NSW/ ACT Aggregates

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Cooma Road Quarry Annual Review: 2014

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Date:	April 15, 2016
Title:	Cooma Road Quarry Annual Review
Company:	Holcim Australia (Cooma Road Quarry)
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INTRODUCTION

Holcim (Australia) Pty Ltd (Holcim) operates the Cooma Road Quarry, a hard rock quarry located on Old Cooma Road in the Queanbeyan Local Government Area.

The site operates under Development Consent (SSD-5109) approved by the New South Wales (NSW) Department of Planning & Infrastructure (now Department of Planning & Environment) on September 27, 2013. The site also operates in accordance with the Environmental Protection Licence (EPL) No. 1453 issued by the Environmental Protection Authority.

In accordance with Schedule 5, Condition 4 of the modified Development Consent the site is required to undertake an Annual Review of the site in the following manner:

Annual Review

4. *By the end of March each year, the Applicant shall review the environmental performance of the development to the satisfaction of the Secretary. This review must:*

   (a) describe the development (including rehabilitation) that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year;

   (b) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, which includes a comparison of these results against the:
   - *relevant statutory requirements, limits or performance measures/criteria;*
   - *the monitoring results of previous years; and*
   - *the relevant predictions in the EIS.*

   (c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;

   (d) identify any trends in the monitoring data over the life of the development;

   (e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and

   (f) describe what measures will be implemented over the current calendar year to improve the environmental performance of the development.

This report documents the environmental performance of the site from January to December 2014.

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Figure 1: View of the Cooma Road Quarry located on Old Cooma Road, Queanbeyan.

DESCRIPTION OF DEVELOPMENT

(a) describe the development (including any rehabilitation) that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year;

Development activities undertaken at the Cooma Road Quarry in 2014 included:

- Stripping of topsoil and overburden within the existing extraction limit boundary.
- Drill, Blast, Load and Haul Activities.
- Crushing, screening and stockpiling of product.
- Overburden removal and replacement in the south-west overburden dump.
- Progressive rehabilitation of completed overburden dump in the south-western disturbance area. Involving: replacement of topsoil, re-vegetation activities with native species and weed control.

Operating hours in 2014 were undertaken between 6am to 6pm, Monday to Saturday. These 6am-6pm timeframes were applied for all operations onsite with no crushing, screening or vehicles movements after 6pm and before 10pm.

All activities took place within the approved operating hours in 2014.

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Production volumes for the 2014 calendar year are detailed below.

PRODUCT	DESCRIPTION	QUANTITY (t)
Over 75mm	Overburden, Shot Rock & Scalps	191 195.18
Over 30mm to 75mm	Ballast & -40mm Aggregate	22 563.50
5mm to 30mm	All size Aggregates	273 401.17
Manufactured Sand	Crusher Dust & Manufactured Sand	117 471.23
Prepared Road Base & Sub Base	20mm Base & Sub-Base	278 723.32
TOTAL		**883 354.40**

The site has not undertaken any development into the approved northern extension area and has operated within the existing footprint of the quarry throughout 2014. No new activities such as construction of the dam, workshop facilities or extraction in the extension area (approved under SSD-5109 Development Consent) have been undertaken. Conditions relating to these activities include:

- Schedule 2, Condition 18 (Construction of new buildings or structures requiring structural adequacy).
- Schedule 2, Condition 19 (Demolition of existing structures or buildings).

Development activities proposed to be carried out at Cooma Road Quarry in 2015, include:

- Stripping of topsoil and overburden within the existing extraction limit boundary (In both the Granite and Dacite Pits).
- Drill, Blast, Load and Haul Activities.
- Crushing, screening and stockpiling of product.
- Overburden removal and placement in the south-west overburden dump.
- Progressive rehabilitation of completed overburden dump in the south-western disturbance area. Involving: replacement of topsoil, re-vegetation activities with native species and weed control.

Community

The site implemented a Community Consultative Committee in 2014 as part of the conditions of consent. All minutes from each of the meetings undertaken in 2014 have been uploaded on the Holcim webpage in the Cooma Road profile.

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Review of Monitoring Results

(b) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, which includes a comparison of these results against the:

- ***relevant statutory requirements, limits or performance measures/criteria;***
- ***the monitoring results of previous years; and***
- ***the relevant predictions in the EIS;***

Noise

The site is required to undertake the following activities in accordance with the requirements stipulated in the Development Consent and the Cooma Road Noise Management Plan.

NOISE

Noise Criteria

4. The Applicant shall ensure that the noise generated by the development does not exceed the criteria in Table 1 at any residence on privately-owned land

Table 1: Noise criteria dB(A)

Receiver	Day Shoulder 6 – 7 am	Day 7 am – 6 pm	Evening 6 – 10 pm
	$L_{Aeq(15\ min)}$	$L_{Aeq(15\ min)}$	$L_{Aeq(15\ min)}$
N1, N7, N8, N56, N57, N59, N63, N64, N65	40	44	39
N67	36	41	35
All other receivers between N9 and N71 inclusive	36	38	35
All other receivers	35	35	35

Notes:

- *To locate the receivers referred to in Table 1 refer to Appendix 5.*
- *After the first review on any EPL granted for this development under Section 78 of the POEO Act, nothing in this approval prevents the EPA from imposing stricter noise limits on the quarrying operations on site under the EPL.*

Appendix 9 sets out the metrological conditions under which these criteria apply and the requirements for evaluating compliance with these criteria.

However, these criteria do not apply if the Applicant has a written agreement with the relevant landowner/s to generate higher noise levels, and the Applicant has advised the Department in writing of the terms of this agreement.

Figure 2: Noise criteria listed in the Cooma Road Development Consent (SSD-5109).

The site has undertaken the following activities in 2014 to achieve compliance with noise criteria onsite.

Independent Road Noise Audit

The site undertook a Road Noise Audit in July 2014 with works completed by Rudd Acoustics. The site was found to be operating in accordance with the criteria listed in the Development Consent with adequate noise controls fitted to all trucks departing the site. A copy of the Road Noise Audit has been attached as Appendix 1 of the Annual Review.

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Quarterly Noise Monitoring

The site has not undertaken quarterly noise monitoring in accordance with the criteria listed in the Development Consent in 2014. Holcim has commissioned this activity to commence monitoring in Quarter 2, 2016 and ensure quarterly monitoring is undertaken in the future.

It is noted that during this period Holcim has not undertaken any of the following activities:

- Construction and/ or demolition works.
- Operations outside of approved operating hours.
- Crushing & Screening or Ancillary Operations have not occured after 6pm.
- No complaints regarding noise levels has been received.

Blasting

The site conducts blasting in accordance with the criteria listed in the Development Consent and the Cooma Road EPL No. 1453:

Blasting Criteria

9. The Applicant shall ensure that the blasting on the site does not cause exceedances of the criteria in Table 3.

Table 3: Blasting Criteria

Location	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance
Any residence on privately-owned land	120	10	0%
	115	5	5% of the total number of blasts over a period of 12 months

However, these criteria do not apply if the Applicant has a written agreement with the relevant owner or infrastructure provider/owner, and the Applicant has advised the Department in writing of the terms of this agreement.

Figure 3; Blast criteria listed in the Cooma Road Development Consent (SSD-5109).

The site has undertaken blasting throughout 2014 with criteria for blasts assessed against the Cooma Road Blast Monitoring Plan and the criteria outlined in EPL No.1453.

The site fired 31 blasts in 2014 with two overpressure exceedances. Both exceedances measured below the 120 dB criteria limit and were reported in the 2014 Annual Return to the EPA.

A copy of the 2014 blast data for Cooma Road is detailed in the table below:

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Location	Sample Date	Overpressure	Vibration	Comments
Heffernan's House	6/11/2014	114.3	0.58	Nil
Heffernan's House	2/10/2014	105.4	1.77	Nil
Heffernan's House	20/10/2014	102	1.3	Nil
Heffernan's House	22/10/2014	88	2.18	Nil
Heffernan's House	24/10/2014	115	0.46	Nil
Heffernan's House	1/09/2014	109.9	1.04	Nil
Heffernan's House	11/09/2014	111.3	0.77	Nil
Heffernan's House	18/09/2014	100.5	0.21	Nil
Heffernan's House	22/09/2014	99.8	3.99	Nil
Heffernan's House	31/07/2014	105.2	0.87	Nil
Heffernan's House	8/08/2014	110.2	0.37	Nil
Heffernan's House	**8/08/2014**	**115.6**	**0.32**	**Overpressure Exceedance**
Heffernan's House	**25/08/2014**	**115.1**	**0.38**	**Overpressure Exceedance**
Heffernan's House	27/06/2014	108.3	2.49	Nil
Heffernan's House	1/07/2014	109.8	0.92	Nil
Heffernan's House	16/07/2014	111.7	0.92	Nil
Heffernan's House	11/06/2014	101.7	0.88	Nil
Heffernan's House	11/06/2014	103	2.16	Nil
Heffernan's House	1/05/2014	108.8	0.74	Nil
Heffernan's House	8/05/2014	No Result Registered	No Result Registered	Nil
Heffernan's House	15/05/2014	109	0.52	Nil
Heffernan's House	21/05/2014	114.4	1.63	Nil

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Heffernan's House	28/05/2014	113.4	0.43	Nil
Heffernan's House	4/04/2014	87.1	0.8	Nil
Heffernan's House	10/04/2014	105	2.75	Nil
Heffernan's House	19/03/2014	108.2	0.48	Nil
Heffernan's House	25/03/2014	NRR	NRR	Nil
Heffernan's House	6/01/2014	109	0.68	Nil
Heffernan's House	6/01/2014	107	0.36	Nil
Heffernan's House	7/01/2014	102.7	1.44	Nil
Heffernan's House	16/01/2014	99.2	0.68	Nil
Heffernan's House	30/01/2014	101.7	0.48	Nil

L3 Blasting

L3.1 The airblast overpressure level from blasting operations in or on the premises must not exceed:

(a) 115 dB (Lin Peak) for more than 5% of the total number of blasts during each reporting period; and
(b) 120 dB (Lin Peak) at any time.

