI-1** by the project requires that construction activities associated with the project would comply with these hourly limitations. As construction activities would not operate outside of Kern County’s permitted construction hours, no noise standard or threshold pertaining to construction noise levels applies to the project.

N/A = not applicable

**Table 6-6. Estimated Noise Increases at Nearby Sensitive Receptors due to Construction**

Receptor	Highest Estimated Average Hourly Construction Noise Level (dBA $L_{eq}$ )	Estimated Average Hourly Ambient Noise Level (dBA $L_{eq}$ )	Noise Measurement Used to Estimate Ambient Noise Level <sup>1</sup>	Estimated Combined Hourly Noise Level (dBA $L_{eq}$ )	Estimated Noise Level Increase (dBA $L_{eq}$ )
SR3	68	37	LT1	68	31
SR5	50	37	LT1	51	14
SR8	63	37	LT1	63	27
SR15	73	37	LT1	73	37
SR21	47	37	LT1	47	11
SR22	57	37	LT1	57	20
SR23	77	46	LT3	77	31
SR24	80	46	LT3	80	34
SR25	74	46	LT3	74	28
SR29	79	37	LT1	79	43
SR30	59	37	LT1	59	23
SR36	60	37	LT1	61	24
SR38	57	37	LT1	58	21
SR46	54	37	LT1	54	17
SR54	58	37	LT1	58	21
SR57	77	37	LT1	77	41
SR58	61	37	LT1	61	25
SR59	56	30	ST1	56	26
SR60	52	37	LT1	52	16

<sup>1</sup> Average ambient noise levels are primarily estimated using long-term measurements because these provide a long-term average that is less influenced by short-term noise fluctuations than short-term measurements. LT1 is conservatively selected for most receptor locations because it was located away from developed areas and was the quietest long-term measurement obtained. LT3 is selected for receptors SR23, SR24, and SR25 because they are all close to Tehachapi Willow Springs Road near where LT3 was located. ST1 is selected for SR59 because this was a particularly remote location where the short-term measurement indicated particularly low ambient noise levels.

As shown in Table 6-5, the highest estimated construction-related noise levels that could result at nearby sensitive receptors over the course of the project's construction period would range from 47 dBA  $L_{eq}$  at SR21 to 80 dBA  $L_{eq}$  at SR24. Because these noise levels are associated with the highest noise-generating construction activity that happens to occur nearest to each analyzed receptor location, these noise levels would only occur over the duration of that activity and would not occur over the entirety of the project's approximately 18-month construction period. During quieter phases of construction or when construction activity moves farther away from the receptor, the noise levels would decrease. As such, the highest construction noise levels experienced at each analyzed sensitive receptor would only occur over a temporary period within the project's overall construction schedule. The range of noise levels predicted at each analyzed receptor due to the various construction phases is shown in Appendix C.



Referring to Table 6-6, the highest estimated construction-related noise levels would increase ambient noise levels by 11 to 43 dBA. Therefore, project construction activities would, at times, be clearly audible above existing ambient noise levels at each of these analyzed sensitive receptors. As noted above, worst-case noise levels would not occur over the entirety of the project's construction period. During quieter phases of construction, or when construction activity moves farther away from the receptor, the resulting noise increases would be reduced. Currently, neither the *Kern County General Plan* nor the WSSP have identified noise limits pertaining to construction noise. Instead, construction noise is currently regulated in Chapter 8.36 (Noise Control) of the Kern County Code of Ordinances through the establishment of acceptable hours of construction and limitations on construction-related noise impacts on adjacent sensitive uses. Specifically, construction activities that are audible to a person with average hearing ability at a distance of 150 feet from the construction site, or if the construction site is within 1,000 feet of an occupied residential dwelling, are prohibited from 9:00 p.m. to 6:00 a.m. on weekdays and 9:00 p.m. to 8:00 a.m. on weekends. As part of the project, **PDF-NOI-1** would be implemented, which requires the project to comply with these hourly limitations. Given that the project's construction activities would not occur between the hours of 9:00 p.m. and 6:00 a.m. on weekdays and 9:00 p.m. and 8:00 a.m. on weekends, the temporary increases in ambient noise levels at nearby sensitive receptors would also not occur during recognized sleep or rest hours for residents. Therefore, with implementation of **PDF-NOI-1**, the project's construction activities would not generate a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of standards established in the *Kern County General Plan* or Kern County's noise-control ordinance.

## Decommissioning

At the end of the project's operational term, the applicant may determine that the project site should be decommissioned and deconstructed. Should decommissioning of the project occur, the noise levels generated by these activities would be similar to those associated with project construction. While temporary increases in ambient noise levels at nearby sensitive receptors would likely occur, similar to during the project's construction activities, all decommissioning activities would occur within the hourly limitations established in Kern County's noise-control ordinance. Additionally, implementation of **PDF-NOI-1** would further minimize the project's decommissioning noise levels to the extent practicable. Therefore, the noise levels generated from decommissioning would not conflict with any noise standards established in the *Kern County General Plan* or Kern County's noise-control ordinance.

## Construction Traffic

Construction worker vehicles and haul trucks, which would transport equipment and materials to and from the project site, would incrementally increase noise levels on local roads in the project area. According to the traffic analysis for the project, construction-related vehicles would access the project site via Tehachapi Willow Springs Road and Rosamond Boulevard. Under peak construction conditions, it is anticipated that a total of 1,254 worker vehicle trips and 334 heavy truck trips (combined inbound and outbound) would occur on a daily basis (Ruettggers & Schuler Civil Engineers 2022). The traffic analysis provides traffic volumes along multiple roadways for existing conditions with and without construction traffic. These volumes were used to model traffic noise levels. The modeling data and results are provided in Appendix C. The results are summarized in Table 6-7.

**Table 6-7. Offsite Construction Traffic Noise Levels**

Roadway / Segment	Traffic Noise Levels, dBA CNEL <sup>1</sup>			
	Existing	Construction	Existing + Construction	Increase due to Construction
Tehachapi Willow Springs Rd – Hamilton Rd to Rosamond Blvd	62.8	61.5	65.2	2.4
Rosamond Blvd – 170 <sup>th</sup> St W to 130 <sup>th</sup> St W	63.4	56.1	64.1	0.7
Rosamond Blvd – 130 <sup>th</sup> St W to 90 <sup>th</sup> St W	62.6	60.3	64.6	2.0
Rosamond Blvd – 90 <sup>th</sup> St W to SR-14	66.5	60.3	67.4	0.9

Traffic Information Source: Ruetters & Schuler Civil Engineers 2022.

<sup>1</sup> The noise levels are estimated at a distance of 50 feet from the roadway center.

As shown in Table 6-7, the project's peak day construction traffic noise would increase traffic noise levels from local access routes by 2.4 dBA CNEL or less. Because all the predicted increases are less than 3 dBA, they would be barely noticeable. As such, the impact would be less than significant.

## Project Operation

### Stationary Noise Sources

#### Onsite Electrical Equipment

As discussed in Section 6.1, *Methodology*, the combined onsite operational noise sources (BESS, substation, and the PCSs throughout the solar arrays) were analyzed using SoundPLAN noise modeling software. A separate model run was conducted for each of the three substation/BESS options. The model results were output as noise contour maps showing noise levels graphically across the study area. These maps, provided in Appendix C, were calculated for  $L_{dn}$ , daytime  $L_{eq}$ , and nighttime  $L_{eq}$  to address the various noise metrics of interest at the nearest noise-sensitive receptors in Kern County and the WSSP area. SoundPLAN run information and noise source inputs are also included in Appendix C. The operational noise levels for BESS/Substation Options 1, 2, 3, and 4 are summarized in Tables 6-7, 6-8, and 6-9, respectively, for each of the same 19 receivers considered in the construction noise analysis.

As shown in Table 6-8, with BESS/Substation Option 1, the combined operational stationary equipment noise levels at all analyzed sensitive receptors would range from less than 30 to approximately 50 dBA  $L_{dn}$ . These levels are below the applicable Kern County and WSSP standard of 65 dBA  $L_{dn}$ . For the analyzed sensitive receptors in the WSSP area, the hourly noise levels would range from less than 30 to approximately 50 dBA  $L_{50}$  during the daytime hours, and from less than 30 to approximately 45 dBA  $L_{50}$  (but would not exceed 45 dBA  $L_{50}$ ) during the nighttime hours. These levels comply with the applicable WSSP daytime and nighttime standards of 55 and 45 dB  $L_{50}$ , respectively. As part of the project, **PDF-NOI-2** would be implemented, which requires a minimum 150-foot setback buffer between the project parcel boundary and all onsite stationary noise sources, including the substation equipment, BESS containers, inverters, and PCSs. Therefore, with

implementation of **PDF-NOI-2**, predicted noise impacts under BESS/Substation Option 1 are less than significant.

As shown in Table 6-9, with BESS/Substation Option 2, the combined operational stationary equipment noise levels at all analyzed sensitive receptors would range from less than 30 to approximately 50 dBA  $L_{dn}$ . These levels are below the applicable Kern County and WSSP standard of 65 dBA  $L_{dn}$ . For the analyzed sensitive receptors in the WSSP area, the hourly daytime noise levels would range from less than 30 to approximately 45 dBA  $L_{50}$ . These levels are below the applicable WSSP daytime standard of 55 dBA  $L_{50}$ . For the analyzed sensitive receptors in the WSSP area, the hourly noise levels would range from less than 30 to approximately 45 dBA  $L_{50}$  during the daytime hours, and from less than 30 to approximately 40 dBA  $L_{50}$  during the nighttime hours. These levels are below the applicable WSSP daytime and nighttime standards of 55 and 45 dBA  $L_{50}$ , respectively. As part of the project, **PDF-NOI-2** would be implemented, which requires a minimum 150-foot setback buffer between the project parcel boundary and all onsite stationary noise sources, including the substation equipment, BESS containers, inverters, and PCSs. Therefore, with implementation of **PDF-NOI-2**, predicted noise impacts under BESS/Substation Option 2 are less than significant.

As shown in Table 6-10, with BESS/Substation Option 3, the combined operational stationary equipment noise levels at all analyzed sensitive receptors would range from less than 30 to approximately 65 dBA  $L_{dn}$  (but would not exceed 65 dBA  $L_{dn}$ ). These levels comply with the applicable Kern County and WSSP standard of 65 dBA  $L_{dn}$ . For the analyzed sensitive receptors in the WSSP area, the hourly noise levels would range from less than 30 to approximately 57 dBA  $L_{50}$  during the daytime hours, and from less than 30 to approximately 56 dBA  $L_{50}$  during the nighttime hours. These noise levels would exceed WSSP noise standards at three of the analyzed receptors. At SR23, the predicted nighttime  $L_{50}$  of 50 dBA would exceed the nighttime standard of 45 dBA  $L_{50}$ . At SR24, the predicted daytime and nighttime  $L_{50}$  of 57 and 56 dBA, respectively, would exceed the daytime and nighttime standards of 55 and 45 dBA  $L_{50}$ . At SR25, the predicted nighttime  $L_{50}$  of 50 dBA would exceed the nighttime standard of 45 dBA  $L_{50}$ . At all three receptors, the exceedance would be due to the nearby BESS. To reduce the operational noise impact at the adversely affected receptors, **Mitigation Measure NOI-1** is recommended in addition to **PDF-NOI-2** (which requires a minimum 150-foot setback buffer between the project parcel boundary and all onsite stationary noise sources, including the substation equipment, BESS containers, inverters, and PCSs). With implementation of **Mitigation Measure NOI-1** and **PDF-NOI-2**, the project would not generate a substantial permanent increase in ambient noise levels in the vicinity of the project in excess of applicable noise standards, and the impact would be less than significant.

**Mitigation Measure NOI-1:** For BESS/Substation Option 3, if selected for construction, the BESS design will be revised and/or noise control will be added as part of the final project design. Such revisions and noise control may include, but are not limited to, the following:

- Shifting the BESS to the west or northwest to increase the distance from SR23, SR24, and SR25
- Selecting quieter BESS equipment
- Placing noise barrier(s) around one or more sides of the BESS equipment

The adequacy of the selected noise control technique(s) will be demonstrated in a focused acoustical study performed prior to the issuance of building permits to ensure that the applicable Kern County and WSSP noise standards would not be exceeded at any of the nearby noise-sensitive receptors. The calculations will be based on the most recent available plans for the substation and BESS.

### **Gen-Tie Lines**

The project includes four options for gen-tie routes (including two deviations to one option and one deviation to another), although only one route would be constructed. Overhead electrical lines, where constructed, would emit noise levels associated with corona discharge, which is an electrical discharge that ionizes the surrounding air. The noise associated with corona discharge is typically described as a crackling or humming sound. Based on data from a previous solar project noise study (Ambient Air Quality & Noise Consulting 2015), noise levels from transmission line corona discharge are approximately 25 dBA at a distance of 25 feet (based on a 230-kilovolt line). This noise level is well below all of the applicable Kern County and WSSP noise standards, ensuring high noise levels would not extend beyond the transmission line corridor. As a result, there would be no significant noise impacts at nearby sensitive receptors from proposed gen-tie lines.

### **Onsite Maintenance Activities**

The primary maintenance activity that would generate noticeable noise levels at the project site would be washing of the solar panels, which is anticipated to occur up to twice a year. Noise levels from panel washing would primarily be generated from the use of portable power washers, as well as the trucks used to bring the water to the site and move the equipment around the project site. However, panel washing for the project would be transient and short term, performed annually at most and over a period of 60 days; panel washing would only occur during daytime work hours. The washing activity at any one area within the project site would be relatively brief before the activity moves away to another area. As a result, no significant noise impacts are predicted as a result of onsite maintenance activities.

**Table 6-8. Estimated Stationary Equipment Noise Levels at Analyzed Sensitive Receptors, BESS/Substation Option 1**

Receptor Location <sup>1</sup>	Located within WSSP Area?	dBA L <sub>dn</sub> <sup>2</sup>		Daytime L <sub>eq</sub> /L <sub>50</sub> <sup>2,3,4</sup>		Nighttime L <sub>eq</sub> /L <sub>50</sub> <sup>2,3,4</sup>	
		Predicted Level	Applicable Threshold	Predicted Level	Applicable Threshold	Predicted Level	Applicable Threshold
SR3	Yes	30–35	65	<30	55	<30	45
SR5	Yes	40–45	65	35–40	55	30–35	45
SR8	Yes	45–50	65	40–45	55	35–40	45
SR15	Yes	30–35	65	30–35	55	<30	45
SR21	Yes	30–35	65	<30	55	<30	45
SR22	Yes	35–40	65	30–35	55	<30	45
SR23	Yes	35–40	65	35–40	55	30–35	45
SR24	Yes	40–45	65	40–45	55	30–35	45
SR25	Yes	40–45	65	40–45	55	30–35	45
SR29	Yes	40–45	65	40–45	55	30–35	45
SR30	Yes	<30	65	30–35	55	<30	45
SR36	No	45–50	65	40–45	N/A	40–45	N/A
SR38	No	45–50	65	40–45	N/A	40–45	N/A
SR46	No	40–45	65	35–40	N/A	35–40	N/A
SR54	No	40–45	65	35–40	N/A	35–40	N/A
SR57	Yes	45–50	65	45–50	55	40–45	45
SR58	Yes	45–50	65	40–45	55	40–45	45
SR59	No	30–35	65	<30	N/A	<30	N/A
SR60	No	30–35	65	<30	N/A	<30	N/A

Notes: No exceedances of the applicable threshold are estimated and no impacts are shown in this table.

<sup>1</sup> Receptor locations are depicted on Figure 6-1.

<sup>2</sup> Noise map results (refer to Appendix C) are illustrated in 5-dB bands from less than 30 dB (<30) to greater than 65 dB (>65). The reported noise levels in this table indicate the highest noise level band affecting each sensitive receiver. Predicted noise levels that exceed an applicable threshold are reported to the nearest dB to quantify the impact more accurately.

<sup>3</sup> Daytime = 7 a.m. to 10 p.m.; nighttime = 10 p.m. to 7 a.m.

<sup>4</sup> Assuming predicted noise levels would typically be constant, the predicted L<sub>eq</sub> is assessed against the WSSP L<sub>50</sub> noise standard. This noise limit applies to any noise level occurring for 30 minutes or more per hour.

N/A = not applicable

**Table 6-9. Estimated Stationary Equipment Noise Levels at Analyzed Sensitive Receptors, BESS/Substation Option 2**

Receptor Location <sup>1</sup>	Located within WSSP Area?	dBA L <sub>dn</sub> <sup>2</sup>		Daytime L <sub>eq</sub> /L <sub>50</sub> <sup>2,3,4</sup>		Nighttime L <sub>eq</sub> /L <sub>50</sub> <sup>2,3,4</sup>	
		Predicted Level	Applicable Threshold	Predicted Level	Applicable Threshold	Predicted Level	Applicable Threshold
SR3	Yes	<30	65	<30	55	<30	45
SR5	Yes	30-35	65	<30	55	<30	45
SR8	Yes	35-40	65	35-40	55	30-35	45
SR15	Yes	35-40	65	30-35	55	<30	45
SR21	Yes	30-35	65	<30	55	<30	45
SR22	Yes	35-40	65	35-40	55	30-35	45
SR23	Yes	40-45	65	35-40	55	30-35	45
SR24	Yes	45-50	65	40-45	55	35-40	45
SR25	Yes	45-50	65	40-45	55	35-40	45
SR29	Yes	40-45	65	40-45	55	30-35	45
SR30	Yes	30-35	65	30-35	55	<30	45
SR36	No	35-40	65	35-40	N/A	30-35	N/A
SR38	No	35-40	65	35-40	N/A	30-35	N/A
SR46	No	35-40	65	30-35	N/A	<30	N/A
SR54	No	40-45	65	35-40	N/A	35-40	N/A
SR57	Yes	40-45	65	40-45	55	30-35	45
SR58	Yes	30-35-40	65	30-35	55	<30	45
SR59	No	<30	65	<30	N/A	<30	N/A
SR60	No	30-35	65	<30	N/A	<30	N/A

Notes: No exceedances of the applicable threshold are estimated and no impacts are shown in this table.

<sup>1</sup> Receptor locations are depicted on Figure 6-1.

<sup>2</sup> Noise map results (refer to Appendix C) are illustrated in 5-dB bands from less than 30 dB (<30) to greater than 65 dB (>65). The reported noise levels in this table indicate the highest noise level band affecting each sensitive receiver. Predicted noise levels that exceed an applicable threshold are reported to the nearest dB to quantify the impact more accurately.

<sup>3</sup> Daytime = 7 a.m. to 10 p.m.; nighttime = 10 p.m. to 7 a.m.

<sup>4</sup> Assuming predicted noise levels would typically be constant, the predicted L<sub>eq</sub> is assessed against the WSSP L<sub>50</sub> noise standard. This noise limit applies to any noise level occurring for 30 minutes or more per hour.

N/A = not applicable

**Table 6-10. Estimated Stationary Equipment Noise Levels at Analyzed Sensitive Receptors, BESS/Substation Option 3**

Receptor Location <sup>1</sup>	Located within WSSP Area?	dBA L <sub>dn</sub> <sup>2</sup>		Daytime L <sub>eq</sub> /L <sub>50</sub> <sup>2,3,4</sup>		Nighttime L <sub>eq</sub> /L <sub>50</sub> <sup>2,3,4</sup>	
		Predicted Level	Applicable Threshold	Predicted Level	Applicable Threshold	Predicted Level	Applicable Threshold
SR3	Yes	<30	65	<30	55	<30	45
SR5	Yes	30-35	65	<30	55	<30	45
SR8	Yes	40-45	65	35-40	55	30-35	45
SR15	Yes	40-45	65	35-40	55	35-40	45
SR21	Yes	40-45	65	35-40	55	30-35	45
SR22	Yes	45-50	65	40-45	55	40-45	45
SR23	Yes	55-60	65	50-55	55	<b><i>50</i></b>	<b><i>45</i></b>
SR24	Yes	60-65	65	<b><i>57</i></b>	<b><i>55</i></b>	<b><i>56</i></b>	<b><i>45</i></b>
SR25	Yes	55-60	65	50-55	55	<b><i>50</i></b>	<b><i>45</i></b>
SR29	Yes	45-50	65	40-45	55	35-40	45
SR30	Yes	30-35	65	30-35	55	<30	45
SR36	No	35-40	65	35-40	N/A	<30	N/A
SR38	No	35-40	65	30-35	N/A	<30	N/A
SR46	No	30-35	65	30-35	N/A	<30	N/A
SR54	No	35-40	65	30-35	N/A	30-35	N/A
SR57	Yes	40-45	65	40-45	55	30-35	45
SR58	Yes	35-40	65	30-35	55	<30	45
SR59	No	<30	65	<30	N/A	<30	N/A
SR60	No	30-35	65	<30	N/A	<30	N/A

Notes: Values in ***bold underlined italics*** indicate an exceedance of the applicable threshold.

<sup>1</sup> Receptor locations are depicted on Figure 6-1.

<sup>2</sup> Noise map results (refer to Appendix C) are illustrated in 5-dB bands from less than 30 dB (<30) to greater than 65 dB (>65). The reported noise levels in this table indicate the highest noise level band affecting each sensitive receiver. Predicted noise levels that exceed an applicable threshold are reported to the nearest dB to quantify the impact more accurately.

<sup>3</sup> Daytime = 7 a.m. to 10 p.m.; nighttime = 10 p.m. to 7 a.m.

<sup>4</sup> Assuming predicted noise levels would typically be constant, the predicted L<sub>eq</sub> is assessed against the WSSP L<sub>50</sub> noise standard. This noise limit applies to any noise level occurring for 30 minutes or more per hour.

N/A = not applicable

### Emergency Backup Generator

The specific details of the emergency backup generator are currently unknown, but such generators can be a major source of noise. Depending on the selected location of the substation (where the backup generator would be located), a backup generator could cause significant noise impacts, especially if operated for extended periods or during nighttime hours. To reduce the potential operational noise impacts of the proposed backup generator, **Mitigation Measure NOI-3** is recommended. With implementation of **Mitigation Measure NOI-3**, the proposed backup generator would not cause a substantial permanent increase in ambient noise levels in the vicinity of the project in excess of applicable noise standards.

**Mitigation Measure NOI-3:** The emergency backup generator design will incorporate noise control to ensure compliance with the applicable noise standards of Kern County and the WSSP during period testing and emergency operation. Such measures may include, but are not limited to:

- Locating the emergency backup generator away from noise-sensitive receptors
- Selecting a quieter generator model
- Equipping the generator with an appropriate muffler to reduce exhaust noise
- Equipping the generator with an appropriate sound enclosure to reduce radiated noise
- Placing noise barrier(s) around one or more sides of the BESS equipment

The adequacy of the selected noise control technique(s) will be demonstrated in a focused acoustical study performed prior to the issuance of building permits to ensure that the applicable Kern County and WSSP noise standards (daily  $L_{dn}$ , daytime  $L_{50}$ , and nighttime  $L_{50}$ ) would not be exceeded at any of the nearby noise-sensitive receptors. The calculations will be based on the most recent available project plans and backup generator specifications.

### Operational Traffic

The project would be operated from the operations and maintenance facility at the adjacent BigBeau site. According to the traffic analysis for the project (Ruettgers & Schuler Civil Engineers 2022), up to 15 part-time and or full-time staff may be required for operation of the Bullhead Solar Project (for site inspection, security, maintenance, and system monitoring purposes). The project may also require annual washing of the solar panels that would typically be carried out over a period of 60 days. The panel-washing activities are expected to generate approximately 18 truck trips per day (Ruettgers & Schuler Civil Engineers 2022). As the daily truck trips associated with panel-washing activities would represent the highest generator of traffic during project operations, this scenario was used to model the traffic noise levels generated by the project. The modeling data and results are provided in Appendix C. The results are summarized in Table 6-11.



**Table 6-11. Operational Traffic Noise Levels**

Roadway / Segment	Traffic Noise Levels, dBA CNEL <sup>1</sup>					
	Existing	Existing + Project	Existing Increase Due to Project	Future (2026)	Future (2026) + Project	Future Increase Due to Project
Tehachapi Willow Springs Rd – Hamilton Rd to Rosamond Blvd	62.8	62.8	0.0	63.1	63.2	0.1
Rosamond Blvd – 170 <sup>th</sup> St W to 130 <sup>th</sup> St W	63.4	63.4	0.0	64.8	64.8	0.0
Rosamond Blvd – 130 <sup>th</sup> St W to 90 <sup>th</sup> St W	62.6	62.7	0.1	63.8	63.8	0.0
Rosamond Blvd – 90 <sup>th</sup> St W to SR-14	66.5	66.5	0.0	67.2	67.2	0.0

Traffic Information Source: Ruetters & Schuler Civil Engineers 2022.

<sup>1</sup> The noise levels are estimated at a distance of 50 feet from the roadway center.

As shown in Table 6-11, based on the estimated truck trips for panel-washing activities, combined with typical daily commutes to the site, the project's operational traffic would increase traffic noise levels by 0.1 dBA CNEL or less for both existing and future conditions. Such small noise increases would not be noticeable. As such, the impact would be less than significant.

## Impact Noise-2: Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Heavy construction equipment operating at the project site would generate groundborne vibration that could affect nearby residential structures or residents. For the purposes of assessing structural vibration sensitivity, the nearby residential structures are considered to be “old buildings,” which have an applicable building damage threshold of 0.25 in/s (refer to Table 5-1). This is likely to be a conservative assumption but is considered a sensible approach because the construction and condition of the structures have not been inspected or verified. Based on the vibration levels associated with the types of construction equipment that would be used during project construction (refer to Table 6-1), the range of vibration levels that could occur at the analyzed sensitive receptors near the project site were estimated. Complete calculations are provided in Appendix D, and a summary of the results is provided in Table 6-12. The table also compares the calculated PPV with the human perceptibility criteria from Table 5-2 in order to assess the potential for human annoyance.

**Table 6-12. Estimated Groundborne Vibration from Project Construction**

Receptor	Distance(s) to Closest Construction, feet <sup>1</sup>	Range of Estimated PPV, in/s	Worst Case Human Response
SR3	535 to 7,345	<0.001–0.007	None (below barely perceptible)
SR5	3,090	<0.001–0.001	None (below barely perceptible)
SR8	535 to 2,000	<0.001–0.003	None (below barely perceptible)
SR15	205 to 3,300	<0.001–0.009	None (below barely perceptible)
SR21	2,970 to 4,245	<0.001–0.001	None (below barely perceptible)

Receptor	Distance(s) to Closest Construction, feet <sup>1</sup>	Range of Estimated PPV, in/s	Worst Case Human Response
SR22	1,600	<0.001–0.002	None (below barely perceptible)
SR23	150 to 360	<0.001–0.012	Barely perceptible
SR24	85	0.001–0.055	Distinctly perceptible
SR25	220	<0.001–0.019	Barely perceptible
SR29	100	0.001–0.046	Distinctly perceptible
SR30	1,280	<0.001–0.003	None (below barely perceptible)
SR36	1,100	<0.001–0.003	None (below barely perceptible)
SR38	1,505	<0.001–0.002	None (below barely perceptible)
SR46	1,255 to 2,375	<0.001–0.001	None (below barely perceptible)
SR54	1,435	<0.001–0.002	None (below barely perceptible)
SR57	135	<0.001–0.033	Barely perceptible
SR58	985 to 1,005	<0.001–0.004	None (below barely perceptible)
SR59	1,025 to 7,200	<0.001–0.001	None (below barely perceptible)
SR60	2,585	<0.001–0.001	None (below barely perceptible)

<sup>1</sup> For receptors where the project site is the closest construction area, the distance used in the analysis is the distance from the receptor to the closest site boundary. For receptors that are closer to access road improvements or a gen-tie line, two distances were used in the analysis; the first reported distance is to the closest access road improvements or a gen-tie line, the second reported distance is to the closest site boundary.

As shown Table 6-12, the estimated PPV values at all locations are well below the applicable 0.25 in/s threshold for potential building damage. It is predicted that groundborne vibration, under the worst-case construction conditions, would fall within the *barely perceptible* range or lower at 17 of the analyzed receivers. At the remaining two analyzed receiver locations, SR24 and SR29, groundborne vibration is predicted to be *distinctly perceptible* under worst-case conditions when a vibratory roller operates within 113 feet of the residential buildings. Because SR24 and SR29 are approximately 85 and 100 feet from the boundary of the project area, respectively, this would occur only briefly during the overall construction period. Once the operating piece of equipment is more than 113 feet away, groundborne vibration levels would become *barely perceptible* or lower.

Overall, groundborne vibration levels would be low and would be imperceptible or barely perceptible at most of the nearby sensitive receptors. Distinctly perceptible vibration may occur briefly at the closest receptors but would be limited to short time periods when heavy equipment is operating within 113 feet. All perceptible vibration would be limited to the permitted daytime construction hours due to the implementation of **PDF-NOI-1**. In all cases, groundborne vibration would be well below levels that would cause damage to structures. Therefore, project construction would not expose the analyzed sensitive receptors to or generate excessive groundborne vibration or groundborne noise levels, and no significant vibration impacts are predicted.

Once the proposed project is operational, there would be no substantial sources of groundborne vibration at the project site. The mechanical equipment installed at the project site would cause some localized vibration that may be perceptible at close range (e.g., on the equipment pad), but there would be no perceptible vibration at other properties. Therefore, there would be no vibration impacts due to proposed project operation.

## Chapter 7

# Cumulative Conditions

---

Based on the cumulative projects list provided by the County, six projects are within a 6-mile radius of the proposed project: BigBeau Solar Project, California High Speed Rail Bakersfield to Palmdale Section (CHSR B-P), Gem Energy Storage Center (also known as the Willow Rock Energy Storage Center), Investment Concepts (18-unit apartment complex), Rosamond Solar Modification Project, and Raceway Solar. Of these six cumulative projects, three (BigBeau Solar Project, CHSR B-P, and Gem Energy Storage Center) are within a 1-mile radius of the project site. Refer to Appendix E for the list of projects and associated location map.

Cumulative noise or vibration impacts can occur when two or more projects are under construction simultaneously or generate operational noise or vibration at the same time. Because noise and vibration are localized effects that decrease with distance from the source, significant cumulative impacts typically do not occur unless two or more projects are located close to a single receiver. The presence of any natural or human-made barriers (e.g., hills, topography, walls, buildings) between a project site and a receiver will increase the rate of noise reduction over distance and will further reduce any cumulative noise levels. Related projects in the vicinity of the noise- and vibration-sensitive receivers considered in this analysis would include construction and/or maintenance activities that could occur simultaneously with construction and/or maintenance of the proposed project, depending on project timing.

