



16 April 2024

Ref: 10584/10302

Daracon Quarries Pty Ltd
PO Box 299
WALLSEND NSW 2287

RE: MARCH 2024 NOISE MONITORING RESULTS – ARDGLEN QUARRY

This letter report presents the results of attended and unattended noise monitoring conducted for the Ardglenn Quarry (AQ) between Friday 22nd and Monday 25th March, 2024. The monitoring was carried out to measure noise emissions from the operations of the quarry. Noise monitoring was carried out in accordance with the conditions of the AQ Noise Monitoring Plan (NMP) as detailed below.

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
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.

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 a hand held weather station with measurements made at approximately 2m above ground level. The weather throughout the survey was mild with clear skies. The wind speed was moderate and generally from the southeast.

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 not shown as they have no compliance criteria for comparison but are available on request. 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 – 22 nd March 2024 (Day)				
Location	Time	dB(A), _{Leq}	Wind speed/ direction°	Identified Noise Sources
4. Thompson	11:16am	48	5.5 / 120	Traffic (48), birds (34), AQ inaudible
13. McGhie	11:36am	35	5.0 / 125	Traffic (34), birds (29), AQ inaudible
14. Purtell	10:40am	65	5.0 / 120	Traffic (65), train (52), birds (40), AQ (32)¹
16. Bojba	10:18am	61	5.0 / 115	Trains (59), traffic (57), birds (36), AQ inaudible

1. AQ noise from trucks entering front gate.

The results in Table 2 show that, under the meteorological and operating conditions at the time, the noise emissions from AQ were compliant with the relevant noise criteria at all monitoring locations.

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

- 1x 35t Excavator
- 1x 972 Front end loader
- 1x Warrior screen screening rock
- 1x 2" pump running intermittently
- 1x water truck
- 1x Kollar generator
- 1x Kubota generator
- Various truck and dogs carting material.

The noise from AQ was audible and quantifiable at R14. The noise from AQ was not audible at the other monitoring locations.

The results of the noise monitoring programme have shown that AQ is operating within approved noise limits. No actions are recommended with respect to noise management at the Quarry.

UNATTENDED NOISE MEASUREMENTS

The NMP requires that unattended noise logging be undertaken over a period of three days, part of which coincides with the quarterly attended noise monitoring.

To measure the acoustic environment an ARL EL-315 environmental noise logger and an ARL Ngara environmental noise logger, were located as shown in Figure 2 from 22nd to 25th March 2024. **Table 3** shows a summary of the relevant measured data from the loggers which is also shown graphically in **Appendix A**.

TABLE 3 Measured Logger Noise Levels dB(A) – 22 nd to 25 th March 2024						
Logger Location	Day (7am to 6pm)		Evening (6pm to 10 pm)		Night (10pm to 7am)	
	Leq	L90	Leq	L90	Leq	L90
Logger 1	57	33	55	38	57	37
Logger 2	58	32	59	35	60	33

