



18 October 2024

Ref: 10584/10470
 Daracon Quarries Pty Ltd
 PO Box 299
 WALLSEND NSW 2287

RE: NOISE COMPLIANCE ASSESSMENT – ARDGLEN QUARRY

This letter report presents the results of attended noise monitoring conducted for the Ardglan Quarry (AQ) on Monday 19th of August, 2024. The Noise Compliance Assessment (NCA) was carried out to measure noise emissions from the approved extension area, as required in Appendix 6 of PA 06-0264 (MOD 2). Noise monitoring was carried out in accordance with the noise criteria outlines in the AQ Noise Monitoring Plan (NMP) as detailed below. This version of the report also addresses issues raised by EPA following their review of our original report dated 2 September 2024, summarised below.

- Location of receiver R16.
The wrong location was marked on Figure 1 in the original NCA, which has now been corrected
- Inclusion of LAeq, Lmax, L1, L10, L90 and Lmin parameters
Table of parameters are now included in this report
- Additional monitoring to avoid planes, trains, road traffic
Planes are infrequent and road/rail traffic defines the acoustic environment of the subject area due to the presence of the New England Highway and rail line and can't reasonably be avoided.
- Evening and night time monitoring
The quarry is a daytime only operation with a very low volume of truck movements permitted between 6:30am and 7am. All noise monitoring has therefore been daytime only since October 2010.

NOISE CRITERIA

*The Proponent shall ensure that the noise generated by the project does not exceed the noise impact assessment criteria in **Table 1** at any residence on privately-owned land, or more than 25% of any privately owned land.*

Table 1 Noise Impact Assessment Criteria				
Land	Day Leq (15 min)	Evening Leq (15 min)	Night	
			Leq (15 min)	L1 (1 min)
1 Burraston	35	35	35	45
3 Rose	35	35	35	45
4 C M Thompson	44	35	35	45
5 M Taylor	45	35	35	45

Table 1 continued				
Noise Impact Assessment Criteria				
Land	Day Leq (15 min)	Evening Leq (15 min)	Night	
			Leq (15 min)	L1 (1 min)
6 S Thompson	45	35	35	45
9 Bates	37	35	35	45
10 Avery	38	35	35	45
11 Shipman	37	35	35	45
12 Hall	36	35	35	45
13 McGhie	35	35	35	45
14 Purtell	36	35	35	45
15 J Taylor	43	35	35	45
16 Bojba	40	35	35	45
All other privately owned land	35	35	35	45

However, if the Proponent has a written negotiated noise agreement with any landowner of the land listed in Table 1, and a copy of this agreement has been forwarded to the Department and the DECCW, then the Proponent may exceed the noise limits in Table 1 in accordance with the negotiated agreement. The Proponent may also exceed the L1 (1 min) and Leq (15 min) noise impact criteria during out of hours rail loading activities provided they are conducted in accordance with Section 3, Condition 41 of the Project Approval (which is reproduced below).

41. The Proponent may only load a maximum of 2 trains outside the rail loading and distribution hours listed in Table 1 (of the Project Approval, being Monday to Sunday 7:00am to 10:00pm) in any 12 month period, unless agreed in writing by the Director General.

Notes:

- For information on the numbering and identification of properties used in this approval see Figure 2 on Page 14 of this Noise Monitoring Program).
- To determine compliance with the LAeq (15 minute) noise limits, noise from the project is to be measured at the most affected point on or within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary. Where it can be demonstrated that direct measurement of noise from the development is impractical, the DECCW may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.
- To determine compliance with the L1 (1 minute) noise limits, noise from the project is to be measured 1m from the dwelling facade. Where it can be demonstrated that direct measurement of noise from the development is impractical, the DECCW may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy).
- The noise emission limits identified in the above table apply under meteorological conditions of:
 - wind speeds of up to 3 m/s at 10 metres above ground level; or
 - Temperature inversion conditions of up to 3°C/100m, and wind speeds of up to 2 m/s at 10 metres above ground level.

PROJECT APPROVAL CONDITIONS

Monitoring was also carried out in accordance with Appendix 6 of the Project Approval PA 06-0264 (MOD 2) dated March 2021, as detailed below.

APPENDIX 6 NOISE COMPLIANCE ASSESSMENT

Applicable Meteorological Conditions

1. The noise criteria in Schedule 3 of this consent are to apply under all meteorological conditions except the following:
 - (a) where $3^{\circ}\text{C}/100$ metres (m) lapse rates have been assessed, then:
 - (i) wind speeds greater than 3 metres/second (m/s) measured at 10m above ground level;
 - (ii) temperature inversion conditions between 1.5°C and $3^{\circ}\text{C}/100\text{m}$ and wind speeds greater than 2m/s measured at 10m above ground level; or
 - (iii) temperature inversion conditions greater than $3^{\circ}\text{C}/100\text{m}$.
 - (b) where Pasquill Stability Classes have been assessed, then:
 - (i) wind speeds greater than 3m/s at 10m above ground level;
 - (ii) stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level; or
 - (iii) stability category G temperature inversion conditions.

Determination of Meteorological Conditions

2. Except for wind speed at microphone height, the data to be used for determining meteorological conditions shall be that recorded by the meteorological station required under condition 18 of Schedule 3 .