## 7.1 Cumulative Construction Noise

For the reasons discussed above, construction noise levels at any single receiver typically are dominated by the closest construction activity. As a result, the chances of construction noise from more-distant related project sites making a substantial contribution to overall noise levels at the same receiver generally is low.

CHSR B-P is the closest related project to the proposed Bullhead Solar Project because there is a segment where the two overlap. The next closest related projects would be BigBeau, immediately to the west, the Gem Energy Storage Center, approximately 0.5 mile to the south, and the Raceway Solar Project, which is more than 2.5 miles to the south. The construction funding and start date for CHSR B-P is yet to be determined, and construction is not projected to commence until after the Bullhead Solar project is operational. BigBeau is already under construction and expected to be fully operational before construction begins on the proposed Bullhead Solar Project. Construction for the Gem Energy Storage Center is anticipated to commence in the third or fourth quarter of 2023 and would be operational before Bullhead is constructed. Construction of the Raceway Solar Project will be completed in 2023, before construction begins on the proposed Bullhead Solar Project. Therefore, construction would not occur simultaneously between the proposed Bullhead Solar Project and any of the nearest cumulative projects. All the other related projects would be more than 3 miles from the proposed Bullhead Solar Project site and more than 1 mile from the closest proposed Bullhead gen-tie line. At these distances, the noise contribution at receivers adjacent to the proposed project would be minimal, even if construction were to occur simultaneously. Finally, as discussed

previously, neither the *Kern County General Plan* nor the WSSP have identified noise limits pertaining to construction noise. Instead, construction noise currently is regulated in Chapter 8.36 (Noise Control) of the Kern County Code of Ordinances, through the establishment of acceptable hours of construction and limitations on construction-related noise impacts on adjacent sensitive uses. Specifically, noise created from construction activities that are audible to a person with average hearing ability at a distance of 150 feet from the construction site, or if the construction site is within 1,000 feet of an occupied residential dwelling, are prohibited from 9:00 p.m. to 6:00 a.m. on weekdays and 9:00 p.m. to 8:00 a.m. on weekends. As part of the proposed project, **PDF-NOI-1** would be implemented to ensure that the project's construction activities would comply with these hourly limitations.

As a result of all the factors described above, the proposed project would not result in a cumulatively considerable contribution to construction noise impacts in the vicinity of the project.

## 7.2 Cumulative Construction Vibration

Like construction noise, groundborne vibration levels at any single receiver due to construction are typically dominated by the closest construction activity. However, because vibration impacts are assessed based on instantaneous peak levels (i.e., PPV), worst-case groundborne-vibration levels from construction generally are determined by whichever individual piece of equipment generates the highest vibration levels. As a result, the vibration from multiple construction sites, even if the sites are near each other, generally does not combine to raise the maximum PPV, and the cumulative effect is no more severe than the effect from the largest individual contribution. This fact, coupled with the large distances to any related projects that might have construction simultaneously with the proposed Bullhead project, means that the proposed project would not contribute to any cumulatively considerable groundborne-vibration impacts, and the cumulative impact would be less than significant.

## 7.3 Cumulative Operational Noise

The Final EIR for CHSR B-P (California High-Speed Rail Authority 2021) indicates that the project would have severe unmitigated noise impacts at two of the noise-sensitive receivers, SR-22 and SR-25, considered in the Bullhead noise analysis. These impacts would be due to excessive  $L_{dn}$  levels caused by periodic high noise from passing trains. Predicted noise levels from Bullhead at these two receivers would range from approximately 40 to 60 dB  $L_{dn}$ , which is below the applicable threshold of 65 dB  $L_{dn}$ . The worst-case noise levels, which would only occur under BESS/Substation Option 3 (if constructed), would be further reduced by **Mitigation Measure NOI-1**. Therefore, proposed project's contribution to overall noise impacts at receivers affected by CHSR B-P would be minimal, and any increase in noise attributable to Bullhead would be less than cumulatively considerable.

The closest cumulative solar projects in the vicinity of the noise-sensitive receivers considered in this analysis are BigBeau and Raceway Solar Project. These solar projects would likely include either the same or similar operational stationary noise sources as the proposed project (e.g., BESS, solar panel axis trackers, substation transformers, PCS). In considering how cumulative noise levels may affect these receivers, it is helpful to note that the only significant operational noise impacts

predicted for the proposed project were at sensitive receptors less than 900 feet from the proposed BESS/substation sites. Noise levels from secondary noise contributors (e.g., transformers, PCS, corona discharge) are all relatively low and typically would attenuate to levels below the applicable County noise standards at the solar project property line. Based on the final site layout for the BigBeau Solar Project, the closest BESS on that site would be more than 2,800 feet from the nearest receivers considered in this analysis. The Raceway Solar Project would be more than 12,000 feet away. These distances are much larger than those at which direct noise impacts were found to occur and, as such, noise levels would not combine to exceed applicable thresholds. The proposed project would not contribute to any cumulatively considerable noise impacts due to onsite operations, and the cumulative impact would be less than significant.

The Gem Energy Storage Center is approximately 0.5 mile south of the Bullhead Solar Project site. According to the noise study for the Gem Energy project (Golder Associates 2021), operational noise levels at receivers adjacent to the Bullhead Solar Project site range from 45 to 49 dB  $L_{dn}$ . These levels are substantially below the applicable threshold of 65 dB  $L_{dn}$  and, as such, would not be sufficient to generate a significant cumulative noise impact.

Cumulative future (2026) traffic volumes on the surrounding roadways would range from 2,663 to 6,870 vehicles per day, including the predicted traffic from proposed project operations. This would result in traffic noise levels of approximately 63 to 67 dBA CNEL at 50 feet from the center of the roadway. Although some of these noise levels would exceed Kern County's average-daily noise level standard of 65 dBA CNEL, the direct contribution from proposed project traffic would be between 0.1 and 0.3 dB (based on the predicted project traffic noise level of approximately 51 dBA CNEL). Changes this small would be imperceptible. As a result, although there may be a cumulative future traffic noise impact in the project vicinity, the proposed project would not make a cumulatively considerable contribution to this impact.

## 7.4 Cumulative Operational Vibration

As noted previously, once operational, the proposed project would not include any substantial sources of groundborne vibration and, therefore, would not generate any perceptible vibration at other properties. The same would be true of the closest related projects because they are similar solar projects. Therefore, operation of the proposed project would not contribute to any cumulatively considerable groundborne vibration impacts, and the cumulative impact would be less than significant.

*This page intentionally left blank.*

## Chapter 8 References

---

- Ambient Air Quality & Noise Consulting. 2015. *Noise & Groundborne Vibration Impact Assessment for the Proposed Valentine Solar Project, County of Kern, CA*. June.
- California Department of Transportation (Caltrans). 2013. *Technical Noise Supplement to the Traffic Noise Analysis Protocol*. Final. CT-HWANP-RT-13-069.25.2. September 2013. Sacramento, CA.
- . 2020. *Transportation and Construction Vibration Guidance Manual*. Final. CT-HWANP-RT-20-365.01.01. April 2020. Sacramento, CA.
- City-Data. 2018. Lloyd's Landing Airport (33CA) in Rosamond, California. Available: <http://www.city-data.com/airports/Lloyd-s-Landing-Airport-Rosamond-California.html>. Accessed: December 2018.
- California High-Speed Rail Authority. 2021. *Bakersfield to Palmdale Project Section, Final Environmental Impact Report/Environmental Impact Statement*. May. Sacramento, CA.
- County of Kern. 2008. *Willow Springs Specific Plan*. April. Available: [https://psbweb.co.kern.ca.us/planning/pdfs/SPs/WillowSprings\\_SP.pdf](https://psbweb.co.kern.ca.us/planning/pdfs/SPs/WillowSprings_SP.pdf).
- . 2009. *Kern County General Plan, Noise Element and Energy Element*. September 22. Available: [https://psbweb.co.kern.ca.us/planning/pdfs/kcgp/KCGP\\_Complete.pdf](https://psbweb.co.kern.ca.us/planning/pdfs/kcgp/KCGP_Complete.pdf).
- . 2012. *Airport Land Use Compatibility Plan*. November 13. Available: <https://psbweb.co.kern.ca.us/planning/pdfs/ALUCP2012.pdf>.
- Federal Highway Administration (FHWA). 2004. FHWA Traffic Noise Model®, Version 2.5 Look-Up Tables User's Guide. Final. FHWA-HEP-05-008 / DOT-VNTSC-FHWA-0406. December 2004. Washington, DC. Prepared by U.S. Department of Transportation, Research and Special Programs Administration, John A. Volpe National Transportation Systems Center Acoustics Facility. Cambridge, MA.
- . 2008. Roadway Construction Noise Model.
- Golder Associates USA Inc. 2021. *Application for Certification (AFC) Gem Energy Storage Center, Section 5 Environmental Analysis, 5.7 Noise*. December.
- Ruettgers & Schuler Civil Engineers. 2022. *Traffic Investigation for Proposed Bullhead Solar Project in Rosamond, CA*. August 9.
- U.S. Environmental Protection Agency (EPA). 1977. *Speech Levels in Various Noise Environments*. EPA-600/1-77-025. May, 1977. Prepared by Bolt, Beranek, and Newman. Washington, DC.
- Washington State Department of Transportation (WSDOT). 2020. *Biological Assessment Preparation Manual*. Chapter 7.0 *Construction Noise Impact Assessment*. Chapter updated August 2020.
- World Health Organization. 1999. *Guidelines for Community Noise*. April. London, United Kingdom.

*This page intentionally left blank.*



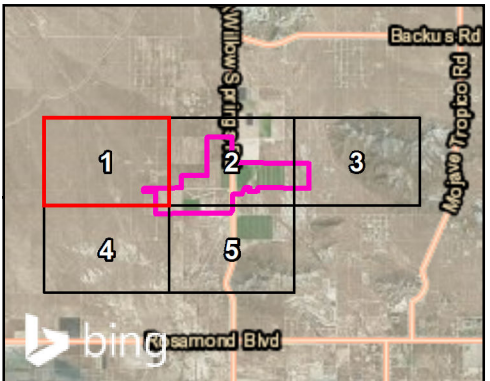
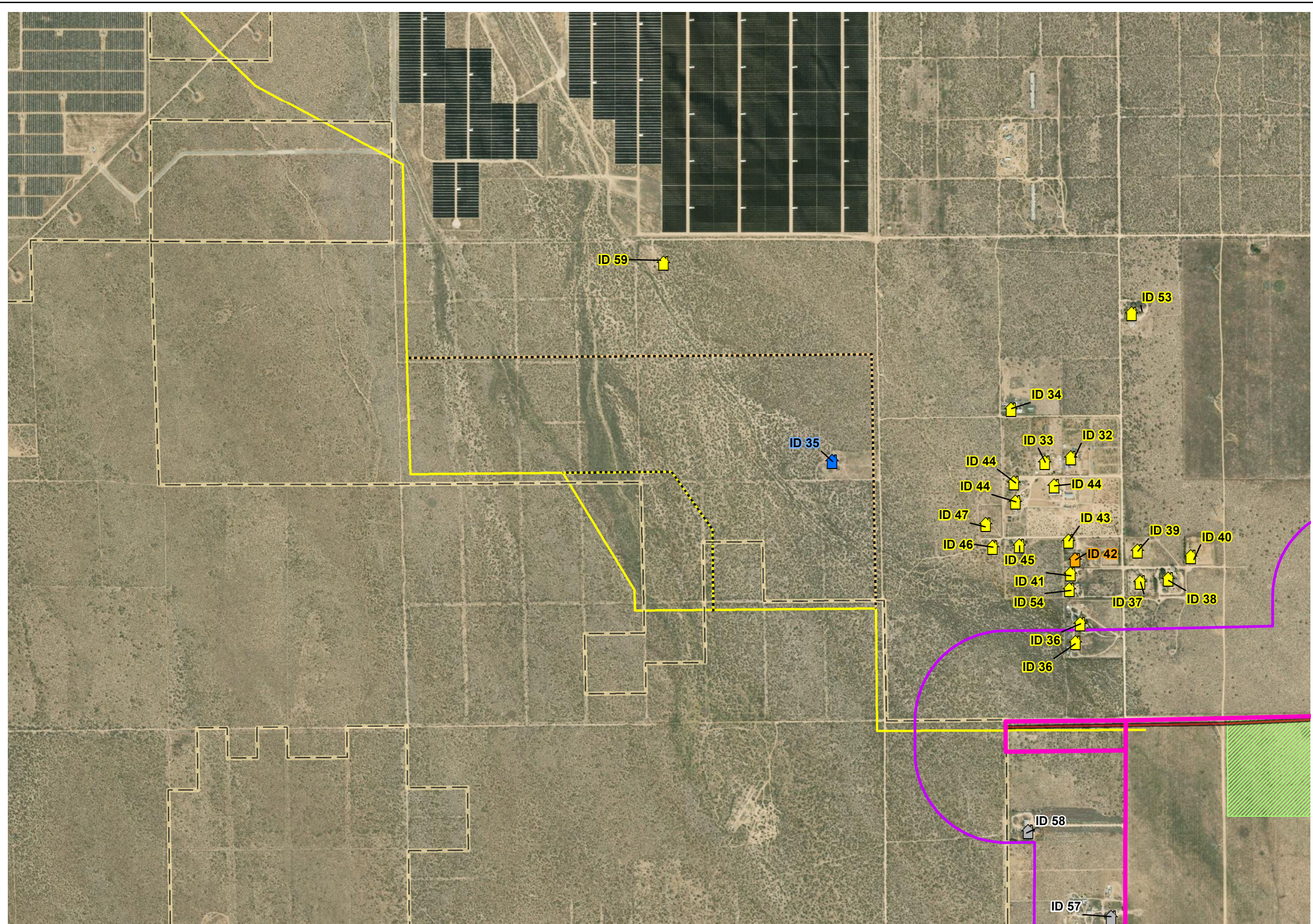
Appendix A  
**Survey of Nearby Structures and Residences**

---

*This page intentionally left blank.*



\\PDC\ITRDS\GIS\2\Projects\_4\EDR\00049\_21\Bullhead\_Solar\00049\_21\Figures\Doc\EA\Noise\AttachA\_Survey\_StructRes.mxd; User: 25119; Date: 7/15/2022



**Legend**

- Bullhead Project Boundary
- 1,000-Foot Buffer from Project Boundary
- Big Beau Project Boundary
- Primary Access
- Secondary Access

**Potential Residential Structures**

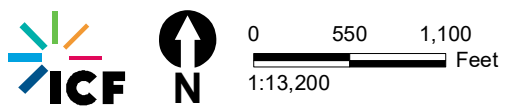
- Occupied Residential Sites
- Residential, Vacant/Abandoned
- Not Residential
- No Visible Access from ROW - Assumed Occupied
- Not Surveyed - Assumed Occupied
- No Structure Present On Site

**Gen-tie Options**

- Rosamond Option 1
- Rosamond Option 1 and 3
- Rosamond Option 2
- Rosamond Option 2 and 3
- Rosamond Option 3
- Rosamond Option 3.1
- Whirlwind Option 1
- Whirlwind Option 1.1
- Whirlwind Option 1.2
- Whirlwind Gen-tie Option 1 co-located with existing AVTL

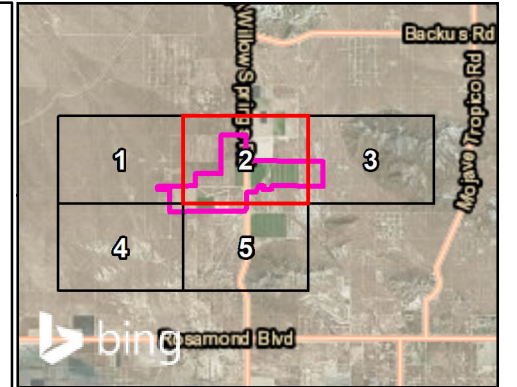
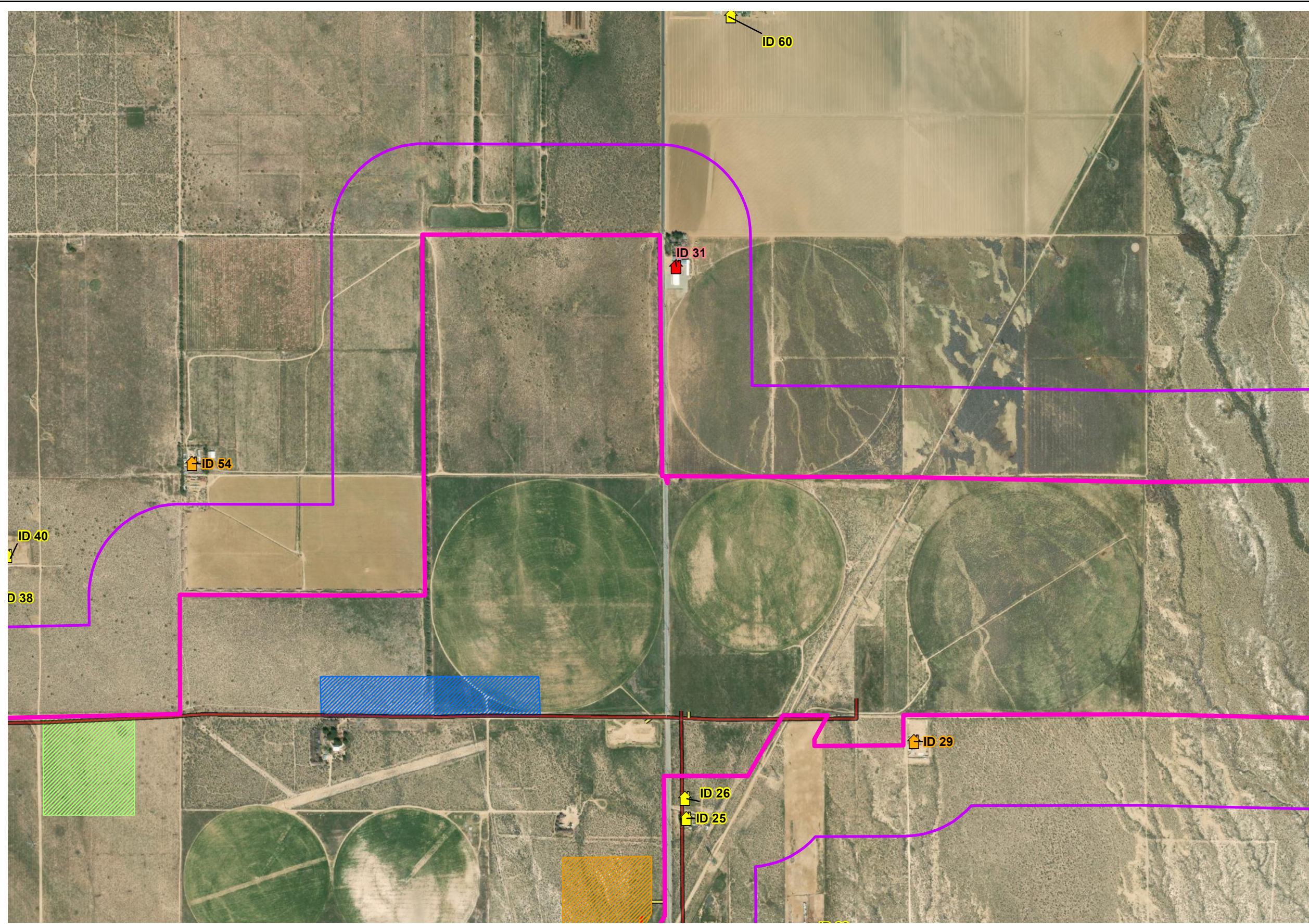
**BESS/Substation Options**

- BESS/Substation Option 1
- BESS/Substation Option 2
- BESS/Substation Option 3





\\PDC\ITRDS\GIS\2\Projects\_4\EDR\00049\_21\_Bullhead\_Solar\0049\_21\Figures\Doc\EA\Noise\AttachA\_Survey\_StructRes.mxd; User: 25119; Date: 7/15/2022

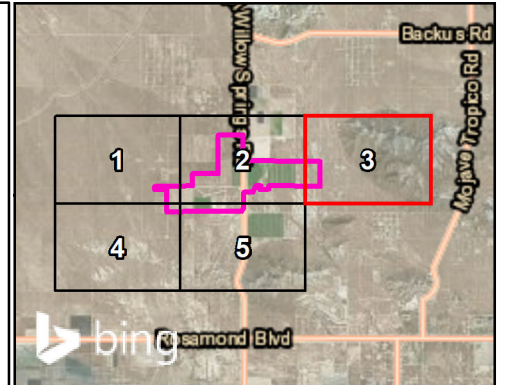
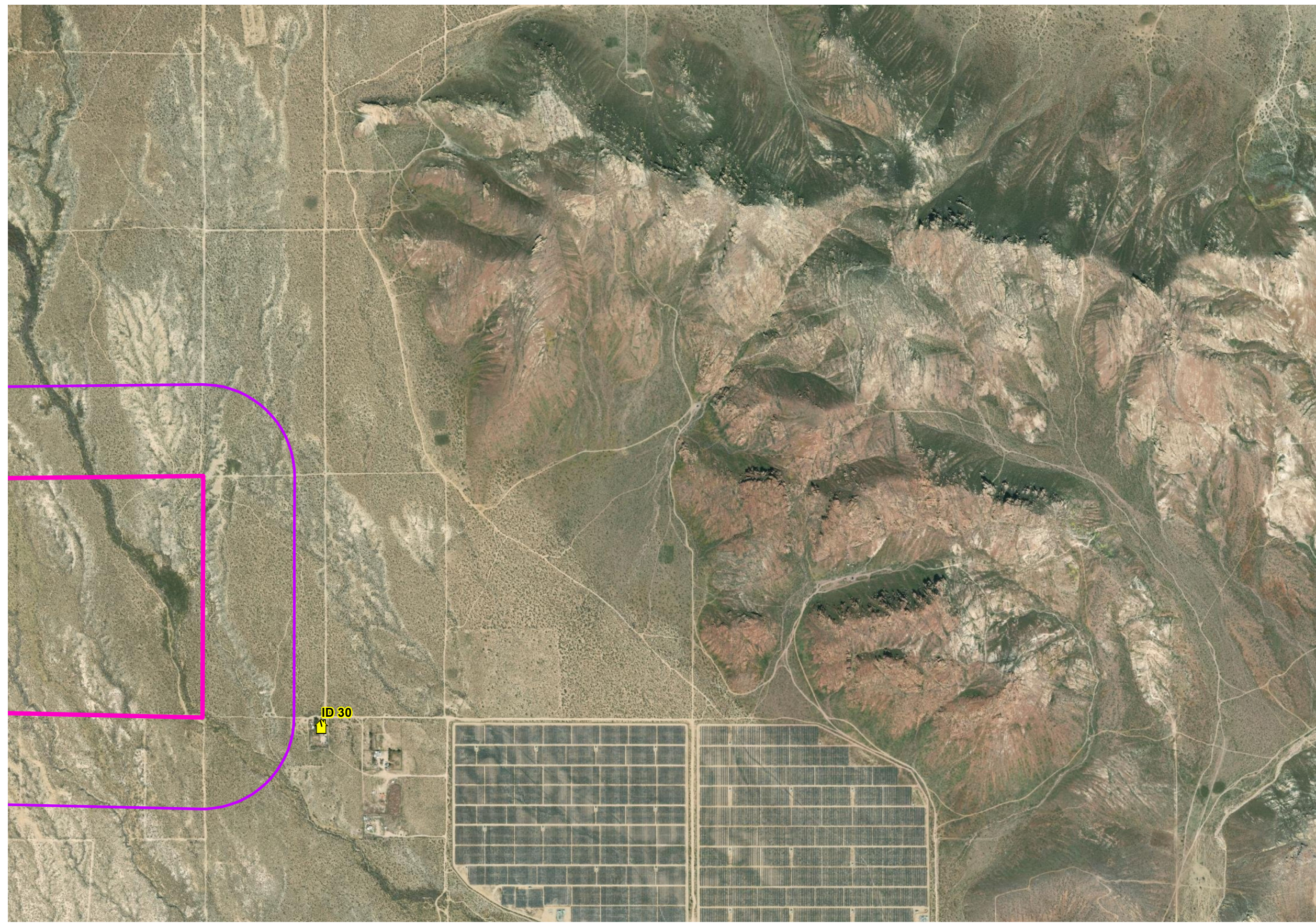


- Legend**
- Bullhead Project Boundary
  - 1,000-Foot Buffer from Project Boundary
  - Big Beau Project Boundary
  - Primary Access
  - Secondary Access
- Potential Residential Structures**
- Occupied Residential Sites
  - Residential, Vacant/Abandoned
  - Not Residential
  - No Visible Access from ROW - Assumed Occupied
  - Not Surveyed - Assumed Occupied
  - No Structure Present On Site
- Gen-tie Options**
- Rosamond Option 1
  - Rosamond Option 1 and 3
  - Rosamond Option 2
  - Rosamond Option 2 and 3
  - Rosamond Option 3
  - Rosamond Option 3.1
  - Whirlwind Option 1
  - Whirlwind Option 1.1
  - Whirlwind Option 1.2
  - Whirlwind Gen-tie Option 1 co-located with existing AVTL
- BESS/Substation Options**
- BESS/Substation Option 1
  - BESS/Substation Option 2
  - BESS/Substation Option 3

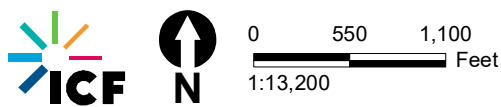




\\PDC\ITRDSGIS\2\Projects\_4\EDR\00049\_21\_Bullhead\_Solar\00049\_21\_Figures\Doc\EA\Noise\AttachA\_Survey\_StructRes.mxd; User: 25119; Date: 7/15/2022

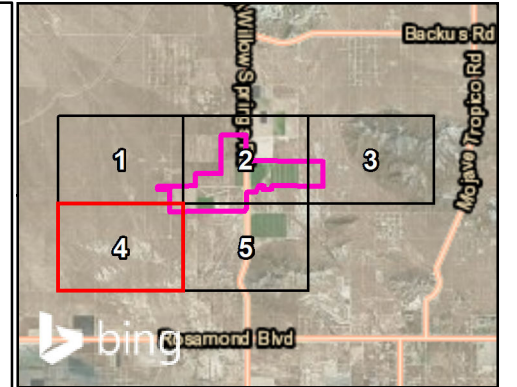
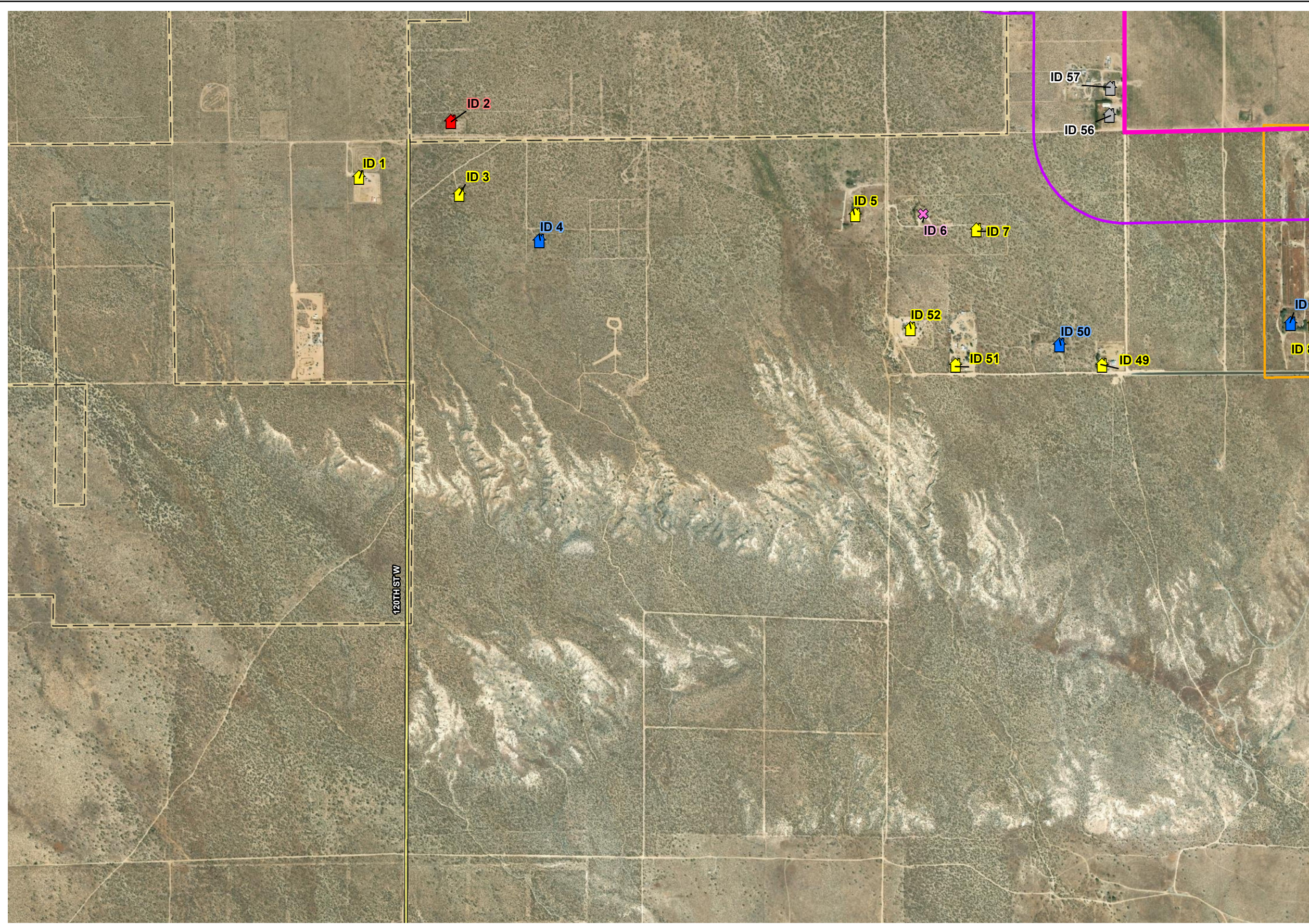


- Legend**
- Bullhead Project Boundary
  - 1,000-Foot Buffer from Project Boundary
  - Big Beau Project Boundary
  - Primary Access
  - Secondary Access
- Potential Residential Structures**
- Occupied Residential Sites
  - Residential, Vacant/Abandoned
  - Not Residential
  - No Visible Access from ROW - Assumed Occupied
  - Not Surveyed – Assumed Occupied
  - No Structure Present On Site
- Gen-tie Options**
- Rosamond Option 1
  - Rosamond Option 1 and 3
  - Rosamond Option 2
  - Rosamond Option 2 and 3
  - Rosamond Option 3
  - Rosamond Option 3.1
  - Whirlwind Option 1
  - Whirlwind Option 1.1
  - Whirlwind Option 1.2
  - Whirlwind Gen-tie Option 1 co-located with existing AVTL
- BESS/Substation Options**
- BESS/Substation Option 1
  - BESS/Substation Option 2
  - BESS/Substation Option 3