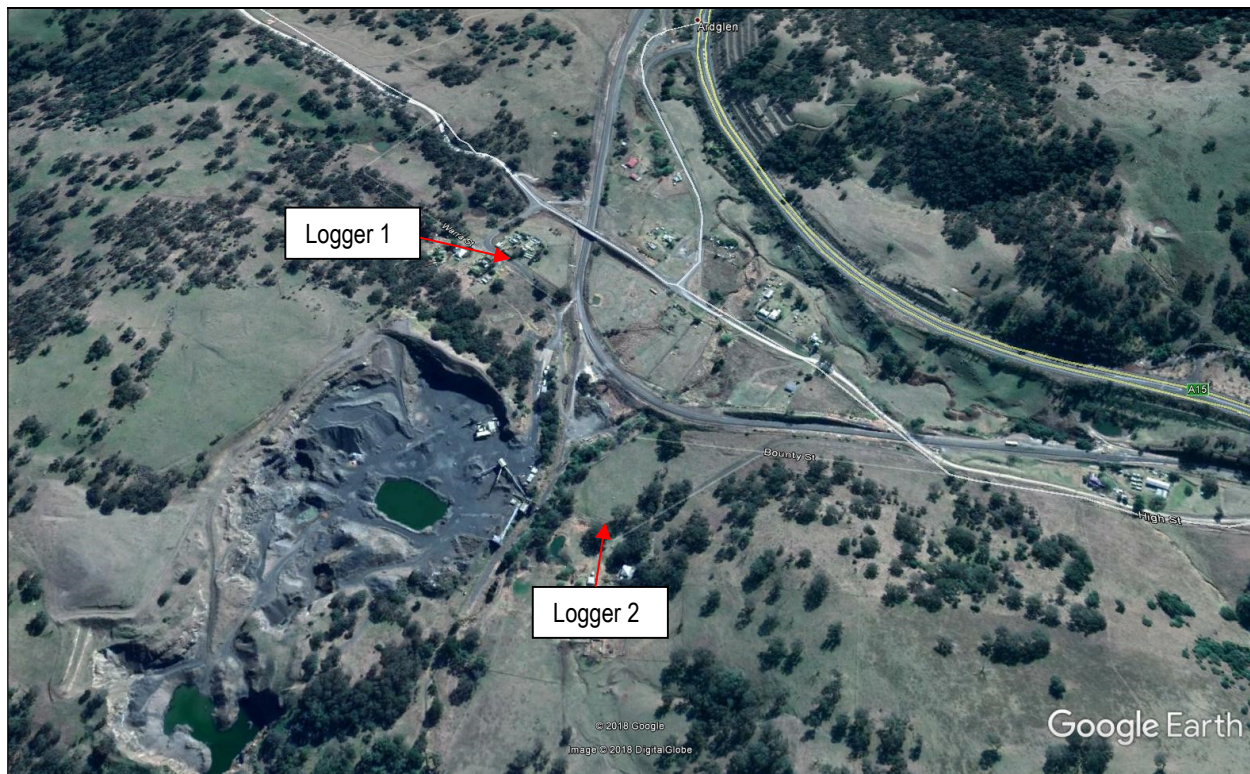


Figure 2 – Unattended Noise Monitoring Locations

The logger locations were chosen to be representative of the acoustic environment of the closest residences to the quarry and for security reasons.

Logger 1 was located on the fence at location R14. This is adjacent to the attended noise monitoring location for this residence.

Logger 2 was in an open paddock north of the house.

The unattended noise loggers measure the total noise level in the environment, but the data cannot discriminate between various noise sources. As such, the data is presented here with no further analysis.

We trust this report fulfils your requirements at this time, however, should you require additional information or assistance please contact the undersigned on 0412 023 455.

Yours faithfully,

SPECTRUM ACOUSTICS PTY LIMITED

Author:

