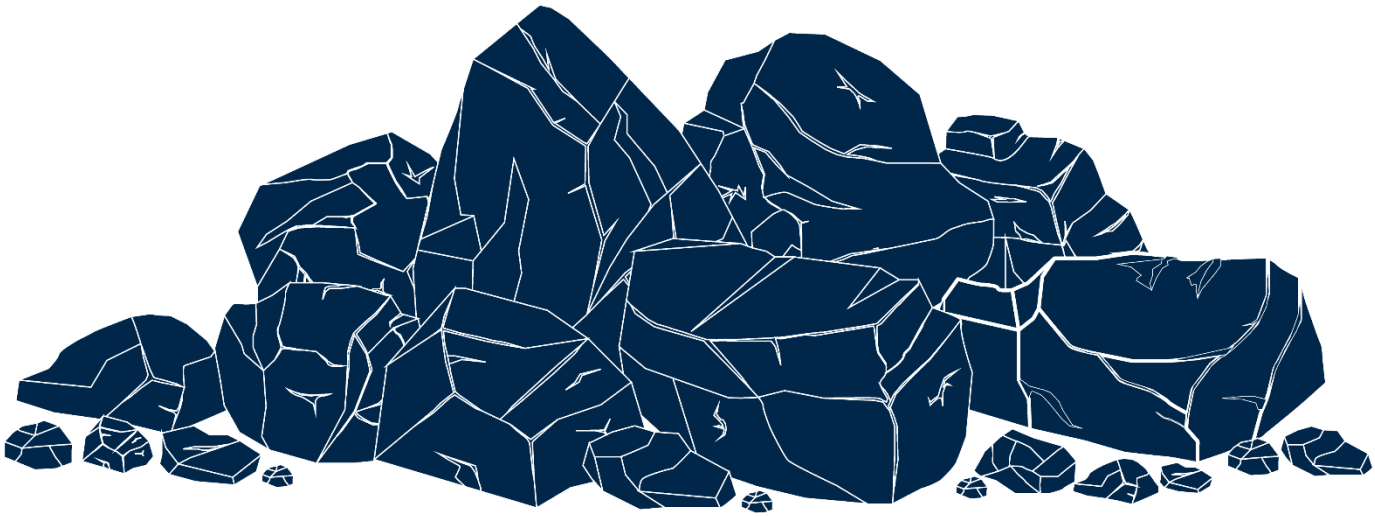
Karuah Hard Rock Quarry
ABN: 15 093 914 937
Hunter Quarries Pty Ltd
Andersite Road, Karuah NSW 2324

W: www.hunterquarries.com.au
E: admin@hunterquarries.com.au
T: 02 4050 0304
P: PO Box 3284, Thornton NSW 2322

Karuah Hard Rock Quarry

Environmental Monitoring Report

May 2025



Contents

1.0 Introduction

This report has been completed to meet the requirements of Section 66(6) of the *Protection of the Environment Operations Act 1997* and the NSW Environmental Protection Authority's (EPA) Requirements for Publishing Pollution Monitoring Data (EPA, 2013). This report summarises the required monitoring data under Environmental Protection Licence 11569 (the EPL) and Development Consent for the Karuah Hard Rock Quarry (the Quarry) as summarised by **Table 1** and **Table 2** respectively.

Table 1 Summary of Environment Protection Licence, EPL 11569

EPL Number:	EPL 11569
Licensee's Name:	Hunter Quarries Pty Ltd
Licensee's Address:	Karuah Hard Rock Quarry PO Box 3284, Thornton NSW 2322 Corner of Andesite Road and The Branch Lane, Karuah NSW 2324.
Link to Full Licence on the EPA website:	EPL 11569

Table 2 Summary of Project Approval, DA 265-10-2004

Project Approval:	DA 265-10-2004
Applicant:	Hunter Quarries Pty Ltd
Consent Authority:	Minister for Infrastructure, Planning and Natural Resources
Link to Full Project Approval on the NSW Planning website:	Development Consent DA 265-10-2004

A summary of the environmental monitoring data for the May 2025 Reporting Period (the Reporting Period) is covered in this report. Tables throughout this report provide key monitoring information from the EPL and the Consent, including:

- location of monitoring;
- pollutant;
- unit of measurement; and
- monitoring frequency required.

Monitoring locations are illustrated by the site plan provided by **Appendix 1**.

2.0 Air Quality Monitoring

Dust emissions generated by the Quarry operation must not cause additional exceedances of ambient air quality criterion outlined in Schedule 3, Condition 13 of the Consent and summarised by **Table 3**, **Table 4** and **Table 5**.

Deposited dust monitoring is undertaken at the locations listed in **Table 6**, in accordance with the Approved Methods of Sampling and Analysis of Air Pollutants in NSW (EPA, 2022).

Table 3 Long-term Assessment Criteria for Deposited Dust (DA 265-10-2004).

Pollutant	Averaging Period	Maximum Increase in Deposited Dust Level[1]	Maximum Total Deposited Dust Level[1]
Deposited Dust	Annual	2 g/m^2/month	4 g/m^2/month

[1] Deposited dust is assessed as insoluble solids as defined by AS 3580.10.1-2003.

Table 4 Long-term Assessment Criteria for Particulate Matter (DA 265-10-2004).

Pollutant	Averaging Period	Criterion
Total Suspended Particulates	Annual	90 µg/m^3
Particulate Matter < 10 µm (PM10)	Annual	30 µg/m^3

Table 5 Short-term Assessment Criteria for Particulate Matter (DA 265-10-2004).

Pollutant	Averaging Period	Criterion
Particulate Matter < 10 µm (PM10)	24-hour	50 µg/m^3

Table 6 Air Quality Monitoring Locations (EPL 11569).

Site Monitoring Point ID	EPL Monitoring Point ID	Location	Address
DDG 1	6	South-West of Karuah Hard Rock Quarry	54 Mill Hill Close, Karuah NSW 2324
DDG 2	7	South-West of Karuah Hard Rock Quarry	64 Mill Hill Close, Karuah NSW 2324
DDG 3	8	South-West of Karuah Hard Rock Quarry	Lot 251 DP1092111, Karuah NSW 2324
DDG 4	5	East of Karuah Hard Rock Quarry	21 Halloran Road, North Arm Cove NSW 2324

Deposited dust results for the 12-months prior-to and including May 2025 are summarised by **Table 7**.

Table 7 ***Deposited dust monitoring results.***

Reporting Period	Start Date	End Date	Days	DDG 1 (EPL ID 2) EPL ID 6	DDG 2 (EPL ID 3) EPL ID 7	DDG 3 (EPL ID 4) EPL ID 8	DDG 4 (EPL ID 5) EPL ID 9
Jun-24	29/05/2024	28/06/2024	30	(0.7)	(0.5)	(0.5)	(0.7)
Jul-24	28/06/2024	30/07/2024	32	(1.1)	(0.8)	(0.6)	(0.9)
Aug-24	30/07/2024	30/08/2024	31	(0.7)	(0.5)	(0.7)	(0.9)
Sep-24	30/08/2024	30/09/2024	31	(2.2)	(1.2)	(1.3)	(1.2)
Oct-24	30/09/2024	31/10/2024	31	(1.0)	(0.7)	(0.7)	(5.1)*
Nov-24	31/10/2024	29/11/2024	29	(1.4)	(1.1)	(1.1)	(1.7)
Dec-24	29/11/2024	30/12/2024	29	(0.6)	(1.4)	(1.3)	(3.1)
Jan-25	30/12/2024	31/01/2025	32	(3.8)	(1.7)	(1.9)	(1.3)
Feb-25	31/01/2025	03/03/2025	31	(1.2)	(0.9)	(1.1)	(1.2)
Mar-25	03/03/2025	03/04/2025	31	(0.7)	(1.0)	(1.4)	
	04/03/2025	03/04/2025	30				(1.1)
Apr-25	03/04/2025	05/05/2025	32	1.2	3.2	0.4	(1.0)
May-25	05/05/2025	03/06/2025	29	2.0	3.9	0.2	(0.3)
Progressive Annual Average				**1.4**	**1.4**	**0.9**	**1.5**

Monitoring results for the Reporting Period at the four DDG monitoring sites are within the long-term annual deposited dust limit of 4 g/m^2/month.

