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# **QUARTERLY NOISE MONITORING ASSESSMENT – QUARTER 2 2023 COOMA ROAD QUARRY, GOOGONG, NSW**

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QUARTER 2 2023  
COOMA ROAD QUARRY, GOOGONG, NSW**

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2023 at Googong, NSW, as part of the noise monitoring program**

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## ABBREVIATIONS AND DEFINITIONS

<b>Ambient Noise</b>	The all-encompassing noise within a given environment. It is the composite of sounds from many sources, both near and far.
<b>Background noise</b>	The underlying level of noise present in the ambient noise, excluding the noise source under investigation, when extraneous noise is removed. This is described using the LA90 descriptor (see below).
<b>dB</b>	Abbreviation for decibel, a measure of sound equivalent to 20 times the logarithm (to base 10) of the ratio of a given sound pressure to a reference pressure, and 10 times the logarithm of a given sound power to a reference power.
<b>dB(A)</b>	A measure of A-weighted sound levels. A Weighting is an adjustment made to the sound level measurement to approximate the response of the human ear.
<b>Extraneous noise</b>	Noise resulting from activities that are not typical of the area. Atypical activities may include construction, and traffic generated by holiday periods. Normal daily traffic is not extraneous noise.
<b>LA1</b>	The noise level, measured in dB(A), which is exceeded for 1 per cent of the measurement period.
<b>LA1(1min)</b>	The noise level, measured in dB(A), which is exceeded for 1 per cent of the time over a 1-minute measurement period, i.e., is exceeded for 0.6 seconds. This measure can approximate to the maximum noise level but may be less if there is more than 1 noise event during this 0.6 second period.
<b>LA10</b>	The noise level, measured in dB(A), which is exceeded for 10 per cent of the time.
<b>LA90</b>	The noise level, measured in dB(A), which is exceeded for 90 per cent of the time, referred to as the background noise level. This is considered to represent the background noise (see above).
<b>LAeq</b>	The level of noise equivalent to the energy average of noise levels occurring over a defined measurement period.
<b>LAeq (period)</b>	The average equivalent noise level, measured in dB(A), during a measurement period (e.g., 15-minute, day, evening, or night).
<b>LAm<sub>ax</sub></b>	The A-weighted sound pressure level that represents the maximum noise level measured over the time that a given sound is measured.
<b>NMA</b>	Noise Monitoring Assessment
<b>NMP</b>	Noise Management Plan

Source: Noise Guide for Local Government (NSW EPA, 2013)

# 1. OVERVIEW

## 1.1 Project Driver

Ramboll Australia Pty Ltd (Ramboll) has been commissioned by Holcim (Australia) Pty Ltd (Holcim) to complete a Noise Monitoring Assessment (NMA) for Cooma Road Quarry (“the quarry”) at Googong, NSW.

This NMA was done in accordance with the following documents:

- Noise Policy for Industry (NPI) (NSW EPA, 2017).
- Cooma Road Quarry Noise Management Plan (NMP) (Holcim Australia, 2019).
- Development Consent Application Number SSD\_5109 (Minister for Planning and Infrastructure, 2013).
- Environment Protection Licence (EPL) number 1453 (NSW EPA, 2020).
- Australian Standard AS 1055:2018 Acoustics—Description and measurement of environmental noise (Standards Australia, 2018).
- IEC 60942 Ed. 3.0 b:2003 Electroacoustics - Sound calibrators (Standards Australia, 2003).

This NMA has been undertaken for the quarterly period April to June 2023, and forms part of the monitoring program to determine compliance with conditions of the Development Consent.

## 1.2 Site Location and Sensitive Receptors

The quarry is in Googong, approximately 6 kilometres south of Queanbeyan, NSW.

Sensitive receptors surrounding the quarry are primarily rural and residential properties in all directions. Old Cooma Road is located to the east of the quarry and passing road traffic is a dominate noise source for those receivers to the east of the quarry.

Five monitoring locations have been selected as part of the NMA and in accordance with the Development Consent and are shown in **Table 1-1**.

**Table 1-1: Monitoring locations locality and sensitive receptors**

Monitoring Locations	Locality and Sensitive Receptors
N3	West of the quarry situated on a rural property off Copperfield Place. This location represents residential and rural receivers to the west of the quarry.
N8	Northeast of the quarry along Tempe Crescent and is representative of residential receivers in that area.
N38	On Heights Road and is representative of the elevated residential receivers to the east of the quarry.
N60	At 501 Old Cooma Road and represents the residence adjacent to the quarry access road.
N67	Situated on a rural property at 732 Old Cooma Road to the south of the quarry. This is representative of rural and residential receivers to the south, with direct line of site into the quarry pit

The monitoring locations with respect to the quarry and assessed receivers are presented in the locality plan shown in **Figure 1**.





**Legend**  
 ● Noise monitoring location

**Figure 1: Noise monitoring locations at Cooma Road Quarry**



## 2. NOISE CRITERIA

**Table 2-1** brings the applicable noise criteria outlined in the Development Consent for the residential receivers surrounding the quarry (N1–N71), and the five monitoring locations adopted from the NMP that are deemed representative and applicable for this NMA (N3, N8, N38, N60, and N67).