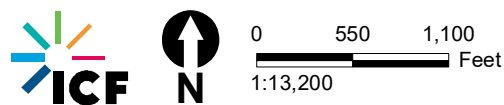




\\PDC\ITRDSGIS\2\Projects\_4\EDR\00049\_21\_Bullhead\_Solar\00049\_21\Figures\Doc\EA\Noise\AttachA\_Survey\_StructRes.mxd User: 25119 Date: 7/15/2022

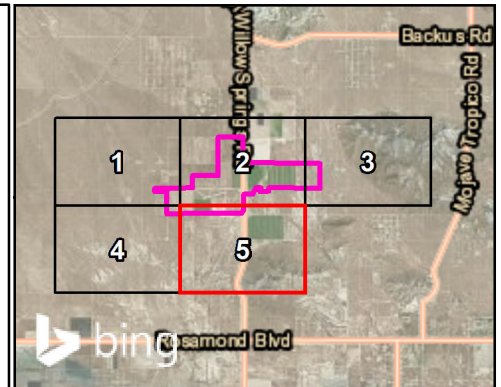
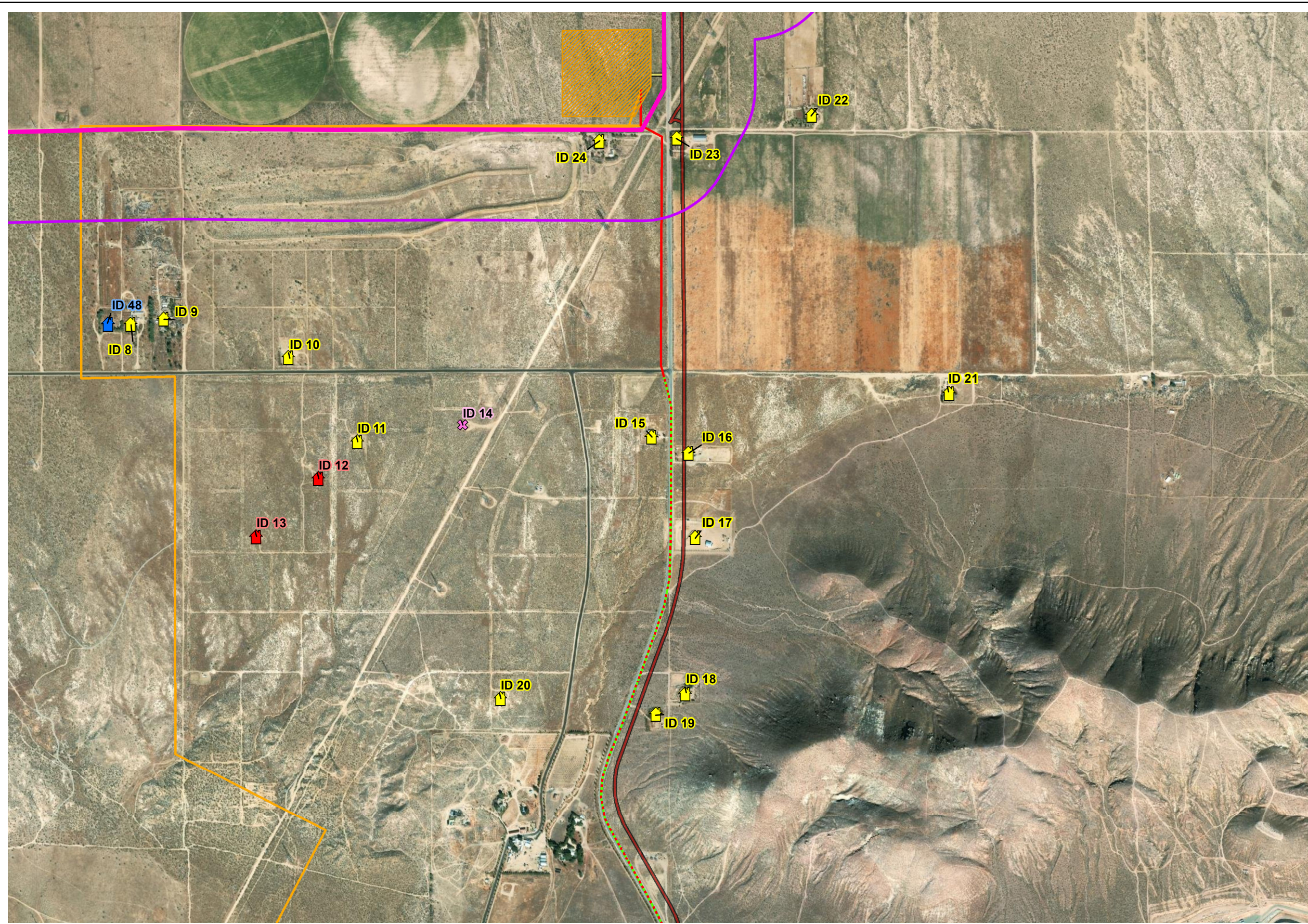


- Legend**
- Bullhead Project Boundary
  - 1,000-Foot Buffer from Project Boundary
  - Big Beau Project Boundary
  - Primary Access
  - Secondary Access
- Potential Residential Structures**
- Occupied Residential Sites
  - Residential, Vacant/Abandoned
  - Not Residential
  - No Visible Access from ROW - Assumed Occupied
  - Not Surveyed - Assumed Occupied
  - No Structure Present On Site
- Gen-tie Options**
- Rosamond Option 1
  - Rosamond Option 1 and 3
  - Rosamond Option 2
  - Rosamond Option 2 and 3
  - Rosamond Option 3
  - Rosamond Option 3.1
  - Whirlwind Option 1
  - Whirlwind Option 1.1
  - Whirlwind Option 1.2
  - Whirlwind Gen-tie Option 1 co-located with existing AVTL
- BESS/Substation Options**
- BESS/Substation Option 1
  - BESS/Substation Option 2
  - BESS/Substation Option 3

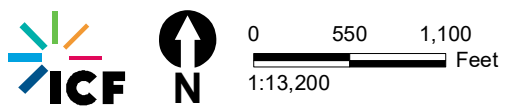




I:\Projects\4\EDR\00049\_21\Bullhead\_Solar\00049\_21\Figures\Doc\EA\Noise\AttachA\_Survey\_StructRes.mxd User: 25119 Date: 7/15/2022



- Legend**
- Bullhead Project Boundary
  - 1,000-Foot Buffer from Project Boundary
  - Big Beau Project Boundary
  - Primary Access
  - Secondary Access
- Potential Residential Structures**
- 🏠 Occupied Residential Sites
  - 🏠 Residential, Vacant/Abandoned
  - 🏠 Not Residential
  - 🏠 No Visible Access from ROW - Assumed Occupied
  - 🏠 Not Surveyed – Assumed Occupied
  - ✖ No Structure Present On Site
- Gen-tie Options**
- Rosamond Option 1
  - - - Rosamond Option 1 and 3
  - Rosamond Option 2
  - Rosamond Option 2 and 3
  - Rosamond Option 3
  - . . . Rosamond Option 3.1
  - Whirlwind Option 1
  - - - Whirlwind Option 1.1
  - . - . Whirlwind Option 1.2
  - - - Whirlwind Gen-tie Option 1 co-located with existing AVTL
- BESS/Substation Options**
- BESS/Substation Option 1
  - BESS/Substation Option 2
  - BESS/Substation Option 3









Appendix B  
**Noise Measurement Field Surveys**

---

*This page intentionally left blank.*

**FIELD NOISE MEASUREMENT DATA**

PROJECT: Big Bean PROJ. # 132.18

**SITE IDENTIFICATION:** LT1 OBSERVER(S): JLH  
 ADDRESS: \_\_\_\_\_  
 START DATE / TIME: 11/19/18 11:03 AM END DATE / TIME: 11/20/18 1:27 PM

**METEOROLOGICAL CONDITIONS:**  
 TEMP: \_\_\_\_\_ °F HUMIDITY: \_\_\_\_\_ %R.H. WIND: CALM LIGHT MODERATE VARIABLE  
 WINDSPEED: \_\_\_\_\_ MPH DIR: \_\_\_\_\_ N NE E SE S SW W NW STEADY GUSTY  
 SKY: SUNNY CLEAR OVRCAST PRTLY CLOUDY FOG RAIN OTHER: \_\_\_\_\_

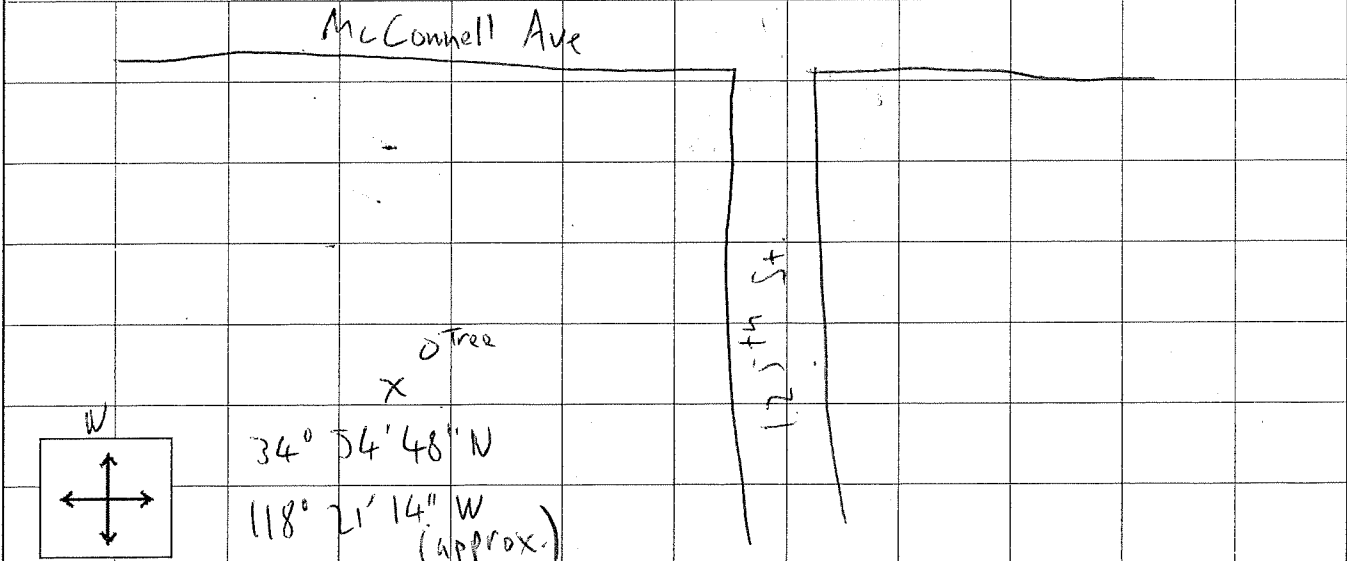
**ACOUSTIC MEASUREMENTS:**  
 INSTRUMENT: RION NL-21 TYPE: 1 (2) SERIAL #: 6887  
 CALIBRATOR: LD CAL 200 SERIAL #: 6645  
 CALIBRATION CHECK, BEFORE: 94.0 AFTER 94.1 WINDSCREEN ✓  
 SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER: \_\_\_\_\_

FILE / MEAS #	START TIME	END TIME	L <sub>eq</sub>	max	1.67	8.33	25	L	50	90	99	min
	<u>11:03 AM</u>	<u>1:27 PM</u>										
	<u>1</u>											

COMMENTS: Clear by 12:00 noon  
Arrived 1:22 PM

**NOISE SOURCE INFO:**  
 PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER: \_\_\_\_\_  
 ROADWAY TYPE: \_\_\_\_\_  
 OTHER SOURCES: DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL  
 DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER: \_\_\_\_\_

**DESCRIPTION / SKETCH:**  
 TERRAIN: HARD SOFT MIXED FLAT OTHER: \_\_\_\_\_  
 PHOTOS: ✓  
 OTHER COMMENTS / SKETCH: \_\_\_\_\_



**FIELD NOISE MEASUREMENT DATA**

PROJECT: Bullhead solar

PROJ. # 00049.21

**SITE IDENTIFICATION:** LT2 OBSERVER(S): JCR  
 ADDRESS: Near Favorito Ave and 120th St W  
 START DATE / TIME: 7/12/21 - 12:16 pm END DATE / TIME: 7/13/21 - 12:29 pm

**METEOROLOGICAL CONDITIONS:**  
 TEMP: \_\_\_\_\_ °F HUMIDITY: \_\_\_\_\_ %R.H. WIND: CALM LIGHT MODERATE VARIABLE  
 WINDSPEED: \_\_\_\_\_ MPH DIR: N NE E SE S SW W NW STEADY GUSTY  
 SKY: SUNNY CLEAR OVRCAST PRTLY CLOUDY FOG RAIN OTHER: \_\_\_\_\_

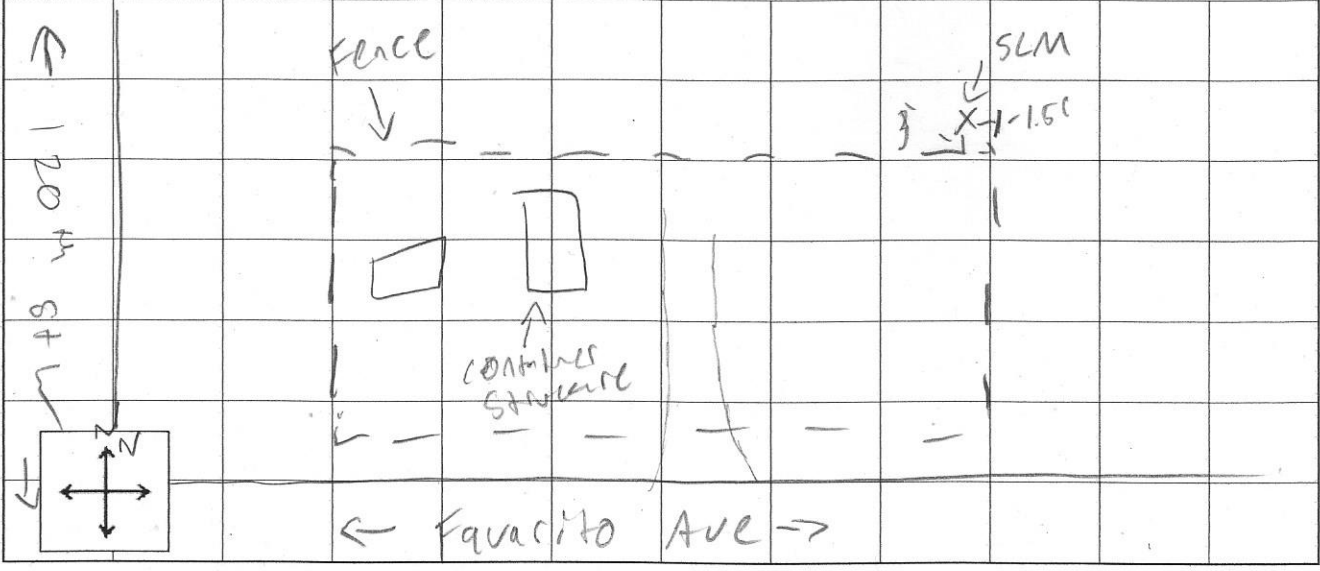
**ACOUSTIC MEASUREMENTS:**  
 INSTRUMENT: Rion NL-21 TYPE: 1 2 SERIAL #: 6887  
 CALIBRATOR: CAL 200 SERIAL #: 2916  
 CALIBRATION CHECK, BEFORE: 114.0 AFTER: 114.3 WINDSCREEN X  
 SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER: \_\_\_\_\_

FILE / MEAS #	START TIME	END TIME	L <sub>eq</sub>	max	1.67	8.33	25	L	50	90	99	min

COMMENTS: 7/12/21 - Started: 12:16 pm, Cleared: 12:22 pm  
7/13/21 - Arrived: 12:25 pm, Stopped: 12:29 pm

**NOISE SOURCE INFO:**  
 PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER: \_\_\_\_\_  
 ROADWAY TYPE: \_\_\_\_\_  
 OTHER SOURCES: DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL  
DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER:

**DESCRIPTION / SKETCH:**  
 TERRAIN: HARD SOFT MIXED FLAT OTHER: \_\_\_\_\_  
 PHOTOS: \_\_\_\_\_  
 OTHER COMMENTS / SKETCH: \_\_\_\_\_



# FIELD NOISE MEASUREMENT DATA

PROJECT: Bullhead Solar

PROJ. # 00049.21

<b>SITE IDENTIFICATION:</b> <u>LT 2</u>	OBSERVER(S): <u>JCR</u>
ADDRESS: <u>Near 5792 Tehachapi willow spring Rd, Rosamond, CA 93560</u>	
START DATE / TIME: <u>7/12/21</u>	END DATE / TIME: <u>7/13/21</u>

**METEOROLOGICAL CONDITIONS:**

TEMP: \_\_\_\_\_ °F      HUMIDITY: \_\_\_\_\_ %R.H.      WIND: CALM LIGHT MODERATE VARIABLE

WINDSPEED: \_\_\_\_\_ MPH      DIR: N NE E SE S SW W NW      STEADY GUSTY

SKY: SUNNY CLEAR      OVRCAST      PRTLY CLOUDY      FOG      RAIN      OTHER: \_\_\_\_\_

**ACOUSTIC MEASUREMENTS:**

INSTRUMENT: piccolo B      TYPE: 1 2      SERIAL #: 1204

CALIBRATOR: LD CAL 200      SERIAL #: 2916

CALIBRATION CHECK, BEFORE: 94.0 AFTER 93.9 WINDSCREEN X

SETTINGS: A-WEIGHTED      SLOW      FAST      FRONTAL      RANDOM      ANSI      OTHER: \_\_\_\_\_

FILE / MEAS #	START TIME	END TIME	L <sub>eq</sub>	max	1.67	8.33	25	L	50	90	99	min

COMMENTS: \_\_\_\_\_

\_\_\_\_\_

**NOISE SOURCE INFO:**

PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT      OTHER: \_\_\_\_\_

ROADWAY TYPE: \_\_\_\_\_

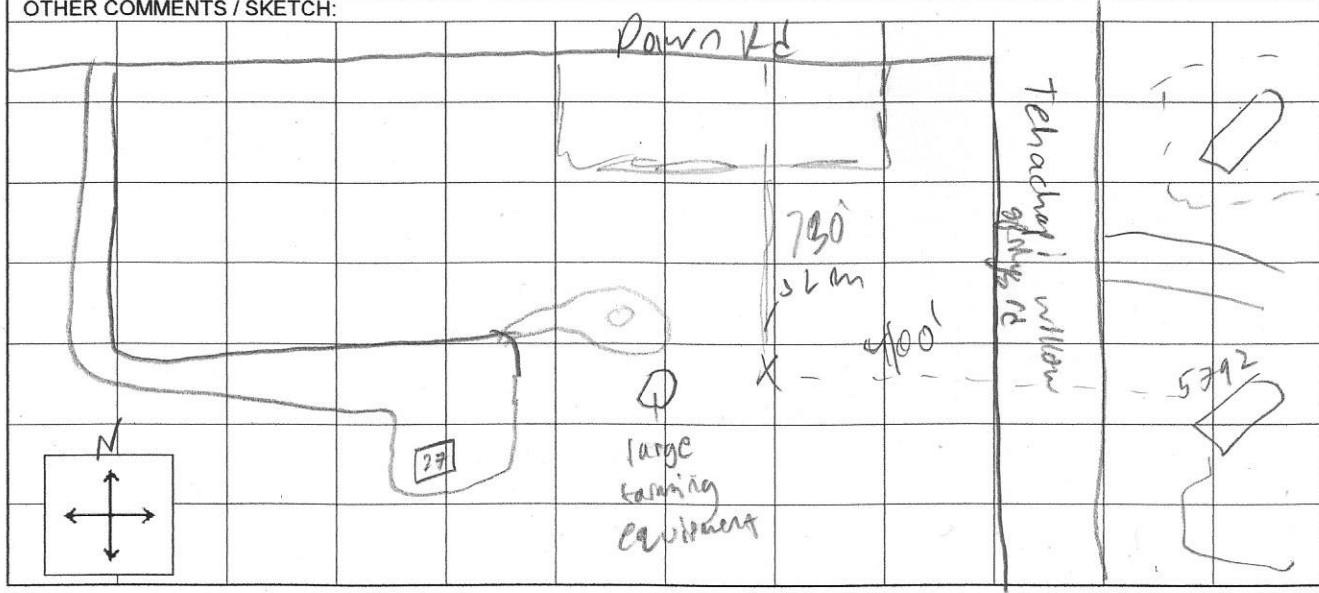
OTHER SOURCES: DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL  
DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER:

**DESCRIPTION / SKETCH:**

TERRAIN: HARD SOFT MIXED FLAT      OTHER: \_\_\_\_\_

PHOTOS: \_\_\_\_\_

OTHER COMMENTS / SKETCH: \_\_\_\_\_



**FIELD NOISE MEASUREMENT DATA**

PROJECT: Bull head solar PROJ. # 00049.21

**SITE IDENTIFICATION:** LT 4 OBSERVER(S): JCK  
 ADDRESS: Near 5488 Tehachapi willow springs rd, Rossmore, IA 43560  
 START DATE / TIME: 7/12/21 END DATE / TIME: 7/13/21

**METEOROLOGICAL CONDITIONS:**  
 TEMP: \_\_\_\_\_ °F HUMIDITY: \_\_\_\_\_ %R.H. WIND: CALM LIGHT MODERATE VARIABLE  
 WINDSPEED: \_\_\_\_\_ MPH DIR: N NE E SE S SW W NW STEADY GUSTY  
 SKY: SUNNY CLEAR OVRCAST PRTLY CLOUDY FOG RAIN OTHER: \_\_\_\_\_

**ACOUSTIC MEASUREMENTS:**  
 INSTRUMENT: RION NL-22 TYPE: 1 2 SERIAL #: 3232  
 CALIBRATOR: LD CAL 200 SERIAL #: 2916  
 CALIBRATION CHECK, BEFORE: 114.0 AFTER 114.0 WINDSCREEN X  
 SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER: \_\_\_\_\_

FILE / MEAS #	START TIME	END TIME	L <sub>eq</sub>	max	1.67	8.33	25	L	50	90	99	min

COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**NOISE SOURCE INFO:**  
 PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER: \_\_\_\_\_  
 ROADWAY TYPE: \_\_\_\_\_  
 OTHER SOURCES: DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL  
DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER:

**DESCRIPTION / SKETCH:**  
 TERRAIN: HARD SOFT MIXED FLAT OTHER: \_\_\_\_\_  
 PHOTOS: \_\_\_\_\_  
 OTHER COMMENTS / SKETCH: \_\_\_\_\_



**FIELD NOISE MEASUREMENT DATA**

PROJECT: Big Bean PROJ. # 132.18

**SITE IDENTIFICATION:** ST6 OBSERVER(S): JLH  
 ADDRESS: \_\_\_\_\_  
 START DATE / TIME: 11/20/18 12:24pm END DATE / TIME: 11/20/18 12:39pm

**METEOROLOGICAL CONDITIONS:**  
 TEMP: 51 °F HUMIDITY: 4 %R.H. WIND: CALM LIGHT MODERATE VARIABLE  
 WINDSPEED: 0-4 MPH DIR: N NE E SE S SW W NW STEADY GUSTY  
 SKY: SUNNY CLEAR OVRCAST PRTLY CLOUDY FOG RAIN OTHER: \_\_\_\_\_

**ACOUSTIC MEASUREMENTS:**  
 INSTRUMENT: LD 831 TYPE: (1) 2 SERIAL #: 3786  
 CALIBRATOR: LD CAL200 SERIAL #: 6645  
 CALIBRATION CHECK, BEFORE: 114.0 AFTER: 114.01 WINDSCREEN ✓  
 SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER: \_\_\_\_\_

FILE / MEAS #	START TIME	END TIME	L <sub>eq</sub>	max	1.67	8.33	25	L	50	90	99	min
648	12:24p	12:39p	30.1	47.2	38.4	34.2	29.3	26.0	23.7	22.8	20.9	

COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**NOISE SOURCE INFO:**  
 PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER: \_\_\_\_\_  
 ROADWAY TYPE: \_\_\_\_\_  
 OTHER SOURCES: AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL  
 DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER:  
Close aircraft passed out. Low constant buzz from solar

**DESCRIPTION / SKETCH:**  
 TERRAIN: HARD SOFT MIXED FLAT OTHER: \_\_\_\_\_  
 PHOTOS: ✓  
 OTHER COMMENTS / SKETCH:

34.9216 010,  
 -118.3355162  
 (approx)

Existing solar

---

Champagne Ave

x

Gate

Fenced lot w/ house



# FIELD NOISE MEASUREMENT DATA

PROJECT: Bullhead Solar

PROJ. # 00049.21

**SITE IDENTIFICATION:** ST 2 OBSERVER(S): JCR  
 ADDRESS: near Tehachapi US & Highgate  
 START DATE / TIME: 7/13/21 - 10:11 AM END DATE / TIME: 7/13/21 - 10:31 AM

**METEOROLOGICAL CONDITIONS:**  
 TEMP: 99 °F HUMIDITY: 16 %R.H. WIND: CALM LIGHT MODERATE VARIABLE  
 WINDSPEED: 6.7 MPH DIR: N NE E SE S SW W NW STEADY GUSTY  
 SKY: SUNNY CLEAR OVRCAST PRTLY CLOUDY FOG RAIN OTHER:

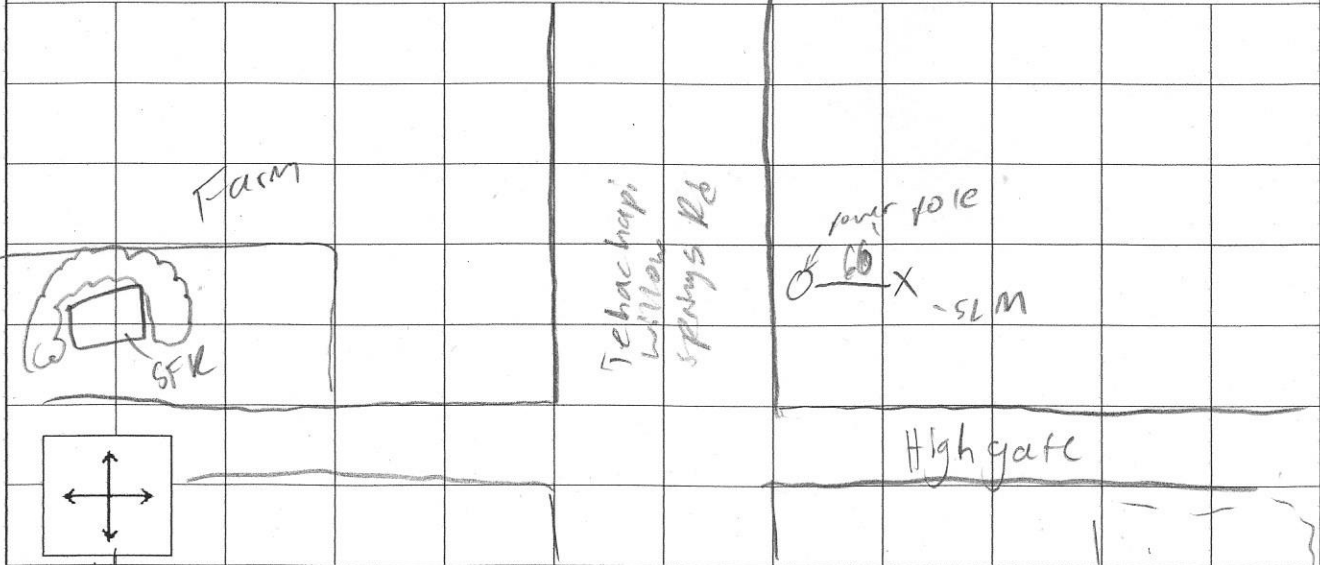
**ACOUSTIC MEASUREMENTS:**  
 INSTRUMENT: LP 831 TYPE: 1 2 SERIAL #: 3786  
 CALIBRATOR: LD CAL 200 SERIAL #: 2916  
 CALIBRATION CHECK, BEFORE: 114.0 AFTER 113.9 WINDSCREEN X  
 SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER:

FILE / MEAS #	START TIME	END TIME	L									
			L <sub>eq</sub>	max	1.67	8.33	25	50	90	99	min	
367	10:11 AM	10:31 AM	54.2	70.8	64.6	60.1	49.5	40.5	30.6	27.8	26.4	

COMMENTS:

**NOISE SOURCE INFO:**  
 PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER:  
 ROADWAY TYPE:  
 OTHER SOURCES: DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL  
DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER:

**DESCRIPTION / SKETCH:**  
 TERRAIN: HARD SOFT MIXED FLAT OTHER:  
 PHOTOS:  
 OTHER COMMENTS / SKETCH:



# FIELD NOISE MEASUREMENT DATA

PROJECT: Bull head solar PROJ. # 00049.21

**SITE IDENTIFICATION:** ST 3 OBSERVER(S): JCK  
 ADDRESS: NEAR 6195 105th St W, Rossmore, CA 93560  
 START DATE / TIME: 7/13/21 - 11:01 END DATE / TIME: 7/13/21 - 11:21

**METEOROLOGICAL CONDITIONS:**  
 TEMP: 101 °F HUMIDITY: 12 %R.H. WIND: CALM LIGHT MODERATE VARIABLE  
 WINDSPEED: 4-4 MPH DIR: N NE E SE S SW W NW STEADY GUSTY  
 SKY: SUNNY CLEAR OVRCAST PRTLY CLOUDY FOG RAIN OTHER:

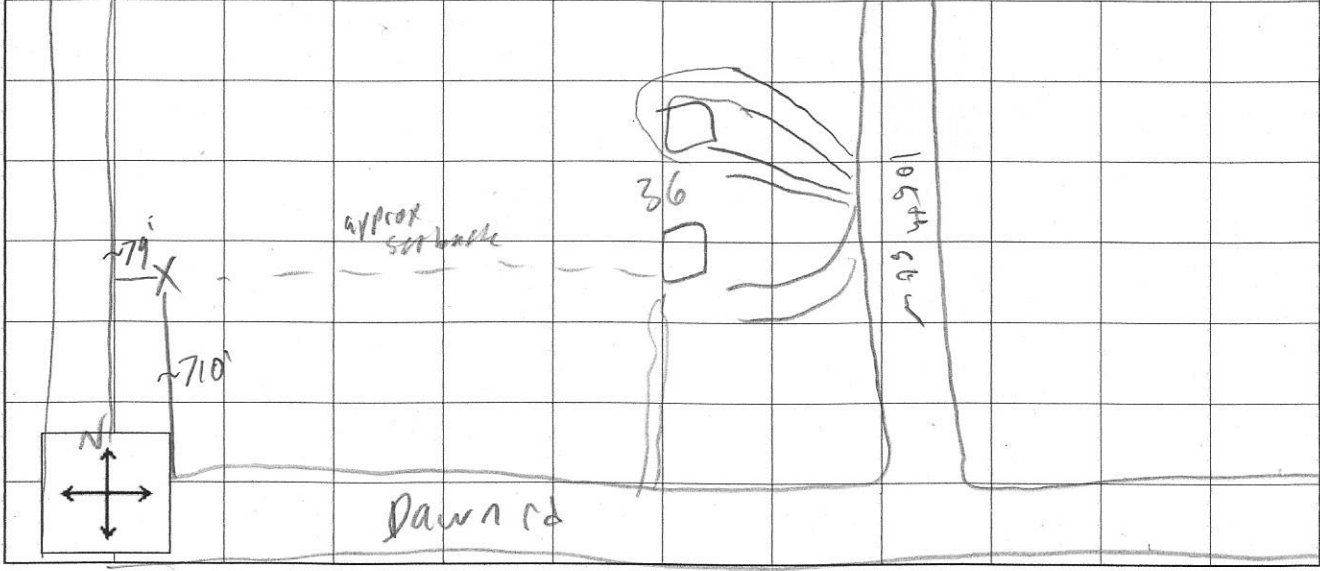
**ACOUSTIC MEASUREMENTS:**  
 INSTRUMENT: LD 831 TYPE: 1 2 SERIAL #: 3786  
 CALIBRATOR: LD CAL 200 SERIAL #: 2916  
 CALIBRATION CHECK, BEFORE: 114.0 AFTER: 114.1 WINDSCREEN X  
 SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER:

FILE / MEAS #	START TIME	END TIME	L									
			L <sub>eq</sub>	max	1.67	8.33	25	50	90	99	min	
1368	11:01	11:21	30.6	45.4	41.1	35.0	28.6	24.0	21.5	20.8	20.5	

COMMENTS:

**NOISE SOURCE INFO:**  
 PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER:  
 ROADWAY TYPE:  
 OTHER SOURCES: DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL  
 DIST. CHILDREN-PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER:

**DESCRIPTION / SKETCH:**  
 TERRAIN: HARD SOFT MIXED FLAT OTHER:  
 PHOTOS:  
 OTHER COMMENTS / SKETCH:



**FIELD NOISE MEASUREMENT DATA**

PROJECT: Bullhead solar

PROJ. # 00099.21

**SITE IDENTIFICATION:** St 4 OBSERVER(S): JCR  
 ADDRESS: near 7202 Dawn St  
 START DATE / TIME: 7/12/21 - 1:30 pm END DATE / TIME: 7/12/21 - 2:10 pm

**METEOROLOGICAL CONDITIONS:**  
 TEMP: 109 °F HUMIDITY: 15 %R.H. WIND: CALM LIGHT MODERATE VARIABLE  
 WINDSPEED: 7-9 MPH DIR: N NE E SE S SW W NW STEADY GUSTY  
 SKY: SUNNY CLEAR OVRCAST PRTL Y CLOUDY FOG RAIN OTHER:

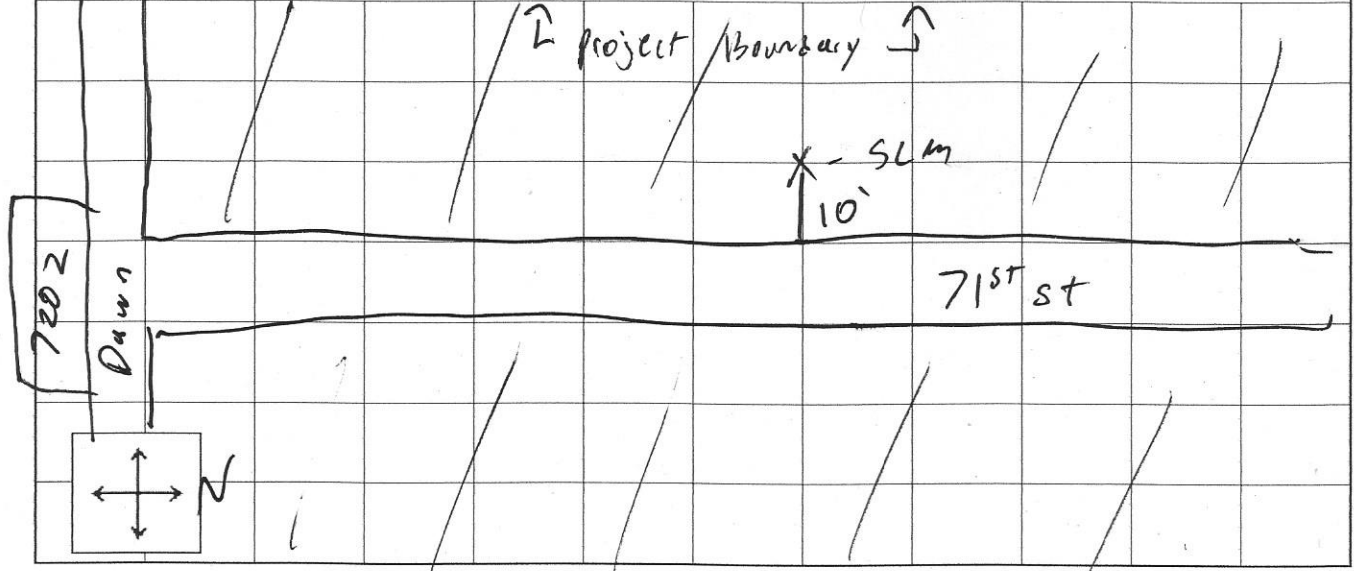
**ACOUSTIC MEASUREMENTS:**  
 INSTRUMENT: LD 831 TYPE: D 2 SERIAL #: 3786  
 CALIBRATOR: LD CAL 200 SERIAL #: 2816  
 CALIBRATION CHECK, BEFORE: 114.0 AFTER: 114.0 WINDSCREEN X  
 SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER:

FILE / MEAS #	START TIME	END TIME	L									
			L <sub>eq</sub>	max	1.67	8.33	25	50	90	99	min	
<u>363</u>	<u>1:50 pm</u>	<u>2:10 pm</u>	<u>42.3</u>	<u>60.7</u>	<u>50.8</u>	<u>46.8</u>	<u>42.9</u>	<u>37.9</u>	<u>31.5</u>	<u>26.6</u>	<u>26.6</u>	

COMMENTS: 2 aircraft flyovers

**NOISE SOURCE INFO:**  
 PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER:  
 ROADWAY TYPE:  
 OTHER SOURCES: DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL  
 DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER:

**DESCRIPTION / SKETCH:**  
 TERRAIN: HARD SOFT MIXED FLAT OTHER:  
 PHOTOS:  
 OTHER COMMENTS / SKETCH:



**FIELD NOISE MEASUREMENT DATA**

PROJECT: Big Bean PROJ. # 13218

**SITE IDENTIFICATION:** ST7 OBSERVER(S): JLH  
 ADDRESS: \_\_\_\_\_  
 START DATE / TIME: 11/20/18 11:38 AM END DATE / TIME: 11/20/18 11:53 AM

**METEOROLOGICAL CONDITIONS:**  
 TEMP: 71 °F HUMIDITY: 6 %R.H. WIND: CALM LIGHT MODERATE VARIABLE  
 WINDSPEED: 0-6 MPH DIR: N NE (E) SE S SW W NW STEADY GUSTY  
 SKY: SUNNY CLEAR OVRCAST PRTLY CLOUDY FOG RAIN OTHER: \_\_\_\_\_

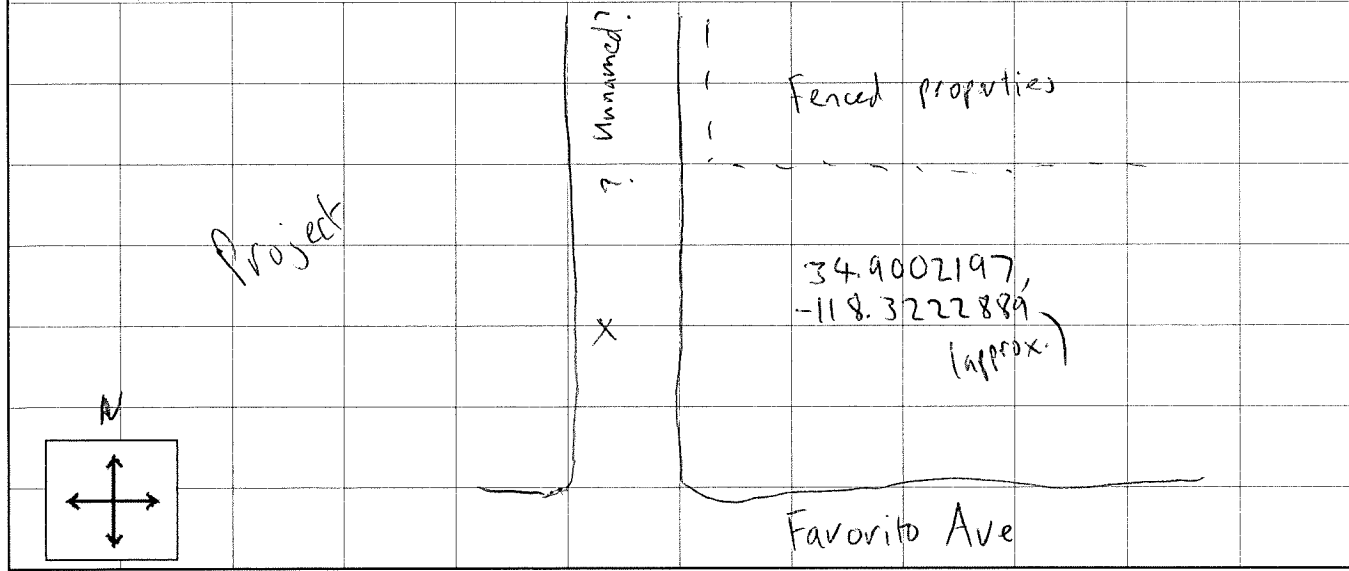
**ACOUSTIC MEASUREMENTS:**  
 INSTRUMENT: LD 831 TYPE: (1) 2 SERIAL #: 6887  
 CALIBRATOR: LD CAL 200 SERIAL #: 6645  
 CALIBRATION CHECK, BEFORE: 114.0 AFTER 113.96 WINDSCREEN ✓  
 SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM (ANS) OTHER: \_\_\_\_\_

FILE / MEAS #	START TIME	END TIME	L <sub>eq</sub>	max	1.67	8.33	25	L	50	90	99	min
647	11:38A	11:53A	32.1	44.4	42.3	35.9	31.4	27.1	22.3	21.0	20.4	
										Below range		

COMMENTS: Helicopter passed out

**NOISE SOURCE INFO:**  
 PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL (A) AMBIENT OTHER: \_\_\_\_\_  
 ROADWAY TYPE: \_\_\_\_\_  
 OTHER SOURCES: (A) DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL  
DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER:  
Some peak in distant aircraft noise included in data (take off noise?)

**DESCRIPTION / SKETCH:**  
 TERRAIN: HARD SOFT MIXED FLAT OTHER: \_\_\_\_\_  
 PHOTOS: ✓  
 OTHER COMMENTS / SKETCH: \_\_\_\_\_



# FIELD NOISE MEASUREMENT DATA

PROJECT: Bullhead solar

PROJ. # 00049.21

**SITE IDENTIFICATION:** St 6 **OBSERVER(S):** JCR  
**ADDRESS:** near 10085 Han, Han Rd, Rosamond, CA 93560  
**START DATE / TIME:** 7/13/21 - 8:12 AM **END DATE / TIME:** 7/13/21 - 8:32 AM

**METEOROLOGICAL CONDITIONS:**  
 TEMP: 84 °F HUMIDITY: 28 %R.H. WIND: CALM LIGHT MODERATE VARIABLE  
 WINDSPEED: 4-6 MPH DIR: N NE E SE S SW W NW STEADY GUSTY  
 SKY: SUNNY CLEAR OVRCAST PRTLY CLOUDY FOG RAIN OTHER:

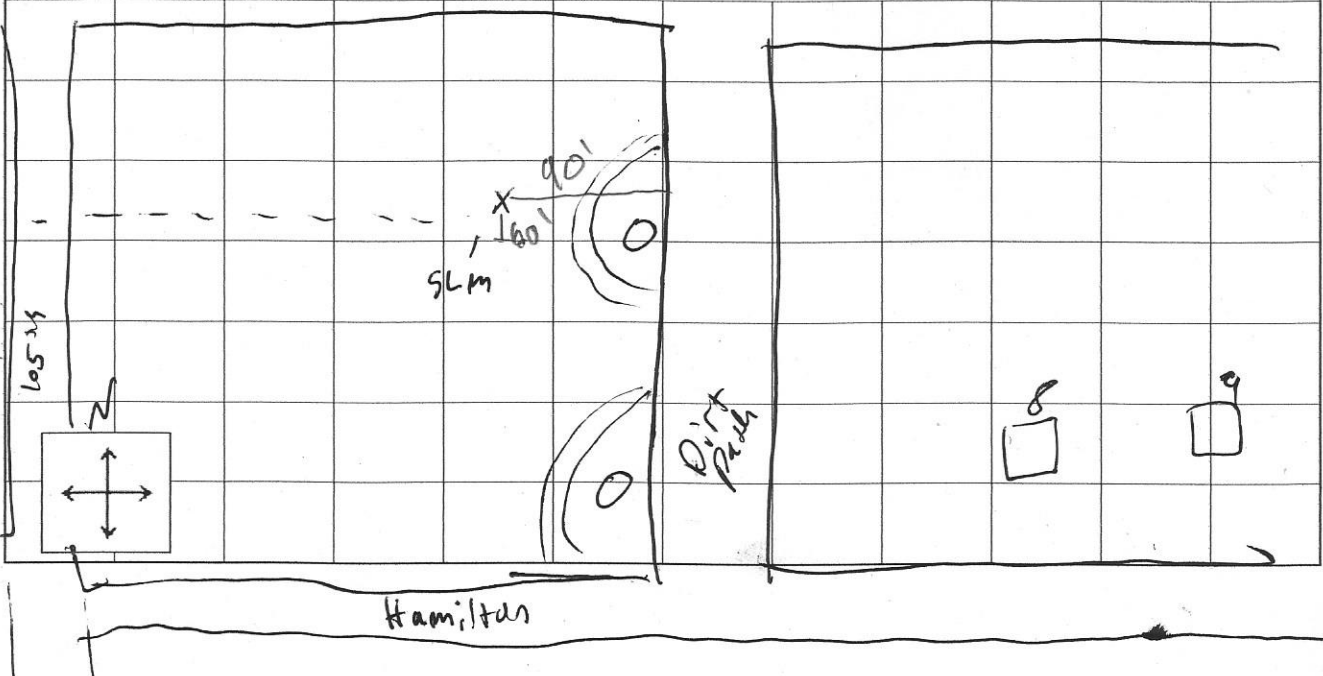
**ACOUSTIC MEASUREMENTS:**  
 INSTRUMENT: LD 831 TYPE 2 SERIAL #: 3786  
 CALIBRATOR: LD CAL 200 SERIAL #: 2916  
 CALIBRATION CHECK, BEFORE: 114.0 AFTER 114.0 WINDSCREEN X  
 SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSD OTHER:

FILE / MEAS #	START TIME	END TIME	L <sub>eq</sub>	max	1.67	8.33	25	L	50	90	99	min
<u>364</u>	<u>8:12 AM</u>	<u>8:32 AM</u>	<u>30.6</u>	<u>47.0</u>	<u>34.3</u>	<u>34.1</u>	<u>28.7</u>		<u>24.8</u>	<u>25.2</u>	<u>24.5</u>	<u>24.0</u>

COMMENTS:

**NOISE SOURCE INFO:**  
 PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER:  
 ROADWAY TYPE:  
 OTHER SOURCES: DIST AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL  
 DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER:

**DESCRIPTION / SKETCH:**  
 TERRAIN: HARD SOFT MIXED FLAT OTHER:  
 PHOTOS:  
 OTHER COMMENTS / SKETCH:



**FIELD NOISE MEASUREMENT DATA**

PROJECT: Big Bean PROJ. # 132.18

**SITE IDENTIFICATION:** ST 8 **OBSERVER(S):** JLH  
**ADDRESS:** \_\_\_\_\_  
**START DATE / TIME:** 11/20/18 ~~11:18 AM~~ 10:58 AM **END DATE / TIME:** 11/20/18 11:13 AM

**METEOROLOGICAL CONDITIONS:**  
 TEMP: 70 °F HUMIDITY: 6 %R.H. WIND: CALM LIGHT MODERATE VARIABLE  
 WINDSPEED: 0-4 MPH DIR: N NE (E) SE S SW W NW STEADY GUSTY  
 SKY: SUNNY CLEAR OVRCAST PRTLY CLOUDY FOG RAIN OTHER: \_\_\_\_\_

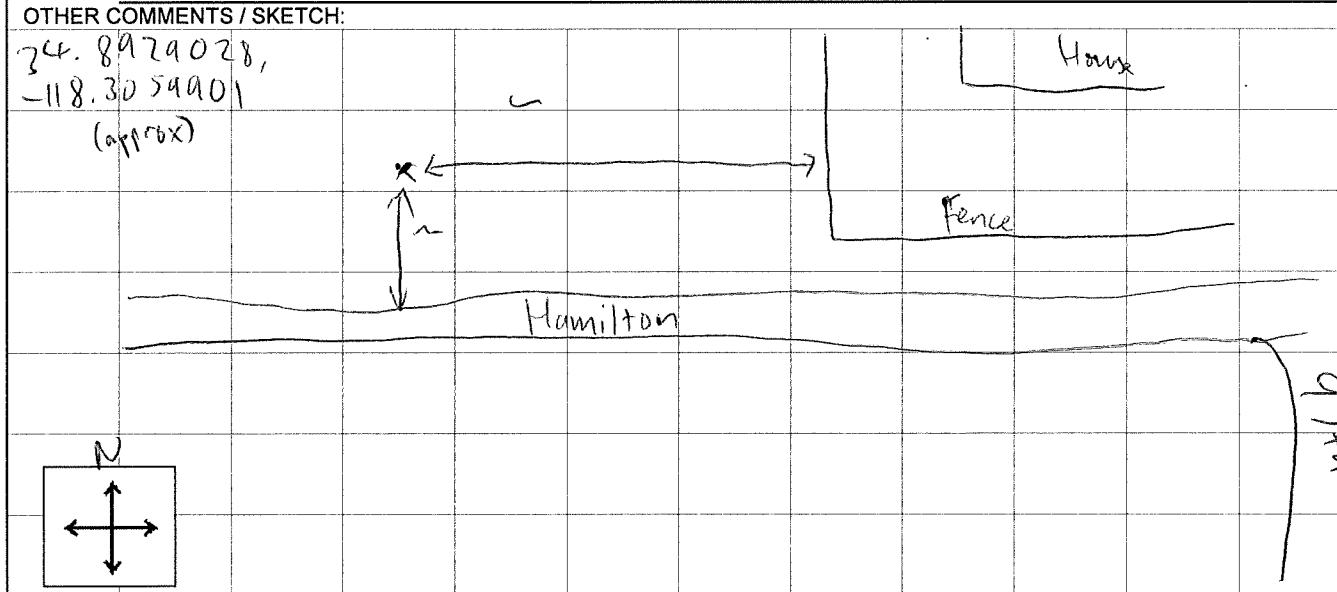
**ACOUSTIC MEASUREMENTS:**  
 INSTRUMENT: LD 831 TYPE: (1) 2 SERIAL #: 6887  
 CALIBRATOR: LD CAL 200 SERIAL #: 6645  
 CALIBRATION CHECK, BEFORE: 114.0 AFTER: 113.95 WINDSCREEN ✓  
 SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM (ANSI) OTHER: \_\_\_\_\_

FILE / MEAS #	START TIME	END TIME	L <sub>eq</sub>	max	1.67	8.33	25	L	50	90	99	min
646	10:58A	11:13A	28.2	45.0	38.1	30.7	27.2	24.7	21.8	20.3	20.0	

COMMENTS: Nearby aircraft passed out, No traffic occurred in Hamilton

**NOISE SOURCE INFO:**  
 PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL (AMBIENT) OTHER: \_\_\_\_\_  
 ROADWAY TYPE: \_\_\_\_\_  
 OTHER SOURCES: DIST AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL  
DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER: \_\_\_\_\_  
Traffic to east clearly audible

**DESCRIPTION / SKETCH:**  
 TERRAIN: HARD (SOFT) MIXED FLAT OTHER: \_\_\_\_\_  
 PHOTOS: ✓  
 OTHER COMMENTS / SKETCH: \_\_\_\_\_





# FIELD NOISE MEASUREMENT DATA

PROJECT: Bullhead Solar PROJ. # 0004921

**SITE IDENTIFICATION:** ST 8 **OBSERVER(S):** SCR  
**ADDRESS:** Near 4890 90th St, Rosamond, CA 93560  
**START DATE / TIME:** 7/13/21 - 9:35 Am **END DATE / TIME:** 7/13/21 - 9:55 Am

**METEOROLOGICAL CONDITIONS:**  
 TEMP: 91 °F HUMIDITY: 22 %R.H. WIND: CALM LIGHT MODERATE VARIABLE  
 WINDSPEED: 6-8 MPH DIR: N NE E SE S SW W NW STEADY GUSTY  
 SKY: SUNNY CLEAR OVRCAST PRTLY CLOUDY FOG RAIN OTHER: \_\_\_\_\_

**ACOUSTIC MEASUREMENTS:**  
 INSTRUMENT: LD 831 TYPE: 1 2 SERIAL #: 3786  
 CALIBRATOR: LD CAL 200 SERIAL #: 2916  
 CALIBRATION CHECK, BEFORE: 114.0 AFTER: 113.8 WINDSCREEN X  
 SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER: \_\_\_\_\_

FILE / MEAS #	START TIME	END TIME	L <sub>eq</sub>	max	1.67	8.33	25	L	50	90	99	min
<u>366</u>	<u>9:35am</u>	<u>9:55am</u>	<u>31.5</u>	<u>51.4</u>	<u>38.2</u>	<u>35.1</u>	<u>31.9</u>	<u>29.1</u>	<u>24.7</u>	<u>22.5</u>	<u>22.2</u>	

COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**NOISE SOURCE INFO:**  
 PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER: \_\_\_\_\_  
 ROADWAY TYPE: \_\_\_\_\_  
 OTHER SOURCES: DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL  
DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER: \_\_\_\_\_

**DESCRIPTION / SKETCH:**  
 TERRAIN: HARD SOFT MIXED FLAT OTHER: \_\_\_\_\_  
 PHOTOS: \_\_\_\_\_  
 OTHER COMMENTS / SKETCH: \_\_\_\_\_





Appendix C

# Construction, Operational, and Traffic Noise Levels

---

*This page intentionally left blank.*

**Table 3. Construction Noise Analysis - New Access Road Construction**

Equipment		Typical Level @ 50', dBA <sup>1</sup>	Usage Factor <sup>1,2</sup>	Number of Units	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq(h), dBA
Item No.	Description							
23	Grader	85	0.4	6	50	hard	0	89
72	Off-Highway Truck	76.5	0.4	7	50	hard	0	81
1	All Other Equipment > 5 HP	85	0.5	3	50	hard	0	87
73	Carts/ATVs	75	0.4	2	50	hard	0	74
44	Roller	80	0.2	6	50	hard	0	81
13	Dozer	81.7	0.4	4	50	hard	0	84
51	Scraper	83.6	0.4	4	50	hard	0	86
	<b>Combined Equipment</b>							<b>93</b>

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

**Table 4. Construction Noise Analysis - Internal Roads Construction**

Equipment		Typical Level @ 50', dBA <sup>1</sup>	Usage Factor <sup>1,2</sup>	Number of Units	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq(h), dBA
Item No.	Description							
23	Grader	85	0.4	4	50	hard	0	87
72	Off-Highway Truck	76.5	0.4	5	50	hard	0	80
73	Carts/ATVs	75	0.4	2	50	hard	0	74
44	Roller	80	0.2	4	50	hard	0	79
2	Backhoe	77.6	0.4	4	50	hard	0	80
	<b>Combined Equipment</b>							<b>89</b>

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

**Table 5. Construction Noise Analysis - Solar Array Structural, Underground and Panel, and Battery Installation**

Equipment		Typical Level @ 50', dBA <sup>1</sup>	Usage Factor <sup>1,2</sup>	Number of Units	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq(h), dBA
Item No.	Description							
70	Forklift	74.7	0.2	8	50	hard	0	77
20	Generator	80.6	0.5	15	50	hard	0	89
72	Off-Highway Truck	76.5	0.4	5	50	hard	0	80
73	Carts/ATVs	75	0.4	9	50	hard	0	81
44	Roller	80	0.2	3	50	hard	0	78
75	Skid Steer Loader	77.6	0.4	12	50	hard	0	84
76	Post Driver	88	0.2	15	50	hard	0	93
2	Backhoe	77.6	0.4	3	50	hard	0	78
74	Trencher	80.4	0.5	7	50	hard	0	86
	<b>Combined Equipment</b>							<b>96</b>

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

**Table 6. Construction Noise Analysis - Electrical Substation and Microwave Tower Construction**

Equipment		Typical Level @ 50', dBA <sup>1</sup>	Usage Factor <sup>1,2</sup>	Number of Units	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq(h), dBA
Item No.	Description							
71	Aerial Lift	74.7	0.2	4	50	hard	0	74
12	Crane	80.6	0.16	3	50	hard	0	77
70	Forklift	74.7	0.2	3	50	hard	0	72
72	Off-Highway Truck	76.5	0.4	2	50	hard	0	76
73	Carts/ATVs	75	0.4	2	50	hard	0	74
2	Backhoe	77.6	0.4	7	50	hard	0	82
55	Slurry Trenching Machine	80.4	0.5	7	50	hard	0	86
	<b>Combined Equipment</b>							<b>88</b>

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

**Table 8. Construction Noise Analysis - Generation Tie Line Construction**

Equipment		Typical Level @ 50', dBA <sup>1</sup>	Usage Factor <sup>1,2</sup>	Number of Units	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq(h), dBA
Item No.	Description							
71	Aerial Lift	74.7	0.2	4	50	hard	0	74
12	Crane	80.6	0.16	4	50	hard	0	79
60	Tractor	84	0.4	3	50	hard	0	85
70	Forklift	74.7	0.2	3	50	hard	0	72
20	Generator	80.6	0.5	3	50	hard	0	82
72	Off-Highway Truck	76.5	0.4	3	50	hard	0	77
73	Carts/ATVs	75	0.4	2	50	hard	0	74
2	Backhoe	77.6	0.4	4	50	hard	0	80
	<b>Combined Equipment</b>							<b>89</b>

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use



**Table 9. Construction Noise Analysis Data/Assumptions**

Acreage: 1905

Construction Phase	Leq(h), dBA at 50			
	feet	Start Date	End Date	Workdays/ Week
Move On	93	1/1/2024	1/31/2024	5
Site Prep & Grading	94	1/1/2024	6/2/2024	5
New Access Rd.	93	1/1/2024	4/2/2024	5
Internal Rds.	89	1/1/2024	4/2/2024	5
Solar Install	96	1/1/2024	1/1/2025	5
Elec Sub & Tower	88	1/1/2024	4/1/2024	5
Gen-Tie	89	1/1/2024	4/30/2024	5

**Assumed Daily Work Area:**

Acres	Square Feet
4	174240

Work area side length: 417 feet

**Applicable Construction**

Noise standard:	Kern County	Rosamond
	N/A	N/A

Dist. Attenuation Coefficient: 25

**Table 10. Construction Noise Levels at Analyzed Receivers**

Receiver	Construction Phase	Closest Approximate Distance (ft)	Furthest Approximate Distance (ft)	Acoustical Average Distance	Ref. Noise Level @ 50ft.	Dist. Excess Attenuation	Barrier Attenuation	Construction Noise Level (Leq, dBA)
SR-3	Move On	7,345	7,762	7551	93	0	0	39
SR-3	Site Prep & Grading	7,345	7,762	7551	94	0	0	40
SR-3	New Access Rd.	535	535	535	93	0	0	68
SR-3	Internal Rds.	7,345	7,762	7551	89	0	0	35
SR-3	Solar Install	7,345	7,762	7551	96	0	0	41
SR-3	Elec Sub & Tower	8,875	9,980	9411	88	0	0	32
SR-3	Gen-Tie	4,915	4,915	4915	89	0	0	39
SR-5	Move On	3,090	3,507	3292	93	0	0	48
SR-5	Site Prep & Grading	3,090	3,507	3292	94	0	0	49
SR-5	New Access Rd.	4,870	4,870	4870	93	0	0	44
SR-5	Internal Rds.	3,090	3,507	3292	89	0	0	44
SR-5	Solar Install	3,090	3,507	3292	96	0	0	50
SR-5	Elec Sub & Tower	4,985	6,165	5544	88	0	0	37
SR-5	Gen-Tie	3,440	3,440	3440	89	0	0	43
SR-8	Move On	2,000	2,417	2199	93	0	0	52
SR-8	Site Prep & Grading	2,000	2,417	2199	94	0	0	53
SR-8	New Access Rd.	9,905	9,905	9905	93	0	0	36
SR-8	Internal Rds.	2,000	2,417	2199	89	0	0	48
SR-8	Solar Install	2,000	2,417	2199	96	0	0	55
SR-8	Elec Sub & Tower	3,830	4,695	4241	88	0	0	40
SR-8	Gen-Tie	535	535	535	89	0	0	63
SR-15	Move On	3,300	3,717	3502	93	0	0	47
SR-15	Site Prep & Grading	3,300	3,717	3502	94	0	0	48
SR-15	New Access Rd.	15,605	15,605	15605	93	0	0	31
SR-15	Internal Rds.	3,300	3,717	3502	89	0	0	43
SR-15	Solar Install	3,300	3,717	3502	96	0	0	50
SR-15	Elec Sub & Tower	3,460	4,500	3946	88	0	0	41
SR-15	Gen-Tie	205	205	205	89	0	0	73
SR-21	Move On	4,245	4,662	4449	93	0	0	45
SR-21	Site Prep & Grading	4,245	4,662	4449	94	0	0	45
SR-21	New Access Rd.	18,800	18,800	18800	93	0	0	29
SR-21	Internal Rds.	4,245	4,662	4449	89	0	0	40
SR-21	Solar Install	4,245	4,662	4449	96	0	0	47
SR-21	Elec Sub & Tower	4,565	5,800	5146	88	0	0	38
SR-21	Gen-Tie	2,970	2,970	2970	89	0	0	44