**Note:* *an anomalous exceedance was recorded at DDG4 during the October 2024 Monitoring Period which was subsequently reported to the NSW Department of Planning, Housing & Infrastructure (NSW Planning), the NSW EPA and surrounding landholders in accordance with the relevant conditions of the Consent and EPL.*

3.0 Blast Monitoring

Blast monitoring is undertaken for all blasts at the Quarry at the nearest residential location to ensure that air blast overpressure and ground vibration remain within the compliance limits, as summarised by **Table 8**; with the monitoring results summarised by **Table 9**.

There were no blasts undertaken within the Reporting Period.

Table 8 Blasting Airblast Overpressure and Ground Vibration Criteria (DA 265-10-2004 & EPL 11569).

Location	Airblast Overpressure (dB(L))	Ground Vibration (mm/s)	Allowable Exceedance
Private Residence B	120	10	0%
	115	5	5% over 12-month reporting period.

Table 9 Blasting Monitoring Results.

Date	Time	Location	Airblast Overpressure (dB(L))	Ground Vibration (mm/s)
–	–	–	–	–

***Not triggered = n/t**
Ground Vibration < 0.5 mm/s
Overpressure < 108 dB(L)

4.0 Noise Monitoring

Noise monitoring is undertaken in accordance with the EPL and NSW Planning approved Environmental Management Strategy & Monitoring Program (EMS&MP), which requires attended and unattended noise monitoring to be conducted on a 6-monthly basis.

During the Reporting Period, unattended monitoring occurred from Wednesday, 14 May to Wednesday, 28 May 2025; whilst attended noise monitoring was conducted at the two monitoring locations during the following monitoring periods:

- Wednesday, 14 May 2025 during the day and evening monitoring periods.
- Wednesday, 28 May 2025 during the morning shoulder monitoring period.

The noise monitoring results were within the compliance limits for the H1 2025 monitoring round as outlined by the Noise Monitoring Report provided in **Appendix 2**.

5.0 Surface Water Monitoring

Water monitoring is undertaken in accordance with the EPL and NSW Planning approved Site Water Management Plan, with daily monitoring of surface water being discharged from the Quarry via the licenced discharge point in accordance with Condition L2 and M2 of the EPL.

There were two discharge events over ten days during the Reporting Period, as summarised by **Table 10**.

Both discharge events were uncontrolled due to major rainfall events greater than the design storm event.

- 27 April – 4 May 2025 – 318.4 mm of rainfall over six days.
- 19 May – 25 May 2025 – 451.5mm of rainfall over five days.

The exceedance of rainfall caused both sediment dams to be subject to uncontrolled discharges. TSS limits were exceeded, and the site's Pollution Incident Response Management Plan (PIRMP) was enacted.

Table 10 Discharge Water Monitoring Results.

Date	Oil and Grease	pH	Total Suspended Solids, TSS (mg/L)	Nitrogen (total) (mg/L)	Phosphorus (total) (mg/L)	Discharge Type
LDP1 – Sediment Dam 2						
1/05/2025	Not Visible	7.2	160	0.9	0.09	Uncontrolled
2/05/2025	Not Visible	7.1	250	1.0	0.1	Uncontrolled
3/05/2025	Not Visible	7.1	170	3.0	0.1	Uncontrolled
19/05/2025	Not Visible	7.1	160	0.7	0.1	Uncontrolled
20/05/2025	Not Visible	7.1	480	0.7	0.2	Uncontrolled
21/05/2025	Not Visible	7.0	350	0.4	0.1	Uncontrolled
22/05/2025	Not Visible	7.0	200	0.3	0.1	Uncontrolled
23/05/2025	Not Visible	6.8	63	0.4	0.06	Uncontrolled
24/05/2025	Not Visible	6.8	88	0.7	0.1	Uncontrolled
Sediment Basin 4						
1/05/2025	Not Visible	7.4	600	0.7	0.3	Uncontrolled
2/05/2025	Not Visible	7.2	450	1.5	0.3	Uncontrolled
3/05/2025	Not Visible	7.3	450	4.1	0.2	Uncontrolled
20/05/2025	Not Visible	7.4	1,300	0.2	0.4	Uncontrolled
21/05/2025	Not Visible	7.2	490	1.2	0.2	Uncontrolled
22/05/2025	Not Visible	7.2	1,200	1.2	0.4	Uncontrolled
23/05/2025	Not Visible	7.2	780	1.1	0.2	Uncontrolled
24/05/2025	Not Visible	7.2	790	0.3	0.2	Uncontrolled
25/05/2025	Not Visible	7.4	1,300	0.2	0.4	Uncontrolled

6.0 Weather Station Monitoring

The Quarry operates and maintains a permanent meteorological monitoring station to record weather parameters including temperature, wind speed and direction, solar radiation and rainfall. **Figure 1** below outlines the weather records for the Reporting Period.

Monthly Weather Summary

Site: **Karuah Quarry Complex**
Month: **May 2025**

Date	Day	Temperature @ 2m			Temperature @ 10m			Winds			Solar Radiation		Rain[2]
		Max[1]	Min[2]	Ave[1]	Max[1]	Min[2]	Ave[1]	Max Gust[1]	Ave Speed[1]	Dir Ave[1]	Max[1]	Ave[1]	
		°C	°C	°C	°C	°C	°C	km/h	km/h	deg	W/m²	W/m²	mm
1	Thu	19.7	11.9	14.3	19.4	11.9	14.3	35.5	25.7	189	767.4	59.6	74.8
2	Fri	19.0	10.7	13.9	18.7	11.3	14.1	35.5	22.4	209	670.8	72.8	16.8
3	Sat	21.3	10.5	14.4	19.9	10.5	14.4	26.0	18.3	203	689.1	113.3	3.8
4	Sun	22.5	10.2	14.6	20.8	10.9	14.6	24.9	16.1	213	706.7	109.3	2.4
5	Mon	21.5	11.1	15.1	20.5	11.7	15.1	13.0	9.8	211	599.9	86.3	1.0
6	Tue	24.1	10.6	16.0	22.5	11.4	16.5	15.4	11.1	188	603.3	110.6	0.0
7	Wed	25.2	11.8	17.1	24.4	12.8	17.6	15.4	11.1	205	512.5	128.5	0.0
8	Thu	26.4	11.3	17.0	24.9	12.6	17.9	17.8	12.1	244	519.9	122.5	0.2
9	Fri	23.4	12.9	15.4	21.1	13.1	15.6	27.2	21.8	173	723.3	73.4	15.6
10	Sat	20.1	9.8	13.5	19.3	10.3	13.6	20.1	13.1	205	733.3	86.9	1.2
11	Sun	20.2	12.5	15.4	19.1	13.1	15.5	21.3	13.5	171	588.3	74.2	7.4
12	Mon	19.3	14.3	16.6	19.0	14.5	16.6	16.6	12.4	171	660.0	57.3	14.4
13	Tue	20.2	14.6	16.7	19.3	14.8	16.5	9.5	6.4	183	683.3	50.9	10.8
14	Wed	22.8	14.3	17.0	21.5	14.5	16.9	15.4	11.9	202	629.2	76.9	0.6
15	Thu	23.6	14.3	17.2	22.7	14.5	17.2	10.6	7.5	211	663.3	81.6	0.0
16	Fri	19.6	15.9	16.7	19.0	15.9	16.6	21.3	14.9	222	205.8	26.8	23.0
17	Sat	19.2	13.5	16.1	18.8	13.8	16.3	18.9	14.4	220	276.6	40.5	0.2
18	Sun	22.5	12.5	15.6	21.2	12.8	15.7	15.4	11.2	212	615.8	88.1	0.4
19	Mon	15.8	12.6	14.0	15.5	12.6	14.0	36.7	18.7	174	586.6	51.7	175.8
20	Tue	18.1	13.6	15.3	18.6	13.8	15.7	49.7	39.0	100	195.8	18.7	107.2
21	Wed	18.7	15.4	16.7	19.5	15.9	17.2	41.4	28.9	113	536.7	38.3	34.8
22	Thu	20.7	15.9	17.7	20.4	16.0	17.8	27.2	17.9	158	293.3	48.9	32.8
23	Fri	19.2	16.9	17.8	19.3	17.0	17.8	35.5	16.4	176	270.0	31.2	101.2
24	Sat	19.1	8.5	14.4	18.7	9.4	15.1	17.8	11.5	230	295.0	40.0	5.6
25	Sun	20.8	7.4	12.7	20.1	8.2	13.3	34.3	17.2	249	434.2	104.9	0.2
26	Mon	20.6	9.4	12.8	19.7	10.2	13.2	15.4	10.2	245	514.2	87.1	0.0
27	Tue	20.9	12.6	15.1	19.9	12.7	15.0	16.6	10.6	214	565.8	49.0	17.6
28	Wed	19.2	10.5	13.8	18.5	11.1	14.1	49.7	27.5	234	439.2	85.6	0.0
29	Thu	19.1	8.8	13.3	18.2	10.9	14.0	30.8	17.4	245	429.2	100.7	0.2
30	Fri	15.0	11.1	13.1	14.5	11.7	13.1	22.5	14.7	249	413.3	50.9	6.2
31	Sat	21.1	7.7	13.1	19.0	8.4	13.5	16.6	11.7	196	600.8	71.9	0.0
Ave or Total		**20.6**	**12.0**	**15.2**	**19.8**	**12.5**	**15.4**	**24.3**	**16.0**	**200.4**	**529.8**	**72.2**	**654.2**
High		**26.4**	**16.9**	**17.8**	**24.9**	**17.0**	**17.9**	**49.7**	**39.0**		**767.4**	**128.5**	**175.8**
Low		**15.0**	**7.4**	**12.7**	**14.5**	**8.2**	**13.1**	**9.5**	**6.4**		**195.8**	**18.7**	
												No. rain days >1mm:	**18**

