



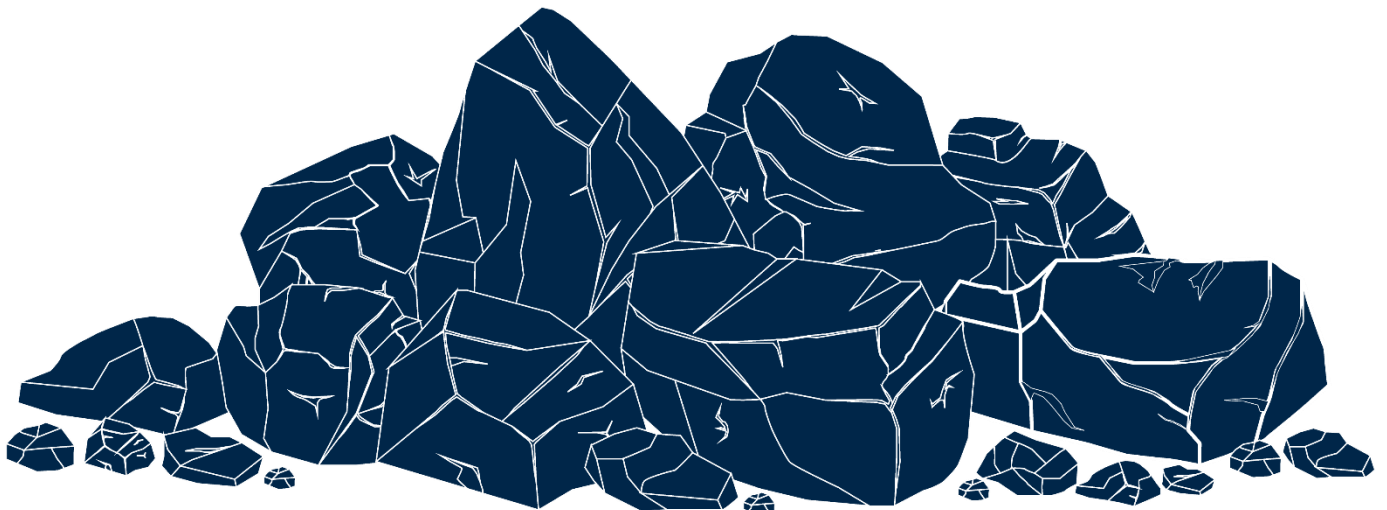
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Karuah East Quarry

# Environmental Monitoring Report

January 2025



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## 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 20611 (the EPL) and Project Approval MP09\_0175 (the Consent) for the Karuah East Quarry (the Quarry) as summarised by **Table 1** and **Table 2** respectively.

**Table 1** Summary of Environment Protection Licence, EPL 20611

<b>EPL Number:</b>	EPL 20611
<b>Licensee’s Name:</b>	Karuah East Quarry Pty Limited
<b>Licensee’s Address:</b>	Karuah East Quarry PO Box 3284, Thornton NSW 2322 Blue Rock Close, Karuah NSW 2324
<b>Link to Full Licence on the EPA website:</b>	<a href="#">EPL 20611</a>

**Table 2** Summary of Project Approval, MP09\_0175

<b>Project Approval:</b>	MP09_0175
<b>Applicant:</b>	Karuah East Quarry Pty Limited
<b>Consent Authority:</b>	NSW Planning Assessment Commission
<b>Link to Full Project Approval on the NSW Planning website:</b>	<a href="#">Project Approval MP09_0175</a>

A summary of the environmental monitoring data for the January 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 and TSP/PM10 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 (MP09-0175).**

Pollutant	Averaging Period	Maximum Increase in Deposited Dust Level <sup>1</sup>	Maximum Total Deposited Dust Level <sup>1</sup>
Deposited Dust	Annual	2 g/m <sup>2</sup> /month	4 g/m <sup>2</sup> /month

<sup>1</sup> Deposited dust is assessed as insoluble solids as defined by AS 3580.10.1-2003.

