



Karuah Hard Rock Quarry

Summary of Environmental Monitoring Data



For the Period: April 2020

1. 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* (October 2013). This report summarises the required monitoring data under Environmental Protection Licence (EPL) 11569 for the Karuah Hard Rock Quarry (Karuah Quarry). This report also includes some monitoring requirements under Development Consent (DA 265-10-2004).

A summary of the environmental monitoring data for April 2020 is covered in this report.

A summary of the licence information is provided in the tables in the report.

Table 1 – Licence Information

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

2. Dust Monitoring Results

There are no specific dust criteria listed in the EPL, but the following dust criteria (**Table 2**) are listed in Schedule 3 Condition 14 of DA 265-10-2004.

Table 2 - DA 265-10-2004 Dust Deposition Criteria for the Karuah Quarry

Averaging Period	Maximum Increase in Deposited Dust Level¹	Maximum Total Deposited Dust Level¹
Annual	2 g/m ² /month	4 g/m ² /month

Note 1: Dust is assessed as insoluble solids as defined by AS 3580.10.1-2003.

Valley Civilab Pty Ltd undertakes depositional dust monitoring at Karuah Quarry. Monitoring is completed at the locations listed in **Table 3** below.

Table 3 – Air Quality Monitoring Locations for the Karuah Quarry

Site ID	Location	Address	GPS Coordinates
South (DDG 1)	South of the Karuah Quarry	5760 Pacific Hwy, Karuah NSW 2324	32°38'04"S 151°59'58"E
South-East (DDG 2)	South of the Karuah Quarry	5770 Pacific Hwy, Karuah NSW 2324	32°38'02"S 152°00'09"E
South-West (DDG 3)	South-West of the Karuah Quarry	DP 1024341, Karuah	32°37'57"S 151°59'41"E
East (DDG 4)	East of the Karuah Quarry	21 Halloran Rd North Arm Cove NSW 2324	32° 37' 30.87"S 152°01'10.18"E

Appendix 1 Illustrates the air quality monitoring locations at Karuah Quarry.

Air quality monitoring was undertaken during the period 12 March 2020 to 9 April 2020 at the locations detailed in **Table 4**. Depositional dust gauge (g/m²/month) results for this month and the year to date are shown in **Table 4**.

Table 4 – Insoluble Solids (g/m²/month) for the Year to Date

EPL		11569		
Date Sampled		9 April 2020		
Date	DDG 1	DDG 2	DDG 3	DDG 4
8/01/2018 to 5/02/2018	1.5	0.8	1.3	1.0
5/02/2018 to 5/03/2018	1.6	1.0	1.0	1.5
5/03/2018 to 3/04/2018	0.6	0.6	1.1	2.6
3/04/2018 to 1/05/2018	0.8	1.0	1.0	1.7
1/05/2018 to 30/05/2018	0.9	0.5	0.7	1.1
30/05/2018 to 27/06/2018	0.6	0.5	0.4	0.9
27/06/2018 to 26/07/2018	0.7	0.6	1.2	0.6
26/07/2018 to 23/08/2018	0.9	0.9	0.9	1.3
23/08/2018 to 20/09/2018	1.6	1.0	0.6	0.7
26/10/2018 to 23/11/2018	1.5	3.4	1.1	1.1
23/11/2018 to 21/12/2018	1.3	0.6	0.1	3.0
21/12/2018 to 18/01/2019	0.8	0.4	2.2	0.2
18/01/2019 to 18/02/2019	1.7	2.7	1.2	1.0
18/02/2019 to 20/03/2019	2.4	2.5	1.7	1.7
20/03/2019 to 16/04/2019	2.1	4.0	0.9	1.0
16/04/2019 to 15/05/2019	0.8	1.2	0.5	4.8
15/05/2019 to 12/06/2019	0.4	0.6	0.3	<0.1
12/06/2019 to 15/07/2019	0.4	0.5	0.2	0.1
15/07/2019 to 14/08/2019	0.7	0.7	0.3	0.5
14/08/2019 to 12/09/2019	0.6	2.4	0.7	2.5
12/09/2019 to 16/10/2019	0.3	0.7	0.1	1.1
16/10/2019 to 14/11/2019	3.8	2.0	3.5	2.4
14/11/2019 to 12/12/2019	2.6	2.0	3.1	2.5
12/12/2019 to 13/01/2020	2.0	2.7	1.9	2.0
13/01/2020 to 13/02/2020	3.4	1.6	2.3	3.5
13/02/2020 to 12/03/2020	1.7	1.5	0.7	0.9
12/03/2020 to 9/04/2020	0.8	0.8	0.5	0.1
Rolling Annual Average	1.5	1.4	1.2	1.7

