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Environmental Monitoring Report Noise Monitoring

Hall Quarry

April 2024

Date Published: 6th May 2024

This monitoring report is to satisfy the requirements of Section 66 (6) of the Protection of the Environment and Operations Act 1997, to make available, within 14 days of obtaining any monitoring data that relates to pollution under an Environment Protection Licence.

The monitoring of pollutants provided in this report is undertaken as per the requirements of Environment Protection Licence 4082 (EPL 4082 – Boral Hall Quarry)

This report provides environmental monitoring data for Hall Quarry for the period November 2017 to April 2024.

Hall Quarry Information	
Premise Details	Boral – Hall Quarry
Address	Kaveney's Rd, Murrumbateman NSW 2582
Licensee	Boral Resources (Country) Pty Ltd
EPL No	4082
EPL Location	https://apps.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=183732&SYSUID=1&LICID=4082
Date of dataset update	6/05/2024

Monitoring data in this report relates to the monitoring undertaken for the following environmental pollutants:

- Noise

Noise

Noise monitoring is conducted as per condition L2 of EPL 4082. Noise monitoring is conducted on an annual basis. The noise monitoring results are summarised below.

Qualifications related to Noise:

L2 Noise limits

L2.1 Noise generated by premises must not exceed the limits in the following table during the defined period, where LAeq means the equivalent continuous noise level – the level of noise equivalent to the energy-average of noise levels occurring over a measurement period.

Noise from the premises is to be measured at the Manager's Cottage, "Silverwattle", Kaveney's Road to determine compliance with this condition.

Noise Limit LAeq (15 minute)	Period
39 dB(A)	7am to 6pm Monday to Friday 7am to 1pm Saturday
37 dB(A)	6pm to 10pm Monday to Friday
36 dB(A)	All other times

L2.2 The noise limits identified in Condition L2.1 apply under meteorological conditions of: (a) Wind speed up to 3m/s at 10 metres above ground level; or (b) Temperature inversion conditions of up to 3 degrees C/100m and wind speed up to 2m/s at 10 metres above the ground

NOISE RESULTS

April 2024 NOISE MONITORING ASSESSMENT

These results are presented as shown in the Noise Assessment report prepared by Muller Acoustic Consulting.

Table 5 Operator-Attended Noise Survey Results – Manager’s Cottage (R1)

Date	Time (hrs)	Descriptor (dBA re 20µPa)			EPL Limit	Meteorology	Description and SPL, dBA
		L _{Amax}	L _{Aeq}	L _{A90}			
04/04/2024 (Morning Shoulder)	06:44	80	62	38	36	WD: SSE	Traffic 35-80
						WS @10m: 2.4m/s	Insects <35
						Rain: Nil	Birds 35-44
Quarry reverse alarms <39 (30 seconds)							
Quarry Site L _{Aeq} (15min) Contribution							24
03/04/2024 (Day)	15:31	81	59	40	39	WD: NW	Traffic 38-81
						WS @10m: 5.1m/s	Insects <38
						Rain: Nil	Birds 38-46
Quarry processing 38-40 (constant)							
Quarry reverse alarms <38 (1 minute)							
Quarry tipping 38-40 (3 seconds)							
Quarry Site L _{Aeq} (15min) Contribution							39
03/04/2024 (Evening)	18:02	69	51	33	37	WD: WNW	Traffic 31-69
						WS @10m: 4.1m/s	Insects <31
						Rain: Nil	Livestock 31-40
Birds 34-42							
Aircraft 31-36							
Quarry inaudible							
Quarry Site L _{Aeq} (15min) Contribution							Site not operating

Note: Meteorology data obtained Canberra Airport MET station.

