



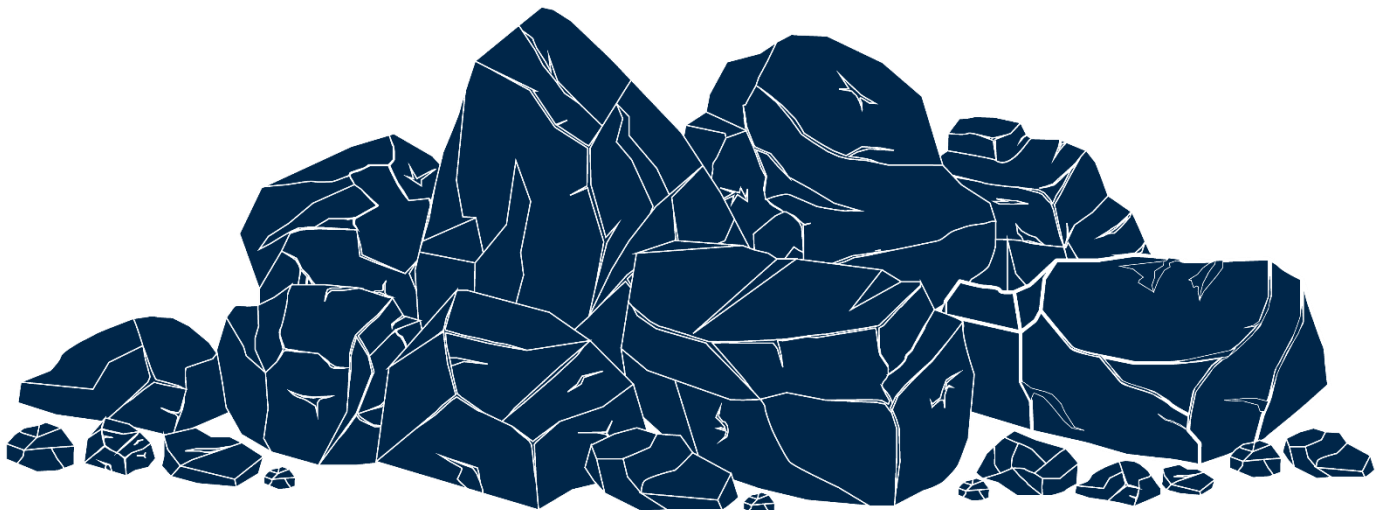
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Karuah Hard Rock Quarry

## Environmental Monitoring Report

March 2024



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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 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**

<b>EPL Number:</b>	EPL 11569
<b>Licensee’s Name:</b>	Hunter Quarries Pty Ltd
<b>Licensee’s Address:</b>	Karuah Hard Rock Quarry PO Box 3284, Thornton NSW 2322 Corner of Andesite Road and The Branch Lane, Karuah NSW 2324.
<b>Link to Full Licence on the EPA website:</b>	<a href="#">EPL 11569</a>

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

<b>Project Approval:</b>	DA 265-10-2004
<b>Applicant:</b>	Hunter Quarries Pty Ltd
<b>Consent Authority:</b>	Minister for Infrastructure, Planning and Natural Resources
<b>Link to Full Project Approval on the NSW Planning website:</b>	<a href="#">Development Consent DA 265-10-2004</a>

A summary of the environmental monitoring data for the March 2024 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 <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 (DA 265-10-2004).**

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 (DA 265-10-2004).**

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

**Table 6 Air Quality Monitoring Locations (EPL 11569).**

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

Deposited dust results for the 12-months prior-to and including March 2024 are summarised by **Table 7**.