Notes: 1. Values are for the 24 hour period from 9am to 9am next day.
2. Values are for the 24 hours to 9am.

Figure 1 Weather Records Summary.

7.0 Production Data

Monthly monitoring of sales and truck movements are summarised by **Table 11**.

Table 11 Quarry Production Data.

Month	Truck Movements	Quarry Product Sales (t)
Jan-25	352	12,215
Feb-25	794	26,011
Mar-25	745	23,981
Apr-25	329	10,524
May-25	576	20,295
Progressive Annual Total	**2,796**	**93,026**

8.0 Reporting

8.1 Reportable Environmental Incidents

During the Reporting Period, two reportable environmental incidents occurred at the Quarry, including:

- Uncontrolled discharge of sediment-laden water to Yalimbah and Bulga Creeks from Sunday 27 April to Sunday 04 May 2025 following the receipt of 318.4 mm of rainfall over six days. This rainfall event exceeded the 95th percentile 5x day rainfall depth of 90.6 mm, which the site's sediment dams are designed to withstand in accordance with Landcom's Blue Book (Managing Urban Stormwater: Soils and Construction – Volume 2E, Mines and quarries).

  During the event the site's Pollution Incident Response Management Plan (PIRMP) was enacted through reporting to relevant authorities, the HQPL executive and the local community. Formal incident reports were subsequently submitted to NSW Planning and the NSW EPA.

- Uncontrolled discharge of sediment-laden water to Yalimbah and Bulga Creeks from Monday 19 May to Sunday 25 May 2025 following the receipt of 451.5mm of rainfall over five days. This rainfall event exceeded the 95th percentile 5x day rainfall depth of 90.6 mm, which the site's sediment dams are designed to withstand in accordance with Landcom's Blue Book (Managing Urban Stormwater: Soils and Construction – Volume 2E, Mines and quarries).

  During the event the site's Pollution Incident Response Management Plan (PIRMP) was enacted through reporting to relevant authorities, the HQPL executive and the local community. Formal incident reports were subsequently submitted to NSW Planning and the NSW EPA.

8.2 Reportable Non-Compliances

During the Reporting Period, no reportable non-compliances were identified at the Quarry.

8.3 Community Complaints

During the Reporting Period, no community complaints were reported to the Quarry.

Appendix 1 – EPL 11569 Monitoring Locations

Karuah Hard Rock Quarry

Environmental Monitoring Report

APPENDIX 1 - Environmental Monitoring Locations

Appendix 2 – H1 2025 Noise Monitoring Report

Karuah Quarry

Biannual Attended Noise Monitoring - Semester 1 2025

Prepared for Hunter Quarries Pty Limited

May 2025

Karuah Quarry

Biannual Attended Noise Monitoring - Semester 1 2025

Hunter Quarries Pty Limited

E250042 RP3

May 2025

Version	Date	Prepared by	Reviewed by	Comments
1	30 May 2025	Lucas Adamson	Rob Kirwan	Final

Approved by

Robert Kirwan
Associate Acoustics Consultant – Team Leader
30 May 2025

Level 3 175 Scott Street
Newcastle NSW 2300
ABN: 28 141 736 558

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Appendices

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1 Introduction

1.1 Background

EMM Consulting Pty Ltd (EMM) was engaged by Hunter Quarries Pty Limited to conduct a bi-annual noise survey of operations at Karuah Quarry (KQ, the site) located at Blue Rock Close, Karuah NSW. The survey purpose was to quantify the acoustic environment and compare site noise levels against specified limits.

Attended environmental noise monitoring described in this report was done during the day period on Wednesday 14 May 2025 at two monitoring locations, required by the environmental monitoring program (EMP). It is of note that the site currently operates during the day period only and as such, noise monitoring during the evening and nigh-time periods is not required.

1.2 Attended monitoring locations

The monitoring locations are detailed in Table 1.1 and shown on Figure 1.1. It should be noted that Figure 1.1 shows actual monitoring positions, not necessarily the location of residences.

Table 1.1 Attended noise monitoring locations

Location descriptor/ID	Description/address near-by	Coordinates (MGA56)	
		Easting	Northing
NM1	Private Residence - 74 Mill Hill Close, Karuah	406623	6388704
NM2	Private Residence - 64 Mill Hill Close, Karuah	406405	6388859

KEY

- Site boundary
- A Noise monitoring location
- Major road
- Minor road
- Vehicular track
- Watercourse/drainage line
- Cadastral boundary
- Waterbody
- NPWS reserve
- State forest

Source: EMM (2021); ADW Johnson (2020); DFSI (2017); ICSM (2012); GA (2011); ASGC (2006)

0 0.5 1 km

GDA 1994 MGA Zone 56

N

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Noise monitoring locations

Karuah Quarry
Bi-annual noise monitoring
Figure 3.1

EMM
creating opportunities

1.3 Terminology and abbreviations

Some definitions of terms and abbreviations which may be used in this report are provided in Table 1.2.

Table 1.2 Terminology and abbreviations

Term/descriptor	Definition
dB(A)	Noise level measurement units are decibels (dB). The "A" weighting scale is used to approximate how humans hear noise.
L_{Amax}	The maximum root mean squared A-weighted noise level over a time period.
L_{A1}	The A-weighted noise level which is exceeded for 1 per cent of the time.
$L_{A1,1minute}$	The A-weighted noise level which is exceeded for 1 per cent of the specified time period of 1 minute.
L_{A10}	The A-weighted noise level which is exceeded for 10 percent of the time.
L_{Aeq}	The energy average A-weighted noise level.
L_{A50}	The A-weighted noise level which is exceeded for 50 per cent of the time, also the median noise level during a measurement period.
L_{A90}	The A-weighted noise level exceeded for 90 percent of the time, also referred to as the "background" noise level and commonly used to derive noise limits.
L_{Amin}	The minimum A-weighted noise level over a time period.
L_{Ceq}	The energy average C-weighted noise energy during a measurement period. The "C" weighting scale is used to take into account low-frequency components of noise within the audibility range of humans.
SPL	Sound pressure level. Fluctuations in pressure measured as 10 times a logarithmic scale, with the reference pressure being 20 micropascals.
Hertz (Hz)	The frequency of fluctuations in pressure, measured in cycles per second. Most sounds are a combination of many frequencies together.
AWS	Automatic weather station used to collect meteorological data, typically at an altitude of 10 metres
VTG	Vertical temperature gradient in degrees Celsius per 100 metres altitude.
Sigma-theta	The standard deviation of the horizontal wind direction over a period of time.
IA	Inaudible. When site noise is noted as IA then there was no site noise at the monitoring location.
NM	Not Measurable. If site noise is noted as NM, this means some noise was audible but could not be quantified.
Day	Monday – Saturday: 7 am to 6 pm, on Sundays and Public Holidays: 8 am to 6 pm.
Evening	Monday – Saturday: 6 pm to 10 pm, on Sundays and Public Holidays: 6 pm to 10 pm.
Night	Monday – Saturday: 10 pm to 7 am, on Sundays and Public Holidays: 10 pm to 8 am.

