Narrabri Mine Noise Monitoring

Quarter Ending March 2026 Summary Noise Report

Narrabri Coal Operations Pty Ltd

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Baan Baa NSW 2390

Prepared by:

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Making Sustainability Happen

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
v1.0	13 April 2026	Adam Sirianni	John Sleeman	John Sleeman

Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Narrabri Coal Operations Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

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1.0 Introduction

Narrabri Coal Operations Pty Ltd has commissioned SLR Consulting Australia Pty Ltd (SLR) to conduct operational noise monitoring for the Narrabri Mine located near Narrabri, New South Wales (NSW) in accordance with the approved Stage 3 Noise Management Plan (NMP) dated September 2022, Condition B2 (CoC B2) of the Narrabri Mine Development Consent (SSD-10269) and the Environment Protection Licence 12789 (EPL 12789).

The objectives of the noise monitoring programme for this operating period were as follows:

- Conduct operator attended noise surveys at 6 locations (as listed in **Section 3.3**) surrounding the mine during the day, evening and night-time periods.
- Quantify all sources of noise within each of the attended noise surveys, including their measured and/or estimated contribution and maximum level of individual noise sources.
- Assess the noise emissions of Narrabri Mine and determine compliance with respect to the limits contained in Section 5 of the NMP and the relevant approvals.

The following report uses specialist acoustic terminology. An explanation of common terms is provided in **Appendix A**.

2.0 Performance Assessment and Discussion

The following provides a summary of the attended noise measurements undertaken at each monitoring location. Further details are provided for each location in **Section 5.0** of this report.

Table 1 Performance Assessment - Operations

EPL ID	Location	Date	Narrabri Mine Contribution, dBA				Noise Criteria[1]	Measurement Periods	Standard Weather			Compliant
			LAeq(15 min) Day	LAeq(15 min) Evening	LAeq(15 min) Night	LA1(1 min) Night[4]			Day	Evening	Night	
N5	Oakleigh[2]	16/03/2026[3]	I/A	<20	N/M	N/M	Day, Evening, Night – LAeq(15min) - 35 dBA Night LA1(1min) – 45 dBA LAmax – 52 dBA	Day - 1.5 hrs Evening - 0.5 hrs Night – 1hrs	N	Y	N	Y
		17/03/2026[3]	N/M	N/M	N/M	N/M			Y	Y	Y	Y
		18/03/2026[3]	<25	I/A	I/A	I/A			Y	Y	N	Y
N6	Newhaven	16/03/2026[3]	I/A	I/A	I/A	I/A			N	Y	N	Y
		17/03/2026[3]	26	I/A	23	25 (25)			Y	Y	Y	Y
		18/03/2026[3]	26	I/A	22	29 (29)			Y	Y	Y	Y
N8	Haylin View[2]	16/03/2026[3]	I/A	I/A	N/M	N/M			N	Y	N	Y
		17/03/2026[3]	26	I/A	26	28 (28)			Y	Y	Y	Y
		18/03/2026[3]	26	I/A	26	28 (28)			Y	Y	N	Y
N9	High Range[2]	16/03/2026[3]	I/A	I/A	33	34 (34)			N	Y	N	Y
		17/03/2026[3]	30	I/A	25	29 (29)			Y	Y	Y	Y
		18/03/2026[3]	26	22	I/A	I/A			Y	Y	Y	Y
N11	Uambi	16/03/2026[3]	I/A	I/A	I/A	I/A			N	Y	N	Y
		17/03/2026[3]	I/A	I/A	I/A	I/A			Y	Y	Y	Y
		18/03/2026[3]	I/A	I/A	I/A	I/A			Y	Y	N	Y
N1	Bow Hills[1]	16/03/2026	I/A	26	27	32 (32)	Day, Evening, Night LAeq(15min) - 50 dBA	Day - 15 min Evening - 15 min Night - 15 min	Y	N	N	Y

I/A = Inaudible, N/M = Not Measurable

Note 1: A private agreement between NCOPL and the residents of N1 Bow Hills of 50 dBA LAeq(15minute) is in place. This new level of 50 dBA LAeq(15minute) replaces the levels identified in CoC B2 and the limits contained in condition L3 of Environment Protection Licence No 12789.

Note 2: Property is owned by Narrabri Coal Operations. Noise limits contained in the CoC B2 and the contained in condition L3 of Environment Protection Licence No 12789 are not applicable.

Note 3: Evening and Night monitoring conducted on this date, Day monitoring conducted during the following day period.

Note 4: Night L_{Amax} noise levels presented in parentheses.

3.0 Noise Criteria

3.1 Development Consent, EPL and NMP

Noise monitoring at the Narrabri Mine was conducted in accordance with EPL 12789, CoC B2 of the Development Consent and the NMP. The site specific EPL and CoC B2 noise limits are summarised in Section 5 of the NMP and are reproduced in **Table 2**. These criteria do not apply where the mine has an agreement with the relevant owner/s of the residence to generate higher noise levels, or where the property is mine owned.

Table 2 Development Consent and EPL Noise Criteria

Location	Day	Evening	Night	
	LAeq(15minute)	LAeq(15minute)	LAeq(15minute)	LA1(1minute)
CoC B2				
687a[2]	40	36	36	52[1]
All Privately owned Residences	35	35	35	52[1]
EPL 12789 Condition L4.1				
All Privately owned Residences	35	35	35	45

Note 1: Night Criteria defined as LAmax in CoC B2.

Note 2: Monitoring conducted at representative adjacent receiver N5 – "Oakleigh". As the noise limits at N5 are lower than those outlined in CoC B2 for 687a, the noise limits for N5 are presented for this location. As N5 is closer to Narrabri Mine than 687a, compliance at N5 would indicate compliance at 687a.

3.2 Non-compliances & Exemptions

In accordance with Section 11.1.3 of the NSW Industrial Noise Policy (INP) a development is deemed to be in non-compliance with a noise consent or licence condition if the monitored noise level is more than 2 dB above the statutory noise limit specified in the consent or licence. This may occur for two reasons:

- The noise from the Narrabri Mine is excessive, in which case Narrabri Mine will be not complying with its consent or licence condition.
- The noise was increased by extreme, non-standard weather effects—in which case the Narrabri Mine is not considered to be in noncompliance with its consent or licence condition.

In this latter case, further monitoring at a later date is required to determine compliance under "normal" meteorological conditions.

The INP states in Section 9.2 that *"it is not practicable to meet the noise limit under all inversion events; hence exceedances under extreme temperature inversions are not considered to be a non-compliance with consent or licence conditions."*

Non-standard weather effects include:

- Wind speeds greater than 3 m/s at 10m above ground level; or
- Stability category F temperature inversion conditions and wind speeds greater than 2 m/s at 10 metres above ground level; or
- Stability category G temperature inversion conditions

As stated in EPL 12789 "*Data recorded by the meteorological station identified as EPA Identification Point(s) W1 must be used to determine meteorological conditions and temperature inversion conditions (stability category) are to be determined by direct measurement over a minimum 50m height interval as referred to in Part E2 of Appendix E of the "New South Wales Industrial Noise Policy*" dated January 2000 ISBN 0 7313 2715 2."

Weather and Temperature inversion monitoring is undertaken continuously in accordance with EPL 12789 with monitoring locations displayed in **Figure 1**. Monitoring Location W1 records wind speed and direction at 10m above ground level. Temperature inversion monitoring is undertaken continuously by directly measuring temperature at two elevations 50 m apart (10 m & 60 m from ground level) at monitoring location W2. All weather data reported in **Table 5** to **Table 20** have been recorded at these monitoring locations.

3.3 Attended Monitoring

Attended Noise monitoring is to be undertaken on a quarterly basis at residential areas. The attended monitoring will take place at the following locations:

3.3.1 EPL Monitoring Locations

- N5 Oakleigh – 16293 Kamilaroi Highway Baan Baa
- N6 Newhaven – 184 Greylands Road Turrawan
- N8 Haylin View – 791 Mayfield Road, Baan Baa
- N9 High Range – 92 Davis Road Turrawan

It is noted that the Narrabri Mine own the properties Oakleigh (N5), Haylin View (N8) and High Range (N9).

3.3.2 NMP Monitoring Location

- N1 Bow Hills – 16652 Kamilaroi Highway Baan Baa
- N11 Uambi – 713 Yarranabee Road, Baan Baa
    - Monitoring to be conducted within approximately 600 m of the residence on the property "Uambi" (nearest publicly accessible location)

It is noted that the Narrabri Mine has a private agreement with the landholder of Bow Hills (N1) for increased noise limits of 50 dBA $L_{Aeq(15minute)}$. This new level replaces the levels identified in the Development Consent and the limits contained in condition L3 of Environment Protection Licence No 12789.