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

Reporting Period	Start Date	End Date	Days	DDG 1 EPL ID 2	DDG 2 EPL ID 3	DDG 3 EPL ID 4	DDG 4 EPL ID 5
Apr-23	5/04/2023	4/05/2023	29	0.3	0.5	0.3	0.2
May-23	4/05/2023	5/06/2023	32	0.2	0.3	0.3	0.4
Jun-23	6/06/2023	4/07/2023	28	0.6	2.5	1.8	–
Jul-23	4/07/2023	3/08/2023	30	0.4	0.9	1.2	1.1
Aug-23	3/08/2023	4/09/2023	32	0.7	0.3	0.5	0.5
Sep-23	4/09/2023	4/10/2023	30	1.5	2.6	1.4	1.4
Oct-23	4/10/2023	2/11/2023	29	1.4	2.4	2.2	1.6
Nov-23	2/11/2023	30/11/2023	28	1.6	–	1.4	1.0
Dec-23	30/11/2023	28/12/2023	28	1.1	1.0	1.3	1.3
Jan-24	28/12/2024	25/01/2024	28	1.4	1.2	1.0	1.2
Feb-24	25/01/2024	26/02/2024	32	1.1	0.8	1.3	1.3
Mar-24	26/02/2024	28/03/2024	31	0.8	0.9	1.8	0.6
<b>Progressive Annual Average</b>				<b>0.9</b>	<b>1.2</b>	<b>1.2</b>	<b>1.0</b>

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<sup>2</sup>/month.

It should be noted that DDG 4 and DDG 2 samples in the June 2023 and November 2023 respective reporting periods, become contaminated with vegetation matter and are therefore discounted from averaging. These two ‘failure to monitor events’ were reported to the NSW Department of Planning, Housing and 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 two blasts within the Reporting Period. All blasts were within compliance limits.

**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)
15 March 2024	12:55 PM	RL 77	107.4	0.87
26 March 2024	13:09 PM	RL 96	104.6	0.66

\*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 Monitoring Program, which requires attended and unattended noise monitoring to be conducted on a 6-monthly 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 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.

No discharge events occurred during Reporting Period, as summarised by **Table 10**.