At any point within 1 metre of any affected residential boudary or other noise sensitive location such as a school or hospital.

L3.2 The ground vibration peak particle velocity from blasting operations carried out in or on the premises must not exceed:

(a) 5 mm/s for more than 5% of the total number of blasts carried out on the premises during each reporting period; and
(b) 10 mm/s at any time.

At any point within 1 metre of any affected residential boundary or other noise sensitive location such as a school or hospital.

Figure 4: Blast criteria listed in the Cooma Road EPL No. 1453.

Air

The site is required to operate in accordance with the criteria listed in the Development consent as shown in the table below:

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Table 5: Short Term Impact Assessment Criteria for Particulate Matter

Pollutant	Averaging period	[d] Criterion
Particulate matter < 10 µm (PM_{10})	24 hour	[a] 50 µg/m^3

Table 6: Long-Term Impact Assessment Criteria for Deposited Dust

Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level
[c] Deposited dust	Annual	[b] 2 g/m^2/month	[a] 4 g/m^2/month

Notes to Tables 4-6:

- [a] *Total impact (ie incremental increase in concentrations due to the development plus background concentrations due to all other sources);*
- [b] *Incremental impact (ie incremental increase in concentrations due to the development on its own);*
- [c] *Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.*
- [d] *Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agreed by the Director-General in consultation with EPA.*

Figure 4: Air quality criteria listed in the Cooma Road Development Consent (SSD-5109).

The site has undertaken air monitoring throughout 2014 at 5 dust deposition locations. It is noted throughout 2014 that several events in the vicinity of Dust Monitor 1 (located at the site entrance), affected the annual monitoring results at this location.

It was identified during a review of monitoring data in late 2014 that the high results at Dust Monitor 1 had been caused by a contracted streetsweeper operating along the roadway. The streetsweeper was found to be working in close proximity to the Monitor (approximately 1.5 metres) without using wet brushes. This caused dust to be brushed off the roadway into the path of the Monitor and caused elevated results.

Has has spoken to the contractor and has now rectified this issue. All street sweepers operating along the Quarry entrance are required to operate a wet brush system to ensure air criteria is met.

	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Ave
Dust 1	1	2.6	6.7	4.2	3.8	7.1	4.8	8.5	4.9	5.4	4.8	5.1	**4.06**
Dust 2	2.7	2.1	3.3	2.3	1.7	2.5	1.6	1.5	1.8	1.8	1.7	2	**2.08**
Dust 3	1	2	1.7	1.6	0.6	0.7	0.5	0.4	0.6	0.7	1.5	2.8	**1.18**
Dust 4	2.7	1.9	1.4	3.3	0.9	1.6	1.8	0.4	1.2	0.6	4.4	3.1	**1.94**
Dust 5	2.1	2.4	1.1	3.7	0.7	1.6	0.6	0.4	0.8	0.6	1.1	1	**1.34**

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It was identified as part of the Annual Review that the site has not operated a PM10 monitor throughout 2014. This requirement was not identified during the engagement of contractors to undertake monitoring on behalf of Holcim following the approval of the new Development Consent in September 2013.

To ensure compliance with Schedule 3, Condition 14 a PM10 monitor has been sourced from another Holcim site and will be installed by June 30, 2016.

Water

Water quality objectives for Cooma Road are taken from the EPL. Water monitoring criteria detailed within the EPL are listed below:

POINT 1

Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3DGM concentration limit	100 percentile concentration limit
Oil and Grease	milligrams per litre				10
pH	pH				6.5-8.5
Total suspended solids	milligrams per litre				50

Figure 5: Water quality criteria listed in the Cooma Road EPL No. 1453.

All water monitoring undertaken in 2014 complies with the criteria listed in the EPL and in the Cooma Road Water Management Plan. A copy of all water monitoring data for 2014 has been attached as below.

No discharges were recorded from the SIP dam into Barracks Creek in 2014. All water run-off from disturbed areas of the site was captured in the Dacite and Granite pits and re-used for dust suppression and production activities.

Location	Test	Limit		Units	Sample Date	Result
Barracks Creek	pH	6.5	8.5	pH	1/12/2014	**7.7**
	Total O&G	0	10	mg/L	1/12/2014	**1**
	Susp. Solids	0	50	mg/L	1/12/2014	**4**
Barracks Creek	pH	6.5	8.5	pH	3/11/2014	**7.7**
	Total O&G	0	10	mg/L	3/11/2014	**1**
	Susp. Solids	0	50	mg/L	3/11/2014	**2**

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Barracks Creek	pH	6.5	8.5	pH	2/10/2014	**7.3**
	Total O&G	0	10	mg/L	2/10/2014	**1**
	Susp. Solids	0	50	mg/L	2/10/2014	**23**
Barracks Creek	pH	6.5	8.5	pH	1/09/2014	**7.1**
	Total O&G	0	10	mg/L	1/09/2014	**1**
	Susp. Solids	0	50	mg/L	1/09/2014	**2**
Barracks Creek	pH	6.5	8.5	pH	1/08/2014	**8**
	Total O&G	0	10	mg/L	1/08/2014	**0.01**
	Susp. Solids	0	50	mg/L	1/08/2014	**2**
Barracks Creek	pH	6.5	8.5	pH	3/07/2014	**7.2**
	Total O&G	0	10	mg/L	3/07/2014	**1**
	Susp. Solids	0	50	mg/L	3/07/2014	**11**
Barracks Creek	pH	6.5	8.5	pH	4/06/2014	**7.7**
	Total O&G	0	10	mg/L	4/06/2014	**1**
	Susp. Solids	0	50	mg/L	4/06/2014	**3**
Barracks Creek	pH	6.5	8.5	pH	2/05/2014	**7.7**
	Total O&G	0	10	mg/L	2/05/2014	**1**
	Susp. Solids	0	50	mg/L	2/05/2014	**5**
Barracks Creek	pH	6.5	8.5	pH	4/04/2014	**7.3**
	Total O&G	0	10	mg/L	4/04/2014	**1**
	Susp. Solids	0	50	mg/L	4/04/2014	**2**
Barracks Creek	pH	6.5	8.5	pH	3/03/2014	**7.5**
	Total O&G	0	10	mg/L	3/03/2014	**1**
	Susp. Solids	0	50	mg/L	3/03/2014	**2**
Barracks Creek	pH	6.5	8.5	pH	3/02/2014	**7.6**

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	Total O&G	0	10	mg/L	3/02/2014	**1**
	Susp. Solids	0	50	mg/L	3/02/2014	**3**
Barracks Creek	pH	6.5	8.5	pH	9/01/2014	**7.4**
	Total O&G	0	10	mg/L	9/01/2014	**1**
	Susp. Solids	0	50	mg/L	9/01/2014	**16**

Heritage

The site has operated throughout 2014 in accordance with the requirements of the Cooma Road Heritage Management Plan. In accorance with the Management Plan the site has engaged consultants Craven, Elliston & Hayes to undertake surveys of the Moses Morley Kiln site on a 6 monthly basis.
These surveys have monitored the physical condition of the Kiln throughout 2014 to ensure that no blast vibrations have impacted on the site. Results of these surveys have identified:

- The Kiln site has not been impacted by vibration from blasting.
- The Kiln site has not been altered since previous surveys were conducted in 2013.

In addition to these surveys the site has undertaken regular inspections of the area to ensure that fencing remains intact. The fence around the Kiln site has not deteriorated or required repairs since installation in 2012.

A copy of the Kiln surveys have been attached as Appendix 2 of the Annual Review.

Rehabilitation

The conditions of consent related to rehabilitation at Cooma Road are listed in the table below:

Rehabilitation Objectives

22. The Applicant shall rehabilitate the site to the satisfaction of the Director-General. This rehabilitation must be generally consistent with the proposed rehabilitation strategy in the EIS and Appendix 7, and comply with the objectives in Table 7.

Table 7: Rehabilitation Objectives

Feature	Objective
Site (as a whole)	Safe, stable and non-polluting
Surface Infrastructure	To be decommissioned and removed (unless otherwise agreed with the Director-General)
Benched Quarry Walls	Landscaped and revegetated utilising native tree and understorey species, ensuring that the tree canopy is restored and integrated with the surrounding canopy to minimise visual impacts
Quarry Pit Floors	Landscaped and revegetated utilising native flora species, above the anticipated final void water level
Other land affected by the development	Restore ecosystem function, including maintaining or establishing self-sustaining ecosystems comprised of: - native endemic species: and - a landform consistent with Appendix 7 and the surrounding environment.
Community	• Ensure public safety • Minimise the adverse socio-economic effects associated with the closure of the development

Note: Revegetation of existing and proposed industrial areas is not required.

Progressive Rehabilitation

23. The Applicant shall rehabilitate the site progressively, that is, as soon as reasonably practicable following disturbance. All reasonable and feasible measures must be taken to minimise the total area exposed for dust generation at any time. Interim stabilisation measures must be implemented where reasonable and feasible to control dust emissions in disturbed areas that are not active and which are not ready for final rehabilitation.

Figure 6: Rehabilitation criteria listed in the Cooma Road Development Consent (SSD-5109).