Appendix A provides further information that gives an indication as to how an average person perceives changes in noise level, and examples of common noise levels.

2 Noise limits

2.1 Development consent

Karuah Quarry noise limits are detailed in Condition 1 of Schedule 3 of Development Consent (DC) DA 265-10-2004. Relevant sections of DA 265-10-2004 are reproduced in Appendix B.

2.2 Environment protection licence

There are no noise limits detailed in the site's Environment Protection Licence (EPL) 11569.

2.3 Environmental monitoring program

The approved EMP adopts two attended noise monitoring locations that are representative of residences outlined in DA 265-10-2004. Relevant sections of the EMP are reproduced in Appendix B.2.

2.4 Noise limits

Noise impact limits based on the development consent are provided in Table 2.1.

Table 2.1 Noise impact limits, dB

Location	Day $L_{Aeq,15minute}$	Evening $L_{Aeq,15minute}$	All other times $L_{Aeq,15minute}$
NM1	48	47	46
NM2	48	47	46

Notes: 1. Day: 7:00 am–6:00 pm Monday to Saturday; 8:00 am–6:00 pm Sundays and public holidays; Evening: 6:00 pm–10:00 pm; Night: All other times: 10:00 pm–7:00 am Monday to Saturday; 10:00 pm–8:00 am Sundays and public holidays.

2.5 Meteorological conditions

PA 09_0175 specifies that noise generated by the project is to be measured in accordance with the relevant requirements, and exemptions (including certain meteorological conditions), of the NSW EPA 'Noise Policy for Industry' (NPfI) issued in October 2017.

The EPA requirements in Condition L4.3 of EPL 20611 state that noise limits do not apply under the following meteorological conditions:

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

2.6 Additional requirements

Monitoring and reporting have been done in accordance with the NSW EPA 'Approved methods for the measurement and analysis of environmental noise in NSW' (Approved Methods) issued in January 2022.

2.7 Very noise-enhancing meteorological conditions

In accordance with the approved methods, noise monitoring for the site is scheduled to occur during forecasted meteorological conditions where noise limits in Table 2.1 will be applicable. However, in cases where actual meteorological conditions do not align with forecasts and noise limits are subsequently not directly applicable, it is the expectation of regulators that noise impact still be managed.

The NPfI states that:

> Noise limits derived for consents and licences will apply under the meteorological conditions used in the environmental assessment process, that is, standard or noise-enhancing meteorological conditions. For 'very noise-enhancing meteorological conditions' … a limit is set based on the limit derived under standard or noise-enhancing conditions (whichever is adopted in the assessment) plus 5 dB. In this way a development is subject to noise limits under all meteorological conditions.

Therefore, if monthly noise monitoring occurs during meteorological conditions outside of those specified in Section 2.5, site limits will be adjusted based on Table 2.1 plus 5 dB.

3 Methodology

3.1 Overview

Attended environmental noise monitoring was done as guided by Australian Standard AS1055 'Acoustics, Description and Measurement of Environmental Noise' and relevant EPA requirements. Meteorological data was obtained from the site automatic weather station (AWS) which allowed correlation of atmospheric parameters with measured site noise levels.

3.2 Attended noise monitoring

During this survey, attended noise monitoring was conducted during the day period at each location. The duration of each measurement was 15 minutes. Atmospheric conditions were measured at each monitoring location.

Measured sound levels from various sources were noted during each measurement, and particular attention was paid to the extent of site's contribution (if any) to measured levels. At each monitoring location, the site only $L_{Aeq,15minute}$ were measured directly or determined by other methods detailed in Section 7.1 of the NPfI.

If exact noise levels from site could not be established due to masking by other noise sources in a similar frequency range, but site noise was determined to be at least 5 dB lower than relevant limits, then a maximum estimate of it may be provided. This is expressed as a 'less than' quantity, such as <20 dB or <30 dB.

The terms 'Inaudible' (IA) or 'Not Measurable' (NM) may be used in this report. When site noise is noted as IA, it was inaudible at the monitoring location. When site noise is noted as NM, this means it was audible but could not be quantified. All results noted as NM in this report were due to one or more of the following:

- Site noise levels were extremely low and unlikely, in many cases, to be noticed
- Site noise levels were masked by other more dominant noise sources that are characteristic of the environment, such as breeze in foliage or continuous road traffic noise, that cannot be eliminated by monitoring at an alternate or intermediate location
- It was not feasible or reasonable to employ methods such as to move closer and back calculate. Cases may include rough terrain preventing closer measurement, addition/removal of significant source to receiver shielding caused by moving closer, and meteorological conditions where back calculation may not be accurate.

3.3 Unattended noise monitoring

The unattended noise monitoring was carried out using two Acoustic Research Labs (ARL) Ngara unattended noise loggers. These environmental noise loggers were in place from Wednesday 14 to Wednesday 28 May 2025.

Calibration of instrumentation was checked prior to and following measurements. All equipment carried appropriate and current NATA (or manufacturer) calibration certificates (refer Appendix C).

Data affected by adverse meteorological conditions and by spurious or uncharacteristic events has been excluded from the results in accordance with methodologies provided in the NPfI.

3.4 Meteorological data

Meteorological data for the monitoring period was sourced from the Karuah Quarry on-site meteorological station to determine applicability of criteria in accordance with the DC.

3.5 Modifying factors

All measurements were evaluated for potential modifying factors in accordance with the NPfI. Assessment of modifying factors is undertaken at the time of measurement if the site was audible and directly quantifiable. If applicable, modifying factor penalties have been reported and added to measured site only L_{Aeq} noise levels.

Low-frequency modifying factor penalties have only been applied to site-only L_{Aeq} levels if the site was the only contributing low-frequency noise source. Specific methodology for assessment of each modifying factor is outlined in Fact Sheet C of the NPfI.

3.6 Instrumentation

Attended noise monitoring was conducted by Isaac Hepworth. Qualifications, experience, and/or demonstration of competence is in accordance with the Approved methods and supportive documentation is available upon request.

The equipment used to measure environmental noise levels is detailed in Table 3.1. Calibration certificates are provided in Appendix C.

Table 3.1 Noise monitoring equipment

Item	Serial number	Calibration due date	Relevant standard
Rion NA-28 sound level meter	30131882	06/02/2027	IEC 61672-1:2002
SVAN SV-36 acoustic calibrator	138014	07/08/2025	IEC 60942:2003
ARL Ngara unattended noise logger	878124	28/02/2026	IEC 61672-3:2013
ARL Ngara unattended noise logger	878125	3/11/2025	IEC 61672-3:2013

4 Results

4.1 Attended noise monitoring

4.1.1 Total measured noise levels and atmospheric conditions

Overall noise levels measured at each location during attended measurements are provided in Table 4.1. Discussion as to the noise sources responsible for these measured levels is provided in Section 5.1 of this report.

Table 4.1 Total measured 15-minute noise levels (attended) – Semester 1 2025[1]

Location	Start date and time	L_{Amax} dB	L_{A1} dB	L_{A10} dB	L_{Aeq} dB	L_{A50} dB	L_{A90} dB	L_{Amin} dB
NM1	14/05/2025 16:58	60	58	55	53	52	48	43
NM2	14/05/2025 17:35	73	70	67	63	61	55	47

Notes: 1. Levels in this table are not necessarily the result of activity at site.

Atmospheric condition data measured by the operator during each measurement using a hand-held weather meter is shown in Table 4.2. The wind speed, direction and temperature were measured at approximately 1.5 metres above ground. Attended noise monitoring is not done during rain, hail, or wind speeds above 5 m/s at microphone height.

Table 4.2 Measured atmospheric conditions – Semester 1 2025

Location	Start date and time	Temperature °C	Wind speed m/s	Wind direction °Magnetic north [1]	Cloud cover 1/8s
NM1	14/05/2025 16:58	23.7	<0.5	-	6
NM2	14/05/2025 17:35	23.9	<0.5	-	6

Notes: 1. "-" indicates calm conditions at monitoring location.

4.1.2 Site only noise levels

i Modifying factors

There were no modifying factors, as defined in the NPfI, applicable during the survey.

ii Monitoring results

Table 4.3 provides site noise levels in the absence of other sources, where possible, and includes weather data from the site AWS. Limits are applicable if weather conditions were within specified parameters during each measurement.