SR-22	Move On	1,600	2,017	1797	93	0	0	54
SR-22	Site Prep & Grading	1,600	2,017	1797	94	0	0	55
SR-22	New Access Rd.	17,405	17,405	17405	93	0	0	30
SR-22	Internal Rds.	1,600	2,017	1797	89	0	0	50
SR-22	Solar Install	1,600	2,017	1797	96	0	0	57
SR-22	Elec Sub & Tower	1,760	2,890	2255	88	0	0	47
SR-22	Gen-Tie	1,620	1,620	1620	89	0	0	51
SR-23	Move On	360	777	529	93	0	0	68
SR-23	Site Prep & Grading	360	777	529	94	0	0	68
SR-23	New Access Rd.	15,945	15,945	15945	93	0	0	31
SR-23	Internal Rds.	360	777	529	89	0	0	63
SR-23	Solar Install	360	777	529	96	0	0	70
SR-23	Elec Sub & Tower	505	1,720	932	88	0	0	57
SR-23	Gen-Tie	150	150	150	89	0	0	77
SR-24	Move On	85	502	207	93	0	0	78
SR-24	Site Prep & Grading	85	502	207	94	0	0	79
SR-24	New Access Rd.	15,060	15,060	15060	93	0	0	31
SR-24	Internal Rds.	85	502	207	89	0	0	74
SR-24	Solar Install	85	502	207	96	0	0	80
SR-24	Elec Sub & Tower	230	1,290	545	88	0	0	63
SR-24	Gen-Tie	120	120	120	89	0	0	79
SR-25	Move On	220	637	374	93	0	0	71
SR-25	Site Prep & Grading	220	637	374	94	0	0	72
SR-25	New Access Rd.	16,125	16,125	16125	93	0	0	31
SR-25	Internal Rds.	220	637	374	89	0	0	67
SR-25	Solar Install	220	637	374	96	0	0	74
SR-25	Elec Sub & Tower	550	1,880	1017	88	0	0	56
SR-25	Gen-Tie	1,180	1,180	1180	89	0	0	54
SR-29	Move On	100	517	227	93	0	0	77
SR-29	Site Prep & Grading	100	517	227	94	0	0	78
SR-29	New Access Rd.	18,720	18,720	18720	93	0	0	29
SR-29	Internal Rds.	100	517	227	89	0	0	73
SR-29	Solar Install	100	517	227	96	0	0	79
SR-29	Elec Sub & Tower	3,120	4,425	3716	88	0	0	42
SR-29	Gen-Tie	3,540	3,540	3540	89	0	0	43
SR-30	Move On	1,280	1,697	1474	93	0	0	57
SR-30	Site Prep & Grading	1,280	1,697	1474	94	0	0	57
SR-30	New Access Rd.	25,170	25,170	25170	93	0	0	26
SR-30	Internal Rds.	1,280	1,697	1474	89	0	0	52
SR-30	Solar Install	1,280	1,697	1474	96	0	0	59
SR-30	Elec Sub & Tower	9,460	10,590	10009	88	0	0	31
SR-30	Gen-Tie	9,575	9,575	9575	89	0	0	32

SR-36	Move On	1,100	1,517	1292	93	0	0	58
SR-36	Site Prep & Grading	1,100	1,517	1292	94	0	0	59
SR-36	New Access Rd.	8,130	8,130	8130	93	0	0	38
SR-36	Internal Rds.	1,100	1,517	1292	89	0	0	54
SR-36	Solar Install	1,100	1,517	1292	96	0	0	60
SR-36	Elec Sub & Tower	1,915	3,120	2444	88	0	0	46
SR-36	Gen-Tie	1,100	1,100	1100	89	0	0	55
SR-38	Move On	1,505	1,922	1701	93	0	0	55
SR-38	Site Prep & Grading	1,505	1,922	1701	94	0	0	56
SR-38	New Access Rd.	9,345	9,345	9345	93	0	0	36
SR-38	Internal Rds.	1,505	1,922	1701	89	0	0	51
SR-38	Solar Install	1,505	1,922	1701	96	0	0	57
SR-38	Elec Sub & Tower	1,685	2,770	2160	88	0	0	48
SR-38	Gen-Tie	1,650	1,650	1650	89	0	0	51
SR-46	Move On	2,375	2,792	2575	93	0	0	51
SR-46	Site Prep & Grading	2,375	2,792	2575	94	0	0	51
SR-46	New Access Rd.	7,875	7,875	7875	93	0	0	38
SR-46	Internal Rds.	2,375	2,792	2575	89	0	0	46
SR-46	Solar Install	2,375	2,792	2575	96	0	0	53
SR-46	Elec Sub & Tower	3,245	4,410	3783	88	0	0	41
SR-46	Gen-Tie	1,255	1,255	1255	89	0	0	54
SR-54	Move On	1,435	1,852	1630	93	0	0	56
SR-54	Site Prep & Grading	1,435	1,852	1630	94	0	0	56
SR-54	New Access Rd.	11,960	11,960	11960	93	0	0	34
SR-54	Internal Rds.	1,435	1,852	1630	89	0	0	51
SR-54	Solar Install	1,435	1,852	1630	96	0	0	58
SR-54	Elec Sub & Tower	2,895	3,890	3356	88	0	0	43
SR-54	Gen-Tie	3,840	3,840	3840	89	0	0	42
SR-57	Move On	135	552	273	93	0	0	75
SR-57	Site Prep & Grading	135	552	273	94	0	0	76
SR-57	New Access Rd.	7,670	7,670	7670	93	0	0	39
SR-57	Internal Rds.	135	552	273	89	0	0	71
SR-57	Solar Install	135	552	273	96	0	0	77
SR-57	Elec Sub & Tower	1,885	3,080	2410	88	0	0	46
SR-57	Gen-Tie	1,705	1,705	1705	89	0	0	50
SR-58	Move On	1,005	1,422	1196	93	0	0	59
SR-58	Site Prep & Grading	1,005	1,422	1196	94	0	0	60
SR-58	New Access Rd.	6,910	6,910	6910	93	0	0	40
SR-58	Internal Rds.	1,005	1,422	1196	89	0	0	55
SR-58	Solar Install	1,005	1,422	1196	96	0	0	61
SR-58	Elec Sub & Tower	2,225	3,320	2718	88	0	0	45
SR-58	Gen-Tie	985	985	985	89	0	0	56

SR-59	Move On	7,200	7,617	7406	93	0	0	39
SR-59	Site Prep & Grading	7,200	7,617	7406	94	0	0	40
SR-59	New Access Rd.	8,235	8,235	8235	93	0	0	38
SR-59	Internal Rds.	7,200	7,617	7406	89	0	0	35
SR-59	Solar Install	7,200	7,617	7406	96	0	0	42
SR-59	Elec Sub & Tower	8,070	9,280	8654	88	0	0	33
SR-59	Gen-Tie	1,025	1,025	1025	89	0	0	56
SR-60	Move On	2,585	3,002	2786	93	0	0	50
SR-60	Site Prep & Grading	2,585	3,002	2786	94	0	0	50
SR-60	New Access Rd.	19,705	19,705	19705	93	0	0	28
SR-60	Internal Rds.	2,585	3,002	2786	89	0	0	45
SR-60	Solar Install	2,585	3,002	2786	96	0	0	52
SR-60	Elec Sub & Tower	7,545	8,580	8046	88	0	0	33
SR-60	Gen-Tie	10,005	10,005	10005	89	0	0	31

**Table 11. Construction Noise Levels at Analyzed Receivers**

<b>Receiver ID</b>	<b>County/City Location</b>	<b>Highest Estimated Average Hourly Noise Level (dBA Leq)</b>	<b>Applicable Noise Standard</b>	<b>Exceed Applicable Noise Standard?</b>	<b>Reference Ambient Noise Measurement</b>	<b>Reference Ambient Leq</b>	<b>Combined Leq</b>	<b>Increase Due to Construction</b>
SR-3	Kern County	68	N/A	N/A	LT1	37	68	31
SR-5	Kern County	50	N/A	N/A	LT1	37	51	14
SR-8	Kern County	63	N/A	N/A	LT1	37	63	27
SR-15	Kern County	73	N/A	N/A	LT1	37	73	37
SR-21	Kern County	47	N/A	N/A	LT1	37	47	11
SR-22	Kern County	57	N/A	N/A	LT1	37	57	20
SR-23	Kern County	77	N/A	N/A	LT3	46	77	31
SR-24	Kern County	80	N/A	N/A	LT3	46	80	34
SR-25	Kern County	74	N/A	N/A	LT3	46	74	28
SR-29	Kern County	79	N/A	N/A	LT1	37	79	43
SR-30	Kern County	59	N/A	N/A	LT1	37	59	23
SR-36	Kern County	60	N/A	N/A	LT1	37	61	24
SR-38	Kern County	57	N/A	N/A	LT1	37	58	21
SR-46	Kern County	54	N/A	N/A	LT1	37	54	17
SR-54	Kern County	58	N/A	N/A	LT1	37	58	21
SR-57	Kern County	77	N/A	N/A	LT1	37	77	41
SR-58	Kern County	61	N/A	N/A	LT1	37	61	25
SR-59	Kern County	56	N/A	N/A	ST1	30	56	26
SR-60	Kern County	52	N/A	N/A	LT1	37	52	16





Transformer manufacturer : Ilijin

[http://www.iljinelectric.com/eng/product/prd\\_info.jsp](http://www.iljinelectric.com/eng/product/prd_info.jsp)

■ Measurement of Sound Level (dB)						
Test Point	69MVA ONAN Base(0.3m)		92MVA ONAF1 Base(2m)		118MVA ONAF2 Base(2m)	
	1/3H	2/3H	1/3H	2/3H	1/3H	2/3H
1	62	62	69	70	72	73
2	63	64	69	70	73	73
3	61	61	70	70	74	74
4	67	62	70	71	73	73
5	61	59	70	71	74	74
6	68	65	70	69	74	74
7	70	63	68	67	72	71
8	63	62	67	70	70	72
9	71	62	71	70	74	70
10	62	63	66	67	69	71
11	61	63	66	70	69	70
12	66	65	70	67	70	70
13	65	65	67	68	71	71
14	70	62	69	69	72	72
15	63	64	66	68	71	71
16	60	60	66	67	70	70
17	65	62	68	66	70	70
18	71	67	67	66	70	70
19	71	68	67	67	70	70
20	66	65	68	68	71	71
21			69	68	71	71
22			68	69	72	71
23			68	67	70	70
24			68	69	71	70
25			68	68	71	72
26			66	67	71	70
27			67	67	70	71
28			68	68	71	72
29			70	71	74	74
30			70	71	74	75
31			69	71	74	75
32			71	71	73	74
33						
34						
Average Value	65.3	63.2	68.3	68.7	71.6	71.7
	64.3		68.5		71.7	
Correction Value	64.3		68.5		71.7	
Ambient Noise	Measurement Point 1		Measurement Point 2		Measurement Point 3	
	Before	After	Before	After	Before	After
	49.0	49.0	49.0	49.0	49.0	49.0
Guarantee Value	76		78		78	

# Marvair

156 Seedling Drive  
Cordele, Georgia 31015  
229-273-8058

Marvair Outdoor Sound Data for the ComPac I/II Air Conditioners (dBA)

Distance From Unit (Feet)	Model Number						
	AVPA12AC*	AVPA24AC*	AVPA36AC*	AVPA42AC*	AVPA48AC*	AVPA60AC*	AVPA72AC*
5		66	70	70	70	70	69
10		63	67	66	67	66	64
20		58	63	62	64	63	60
30		56	60	60	62	60	58
40		54	58	59	60	59	56
50		53	57	57	58	57	55
60		52	57	56	57	56	53
70							
80							

- Notes: (1) Test Date: Feb-March 2011  
(2) Background Sound Level: 30-33 dBA  
(3) Sound Level Meter 1 Meter Above Ground Directly in Line with Outdoor Coil  
(4) All units - 410A Refrigerant  
\* All Voltages



SCS 3450 UP / SCS 3600 UP / SCS 3800 UP / SCS 3950 UP

preliminary

### Efficient

- Up to 4 inverters can be transported in one standard shipping container
- Higher power density

### Robust

- Intelligent air cooling system OptiCool for efficient cooling
- Suitable for outdoor use in all climatic ambient conditions worldwide

### Flexible

- One device for all applications
- Stand-alone device or turnkey solution with SMA medium-voltage system

### Versatile

- Integrated battery communication
- Customized monitoring and control of inverters
- Grid management functions for dynamic grid support
- Integrated voltage supply for internal consumption and external loads

## SUNNY CENTRAL STORAGE UP

Battery inverter for large-scale storage systems

With an output of up to 3960 kVA and system voltages up to 1500 V DC, the SMA Sunny Central Storage allows for more efficient and flexible system design for battery power plants. A separate voltage supply and additional space are available for the installation of customer equipment. True 1500 V technology and the intelligent cooling system OptiCool ensure smooth operation even in extreme ambient temperature as well as a long service life of 25 years.

# SUNNY CENTRAL STORAGE UP

preliminary

Technical Data	SCS 3450 UP	SCS 3600 UP
<b>Battery side (DC)</b>		
Operating DC voltage range $V_{DC}$	880 V to 1500 V	921 V to 1500 V
Max. DC current $I_{DC, max}$	4750 A	4750 A
Max. interruption current capability <sup>12)</sup>	6400 A	6400 A
Number of DC cables per polarity	Busbar with 26 connections per terminal	
<b>Grid side (AC)</b>		
Nominal AC apparent power at 1200 Vdc and $\cos \varphi = 0.9$ (at 25°C / at 40°C / at 50°C)	3450 kVA / 3130 kVA / 2880 kVA	3620 kVA / 3290 kVA / 3020 kVA
Nominal AC apparent power at 1500 Vdc and $\cos \varphi = 0.9$ (at 25°C / at 40°C / at 50°C)	3100 kVA / 2800 kVA / 2570 kVA	3250 kVA / 2940 kVA / 2700 kVA
Max. AC current $I_{AC, max}$	3850 A	3850 A
Max. total harmonic distortion	< 3% at nominal power	< 3% at nominal power
Nominal AC voltage / nominal AC voltage range <sup>11)</sup>	600 V / 480 V to 720 V	630 V / 504 V to 756 V
AC power frequency / range	50 Hz / 47 Hz to 53 Hz 60 Hz / 57 Hz to 63 Hz > 2	
Min. short-circuit ratio at the AC terminals <sup>9)</sup>	1 / 0.8 overexcited to 0.8 underexcited	
Power factor at rated power / displacement power factor adjustable <sup>8) 10)</sup>	1 / 0.8 overexcited to 0.8 underexcited	
<b>Efficiency</b>		
Max. efficiency <sup>2)</sup> / European efficiency <sup>2)</sup> / CEC efficiency <sup>3)</sup>	98.7%* / 98.6%* / 98.5%*	98.7%* / 98.6%* / 98.5%*
<b>Protective Devices</b>		
Input-side disconnection point	DC load break switch	
Output-side disconnection point	AC circuit breaker	
DC overvoltage protection	Surge arrester, type I	
AC overvoltage protection (optional)	Surge arrester, class I	
Lightning protection (according to IEC 62305-1)	Lightning Protection Level III	
Ground-fault monitoring / remote ground-fault monitoring	○ / ○	
Insulation monitoring	●	
Degree of protection: electronics / air duct / connection area (as per IEC 60529)	IP54 / IP34 / IP34	
<b>General Data</b>		
Dimensions (W / H / D)	2815 / 2318 / 1588 mm (109.4 / 91.3 / 62.5 inch)	
Weight	< 4000 kg / < 8818.5 lb	
Self-consumption (max. <sup>4)</sup> / partial load <sup>5)</sup> / average <sup>6)</sup>	< 8100 W / < 1800 W / < 2000 W	
Self-consumption (standby)	< 370 W	
Internal auxiliary power supply	○ Integrated 8.4 kVA transformer	
Operating temperature range <sup>8)</sup>	-25°C to 60°C / -13°F to 140°F	
Noise emission <sup>7)</sup>	67.0 dB(A)*	
Temperature range (standby)	40°C to 60°C / 40°F to 140°F	
Temperature range (storage)	-40°C to 70°C / -40°F to 158°F	
Max. permissible value for relative humidity (condensing / non-condensing)	95% to 100% (2 month/year) / 0% to 95%	
Maximum operating altitude above MSI <sup>8)</sup> 1000 m / 2000 m <sup>11)</sup>	● / ○	
Fresh air consumption	6500 m <sup>3</sup> /h	
<b>Features</b>		
Grid forming / black start ready without grid forming	○ / ○	
DC connection	Terminal lug on each input (without fuse)	
AC connection	With busbar system (three busbars, one per line conductor)	
Communication	Ethernet, Modbus Master, Modbus Slave	
Communication with SMA string monitor (transmission medium)	Modbus TCP / Ethernet (FO MM, Cat-5)	
Enclosure / roof color	RAL 9016 / RAL 7004	
Supply transformer for external loads	○ (2.5 kVA)	
Standards and directives complied with	CE, IEC / EN 62109-1, IEC / EN 62109-2, AR-N 4110, Arrêté du 23/04/08	
EMC standards	IEC 55011	
Quality standards and directives complied with	VDI/VDE 2862 page 2, DIN EN ISO 9001	
● Standard features ○ Optional – not available * preliminary		
Type designation	SCS 3450 UP	SCS 3600 UP

1) At nominal AC voltage, nominal AC power decreases in the same proportion  
 2) Efficiency measured without internal power supply  
 3) Efficiency measured with internal power supply  
 4) Self-consumption at rated operation  
 5) Self-consumption at < 75% Pn at 25°C  
 6) Self-consumption averaged out from 5% to 100% Pn at 25°C  
 7) Sound pressure level at a distance of 10 m

8) Values apply only to inverters. Permissible values for SMA MV solutions from SMA can be found in the corresponding data sheets.  
 9) A short-circuit ratio of < 2 requires a special approval from SMA  
 10) Depending on the DC voltage / Wider PowerFactor range on request  
 11) Earlier temperature-dependent de-rating and reduction of DC open-circuit voltage  
 12) Battery short circuit disconnection has to be done on the battery side

Technical Data	SCS 3800 UP	SCS 3950 UP
<b>Battery side (DC)</b>		
Operating DC voltage range $V_{DC}$	962 V to 1500 V	1003 V to 1500 V
Max. DC current $I_{DC, max}$	4750 A	4750 A
Max. interruption current capability <sup>12)</sup>	6400 A	6400 A
Number of DC cables per polarity	Busbar with 26 connections per terminal	
<b>Grid side (AC)</b>		
Nominal AC apparent power at 1200 Vdc and $\cos \varphi = 0.9$ (at 25°C / at 40°C / at 50°C)	3800 kVA / 3440 kVA / 3170 kVA	3960 kVA / 3600 kVA / 3310 kVA
Nominal AC apparent power at 1500 Vdc and $\cos \varphi = 0.9$ (at 25°C / at 40°C / at 50°C)	3410 kVA / 3080 kVA / 2830 kVA	3560 kVA / 3220 kVA / 2960 kVA
Max. AC current $I_{AC, max}$	3850 A	3850 A
Max. total harmonic distortion	< 3% at nominal power	< 3% at nominal power
Nominal AC voltage / nominal AC voltage range <sup>11) 8)</sup>	660 V / 528 V to 759 V	690 V / 552 V to 759 V
AC power frequency / range	50 Hz / 47 Hz to 53 Hz 60 Hz / 57 Hz to 63 Hz > 2	
Min. short-circuit ratio at the AC terminals <sup>9)</sup>	1 / 0.8 overexcited to 0.8 underexcited	
Power factor at rated power / displacement power factor adjustable <sup>8) 10)</sup>	1 / 0.8 overexcited to 0.8 underexcited	
<b>Efficiency</b>		
Max. efficiency <sup>2)</sup> / European efficiency <sup>2)</sup> / CEC efficiency <sup>3)</sup>	98.7%* / 98.6%* / 98.5%*	98.7%* / 98.6%* / 98.5%*
<b>Protective Devices</b>		
Input-side disconnection point	DC load break switch	
Output-side disconnection point	AC circuit breaker	
DC overvoltage protection	Surge arrester, type I	
AC overvoltage protection (optional)	Surge arrester, class I	
Lightning protection (according to IEC 62305-1)	Lightning Protection Level III	
Ground-fault monitoring / remote ground-fault monitoring	○ / ○	
Insulation monitoring	●	
Degree of protection: electronics / air duct / connection area (as per IEC 60529)	IP54 / IP34 / IP34	
<b>General Data</b>		
Dimensions (W / H / D)	2815 / 2318 / 1588 mm (109.4 / 91.3 / 62.5 inch)	
Weight	< 4000 kg / < 8818.5 lb	
Self-consumption (max. <sup>4)</sup> / partial load <sup>5)</sup> / average <sup>6)</sup>	< 8100 W / < 1800 W / < 2000 W	
Self-consumption (standby)	< 370 W	
Internal auxiliary power supply	○ Integrated 8.4 kVA transformer	
Operating temperature range <sup>8)</sup>	25°C to 60°C / -13°F to 140°F	
Noise emission <sup>7)</sup>	67.0 dB(A)*	
Temperature range (standby)	-40°C to 60°C / -40°F to 140°F	
Temperature range (storage)	-40°C to 70°C / -40°F to 158°F	
Max. permissible value for relative humidity (condensing / non-condensing)	95% to 100% (2 month/year) / 0% to 95%	
Maximum operating altitude above MSL <sup>8)</sup> 1000 m / 2000 m <sup>11)</sup>	● / ○	
Fresh air consumption	6500 m <sup>3</sup> /h	
<b>Features</b>		
Grid forming / black start ready without grid forming	○ / ○	
DC connection	Terminal lug on each input (without fuse)	
AC connection	With busbar system (three busbars, one per line conductor)	
Communication	Ethernet, Modbus Master, Modbus Slave	
Communication with SMA string monitor (transmission medium)	Modbus TCP / Ethernet (FO MM, Cat-5)	
Enclosure / roof color	RAL 9016 / RAL 7004	
Supply transformer for external loads	○ (2.5 kVA)	
Standards and directives complied with	CE, IEC / EN 62109-1, IEC / EN 62109-2, AR-N 4110, Arrêté du 23/04/08	
EMC standards	IEC 55011	
Quality standards and directives complied with	VDI/VDE 2862 page 2, DIN EN ISO 9001	
● Standard features ○ Optional – not available * preliminary		
Type designation	SCS 3800 UP	SCS 3950 UP

1) At nominal AC voltage, nominal AC power decreases in the same proportion  
 2) Efficiency measured without internal power supply  
 3) Efficiency measured with internal power supply  
 4) Self-consumption at rated operation  
 5) Self-consumption at < 75% Pn at 25°C  
 6) Self-consumption averaged out from 5% to 100% Pn at 25°C  
 7) Sound pressure level at a distance of 10 m

8) Values apply only to inverters. Permissible values for SMA MV solutions from SMA can be found in the corresponding data sheets.  
 9) A short-circuit ratio of < 2 requires a special approval from SMA  
 10) Depending on the DC voltage / Wider PowerFactor range on request  
 11) Earlier temperature-dependent de-rating and reduction of DC open-circuit voltage  
 12) Battery short circuit disconnection has to be done on the battery side



# NOISE & GROUNDBORNE VIBRATION IMPACT ASSESSMENT

FOR THE PROPOSED

## VALENTINE SOLAR PROJECT

COUNTY OF KERN, CA

JUNE 2015

PREPARED FOR:



PREPARED BY:



612 12<sup>TH</sup> STREET, SUITE 201  
PASO ROBLES, CA 93446



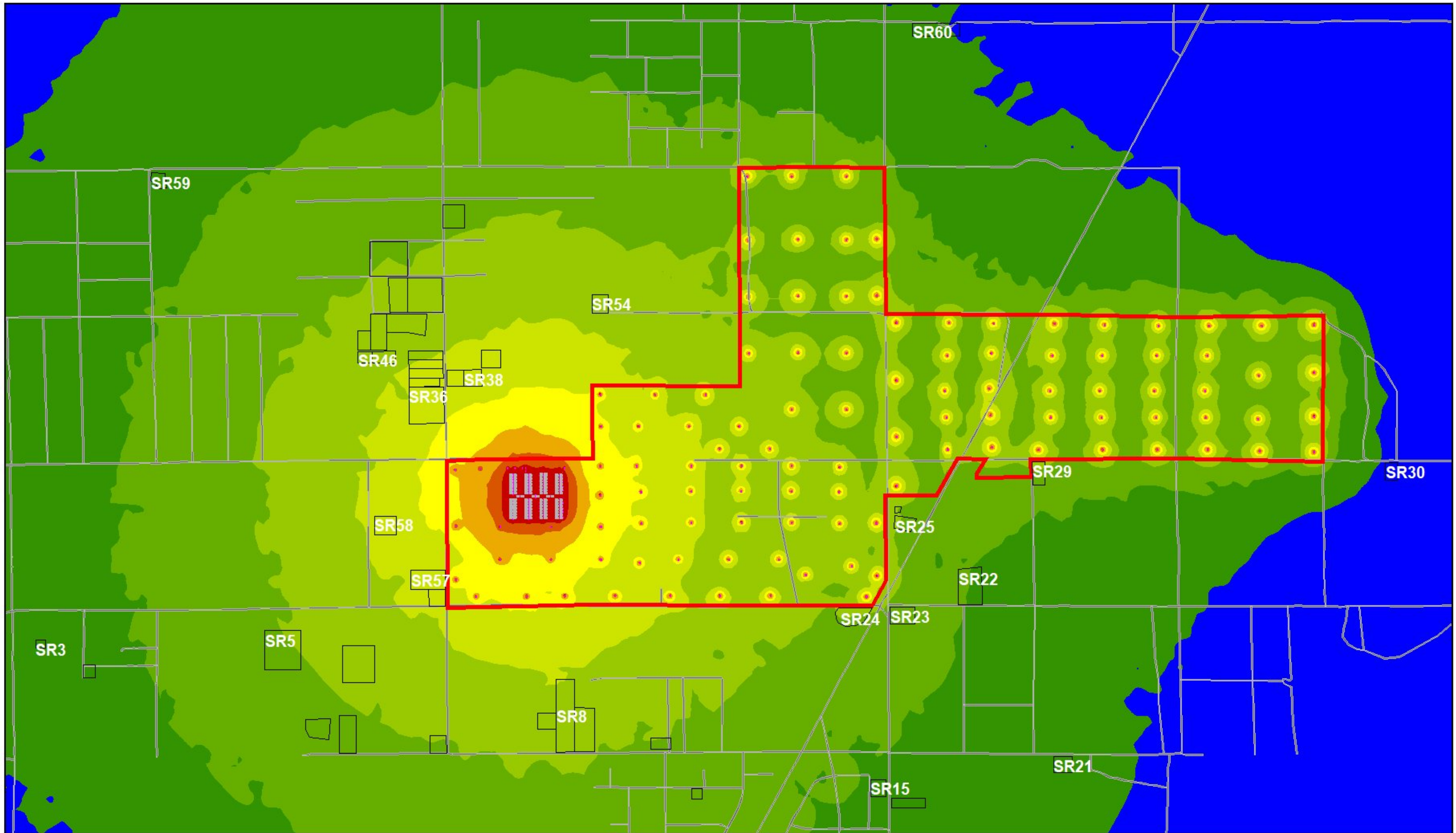
**Table 11  
Predicted Short-term Increases in Traffic Noise Levels  
Year 2016 Conditions**

Roadway	CNEL/L <sub>dn</sub> at 100 Feet from Near-Travel-Lane Centerline <sup>(1)</sup>		Predicted Increase	Substantial Increase? <sup>(2)</sup>
	Without Project	With Project		
Rosamond Blvd., 170 <sup>th</sup> St. W. to 140 <sup>th</sup> St.	57.3	57.5	0.2	No
Rosamond Blvd., 140 <sup>th</sup> St. to Tehachapi-Willow Springs Rd.	57.3	57.9	0.6	No
Rosamond Blvd., Tehachapi-Willow Springs Rd. to SR 14	66.9	67.0	0.1	No
Tehachapi-Willow Springs Rd., Rosamond Blvd. to Backus Rd.	57.6	58.2	0.5	No
<p>1. Traffic noise levels were calculated using the FHWA roadway noise prediction model based on data obtained from the traffic analysis prepared for this project (Parks 2015).</p> <p>2. For purposes of this analysis, a substantial increase in noise levels is defined as an increase of 5.0, or greater, where the noise levels, without project implementation, are less than 60 dBA CNEL. Within areas where the average-daily noise levels range from 60 to 65 dBA CNEL, a substantial increase would be defined as an increase of 3 dBA, or greater. Increases of 1.5 dBA, or greater, would be considered substantial in areas where the average-daily noise levels, prior to project implementation, already exceed the County's noise standard of 65 dBA CNEL.</p>				

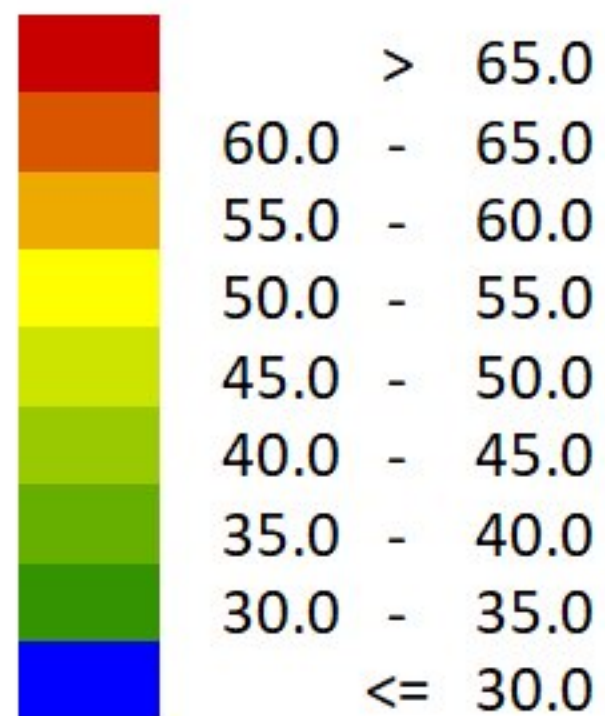
**Table 12  
Summary of Onsite Stationary Equipment Noise Levels**