**Table 4 Long-term Assessment Criteria for Particulate Matter (MP09-0175).**

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

**Table 5 Short-term Assessment Criteria for Particulate Matter (MP09-0175).**

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

**Table 6 Air Quality Monitoring Locations (EPL 20611).**

Site Monitoring Point ID	EPL Monitoring Point ID	Location	Address	Coordinates
DDG 1	4	South-West of Karuah East Quarry	54 Mill Hill Close, Karuah NSW 2324	32°38'04"S 151°59'58"E
DDG 2	5	South-West of Karuah East Quarry	64 Mill Hill Close, Karuah NSW 2324	32°38'02"S 152°00'09"E
DDG 3	6	South-West of Karuah East Quarry	Lot 251 DP1092111, Karuah NSW 2324	32°37'57"S 151°59'41"E
DDG 4	7	East of Karuah East Quarry	21 Halloran Road, North Arm Cove NSW 2324	32° 37' 30.87"S 152°01'10.18"E
DDG 5	8	South-West of Karuah East Quarry	Lot 21 DP1024341, Karuah NSW 2324	32° 37' 55.33"S 152°00'2.74"E
HVAS	9	South-West of Karuah East Quarry	64 Mill Hill Close, Karuah NSW 2324	32°38'03"S 152°00'09"E

## 2.1 Deposited Dust Monitoring

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

**Table 7** Deposited dust monitoring results.

Reporting Period	Start Date	End Date	Days	DDG 1 EPL ID 4	DDG 2 EPL ID 5	DDG 3 EPL ID 6	DDG 4 EPL ID 7	DDG 5 EPL ID 8
Feb-24	25/01/2024	26/01/2024	32	1.1	0.8	1.3	1.3	1.3
Mar-24	26/02/2024	28/03/2024	31	0.8	0.9	1.8	0.6	1.8
Apr-24	28/03/2024	29/04/2024	32	0.9	0.4	0.5	0.8	0.5
May-24	29/04/2024	29/05/2024	30	0.5	0.3	0.2	0.4	0.4
Jun-24	29/05/2024	28/06/2024	30	0.7	0.5	0.5	0.7	0.4
Jul-24	28/06/2024	30/07/2024	32	1.1	0.8	0.6	0.9	0.7
Aug-24	30/07/2024	30/08/2024	31	0.7	0.5	0.7	0.9	0.6
Sep-24	30/08/2024	30/09/2024	31	2.2	1.2	1.3	1.2	0.9
Oct-24	30/09/2024	31/10/2024	31	1.0	0.7	0.7	5.1*	0.4
Nov-24	31/10/2024	29/11/2024	29	1.4	1.1	1.1	1.7	0.9
Dec-24	29/11/2024	30/12/2024	29	0.6	1.4	1.3	3.1	1.1
Jan-25	30/12/2024	31/01/2025	32	3.8	1.7	1.9	1.3	1.3
<b>Progressive Annual Average</b>				<b>1.2</b>	<b>0.9</b>	<b>1.0</b>	<b>1.5</b>	<b>0.9</b>

Monitoring results for the Reporting Period at all five DDG monitoring sites are within the long-term annual deposited dust limit of 4 g/m<sup>2</sup>/month.

*\*Note: an anomalous exceedance was recorded at DDG4 during the October 2024 Reporting 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.*