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The site planted approximately 1500 trees in 2014 within the south-west overburden dump. All works were undertaken by Holcim staff with the assistance of the Upper Molonglo Creek Catchment Group and members of Greening Australia.

The works undertaken in 2014 covered approximately 1.6 hectares of disturbed area with planting consisting of native species (White Box and Yellow Box Gum) in accordance with the Cooma Road Rehabilitation Management Plan.

Other works undertaken throughout 2014 for rehabilitation included:

- Weed and feral species control/ elimination in the rehabilitated area.
- Erosion control.
- Fertilisation of rehabilitated areas.
- Re-seeding in areas as required.

Works undertaken by the site in 2014 have been in accordance with the Rehabilitation Management Plan (Cooma Road Rehabilitation Strategy for the next 3 Years) and the requirements of Condition 23 listed above.

Incidents & Complaints

The site received one complaint in 2014. This complaint was received from a neighbour who had contacted the EPA with concerns regarding a blast undertaken on June 11, 2014. The results from the blast are detailed in the table below:

Location	Sample Date	Overpressure	Vibration
Heffernan's House	11/06/2014	101.7	0.88

In response to this complaint staff undertook the following actions:

- The incident was logged in the Holcim Environmental Incident/ Reporting Database (INX).
- A review was undertaken of the blast from the day in question. All results from the day of the complaint were fouhd to be within the blast criteria specified in the EPL.
- A report issued by MAXAM found the blast to be in accordance with the environmental criteria that was designed into the blast plan.
- All data from the blast in question and the report issued by MAXAM were submitted to the EPA.

No further actions were required to be undertaken following the submission to the EPA. All local residents in close proximity to the quarry are notified on the day before each blast via email.

A copy of the INX report logged by Holcim is attached as Appendix 3 of this Annual Review.

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NON-COMPLIANCE ITEMS IN 2014

(c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;

Non-compliant items in 2014, associated with the Development Consent include:

Schedule 2, Condition 1: Monitoring of Product Transport

The Holcim Transport team are currently developing a report to capture all truck movements from the site over the 2014 period. This data was previously not available in the system to be published on the website and will be completed by May 1, 2016.

Schedule 3, Condition 4: Quarterly Noise Monitoring

Noise monitoring previously undertaken at the site does not meet the criteria of Development Consent for 15 minute continuous attended monitoring. This issue will be rectified in May 2016 with Quarterly noise monitoring to be undertaken by a qualified consultant and continued on a quarterly basis.

Schedule 3, Condition 14: HVAS Monitoring

Holcim have committed to the installation High Vol Air Sampler (HVAS) at the Cooma Road Quarry to satisfy this condition. This action will be completed following the a transfer of an available HVAS monitoring station from another Holcim site by June 30, 2016.

Schedule 3, Condition 17: Meteorological Monitoring

Holcim have committed to the installation of a weather station at the Cooma Road Quarry to satisfy this condition. This action will be completed following the a transfer of an available weather monitoring station from another Holcim site by June 30, 2016.

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TRENDS IN MONITORING DATA IN 2014

(d) identify any trends in the monitoring data over the life of the development;

Blasting

Monitoring data collected during blasts undertaken in 2014 has shown a consistent trend in within the criteria listed in the Development Consent and the EPL, with results not deviating substantially (refer to blast monitoring results graph below) between monitoring dates.

Overpressure results show a consistent trend over the past 12 months with no trend established over the 2013-14 period. 2 blasts undertaken during this period triggered “No Registered Result”. This reading was too small to register on the monitor and has been shown as result of zero on the graph.

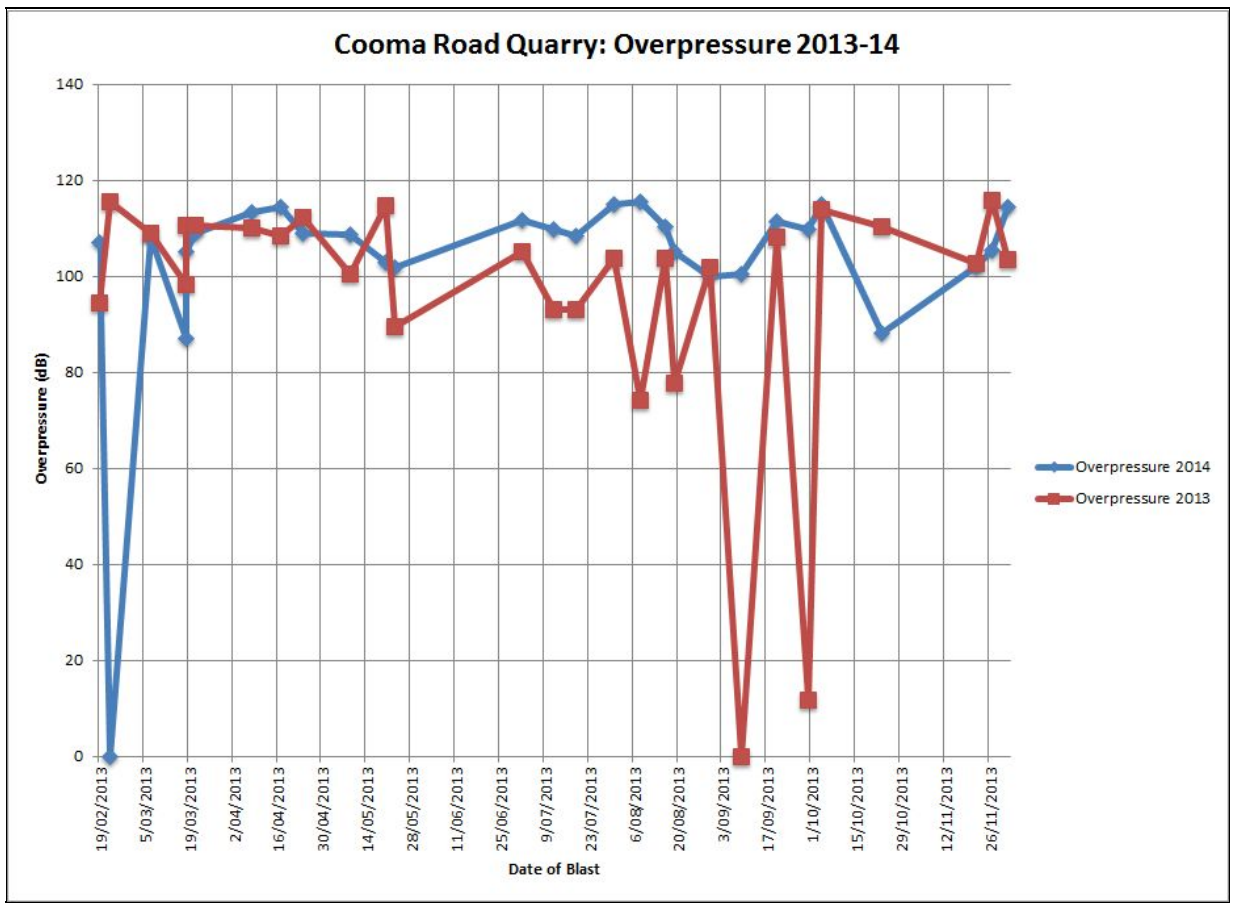

Figure 7: Cooma Road Blast Monitoring (Overpressure Results 2013-14).

This data is consistent with the predictions of the EIS as well as data collected in 2013. All data is consistent with the results that were predicted in 2012 with similar results expected in 2015.

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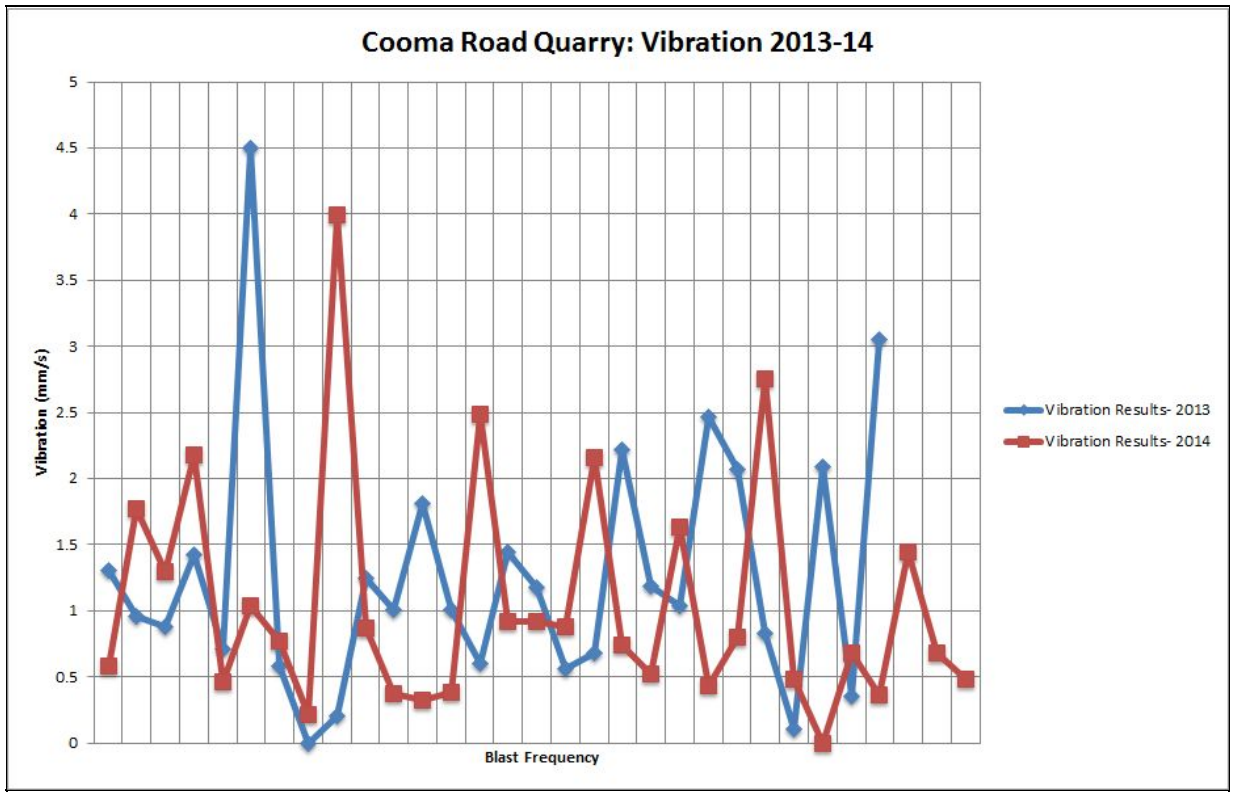

Figure 8: Cooma Road Blast Monitoring (Vibration Results 2013-14).