Table 6 Operator-Attended Noise Survey Results – Silverwattle (R2)

Date	Time (hrs)	Descriptor (dBA re 20µPa)			EPL Limit	Meteorology	Description and SPL, dBA
		L _{Amax}	L _{Aeq}	L _{A90}			
04/04/2024 (Morning Shoulder)	06:24	72	47	32	36	WD: SSE WS @10m: 1.9m/s Rain: Nil	Traffic 29-72
							Insects <29
							Birds 29-36
Residential noise 50-70							
Quarry inaudible							
Quarry Site L _{Aeq} (15min) Contribution							<22
03/04/2024 (Day)	16:07	57	45	41	39	WD: NNW WS @10m: 5.4m/s Rain: Nil	Wind in vegetation 39-43
							Insects 39-40
							Traffic 39-57
Birds 40-48							
Residential noise 40-48							
Livestock 39-42							
Aircraft 41-45							
Quarry inaudible							
Quarry Site L _{Aeq} (15min) Contribution							<31
03/04/2024 (Evening)	18:25	61	45	40	37	WD: NNW WS @10m: 4.6m/s Rain: Nil	Insects <37
							Birds 37-46
							Traffic 37-58
Residential noise 37-61							
Quarry inaudible							
Quarry Site L _{Aeq} (15min) Contribution							Site not operating

Note: Meteorology data obtained Canberra Airport MET station.

Table 7 Operator-Attended Noise Survey Results – Barton Highway (R3)

Date	Time (hrs)	Descriptor (dBA re 20µPa)			EPL Limit	Meteorology	Description and SPL, dBA
		L _{Amax}	L _{Aeq}	L _{A90}			
04/04/2024 (Morning Shoulder)	06:00	81	67	53	36	WD: SSE WS @10m: 1.6m/s Rain: Nil	Traffic 40-81 Quarry inaudible
Quarry Site L _{Aeq} (15min) Contribution							<36
03/04/2024 (Day)	16:38	83	69	55	39	WD: NNW WS @10m: 5.1m/s Rain: Nil	Traffic 48-83 Insects <48 Birds <48 Quarry inaudible
Quarry Site L _{Aeq} (15min) Contribution							<39
03/04/2024 (Evening)	18:49	81	67	49	37	WD: NNW WS @10m: 4.1m/s Rain: Nil	Traffic 40-81 Insects <40 Quarry inaudible
Quarry Site L _{Aeq} (15min) Contribution							Site not operating

Note: Meteorology data obtained Canberra Airport MET station.

Muller Acoustic Consulting Pty Ltd (MAC) has completed a Noise Monitoring Assessment (NMA) on behalf of Boral Quarries Pty Limited for the Hall Quarry Operations, Jeir, NSW. The assessment was completed to quantify site noise emissions against relevant noise criteria pertaining to quarry operations and traffic noise.

Attended monitoring during Wednesday 3 April 2024 and Thursday 4 April 2024 identified that operational and road noise emissions generated by the quarry were audible on several occasions however, remained below relevant noise limits specified in the Environmental Protection Licence and Development Consent. These monitoring locations were dominated by extraneous sources such as traffic that predominately masked quarry operations.

Historical results

April 2023 NOISE MONITORING ASSESSMENT

These results are presented as shown in the Noise Assessment report prepared by Muller Acoustic Consulting.

Table 5 Operator-Attended Noise Survey Results – Manager’s Cottage (R1)

Date	Time (hrs)	Descriptor (dBA re 20 µPa)			EPL Limit	Meteorology	Description and SPL, dBA
		L _{Amax}	L _{Aeq}	L _{A90}			
05/04/2023 (Morning Shoulder)	06:19	84	62	44	36	WD: N WS @10m: 1.9m/s Rain: Nil	Traffic 39-84 Birds 39-46 Insects <39 Quarry inaudible
Quarry Site L _{Aeq} (15min) Contribution							<34
04/04/2023 (Day)	14:01	82	60	37	39	WD: E WS @10m: 2.4m/s Rain: Nil	Birds 36-46 Aircraft <38 Insects <34 Traffic 36-82 Boral mobile plant 34-40
Quarry Site L _{Aeq} (15min) Contribution							36
04/04/2023 (Evening)	18:45	69	47	36	37	WD: E WS @10m: 4.1m/s Rain: Nil	Traffic 33-69 Insects <33 Quarry inaudible
Quarry Site L _{Aeq} (15min) Contribution							Site not operating

Note: Meteorology data obtained Canberra Airport MET station.