Table 4.3 Site noise levels and limits – Semester 1 2025

Location	Start Date and Time	Wind		Stability Class	Standard limits apply? [1]	Limits, dB	Site levels, dB	Exceedances, dB [1]
		Speed m/s	Direction [3]			$L_{Aeq,15minute}$	$L_{Aeq,15minute}$ [2]	$L_{Aeq,15minute}$
NM1	14/05/2025 16:58	1.0	338	A	Yes	48	IA	Nil
NM2	14/05/2025 17:35	0.7	79	A	Yes	48	IA	Nil

Notes: 1. Noise emission limits are applicable if weather conditions were within parameters specified in Section 2.5. NA in exceedance column indicates that limits were not applicable due to weather conditions.

2. Site-only $L_{Aeq,15minute}$, includes modifying factor penalties if applicable.

3. Degrees magnetic north, "-" indicates calm conditions.

4.2 Unattended noise monitoring

Overall noise levels measured at each location during unattended measurements are provided in Table 4.4. Discussion as to the noise sources responsible for these measured levels is provided in Section 5.2 of this report.

Table 4.4 Total measured noise levels (unattended) – Semester 1 2025[1]

Location	Period	Measured noise levels, dB	
		RBL	$L_{Aeq,period}$
NM1 14-28 May 2025	Day	47	54
	Evening	46	54
	Night	37	51
NM2[2] 14-28 May 2025	Day	57	65
	Evening	51	64
	Night	38	62

Notes: 1. Levels in this table are not necessarily the result of activity at site.

2. Due to equipment failure (attributed to heavy rain/flooding during the monitoring), the data captured by the unattended noise monitor at location NM2 did not meet the minimum requirements of at least four full days of monitoring data, as per the Karuah Quarry EMP.

5 Discussion

5.1 Attended noise monitoring

5.1.1 Noted noise sources

During attended monitoring, the time variations (temporal characteristics) of noise sources are considered in each measurement via statistical descriptors. From these observations, summaries have been derived for each location and provided in this section. Statistical 1/3 octave-band analysis of environmental noise was undertaken and the following figures display frequency ranges of various noise sources at each location for L_{A1}, L_{A10}, L_{Aeq}, L_{A50}, and L_{A90} descriptors. These figures also provide, graphically, statistical information for these noise levels.

An example is provided as Figure 5.1, where frogs, insects and birds are seen to be generating noise at frequencies above 1000 Hz, while industrial noise is observed at frequencies less than 1000 Hz.

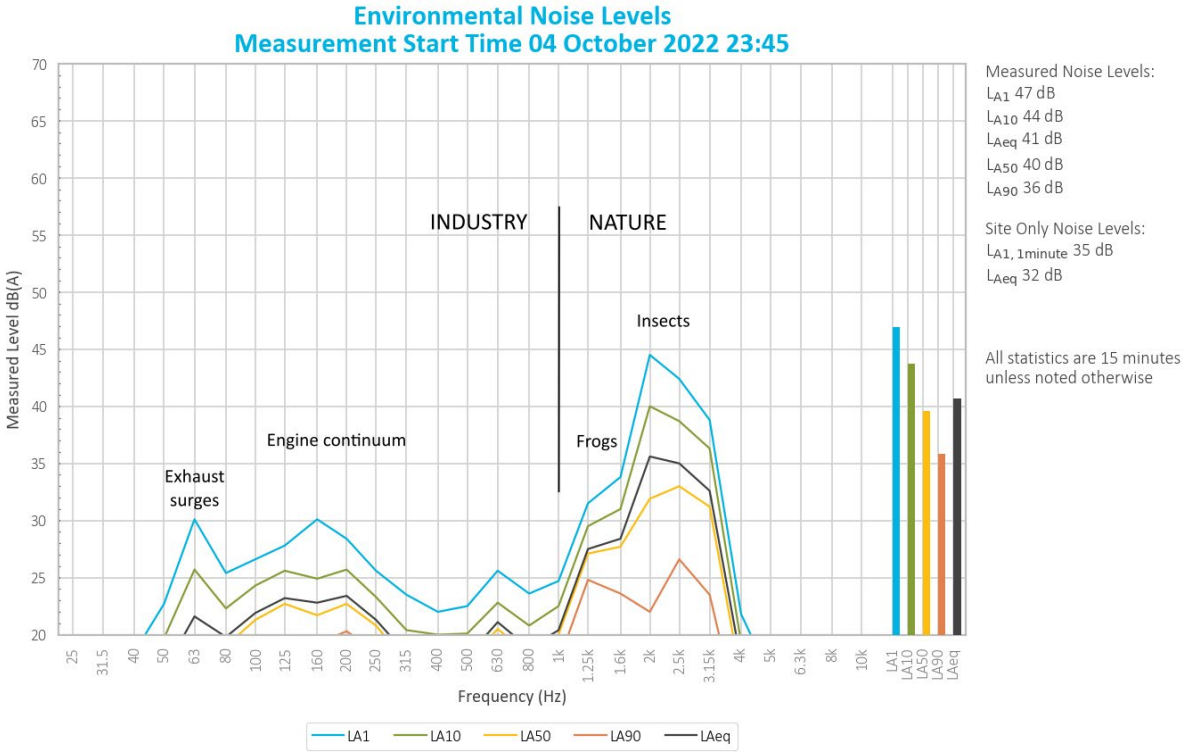

Figure 5.1 Example graph

5.1.2 NM1

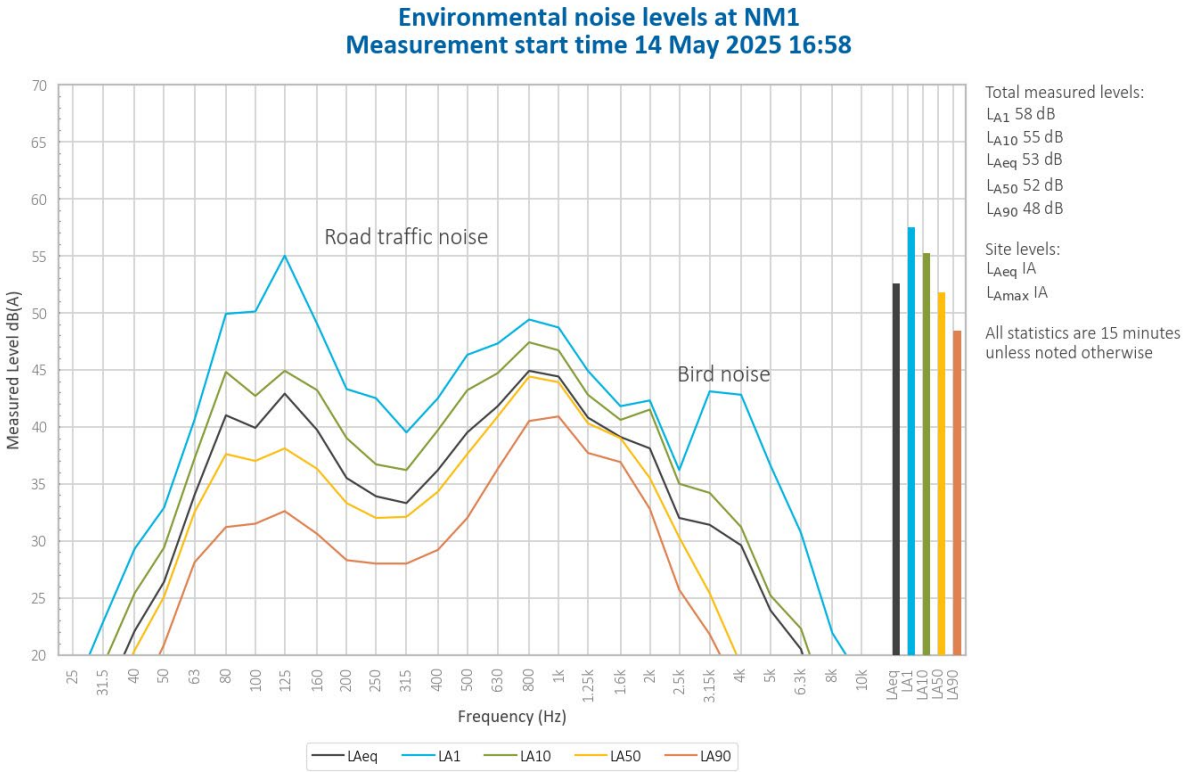

Figure 5.2 Environmental Noise Levels – NM1

Karuah Quarry operations were inaudible during the entire measurement.