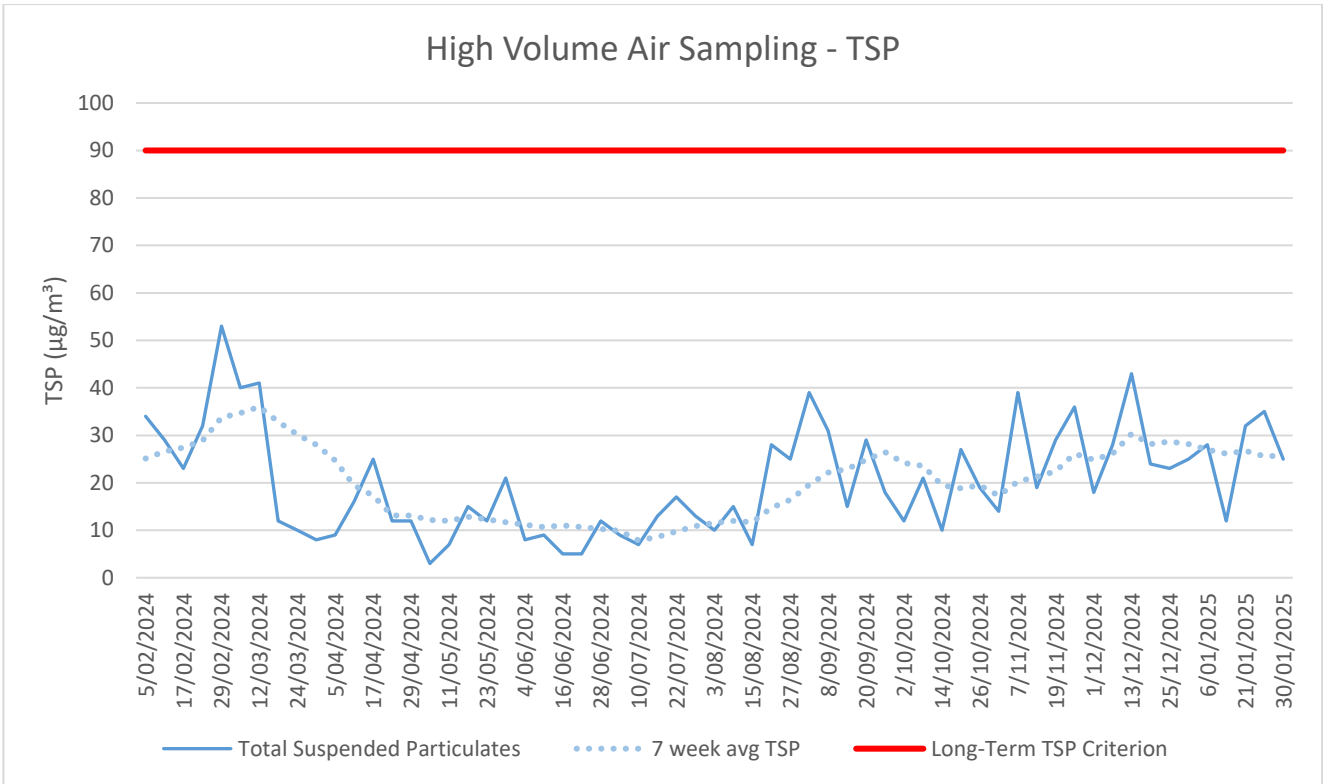
## 2.2 High Volume Air Sampling

TSP and PM10 results for the Reporting Period are summarised by **Table 8** and illustrated respectively by **Figure 1** and **Figure 2**.

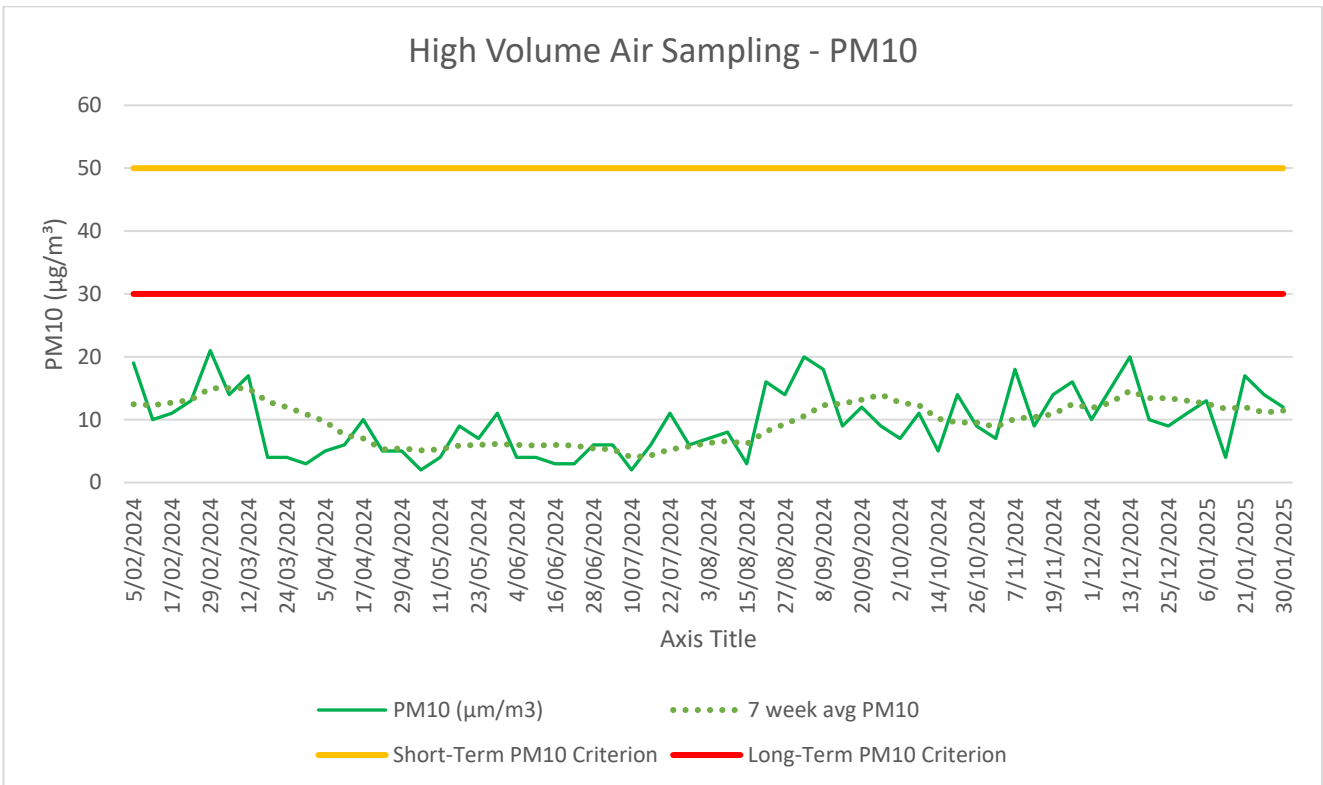
**Table 8** HVAS TSP and PM10 monitoring results for the Reporting Period.