Monitoring results indicate that for the period 12 March 2020 to 9 April 2020 the insoluble solid levels recorded at DDG1 to 4 monitoring locations were below the project criterion of 4 g/m²/month.

2.1 High Volume Air Sampling Results

The TSP and PM₁₀ results for April 2020 are shown in **Table 1** with the long term monitoring results displayed in **Figure 1**.

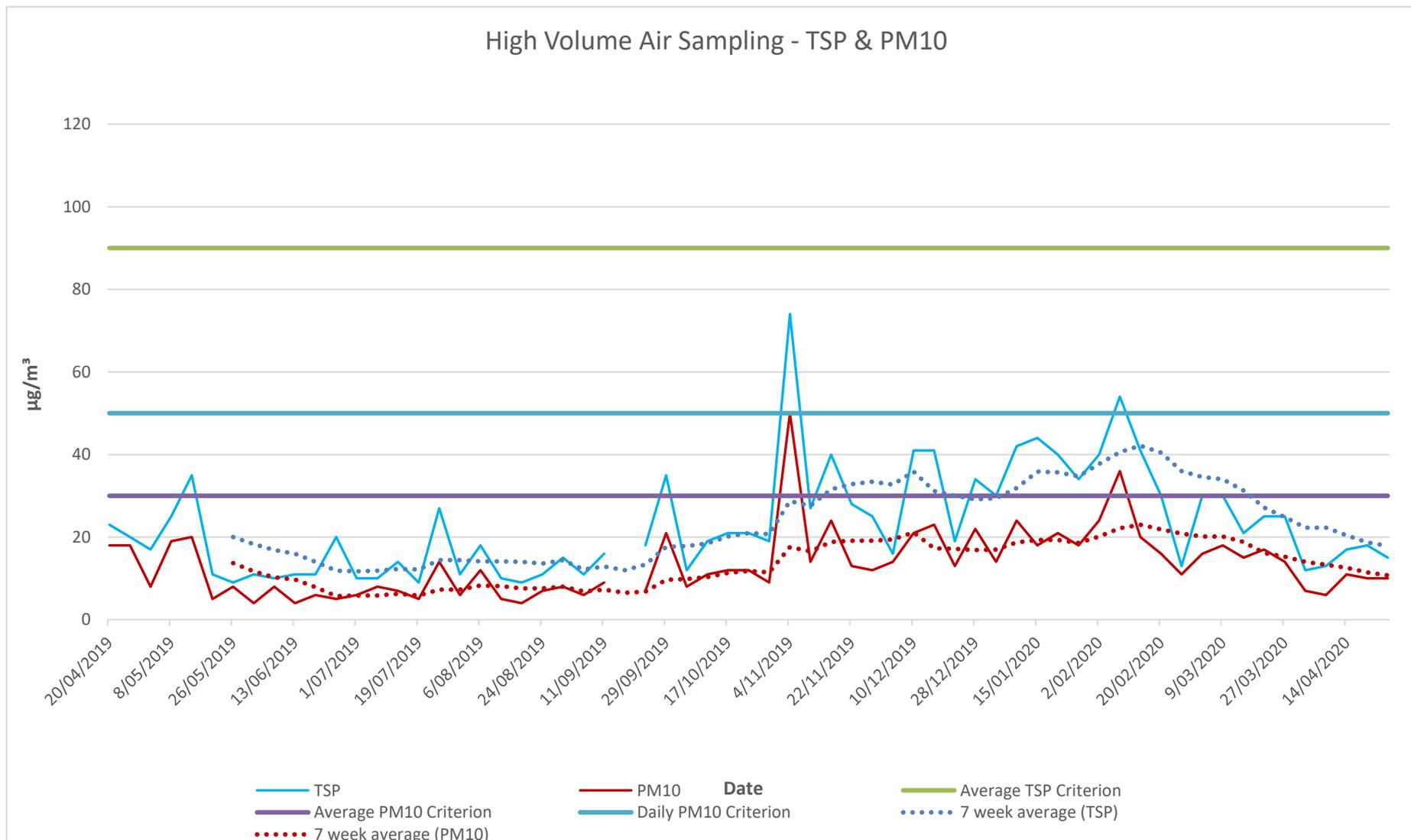
Table 1 High Volume Air Sampling ($\mu\text{g}/\text{m}^3$) results