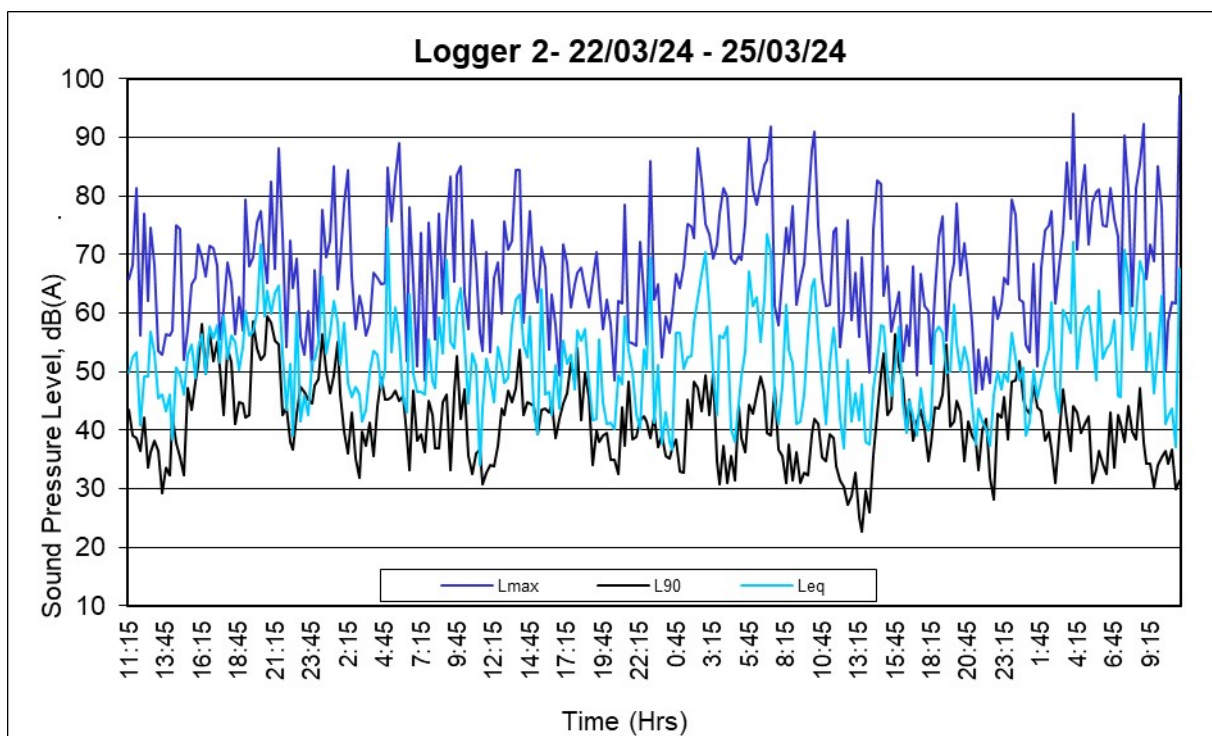
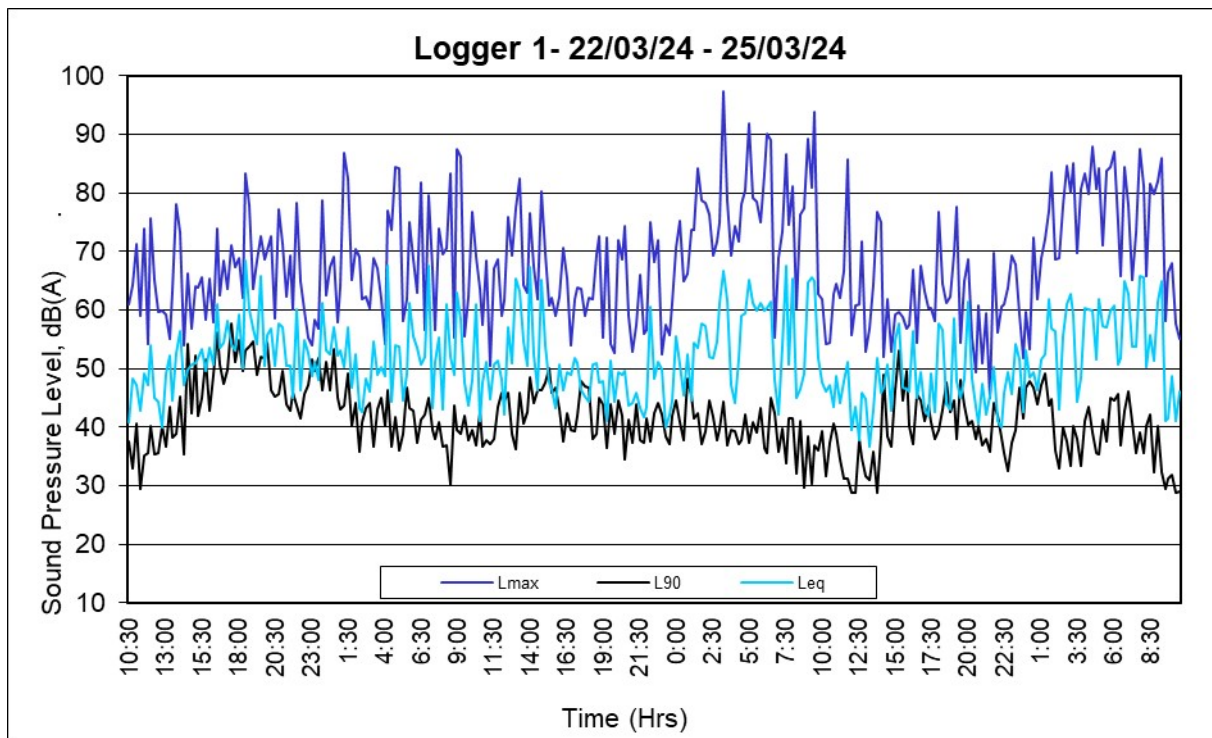