3.3.3 EPL Monitoring Requirements

- At each one of the monitoring locations N5, N6, N8 and N9;
- Occur quarterly in a reporting period;
- Occur during each day, evening and night period as defined in the NSW Industrial Noise Policy for a minimum of:
    i. 1.5 hours during the day;
    ii. 30 minutes during the evening; and
    iii. 1 hour during the night.
- Occur for three consecutive operating days.

3.3.4 NMP Monitoring Requirements

- At monitoring location N1:
  - Occur quarterly in a reporting period; and
  - Occur during a day, evening and night period as defined in the NSW Industrial Noise Policy for a minimum 15 minutes.
- At monitoring location N11:
  - Occur quarterly in a reporting period;
  - Occur during each day, evening and night period as defined in the NSW Industrial Noise Policy for a minimum of:
    i. 1.5 hours during the day;
    ii. 30 minutes during the evening; and
    iii. 1 hour during the night.
  - Occur for three consecutive operating days.

4.0 Operational Noise Monitoring Methodology

4.1 General Requirements

All acoustic instrumentation employed throughout the monitoring programme has been designed to comply with the requirements of AS IEC 61672.1 – 2019 *Electroacoustics— Sound level meters*, AS IEC 60942 2017 *Electroacoustics – Sound calibrators* and carried current NATA or manufacturer calibration certificates. Instrument calibration was checked before and after each measurement survey, with the variation in calibrated levels not exceeding ±0.5 dBA. Calibration certificates for all instruments employed during the monitoring campaign are presented in **Appendix B.**

4.2 Methodology - Operator Attended Noise Monitoring

Operator attended noise measurements were conducted during the day, evening and night-time periods for a minimum of 1.5 hours during the day; 30 minutes during the evening and 1 hour during the night at the four EPL nominated noise monitoring locations and at NMP nominated location N11. At NMP nominated monitoring location N1, operator attended noise measurements were conducted for 15 minutes during the day, evening and night. These monitoring locations represent the most affected receiver locations, listed in **Table 3** and shown in **Figure 1**. During the operator attended noise measurements, the character and relative contribution of ambient noise sources and mine contributions were determined.

Table 3 Noise Monitoring Locations

Monitoring Location	Monitoring Requirements	Receiver Type	Address	Monitoring Location - MGA Zone 55	
				Easting (m)	Northing (m)
N5[1,2]	EPL	Residence	Oakleigh – 16293 Kamilaroi Highway, Baan Baa	779526	6617751
N6[1,2]	EPL	Residence	Newhaven – 184 Greylands Road, Turrawan	776564	6624643
N8[1]	EPL	Residence	Haylin View – 791 Mayfield Road, Baan Baa	777428	6617316
N9[1]	EPL	Residence	High Range – 92 Davis Road, Turrawan	775879	6625895
N11	NMP	Residence	Uambi – 713 Yarranabee Road, Baan Baa[3]	776002	6609882
N1[2]	NMP	Residence	Bow Hills – 16652 Kamilaroi Highway, Baan Baa	780114	6620641

Note 1: EPL monitoring locations

Note 2: NMP monitoring locations

Note 3: Monitoring conducted at nearest publicly accessible location, within approximately 600 m of the residence.

The objective of the operator attended noise monitoring was to measure the $L_{A1(1minute)}$ and the $L_{Aeq(15minute)}$ noise level contribution from the Narrabri Mine at the nearest potentially affected receptors in order to determine the noise contribution of operational activities associated with Narrabri Mine over each 15 minute measurement period. In addition, the operator quantifies and characterises the overall levels of ambient noise in the area (i.e. L_{Amax}, L_{A1}, L_{A10}, L_{A90}, and L_{Aeq}) over the 15 minute measurement interval.

Operator attended noise measurements were conducted using one-third octave integrating Brüel & Kjær Type 2250 and 2250L sound level meters (s/n 3011830, s/n 3004635, s/n 3005904 respectively). Attended noise measurements were undertaken by SLR staff Alex Bian, Patrick Marshall and Adam Sirianni.

Figure 1 Attended Noise Monitoring Locations

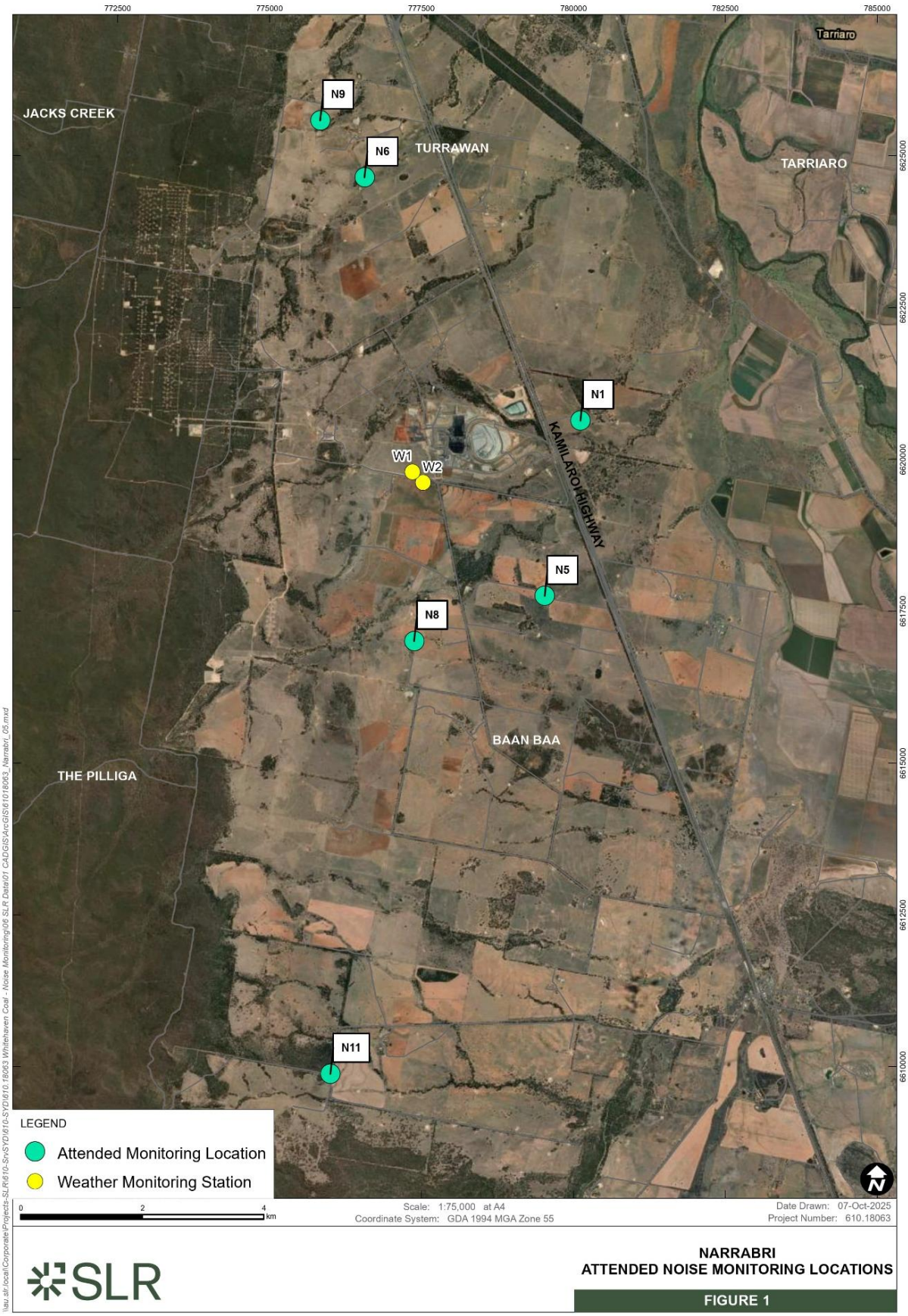


Table 4 presents a summary of which days of the week the quarterly monitoring was conducted, in accordance with condition M7.4 of EPL 12789 and Section 6.5 of the NMP.