Vibration results in 2014 show no significant trends from results undertaken in the previous 12 months. The site has not registered a non-conformance against vibration criteria during the 2013-14 period.

Air Quality

Air monitoring data has shown a consistent trend in 2014, with results not deviating substantially (refer to air quality monitoring results graph below) between monitoring dates. The results at Dust Monitor 1 have shown an increase of Insoluble Solids at this location.

The increase of Insoluble Soilds at Dust Monitor 1 was identified in late 2014 and was found to be caused by the dry operation of the local streetsweeper who operates a weekly drive through at Cooma Road. The streetsweeper operates within close proximity to the monitor and was not using water with the brushes during road cleaning. This issue has now been rectified with the contractor and operations have seen a reduction in dust results at Monitor 1.

Holcim will ensure that all dust control measures specified in the Air Quality Management Plan are installed to ensure that the site is operating in accordance with the Development Consent. In accordance with the conditions of the Consent, the site will install a meterological weather station and HVAS to measure Total Suspended Particulate and PM10 levels within the Quarry.

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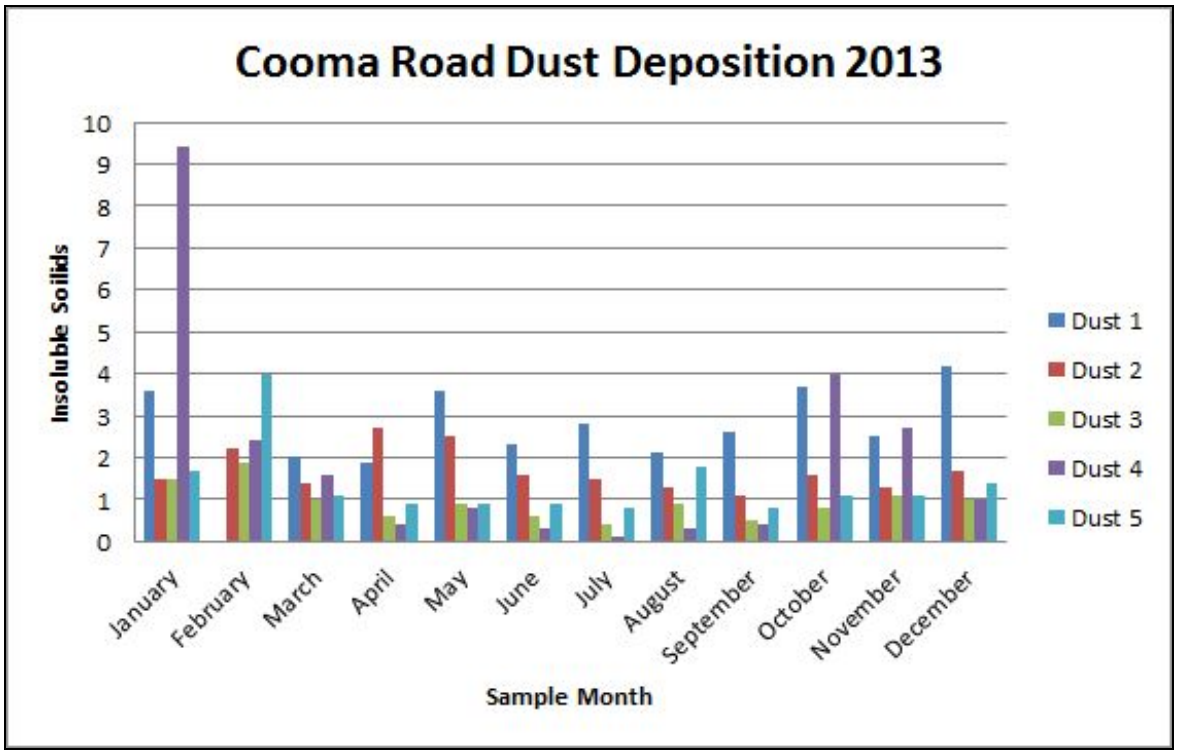

Figure 9: Cooma Road Dust Depostion Results 2013.

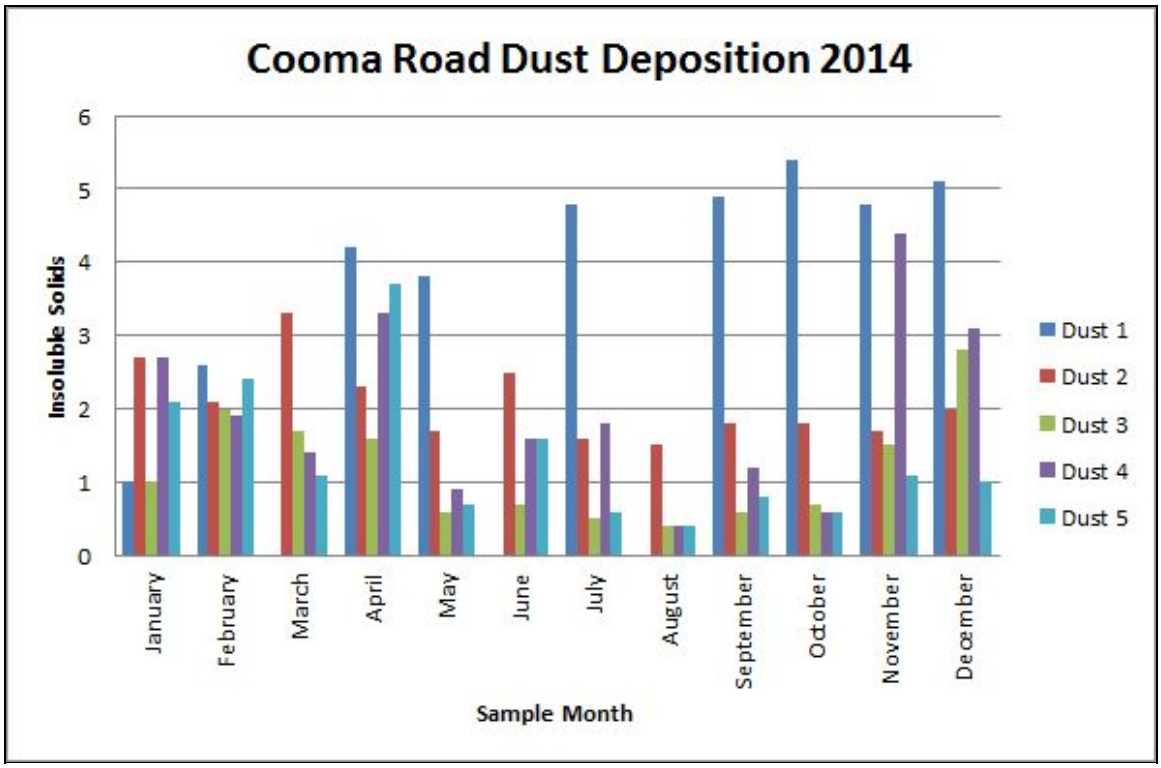

Figure 10: Cooma Road Dust Depostion Results 2014.

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Water Quality

Water monitoring data has shown a consistent trend in 2014, with results not deviating substantially (refer to water monitoring results graph below) between monitoring dates over the past 12 months.

The range for pH has remained steady within the 6.5-8 pH range since monitoring was undertaken in accordance with the new Development Consent. The trend in data over this period has shown no change in the expected pH range in Barracks Creek.