Neil Pennington MAIP, MAAS, MASA

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

Principal / Director

APPENDIX A
NOISE LOGGER CHARTS





20 March 2024

Ref: 10584/10276

Daracon Quarries Pty Ltd
PO Box 299
WALLSEND NSW 2287

RE: FEBRUARY 2024 NOISE MONITORING RESULTS – ARDGLEN QUARRY

This letter report presents the results of attended and unattended noise monitoring conducted for the Ardglenn Quarry (AQ) between Monday 26th and Thursday 29th February, 2024. The monitoring was carried out to measure noise emissions from the operations of the quarry. Noise monitoring was carried out in accordance with the conditions of the AQ Noise Monitoring Plan (NMP) as detailed below.

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
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.

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 a hand held weather station with measurements made at approximately 2m above ground level. The weather throughout the survey was mild with clear skies. The wind speed was moderate and generally from the southwest.

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 not shown as they have no compliance criteria for comparison but are available on request. 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 – 26th February 2024 (Day)				
Location	Time	dB(A)_{L_{eq}}	Wind speed/ direction°	Identified Noise Sources
4. Thompson	3:16pm	43	0.5 / 290	Traffic (43), insects (28), AQ (25)
13. McGhie	3:35pm	45	2.2 / 200	Traffic (47), birds (44), insects (26), AQ inaudible
14. Purtell	3:56pm	50	2.4 / 190	Traffic (50), birds (32), insects (25), AQ inaudible
16. Bojba	2:44pm	52	1.7 / 200	Traffic (52), insects (31), AQ inaudible

The results in Table 2 show that, under the meteorological and operating conditions at the time, the noise emissions from AQ were compliant with the relevant noise criteria at all monitoring locations.

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

- 1 x 972 Loader
- 1 x 35t Excavator
- 1 x Isuzu water truck
- 2 x generator
- 1 x 2' water pump
- 2 x steel bin truck & dog

The noise from AQ was audible and quantifiable at R4. The noise from AQ was not audible at the other monitoring locations.

The results of the noise monitoring programme have shown that AQ is operating within approved noise limits. No actions are recommended with respect to noise management at the Quarry.

UNATTENDED NOISE MEASUREMENTS

The NMP requires that unattended noise logging be undertaken over a period of three days, part of which coincides with the quarterly attended noise monitoring.

To measure the acoustic environment an ARL EL-315 environmental noise logger and an ARL Ngara environmental noise logger, were located as shown in Figure 2 from 26th to 29th February 2024. **Table 3** shows a summary of the relevant measured data from the loggers which is also shown graphically in **Appendix A**.

TABLE 3

Measured Logger Noise Levels dB(A) – 26 th to 29 th February 2024						
Logger Location	Day (7am to 6pm)		Evening (6pm to 10 pm)		Night (10pm to 7am)	
	Leq	L90	Leq	L90	Leq	L90
Logger 1	55	35	54	40	57	38
Logger 2	57	33	56	37	59	39