Table 4 Days of the Week Quarterly EPL Monitoring was Conducted – Q1 2026

Period	Day of the Week (Excluding Weekends and Public Holidays)				
	Monday	Tuesday	Wednesday	Thursday	Friday
EPL Monitoring Locations[1]					
Day		17 March 2026	18 March 2026	19 March 2026	
Evening	16 March 2026	17 March 2026	18 March 2026		
Night	16 March 2026	17 March 2026	18 March 2026		
NMP Monitoring Location					
Day	16 March 2026				
Evening	16 March 2026				
Night	16 March 2026				

Note 1: Includes NMP Location N11 - Uambi

5.0 Results and Discussion

5.1 Results of Operator Attended Monitoring

Results of the operator attended noise surveys at N5, N6, N8, N9, N11 and N1 are provided **Table 5** to **Table 20**.

Ambient noise levels presented include all noise sources such as transport (roads, rail and aircraft), fauna (insects, frogs, birds and bats), the natural environment (wind in trees), domestic noises, other industrial operations as well as Narrabri Mine noise emissions.

Weather data during the monitoring period has been obtained from the weather station located on the Narrabri Mine site and observed conditions.

The tables also provide the following information:

- Date and start time, operator and equipment details.
- Monitoring location.
- Wind velocity (m/s) and temperature (°C) at weather station W1, as detailed in **Section 3.2**.
- Typical maximum (L_{Amax}) and contributed $L_{Aeq(15minute)}$ noise levels.

5.1.1 Operator Attended Noise Survey Results – EPL Monitoring Location N5

Results of the operator attended noise surveys at N5 are provided in **Table 5**, **Table 6** and **Table 7**. Monitoring location N5 represents residential receptors located to the southeast of the site in Oakleigh.

Table 5 Operator Attended EPL Noise Survey Results – N5 – Oakleigh (Day 1)

Period Date/Start Time Weather SLM Details	Criteria[1]	Number	Stability Category	Primary Noise Descriptor						Mine Contribution, (dBA)	Description
				LAmax (dBA)	LA1 (dBA)	LA10 (dBA)	LA90 (dBA)	LAeq (dBA)	LAmin (dBA)		
Day 1 17/03/2026 10:32 4.5 – 6.2 m/s NW 26-28°C 3005904	35 dBA LAeq(15min)	1	A	63	55	51	42	48	37	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Birds 40-53 Traffic 40-45 Wind 40-63 Insects 36-45 Impacts 40-62
		2	A	56	52	48	41	46	37	I/A	
		3	A	58	51	46	39	44	35	I/A	
		4	A	53	48	45	36	42	31	I/A	
		5	A	53	47	44	37	41	33	I/A	
		6	A	62	48	45	36	41	28	I/A	
Evening 1 16/03/2026 20:44 1.8 – 2.0 m/s SW 26-27°C 3005904	35 dBA LAeq(15min)	1	F	44	30	23	21	23	20	<20 LAeq	**Site Related Noise Events:** Dozer operations 20-23 **Other Noise Events:** Insects 24-37 Birds 30-44
		2	F	38	25	23	21	22	20	<20 LAeq	
Night 1 16/03/2026 22:00 2.1 – 2.5 m/s NW 23-24°C 3005904	35 dBA LAeq(15min) 45 dBA LA1(1min) 52 dBA LAmax	1	G	41	39	35	23	31	20	N/M	**Site Related Noise Events:** Surface activity faintly audible at times **Other Noise Events:** Insects 28-38 Traffic 30-56
		2	F	48	42	38	22	34	20	I/A	
		3	G	48	45	39	21	35	19	I/A	
		4	G	56	49	40	22	38	19	I/A	

Note: N/M = Not Measurable, I/A = Inaudible

Note 1: Mine owned receiver – criteria not applicable.

Table 6 Operator Attended EPL Noise Survey Results – N5 – Oakleigh (Day 2)

Period Date/Start Time Weather SLM Details	Criteria[1]	Number	Stability Category	Primary Noise Descriptor						Mine Contribution, (dBA)	Description
				LAmax (dBA)	LA1 (dBA)	LA10 (dBA)	LA90 (dBA)	LAeq (dBA)	LAmin (dBA)		
Day 2 18/03/2026 11:25 1.3 – 2.1 m/s E/NE 30°C 3005904	35 dBA LAeq(15min)	1	B	46	38	33	25	30	22	I/A	**Site Related Noise Events:** Dozer operations briefly audible **Other Noise Events:** Insects 30-41 Birds 30-55 Traffic 30-36 Train 42-46 Impacts 41-60
		2	C	60	44	37	23	34	20	I/A	
		3	D	52	42	35	25	32	22	I/A	
		4	A	54	37	33	23	30	21	N/M	
		5	D	54	43	33	24	32	21	N/M	
		6	C	55	42	31	24	31	21	I/A	
Evening 2 17/03/2026 20:47 1.5 – 2.4 m/s SSW 25-26°C 3005904	35 dBA LAeq(15min)	1	F	45	38	33	23	29	20	N/M	**Site Related Noise Events:** Surface activity faintly audible at times **Other Noise Events:** Insects 25-28 Traffic 30-45 Train 25-54
		2	F	54	49	41	25	38	21	I/A	
Night 2 17/03/2026 22:00 0.9 – 1.7 m/s SE 24°C 3005904	35 dBA LAeq(15min) 45 dBA LA1(1min) 52 dBA LAmax	1	F	46	43	40	25	36	21	N/M	**Site Related Noise Events:** Surface activity faintly audible at times **Other Noise Events:** Insects 25-32 Traffic 30-49 Train 32-50
		2	F	50	48	45	21	40	18	I/A	
		3	F	49	44	41	22	36	19	N/M	
		4	F	49	46	43	20	38	18	N/M	

Note: N/M = Not Measurable, I/A = Inaudible

Note 1: Mine owned receiver – criteria not applicable.

Table 7 Operator Attended EPL Noise Survey Results – N5 – Oakleigh (Day 3)

Period Date/Start Time Weather SLM Details	Criteria[1]	Number	Stability Category	Primary Noise Descriptor						Mine Contribution, (dBA)	Description
				LAmax (dBA)	LA1 (dBA)	LA10 (dBA)	LA90 (dBA)	LAeq (dBA)	LAmin (dBA)		
Day 3 19/03/2026 10:06 0.8 – 3.1 m/s S/ENE 21-23°C 3005904	35 dBA LAeq(15min)	1	D	56	41	38	28	35	23	I/A	**Site Related Noise Events:** Surface activity 20-25 **Other Noise Events:** Birds 38-62 Traffic 30-42 Animals 36-45 Wind 30-35
		2	D	61	52	38	29	38	26	I/A	
		3	D	62	48	36	23	35	21	22 LAeq	
		4	D	53	41	31	23	30	20	<20 LAeq	
		5	D	58	45	34	24	33	22	22 LAeq	
		6	D	56	46	36	25	34	23	<25 LAeq	
Evening 3 18/03/2026 21:20 1.9 – 3.6 m/s SSE 25°C 3005904	35 dBA LAeq(15min)	1	E	46	37	31	18	27	17	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Insects 20-37 Traffic 30-43 Impacts 41-46
		2	E	41	35	31	19	26	18	I/A	
Night 3 18/03/2026 22:07 3.4 – 4.4 m/s SE 25-26°C 3005904	35 dBA LAeq(15min) 45 dBA LA1(1min) 52 dBA LAmax	1	E	69	39	36	23	35	20	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Insects 20-27 Traffic 30-46 Wind 30-43 Impacts 69 Train 50
		2	E	43	40	33	25	31	21	I/A	
		3	E	50	45	38	24	34	22	I/A	
		4	D	40	32	27	20	25	19	I/A	

Note: N/M = Not Measurable, I/A = Inaudible

Note 1: Mine owned receiver – criteria not applicable.

5.1.2 Operator Attended Noise Survey Results – EPL Monitoring Location N6

Results of the operator attended noise surveys at N6 are provided in **Table 8**, **Table 9** and **Table 10**. Monitoring location N6 represents residential receptors located to the northwest of the site in Newhaven.