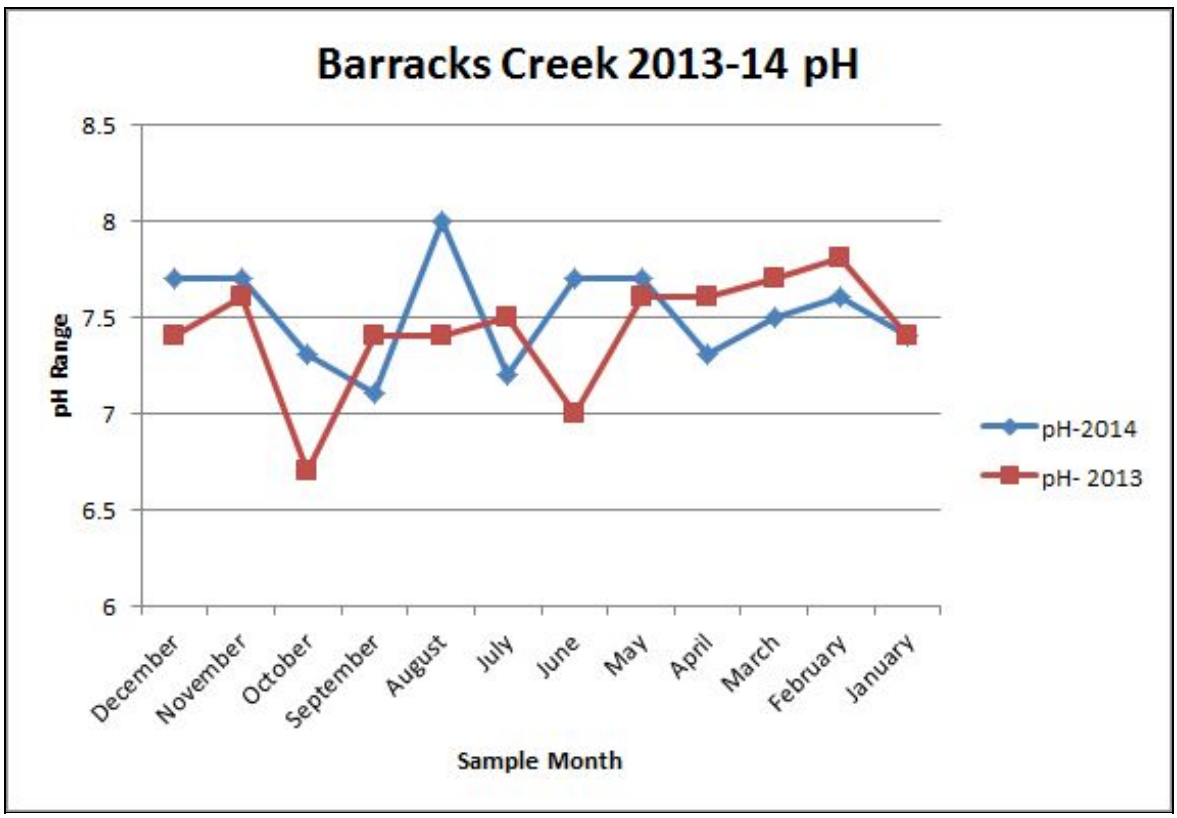

Figure 11: Cooma Road Water Monitoring (Barracks Creek pH 2013-14).

Data collected for Suspended Solids in Barracks Creek showed a consistent trend from 2013 to 2014. All results collected for this period (see graph below) found no exceedances in criteria with only 1 spike in October 2014.

This increase during October 2014 has been attributed to upstream activities in Barracks Creek and was not caused by activities at the Quarry. No discharges occured during 2014 with all water was contained onsite within the Quarry at the SIP dam, Granite pit and Dacite pits.

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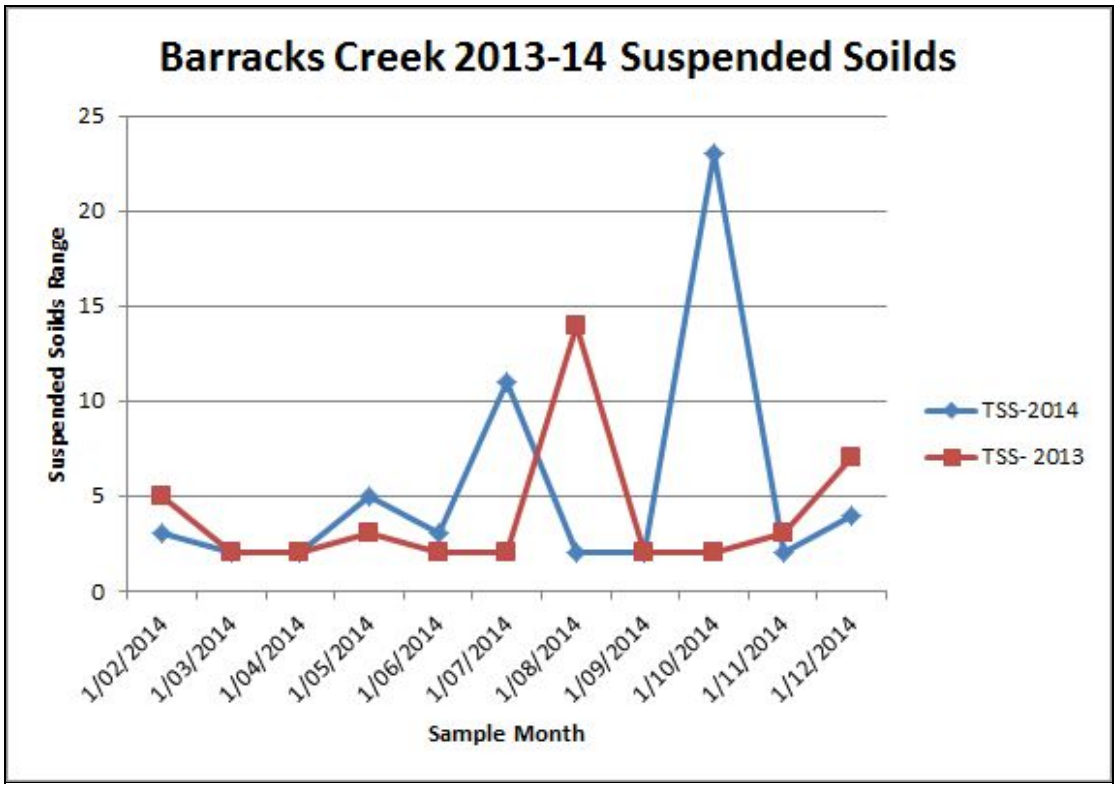

Figure 11: Cooma Road Water Monitoring (Barracks Creek Suspended Solids 2013-14).

Oil and Grease were also measured each month as part of the water monitoring criteria listed in the Development Consent. All results from monitoring undertaken in 2014 were found to be <1. This result is consistent with monitoring undertaken in 2013 and is consistent with the predicted results in the EIS.

Heritage

Environmental monitoring data shows no change to the Kiln site in 2014, with results not deviating from previous surveys undertaken or any signs of deterioration. Holcim will continue to monitor this site at 6 monthly intervals to ensure that operations do not cause damage or further deterioration to the Moses Morley Kiln.

Predicted and Actual Impacts in 2014

(e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and

The correlation between actual environmental impacts (ie – monitoring results) and predicted impacts (as per the 2013 EIS) have shown that the site is operating in accordance with the expected impacts documented in the EIS.

Further assessment on the predicted and actual impacts will be undertaken in the 2015 Annual Review when the environmental monitoring network has been established.

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Environmental monitoring results from 2014 are in line with results from previous years. There were no significant discrepancies with the data captured compared to the predicated results in the 2013 EIS.

ENVIRONMENTAL IMPROVEMENT MEASURES 2015

(f) describe what measures will be implemented over the current calendar year to improve the environmental performance of the development.

- Completion of the Cooma Road Management Plans.
- Completion of Independent Environmental Audit of the site, with submission of findings (including recommended measures and improvement actions) by 30 September 2016.
- Establishment and holding of the Cooma Road Community Consultation Committee.
- Monitoring and maintenance of the rehabilitation undertaken in 2014.

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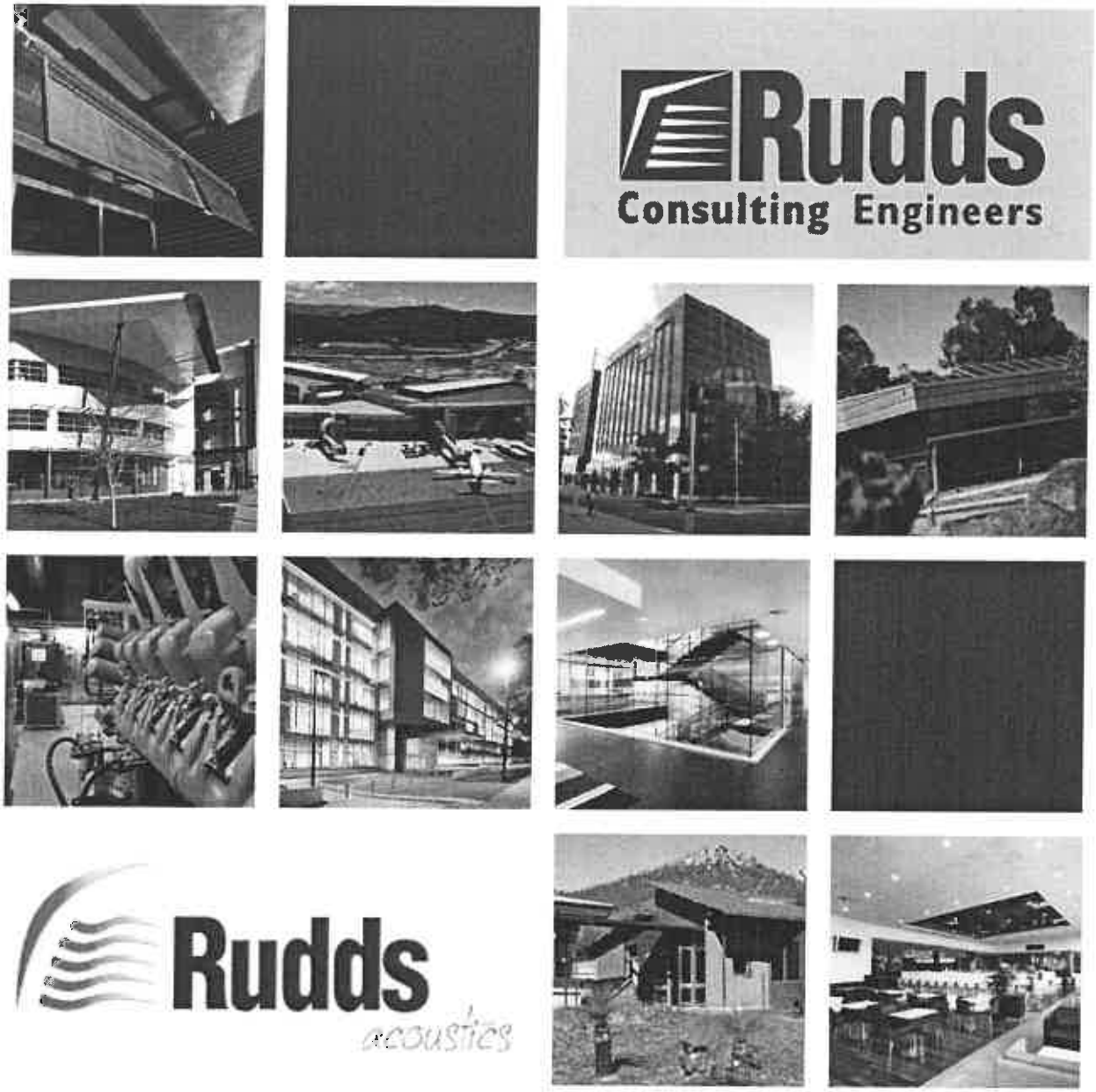
Appendix 1: Independent Road Noise Survey (Rudd Acoustics 2014)