**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
<b>LDP 1 – Sediment Dam 2</b>						
-	-	-	-	-	-	-

## 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: **March 2024**

Date	Day	Temperature @ 2m			Temperature @ 10m			Winds			Solar Radiation		Rain <sup>2</sup> mm
		Max <sup>1</sup> °C	Min <sup>2</sup> °C	Ave <sup>1</sup> °C	Max <sup>1</sup> °C	Min <sup>2</sup> °C	Ave <sup>1</sup> °C	Max Gust <sup>1</sup> km/h	Ave Speed <sup>1</sup> km/h	Dir Ave <sup>1</sup> deg	Max <sup>1</sup> W/m <sup>2</sup>	Ave <sup>1</sup> W/m <sup>2</sup>	
1	Fri	40	22.3	28.9	38.7	23.3	28.9	32.3	5.8	227.5	792.5	227	6.6
2	Sat	32.8	23.7	26.9	30.3	24	26.5	18.4	3.8	171.6	845.8	179.5	0
3	Sun	32.2	19.6	23.1	31.8	19.7	23	21.3	4.1	207.1	760.7	82.5	15.8
4	Mon	30.8	19.8	24.4	28.9	20.1	24.1	24.6	6.3	162.2	1081.6	183.2	0
5	Tue	27	13.6	20.1	24.1	14.1	19.9	21.4	5.9	177.7	990.8	134	0
6	Wed	27.8	14.9	20.7	25.4	15.6	20.7	18.9	4.2	154.4	933.2	162.4	0.2
7	Thu	32.6	17.2	23.7	30.4	18.1	23.5	14	3.5	160.8	818.3	227.8	0
8	Fri	33.7	17.5	24	30.5	18	23.6	19.3	3.9	162.5	792.5	225.4	0
9	Sat	31.3	16.3	22.9	28.5	17.1	22.9	20.4	3.7	170	965.7	192.5	0
10	Sun	30.3	16.2	22.6	27.9	16.7	22.4	22.9	4.3	170.8	907.4	207.4	0
11	Mon	30.9	16.1	22.7	28.5	16.9	22.7	23.5	4.2	150.8	1039.2	185.2	0
12	Tue	31.5	15.3	22.5	29.4	16.5	22.5	20.2	4.5	163.7	953.3	199.2	0
13	Wed	34.6	14.1	22.8	32.2	14.9	22.7	13.7	3	188.1	799.2	233.9	0
14	Thu	30.5	16	22.1	27.8	16.6	22.1	23	4.4	168.3	1034.2	176.3	0
15	Fri	36.2	19.5	25.5	34.2	19.6	25.1	23.2	7.4	186.7	747.5	205	4
16	Sat	26.4	15	20.7	24.6	15.8	20.6	28.1	7.4	178.5	1040	149	0
17	Sun	24.9	17	20.7	23.8	17	20.6	18.1	3.6	164.7	820	100.1	7.6
18	Mon	24.1	16.3	18.9	23.4	16.5	18.8	15.3	2.8	170.6	895.7	96.9	9
19	Tue	24.7	17	19.7	23.6	17.3	19.7	15.6	3	172.4	831.7	82.8	4.8
20	Wed	30.4	18.8	23.7	28.2	19.6	23.6	17.2	4.6	142.8	923.3	182.6	0.2
21	Thu	26.5	18	21	25.6	18.3	20.9	26.4	8.3	172.5	392.5	46.1	7.2
22	Fri	25.1	15.7	19.3	22.1	15.5	18.7	23.5	5.7	202.6	1044.1	192.4	5.4
23	Sat	24.3	12.3	17.4	23	12.9	17.7	16	2.9	184.2	992.5	138.7	0.2
24	Sun	25.5	16	19.5	24.1	16.1	19.4	15.1	2.8	191.5	725.7	115.5	0
25	Mon	28.1	14	19.5	25.8	14.8	19.5	13.7	3.2	160.5	905	154.5	0.2
26	Tue	31.4	13.6	21.2	28.6	14.7	21.4	15.7	3.1	150.8	818.3	187.1	0
27	Wed	30.6	14.6	20.4	27.9	14.9	20.4	17.6	3.6	172	786.7	175.3	0.8
28	Thu	26.6	15.9	20	25.1	16.3	19.9	18	3.4	183.5	979.2	123	8.8
29	Fri	25.4	17.8	20.4	23.9	18	20	18.3	4.3	168.2	956.6	129.7	0.2
30	Sat	24.6	13.6	18.2	23.4	13.9	18.4	10.5	1.9	157.6	705	84.6	0.4
31	Sun	28.6	13.6	19.6	26.8	13.7	19.7	16.5	3.3	166.6	804.2	174.4	0.2
<b>Ave or Total</b>		<b>29.3</b>	<b>16.5</b>	<b>21.7</b>	<b>27.4</b>	<b>17.0</b>	<b>21.6</b>	<b>19.4</b>	<b>4.3</b>	<b>172.9</b>	<b>873.6</b>	<b>159.8</b>	<b>71.6</b>
<b>High</b>		<b>40.0</b>	<b>23.7</b>	<b>28.9</b>	<b>38.7</b>	<b>24.0</b>	<b>28.9</b>	<b>32.3</b>	<b>8.3</b>		<b>1081.6</b>	<b>233.9</b>	<b>15.8</b>
<b>Low</b>		<b>24.1</b>	<b>12.3</b>	<b>17.4</b>	<b>22.1</b>	<b>12.9</b>	<b>17.7</b>	<b>10.5</b>	<b>1.9</b>		<b>392.5</b>	<b>46.1</b>	
<b>Notes:</b> 1. Values are for the 24 hour period from 9am to 9am next day. 2. Values are for the 24 hours to 9am.												<b>No. rain days &gt;1mm:</b>	<b>9</b>

**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-24	1,537	50,963
Feb-24	2,247	73,874
Mar-24	1,419	46,529

## 8.0 Reporting

### 8.1 Reportable Environmental Incidents

During the Reporting Period, no reportable environmental incidents occurred at the Quarry.