Table 8 Operator Attended EPL Noise Survey Results – N6 – Newhaven (Day 1)

Period Date/Start Time Weather SLM Details	Criteria	Number	Stability Category	Primary Noise Descriptor						Mine Contribution, (dBA)	Description
				LAmax (dBA)	LA1 (dBA)	LA10 (dBA)	LA90 (dBA)	LAeq (dBA)	LAmin (dBA)		
Day 1 17/03/2026 08:37 6.3 – 7.7 m/s NNW 24-26°C 3005904	35 dBA LAeq(15min)	1	D	59	56	52	42	49	36	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Birds 43-69 Traffic 36-51 Wind 45-65 Impacts 57
		2	D	65	57	54	44	51	40	I/A	
		3	D	61	57	53	42	49	37	I/A	
		4	D	69	59	54	45	51	41	I/A	
		5	C	61	57	54	45	51	41	I/A	
		6	B	61	57	54	42	50	38	I/A	
Evening 1 16/03/2026 19:48 1.9 – 2.8 m/s WSW 27-28°C 3005904	35 dBA LAeq(15min)	1	F	41	30	26	22	24	21	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Insects 25-30 Birds 30-41 Animals 28-37 Train 39
		2	F	34	28	25	23	24	21	I/A	
Night 1 16/03/2026 23:29 1.8 – 2.2 m/s WNW 23°C 3005904	35 dBA LAeq(15min) 45 dBA LA1(1min) 52 dBA LAmax	1	G	49	45	34	22	33	20	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Insects 25-30 Animals 27-38 Traffic 30-49
		2	G	47	43	38	23	34	20	I/A	
		3	G	48	44	36	23	33	20	I/A	
		4	G	49	43	30	21	30	19	I/A	

Note: N/M = Not Measurable, I/A = Inaudible

Table 9 Operator Attended EPL Noise Survey Results – N6 – Newhaven (Day 2)

Period Date/Start Time Weather SLM Details	Criteria	Number	Stability Category	Primary Noise Descriptor						Mine Contribution, (dBA)	Description
				LAmax (dBA)	LA1 (dBA)	LA10 (dBA)	LA90 (dBA)	LAeq (dBA)	LAmin (dBA)		
Day 2 18/03/2026 09:28 1.6 – 3.8 m/s NW/NE 26-30°C 3005904	35 dBA LAeq(15min)	1	D	54	45	37	29	35	26	I/A	**Site Related Noise Events:** Main exhaust vent fan 22-30 **Other Noise Events:** Birds 32-66 Train 35-45 Wind 30-44 Traffic 30-36 Aircraft 40-52
		2	D	60	48	37	29	37	26	N/M	
		3	D	55	44	34	25	33	23	26 LAeq	
		4	D	60	50	41	25	38	22	<25 LAeq	
		5	B	66	50	40	25	40	21	I/A	
		6	C	49	42	38	26	34	24	I/A	
Evening 2 17/03/2026 19:55 1.1 – 1.3 m/s SSW 26-27°C 3005904	35 dBA LAeq(15min)	1	E	46	43	33	22	31	20	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Insects 20-25 Birds 34 Traffic 30-46
		2	E	46	43	38	23	34	20	I/A	
Night 2 17/03/2026 23:29 1.3 – 2.0 m/s SSE 24°C 3005904	35 dBA LAeq(15min) 45 dBA LA1(1min) 52 dBA LAmax	1	F	52	45	40	25	36	23	23 LAeq 25 LA1 25 LAmax	**Site Related Noise Events:** Main exhaust vent fan 20-25 **Other Noise Events:** Insects 28-30 Traffic 30-57 Animals 41 Aircraft 29-33
		2	F	52	49	43	24	38	21	N/M	
		3	F	44	39	31	21	28	19	<20 LAeq 20 LA1 20 LAmax	
		4	E	57	51	41	21	39	19	N/M	

Note: N/M = Not Measurable, I/A = Inaudible

Table 10 Operator Attended EPL Noise Survey Results – N6 – Newhaven (Day 3)

Period Date/Start Time Weather SLM Details	Criteria	Number	Stability Category	Primary Noise Descriptor						Mine Contribution, (dBA)	Description
				LAmax (dBA)	LA1 (dBA)	LA10 (dBA)	LA90 (dBA)	LAeq (dBA)	LAmin (dBA)		
Day 3 19/03/2026 08:08 1.0 – 2.4 m/s S/WNW 20°C 3005904s	35 dBA LAeq(15min)	1	E	53	46	40	27	37	23	I/A	**Site Related Noise Events:** Dozer operations 27-45 **Other Noise Events:** Birds 35-58 Traffic 34-46
		2	E	51	47	41	30	38	28	I/A	
		3	E	52	43	36	29	34	25	I/A	
		4	D	52	42	36	26	33	24	26 LAeq	
		5	D	57	50	41	32	39	30	I/A	
		6	E	58	48	40	35	39	32	I/A	
Evening 3 18/03/2026 20:09 1.2 – 1.6 m/s S 25°C 3005904	35 dBA LAeq(15min)	1	F	39	30	26	20	23	19	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Insects 22-26 Traffic 30-44 Animals 32-51
		2	F	51	42	34	23	31	21	I/A	
Night 3 18/03/2026 23:34 2.7 – 4.4 m/s SSE 24-25°C 3005904	35 dBA LAeq(15min) 45 dBA LA1(1min) 52 dBA LAmax	1	E	44	39	35	25	32	23	I/A	**Site Related Noise Events:** Main exhaust vent fan 21-29 **Other Noise Events:** Insects 25-30 Traffic 30-48 Wind 30-42 Animals 25-31
		2	D	48	42	37	23	33	21	I/A	
		3	D	45	41	31	22	29	20	N/M	
		4	E	44	39	28	21	27	19	22 LAeq 29 LA1 29 LAmax	

Note: N/M = Not Measurable, I/A = Inaudible

5.1.3 Operator Attended Noise Survey Results – EPL Monitoring Location N8

Results of the operator attended noise surveys at N8 are provided in **Table 11**, **Table 12** and **Table 13**. Monitoring location N8 represents residential receptors located to the southeast of the site in Haylin View.

Table 11 Operator Attended EPL Noise Survey Results – N8 – Haylin View (Day 1)

Period Date/Start Time Weather SLM Details	Criteria[1]	Number	Stability Category	Primary Noise Descriptor						Mine Contribution, (dBA)	Description
				LAmax (dBA)	LA1 (dBA)	LA10 (dBA)	LA90 (dBA)	LAeq (dBA)	LAmin (dBA)		
Day 1 17/03/2026 10:32 4.5 – 6.2 m/s NW 26-28°C 3004635	35 dBA LAeq(15min)	1	A	63	54	49	38	46	35	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Bird 41-55 Local vehicle passby 55-61 Wind 33-63 Animal 44-49
		2	A	54	48	43	33	40	30	I/A	
		3	A	56	50	45	35	42	32	I/A	
		4	A	58	51	46	34	42	30	I/A	
		5	A	61	50	42	31	40	28	I/A	
		6	A	55	48	43	29	39	24	I/A	
Evening 1 16/03/2026 20:44 1.8 – 2.0 m/s SW 26-27°C 3004635	35 dBA LAeq(15min)	1	F	46	45	44	35	42	28	N/M	**Site Related Noise Events:** Dozer operations faintly audible **Other Noise Events:** Animal 42-46 Insect 39-46
		2	F	46	41	40	36	38	29	I/A	
Night 1 16/03/2026 22:00 2.1 – 2.5 m/s NW 23-24°C 3004635	35 dBA LAeq(15min) 45 dBA LA1(1min) 52 dBA LAmax	1	G	50	43	41	35	39	29	N/M	**Site Related Noise Events:** Dozer operations faintly audible **Other Noise Events:** Insect 38-43 Human activity 53-55
		2	F	43	41	39	34	37	27	N/M	
		3	G	55	41	39	34	37	27	I/A	
		4	G	43	40	38	32	36	26	I/A	

Note: N/M = Not Measurable, I/A = Inaudible

Note 1: Mine owned receiver – criteria not applicable

Table 12 Operator Attended EPL Noise Survey Results – N8 – Haylin View (Day 2)

Period Date/Start Time Weather SLM Details	Criteria[1]	Number	Stability Category	Primary Noise Descriptor						Mine Contribution, (dBA)	Description
				LAmax (dBA)	LA1 (dBA)	LA10 (dBA)	LA90 (dBA)	LAeq (dBA)	LAmin (dBA)		
Day 2 18/03/2026 10:39 1.3 – 2.2 m/s NNW-NNE 28-30°C 3004635	35 dBA LAeq(15min)	1	C	63	42	32	21	31	19	26 LAeq	**Site Related Noise Events:** Dozer operations 23-28 **Other Noise Events:** Insects 36-37 Birds 41-63
		2	B	50	42	33	22	30	20	N/M	
		3	B	59	48	36	23	36	20	I/A	
		4	C	54	44	34	22	32	19	I/A	
		5	D	57	50	41	24	38	20	I/A	
		6	A	50	37	29	22	27	20	I/A	
Evening 2 17/03/2026 20:47 1.5 – 2.4 m/s SSW 25-26°C 3004635	35 dBA LAeq(15min)	1	F	47	45	45	35	43	27	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Animals 45-47 Insects 46-52
		2	F	52	46	44	39	43	29	I/A	
Night 2 17/03/2026 22:00 0.9 – 1.7 m/s SE 24°C 3004635	35 dBA LAeq(15min) 45 dBA LA1(1min) 52 dBA LAmax	1	F	47	46	45	39	43	28	22 LAeq 26 LA1 26 LAmax	**Site Related Noise Events:** Dozer operations 20-28 **Other Noise Events:** Insects 42-48 Traffic 41-42
		2	F	48	47	46	40	44	32	26 LAeq 28 LA1 28 LAmax	
		3	F	48	47	46	41	44	31	I/A	
		4	F	48	45	44	39	42	30	I/A	

Note: N/M = Not Measurable, I/A = Inaudible

Note 1: Mine owned receiver – criteria not applicable.