Date	HVAS TSP ($\mu\text{g}/\text{m}^3$)	HVAS PM₁₀ ($\mu\text{g}/\text{m}^3$)
2/04/2020	51	17
8/04/2020	13	10
14/04/2020	27	12
20/04/2020	18	11
26/04/2020	27	15
¹ 24hr Max Criteria	N/A	50
Report Average	27	13
² Rolling Annual Average	36	17.3
¹ Annual Average Criteria	90	30

Note: 1. Maximum criteria as specified in PA 09_0175
2. Rolling Annual Average from the EPL 20611 anniversary date of 9 April.

All monitoring results to the end of April 2020 indicate that the TSP and PM10 levels recorded were below the project criterion.

Figure 1 High Volume Air Sampling – Long term results



3. Blast Monitoring Results

The following conditions in EPL 11569 refer to blast management.

M6.1 The licensee must monitor all blasts carried out in or on the premises at or near the nearest residence or noise sensitive location (such as a school or hospital) that is likely to be most affected by the blast and that is not owned by the licensee or subject of a private agreement between the owner of the residence or noise sensitive location and the licensee relating to alternative blasting limits.

L4.1 Blasting in or on the premises must only be carried out between 0900 hours and 1500 hours, Monday to Friday. Blasting in or on the premises must not take place on weekends or Public Holidays without the prior approval of the EPA.

L4.2 The overpressure level from blasting operations carried out in or on the premises must not:

- a) exceed 115 dB(L) for more than 5% of the total number of blasts carried out on the premises within the 12 months annual reporting period; and*
- b) exceed 120 dB(L) at any time at any residence or noise sensitive location (such as a school or hospital) that is not owned by the licensee or subject of a private agreement between the owner of the residence or noise sensitive location and the licensee as to an alternative overpressure level.*

L4.3 The ground vibration peak particle velocity from blasting operations carried out in or on the premises must not:

- a) exceed 5mm/second for more than 5% of the total number of blasts carried out on the premises within the 12 months annual reporting period; and*
- b) exceed 10mm/second at any time at any residence or noise sensitive location (such as a school or hospital) that is not owned by the licensee or subject of a private agreement between the owner of the residence or noise sensitive location and the licensee as to an alternative ground vibration level.*

Table 6 summarises the April 2020 blasting results.

Table 6: April 2020 Blast Monitoring Results

Date and time	Overpressure and Vibration	Nearest Residence
17/04/2020 11:01 AM	Overpressure dB(L)	104.2
	Vibration(mm/s)	1.44

As shown in **Table 6**, a single blast was undertaken in April 2020. Monitoring results shows that the overpressure and ground vibration were below the EPL criteria at nearest residence.