Source	Reference Distance (feet)	Reference Noise Level (dBA L <sub>eq</sub> /L <sub>50</sub> )	Distance to Noise Level Contour (dBA L <sub>eq</sub> /L <sub>50</sub> ) <sup>(6)</sup>	
			Nighttime (45 dBA L <sub>eq</sub> /L <sub>50</sub> )	Daytime (55 dBA L <sub>eq</sub> /L <sub>50</sub> )
Substation Transformer Noise Levels <sup>(1)</sup>	3	70	44	17
Power Conversion Stations (PCS) <sup>(2)</sup>	10	70	44	59
Transmission Line Corona Discharge <sup>(3)</sup>	25	25	WC	WC
Horizontal Single-Axis Tracker (HSAT) & Dual-Axis Tracker (DAT) Systems <sup>(4)</sup>	400	37	NA	53
Onsite Maintenance Activities <sup>(5)</sup>	3	82	NA	237
<p>1. Substation transformers noise based on data obtained from the Panoche Valley Solar Farm Project Draft Environmental Impact Report (San Benito County 2010). Nighttime non-load conditions assume 68 dBA L<sub>eq</sub>/L<sub>50</sub> at 3 feet.</p> <p>2. PCS noise levels are based on full-load (daytime) conditions, including noise generated by two inverters located within an enclosed structure, one transformer mounted at the exterior of the structure, exterior mounted HVAC system and an exhaust fan. Based on data obtained from the Topaz Solar Farm Project Draft Environmental Impact Report (San Luis Obispo County 2011). Nighttime non-load conditions assume 55 dBA L<sub>eq</sub>/L<sub>50</sub> at 10 feet.</p> <p>3. Transmission Line Corona Discharge is conservatively based on a 230 kV line. Corona discharge noise generated by lower-rated lines would be less.</p> <p>4. HSAT &amp; DAT noise levels based on T20 Tracker System. Noise levels range from 62 to 63 dBA at approximately 3 feet. Includes the simultaneous operation of 6 tracker motors. (ICF 2010)</p> <p>5. Operational range of 75 to 82 dBA at approximately 3 feet depending primarily on engine size, based on representative manufacturer specifications for pressure washers (Northern Tool 2015). Contour distances assume a maximum operational noise level of 82 dB at 10 feet to account for near-field variations.</p> <p>6. Contour distances are based on an uninterrupted line-of-sight under normal meteorological conditions. Based on County noise standards of 45 dBA L<sub>50</sub> for nighttime hours and 55 dBA L<sub>50</sub> for daytime hours. Compliance with the hourly noise standards would result in average daily noise level of 55 dBA CNEL/L<sub>dn</sub>, which would be lower than the County's average-daily noise standard of 65 dBA CNEL/L<sub>dn</sub>. L<sub>eq</sub> and L<sub>50</sub> noise levels are assumed to be equivalent.</p> <p>WC = Within Transmission Line Corridor NA = Not Applicable. Non-operational during nighttime hours.</p>				





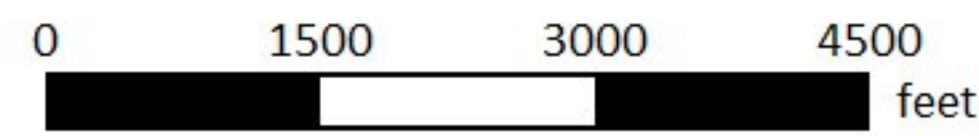
Estimated  $L_{dn}$ , dBA



Legend

- Residential Use Area
- Noise Sources
- BESS Containers
- Road
- Project Boundary

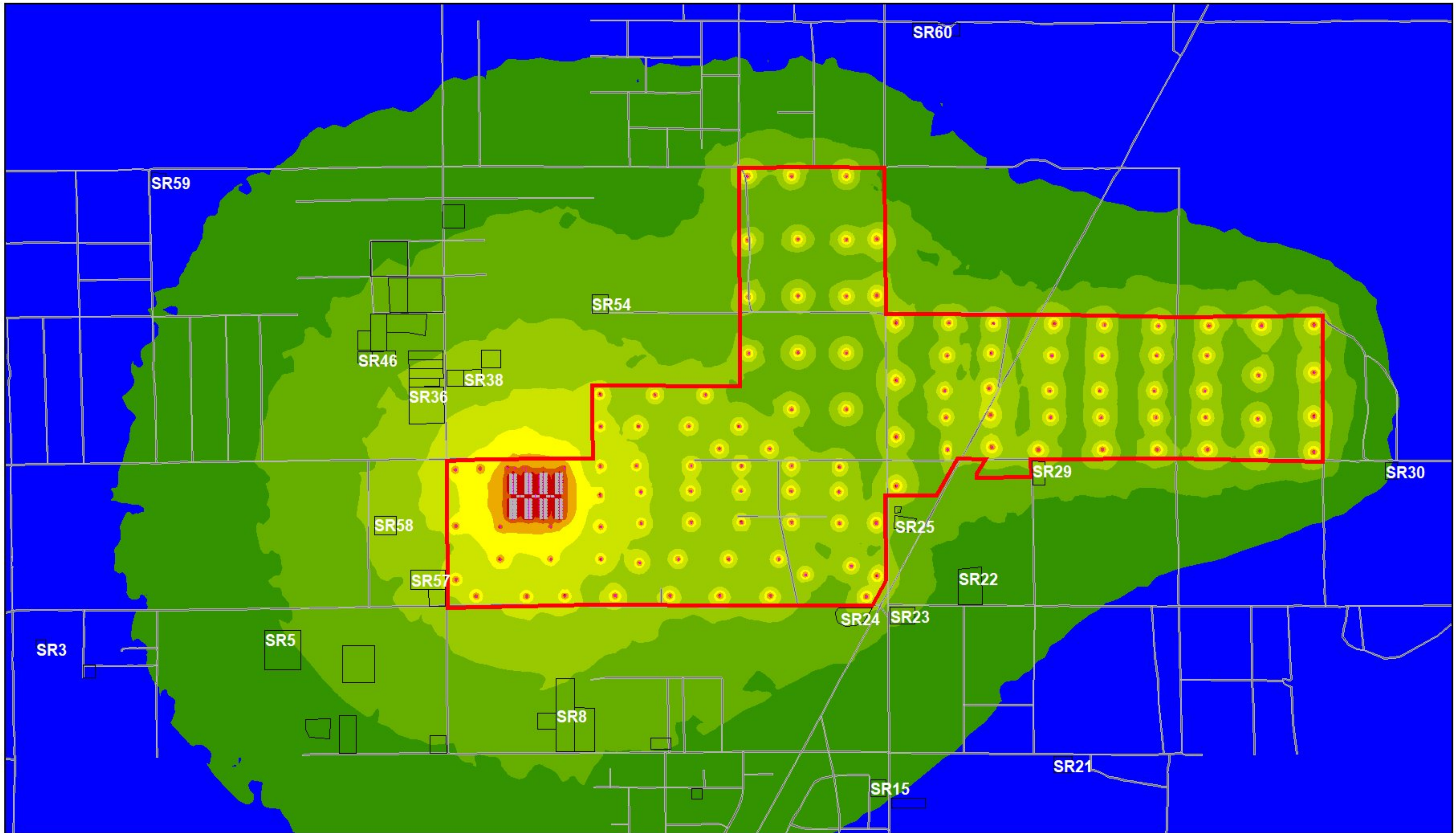
**Estimated Noise Levels ( $L_{dn}$ ) from Bullhead Solar (BESS Option 1)**



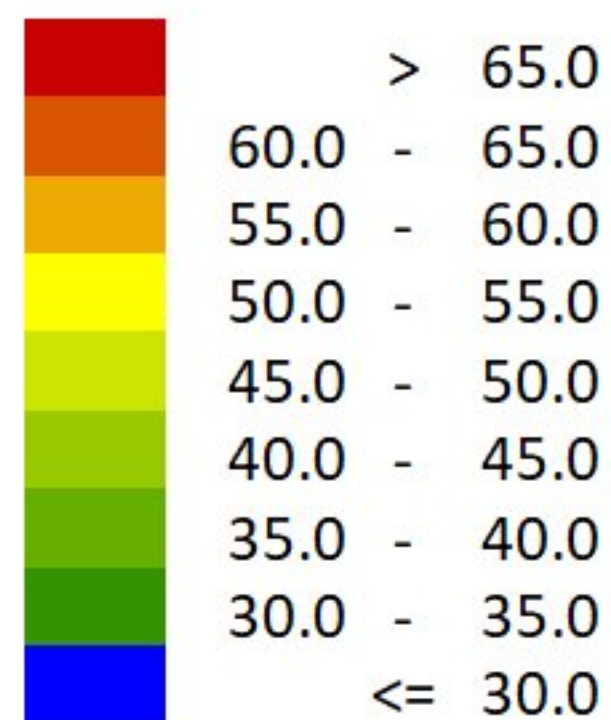
Calculation Date: August, 2022







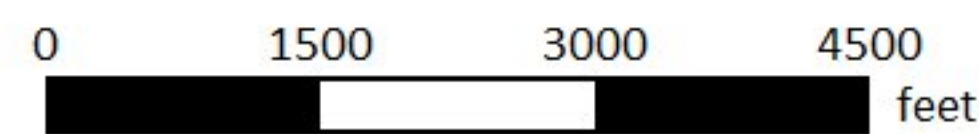
Estimated  $L_{eq}$ , dBA



Legend

- Residential Use Area
- Noise Sources
- BESS Containers
- Road
- Project Boundary

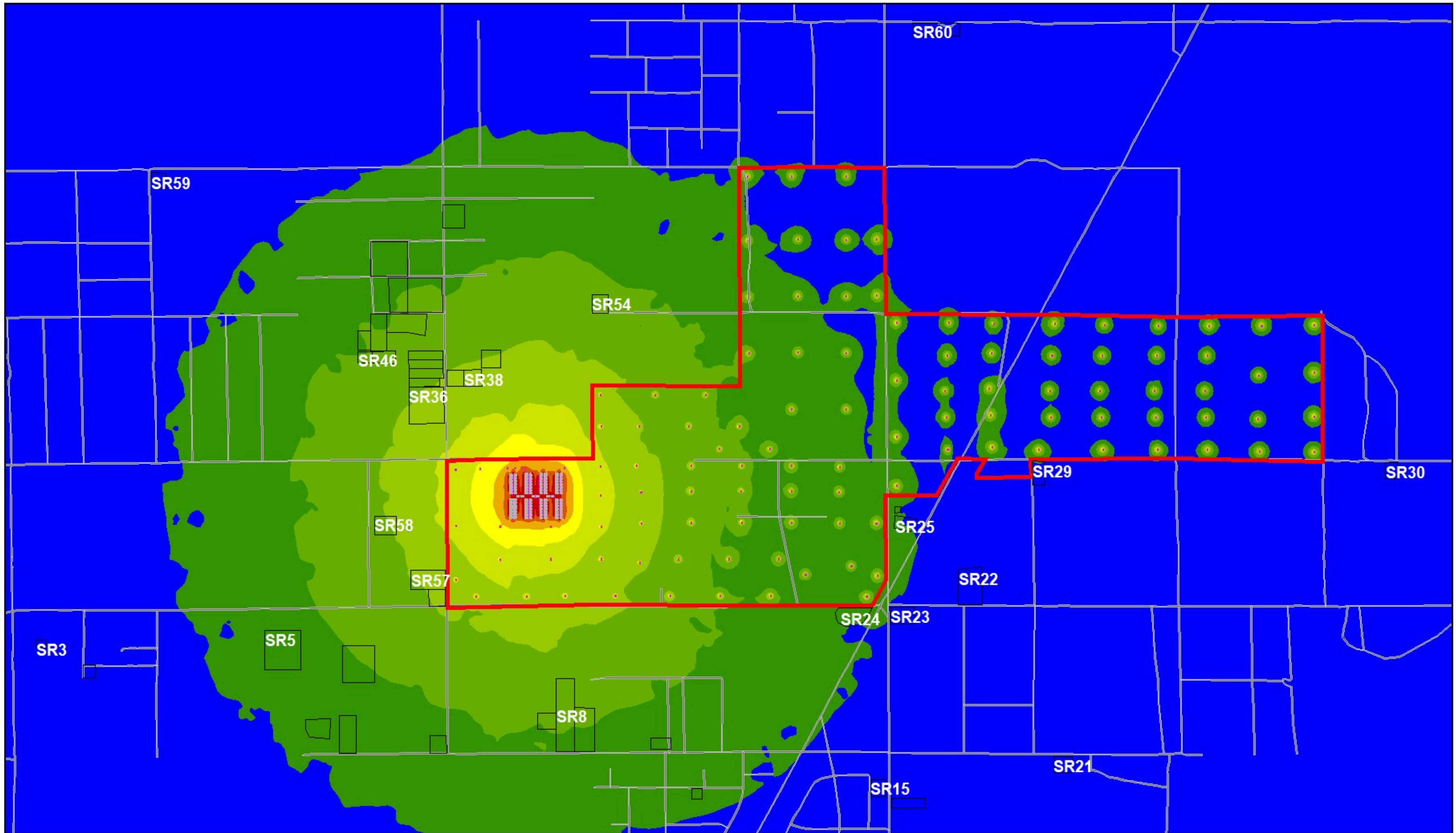
**Estimated Noise Levels (Daytime  $L_{eq}$ ) from Bullhead Solar (BESS Option 1)**



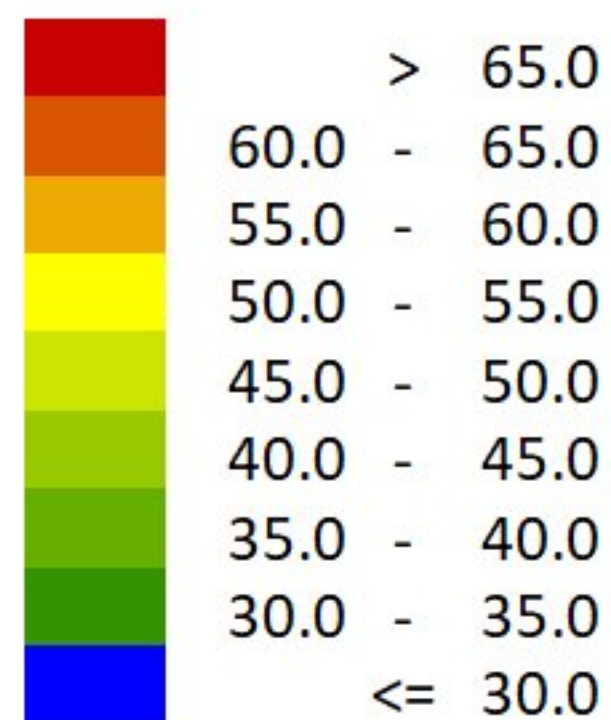
Calculation Date: August, 2022







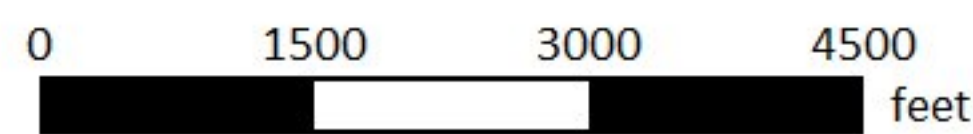
Estimated  $L_{eq}$ , dBA



Legend

- Residential Use Area
- Noise Sources
- BESS Containers
- Road
- Project Boundary

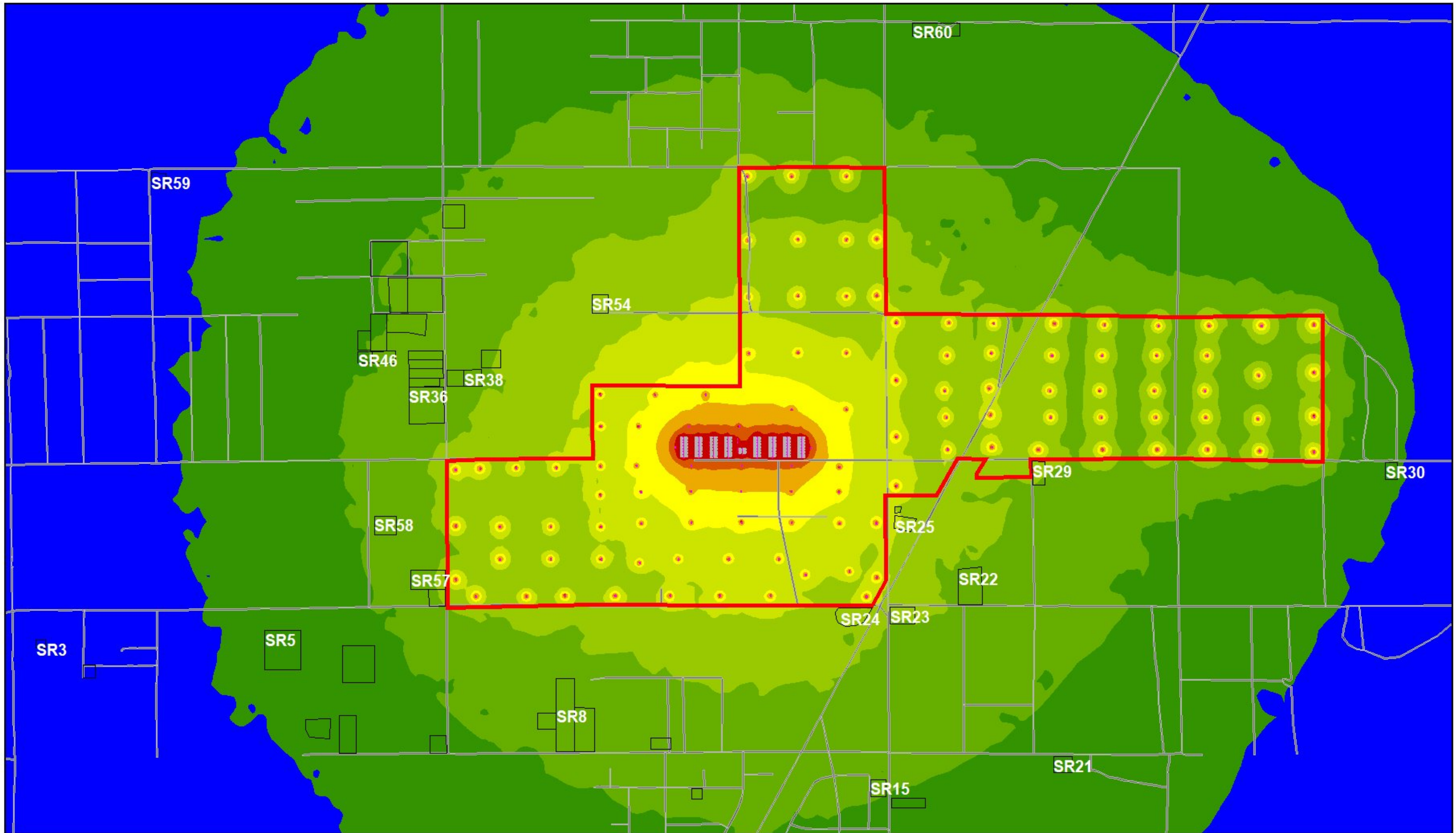
### Estimated Noise Levels (Nighttime $L_{eq}$ ) from Bullhead Solar (BESS Option 1)



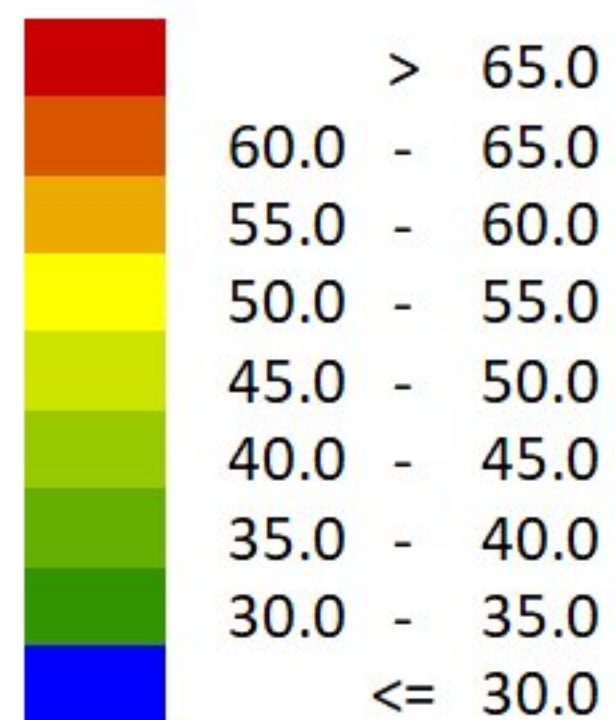
Calculation Date: August, 2022







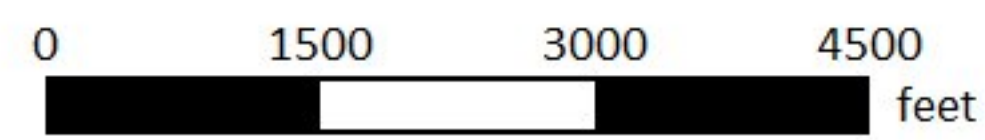
Estimated  $L_{dn}$ , dBA



Legend

- Residential Use Area
- Noise Sources
- BESS Containers
- Road
- Project Boundary

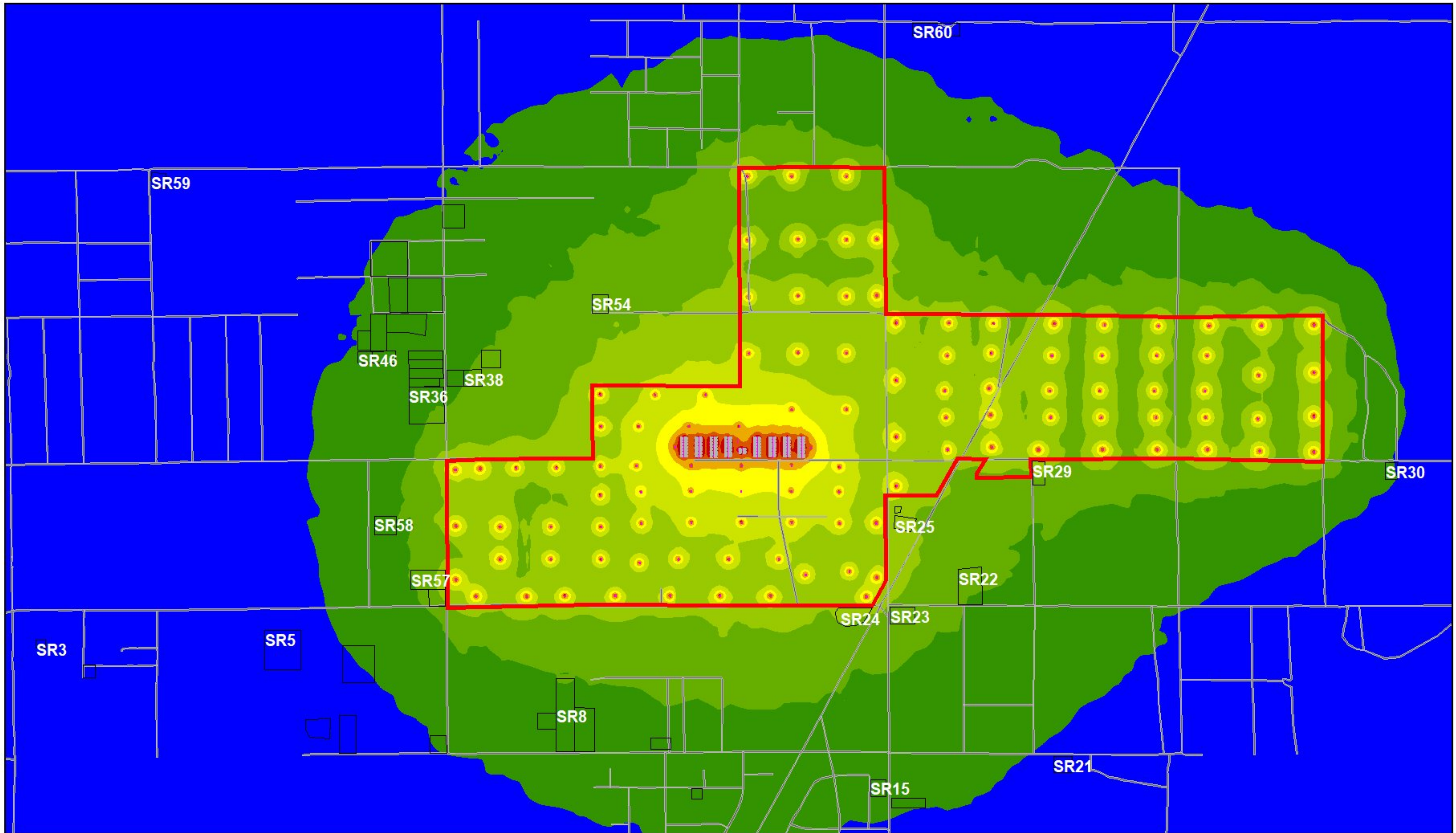
**Estimated Noise Levels ( $L_{dn}$ ) from Bullhead Solar (BESS Option 2)**



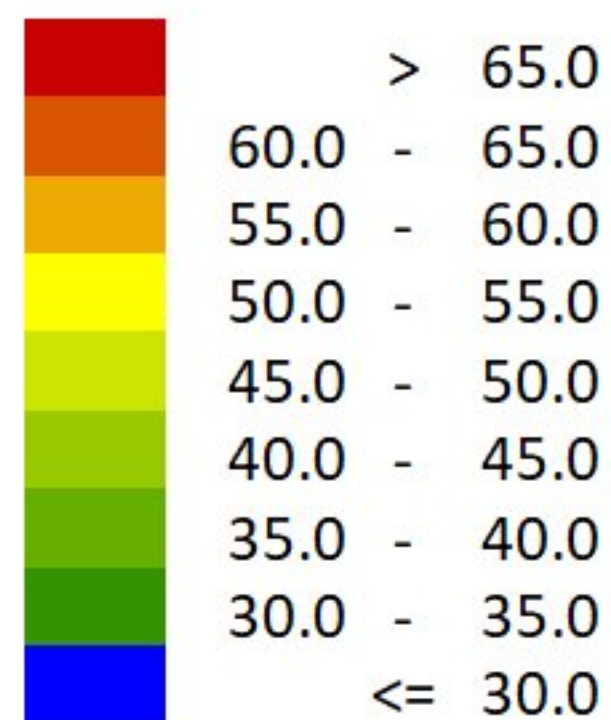
Calculation Date: August, 2022







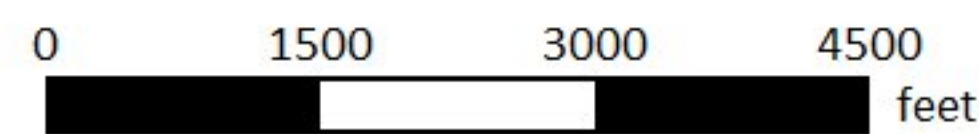
Estimated  $L_{eq}$ , dBA



Legend

- Residential Use Area
- Noise Sources
- BESS Containers
- Road
- Project Boundary

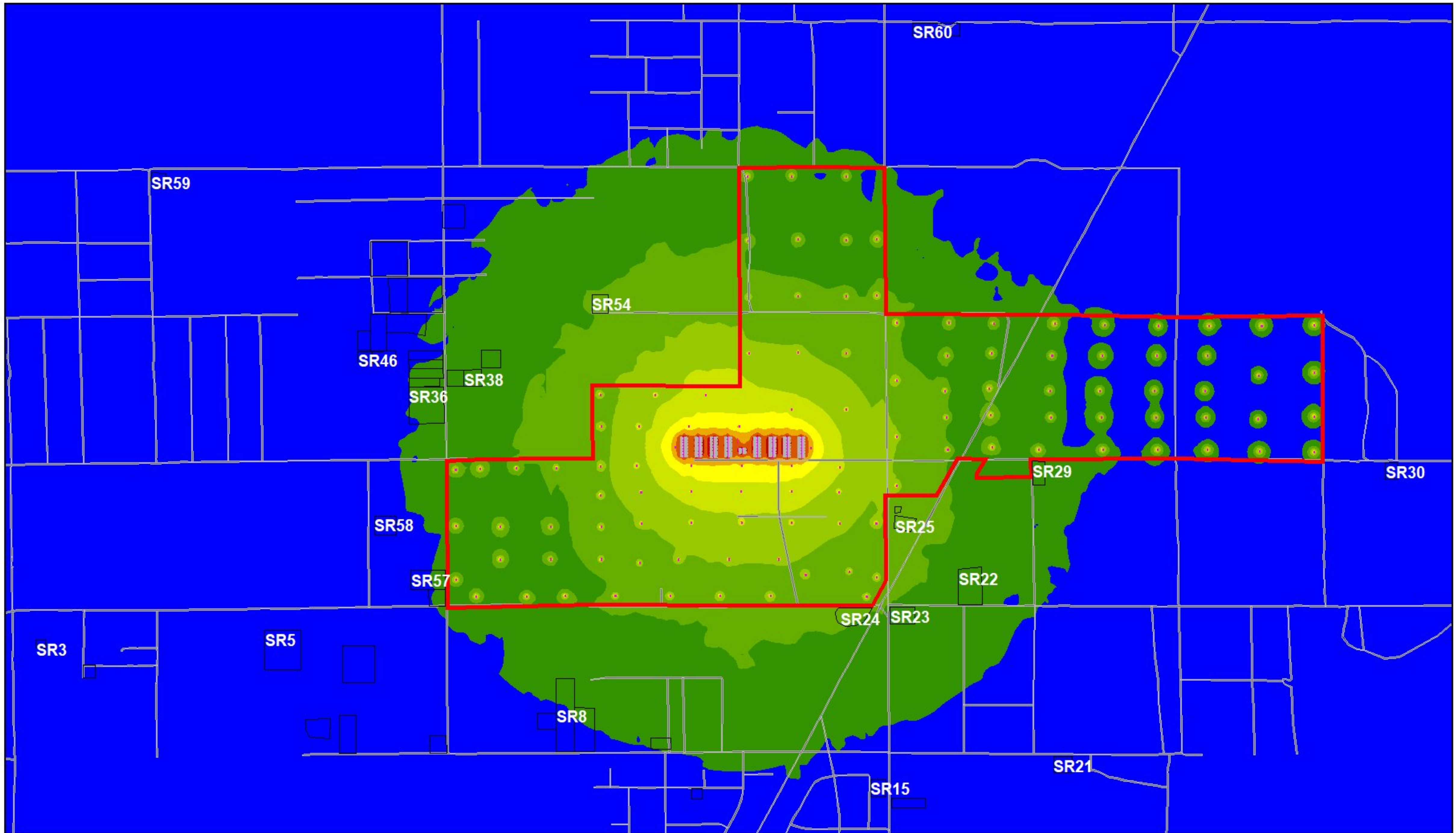
**Estimated Noise Levels (Daytime  $L_{eq}$ ) from Bullhead Solar (BESS Option 2)**