Table 13 Operator Attended EPL Noise Survey Results – N8 – Haylin View (Day 3)

Period Date/Start Time Weather SLM Details	Criteria[1]	Number	Stability Category	Primary Noise Descriptor						Mine Contribution, (dBA)	Description
				LAmax (dBA)	LA1 (dBA)	LA10 (dBA)	LA90 (dBA)	LAeq (dBA)	LAmin (dBA)		
Day 3 19/03/2026 9:15 0.8 – 2.7 m/s ENE 20-22°C 3004635	35 dBA LAeq(15min)	1	E	53	40	37	30	34	26	N/M	**Site Related Noise Events:** Surface activity 22-26 **Other Noise Events:** Insects 31-46 Birds 35-70 Farm activity 41-52 Local traffic 41-52
		2	E	70	46	41	32	40	27	N/M	
		3	E	46	40	34	25	31	22	26 LAeq	
		4	D	58	46	36	25	35	20	25 LAeq	
		5	D	63	56	44	23	43	20	22 LAeq	
		6	D	65	55	44	23	42	20	I/A	
Evening 3 18/03/2026 21:00 1.3 – 3.0 m/s SSE 25°C 3004635	35 dBA LAeq(15min)	1	F	53	46	41	38	40	31	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Insects 47-53 Impacts 41-52
		2	E	52	51	49	38	44	31	I/A	
Night 3 18/03/2026 22:00 3.4 – 4.4 m/s SE 25-26°C 3004635	35 dBA LAeq(15min) 45 dBA LA1(1min) 52 dBA LAmax	1	E	48	47	42	36	40	27	I/A	**Site Related Noise Events:** Dozer operations 26-28 **Other Noise Events:** Insects 48-49 Wind 35-51
		2	E	49	47	42	35	40	28	I/A	
		3	E	51	47	42	36	40	28	26 LAeq 28 LA1 28 LAmax	
		4	D	46	42	41	31	38	23	I/A	

Note: N/M = Not Measurable, I/A = Inaudible

Note 1: Mine owned receiver – criteria not applicable.

5.1.4 Operator Attended Noise Survey Results – EPL Monitoring Location N9

Results of the operator attended noise surveys at N9 are provided in **Table 14**, **Table 15** and **Table 16**. Monitoring location N9 represents residential receptors located to the northwest of the site in High Range.

Table 14 Operator Attended EPL Noise Survey Results – N9 – High Range (Day 1)

Period Date/Start Time Weather SLM Details	Criteria[1]	Number	Stability Category	Primary Noise Descriptor						Mine Contribution, (dBA)	Description
				LAmax (dBA)	LA1 (dBA)	LA10 (dBA)	LA90 (dBA)	LAeq (dBA)	LAmin (dBA)		
Day 1 17/03/2026 8:37 6.3 – 7.7 m/s NNW 24-26°C 3004635	35 dBA LAeq(15min)	1	D	61	53	48	38	44	35	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Wind 45-73 Birds 45-48
		2	D	62	56	50	40	47	36	I/A	
		3	D	66	57	50	40	47	36	I/A	
		4	D	67	56	49	42	47	38	I/A	
		5	C	73	56	50	40	48	36	I/A	
		6	B	62	53	48	39	45	36	I/A	
Evening 1 16/03/2026 19:51 1.9 – 2.8 m/s WSW 27-28°C 3004635	35 dBA LAeq(15min)	1	F	48	45	44	40	42	28	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Insects 43-51 Impacts 44-45
		2	F	51	44	43	41	42	35	I/A	

Period Date/Start Time Weather SLM Details	Criteria[1]	Number	Stability Category	Primary Noise Descriptor						Mine Contribution, (dBA)	Description
				LAmax (dBA)	LA1 (dBA)	LA10 (dBA)	LA90 (dBA)	LAeq (dBA)	LAmin (dBA)		
Night 1 16/03/2026 23:30 1.8 – 2.2 m/s WNW 23°C 3004635	35 dBA LAeq(15min) 45 dBA LA1(1min) 52 dBA LAmax	1	G	45	41	38	36	37	32	I/A	**Site Related Noise Events:** Dozer operations 28-34 **Other Noise Events:** Insects 32-52 Train 41-45 Traffic 37-41
		2	G	51	44	39	37	38	32	32 LAeq 34 LA1 34 LAmax	
		3	G	52	44	39	33	37	30	33 LAeq 34 LA1 34 LAmax	
		4	G	46	37	35	32	34	29	28 LAeq 32 LA1 32 LAmax	

Note: N/M = Not Measurable, I/A = Inaudible

Note 1: Mine owned receiver – criteria not applicable.

Table 15 Operator Attended EPL Noise Survey Results – N9 – High Range (Day 2)

Period Date/Start Time Weather SLM Details	Criteria[1]	Number	Stability Category	Primary Noise Descriptor						Mine Contribution, (dBA)	Description
				LAmax (dBA)	LA1 (dBA)	LA10 (dBA)	LA90 (dBA)	LAeq (dBA)	LAmin (dBA)		
Day 2 18/03/2026 8:36 1.6 – 3.8 m/s NW - NNW 25-28°C 3004635	35 dBA LAeq(15min)	1	D	57	42	37	27	34	24	I/A	**Site Related Noise Events:** Dozer operations 28-30 **Other Noise Events:** Birds 36-74 Insects 28-70
		2	D	70	47	34	28	40	25	I/A	
		3	D	59	42	35	28	34	25	30 LAeq	
		4	D	60	47	35	27	36	23	I/A	
		5	D	74	56	38	26	45	22	I/A	
		6	D	56	46	36	22	34	21	I/A	
Evening 2 17/03/2026 19:56 1.1 – 1.3 m/s SSW 26-27°C 3004635	35 dBA LAeq(15min)	1	E	43	40	38	36	37	30	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Dog 40-62 Local traffic 37-40 Insects 36-43
		2	E	62	52	40	37	41	33	I/A	
Night 2 17/03/2026 23:28 17/03/2026 23:29 1.3 – 2.0 m/s SSE 3004635	35 dBA LAeq(15min) 45 dBA LA1(1min) 52 dBA LAmax	1	F	51	39	36	31	34	30	I/A	**Site Related Noise Events:** Main exhaust vent fan 22-29 **Other Noise Events:** Dog 39-53 Train 35-37 Insects 51-53
		2	F	47	44	40	31	36	29	23 LAeq 26 LA1 26 LAmax	
		3	F	46	41	34	30	33	27	I/A	
		4	E	53	48	36	30	36	29	25 LAeq 29 LA1 29 LAmax	

Note: N/M = Not Measurable, I/A = Inaudible

Note 1: Mine owned receiver – criteria not applicable.

Table 16 Operator Attended EPL Noise Survey Results – N9 – High Range (Day 3)

Period Date/Start Time Weather SLM Details	Criteria[1]	Number	Stability Category	Primary Noise Descriptor						Mine Contribution, (dBA)	Description
				LAmax (dBA)	LA1 (dBA)	LA10 (dBA)	LA90 (dBA)	LAeq (dBA)	LAmin (dBA)		
Day 3 19/03/2026 07:06 1.2 – 2.2 m/s S/SSW 20°C 3011830	35 dBA LAeq(15min)	1	E	63	48	38	26	37	23	26 LAeq	**Site Related Noise Events:** Main exhaust vent fan 25-30 Dozer operations 25-29 **Other Noise Events:** Birds 40-72 Animals 51-68 Train 44-53 Traffic 30-40
		2	E	68	49	40	29	39	26	25 LAeq	
		3	E	58	47	37	29	36	26	N/M	
		4	E	72	53	39	29	43	27	N/M	
		5	E	59	42	37	29	36	27	N/M	
		6	E	45	39	34	29	32	27	26 LAeq	
Evening 3 18/03/2026 20:03 1.2 – 1.6 m/s S 25°C 3004635	35 dBA LAeq(15min)	1	F	42	41	41	40	40	36	I/A	**Site Related Noise Events:** Dozer operations 21-24 **Other Noise Events:** Traffic 38-39 Insects 40-42
		2	F	42	41	40	38	39	29	22 LAeq	
Night 3 18/03/2026 23:32 2.7 – 4.4 m/s SSE 24-25°C 3004635	35 dBA LAeq(15min) 45 dBA LA1(1min) 52 dBA LAmax	1	E	40	36	33	27	30	26	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Insects 28-49 Traffic 30-33 Animals 28-32
		2	D	39	35	31	26	29	25	I/A	
		3	D	41	37	35	28	32	26	I/A	
		4	E	49	37	36	35	36	27	I/A	

Note: N/M = Not Measurable, I/A = Inaudible

Note 1: Mine owned receiver – criteria not applicable.