Road traffic noise dominated total measured noise levels.

Noise from birds, insects and frogs was also noted.

5.1.3 NM2

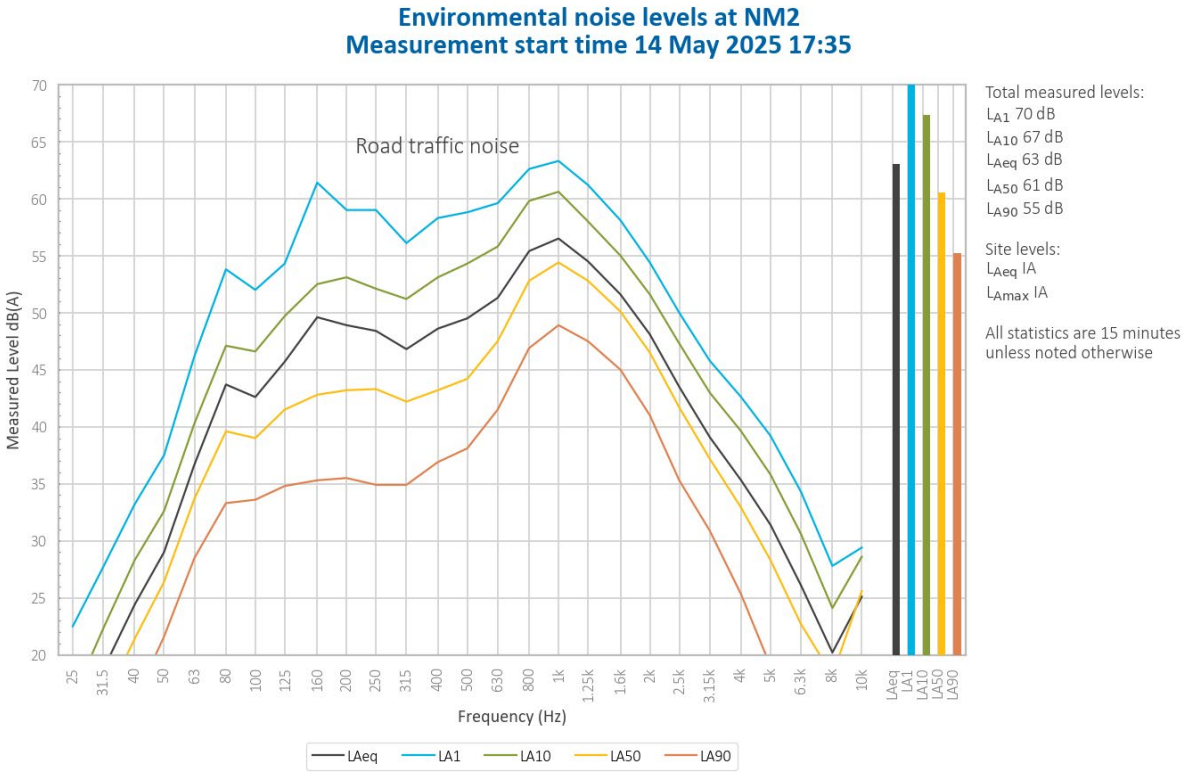

Figure 5.3 Environmental Noise Levels – NM2

Karuah Quarry operations were inaudible during the entire measurement.

Road traffic noise dominated total measured noise levels.

Noise from insects and frogs was also noted.

5.2 Unattended noise monitoring

Observations during the operator attended measurements indicate that the dominant source of noise at both unattended noise monitoring locations is road traffic noise from the Pacific Highway (particularly during peak traffic periods), with insects, birds and dogs barking also noted to be audible.

Notwithstanding, a review of the unattended noise monitoring data has found no correlation between recorded noise levels and events associated with Karuah Quarry operations. Without an operator present to discern the noise sources contributing to the measured noise levels, it is difficult to establish any meaningful conclusions or trends from the unattended noise monitoring data.

6 Summary

EMM was engaged by Hunter Quarries Pty Limited to conduct a bi-annual noise survey of operations at the site surrounds. The survey purpose was to quantify the acoustic environment and compare site noise levels against specified limits.

Attended environmental noise monitoring described in this report was done during the day period on Wednesday 14 May 2025 at two monitoring locations, as required by the EMP.

Noise levels from site complied with relevant limits at all monitoring locations during the Semester 1 2025 survey.

A review of the unattended noise monitoring data found that no meaningful conclusions, events or trends could be associated with Karuah Quarry operations.

Appendix A
Noise perception and examples

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A.1 Noise levels

Table A.1 gives an indication as to how an average person perceives changes in noise level. Examples of common noise levels are provided in Figure A.1.

Table A.1 Perceived change in noise

Change in sound pressure level (dB)	Perceived change in noise
up to 2	Not perceptible
3	Just perceptible
5	Noticeable difference
10	Twice (or half) as loud
15	Large change
20	Four times (or quarter) as loud

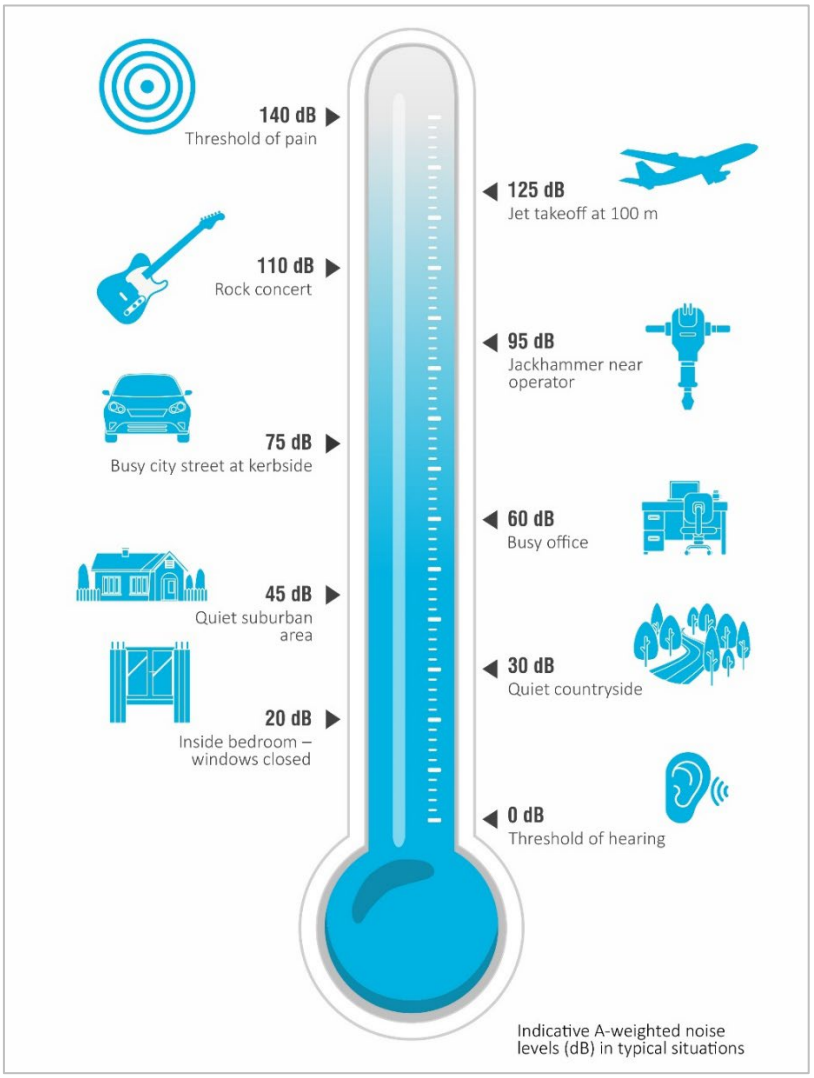

Figure A.1 Common noise levels

Appendix B
Regulator documents

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SCHEDULE 3
SPECIFIC ENVIRONMENTAL CONDITIONS

[1]NOISE

Noise Impact Assessment Criteria

1. The Applicant shall ensure that the noise generated by the development does not exceed the criteria specified in Table 2 at any residence or noise sensitive receptor on privately owned land.