Rudds
Consulting Engineers

Rudds
acoustics

Road Traffic Nose Assessment Report

Cooma Road Quarry

Report Number: R146469AC R0 14-07-22

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Rev No	Reason for Issue	Author		Approver for Issue	
		Name	Date	Name	Date
00	For Information	Chris Hang	22 July 2014	Jerremy Lofts	22 July 2014

This report has been prepared in accordance with the scope of services described in the contract or agreement between Rudds Consulting Engineers Pty Ltd ABN 16 054 221 162 (Rudds) or Rudds Acoustics Pty Ltd ABN 41 147 203 610 and the client. The report relies upon data, surveys, measurements and results taken at or under the particular times and conditions specified herein. Any findings, conclusions or recommendations only apply to the aforementioned circumstances and no greater reliance should be assumed or drawn by the client. Furthermore, the report has been prepared solely for use by the client and Rudds accepts no responsibility for its use by other parties.

Contents

Section 1 - Introduction

Holcim (Australia) Pty Ltd (Holcim Australia) operates Cooma Road Quarry, an existing hard rock quarry located approximately 6 kilometres south of Queanbeyan, New South Wales (NSW). Holcim Australia was granted a Development Consent under Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act) on 27 September 2013 by the NSW Minister for Planning and Infrastructure.

In accordance with Condition 8 of Schedule 3 of the Comma Road Quarry Development Consent, Holcim are required to:

'within 6 months from the date of this consent, the Applicant shall commission a suitably qualified person, to conduct an independent Road Noise Audit of the Edwin Land Parkway. This audit must:

(a) be undertaken in consultation with Council and the EPA;
(b) assess the noise generated by heavy vehicles generated by the development on the Edwin Land Parkway against the relevant criteria under the NSW Road Noise Policy; and
(c) consider whether additional mitigation measures are required to address any potential exceedances under the criteria specified in the NSW Road Noise Policy,

to the satisfaction of the Director-General. '

Rudds Acoustics Pty Ltd (Rudds) is pleased to provide the acoustic service for assessing the road traffic noise on the Edwin Land Parkway.

Section 2 - Acoustic Requirements

2.1 Road Traffic Noise

The NSW Road Noise Policy (RNP) was introduced on 1 July 2011 to replace the Environmental Criteria for Road Traffic Noise (ECRTN). The RNP provides strategies to address road traffic noise, determines different road categories and defines clear criteria for each of the road categories. The document also defines the management responsibility that applies to each road category as follows:

1. State government is responsible for freeways, motorways and arterial roads
2. Local councils are responsible for sub-arterial roads and local roads.

Table 1 contains road traffic noise assessment criteria for residential land uses. This assessment is a façade corrected criteria when measured at 1 metre from the most exposed façade of the building.

TABLE 1 ROAD TRAFFIC NOISE ASSESSMENT CRITERIA FOR RESIDENTIAL LAND USES

Road Category	Type of project and land use	Assessment Criteria - dB(A)	
		Day (7 a.m.-10 p.m.)	Night (10 p.m.-7 a.m.)
Freeway/ arterial/ sub-arterial roads	1. Existing residences affected by noise from **new** freeway/arterial/sub-arterial road corridors	$L_{Aeq(15\ hour)}$ 55 (external)	$L_{Aeq(9\ hour)}$ 50 (external)
	2. Existing residences affected by noise from **redevelopment** of existing freeway/arterial/sub-arterial roads	$L_{Aeq(15\ hour)}$ 60 (external)	$L_{Aeq(9\ hour)}$ 55 (external)
	3. Existing residences affected by **additional traffic** on existing freeway/arterial/sub-arterial roads generated by land use developments		
Local Roads	4. Existing residences affected by noise from **new** local road corridors	$L_{Aeq(1\ hour)}$ 55 (external)	$L_{Aeq(1\ hour)}$ 50 (external)
	5. Existing residences affected by noise from **redevelopment** of existing local roads		
	6. Existing residences affected by **additional traffic** on existing local roads generated by land use developments		

(Source: NSW Road Noise Policy, Page 11, Table 3)

In addition to the requirements outlined in Table 1, there are two specific "relative" road traffic noise increase criteria. These are described as follows:

1. Any increase in road traffic noise from an existing or proposed freeway/ arterial/ sub-arterial road or transitway must not exceed 12 dB. For the purpose of determining the relative increase, any existing noise level below 30 dBA is deemed to be 30 dBA.
2. Wherever the road traffic noise level without the development is within 2 dB of, or exceeds, the relevant day or night assessment criterion, the increase in road traffic noise as a result of the development must not exceed 2 dB above the existing road traffic noise level.

Where the criteria are exceeded it does not automatically mean the development cannot go ahead. It means that careful and thorough consideration of feasible and reasonable noise mitigation options must be undertaken in order to reduce the acoustic impact of the development.

In this case, Cooma Road Quarry is a land use development and will generate addition traffic on its haul route. Edwin Land Parkway is considered as an arterial road and used by Cooma Road Quarry for truck movement on public road. Thus, the development will result in **additional traffic** on Edwin Land Parkway. The noise criteria in Table 2 are applied.

TABLE 2 PROJECT SPECIFIC NOISE CRITERIA

Road Category	Type of project and land use	Assessment Criteria - dB(A)	
		Day (7 a.m.-10 p.m.)	Night (10 p.m.-7 a.m.)
Freeway/ arterial/ sub-arterial roads	Existing residences affected by **additional traffic** on existing freeway/arterial/sub-arterial roads generated by land use developments	$L_{Aeq(15\ hour)}$ 60 (external)	$L_{Aeq(9\ hour)}$ 55 (external)

The RNP also specifies the nominated locations for assessment and is re-produced in Table 3.

TABLE 3 ASSESSMENT LOCATIONS FOR EXISTING LAND USES

Assessment Type	Assessment Location
External noise levels at residence	The noise level should be assessed at 1 metre from the façade and a height of 1.5 metres from the floor. Separate noise criteria should be set and assessment carried out for each façade of a residence, except in straightforward situations where the residence façade most affected by road traffic noise can be readily identified. The residential noise level criterion includes an allowance for noise reflected from the façade (façade correction). Therefore, when taking a measurement in the free field where reflection during measurement is unlikely (as, for instance, when measuring on open land before a residence is built), an appropriate correction – generally 2.5 dB – should be added to the measured value. The façade correction should not be added to measurement taken 1 metre from the façade of an existing building. Free field measurements should be taken at least 15 metres from any wall, building or other reflecting pavement surfaces on the opposite side of the roadway, and at least 3.5 metres from any wall, building or other pavement surface, behind or at the sides of the measurement point which would reflect the sound.

Section 3 - Methodology

3.1 Road Traffic Noise Monitoring

Long term noise logging was undertaken at three residential sites along Edwin Land Parkway. They are:

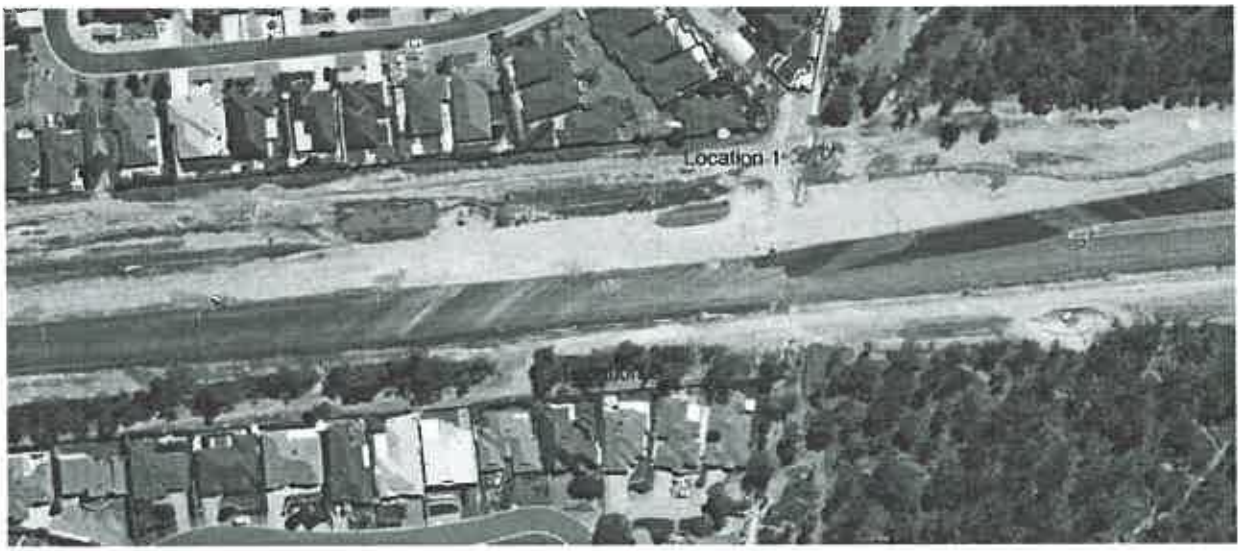
1) 7/36 Pannamena Crescent, Jerrabomberra NSW from 1 May to 13 May 2014
   At this location, due to the close distance between the fence and the façade affected by the road traffic noise, the microphone is place on top of the fence. The fence is 1.8 m high fence.
2) 21 Macadamia Close, Jerrabomberra NSW from 1 May to 13 May 2014
   At this location, the microphone is placed 1 metre from façade and 1.5 metres above the ground. There is a concrete panel noise wall which is approximately 2 metres high at the residential block boundary facing Edwin Land Parkway. On top of that solid wall, there is a glazing section about 1 metre high.
3) 17 Nimbus Place, Karabar NSW from 15 May to 23 May 2014
   At this location, it is difficult to place the microphone 1 metre from façade and 1.5 metres above the ground without disturbing the normal living of the residence. Therefore the microphone is place on top of the 2.4 metres high wood fence. Short term attended measurements were conducted by placing the microphone on tope of the fence and 1 metre from façade and 1.5 metres above the ground for comparison on 15 May.

The equipment used for long term noise logging and short term attended measurement is as following,

1. ARL Model EL-316 type 1 noise logger Serial No. 16-207-006
2. ARL Model EL-316 type 1 noise logger Serial No. 16-004-036
3. Larson Davis Model 831 Type 1 Sound Level Metre Serial No. 0002412
4. Larson Davis model Cal200 type 1 acoustic calibrator Serial No. 8102

Figure 1 and Figure 2 show the monitoring location with the background aerial photo obtained from a government website.

FIGURE 1 MONITORING LOCATIONS 1 AND 2



(Source: www.actmapi.act.gov.au)

FIGURE 2 MONITORING LOCATION 3

(Source: www.actmapi.act.gov.au)

Operator attended noise monitoring was conducted on Tuesday 13 May 2014 besides the Edwin Land Parkway. The measurement location is about 8 metres from the road line mark on the north side where the road is generally slope up from east to west.

The equipment used for short term attended measurement is as following,

1. Larson Davis Model 831 Type 1 Sound Level Metre Serial No. 0002412
2. Larson Davis model Cal200 type 1 acoustic calibrator Serial No. 8102

The calibration levels of the noise logger and sound level meter were checked before and after the measurement. No significant drift was observed. The equipment used above holds valid NATA calibration certification. The certificates are available upon request.

Section 4 - Results and Assessment

4.1 Long-Term Road Traffic Noise Monitoring

Weather data was obtained from Bureau of Meteorology Australia from the Canberra Airport weather station. All data where 15-minute average wind speeds exceed 5 m/s and where there was any rainfall have been excluded from the results in accordance with INP methodology.

Table 4 lists the measured noise levels at the monitoring locations after weather exclusion has been undertaken. The long term noise logging results are attached in Appendix C. From Table 4, it can be seen that the measured noise levels at 3 locations comply with the criteria.

TABLE 4 LONG-TERM NOISE LOGGING RESULTS

Location	Road Traffic Noise Level, L_{Aeq}, dB		Road Traffic Noise Criteria		Complies with Criteria?	
	Day (7 a.m.-10 p.m.)	Night (10 p.m.-7 a.m.)	Day (7 a.m.-10 p.m.)	Night (10 p.m.-7 a.m.)		
Location 1 7/36 Pannamena Crescent	56	48	$L_{Aeq(15\ hour)}$ 60 (external)	$L_{Aeq(9\ hour)}$ 55 (external)	Yes	Yes
Location 2 21 Macadamia Close	54	41			Yes	Yes
Location 3 17 Nimbus Place	53	46			Yes	Yes

As discussed previously, the noise monitoring was undertaken at the top of the fence for location 1, 7/36 Pannamena Crescent and Location 3, 17 Nimbus Place. In both cases, the fence will be providing shielding to the properties, so the actual noise level at 1.5 metres above ground level will be lower than reported in Table 4.

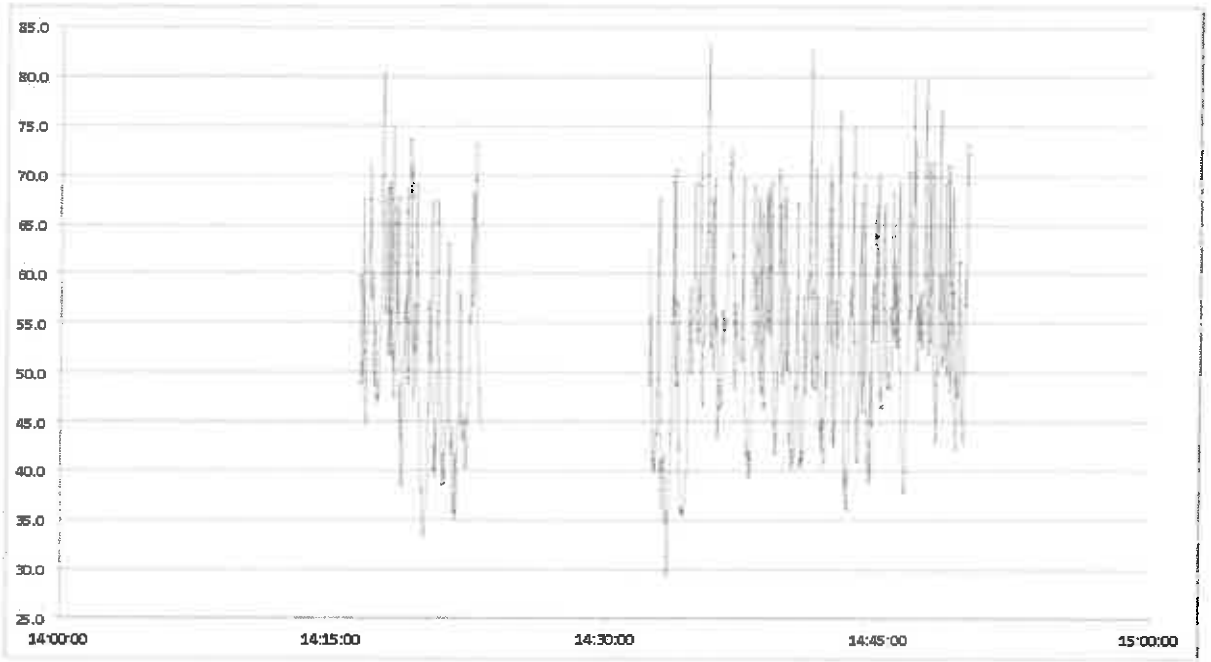
4.2 Short-Term Road Traffic Noise Monitoring

4.2.1 Besides the Road

Operator attended noise monitoring was conducted on Tuesday 13 May 2014 besides the Edwin Land Parkway. Figure 4 contains the results of the attended noise measurement at 8 metres from the edge of road line mark and 1.5 metres above ground.

FIGURE 3 SHORT-TERM NOISE SURVEY – ROAD SIDE, EDWIN LAND PARKWAY

Noise Measurement Results – Tuesday 13 May 2014, 14:16pm to 14:50pm



Measured Statistical Noise Levels (dBA)

L_{90}	L_{eq}	L_{10}	L_1
41	63	67	75

Comments:

During this measurement period, traffic noise on Edwin Land Parkway was dominant at the measurement location. When no traffic on Edwin Land Parkway, the ambient noise level was down to as low as 30 dBA. The noise peaks were due to truck pass-bys.

4.2.2 Within the Backyard of 17 Nimbus Place, Karabar NSW

Short term attended measurements were conducted by placing the microphone on top of the fence and 1 metre from façade and 1.5 metres above the ground for comparison on 15 May.

Table 5 lists the measured noise levels on top of the fence and 1 metre from façade and 1.5 metres above the ground. During this measurement period, traffic noise on Edwin Land Parkway was dominant at the measurement location. When no traffic on Edwin Land Parkway, urban noise was audible such as bird calls and dog barks. One aircraft noise event occurred within this measurement period. Figure 4 contains the results of the attended noise measurement at 1 metre from façade and 1.5 metres above ground.