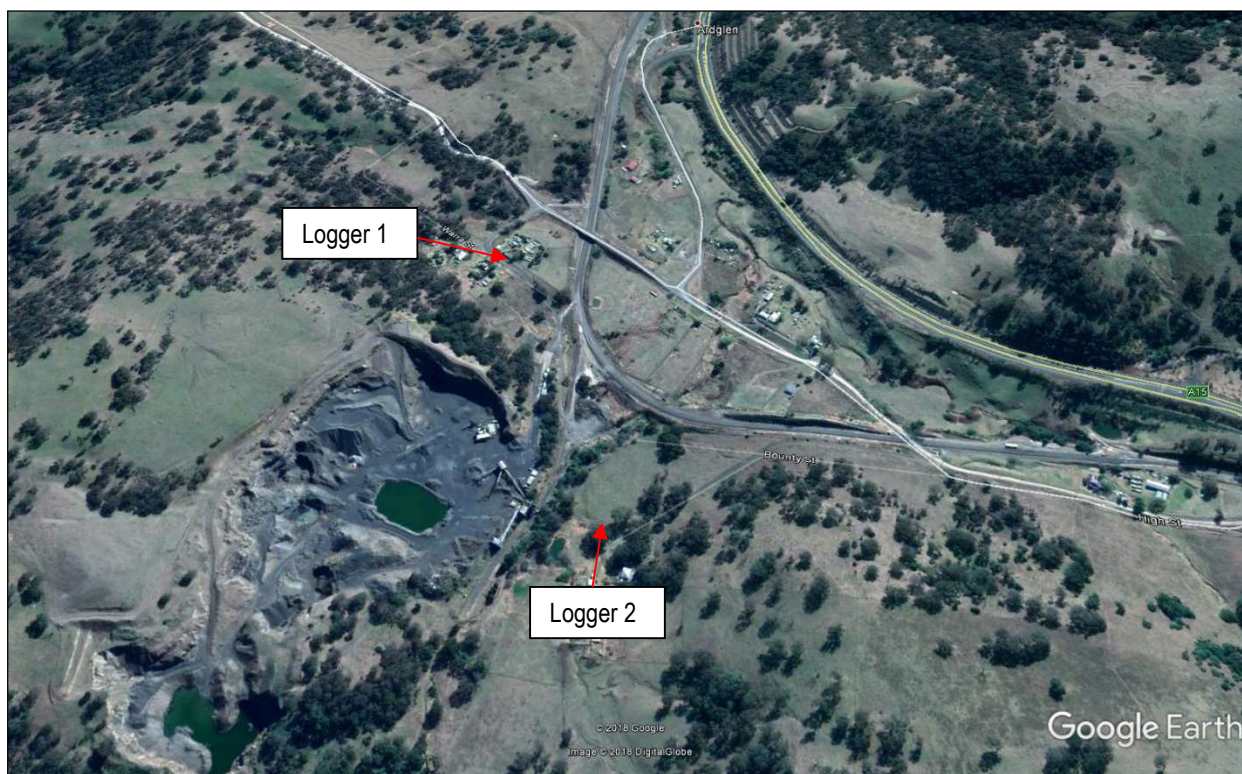


Figure 2 – Unattended Noise Monitoring Locations

The logger locations were chosen to be representative of the acoustic environment of the closest residences to the quarry and for security reasons.

Logger 1 was located on the fence at location R14. This is adjacent to the attended noise monitoring location for this residence.

Logger 2 was in an open paddock north of the house.

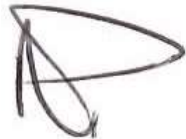
The unattended noise loggers measure the total noise level in the environment, but the data cannot discriminate between various noise sources. As such, the data is presented here with no further analysis.

We trust this report fulfils your requirements at this time, however, should you require additional information or assistance please contact the undersigned on 0412 023 455.

Yours faithfully,

SPECTRUM ACOUSTICS PTY LIMITED

Author:

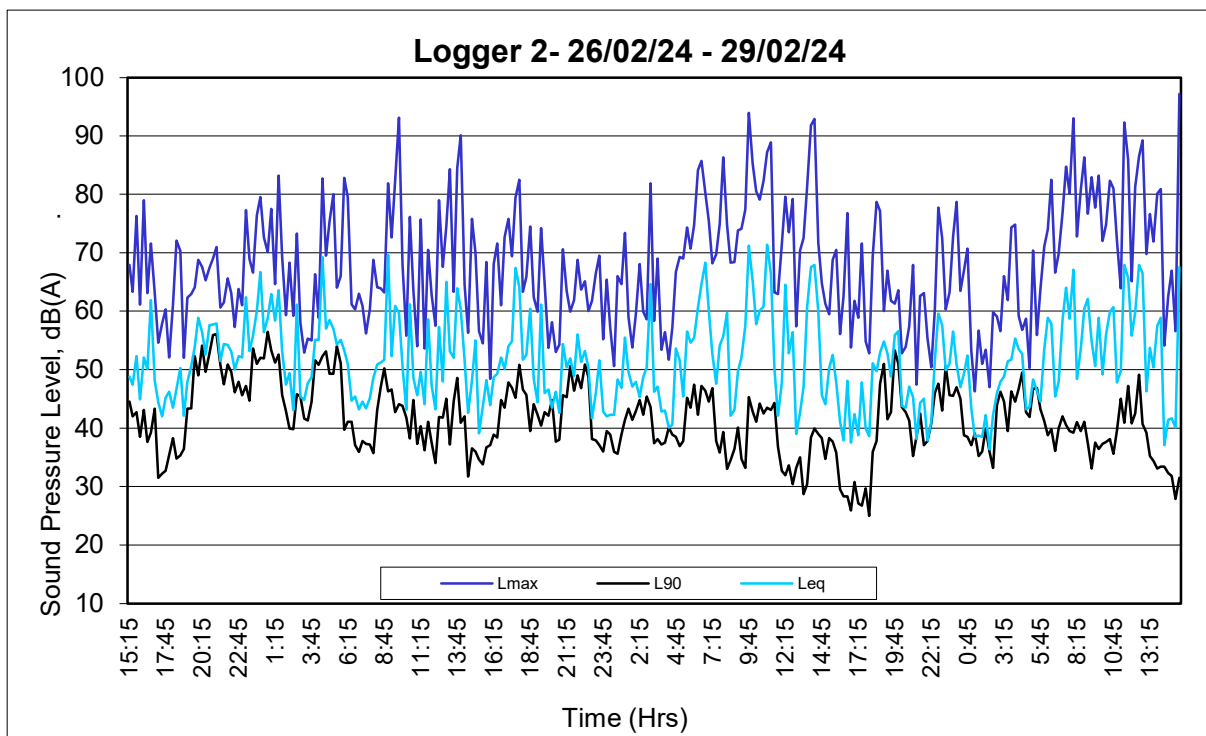
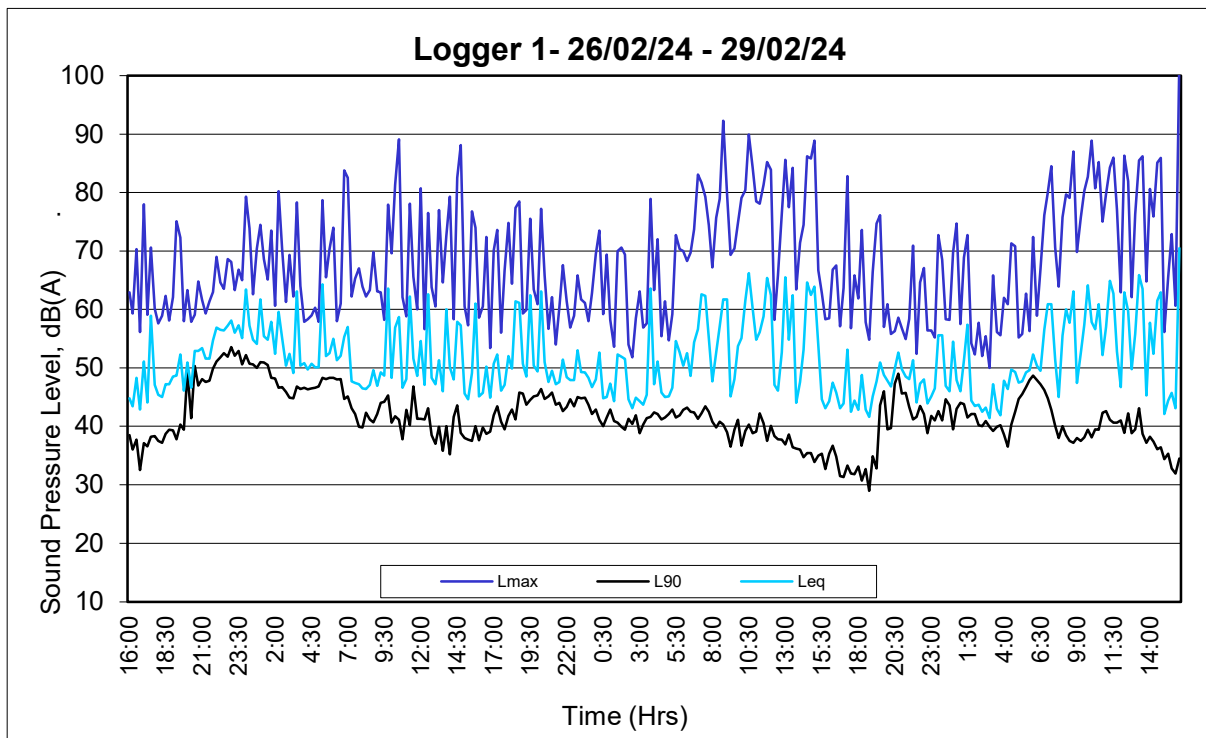