4. Noise Monitoring Results

Schedule 3 Condition 1 of the Development Consent requires Hunter Quarries to ensure noise generated by the development does not exceed criteria outlined in **Table 7** at any residence, or any noise sensitive receptor on privately owned land.

Table 7 – Development Consent Noise Impact Criteria – Karuah Quarry

Time Period	Noise Limit (dBA) LAeq(15minute)
Day 7:00am to 6:00pm Monday to Friday 7:00am to 1:00pm Saturday	48
Evening 6:00pm to 10:00pm Monday to Friday	47

At All Other Times	46
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Table 8 illustrates the operator attended and unattended noise monitoring locations at Karuah Quarry.

Table 8 – Development Consent Noise Impact Criteria – Karuah Quarry

Noise Monitoring Location	Property Name	Distance from Karuah Quarry
NM1	Lot 3 DP785172 5772 Pacific Hwy, Karuah	317 metres South of the Karuah Quarry
NM2	Lot 2 DP 785172 5760 Pacific Hwy, Karuah	200 metres South of the Karuah Quarry

4.1 Operator Attended Monitoring Results

The results of the operator attended noise surveys are presented in **Table 9**. Ambient noise levels given in the tables include all noise sources such as traffic, insects, birds and quarry operations.

Table 9 – Operator Attended Noise Survey Results

Location	Date/Start Time/ Weather	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emissions and Typical Maximum Noise Levels (dBA)
		LA _{max}	LA1	LA10	LA90	LA _{eq}	
NM1 Lot 3 DP785172	18/04/2020 8:30 am W = Calm	72	67	63	52	60	Pacific Highway 60 Birds 50 Farm Activities 55 - 60
		Karuah Quarry Inaudible					
NM2 Lot 3 DP785172	18/04/2020 9:20 am W = Calm	77	67	63	56	60	Pacific Highway 55 - 65 Birds 50
		Karuah Quarry Inaudible					

4.2 Unattended Continuous Noise Monitoring

Unattended noise monitoring results for locations NM1 and NM2 are presented in **Table 10**.

Table 10 – Unattended Continuous Monitoring Ambient Noise Levels (dBA)

INP Period	LA1	LA10	LA90	LA _{eq}
NM1				
Day ¹	67	64	54	61
Evening ²	67	63	50	60
Night ³	66	63	45	58
NM2				
Day ¹	72	68	60	65
Evening ²	70	67	53	63
Night ³	69	65	48	60

Note: 1. Daytime - 7.00 am to 5.00 pm Monday to Friday, 8.00 am to 12.00 pm Saturday, not operational on Sunday
 2. Evening - 5.00 pm 10.00 pm
 3. Night - 10.00 pm to 7.00 am Monday to Saturday, 10.00 pm to 8.00 am Sunday.

4.3 Noise Results Summary

The attended noise monitoring conducted during April 2020 identified that Karuah Quarry was not audible at location NM1 or NM2.

5. Surface Water Monitoring Results

Condition L2 of the EPL outlines the requirement to monitor surface water discharges from the Karuah Quarry via the licensed discharge point (LDP001).

Table 11 summarises discharge monitoring at Karuah Quarry.