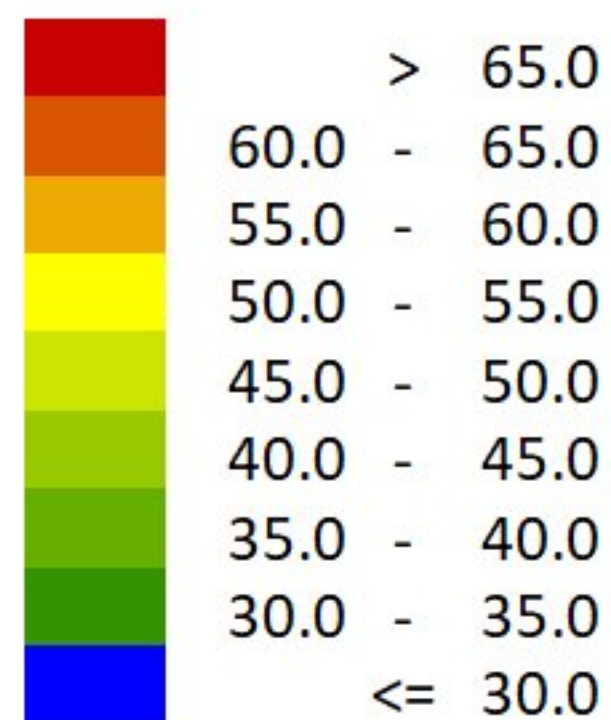
Calculation Date: August, 2022







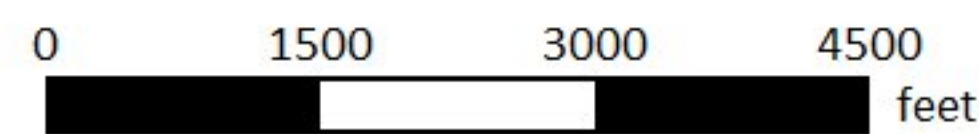
Estimated  $L_{eq}$ , dBA



Legend

- Residential Use Area
- Noise Sources
- BESS Containers
- Road
- Project Boundary

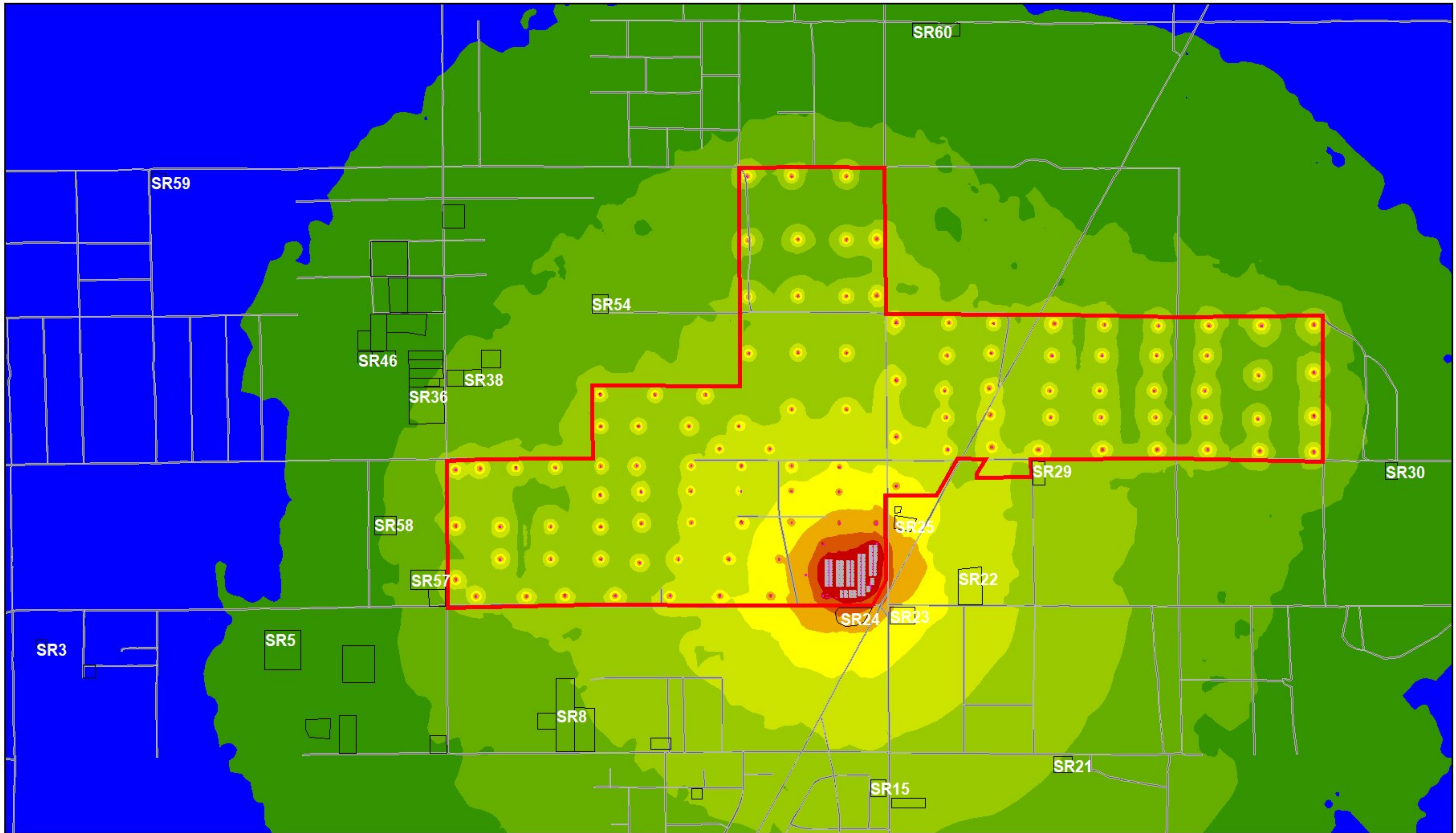
**Estimated Noise Levels (Nighttime  $L_{eq}$ ) from Bullhead Solar (BESS Option 2)**



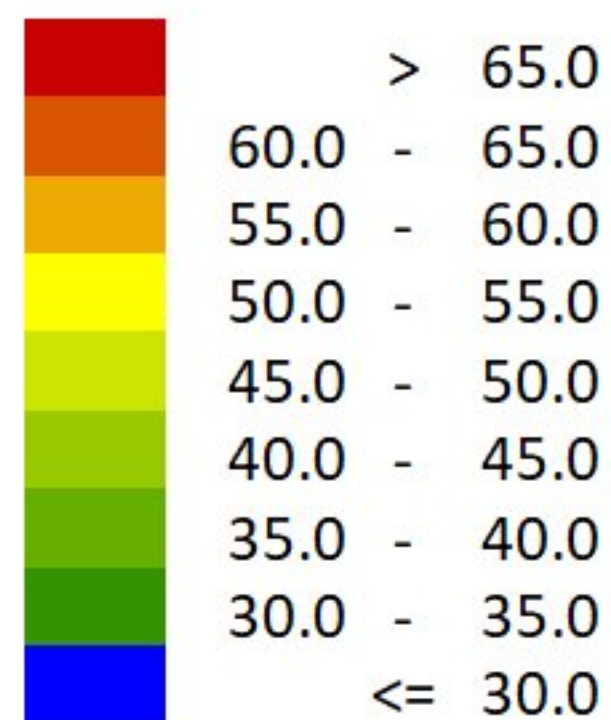
Calculation Date: August, 2022







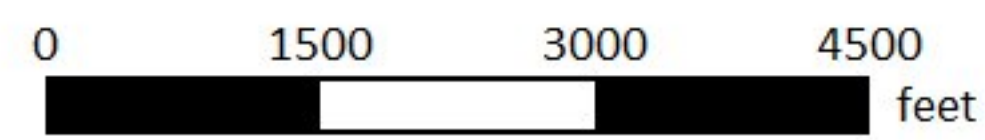
Estimated  $L_{dn}$ , dBA



Legend

- Residential Use Area
- Noise Sources
- BESS Containers
- Road
- Project Boundary

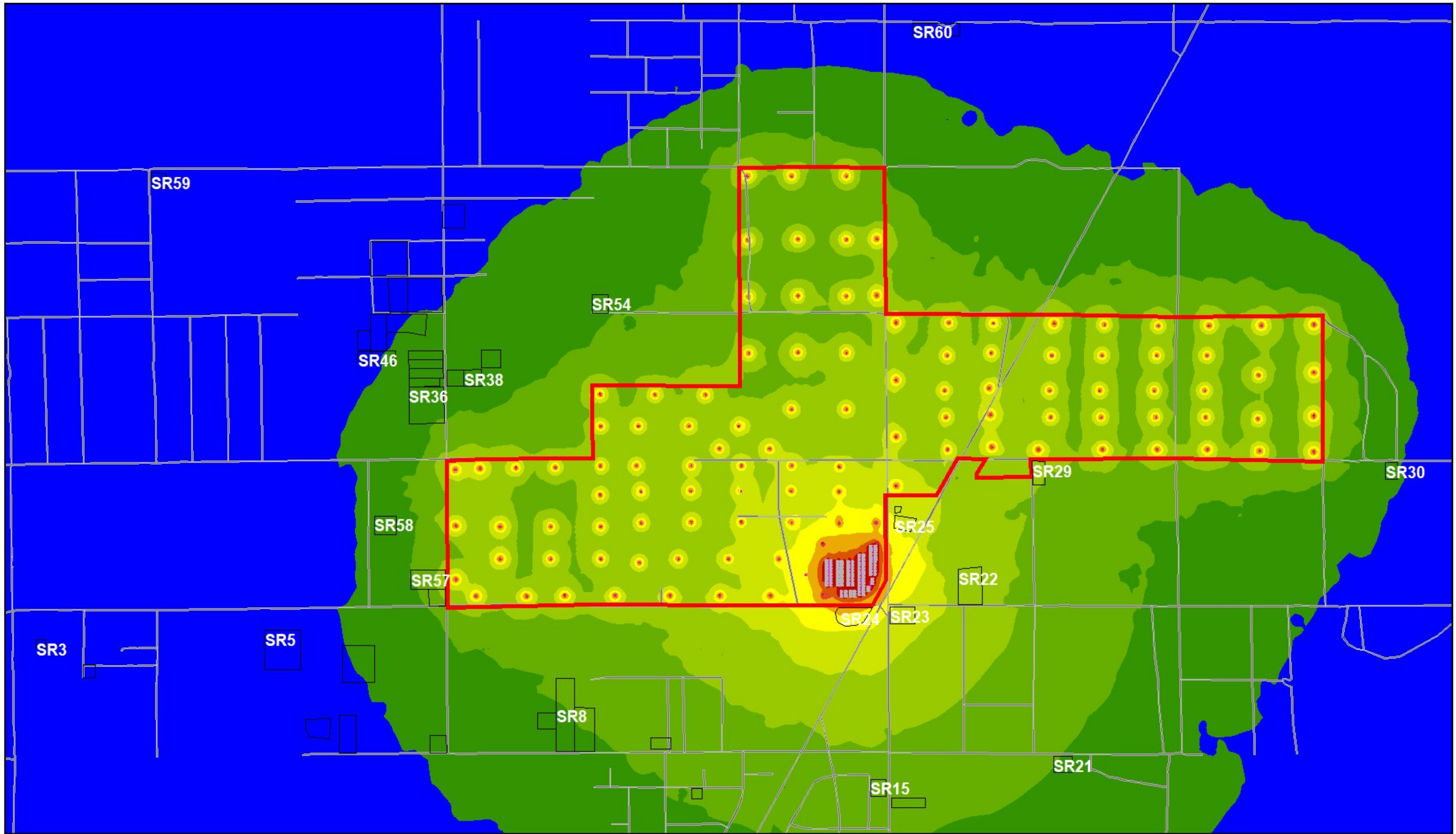
**Estimated Noise Levels ( $L_{dn}$ ) from Bullhead Solar (BESS Option 3)**



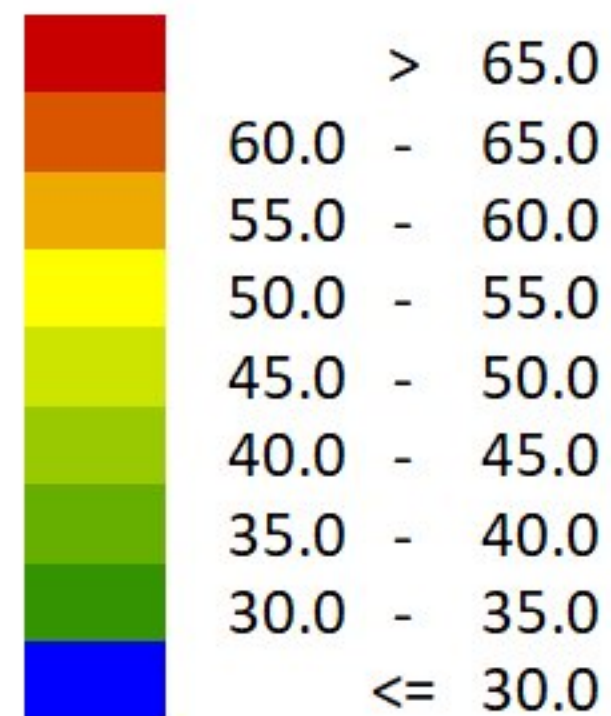
Calculation Date: August, 2022







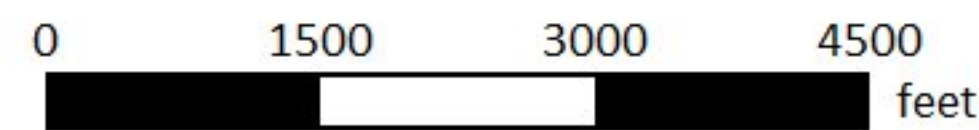
Estimated  $L_{eq}$ , dBA



Legend

- Residential Use Area
- Noise Sources
- BESS Containers
- Road
- Project Boundary

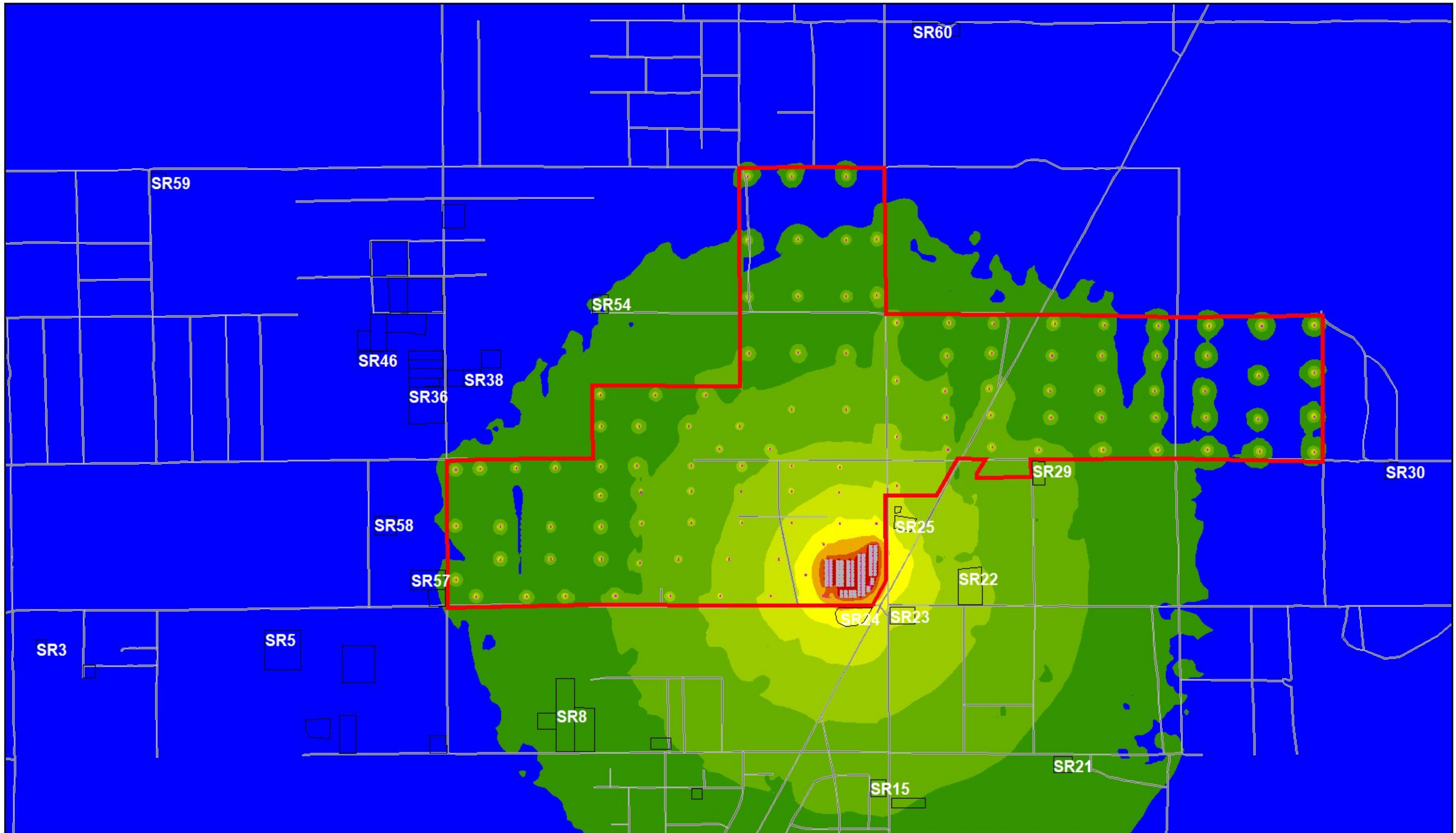
**Estimated Noise Levels (Daytime  $L_{eq}$ ) from Bullhead Solar (BESS Option 3)**



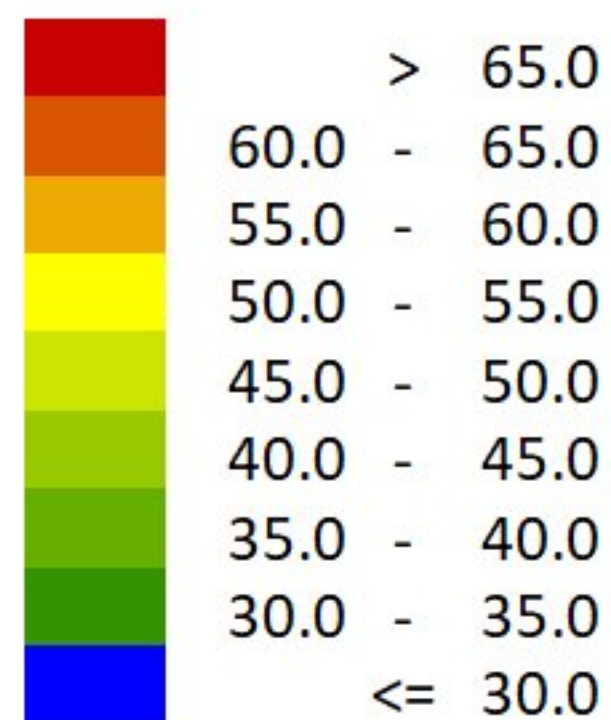
Calculation Date: August, 2022







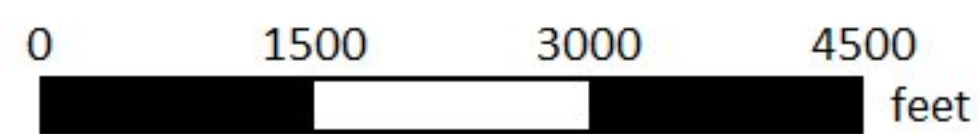
Estimated  $L_{eq}$ , dBA



Legend

- Residential Use Area
- Noise Sources
- BESS Containers
- Road
- Project Boundary

### Estimated Noise Levels (Nighttime $L_{eq}$ ) from Bullhead Solar (BESS Option 3)



Calculation Date: August, 2022







# Bullhead Solar BESS

## Run info

### BESS 1 Noise Contours, 15 m

#### Project description

Project title: Bullhead Solar BESS  
 Project No.:  
 Project engineer: Jonathan Higginson  
 Customer: EDF

Description:

#### Run description

Calculation type: Grid Map  
 Title: BESS 1 Noise Contours, 15 m  
 Group  
 Run file: RunFile.runx  
 Result number: 110  
 Local calculation (ThreadCount=8)  
 Calculation start: 8/16/2022 9:54:18 AM  
 Calculation end: 8/16/2022 1:09:10 PM  
 Calculation time: 21:36:20 [h:m:s]  
 No. of points: 227136  
 No. of calculated points: 227136  
 Kernel version: SoundPLAN 8.2 (8/2/2022) - 32 bit

#### Run parameters

Reflection order:	2	
Maximum reflection distance to receiver		200 m
Maximum reflection distance to source		50 m
Search radius	4000 m	
Weighting:	dB(A)	
Allowed tolerance:	0.500 dB	
Create ground effect areas from road surfaces:		Yes

#### Standards:

Industry: ISO 9613-2: 1996  
 Air absorption: ISO 9613-1  
 regular ground effect (chapter 7.3.1), for sources without a spectrum automatically alternative ground effect  
 Limitation of screening loss:  
   single/multiple      20.0 dB /25.0 dB  
 Side diffraction: Outdated method (side paths also around terrain)  
 Use Eqn (Abar=Dz-Max(Agr,0)) instead of Eqn (12) (Abar=Dz-Agr) for insertion loss  
 Environment:  
   Air pressure            1013.3 mbar  
   rel. humidity         70.0 %  
   Temperature           10.0 °C  
   Meteo. corr. C0(7-19h)[dB]=0.0; C0(19-22h)[dB]=0.0; C0(22-7h)[dB]=0.0;  
   Ignore Cmet for Lmax industry calculation:            No  
 Parameter for screening:    C2=20.0  
 Dissection parameters:

# Bullhead Solar BESS

## Run info

### BESS 1 Noise Contours, 15 m

Distance to diameter factor	8	
Minimal distance	1 m	
Max. difference ground effect + diffraction	1.0 dB	
Max. number of iterations	4	
<b>Attenuation</b>		
Foliage:	ISO 9613-2	
Built-up area:	ISO 9613-2	
Industrial site:	ISO 9613-2	
Assessment:	Ldn	
Grid Noise Map:		
Grid space:	15.00 m	
Height above ground:	1.520 m	
Grid interpolation:		
	Field size =	9x9
	Min/Max =	10.0 dB
	Difference =	0.5 dB
	Limit level=	35.0 dB

#### Geometry data

BESS 1 Calculation.sit	8/15/2022 8:59:06 AM	
- contains:		
0.6 Ground Overall.geo	8/15/2022 3:06:22 PM	
150' Offset.geo	8/4/2022 4:56:46 PM	
2022 BESS & Substation Areas.geo		8/4/2022 4:03:26 PM
2022 Update Boundary.geo	8/4/2022 4:56:46 PM	
BESS 1.geo	8/4/2022 8:11:44 PM	
Calculation Area - Full.geo	7/21/2021 4:31:12 PM	
Panel Area BESS 1.geo	8/4/2022 8:20:52 PM	
PCS within Solar Arrays 1.geo		8/4/2022 7:38:38 PM
Receivers.geo	9/28/2021 3:45:10 PM	
Study Area.geo	7/21/2021 3:56:08 PM	
Substation 1.geo	8/4/2022 8:11:44 PM	
RDGM0001.dgm	8/4/2022 4:36:26 PM	





## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

Name	Source type	l or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.32			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.33			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.33			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.33			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.33			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.33			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.33			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.33			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.33			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.33			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.33			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.33			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.33			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.33			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.33			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.33			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.33			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.33			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.33			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	



## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
Control House AC 1	Point				86.7	86.7	0.0	0.0		0	100%/24h	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
Control House AC 2	Point				86.7	86.7	0.0	0.0		0	100%/24h	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

ICF International 630 K St, Ste 400 Sacramento, CA 95818 USA

4

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

ICF International 630 K St, Ste 400 Sacramento, CA 95818 USA

5



## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

ICF International 630 K St, Ste 400 Sacramento, CA 95818 USA

6

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2



## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2



## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2



## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2



## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2



## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2



## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	l or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.14			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.14			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.14			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.14			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

3

Name	Source type	l or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.16			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.16			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.16			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.15			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.26			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.29			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.13			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.14			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.14			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.14			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.13			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

3

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	
		m,m <sup>2</sup>	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.20			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.56			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.21			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.64			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.15			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

3

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
		m,m <sup>2</sup>	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.19			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.14			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.13			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.15			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.20			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.15			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.16			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.31			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 1 Noise Contours, 15 m

**3**

Name	Source type	l or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.13			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.16			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.13			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
Sub Transformer	Point				78.0	78.0	0.0	0.0		0	100%/24h	Transformer (El Campo/Estrella/HV/RL)	53.8	67.9	69.4	70.8	74.0	69.2	64.0	55.9
Sub Transformer	Point				78.0	78.0	0.0	0.0		0	100%/24h	Transformer (El Campo/Estrella/HV/RL)	53.8	67.9	69.4	70.8	74.0	69.2	64.0	55.9

































































## Bullhead Solar BESS

### Hourly sound power level in dB(A) - BESS 1 Noise Contours, 15 m

**5**

Name	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	
	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4	
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
Sub Transformer	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0
Sub Transformer	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0



# Bullhead Solar BESS

## Run info

### BESS 2 Noise Contours, 15 m

#### Project description

Project title: Bullhead Solar BESS  
 Project No.:  
 Project engineer: Jonathan Higginson  
 Customer: EDF

Description:

#### Run description

Calculation type: Grid Map  
 Title: BESS 2 Noise Contours, 15 m  
 Group  
 Run file: RunFile.runx  
 Result number: 120  
 Local calculation (ThreadCount=8)  
 Calculation start: 8/16/2022 7:49:59 PM  
 Calculation end: 8/17/2022 6:05:28 AM  
 Calculation time: 13:25:36 [h:m:s]  
 No. of points: 175212  
 No. of calculated points: 175212  
 Kernel version: SoundPLAN 8.2 (8/2/2022) - 32 bit

#### Run parameters

Reflection order:	2	
Maximum reflection distance to receiver		200 m
Maximum reflection distance to source		50 m
Search radius	4000 m	
Weighting:	dB(A)	
Allowed tolerance:	0.500 dB	
Create ground effect areas from road surfaces:		Yes

#### Standards:

Industry: ISO 9613-2: 1996  
 Air absorption: ISO 9613-1  
 regular ground effect (chapter 7.3.1), for sources without a spectrum automatically alternative ground effect  
 Limitation of screening loss:  
   single/multiple      20.0 dB /25.0 dB  
 Side diffraction: Outdated method (side paths also around terrain)  
 Use Eqn (Abar=Dz-Max(Agr,0)) instead of Eqn (12) (Abar=Dz-Agr) for insertion loss  
 Environment:  
   Air pressure            1013.3 mbar  
   rel. humidity         70.0 %  
   Temperature          10.0 °C  
   Meteo. corr. C0(7-19h)[dB]=0.0; C0(19-22h)[dB]=0.0; C0(22-7h)[dB]=0.0;  
   Ignore Cmet for Lmax industry calculation:            No  
 Parameter for screening:    C2=20.0  
 Dissection parameters:

# Bullhead Solar BESS

## Run info

### BESS 2 Noise Contours, 15 m

Distance to diameter factor	8	
Minimal distance	1 m	
Max. difference ground effect + diffraction	1.0 dB	
Max. number of iterations	4	
<b>Attenuation</b>		
Foliage:	ISO 9613-2	
Built-up area:	ISO 9613-2	
Industrial site:	ISO 9613-2	
Assessment:	Ldn	
Grid Noise Map:		
Grid space:	15.00 m	
Height above ground:	1.520 m	
Grid interpolation:		
	Field size =	9x9
	Min/Max =	10.0 dB
	Difference =	0.5 dB
	Limit level=	35.0 dB

#### Geometry data

BESS 2 Calculation.sit	8/16/2022 3:20:54 PM	
- contains:		
0.6 Ground Overall.geo	8/15/2022 3:06:22 PM	
150' Offset.geo	8/4/2022 4:56:46 PM	
2022 BESS & Substation Areas.geo		8/4/2022 4:03:26 PM
2022 Update Boundary.geo	8/4/2022 4:56:46 PM	
BESS 2.geo	8/15/2022 9:17:22 AM	
Calculation Area - Reduced.geo		8/16/2022 3:07:20 PM
Panel Area BESS 2.geo	8/15/2022 8:50:20 AM	
PCS within Solar Arrays 2.geo		8/4/2022 7:40:12 PM
Receivers.geo	9/28/2021 3:45:10 PM	
Scratch Lines and Measurements.geo		8/15/2022 9:19:02 AM
Study Area.geo	7/21/2021 3:56:08 PM	
Substation 2.geo	8/15/2022 9:24:28 AM	
RDGM0001.dgm	8/4/2022 4:36:26 PM	





## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

3

Name	Source type	l or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.32			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.32			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.32			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.32			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.32			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.32			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.32			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.32			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.32			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.32			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	8.35			85.8	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	



## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

3

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
Control House AC 1	Point				86.7	86.7	0.0	0.0		0	100%/24h	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
Control House AC 2	Point				86.7	86.7	0.0	0.0		0	100%/24h	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

ICF International 630 K St, Ste 400 Sacramento, CA 95818 USA

4

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

ICF International 630 K St, Ste 400 Sacramento, CA 95818 USA

5

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

ICF International 630 K St, Ste 400 Sacramento, CA 95818 USA

6

## Bullhead Solar BESS Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

ICF International 630 K St, Ste 400 Sacramento, CA 95818 USA

7

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

ICF International 630 K St, Ste 400 Sacramento, CA 95818 USA

8



## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2



## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2



## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2



## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2



## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	l or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.14			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.14			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.14			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.14			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	



## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

3

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
		m,m <sup>2</sup>	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.16			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.16			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.16			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.15			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.26			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.29			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.13			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.14			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.14			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.13			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.14			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

3

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
		m,m <sup>2</sup>	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.20			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.56			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.21			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.64			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.15			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

3

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
		m,m <sup>2</sup>	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.19			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.14			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.13			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.15			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.20			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.15			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.16			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.31			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 2 Noise Contours, 15 m

**3**

Name	Source type	l or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.13			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.16			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.13			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
Sub Transformer	Point				78.0	78.0	0.0	0.0		0	100%/24h	Transformer (El Campo/Estrella/HV/RL)	53.8	67.9	69.4	70.8	74.0	69.2	64.0	55.9
Sub Transformer	Point				78.0	78.0	0.0	0.0		0	100%/24h	Transformer (El Campo/Estrella/HV/RL)	53.8	67.9	69.4	70.8	74.0	69.2	64.0	55.9































