Run Date	Total Suspended Particulates, TSP (µg/m <sup>3</sup> )	Particulate Matter < 10 µm, PM10 (µg/m <sup>3</sup> )
06/01/2025	18	10
12/01/2025	28	15
21/01/2025	43	20
24/01/2025	24	10
30/01/2025	23	9
<b>Monthly Average</b>	<b>26.4</b>	<b>12.0</b>

Monitoring results for the five HVAS run days within the Reporting Period were compliant with the long-term limits for TSP and PM10 and short-term limits for PM10.



**Figure 1** Long-term TSP monitoring trends.



**Figure 2** Long-term PM10 monitoring trends.

### 3.0 Blast Monitoring

Blast monitoring is undertaken for all blasts at the Quarry at the nearest residential location (EPL Monitoring Point 11) to ensure that air blast overpressure and ground vibration remain within the compliance limits, as summarised by **Table 9**; with the monitoring results summarised by **Table 10**.

There was one blast undertaken during the Reporting Period, which was observed to be within compliance limits.

**Table 9** *Blasting Airblast Overpressure and Ground Vibration Criteria (MP09-0175 & EPL 20611).*

Location	Airblast Overpressure (dB(L))	Ground Vibration (mm/s)	Allowable Exceedance
Private Residence B	120	10	0%
EPL Monitoring Point ID 11	115	5	5% over 12-month reporting period.

**Table 10** *Blasting Monitoring Results.*

Date	Time	Location	Airblast Overpressure (dB(L))	Ground Vibration (mm/s)
16/01/2025	15:22	RL 128	n/t	n/t

\*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 Noise Management Plan, which requires attended noise monitoring to be conducted on a quarterly basis.

No noise monitoring was conducted during the Reporting Period.

## 5.0 Surface Water Monitoring

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

Discharge events that occurred during the Reporting Period are summarised by **Table 11**.

Two major rainfall events that occurred during the Reporting Period, resulting in non-compliance uncontrolled discharges from all three sediment dams as outlined in **Section 8.1**.