**Table 2-1: Monitoring locations and noise criteria**

Receiver <sup>1</sup>	Monitoring Locations	Morning Shoulder <sup>2</sup>	Day <sup>3</sup>	Evening <sup>4</sup>
		Laeq (15min)	Laeq (15min)	Laeq (15min)
		dB(A)		
N1, N7, N8, N56, N57, N59, N63, N64, N65	N8	40	44	39
N67	N67	36	41	35
All other receivers between N9 and N71 inclusive	N60, N38	36	38	35
All other receivers	N3	35	35	35
<sup>1</sup> Refer to the Development Consent and/or the NMP for receiver locations on the map <sup>2</sup> 6 am–7 am Monday to Saturday <sup>3</sup> 7 am–6 pm Monday to Saturday <sup>4</sup> 6 pm–10 pm Monday to Saturday Note: no operations on Sundays and public holidays				

### 3. METHODOLOGY

The monitoring program was created in accordance with the procedures described in Australian Standard AS 1055:2018 and the Approval Documents referenced in Section 1. The measurements were carried out using a RION Sound Level Meter NL-52 on Tuesday 2 and Wednesday 3 May 2023. The acoustic instrumentation implemented carries current NATA calibration and complies with AS/NZS IEC 61672-1:2013/2002 class 1. Calibration of all instrumentation was checked prior to and following measurements using a Pulsar Acoustic Calibrator 105 which also carried a current NATA calibration and complies with IEC 60942:2003. Drift in calibration did not exceed  $\pm 0.3$  dBA.

Attended noise monitoring was conducted for 15-minutes in duration during the day, evening, and night periods over two days. Where possible, throughout each measurement the operator(s) quantified the contribution of each significant noise source.

Where the plant was not distinctly audible during the attended monitoring, the quarry contribution is estimated to be at least 10 dBA below the ambient noise level, as determined by the LA90, or estimated to be less than criteria value.



## 4. RESULTS AND DISCUSSION

### 4.1 Location N3

Noise monitoring at location N3 conducted on Tuesday 2 May 2023 and Wednesday 3 May 2023 resulted in inaudible quarry noise during morning shoulder and day. The quarry was not operational during the evening. These results meet the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location N3 are presented in **Table 4-1**.

Measured ambient noise sources include wind/rustling leaves, birds, and road traffic.

**Table 4-1: Noise survey results and observations for Location N3**

Date	Time (hrs)	Descriptor (dBA)			Meteorology	Apparent Noise Source, Description and LAeq (dBA)	Cooma Road Quarry LAeq(15min) (dBA) Contribution	LAeq(15min) Criteria (dBA)
		LAm <sub>ax</sub>	LA <sub>eq</sub>	LA <sub>90</sub>				
02-05-23	6:40am to 6:55am (Morning Shoulder)	63.9	43.5	39.4	WD: n/a WS: 0 m/s Rain: Nil	Distant road traffic 42-43 Resident car passing 45-46 Birds 53-58 Quarry inaudible	<29	35
03-05-23	10:56am to 11:11am (Day)	93.4	60.5	51.2	WD: 345° WS: 15.9 m/s Rain: Nil	Wind/trees Aircraft Birds Quarry inaudible	<35	35
02-05-23	8:26pm to 8:41pm (Evening)	53.0	38.1	35.0	WD: n/a WS: 0 m/s Rain: Nil	Road traffic 40-53 Quarry inaudible	<25	35

## 4.2 Location N8

Noise monitoring at location N8 conducted on Tuesday 2 May 2023 and 3 May 2023 resulted in inaudible quarry noise during morning shoulder and day. The quarry was not operational during the evening. These results meet the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location N8 are presented in **Table 4-2**.

Measured ambient noise sources included motorway traffic, passing cars, wind, and birds.

**Table 4-2: Noise survey results and observations for Location N8**

Date	Time (hrs)	Descriptor (dBA)			Meteorology	Apparent Noise Source, Description and LAeq (dBA)	Cooma Road Quarry LAeq(15min) (dBA) Contribution	LAeq(15min) Criteria (dBA)
		LAmax	LAeq	LA90				
02-05-23	6:27am to 6:42am (Morning Shoulder)	73.4	60.6	56.1	WD: 319° WS: 6.7 m/s Rain: Nil	Motorway traffic 50-51 Passing cars 63-73 Wind 58-63 Quarry inaudible	<40	40
03-05-23	12:51 to 1:06pm (Day)	67.4	55.4	50.2	WD: 313° WS: 15.2 m/s Rain: Nil	Motorway traffic 54-57 Birds 48-49 Wind/trees 52-61 Quarry inaudible	<40	44
02-05-23	6:38pm to 6:53pm (Evening)	74.3	53.4	46.2	WD: 38° WS: 1.3 m/s Rain: Nil	Motorway traffic 50-51 Cars passing on Tempe Cresc. 63-71 Quarry inaudible	<36	39

### 4.3 Location N38

Noise monitoring at location N38 conducted on Tuesday 2 May 2023 resulted in inaudible quarry noise during morning shoulder and day. The quarry was not operational during the evening. These results meet the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location N38 are presented in **Table 4-3**.