## Bullhead Solar BESS

### Hourly sound power level in dB(A) - BESS 2 Noise Contours, 15 m

**5**

Name	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	
	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4	
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
Sub Transformer	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0
Sub Transformer	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0



# Bullhead Solar BESS

## Run info

### BESS 3 Noise Contours, 15 m

#### Project description

Project title: Bullhead Solar BESS  
 Project No.:  
 Project engineer: Jonathan Higginson  
 Customer: EDF

Description:

#### Run description

Calculation type: Grid Map  
 Title: BESS 3 Noise Contours, 15 m  
 Group  
 Run file: RunFile.runx  
 Result number: 130  
 Local calculation (ThreadCount=8)  
 Calculation start: 8/18/2022 8:11:37 AM  
 Calculation end: 8/18/2022 9:23:54 AM  
 Calculation time: 01:00:32 [d:h:m]  
 No. of points: 175212  
 No. of calculated points: 175212  
 Kernel version: SoundPLAN 8.2 (8/2/2022) - 32 bit

#### Run parameters

Reflection order:	2	
Maximum reflection distance to receiver		200 m
Maximum reflection distance to source		50 m
Search radius	4000 m	
Weighting:	dB(A)	
Allowed tolerance:	0.500 dB	
Create ground effect areas from road surfaces:		Yes

#### Standards:

Industry: ISO 9613-2: 1996  
 Air absorption: ISO 9613-1  
 regular ground effect (chapter 7.3.1), for sources without a spectrum automatically alternative ground effect  
 Limitation of screening loss:  
   single/multiple      20.0 dB /25.0 dB  
 Side diffraction: Outdated method (side paths also around terrain)  
 Use Eqn (Abar=Dz-Max(Agr,0)) instead of Eqn (12) (Abar=Dz-Agr) for insertion loss  
 Environment:  
   Air pressure            1013.3 mbar  
   rel. humidity         70.0 %  
   Temperature          10.0 °C  
   Meteo. corr. C0(7-19h)[dB]=0.0; C0(19-22h)[dB]=0.0; C0(22-7h)[dB]=0.0;  
   Ignore Cmet for Lmax industry calculation:            No  
 Parameter for screening:    C2=20.0  
 Dissection parameters:

# Bullhead Solar BESS

## Run info

### BESS 3 Noise Contours, 15 m

Distance to diameter factor	8	
Minimal distance	1 m	
Max. difference ground effect + diffraction	1.0 dB	
Max. number of iterations	4	
<b>Attenuation</b>		
Foliage:	ISO 9613-2	
Built-up area:	ISO 9613-2	
Industrial site:	ISO 9613-2	
Assessment:	Ldn	
Grid Noise Map:		
Grid space:	15.00 m	
Height above ground:	1.520 m	
Grid interpolation:		
	Field size =	9x9
	Min/Max =	10.0 dB
	Difference =	0.5 dB
	Limit level=	35.0 dB

**Geometry data**

BESS 3 Calculation.sit	8/16/2022 2:59:50 PM	
- contains:		
0.6 Ground Overall.geo	8/15/2022 3:06:22 PM	
150' Offset.geo	8/4/2022 4:56:46 PM	
2022 BESS & Substation Areas.geo		8/4/2022 4:03:26 PM
2022 Update Boundary.geo	8/4/2022 4:56:46 PM	
BESS 3.geo	8/15/2022 3:14:36 PM	
Calculation Area - Reduced.geo		8/16/2022 3:07:20 PM
Panel Area BESS 3.geo	7/21/2021 12:07:50 PM	
PCS within Solar Arrays 3.geo		8/4/2022 7:47:04 PM
Receivers.geo	9/28/2021 3:45:10 PM	
Study Area.geo	7/21/2021 3:56:08 PM	
Substation 3.geo	8/15/2022 3:10:44 PM	
RDGM0001.dgm	8/4/2022 4:36:26 PM	

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

3

Name	Source type	l or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.32			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.33			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.34			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.32			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.32			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.34			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.32			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.34			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.33			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.32			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.32			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.34			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.34			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.31			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	





## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
BESS Inverter	Area	14.32			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
BESS Inverter	Area	14.32			83.4	95.0	0.0	0.0		0	100% Day, 75% Night	Inverter - from Palen	63.1	77.2	90.7	89.1	88.3	85.5	77.3	
Control House AC 1	Point				86.7	86.7	0.0	0.0		0	100%/24h	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
Control House AC 2	Point				86.7	86.7	0.0	0.0		0	100%/24h	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

ICF International 630 K St, Ste 400 Sacramento, CA 95818 USA

4



## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2



## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2



## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2



## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2



## Bullhead Solar BESS Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2



## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	I or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	l or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.21			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
HVAC	Area	2.20			83.2	86.7	0.0	0.0		0	100% Day, 75% Night	HVAC - Marvair AVPA72AC	54.1	71.7	80.7	80.1	78.3	79.5	76.8	73.2
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.14			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.14			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.14			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.14			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

3

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	
		m,m <sup>2</sup>	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.16			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.16			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.16			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.15			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.26			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.29			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.13			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.14			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.14			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.14			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.16			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		
PCS combined noise	Area	42.13			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6		



## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
		m,m <sup>2</sup>	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.56			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.21			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.64			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.15			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.13			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

3

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
		m,m <sup>2</sup>	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.19			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.14			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.13			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.15			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.20			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.15			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.16			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.31			76.0	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	

## Bullhead Solar BESS

### Octave spectra of the sources in dB(A) - BESS 3 Noise Contours, 15 m

**3**

Name	Source type	l or A m,m <sup>2</sup>	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.13			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.16			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.11			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.13			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
PCS combined noise	Area	42.12			76.1	92.3	0.0	0.0		0	100% Day, 3.2% Night	Inverter - from Palen	60.4	74.5	88.0	86.4	85.6	82.8	74.6	
Sub Transformer	Point				78.0	78.0	0.0	0.0		0	100%/24h	Transformer (El Campo/Estrella/HV/RL)	53.8	67.9	69.4	70.8	74.0	69.2	64.0	55.9
Sub Transformer	Point				78.0	78.0	0.0	0.0		0	100%/24h	Transformer (El Campo/Estrella/HV/RL)	53.8	67.9	69.4	70.8	74.0	69.2	64.0	55.9





























































## Bullhead Solar BESS

### Hourly sound power level in dB(A) - BESS 3 Noise Contours, 15 m

**5**

Name	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	
	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)	o'clock dB(A)
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4	
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
PCS combined noise	77.4	77.4	77.4	77.4	77.4	77.4	77.4	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	77.4	77.4
Sub Transformer	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0
Sub Transformer	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0

This spreadsheet calculates traffic noise levels based on TNM Version 2.5 Lookup Tables.

**\*\* Type in yellow cells only.**

<b>Traffic Data:</b>	<b>Units:</b>	<b>Calculate</b>
<input checked="" type="checkbox"/> Enter ADT Traffic	<input type="checkbox"/> Metric	
<input type="checkbox"/> Enter Loudest-hour Traffic	<input checked="" type="checkbox"/> English	



Link	Roadway	Segment Location	Hard or Soft Ground (H or S)	BARRIER			Total Daily Traffic Volumes (ADT)	Traffic Mix		Vehicle Speed mph max. 80	Sound Levels at Receiver Locations	
				Present 1=yes	Height min. 7 ft. max. 32 ft.	Distance 35 ft. or 100 ft.		Number #	Description		Distance feet, min. 33 max. 1000	dB CNEL
1	Tehachapi WS Rd (Existing)	Hamilton Rd to Rosamond Blvd	S				2,411	1	Generic - Arterial Roadways (From	55	50	62.8
2	Rosamond Blvd (Existing)	170th St. W to 130th St W	S				2,776	1	Generic - Arterial Roadways (From	55	50	63.4
3	Rosamond Blvd (Existing)	130th St W to 90th St W	S				2,311	1	Generic - Arterial Roadways (From	55	50	62.6
4	Rosamond Blvd (Existing)	90th St W – SR 14	S				5,731	1	Generic - Arterial Roadways (From	55	50	66.5
5	Tehachapi WS Rd (Existing + Project Operations)	Hamilton Rd to Rosamond Blvd	S				2,459	1	Generic - Arterial Roadways (From	55	50	62.8
6	Rosamond Blvd (Existing + Project Operations)	170th St. W to 130th St W	S				2,824	1	Generic - Arterial Roadways (From	55	50	63.4
7	Rosamond Blvd (Existing + Project Operations)	130th St W to 90th St W	S				2,359	1	Generic - Arterial Roadways (From	55	50	62.7
8	Rosamond Blvd (Existing + Project Operations)	90th St W – SR 14	S				5,779	1	Generic - Arterial Roadways (From	55	50	66.5
9	Tehachapi WS Rd (2026 Cumulative)	Hamilton Rd to Rosamond Blvd	S				2,615	1	Generic - Arterial Roadways (From	55	50	63.1
10	Rosamond Blvd (2026 Cumulative)	170th St. W to 130th St W	S				3,857	1	Generic - Arterial Roadways (From	55	50	64.8
11	Rosamond Blvd (2026 Cumulative)	130th St W to 90th St W	S				3,043	1	Generic - Arterial Roadways (From	55	50	63.8
12	Rosamond Blvd (2026 Cumulative)	90th St W – SR 14	S				6,822	1	Generic - Arterial Roadways (From	55	50	67.2
13	Tehachapi WS Rd (2026 Cumulative + Project Ops)	Hamilton Rd to Rosamond Blvd	S				2,663	1	Generic - Arterial Roadways (From	55	50	63.2
14	Rosamond Blvd (2026 Cumulative + Project Ops)	170th St. W to 130th St W	S				3,905	1	Generic - Arterial Roadways (From	55	50	64.8
15	Rosamond Blvd (2026 Cumulative + Project Ops)	130th St W to 90th St W	S				3,091	1	Generic - Arterial Roadways (From	55	50	63.8
16	Rosamond Blvd (2026 Cumulative + Project Ops)	90th St W – SR 14	S				6,870	1	Generic - Arterial Roadways (From	55	50	67.2
17	Tehachapi WS Rd (Construction)	Hamilton Rd to Rosamond Blvd	S				1,114	14	Construction Traffic	55	50	61.5
18	Rosamond Blvd (Construction)	170th St. W to 130th St W	S				289	14	Construction Traffic	55	50	56.1
19	Rosamond Blvd (Construction)	130th St W to 90th St W	S				825	14	Construction Traffic	55	50	60.3
20	Rosamond Blvd (Construction)	90th St W – SR 14	S				825	14	Construction Traffic	55	50	60.3



Roadway/Segment	Estimated Unmitigated Traffic Noise Levels at 50 feet from Roadway Centerline (dB CNEL)								
	Existing	Construction	Existing + Construction	Increase due to Construction	Existing + Project Operations	Increase due to Project Operations	Future Cumulative (2026)	Future Cumulative (2026) + Project Operations	Increase over Future without Project
Tehachapi WS Rd, Hamilton Rd to Rosamond Blvd	62.8	61.5	65.2	2.4	62.8	0.0	63.1	63.2	0.1
Rosamond Blvd, 170th St. W to 130th St W	63.4	56.1	64.1	0.7	63.4	0.0	64.8	64.8	0.0
Rosamond Blvd, 130th St W to 90th St W	62.6	60.3	64.6	2.0	62.7	0.1	63.8	63.8	0.0
Rosamond Blvd, 90th St W - SR 14	66.5	60.3	67.4	0.9	66.5	0.0	67.2	67.2	0.0



# Appendix D

## Construction Vibration Levels

---

*This page intentionally left blank.*

**Table 1. Construction Vibration Analysis - Potential Building Damage**

Vibration attenuation constant (n):		1.1						
Equipment Item	Reference PPV at 25 feet, in/s <sup>a</sup>	Building Category:	Extremely fragile historic buildings, ruins, ancient monuments	Fragile buildings	Historic and some old buildings	Older residential structures	New residential structures	Modern industrial/commercial buildings
		Vibration Damage Impact Criteria, PPV, in/s:	0.08	0.1	0.25	0.3	0.5	0.5
Vibratory roller	0.21	Distance to Impact Criteria, feet:	61	50	22	19	12	12
Post driver	0.161		48	39	17	15	9	9
Large bulldozer <sup>b</sup>	0.089		28	23	10	9	6	6
Loaded trucks	0.076		24	20	9	8	5	5
Small bulldozer <sup>c</sup>	0.003		2	2	1	1	1	1

<sup>a</sup> Obtained from "Transportation and Construction Vibration Guidance Manual", Caltrans 2020

<sup>b</sup> Considered representative of other heavy earthmoving equipment such as excavators, graders, backhoes, etc.

<sup>c</sup> Considered representative of smaller equipment such as mini excavators.

**Applicable equipment by construction phase**

Equipment	Move On	Site Prep & Grading	New Access Rd.	Internal Rds.	Solar Install	Elec Sub & Tower	Gen-Tie
Vibratory roller	x	x	x	x	x		
Post driver					x		
Large bulldozer	x	x	x	x	x	x	x
Loaded trucks	x	x	x	x	x	x	x
Small bulldozer	x	x	x	x	x	x	x

**Table 2. Construction Vibration Analysis - Human Response, Distance to Criteria**

Vibration attenuation constant (n):		1.1				
Equipment Item	Reference PPV at 25 feet, in/s <sup>a</sup>	Perceptibility:	Barely perceptible	Distinctly perceptible	Strongly perceptible	Severe
		Vibration Damage Impact Criteria, PPV, in/s:	0.01	0.04	0.1	0.4
Vibratory roller	0.21	Distance to Impact Criteria, feet:	399	113	50	14
Post driver	0.161		313	89	39	11
Large bulldozer <sup>b</sup>	0.089		183	52	23	7
Loaded trucks	0.076		159	45	20	6
Small bulldozer <sup>c</sup>	0.003		9	3	2	1

<sup>a</sup> Obtained from "Transportation and Construction Vibration Guidance Manual", Caltrans 2020

<sup>b</sup> Considered representative of any full size/large excavator, dozer, backhoe, etc.

<sup>c</sup> Considered representative of any small excavator, dozer, backhoe, etc.

Applicable equipment by construction phase

Equipment	Move On	Site Prep & Grading	New Access Rd.	Internal Rds.	Solar Install	Elec Sub & Tower	Gen-Tie
Vibratory roller	x	x	x	x	x		
Post driver					x		
Large bulldozer	x	x	x	x	x	x	x
Loaded trucks	x	x	x	x	x	x	x
Small bulldozer	x	x	x	x	x	x	x

**Table 3. Construction Vibration Analysis - Human Response at Sensitive Receivers**

Receiver	Distance, feet	Vibratory Roller		Post Driver		Large Bulldozer <sup>1</sup>		Loaded Truck		Small Bulldozer <sup>2</sup>	
		Predicted PPV, in/sec	Human Response	Predicted PPV, in/sec	Human Response	Predicted PPV, in/sec	Human Response	Predicted PPV, in/sec	Human Response	Predicted PPV, in/sec	Human Response
Reference Location	25	0.210	N/A (for reference only)	0.161	N/A (for reference only)	0.089	N/A (for reference only)	0.076	N/A (for reference only)	0.003	N/A (for reference only)
SR-3	535	0.007	Below barely perceptible	0.006	N/A	0.003	Below barely perceptible	0.003	Below barely perceptible	0.00010	Below barely perceptible
SR-3	7345	0.000	Below barely perceptible	0.000	Below barely perceptible	0.000	Below barely perceptible	0.000	Below barely perceptible	0.00001	Below barely perceptible
SR-5	3090	0.001	Below barely perceptible	N/A	N/A	0.000	Below barely perceptible	0.000	Below barely perceptible	0.00001	Below barely perceptible
SR-5	3090	0.001	Below barely perceptible	0.001	Below barely perceptible	0.000	Below barely perceptible	0.000	Below barely perceptible	0.00001	Below barely perceptible
SR-8	535	N/A	N/A	N/A	N/A	0.003	Below barely perceptible	0.003	Below barely perceptible	0.00010	Below barely perceptible
SR-8	2000	0.002	Below barely perceptible	0.001	Below barely perceptible	0.001	Below barely perceptible	0.001	Below barely perceptible	0.00002	Below barely perceptible
SR-15	205	N/A	N/A	N/A	N/A	0.009	Below barely perceptible	0.008	Below barely perceptible	0.00030	Below barely perceptible
SR-15	3300	0.001	Below barely perceptible	0.001	Below barely perceptible	0.000	Below barely perceptible	0.000	Below barely perceptible	0.00001	Below barely perceptible
SR-21	2970	N/A	N/A	N/A	N/A	0.000	Below barely perceptible	0.000	Below barely perceptible	0.00002	Below barely perceptible
SR-21	4245	0.001	Below barely perceptible	0.001	Below barely perceptible	0.000	Below barely perceptible	0.000	Below barely perceptible	0.00001	Below barely perceptible
SR-22	1600	0.002	Below barely perceptible	N/A	N/A	0.001	Below barely perceptible	0.001	Below barely perceptible	0.00003	Below barely perceptible
SR-22	1600	0.002	Below barely perceptible	0.002	Below barely perceptible	0.001	Below barely perceptible	0.001	Below barely perceptible	0.00003	Below barely perceptible
SR-23	150	N/A	N/A	N/A	N/A	0.012	Barely perceptible	0.011	Barely perceptible	0.00042	Below barely perceptible
SR-23	360	0.011	Barely perceptible	0.009	Below barely perceptible	0.005	Below barely perceptible	0.004	Below barely perceptible	0.00016	Below barely perceptible
SR-24	85	0.055	Distinctly perceptible	N/A	N/A	0.023	Barely perceptible	0.020	Barely perceptible	0.00078	Below barely perceptible
SR-24	85	0.055	Distinctly perceptible	0.042	Distinctly perceptible	0.023	Barely perceptible	0.020	Barely perceptible	0.00078	Below barely perceptible
SR-25	220	0.019	Barely perceptible	N/A	N/A	0.008	Below barely perceptible	0.007	Below barely perceptible	0.00027	Below barely perceptible
SR-25	220	0.019	Barely perceptible	0.015	Barely perceptible	0.008	Below barely perceptible	0.007	Below barely perceptible	0.00027	Below barely perceptible
SR-29	100	0.046	Distinctly perceptible	N/A	N/A	0.019	Barely perceptible	0.017	Barely perceptible	0.00065	Below barely perceptible
SR-29	100	0.046	Distinctly perceptible	0.035	Barely perceptible	0.019	Barely perceptible	0.017	Barely perceptible	0.00065	Below barely perceptible
SR-30	1280	0.003	Below barely perceptible	N/A	N/A	0.001	Below barely perceptible	0.001	Below barely perceptible	0.00004	Below barely perceptible
SR-30	1280	0.003	Below barely perceptible	0.002	Below barely perceptible	0.001	Below barely perceptible	0.001	Below barely perceptible	0.00004	Below barely perceptible
SR-36	1100	0.003	Below barely perceptible	N/A	N/A	0.001	Below barely perceptible	0.001	Below barely perceptible	0.00005	Below barely perceptible
SR-36	1100	0.003	Below barely perceptible	0.003	Below barely perceptible	0.001	Below barely perceptible	0.001	Below barely perceptible	0.00005	Below barely perceptible
SR-38	1505	0.002	Below barely perceptible	N/A	N/A	0.001	Below barely perceptible	0.001	Below barely perceptible	0.00003	Below barely perceptible
SR-38	1505	0.002	Below barely perceptible	0.002	Below barely perceptible	0.001	Below barely perceptible	0.001	Below barely perceptible	0.00003	Below barely perceptible
SR-46	1255	N/A	N/A	N/A	N/A	0.001	Below barely perceptible	0.001	Below barely perceptible	0.00004	Below barely perceptible
SR-46	2375	0.001	Below barely perceptible	0.001	Below barely perceptible	0.001	Below barely perceptible	0.001	Below barely perceptible	0.00002	Below barely perceptible
SR-54	1435	0.002	Below barely perceptible	N/A	N/A	0.001	Below barely perceptible	0.001	Below barely perceptible	0.00003	Below barely perceptible
SR-54	1435	0.002	Below barely perceptible	0.002	Below barely perceptible	0.001	Below barely perceptible	0.001	Below barely perceptible	0.00003	Below barely perceptible
SR-57	135	0.033	Barely perceptible	N/A	N/A	0.014	Barely perceptible	0.012	Barely perceptible	0.00047	Below barely perceptible
SR-57	135	0.033	Barely perceptible	0.025	Barely perceptible	0.014	Barely perceptible	0.012	Barely perceptible	0.00047	Below barely perceptible
SR-58	985	N/A	N/A	N/A	N/A	0.002	Below barely perceptible	0.001	Below barely perceptible	0.00005	Below barely perceptible
SR-58	1005	0.004	Below barely perceptible	0.003	Below barely perceptible	0.002	Below barely perceptible	0.001	Below barely perceptible	0.00005	Below barely perceptible
SR-59	1025	N/A	N/A	N/A	N/A	0.001	Below barely perceptible	0.001	Below barely perceptible	0.00005	Below barely perceptible
SR-59	7200	0.000	Below barely perceptible	0.000	Below barely perceptible	0.000	Below barely perceptible	0.000	Below barely perceptible	0.00001	Below barely perceptible
SR-60	2585	0.001	Below barely perceptible	N/A	N/A	0.001	Below barely perceptible	0.000	Below barely perceptible	0.00002	Below barely perceptible
SR-60	2585	0.001	Below barely perceptible	0.001	Below barely perceptible	0.001	Below barely perceptible	0.000	Below barely perceptible	0.00002	Below barely perceptible

Notes:  
 The first distance for each receiver was measured to the closest construction activity, which may be the site boundary, the new access road (120th St), or a gen-tie route. The analyzed equipment is limited to those items scheduled to operate for the closest activity.

The second distance for each receiver was measured to the solar site boundary. It was assumed that any equipment could operate at this distance.

<sup>1</sup> Considered representative of any full size/large excavator, dozer, backhoe, etc.

<sup>2</sup> Considered representative of any small excavator, dozer, backhoe, etc.





# Appendix E

## Cumulative Projects List

---

*This page intentionally left blank.*

**Table E-1. Cumulative Projects List**

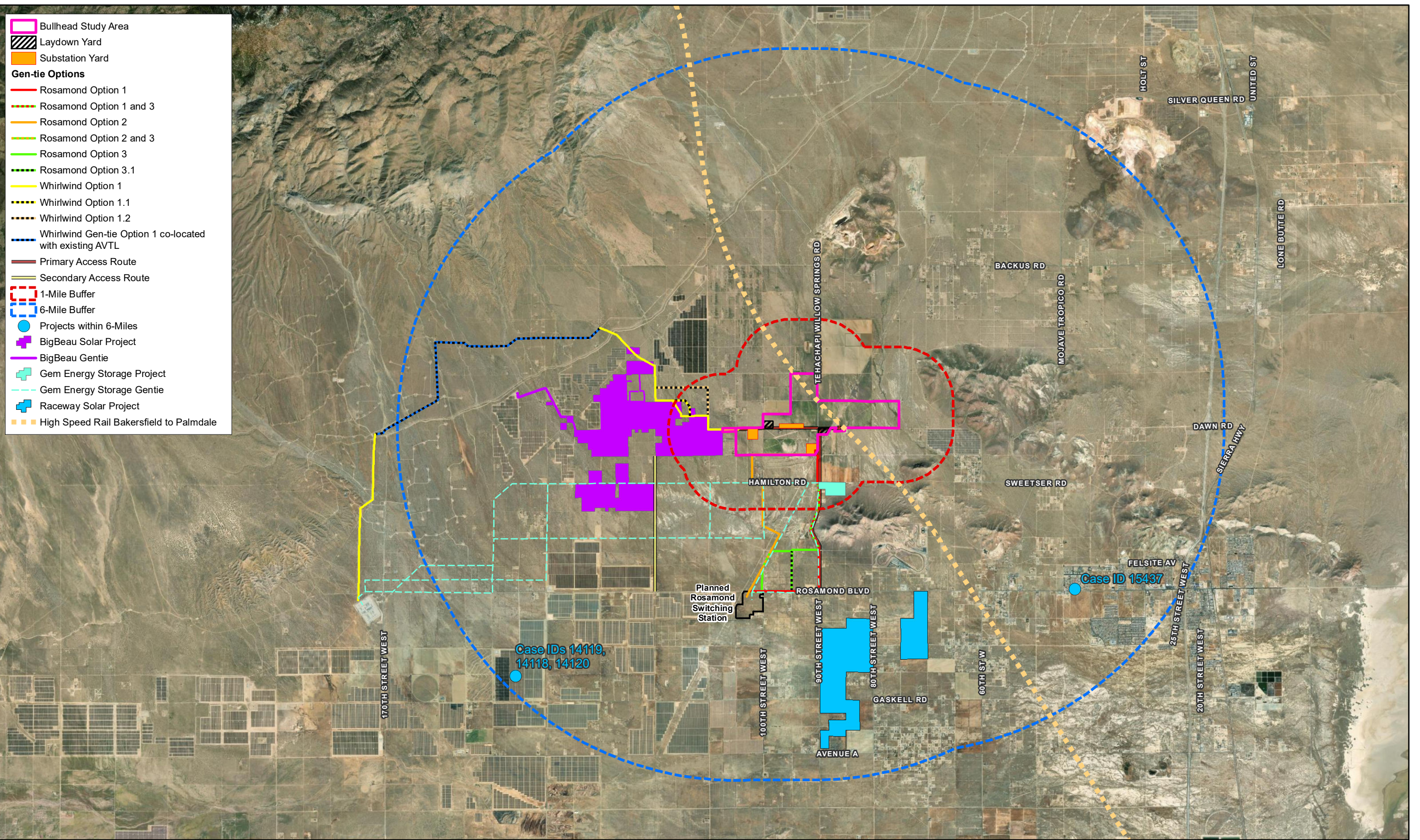
Distance from Bullhead Solar (Within)	CaseID/ Map ID	Applicant/Project Name	Project Location	Project Description	Case Type	Project Site APN	Project Phase/Schedule	Acreage/SF/Miles	Project Status	MW
1-Mile	-	EDFR/Big Beau Solar Project	North of Ave. to the Stars, South of 125 <sup>th</sup> /Champagne Ave, East of 135 <sup>th</sup> W., West of 105 <sup>th</sup> St W.	128 MW AC photovoltaic solar and associated infrastructure, Gen-Tie Line, and 60 MW Battery Energy Storage System	ZCC, CUPs	Multiple	Under construction (10-14 months. Will be in full operation by time Bullhead is under construction in 2024.	2,285 acres	Approved Construction Phase	128
1-Mile	-	California High Speed Rail Authority, High Speed Rail Bakersfield to Palmdale Section	This segment of HSR is approximately 80 miles in length, with a stretch of approximately 1.5 miles crossing through the project study area in a northwest to southeast direction.	The High Speed Rail project in total consists of Phase 1 which is 520 miles connecting San Francisco to Los Angeles and Anaheim through the Central Valley of California. Phase 2 is approximately 300 miles connecting the Central Valley to Sacramento, Los Angeles and San Diego. The segment crossing through the Bullhead site is part of Phase 1. The HSR would consist of state-of-the-art, electrically powered, high-speed, steel wheel on steel wheel technology capable of operating up to 220 miles per hour over a fully grad-separated dedicated track.	N/A	346-032-20, 346-032-21, 346-032-52, 346-032-53, 315-050-40	A joint CEQA/NEPA document was completed in August 2021 with a Notice of Determination and NEPA Record of Decision. Would this segment be funded for construction, a portion of the alignment crosses through part of the Bullhead Solar project site and accommodations may need to be made to reconfigure panels in that area should it become necessary. Construction of the Bakersfield to Palmdale segment is not projected to commence until after the Bullhead Solar project is operational.	1.5 miles in study area (80 miles in total length)	CEQA Approved. Construction funding and start is to be determined.	N/A
1-Mile	-	Hydrostar Gem A-CAES, LLC/Gem Energy Storage Center	South of Hamilton Road, east of Tehachapi Willow Springs Road. Transmission line alternatives generally follow Hamilton Road, Irone Avenue, 150 <sup>th</sup> Street W., and Fisher Ave heading toward existing Whirlwind Substation.	An Application for Certification is being processed with the California Energy Commission (CEC) for the development of an advanced compressed air energy storage facility. Gem would include all-electric air compressor trains, air driven power turbine generators, underground compressed air storage cavern, a 31-acre hydrostatically compensating water reservoir, an onsite 230kV substation, and up to 10.9 miles of transmission line to the Whirlwind substation, among other infrastructure.	ZC, CUP	315-081-01, 315-011-09, 315-081-09	Under review by the CEC. Anticipated construction to commence in Q3 or Q4 2023 and would be operational before Bullhead is constructed.	71 acres plus 40-acre laydown area.	Anticipated CEC approvals by July 2023	500

Distance from Bullhead Solar (Within)	CaseID/Map ID	Applicant/Project Name	Project Location	Project Description	Case Type	Project Site APN	Project Phase/Schedule	Acreage/SF/Miles	Project Status	MW
6-Miles	15437	Investment Concepts	NE corner of Rosamond and Sedona	A CUP to construct an 18-unit apartment complex in a C-1 zone.	CUP	252-161-492	Construction phase not available; assumed overlap with Bullhead construction.	18 units	Approved	NA
6-Miles	14119, 14118, 14120	SGS Antelope Valley Development/Rosamond Solar Modification Project	East side of 150th Street W, approximately 1/2 mile south of Rosamond Boulevard and 1/2 mile north of Avenue A in the Rosamond area.	Addition of 100 MW of solar power on 400 adjacent acres to original project.	SPA, ZCC, CUP Mod	Multiple	Construction phase not available; assumed overlap with Bullhead construction.	1,360 acres	Approved	100
6-Miles	-	Raceway Solar	Between Rosamond Blvd. and Avenue A and between 70th Street W and 90th Street W.	Two solar photovoltaic projects on six sites totaling 1,330 acres, with 291 MW of electricity and 291 MWh energy storage.	SPA, ZCC, CUPs	Multiple	Construction underway. Will be completed by 2023; project will not overlap with Bullhead Solar construction.	1,330 acres	Approved	291

(-) not available. N/A = Not Applicable



\\PDC\ITRDS\GIS2\Projects\_4\EDF\00049\_21\_Bullhead\_Solar\00049\_21\Figures\Misc\Fig00\_CumulativeProjects\_v3.mxd Date: 7/16/2022 25119



**Figure E-1**  
**Cumulative Projects**  
**Bullhead Solar**