5.1.5 Operator Attended Noise Survey Results – NMP Monitoring Location N11

Results of the operator attended noise surveys at N11 are provided in **Table 17**, **Table 18** and **Table 19**. Monitoring location N11 represents residential receptors located to the south of the site in Uambi.

Table 17 Operator Attended NMP Noise Survey Results – N11 – Uambi (Day 1)

Period Date/Start Time Weather SLM Details	Criteria	Number	Stability Category	Primary Noise Descriptor						Mine Contribution, (dBA)	Description
				LAmax (dBA)	LA1 (dBA)	LA10 (dBA)	LA90 (dBA)	LAeq (dBA)	LAmin (dBA)		
Day 1 17/03/2026 09:43 5.6 – 7.7 m/s NW 25-27°C 3011830	35 dBA LAeq(15min)	1	B	68	57	45	36	46	32	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Wind 44-51 Birds 47-69 Local traffic 68
		2	A	69	51	48	39	45	34	I/A	
		3	A	58	48	42	36	40	34	I/A	
		4	A	66	54	47	37	44	34	I/A	
		5	A	49	46	44	33	40	30	I/A	
		6	A	48	45	43	34	40	31	I/A	
Evening 1 16/03/2026 21:07 1.8 – 2.0 m/s SW 25-26°C 3011830	35 dBA LAeq(15min)	1	F	50	38	37	26	33	22	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Insects 30-42 Birds 38-50
		2	G	41	40	39	28	36	20	I/A	
Night 1 16/03/2026 22:01 2.1 – 2.5 m/s NW 23-24°C 3011830	35 dBA LAeq(15min) 45 dBA LA1(1min) 52 dBA LAmax	1	G	52	39	38	26	34	20	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Insects 30-41 Birds 45-52 Aircraft 36-44
		2	F	44	40	39	26	35	19	I/A	
		3	G	44	40	39	24	34	20	I/A	
		4	G	47	39	38	21	34	19	I/A	

Note: N/M = Not Measurable, I/A = Inaudible

Table 18 Operator Attended NMP Noise Survey Results – N11 – Uambi (Day 2)

Period Date/Start Time Weather SLM Details	Criteria	Number	Stability Category	Primary Noise Descriptor						Mine Contribution, (dBA)	Description
				LAmax (dBA)	LA1 (dBA)	LA10 (dBA)	LA90 (dBA)	LAeq (dBA)	LAmin (dBA)		
Day 2 18/03/2026 08:57 1.6 – 3.8 m/s NW 25-28°C 3011830	35 dBA LAeq(15min)	1	D	62	40	30	24	32	22	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Birds 36-67 Aircraft 35-44 Local traffic 56
		2	D	67	50	34	23	39	22	I/A	
		3	D	63	53	35	24	39	22	I/A	
		4	D	62	48	39	23	37	21	I/A	
		5	D	49	45	36	23	33	21	I/A	
		6	D	57	43	35	24	34	21	I/A	
Evening 2 17/03/2026 20:04 1.2 – 1.3 m/s SSW 26-27°C 3011830	35 dBA LAeq(15min)	1	E	49	31	30	25	28	21	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Insects 29-35 Birds 43-49
		2	E	43	32	31	27	29	22	I/A	
Night 2 17/03/2026 23:07 0.9 – 1.7 m/s SE 24°C 3011830	35 dBA LAeq(15min) 45 dBA LA1(1min) 52 dBA LAmax	1	F	45	31	29	22	26	19	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Insects 25-43 Birds 35-52
		2	F	43	32	31	26	29	19	I/A	
		3	F	48	34	33	27	32	19	I/A	
		4	F	52	35	33	25	31	19	I/A	

Note: N/M = Not Measurable, I/A = Inaudible

Table 19 Operator Attended NMP Noise Survey Results – N11 – Uambi (Day 3)

Period Date/Start Time Weather SLM Details	Criteria	Number	Stability Category	Primary Noise Descriptor						Mine Contribution, (dBA)	Description
				LAmax (dBA)	LA1 (dBA)	LA10 (dBA)	LA90 (dBA)	LAeq (dBA)	LAmin (dBA)		
Day 3 19/03/2026 09:12 0.8 – 2.4 m/s W/ENE 20-21°C 3011830	35 dBA LAeq(15min)	1	D	54	46	41	27	37	24	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Birds 43-70 Aircraft 41-45 Wind 35-44
		2	E	56	44	40	30	37	28	I/A	
		3	E	55	48	39	28	38	24	I/A	
		4	E	69	58	43	24	46	21	I/A	
		5	D	70	54	36	25	44	21	I/A	
		6	D	65	56	42	25	43	22	I/A	
Evening 3 18/03/2026 21:24 1.9 – 3.6 m/s SSE 25°C 3011830	35 dBA LAeq(15min)	1	E	47	45	42	32	38	23	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Wind 40-47 Insects 33-39
		2	E	46	44	41	33	38	27	I/A	
Night 3 18/03/2026 22:01 3.4 – 4.4 m/s SE 25-26°C 3011830	35 dBA LAeq(15min) 45 dBA LA1(1min) 52 dBA LAmax	1	E	48	39	37	32	36	24	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Wind 35-45 Insects 30-43 Bats 35-55
		2	E	48	44	40	35	38	30	I/A	
		3	E	45	39	38	32	36	27	I/A	
		4	D	55	38	35	28	33	23	I/A	

Note: N/M = Not Measurable, I/A = Inaudible

5.1.6 Operator Attended Noise Survey Results – NMP Monitoring Location N1 (Bow Hills)

Results of the operator attended noise surveys at N1 are provided in **Table 20.** Monitoring location N1 represents residential receptors located to the east of the site in Bow Hills.

Table 20 Operator Attended NMP Noise Survey Results – N1 – Bow Hills

Period Date/Start Time Weather SLM Details	Criteria[1]	Number	Stability Category	Primary Noise Descriptor						Mine Contribution, (dBA)	Description
				LAmax (dBA)	LA1 (dBA)	LA10 (dBA)	LA90 (dBA)	LAeq (dBA)	LAmin (dBA)		
Day 16/03/2026 15:37 1.7 m/s NNE 32°C 3011830	50 dBA LAeq(15min)	1	C	58	46	39	29	37	24	I/A	**Site Related Noise Events:** Inaudible **Other Noise Events:** Birds 43-49 Traffic 50-58
Evening 16/03/2026 20:30 2.1 m/s SW 27°C 3011830	50 dBA LAeq(15min)	1	F	57	54	50	35	46	30	26 LAeq	**Site Related Noise Events:** Dozer operations 27-29 Surface activity 25-27 **Other Noise Events:** Traffic 51-57 Insects 38-44
Night 16/03/2026 23:29 1.9 m/s WNW 23°C 3011830	50 dBA LAeq(15min)	1	G	55	52	45	28	41	25	27 LAeq 32 LA1 32 LAmax	**Site Related Noise Events:** Dozer operations 26-32 Surface activity 20-25 **Other Noise Events:** Traffic 45-55 Insects 30-35

Note 1: A private agreement between NCOPL and the residents of N1 Bow Hills of 50 dBA LAeq(15minute) is in place. This new level of 50 dBA LAeq(15minute) replaces the levels identified in the Development Consent and the limits contained in condition L3 of Environment Protection Licence No 1278

6.0 Conclusion

SLR was engaged by Narrabri Coal Operations Pty Ltd to conduct attended noise monitoring for the Narrabri Mine in accordance with the Narrabri Mines' Noise Management Plan, Environment Protection Licence and the Condition B2 of the Development Consent.

Operator attended noise monitoring was conducted at six locations in order to determine the noise performance of the Narrabri Mine, with compliance achieved at all receiver locations.