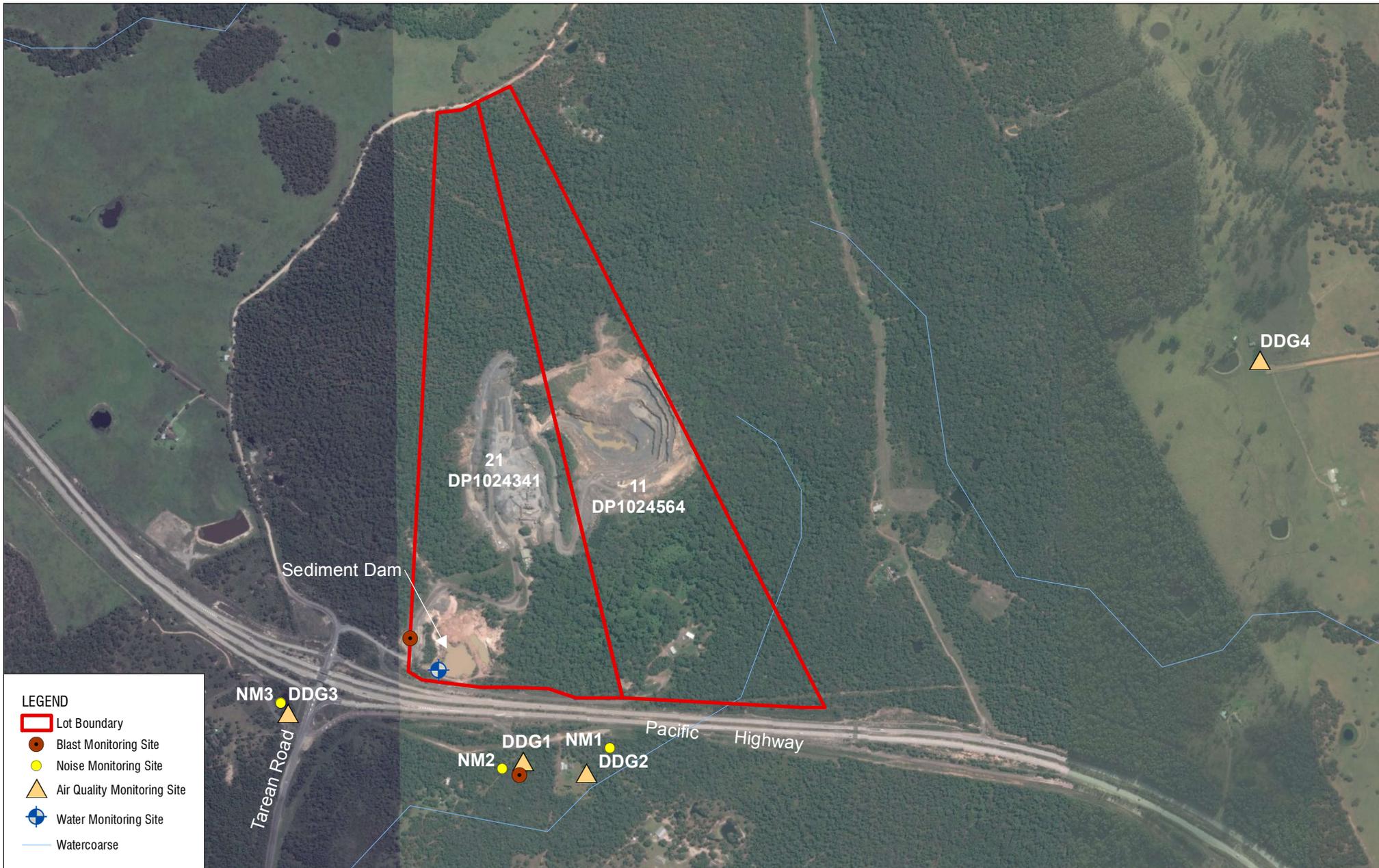
Table 11 - Surface Water Discharge Monitoring Results

Sampling Point	Monitoring Frequency	Pollutant	Measurement	EPL Limit
LDP001	During Discharge	pH	<i>No discharge during April 2020</i>	6.5 – 8.5
		TSS		50

APPENDIX 1

Monitoring Locations

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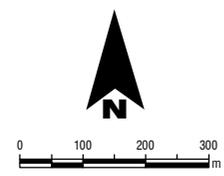
LEGEND

- Lot Boundary
- Blast Monitoring Site
- Noise Monitoring Site
- ▲ Air Quality Monitoring Site
- ⊕ Water Monitoring Site
- Watercourse



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Hunter Quarries Pty Ltd

Environmental Services and Support

**Karuah Hard Rock Quarry
Environmental Monitoring Locations**

FIGURE 1