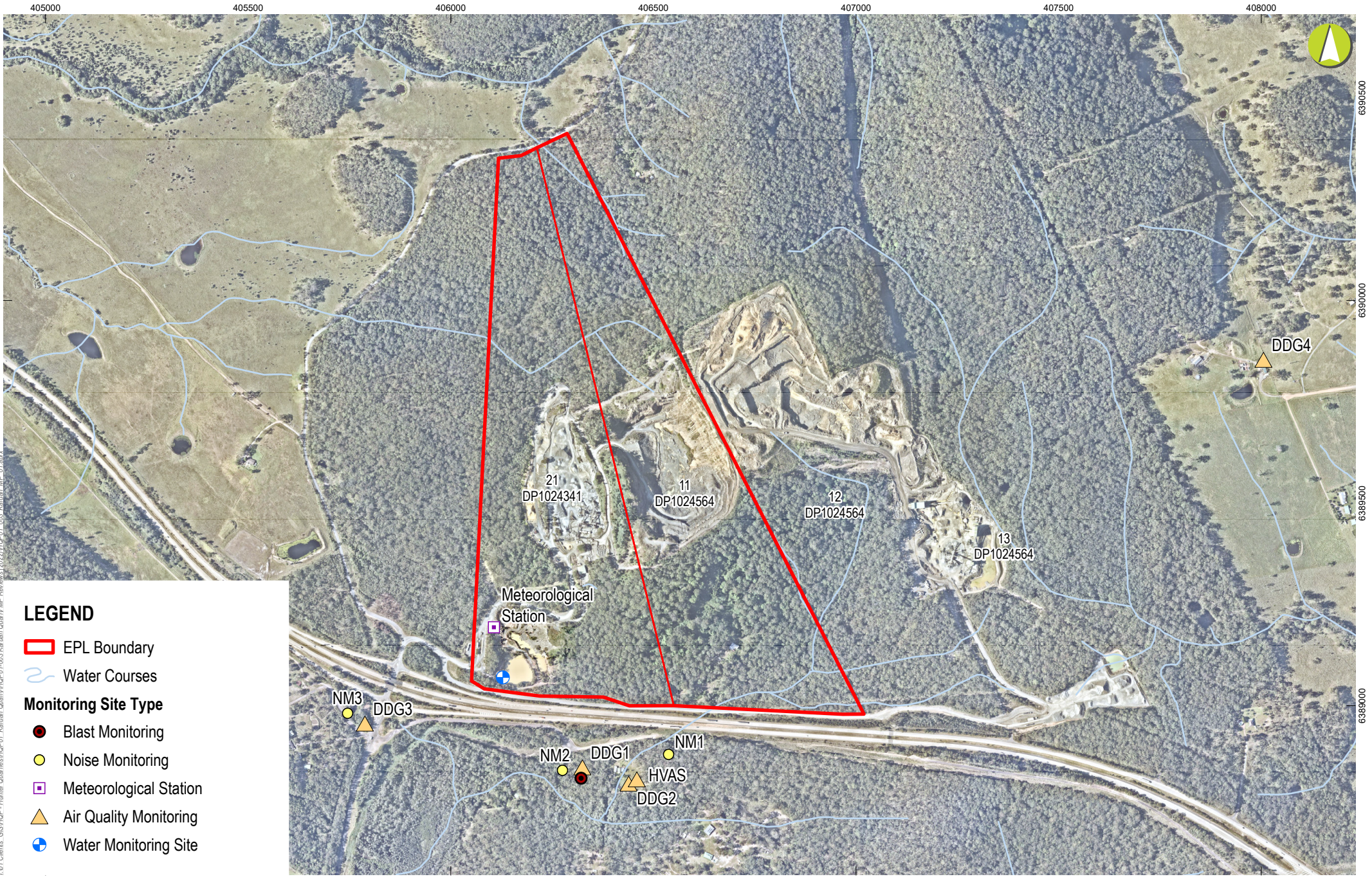
### 8.2 Reportable Non-Compliances

During the Reporting Period, no reportable non-compliances occurred 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



**LEGEND**

EPL Boundary

Water Courses

**Monitoring Site Type**

Blast Monitoring

Noise Monitoring

Meteorological Station

Air Quality Monitoring

Water Monitoring Site



GDA2020 MGA Zone 56  
11/09/2023

**KARUAH HARD ROCK QUARRY**