Table 7 Operator-Attended Noise Survey Results – Barton Highway (R3)

Date	Time (hrs)	Descriptor (dBA re 20 µPa)			EPL Limit	Meteorology	Description and SPL, dBA
		L _{Amax}	L _{Aeq}	L _{A90}			
05/04/2023 (Morning Shoulder)	06:38	84	71	58	36	WD: N WS @10m: 0.0m/s Rain: Nil	Traffic 53-84 Quarry inaudible
Quarry Site L _{Aeq} (15min) Contribution							<36
04/04/2023 (Day)	14:48	83	67	46	39	WD: W WS @10m: 1.9m/s Rain: Nil	Traffic 42-83 Insects <42 Quarry inaudible
Quarry Site L _{Aeq} (15min) Contribution							<36
04/04/2023 (Evening)	18:25	96	71	55	37	WD: ESE WS @10m: 5.0m/s Rain: Nil	Traffic 53-96 Insects <53 Quarry inaudible
Quarry Site L _{Aeq} (15min) Contribution							Site not operating

Note: Meteorology data obtained Canberra Airport MET station.

Table 6 Operator-Attended Noise Survey Results – Silverwattle (R2)

Date	Time (hrs)	Descriptor (dBA re 20 µPa)			EPL Limit	Meteorology	Description and SPL, dBA
		L _{Amax}	L _{Aeq}	L _{A90}			
05/04/2023 (Morning Shoulder)	06:00	63	41	33	36	WD: NNE WS @10m: 1.6m/s Rain: Nil	Insects 30-32
							Birds 34-38
							Traffic 46-63
							Livestock 30-38
Quarry inaudible							
Quarry Site L _{Aeq} (15min) Contribution							<23
04/04/2023 (Day)	14:22	59	43	38	39	WD: N WS @10m: 1.6m/s Rain: Nil	Insects 37-39
							Birds 37-44
							Traffic 37-59
							Aircraft <38
Quarry processing 37-40							
Quarry Site L _{Aeq} (15min) Contribution							38
04/04/2023 (Evening)	19:04	58	44	42	37	WD: E WS @10m: 3.5m/s Rain: Nil	Insects <40
							Traffic 40-52
							Aircraft 41-58
							Livestock 41-50
Wind in vegetation 41-44							
Birds 40-44							
Quarry inaudible							
Quarry Site L _{Aeq} (15min) Contribution							Site not operating

Note: Meteorology data obtained Canberra Airport MET station.

Muller Acoustic Consulting Pty Ltd (MAC) has completed a Noise Monitoring Assessment (NMA) on behalf of Boral for their Hall Quarry, Jeir, NSW. The assessment was completed to quantify site noise emissions against relevant noise criteria pertaining to quarry operations and traffic noise.

Attended monitoring during Tuesday 4 April 2023 and Wednesday 5 April 2023 identified that operational and road noise emissions generated by the quarry were audible during the day periods at the Managers Cottage (R1) and Silverwattle (R2), however, remained below relevant noise limits.

Quarry noise remained inaudible during all other measurements, and therefore satisfies specified noise limits in the Environmental Protection Licence and Development Consent. These monitoring locations were dominated by extraneous sources such as traffic that predominately masked quarry operations.

MAY 2022 NOISE MONITORING ASSESSMENT

These results are presented as shown in the Noise Assessment report prepared by Muller Acoustic Consulting.