Measured ambient noise sources included motorway traffic, passing cars and wind.

**Table 4-3: Noise survey results and observations for Location N38**

Date	Time	Descriptor (dBA)			Meteorology	Apparent Noise Source, Description and LAeq (dBA)	Cooma Road Quarry LAeq(15min) (dBA) Contribution	LAeq(15min) Criteria (dBA)
		LAmx	LAeq	LA90				
02-05-23	6:44am to 6:59am (Morning Shoulder)	71.2	61.5	56.9	WD: 319° WS: 6.6 m/s Rain: Nil	Motorway traffic 46-49 Passing car 65-68 Wind/trees 60-63 Quarry inaudible	<36	36
02-05-23	1:27pm to 1:42pm (Day)	63.3	55.9	52.7	WD: 337° WS: 10.2 m/s Rain: Nil	Motorway traffic 50-56 Wind/trees 55-60 Quarry inaudible	<38	38
02-05-23	7:01pm to 7:16pm (Evening)	70.4	51.0	41.8	-	Motorway traffic 46-49 Passing cars 65-68 Quarry inaudible	<32	35

↖ indicates not recorded

#### 4.4 Location N60

Noise monitoring at location N60 conducted on Tuesday 2 May 2023 resulted in inaudible quarry noise during morning shoulder and day. The quarry was not operational during the evening. These results meet the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location N60 are presented in **Table 4-4**.

Measured ambient noise sources included motorway traffic, wind, and trees.

**Table 4-4: Noise survey results and observations for Location N60**

Date	Time	Descriptor (dBA)			Meteorology	Apparent Noise Source, Description and LAeq (dBA)	Cooma Road Quarry LAeq(15min) (dBA) Contribution	LAeq(15min) Criteria (dBA)
		LAmx	LAeq	LA90				
02-05-23	6:14am to 6:29am (Morning Shoulder)	78.1	60.2	38.7	WD: n/a WS: 0 m/s Rain: Nil	Motorway traffic 51-72 Quarry inaudible	<29	36
02-05-23	1:49pm to 2:04pm (Day)	81.5	64.1	51.0	WD: 305° WS: 8.3 m/s Rain: Nil	Motorway traffic 51-77 Wind/trees 52-66 Quarry inaudible	<38	38
02-05-23	7:27pm to 7:49pm (Evening)	78.1	60.2	38.7	WD: n/a WS: 0 m/s Rain: Nil	Motorway traffic 51-72 Quarry inaudible	<29	35

#### 4.5 Location N67

Noise monitoring at location N67 conducted on Tuesday 2 May 2023 resulted in inaudible quarry noise during morning shoulder and day. The quarry was not operational during the evening. These results meet the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location N67 are presented in **Table 4-5**.

Measured ambient noise sources included motorway traffic, aircraft, wind, and a truck horn.

**Table 4-5: Noise survey results and observations for Location N67**

Date	Time	Descriptor (dBA)			Meteorology	Apparent Noise Source, Description and LAeq (dBA)	Cooma Road Quarry LAeq(15min) (dBA) Contribution	LAeq(15min) Criteria (dBA)
		LAmax	LAeq	LA90				
02-05-23	6:34am to 6:49am (Morning Shoulder)	78.9	61.9	54.7	WD: n/a WS: 0 m/s Rain: Nil	Motorway traffic Quarry inaudible	<36	36
02-05-23	1:09pm to 1:24pm (Day)	81.4	63.6	49.8	WD: n/a WS: 0 m/s Rain: Nil	Motorway traffic 60-71 Aircraft 73-76 Quarry inaudible	<40	41
02-05-23	7:53pm to 8:08pm (Evening)	74.2	59.0	39.9	WD: n/a WS: 0 m/s Rain: Nil	Motorway traffic 50-70 Wind 50-63 Truck horn 81 Quarry inaudible	<30	35

## 5. CONCLUSION

This NMA was completed by Ramboll at the Holcim Cooma Road Quarry, Googong, NSW as a quarterly requirement of the NMP. Monitoring was carried out on Tuesday 2 May 2023 and Wednesday 3 May 2023 at five locations selected as representative to the sensitive receptors at the surroundings to Cooma Road Quarry. No audible quarry noise was recorded at any of the selected monitoring locations during the monitoring campaign.

The results presented in this NMA show compliance with the relevant noise criteria at the Holcim Cooma Road Quarry, Googong, NSW.

## 6. REFERENCES

Holcim Australia (2019) *Cooma Road Quarry, Noise Management Plan*.

Minister for Planning and Infrastructure (2013) 'Development Consent SSD\_5109, Cooma Road Quarry Continued Operations Project'.

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