**Table 11 Discharge Water Monitoring Results.**

Date	pH	Turbidity (NTU)	Total Suspended Solids, TSS (mg/L)	Oil and Grease	Discharge Type
<b>LDP 1 – Dam 1</b>					
09/01/2025	7.4	>1,000	810	Not Visible	Uncontrolled
10/01/2025	7.3	>1,000	300	Not Visible	Uncontrolled
11/01/2025	7.3	>1,000	580	Not Visible	Uncontrolled
12/01/2025	7.4	>1,000	280	Not Visible	Uncontrolled
17/01/2025	7.5	>1,000	1200	Not Visible	Uncontrolled
18/01/2025	7.2	>1,000	450	Not Visible	Uncontrolled
19/01/2025	7.3	>1,000	560	Not Visible	Uncontrolled
20/01/2025	7.6	>1,000	540	Not Visible	Uncontrolled
<b>LDP 2 – Dam 2</b>					
09/01/2025	6.9	240	140	Not Visible	Uncontrolled
10/01/2025	6.9	190	54	Not Visible	Uncontrolled
11/01/2025	6.8	45	21	Not Visible	Controlled
17/01/2025	6.9	40	20	Not Visible	Uncontrolled
18/01/2025	6.7	70	26	Not Visible	Uncontrolled
19/01/2025	6.7	200	66	Not Visible	Uncontrolled
<b>LDP 3 – Dam 3</b>					
08/01/2025	7.3	14	11	Not Visible	Controlled
09/01/2025	7.3	6.8	5	Not Visible	Uncontrolled
10/01/2025	7.2	5.1	6	Not Visible	Controlled
11/01/2025	7.3	35	28	Not Visible	Controlled
12/01/2025	7.6	90	60	Not Visible	Controlled
14/01/2025	7.4	50	18	Not Visible	Controlled
15/01/2025	7.2	40	28	Not Visible	Controlled
17/01/2025	7.4	100	66	Not Visible	Uncontrolled
18/01/2025	7.1	230	100	Not Visible	Uncontrolled
19/01/2025	7.0	220	100	Not Visible	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 3** below outlines the weather records for the Reporting Period.

### Monthly Weather Summary



Site: Karuah Quarry Complex  
 Month: January 2025

Date	Day	Temperature @ 2m			Temperature @ 10m			Winds			Solar Radiation		Rain <sup>2</sup> mm
		Max <sup>1</sup>	Min <sup>2</sup>	Ave <sup>1</sup>	Max <sup>1</sup>	Min <sup>2</sup>	Ave <sup>1</sup>	Max Gust <sup>1</sup>	Ave Speed <sup>1</sup>	Dir Ave <sup>1</sup>	Max <sup>1</sup>	Ave <sup>1</sup>	
		°C	°C	°C	°C	°C	°C	km/h	km/h	deg	W/m <sup>2</sup>	W/m <sup>2</sup>	
1	Wed	32.1	16.5	24.0	29.0	17.4	23.4	40.2	24.4	129	1107.5	287.6	0.0
2	Thu	36.6	19.1	26.4	33.0	19.7	25.6	28.4	20.2	178	957.5	300.4	0.0
3	Fri	27.8	18.9	21.5	24.8	18.9	21.2	40.2	27.3	111	1205.8	92.1	6.8
4	Sat	25.9	15.1	20.7	24.0	16.0	20.6	24.9	17.0	149	1255.0	151.2	0.0
5	Sun	30.4	14.6	23.2	27.8	15.6	22.6	33.1	24.8	172	1134.2	298.9	0.0
6	Mon	36.6	17.0	25.6	33.7	17.8	25.0	26.0	21.5	160	950.0	312.6	0.0