Neil Pennington MAIP, MAAS, MASA

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

Principal / Director

APPENDIX A
NOISE LOGGER CHARTS





5 March 2024

Ref: 10584/10257

Daracon Quarries Pty Ltd
PO Box 299
WALLSEND NSW 2287

RE: JANUARY 2024 NOISE MONITORING RESULTS – ARDGLEN QUARRY

This letter report presents the results of attended and unattended noise monitoring conducted for the Ardglenn Quarry (AQ) between Thursday 25th and Monday 29th January, 2024. The monitoring was carried out to measure noise emissions from the operations of the quarry. Noise monitoring was carried out in accordance with the conditions of the AQ Noise Monitoring Plan (NMP) as detailed below.

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.*

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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:

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- 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.

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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 (and confirmed with reference to the summary data provided by the proponent at the time of reporting). The weather throughout the survey was mild with clear skies. The wind speed was moderate and generally from the southeast.

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 not shown as they have no compliance criteria for comparison but are available on request. 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 – 29th January 2024 (Day)				
Location	Time	dB(A),_{Leq}	Wind speed/ direction°	Identified Noise Sources
4. Thompson	3:53pm	49	3.1 / 304	Traffic (48), insects (37), birds (35), AQ (27)
13. McGhie	4:32pm	44	0.6 / 043	Insects (41), birds (39), traffic (34), AQ inaudible
14. Purtell	4:15pm	54	2.3 / 336	Traffic (54), birds (32), AQ occasionally audible
16. Bojba	3:33pm	58	0.9 / 219	Traffic (58), birds (38), insects (28), AQ inaudible

The results in Table 2 show that, under the meteorological and operating conditions at the time, the noise emissions from AQ were compliant with the relevant noise criteria at all monitoring locations.

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

- 1 x 972 Loader
- 1 x 35t Excavator
- 1 x Isuzu water truck
- 2 x generator
- 1 x 2' water pump
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The noise from AQ was audible and quantifiable at R4, and also audible at R14. The noise from AQ was not audible at the other monitoring locations.

The results of the noise monitoring programme have shown that AQ is operating within approved noise limits. No actions are recommended with respect to noise management at the Quarry.

UNATTENDED NOISE MEASUREMENTS

The NMP requires that unattended noise logging be undertaken over a period of three days, part of which coincides with the quarterly attended noise monitoring.

To measure the acoustic environment an ARL EL-315 environmental noise logger and an ARL Ngara environmental noise logger, were located as shown in Figure 2 from 25th to 29th January, 2024, however only data from the three day period is given in this report. **Table 3** shows a summary of the relevant measured data from the loggers which is also shown graphically in **Appendix A**.