Appendix A Acoustic Terminology

Narrabri Mine Noise Monitoring

Quarter Ending March 2026 Summary Noise Report

Narrabri Coal Operations Pty Ltd

SLR Project No.: 610.018063.00183

13 April 2026

1Sound Level Or Noise Level

The terms “sound” and “noise” are almost interchangeable, except that in common usage “noise” is often used to refer to unwanted sound.

Sound (or noise) consists of minute fluctuations in atmospheric pressure capable of evoking the sense of hearing. The human ear responds to changes in sound pressure over a very wide range. The loudest sound pressure to which the human ear responds is ten million times greater than the softest. The decibel (abbreviated as dB) scale reduces this ratio to a more manageable size by the use of logarithms.

The symbols SPL, L or Lp are commonly used to represent sound pressure level. The symbol la represents a-weighted sound pressure level. The standard reference unit for sound pressure levels expressed in decibels is 2 x 10^{-5} pa.

2 “A” Weighted Sound Pressure Level

The overall level of a sound is usually expressed in terms of dBA, which is measured using a sound level meter with an “a-weighting” filter. This is an electronic filter having a frequency response corresponding approximately to that of human hearing.

People’s hearing is most sensitive to sounds at mid frequencies (500 hz to 4000 hz), and less sensitive at lower and higher frequencies. Thus, the level of a sound in dba is a good measure of the loudness of that sound. Different sources having the same dba level generally sound about equally loud.

A change of 1 dBA or 2 dBA in the level of a sound is difficult for most people to detect, whilst a 3 dBA to 5 dBA change corresponds to a small but noticeable change in loudness. A 10 dBA change corresponds to an approximate doubling or halving in loudness. The table below lists examples of typical noise levels.

Sound Pressure Level (dBA)	Typical Source	Subjective Evaluation
130	Threshold of pain	Intolerable
120	Heavy rock concert	Extremely noisy
110	Grinding on steel	
100	Loud car horn at 3 m	Very noisy
90	Construction site with pneumatic hammering	
80	Kerbside of busy street	Loud
70	Loud radio or television	
60	Department store	Moderate to quiet
50	General Office	
40	Inside private office	Quiet to very quiet
30	Inside bedroom	
20	Recording studio	Almost silent

Other weightings (eg b, c and d) are less commonly used than a-weighting. Sound levels measured without any weighting are referred to as “linear”, and the units are expressed as dB(lin) or db.

3 Sound Power Level

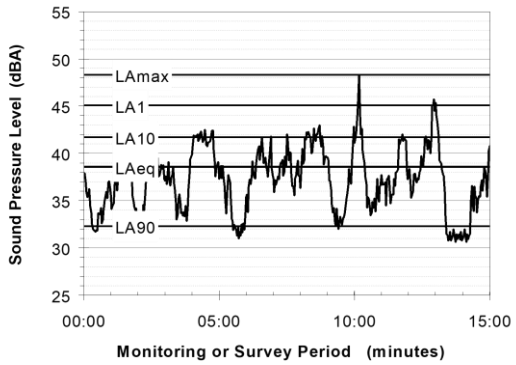
The sound power of a source is the rate at which it emits acoustic energy. As with sound pressure levels, sound power levels are expressed in decibel units (dB or dBa), but may be identified by the symbols SWL or Lw, or by the reference unit 10^{-1}

The relationship between sound power and sound pressure may be likened to an electric radiator, which is characterised by a power rating, but has an effect on the surrounding environment that can be measured in terms of a different parameter, temperature.

4 STATISTICAL NOISE LEVELS

Sounds that vary in level over time, such as road traffic noise and most community noise, are commonly described in terms of the statistical exceedance levels LAn, where LAn is the a-weighted sound pressure level exceeded for n% of a given measurement period. For example, the LA1 is the noise level exceeded for 1% of the time, LA10 the noise exceeded for 10% of the time, and so on.

The following figure presents a hypothetical 15 minute noise survey, illustrating various common statistical indices of interest.



Of particular relevance, are:

LA1 the noise level exceeded for 1% of the 15 minute interval.

LA10 the noise level exceed for 10% of the 15 minute interval. This is commonly referred to as the average maximum noise level.

LA90 the noise level exceeded for 90% of the sample period. This noise level is described as the average minimum background sound level (in the absence of the source under consideration), or simply the background level.

LAeq the a-weighted equivalent noise level (basically the average noise level). It is defined as the steady sound level that contains the same amount of acoustical energy as the corresponding time-varying sound.

When dealing with numerous days of statistical noise data, it is sometimes necessary to define the typical noise levels at a given monitoring location for a particular time of day. A standardised method is available for determining these representative levels.

This method produces a level representing the “repeatable minimum” LA90 noise level over the daytime and night-time measurement periods, as required by the EPA. In addition the method produces mean or “average” levels representative of the other descriptors (LAeq, LA10, etc).

5 Tonality

Tonal noise contains one or more prominent tones (ie distinct frequency components), and is normally

Regarded as more offensive than “broad band” noise. 7. Impulsiveness

6 Impulsiveness

An impulsive noise is characterised by one or more short sharp peaks in the time domain, such as occurs during hammering.

7 Frequency Analysis

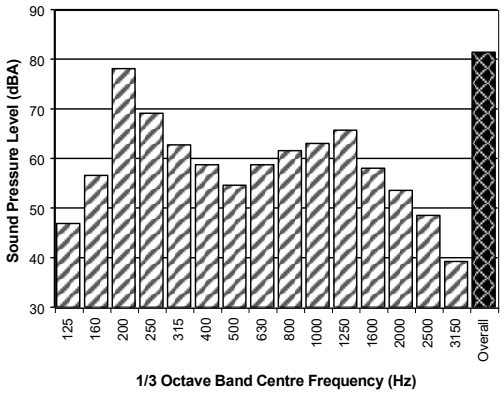
Frequency analysis is the process used to examine the tones (or frequency components) which make up the overall noise or vibration signal. This analysis was traditionally carried out using analogue electronic filters, but is now normally carried out using fast fourier transform (fft) analysers.

The units for frequency are hertz (hz), which represent the number of cycles per second.

Frequency analysis can be in:

- Octave bands (where the centre frequency and width of each band is double the previous band)
- 1/3 octave bands (3 bands in each octave band)
- Narrow band (where the spectrum is divided into 400 or more bands of equal width)

The following figure shows a 1/3 octave band frequency analysis where the noise is dominated by the 200 Hz band. Note that the indicated level of each individual band is less than the overall level, which is the logarithmic sum of the bands



Appendix B Calibration Certificates

Narrabri Mine Noise Monitoring

Quarter Ending March 2026 Summary Noise Report

Narrabri Coal Operations Pty Ltd

SLR Project No.: 610.018063.00183

13 April 2026

NVMS

Sydney Calibration Laboratory
Unit 21, 1 Talavera Road, Macquarie Park NSW 2113, Australia
Accredited for compliance with ISO/IEC 17025 - Calibration. Laboratory No. 1301

NATA
WORLD RECOGNISED ACCREDITATION

CERTIFICATE OF CALIBRATION

Certificate No: CAU2501128

Page 1 of 11

CALIBRATION OF:

Sound Level Meter:	Brüel & Kjær	2250	No: 3011830
Microphone:	Brüel & Kjær	4189	No: 3130886
Preamplifier:	Brüel & Kjær	ZC-0032	No: 27336
Supplied Calibrator:	N/A		
Software version:	BZ7223 Version 4.7.6	Pattern Approval:	-
Instruction manual:	BE1712-22	Identification:	N/A

CUSTOMER:

SLR Consulting Australia Pty Ltd
120 High Street
North Sydney NSW 2060

CALIBRATION CONDITIONS:

Preconditioning: 4 hours at 23 °C

Environment conditions: *see actual values in **Environmental conditions** sections*

SPECIFICATIONS:

The Sound Level Meter has been calibrated in accordance with the requirements as specified in IEC61672-1:2013 class 1. Procedures from IEC 61672-3:2013 were used to perform the periodic tests. The measurements included in this document are traceable to Australian / International standards through accredited calibration of all relevant reference equipment.

PROCEDURE:

The measurements have been performed with the assistance of Brüel & Kjær Sound Level Meter Calibration System B&K 3630 with application software type 7763 (version 8.6 - DB: 8.60) and test procedure 2250-4189.

RESULTS:

	Initial calibration		Calibration prior to repair/adjustment
X	Calibration without repair/adjustment		Calibration after repair/adjustment

The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor $k = 2$ providing a level of confidence of approximately 95 %. The uncertainty evaluation has been carried out in accordance with EA-4/02 from elements originating from the standards, calibration method, effect of environmental conditions and any short time contribution from the device under calibration.