Table 4 Operator-Attended Noise Survey Results – Manager’s Cottage (R1)

Date	Time (hrs)	Descriptor (dBA re 20 µPa)			EPL Limit	Meteorology	Description and SPL, dBA
		L _{Amax}	L _{Aeq}	L _{A90}			
28/04/2022 (Morning Shoulder)	06:45	83	61	38	36	WD: SE WS @10m: 0.1m/s Rain: Nil	Birds 36-64
							Traffic 34-83
							Insects <34
Quarry inaudible							
Quarry Site L _{Aeq} (15min) Contribution							<28
27/04/2022 (Day)	16:27	74	55	40	39	WD: SE WS @10m: 0.1m/s Rain: Nil	Birds 41-54
							Traffic 37-74
							Aircraft 39-54
Local residential noise 44-68							
Insects <38							
Quarry inaudible							
Quarry Site L _{Aeq} (15min) Contribution							<30
27/04/2022 (Evening)	18:44	86	60	35	37	WD: SE WS @10m: 2.4m/s Rain: Nil	Traffic 34-86
							Insects <30
							Aircraft 32-38
Quarry inaudible							
Quarry Site L _{Aeq} (15min) Contribution							Site not operating

Note: Meteorology data obtained Canberra Airport MET station.

Table 5 Operator-Attended Noise Survey Results – Silverwattle (R2)

Date	Time (hrs)	Descriptor (dBA re 20 µPa)			EPL	Meteorology	Description and SPL, dBA
		L _{Amax}	L _{Aeq}	L _{A90}	Limit		
							Insects <35
28/04/2022						WD: SE	Birds 35-60
(Morning	06:29	60	44	37	36	WS @10m: 0.1m/s	Traffic 36-52
Shoulder)						Rain: Nil	Quarry crushing 35-42 (5 minutes)
Quarry Site L _{Aeq} (15min) Contribution							36
							Birds 41-70
27/04/2022						WD: SSE	Traffic 39-43
(Day)	16:03	70	47	41	39	WS @10m: 2.4m/s	Livestock 42-46
						Rain: Nil	Quarry crushing 35-42
Quarry Site L _{Aeq} (15min) Contribution							38
							Insects <33
27/04/2022						WD: SE	Livestock 33-39
(Evening)	18:25	57	41	37	37	WS @10m: 0.1m/s	Traffic 36-57
						Rain: Nil	Quarry inaudible
Quarry Site L _{Aeq} (15min) Contribution							Site not operating

Note: Meteorology data obtained Canberra Airport MET station.

Table 6 Operator-Attended Noise Survey Results – Barton Highway (R3)

Date	Time (hrs)	Descriptor (dBA re 20 µPa)			EPL Limit	Meteorology	Description and SPL, dBA
		L _{Amax}	L _{Aeq}	L _{A50}			
26/04/2022 (Morning Shoulder)	06:08	94	78	57	36	WD: SSE WS @10m: 1.1m/s Rain: Nil	Traffic 43-94 Quarry inaudible
Quarry Site L _{Aeq} (15min) Contribution							<36
27/04/2022 (Day)	15:42	94	79	64	39	WD: SSE WS @10m: 2.3m/s Rain: Nil	Traffic 54-94 Quarry inaudible
Quarry Site L _{Aeq} (15min) Contribution							<39
27/04/2022 (Evening)	18:03	94	79	60	37	WD: SE WS @10m: 1.1m/s Rain: Nil	Traffic 50-94 Quarry inaudible
Quarry Site L _{Aeq} (15min) Contribution							Site not operating

Note: Meteorology data obtained Carbers Airport MET station.

Muller Acoustic Consulting Pty Ltd (MAC) has completed a Noise Monitoring Assessment (NMA) on behalf of Boral for their Hall Quarry, Jeir, NSW. The assessment was completed to quantify site noise emissions against relevant noise criteria pertaining to quarry operations and traffic noise.

Attended monitoring during Wednesday 27 April 2022 and Thursday 28 April 2022 identified that operational and road noise emissions generated by the quarry were audible during the morning shoulder and day periods at the Silverwattle (R2), however, remained below relevant noise limits.

Quarry noise remained inaudible at both Manager's Cottage (R1) and Barton Highway (R3) locations, and therefore satisfies specified noise limits in the Environmental Protection Licence and Development Consent. These monitoring locations were dominated by extraneous sources that predominately masked quarry operations.

APRIL 2021 NOISE MONITORING ASSESSMENT

The monitoring and assessment results are presented in individual tables for each monitoring location.