7	Tue	37.3	21.0	27.7	34.6	20.9	26.8	36.7	22.1	146	938.2	289.1	5.0
8	Wed	21.9	18.8	20.0	21.5	18.8	20.1	36.7	21.1	132	281.6	34.3	60.4
9	Thu	19.2	16.8	18.0	19.0	16.8	18.0	40.2	27.6	168	165.8	23.1	103.8
10	Fri	23.6	16.4	19.2	22.2	16.8	19.3	31.9	17.9	165	559.9	60.4	5.6
11	Sat	28.0	18.1	22.4	26.2	18.3	22.1	28.4	20.5	170	1159.1	193.3	11.0
12	Sun	29.1	17.8	22.8	26.9	18.3	22.6	29.6	21.8	158	1309.9	230.2	0.0
13	Mon	31.3	19.2	24.7	28.7	19.8	24.2	30.8	18.7	206	1147.5	256.3	0.0
14	Tue	32.9	19.2	25.7	30.3	19.6	25.0	29.6	18.6	151	1212.5	276.9	0.0
15	Wed	34.7	20.7	26.3	31.7	20.7	25.6	27.2	15.6	152	1007.4	238.8	0.0
16	Thu	36.4	17.7	25.9	34.2	17.6	25.1	58.0	26.7	183	920.0	268.5	27.2
17	Fri	20.2	15.6	18.2	20.4	15.5	18.5	50.9	30.2	136	350.8	28.2	33.2
18	Sat	21.6	15.4	18.8	21.5	15.2	18.9	58.0	38.2	128	226.7	27.0	91.8
19	Sun	26.2	18.7	21.7	25.0	19.2	21.8	49.7	35.5	98	883.3	147.8	22.4
20	Mon	25.6	12.9	19.2	23.2	13.4	18.8	34.3	23.0	158	1195.0	236.2	0.2
21	Tue	26.1	12.7	18.7	23.3	13.0	18.1	24.9	17.0	183	1159.2	284.4	0.0
22	Wed	29.7	17.0	23.2	26.7	17.7	22.6	29.6	21.7	144	979.9	297.3	0.0
23	Thu	35.4	19.6	25.3	33.8	19.7	24.8	46.1	25.1	141	1243.2	184.9	1.2
24	Fri	25.2	19.5	21.9	23.6	19.4	21.1	23.7	16.9	152	855.8	137.7	0.0
25	Sat	26.6	14.6	20.3	24.1	14.9	19.9	35.5	23.3	166	1039.1	172.0	0.0
26	Sun	27.8	16.6	22.0	25.4	17.0	21.4	28.4	21.1	128	1252.5	256.8	0.0
27	Mon	31.9	22.4	25.8	29.2	22.5	25.1	37.9	28.3	162	1040.7	263.5	0.0
28	Tue	35.4	22.2	27.8	33.5	22.5	27.3	28.4	18.2	195	1215.0	262.4	0.0
29	Wed	40.4	19.9	28.5	39.3	20.5	28.0	49.7	34.7	178	1100.0	238.3	9.2
30	Thu	25.7	20.2	21.9	23.6	20.0	21.4	23.7	17.3	160	894.2	103.5	26.8
31	Fri	28.6	21.2	23.8	26.0	21.0	23.3	15.4	11.1	149	808.3	114.3	6.2
<b>Ave or Total</b>		<b>29.4</b>	<b>17.9</b>	<b>22.9</b>	<b>27.3</b>	<b>18.2</b>	<b>22.5</b>	<b>34.8</b>	<b>22.8</b>	<b>155.1</b>	<b>953.4</b>	<b>195.7</b>	<b>410.8</b>
<b>High</b>		<b>40.4</b>	<b>22.4</b>	<b>28.5</b>	<b>39.3</b>	<b>22.5</b>	<b>28.0</b>	<b>58.0</b>	<b>38.2</b>		<b>1309.9</b>	<b>312.6</b>	<b>103.8</b>
<b>Low</b>		<b>19.2</b>	<b>12.7</b>	<b>18.0</b>	<b>19.0</b>	<b>13.0</b>	<b>18.0</b>	<b>15.4</b>	<b>11.1</b>		<b>165.8</b>	<b>23.1</b>	
Notes: 1. Values are for the 24 hour period from 9am to 9am next day.												No. rain days >1mm:	14
2. Values are for the 24 hours to 9am.													