Time Period	Noise Limits dB(A)
	$L_{Aeq\ (15minute)}$
Day (7am to 6pm) Monday to Friday and 7am to 1pm Saturday	48
Evening (6pm to 10pm) Monday to Friday	47
At all other times	46

Table 2: Noise Impact Assessment Criteria for the Development

Notes:

- *Noise from the site is to be measured within thirty meters of any residence or other noise sensitive areas to determine compliance with the noise criteria set out in Table 2.*
- *$LA_{eq(15\ minute)}$ is the equivalent continuous noise level - the level of noise equivalent to the energy average of noise levels occurring over a measurement period.*
- *For the purpose of noise measures required for this condition, the LA_{eq} noise level must be measured or computed at the point defined in this condition over a period of 15 minutes using "FAST" response on the sound level meter.*
- *For the purpose of the noise criteria for this condition, 5dBA must be added to the measured level if the noise is substantially tonal or impulsive in character. The location or point of impact can be different for each development, for example, at the closest residential receiver or at the closest boundary of the development. Measurement locations can be:*
  - *a) 1 meter from the facade of the residence for night time assessment;*
  - *b) at the residential boundary;*
  - *c) 30 meters from the residence (rural situations) where boundary is more than 30 meters from residence.*
- *The noise emission limits identified in this condition apply for prevailing meteorological conditions (winds up to 3m/s), except under conditions of temperature inversions. Noise impacts that may be enhanced by temperature inversions must be addressed by:*
  - *a) documenting noise complaints received to identify any higher level of impacts or patterns of temperature inversions;*
  - *b) where levels of noise complaints indicate a higher level of impact then actions to quantify and ameliorate any enhanced impacts under temperature inversions conditions should be developed and implemented.*

Operating Hours

2. The Applicant shall comply with the operating hours in Table 1:

Activity	Days of the Week	Time
• Construction	Monday – Friday	7am to 6pm
• Extraction and processing	Saturday	7am to 1pm
• Internal and off-site transportation of product	Sunday and public holidays	No work at any time
Minor maintenance works on plant and machinery	7 days a week and public holidays	7am to 6pm

Table 1: Operating Hours for the Development

Note: Delivery of material outside of the hours of operation permitted by condition 2 is only allowed, where that delivery is required by the police or other authorities for safety reasons; and/or where the operation or personnel or equipment are endangered. In such circumstances, prior notification should be provided to the DEC and affected residents as soon as possible, or within a reasonable period in the case of emergency.

Noise Monitoring

3. Within 6 months of the date of this consent, the Applicant shall prepare and implement a Noise Monitoring Program for the development to evaluate compliance with the noise impact assessment criteria in this consent, in consultation with the DEC, and to the satisfaction of the Director-General.

[1] Incorporates DEC GTAs

4.3 Blast Monitoring

In accordance with Schedule 3, Condition 6 of the Development Consent, blasting will only be conducted between 9.00 am and 3.00 pm Monday to Friday, and within a maximum of one blast per week. No blasting will occur on weekends or public holidays. Any blasting outside of these hours will be conducted with prior approval of NSW Planning.

It should be noted that the blast event, may consist of a number of blasts in the same vicinity, within a short period of time, typically less than two minutes.

In accordance with Schedule 4, Condition 4 and Condition 5 of the Development Consent, all blasts will be monitored for overpressure and ground vibration at the nearest residential receptor, currently located on Mill Hill Close, as illustrated in **Figure 4**, to ensure blasting remains within compliance criteria summarised by **Table 8.**

Table 8 Summary of Blasting Compliance Criteria.

Location	Airblast Overpressure [dBL (Lin Peak)]	Ground Vibration, PPV (mm/s)	Allowable Exceedance
Any residence on privately-owned land	120	10	0%
	115	5	5% of the total number of blasts over a period of 12-months

4.4 Noise Monitoring

Schedule 3, Condition 11 of the Development Consent provides noise impact assessment criteria for the site as summarised by **Table 9**. The noise monitoring regime is outlined below.

Table 9 Summary of Noise Compliance Criteria.

Assessment Period	Time Period	Noise Limits [dB(A) $LA_{eq(15min)}$]
Day	7am to 6pm Monday to Friday; and 7am to 1pm Saturday	48
Evening	6 pm to 10pm Monday to Friday	47
At all other times		46

Noise monitoring rounds occur on a six-monthly basis consisting of both attended and unattended noise monitoring at the two nearest residential receivers (NM1 and NM2) located on Mill Hill Close, as illustrated by **Figure 4**.

The continuous unattended monitoring will occur over a period of at least four full days; and the attended monitoring will be undertaken for 15-minute intervals during both day and evening assessment periods by a suitably qualified noise consultant.

During the attended monitoring surveys, on-site climatic data will be logged to ensure that the noise assessment periods will be completed during favourable weather conditions as defined by the EPA's *Approved methods for the measurement and analysis of environmental noise in NSW*.

Appendix C
Calibration certificates

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Acoustic Research Labs Pty Ltd
Unit 36/14 Loyalty Rd
North Rocks NSW AUSTRALIA 2151
Ph: +61 2 9484 0800 A.B.N. 65 160 399 119
www.acousticresearch.com.au

Sound Level Meter
IEC 61672-3:2013
Calibration Certificate

Calibration Number C24148

Client Details	EMM Consulting Ground Floor, Suite 01, 20 Chandos Street, PO St Leonards NSW 2065
Equipment Tested/ Model Number :	NGARA GRY
Instrument Serial Number :	878124
Microphone Serial Number :	322004
Pre-amplifier Serial Number :	28248
Firmware Version :	v12.6

Pre-Test Atmospheric Conditions		Post-Test Atmospheric Conditions	
Ambient Temperature :	23.7 °C	**Ambient Temperature :**	24 °C
Relative Humidity :	52.6 %	**Relative Humidity :**	51.9 %
Barometric Pressure :	100.87 kPa	**Barometric Pressure :**	100.82 kPa

Calibration Technician :	Peter Elters	**Secondary Check:**	Shaheen Boaz
Calibration Date :	28 Feb 2024	**Report Issue Date :**	29 Feb 2024

Approved Signatory :  Ken Williams

Clause and Characteristic Tested	Result	Clause and Characteristic Tested	Result
12: Acoustical Sig. tests of a frequency weighting	*Pass*	17: Level linearity incl. the level range control	*N/A*
13: Electrical Sig. tests of frequency weightings	*Pass*	18: Toneburst response	*Pass*
14: Frequency and time weightings at 1 kHz	*Pass*	19: C Weighted Peak Sound Level	*N/A*
15: Long Term Stability	*Pass*	20: Overload Indication	*Pass*
16: Level linearity on the reference level range	*Pass*	21: High Level Stability	*Pass*

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed.

However, no general statement or conclusion can be made about conformance of the sound level meter to the full requirements of IEC 61672-1:2013 because evidence was not publicly available, from an independent testing organisation responsible for pattern approvals, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2013 and because the periodic tests of IEC 61672-3:2013 cover only a limited subset of the specifications in IEC 61672-1:2013.

Uncertainties of Measurement -

Acoustic Tests		Environmental Conditions	
125Hz	*±0.13 dB*	*Temperature*	*±0.1 °C*
1kHz	*±0.13 dB*	*Relative Humidity*	*±1.9 %*
8kHz	*±0.14 dB*	*Barometric Pressure*	*±0.11 kPa*
Electrical Tests	*±0.13 dB*		

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

This calibration certificate is to be read in conjunction with the calibration test report.

Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.
Accredited for compliance with ISO/IEC 17025 - Calibration.

The results of the tests, calibrations and/or measurements included in this document are traceable to SI units.

NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration and inspection reports.

Acoustic Research Labs Pty Ltd
Unit 36/14 Loyalty Rd
North Rocks NSW AUSTRALIA 2151
Ph: +61 2 9484 0800 A.B.N. 65 160 399 119
www.acousticresearch.com.au

Sound Level Meter
IEC 61672-3:2013
Calibration Certificate

Calibration Number C23804

Client Details	EMM Consulting Ground Floor, Suite 01, 20 Chandos Street St Leonards NSW 2065
Equipment Tested/ Model Number :	ARL Ngara
Instrument Serial Number :	878125
Microphone Serial Number :	320652
Pre-amplifier Serial Number :	28213
Firmware Version :	12.6

Pre-Test Atmospheric Conditions		**Post-Test Atmospheric Conditions**	
Ambient Temperature :	25 °C	**Ambient Temperature :**	25.1 °C
Relative Humidity :	42.1 %	**Relative Humidity :**	42.1 %
Barometric Pressure :	100.56 kPa	**Barometric Pressure :**	100.53 kPa

Calibration Technician : Shaheen Boaz
Secondary Check: Dhanush Bonu
Calibration Date : 3 Nov 2023
Report Issue Date : 6 Nov 2023

Approved Signatory : Ken Williams

Clause and Characteristic Tested	Result	Clause and Characteristic Tested	Result
12: Acoustical Sig. tests of a frequency weighting	*Pass*	17: Level linearity incl. the level range control	*N/A*
13: Electrical Sig. tests of frequency weightings	*Pass*	18: Toneburst response	*Pass*
14: Frequency and time weightings at 1 kHz	*Pass*	19: C Weighted Peak Sound Level	*N/A*
15: Long Term Stability	*Pass*	20: Overload Indication	*Pass*
16: Level linearity on the reference level range	*Pass*	21: High Level Stability	*Pass*

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed.