The results of the attended noise measurements at location R1 for the April 2021 survey period are summarised in **Table 4** with relevant EPL limits, the calculated quarry noise contribution and prevailing meteorology conditions at the time of each measurement.

Table 4 Operator-Attended Noise Survey Results – Manager’s Cottage (R1)

Date	Time (hrs)	Descriptor (dBA re 20 µPa)			EPL Limit	Meteorology	Description and SPL, dBA
		L _{Amax}	L _{Aeq}	L _{A90}			
23/04/2021 (Morning Shoulder)	06:39	77	60	48	36	WD: W WS: 0.5m/s Rain: Nil	Traffic 45-77 Birds 45-51 Quarry Crushing 45-56 (constant)
Quarry Site L _{Aeq} (15min) Contribution							46
22/04/2021 (Day)	11:17	75	54	43	39	WD: SSW WS: 2.7m/s Rain: Nil	Traffic 43-75 Wind in trees 41-46 Quarry Mobile Plant <36 (only audible during breaks in traffic)
Quarry Site L _{Aeq} (15min) Contribution							<36
22/04/2021 (Evening)	18:50	66	41	27	37	WD: NW WS: 0.1m/s Rain: Nil	Traffic 25-66 Insects 25-36 Aircraft 28-42 Quarry Inaudible
Quarry Site L _{Aeq} (15min) Contribution							Site Not Operating

Note: Meteorology data obtained from direct measurement by the operator.

The results of the attended noise measurements at location R2 for the April 2021 survey period are summarised in **Table 5** with relevant EPL limits, the calculated quarry noise contribution and prevailing meteorology conditions at the time of each measurement.

Table 5 Operator-Attended Noise Survey Results – Silverwattle (R2)							
Date	Time (hrs)	Descriptor (dBA re 20 μ Pa)			EPL Limit	Meteorology	Description and SPL, dBA
		L _{Amax}	L _{Aeq}	L _{A90}			
23/04/2021 (Morning Shoulder)	06:20	60	41	28	36	WD: W WS: 0.1m/s Rain: Nil	Birds 28-51 Traffic 28-60 Agriculture 36-42 Quarry Inaudible
Quarry Site L _{Aeq} (15min) Contribution							<35
22/04/2021 (Day)	11:55	68	52	43	39	WD: SSW WS: 2.5m/s Rain: Nil	Traffic 37-68 Wind in trees 37-56 Quarry Inaudible
Quarry Site L _{Aeq} (15min) Contribution							<35
22/04/2021 (Evening)	19:09	62	41	19	37	WD: NW WS: 0.1m/s Rain: Nil	Insects <26 Traffic 20-62 Aircraft 26-46 Dog bark 26-38 Livestock 28-38 Quarry Inaudible
Quarry Site L _{Aeq} (15min) Contribution							Site Not Operating

Note: Meteorology data obtained from direct measurement by the operator.

The results of the attended noise measurements at location R3 for the April 2021 survey period are summarised in **Table 6** with relevant EPL limits, the calculated quarry noise contribution and prevailing meteorology conditions at the time of each measurement.

Table 6 Operator-Attended Noise Survey Results – Barton Highway (R3)							
Date	Time (hrs)	Descriptor (dBA re 20 μ Pa)			EPL Limit	Meteorology	Description and SPL, dBA
		L _{Amax}	L _{Aeq}	L _{A90}			
23/04/2021 (Morning Shoulder)	06:00	86	72	56	36	WD: W WS: 0.1m/s Rain: Nil	Traffic 48-86 Quarry Inaudible
Quarry Site L _{Aeq} (15min) Contribution							<35
22/04/2021 (Day)	12:21	84	68	49	39	WD: SSW WS: 2.5m/s Rain: Nil	Traffic 43-84 Insects <43 Quarry Inaudible
Quarry Site L _{Aeq} (15min) Contribution							<35
22/04/2021 (Evening)	18:31	83	70	54	37	WD: NW WS: 0.1m/s Rain: Nil	Traffic 45-83 Quarry Inaudible
Quarry Site L _{Aeq} (15min) Contribution							Site Not Operating

Note: Meteorology data obtained from direct measurement by the operator.