TABLE 3 Measured Logger Noise Levels dB(A) – 25 th to 28 th January 2024						
Logger Location	Day (7am to 6pm)		Evening (6pm to 10 pm)		Night (10pm to 7am)	
	Leq	L90	Leq	L90	Leq	L90
Logger 1	45	31	46	31	50	39
Logger 2	51	39	45	33	45	36

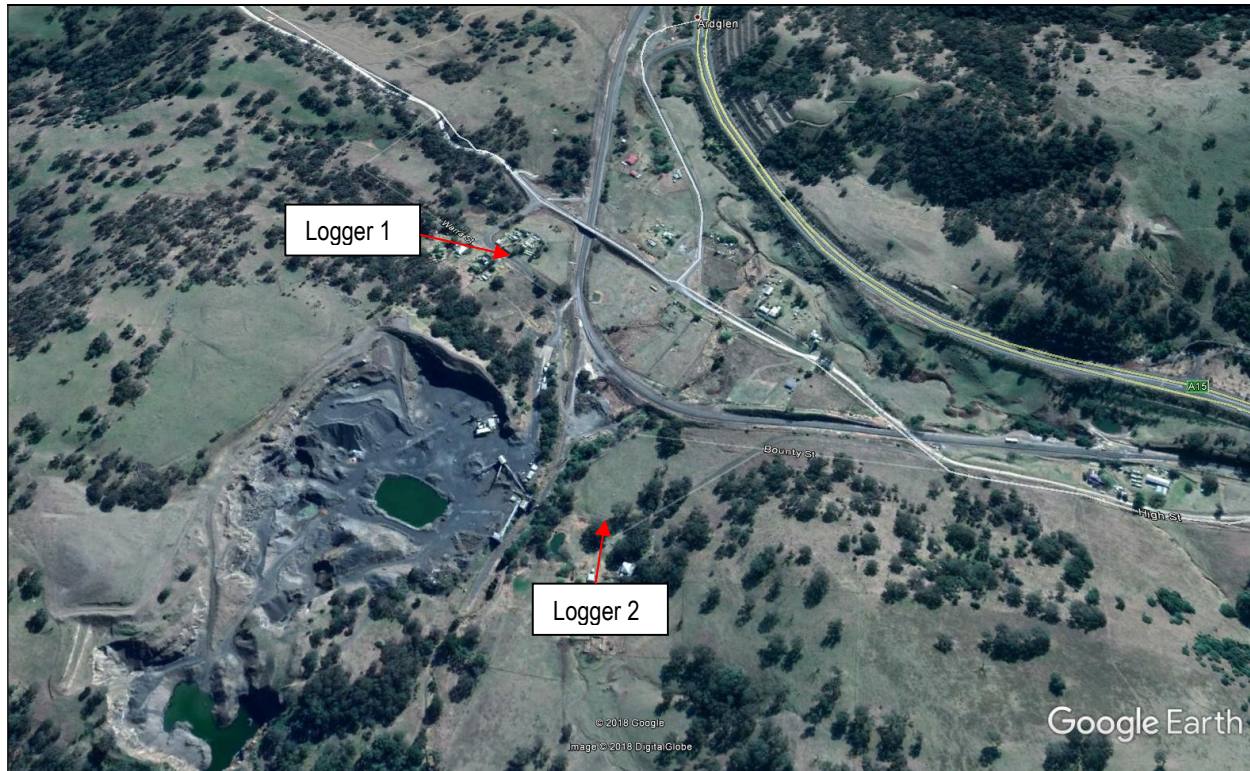


Figure 2 – Unattended Noise Monitoring Locations

The logger locations were chosen to be representative of the acoustic environment of the closest residences to the quarry and for security reasons.

Logger 1 was located on the fence at location R14. This is adjacent to the attended noise monitoring location for this residence.

Logger 2 was in an open paddock north of the house.

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Yours faithfully,

SPECTRUM ACOUSTICS PTY LIMITED

Author:



Neil Pennington MAIP, MAAS, MASA

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

Principal / Director

APPENDIX A
NOISE LOGGER CHARTS