**Figure 3 Weather Records Summary during the Reporting Period.**

## 7.0 Production Data

Monthly monitoring of sales and truck movements are summarised by **Table 12**.

**Table 12 Quarry Production Data.**

Month	Truck Movements	Quarry Product Sales (t)
Jan-25	1,822	54,080

## 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 Thursday 09 January to Sunday 12 January 2025 following the receipt of 185.8 mm 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 KEQPL 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 Friday 17 January to Monday 20 January 2025 following the receipt of 174.8 mm of rainfall over four 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 PIRMP was enacted through reporting to relevant authorities, the KEQPL 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, one reportable non-compliance was identified at the Quarry, including:

- A failure to monitor event for particulate matter occurred on 18 January 2025 associated with the operation of the site's High Volume Air Sampler (HVAS) due to intermittent power outages.

A replacement run was conducted between approximately 9.30 am on 21 January to 9.30 am on 22 January 2025 to be used a substitute. Non-compliance reports were issued to NSW Planning, the NSW EPA and surrounding landholders.

### 8.3 Community Complaints

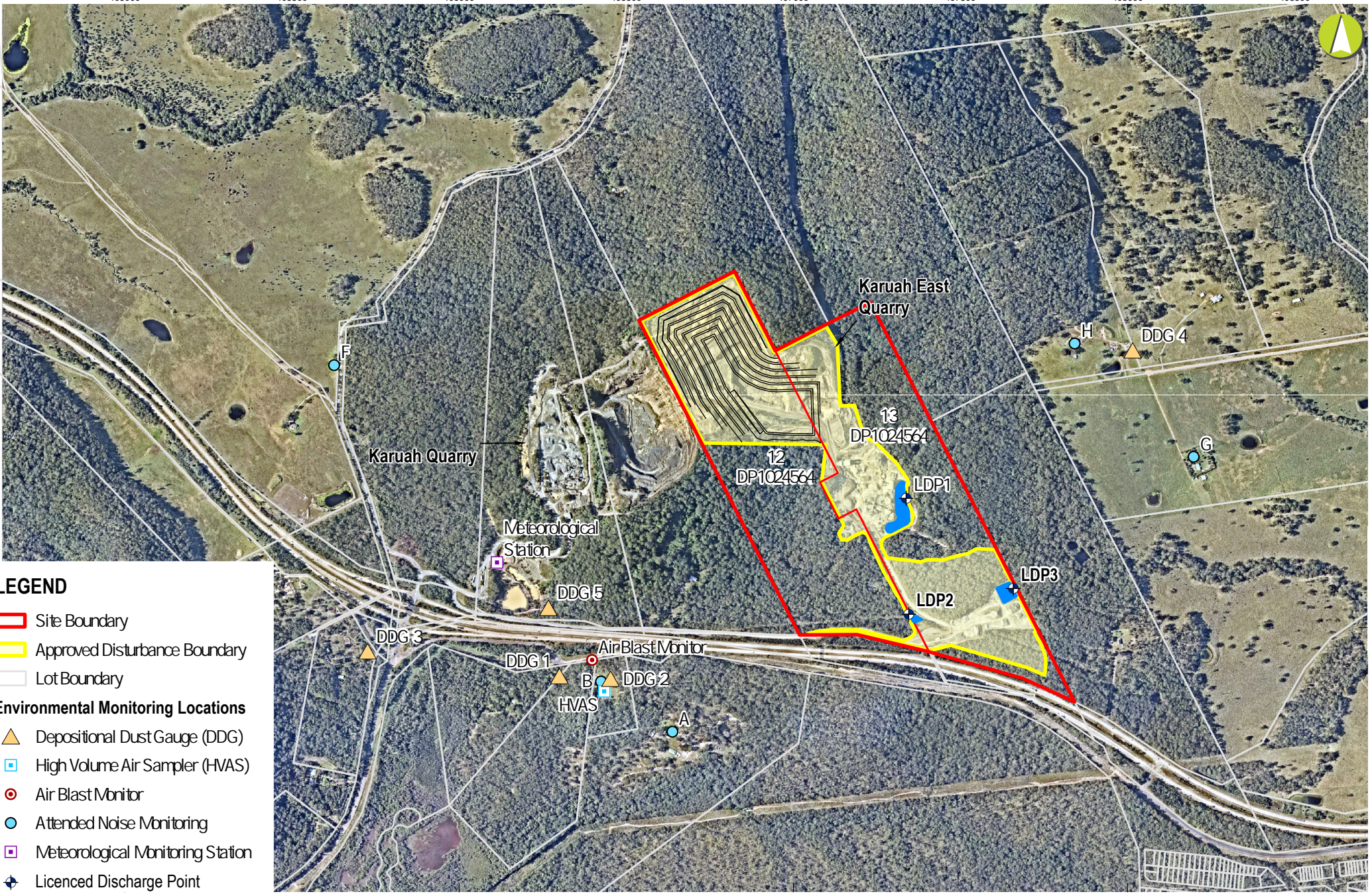
During the Reporting Period, no community complaints were received by the Quarry.

## Appendix 1 – EPL 20611 Monitoring Locations

405000 405500 406000 406500 407000 407500 408000 408500



6389500  
6389000  
6388500  
6388000  
6387500



**LEGEND**

- Site Boundary
- Approved Disturbance Boundary
- Lot Boundary

**Environmental Monitoring Locations**

- Depositional Dust Gauge (DDG)
- High Volume Air Sampler (HVAS)
- Air Blast Monitor
- Attended Noise Monitoring
- Meteorological Monitoring Station
- Licenced Discharge Point



GDA 1994 MGA Zone 56  
8/03/2024

**Karuah East Quarry**

**Environmental Monitoring Report**

**APPENDIX 1 - Environmental Monitoring Locations**

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