Compliance Monitoring

3. A noise compliance assessment must be undertaken within two months of commencement of quarrying operations in the Extension Area. The assessment must be conducted by a suitably qualified and experienced acoustical practitioner and must assess compliance with noise criteria presented above. A report must be provided to EPA within 1 month of the assessment.
4. Unless otherwise agreed by the Planning Secretary, attended compliance monitoring must be carried out in accordance with the relevant requirements for reviewing performance set out in the *NSW Industrial Noise Policy* (EPA, 2000), in particular the requirements relating to:
 - (a) monitoring locations for the collection of representative noise data;
 - (b) meteorological conditions during which collection of noise data is not appropriate;
 - (c) equipment used to collect noise data, and conformity with Australian Standards relevant to such equipment; and
 - (d) modifications to noise data collected, including for the exclusion of extraneous noise and/or penalties for modifying factors apart from adjustments for duration,
 - (e) modifying factors apart from adjustments for duration,with the exception of applying appropriate modifying factors for low frequency noise during compliance testing. This should be undertaken in accordance with Fact Sheet C of the *NSW Noise Policy for Industry* (EPA, 2017).

NOISE MONITORING LOCATIONS

Noise measurement locations for the attended noise survey are listed below and shown in the accompanying **Figure 1**:

Location 4:	C M Thompson
Location 13:	McGhie
Location 14:	Purtell
Location 16:	Bojba



Figure 1 – Attended Noise Monitoring Locations

ATTENDED NOISE MEASUREMENTS

Noise emission levels were measured with a Brüel & Kjær Type 2250 Precision Sound Analyser. This instrument has Type 1 characteristics as defined in AS1259-1982 “Sound Level Meters”. Calibration of the instrument was confirmed with a Brüel & Kjær Type 4231 Sound Level Calibrator prior to and at the completion of measurements.

Meteorological data used in this report was obtained from the quarry operated weather station with real time observations made at the start of each 15 minute monitoring period. The weather throughout the survey was generally calm with cloudy skies. The wind speed was light from the east to south-east.

RESULTS OF ATTENDED MONITORING

The measured noise levels, over 1 second intervals, were analysed using Brüel & Kjær “Evaluator” software. The software enables the contributions of the quarry and other significant noise sources to the overall to be quantified.

Noise levels were recorded for each of the Leq (15 min), Lmax, L1, L10, L90 and Lmin percentiles. As shown in Table 1, the noise criterion for AQ during the day is based on an Leq noise level. The results, shown in **Table 2**, represent the total 15 minute Leq noise level for all noise sources and the relative contributions of each. Levels for the other percentiles are included at the end of this report. The exception is the L1 (1 min) noise level (which is the standard measure of sleep disturbance) which is applicable to noise emissions at night (i.e. between 10 pm and 7 am).

Table 2 Ardglen Quarry Noise Monitoring Results – 19 th August 2024 (Day)				
Location	Time	dB(A),Leq	Wind speed (m/s) / direction°	Identified Noise Sources
4. Thompson	12:23pm	55	1.5 / 083	Aeroplanes (55), traffic (44), birds (32), AQ occasionally audible
13. McGhie	1:17pm	43	2.4 / 152	Train (42), traffic (35), birds (30), dogs (27), AQ inaudible
14. Purtell	12:58pm	56	3.0 / 144	Traffic (54), train (51), birds (30), AQ inaudible
16. Bojba	12:05pm	59	1.1 / 152	Traffic (59), birds (36), AQ inaudible

The results in Table 2 show that, under the meteorological and operating conditions at the time, the noise emissions from AQ were inaudible at monitoring locations R13, R14 & R15, and were occasionally audible but not quantifiable and therefore below the noise criterion at R4.

At the time of the noise monitoring the following plant items were operational at the quarry;

- 1x Cat 972 loader
- 1x Volvo 35t Excavator
- 1x Warrior scalping screen
- 1x Metso Jaw crusher
- 1x Chefton 1300 cone crusher
- 1x Kohla generator
- 1x Kobota generator
- 1x Hitachi ZW370 loader

The noise from AQ was not audible or quantifiable at the monitoring locations R13, R14 & R15, and was occasionally audible at R4 but was not quantifiable.

The results of the Noise Compliance Assessment have shown that AQ activities in the approved extension area are operating within approved noise limits. No actions are recommended with respect to noise management at the Quarry.

We trust this report fulfils your requirements at this time, however, should you require additional information or assistance please contact the undersigned on 4954 2276.

Yours faithfully,

SPECTRUM ACOUSTICS PTY LIMITED

Author:



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B. Sc., B.Math. (Hons)

Principal / Director

Measured Noise Level Percentiles (all sources)

Table 3 Ardglen Quarry Noise Monitoring Results – 19 th August 2024 (Day)						
Location	Time	dB(A), _{Leq}	Lmax	L10	L90	Lmin
4. Thompson	12:23pm	55	74	52	38	32
13. McGhie	1:17pm	43	61	46	36	29
14. Purtell	12:58pm	56	87	56	41	30
16. Bojba	12:05pm	59	83	61	46	35