APRIL 2020 NOISE MONITORING ASSESSMENT

The monitoring and assessment results are presented in individual tables for each monitoring location.

The results of the 15 minute attended noise measurements for Tuesday 21 April 2020 and Wednesday 22 April 2020 for R1 are summarised in Table 4.

Table 4 Operator-Attended Noise Survey Results – Manager’s Cottage (R1)

Date	Time (hrs)	Primary Noise Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
		LA _{max}	LA _{eq}	LA ₉₀		
22/04/2020	06:23 (Morning Shoulder)	79	60	40	WS: <0.5m/s WD: W Rain: Nil	Local Traffic 40-79 Highway Traffic <35-40 Birds 38-51 Site Vehicles/Loading <30-40
Quarry Site LA _{eq} (15min) Contribution					<36	
22/04/2020	08:17 (Day)	76	60	40	WS: 1.0m/s WD: NW Rain: Nil	Local Traffic 40-76 Highway Traffic <32-40 Birds 37-63 Site Vehicles/Loading 32-38 Site Impacts 38-40 Site Hum <32-34
Quarry Site LA _{eq} (15min) Contribution					37	
21/04/2020	19:57 (Evening)	77	52	22	WS: <0.1m/s WD: W Rain: Nil	Local Traffic 30-77 Highway traffic 20-43
Quarry Site LA _{eq} (15min) Contribution					Site Not Operating	

The results of the 15 minute attended noise measurements for Tuesday 21 April 2020 and Wednesday 22 April 2020 for R2 are summarised in Table 5.

Table 5 Operator-Attended Noise Survey Results – Silverwattle (R2)						
Date	Time (hrs)	Primary Noise Descriptor (dBA)			Meteorology	Description and SPL, dBA
		re 20 μ Pa				
		L _{Amax}	L _{Aeq}	L _{A90}		
22/04/2020	06:43 (Morning Shoulder)	78	57	37	WS: <0.5m/s	Birds 34-63
					WD: W	Traffic 35-78
					Rain: Nil	Residential Noise 38-40
						Site Vehicles/Loading 30-38
						Site Hum 30-33
Quarry Site L _{Aeq} (15min) Contribution						34
22/04/2020	08:37 (Day)	79	55	38	WS: 1.0m/s	Birds 35-57
					WD: W	Traffic 40-79
					Rain: Nil	Site Vehicles/Loading 35-38
						Site Impacts 35-40
						Site Hum <33
Quarry Site L _{Aeq} (15min) Contribution						35
21/04/2020	20:27 (Evening)	73	50	14	WS: <0.1m/s	Insects 20-33
					WD: W	Birds 20-28
					Rain: Nil	Traffic 20-73
					Quarry Site L _{Aeq} (15min) Contribution	

The results of the 15 minute attended noise measurements for Tuesday 21 April 2020 and Wednesday 22 April 2020 for R3 are summarised in **Table 6**.

Table 6 Operator-Attended Noise Survey Results – Barton Highway (R3)						
Date	Time (hrs)	Primary Noise Descriptor (dBA)			Meteorology	Description and SPL, dBA
		re 20 µPa				
		L _{Amax}	L _{Aeq}	L _{A90}		
22/04/2020	06:00				WS: <0.1m/s	Traffic 41-81 Site Not Audible
	(Morning Shoulder)	81	66	47	WD: W Rain: Nil	
Quarry Site L _{Aeq} (15min) Contribution						<36
22/04/2020	07:57				WS: <0.1m/s	Traffic 37-80
	(Day)	80	66	43	WD: W Rain: Nil	Birds 35-42 Site Not Audible
Quarry Site L _{Aeq} (15min) Contribution						<39
21/04/2020	19:37				WS: 0.5m/s	Traffic 25-81
	(Evening)	81	62	35	WD: W Rain: Nil	Insects <25
Quarry Site L _{Aeq} (15min) Contribution						Site Not Operating

Hall Quarry Noise Monitoring Locations