However, no general statement or conclusion can be made about conformance of the sound level meter to the full requirements of IEC 61672-1:2013 because evidence was not publicly available, from an independent testing organisation responsible for pattern approvals, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2013 and because the periodic tests of IEC 61672-3:2013 cover only a limited subset of the specifications in IEC 61672-1:2013.

Uncertainties of Measurement -

Acoustic Tests		Environmental Conditions	
125Hz	*±0.13 dB*	*Temperature*	*±0.1 °C*
1kHz	*±0.13 dB*	*Relative Humidity*	*±1.9 %*
8kHz	*±0.14 dB*	*Barometric Pressure*	*±0.11 kPa*
Electrical Tests	*±0.13 dB*		

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

This calibration certificate is to be read in conjunction with the calibration test report.

Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.
Accredited for compliance with ISO/IEC 17025 - Calibration.

The results of the tests, calibrations and/or measurements included in this document are traceable to SI units.

NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration and inspection reports.

CERTIFICATE OF CALIBRATION

CERTIFICATE NO: SLM52717

EQUIPMENT TESTED: Sound Level Meter

Manufacturer:	Rion		
Type No:	NA-28	**Serial No:**	30131882
Mic. Type:	Rion UC-59	**Serial No:**	04739
Pre-Amp. Type:	Rion NH-23	**Serial No:**	11942
Filter Type:	1/3 Octave	**Test No:**	FILT9709

Owner: EMM Consulting
Level 1, 175 Scott Street
Newcastle, NSW 2300

Tests Performed: IEC 61672-3:2013,
IEC 1260:1995, & AS/NZS 4476:1997

Comments: All Test passed for Class 1. (See overleaf for details)

CONDITIONS OF TEST:

Ambient Pressure	1000	hPa ±1 hPa	**Date of Receipt :**	31/01/2025
Temperature	24	°C ±1° C	**Date of Calibration :**	06/02/2025
Relative Humidity	46	% ±5%	**Date of Issue :**	06/02/2025

Acu-Vib Test Procedure: AVP10 (SLM) & AVP06 (Filters)

CHECKED BY: .....

AUTHORISED SIGNATURE: .....

Hein Soe

Accredited for compliance with ISO/IEC 17025 - Calibration

Results of the tests, calibration and/or measurements included in this document are traceable to SI units through reference equipment that has been calibrated by the Australian National Measurement Institute or other NATA accredited laboratories demonstrating traceability.

This report applies only to the item identified in the report and may not be reproduced in part.

The uncertainties quoted are calculated in accordance with the methods of the ISO Guide to the Uncertainty of Measurement and quoted at a coverage factor of 2 with a confidence interval of approximately 95%.

Acu-Vib Electronics
ACOUSTICS AND VIBRATIONS
Head Office & Calibration Laboratory
Unit 14, 22 Hudson Avenue, Castle Hill NSW 2154
(02) 9680 8133
www.acu-vib.com.au

NATA
WORLD RECOGNISED
ACCREDITATION
Accredited Laboratory
No. 9262
Acoustic and Vibration
Measurements

CERTIFICATE NO: SLM52717

The performance characteristics listed below were tested. The tests are based on the relevant clauses of IEC 61672-3:2013

Tests Performed:	*Clause*	*Result*
Absolute Calibration	10	Pass
Acoustical Frequency Weighting	12	Pass
Self-Generated Noise	11.1	Observed
Electrical Noise	11.2	Observed
Long Term Stability	15	Pass
Electrical Frequency Weightings	13	Pass
Frequency and Time Weightings	14	Pass
Reference Level Linearity	16	Pass
Range Level Linearity	17	Pass
Toneburst	18	Pass
Peak C Sound Level	19	Pass
Overload Indicator	20	Pass
High Level Stability	21	Pass

Statement of Compliance: The sound level meter submitted for testing successfully completed the periodic tests of IEC 61672-3:-2013, for the environmental conditions under which the tests were performed. However, no general statement or conclusion can be made about conformance of the sound level meter to the full specifications of IEC 61672-1:-2013 because evidence was not publically available, from an independent testing organization responsible for pattern approvals, to demonstrate that the model of sound level meter fully conformed to the class 1 specifications in IEC 61672-1:-2013 and because the periodic tests of IEC 61672-3:-2013 cover only a limited subset of the specifications in IEC 61672-1:-2013.

This Sound Level Meter included an Octave Filter Set. Tests were based on IEC 1260: 1995 and AS/NZS 4476 - 1997 and were conducted to test the following performance characteristics:

1. Relative attenuation clause 5.3

A full technical report is available on request.

CERTIFICATE OF CALIBRATION

CERTIFICATE NO: C50817

EQUIPMENT TESTED : Acoustic Calibrator

Manufacturer: Svantek
Type No: SV 36 **Serial No:** 138014
Class: 1
Owner: EMM Consulting
Suite 01, 20 Chandos St
St Leonards NSW 2065
Tests Performed: Measured Output Pressure level, Frequency & Distortion
Comments: See Details and Class Tolerance overleaf.

CONDITION OF TEST:

Ambient Pressure	1013	hPa ±1 hPa	**Date of Receipt :**	05/08/2024
Temperature	22	°C ±1° C	**Date of Calibration :**	07/08/2024
Relative Humidity	41	% ±5%	**Date of Issue :**	07/08/2024

Acu-Vib Test Procedure: AVP02 (Calibrators)
Test Method: AS IEC 60942 - 2017

CHECKED BY: ..... **AUTHORISED SIGNATURE:** .....

Hein Soe

Accredited for compliance with ISO/IEC 17025 - Calibration

Results of the tests, calibration and/or measurements included in this document are traceable to SI units through reference equipment that has been calibrated by the Australian National Measurement Institute or other NATA accredited laboratories demonstrating traceability.

This report applies only to the item identified in the report and may not be reproduced in part.

The uncertainties quoted are calculated in accordance with the methods of the ISO Guide to the Uncertainty of Measurement and quoted at a coverage factor of 2 with a confidence interval of approximately 95%.

Acu-Vib Electronics
ACOUSTICS AND VIBRATIONS
Head Office & Calibration Laboratory
Unit 14, 22 Hudson Avenue, Castle Hill NSW 2154
(02) 9680 8133
www.acu-vib.com.au

NATA
WORLD RECOGNISED ACCREDITATION
Accredited Laboratory No. 9262
Acoustic and Vibration Measurements

Australia

SYDNEY
Ground floor 20 Chandos Street
St Leonards NSW 2065
T 02 9493 9500

NEWCASTLE
Level 3 175 Scott Street
Newcastle NSW 2300
T 02 4907 4800

BRISBANE
Level 1 87 Wickham Terrace
Spring Hill QLD 4000
T 07 3648 1200

CANBERRA
Suite 2.04 Level 2
15 London Circuit
Canberra City ACT 2601

ADELAIDE
Level 4 74 Pirie Street
Adelaide SA 5000
T 08 8232 2253

MELBOURNE
Suite 8.03 Level 8
454 Collins Street
Melbourne VIC 3000
T 03 9993 1900

PERTH
Suite 9.02 Level 9
109 St Georges Terrace
Perth WA 6000
T 08 6430 4800

Canada

TORONTO
2345 Yonge Street Suite 300
Toronto ON M4P 2E5
T 647 467 1605

VANCOUVER
60 W 6th Ave
Vancouver BC V5Y 1K1
T 604 999 8297

linkedin.com/company/emm-consulting-pty-limited

emmconsulting.com.au

E250042_KQ_S1_V1

Final Audit Report 2025-05-30

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