Date of Calibration: 19/09/2025

Certificate issued: 23/09/2025

Barath Chandar Rajendran
Calibration Technician

Sajeeb Tharayil
Approved signatory

NVMS

Sydney Calibration Laboratory
Unit 21, 1 Talavera Road, Macquarie Park NSW 2113, Australia
Accredited for compliance with ISO/IEC 17025 - Calibration. Laboratory No. 1301

NATA
WORLD RECOGNISED ACCREDITATION

CERTIFICATE OF CALIBRATION

Certificate No: CAU2600073

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CALIBRATION OF:

Sound Level Meter:	Brüel & Kjær	2250	No: 3005904
Microphone:	Brüel & Kjær	4950	No: 3177884
Preamplifier:	Brüel & Kjær	ZC-0032	No: 20518
Supplied Calibrator:	N/A		
Software version:	BZ7130 Version 4.7.6	Pattern Approval:	-
Instruction manual:	BE1853-11	Identification:	N/A

CUSTOMER:

SLR Consulting Australia Pty Ltd
Tenancy 202, Sub-Base Platypus
120 High street
North Sydney NSW 2060

CALIBRATION CONDITIONS:

Preconditioning:	4 hours at 23 °C
Environment conditions:	*see actual values in **Environmental conditions** sections*

SPECIFICATIONS:

The Sound Level Meter has been calibrated in accordance with the requirements as specified in IEC61672-1:2013 class 1. Procedures from IEC 61672-3:2013 were used to perform the periodic tests. The measurements included in this document are traceable to Australian / International standards through accredited calibration of all relevant reference equipment.

PROCEDURE:

The measurements have been performed with the assistance of Brüel & Kjær Sound Level Meter Calibration System B&K 3630 with application software type 7763 (version 8.6 - DB: 8.60) and test procedure 2250-L-4950.

RESULTS:

	Initial calibration		Calibration prior to repair/adjustment
	Calibration without repair/adjustment	X	Calibration after repair/adjustment

The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor $k = 2$ providing a level of confidence of approximately 95 %. The uncertainty evaluation has been carried out in accordance with EA-4/02 from elements originating from the standards, calibration method, effect of environmental conditions and any short time contribution from the device under calibration.

Date of Calibration: 21/01/2026

Certificate issued: 22/01/2026

Barath Chandar Rajendran
Calibration Technician

Sajeeb Tharayil
Approved signatory

NVMS

Sydney Calibration Laboratory
Unit 21, 1 Talavera Road, Macquarie Park NSW 2113, Australia
Accredited for compliance with ISO/IEC 17025 - Calibration. Laboratory No. 1301

NATA
WORLD RECOGNISED ACCREDITATION

CERTIFICATE OF CALIBRATION

Certificate No: CAU2600071

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CALIBRATION OF:

Sound Level Meter:	Brüel & Kjær	2250	No: 3004635
Microphone:	Brüel & Kjær	4950	No: 3177885
Preamplifier:	Brüel & Kjær	ZC-0032	No: 26244
Supplied Calibrator:	N/A		
Software version:	BZ7130 Version 4.7.6	Pattern Approval:	-
Instruction manual:	BE1853-11	Identification:	N/A

CUSTOMER:

SLR Consulting Australia Pty Ltd
Tenancy 202, Sub-Base Platypus
120 High street
North Sydney NSW 2060

CALIBRATION CONDITIONS:

Preconditioning:	4 hours at 23 °C
Environment conditions:	*see actual values in **Environmental conditions** sections*

SPECIFICATIONS:

The Sound Level Meter has been calibrated in accordance with the requirements as specified in IEC61672-1:2013 class 1. Procedures from IEC 61672-3:2013 were used to perform the periodic tests. The measurements included in this document are traceable to Australian / International standards through accredited calibration of all relevant reference equipment.

PROCEDURE:

The measurements have been performed with the assistance of Brüel & Kjær Sound Level Meter Calibration System B&K 3630 with application software type 7763 (version 8.6 - DB: 8.60) and test procedure 2250-L-4950.

RESULTS:

	Initial calibration		Calibration prior to repair/adjustment
	Calibration without repair/adjustment	X	Calibration after repair/adjustment

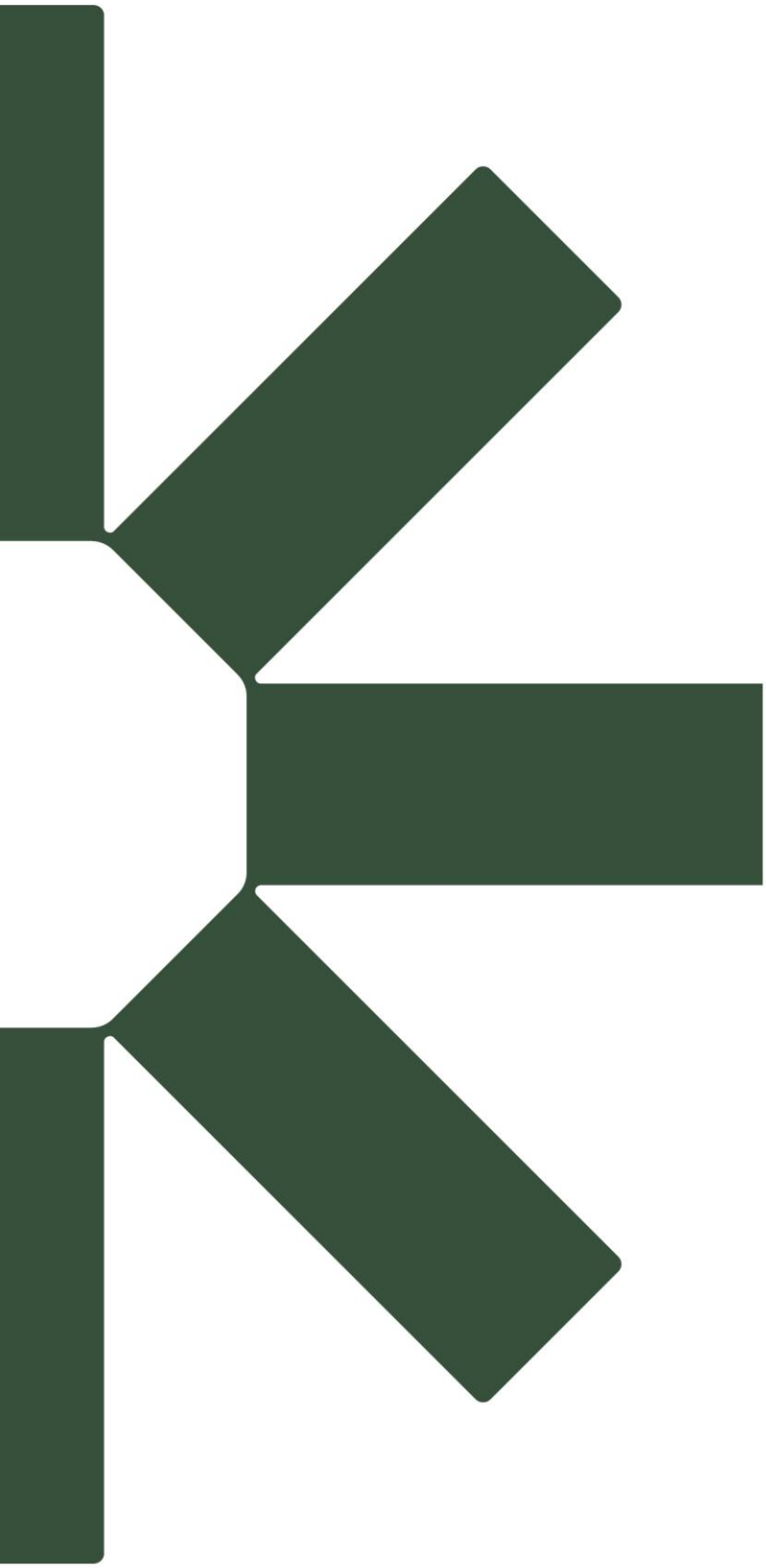
The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor $k = 2$ providing a level of confidence of approximately 95 %. The uncertainty evaluation has been carried out in accordance with EA-4/02 from elements originating from the standards, calibration method, effect of environmental conditions and any short time contribution from the device under calibration.

Date of Calibration: 21/01/2026

Certificate issued: 22/01/2026

Barath Chandar Rajendran
Calibration Technician

Sajeeb Tharayil
Approved signatory



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