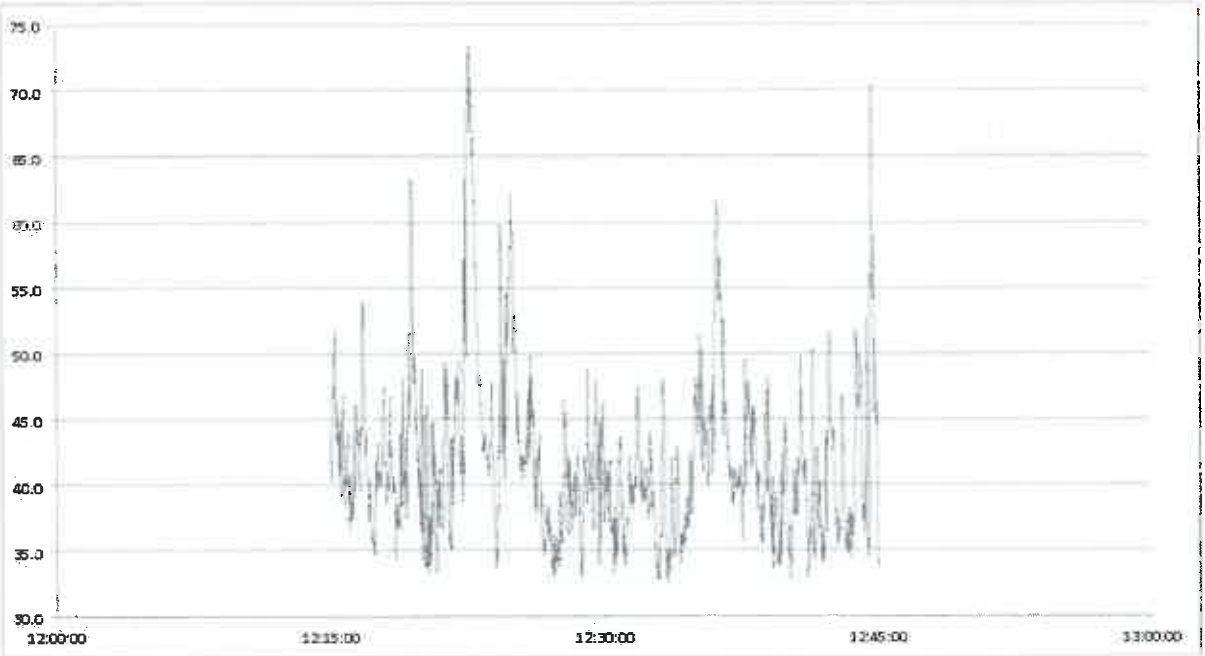
TABLE 5 SHORT-TERM NOISE SURVEY RESULTS

Location	Road Traffic Noise Level from 12:15pm to 12:45pm, L_{Aeq} dB
On top of the fence	55
1 metre from façade and 1.5 metres above ground	53
Difference	2

From Table 5, it is safe to conclude that the logging results for 17 Nimbus Place in Table 4 should be deducted by 2 dB to reflect the noise levels at 1 metre from façade and 1.5 metres above the ground. With the logging results in Table 4 comply with the criteria, it can be concluded that the noise levels at 1 metre from façade and 1.5 metres above the ground will comply with the criteria.

FIGURE 4 SHORT-TERM NOISE SURVEY – 17 NIMBUS PLACE, KARABAR NSW

Noise Measurement Results – Thursday 15 May 2014, 12:15pm to 12:45pm



Measured Statistical Noise Levels (dBA)

L_{90}	L_{eq}	L_{10}	L_1
35	53	50	68

Comments:

Usually, for constant traffic flow, the L_{A10} is about 2 to 3 dB higher than L_{Aeq}. However, the traffic flow on Edwin Land Parkway was intermittent during the measurement period and contained a large portion of heavy traffic. Thus, in this situation, the L_{Aeq} was higher than L_{A10}. The noise peaks were due to traffic pass-bys. The highest peak was due to a very noisy truck pass-by.

4.3 Truck Despatch Analysis

A truck despatch log in May 2014 was obtained from the Quarry operator. Table 6 shows the despatch log for truck departures from Cooma Road Quarry.

Rudds has been told that the log has been developed based off a site ticketing system, whereby the truck drivers receive a ticket prior to leaving and the time of receipt is recorded on the ticket. As a result of this process, tickets may be received at an earlier time than the physical departure of the truck, e.g. trucks are not allowed to leave site prior to 6am, so all truck departure times shown in Table 6 as leaving prior to 6am will not have physically left the site until after 6 am in the morning. Another example is that the driver may receive the ticket following loading, then stop to have a meal break prior to departing the site.

TABLE 6 TRUCK DESPATCH LOG IN MAY

Day	3am - 4am	4am - 5am	5am - 6am	6am - 7am	7am - 8am	8am - 9am	9am - 10am	10am - 11am	11am - Noon	Noon - 1pm	1pm - 2pm	2pm - 3pm	3pm - 4pm	4pm - 5pm	Total Loads
1/5	0	0	0	5	10	20	11	23	17	21	17	21	19	5	169
2/5	0	0	0	13	9	9	9	13	9	10	7	13	11	1	104
3/5	0	0	0	1	0	4	0	4	6	0	0	0	0	0	15
6/5	0	0	0	13	15	15	12	16	14	10	11	13	2	0	121
7/5	0	3	7	0	6	11	9	11	11	13	8	14	1	0	94
8/5	0	0	10	14	11	8	5	10	7	6	4	11	11	3	100
9/5	0	0	0	17	10	10	7	10	9	11	7	14	10	3	108
10/5	0	0	10	4	14	8	11	14	9	12	3	10	7	1	103
12/5	0	0	0	19	9	12	5	7	11	8	3	9	11	7	101
13/5	0	8	2	9	12	10	8	8	11	11	7	9	6	0	101
14/5	0	1	10	8	14	12	10	14	11	8	12	11	4	0	115
15/5	0	0	9	13	14	13	13	13	17	12	15	21	9	8	157
16/5	0	0	4	12	14	16	13	17	18	15	11	20	8	1	149
17/5	0	0	0	2	0	2	1	1	0	0	0	0	0	0	6
19/5	0	0	1	12	11	10	13	9	12	17	10	18	14	6	133
20/5	0	4	3	15	12	20	20	21	24	16	15	20	14	0	184
21/5	0	6	6	15	16	21	16	20	21	6	4	20	17	3	171
22/5	0	17	0	13	17	16	19	19	18	19	15	18	20	0	191
23/5	0	6	6	12	14	22	16	19	19	17	15	19	11	1	177
24/5	0	0	6	3	11	7	7	10	7	0	0	0	0	0	51
26/5	0	1	6	18	17	21	12	26	19	27	18	14	0	0	179
Loads/ Hr	0	46	80	218	236	267	217	285	270	239	182	275	175	39	2529

Table 7 shows the A-weighted sound exposure levels for truck pass-by's measured at 8 metres from the edge of road line mark on 13 May 2014.

TABLE 7 A-WEIGHTED SOUND EXPOSURE LEVELS FOR TRUCK PASS-BYS

	A-weighted Sound Exposure Level, L_{AE}, dBA			
	Event 1	Event 2	Event 3	Average
Truck loaded up the hill on the west-bound lane	76.1	78.1	80.0	78.4
Truck unloaded down the hill on the east-bound lane	85.3	81.5	81.5	83.2

The truck despatch log in Table 6 only counted the trucks leaving the Quarry. To calculate the truck noise contribution to the road traffic noise, Rudds have assumed the same number of truck returns to the Quarry during the same time period. Rudds also assumed that the all the despatch trucks and return trucks were utilising Edwin Land Parkway as the haul route. This is likely to be an over-estimate of actual truck numbers along Edwin Land Parkway and is considered to be a conservative assumption for assessment purposes. Truck contribution at 8 metres from the edge of road line mark has been calculated and listed in Table 8.

TABLE 8 TRUCK CONTRIBUTION TO THE ROAD TRAFFIC NOISE AT 8 METRES

Date	15 hours	9 hours	$L_{Aeq(15\ hour)}$, dBA	$L_{Aeq(9hour)}$, dBA
1/05/2014	164	5	59	46
2/05/2014	91	13	57	50
3/05/2014	14	1	49	39
6/05/2014	108	13	57	50
7/05/2014	84	10	56	49
8/05/2014	76	24	56	53
9/05/2014	91	17	57	52
10/05/2014	89	14	57	51
12/05/2014	82	19	56	52
13/05/2014	82	19	56	52
14/05/2014	96	19	57	52
15/05/2014	135	22	58	53
16/05/2014	133	16	58	51
17/05/2014	4	2	43	42
19/05/2014	120	13	58	50
20/05/2014	162	22	59	53
21/05/2014	144	27	59	54
22/05/2014	161	30	59	54
23/05/2014	153	24	59	53
24/05/2014	42	9	53	49
26/05/2014	154	25	59	53
Average	104	16	57	51

As discussed previously, this is the truck noise level at 8 metres from the road with no shielding. The truck contribution at the logger locations is lower than this and has been calculated and listed in Table 9 by taking the setback distance into consideration.

TABLE 9 TRUCK CONTRIBUTION AT THE LOGGER LOCATION

Location	Truck Contribution, L_{Aeq}, dB		Road Traffic Noise Criteria		Complies with Criteria?	
	Day (7 a.m.-10 p.m.)	Night (10 p.m.-7 a.m.)	Day (7 a.m.-10 p.m.)	Night (10 p.m.-7 a.m.)	Day (7 a.m.-10 p.m.)	Night (10 p.m.-7 a.m.)
Location 1 7/36 Pannamena Crescent	50	44	$L_{Aeq(15\ hour)}$ 60 (external)	$L_{Aeq(9\ hour)}$ 55 (external)	Yes	Yes
Location 2 21 Macadamia Close	48	37			Yes	Yes
Location 3 17 Nimbus Place	47	42			Yes	Yes

Section 5 - Conclusion

Rudds has undertaken an acoustic assessment for the road traffic noise on Edwin Land Parkway. Due to the development of Cooma Road Quarry, additional heavy vehicle traffic was generated on Edwin Land Parkway.

The following has been considered as part of the assessment:

1. Holcim Cooma Quarry Operational Licence Conditions of Consent relating to road traffic noise.
2. The NSW Road Noise Policy

Based upon the findings of this assessment, the requirements of this document were achieved.

We trust this information meets your current requirements. If you have any questions I can be contacted on 02 6240 2979 or 0430 911 827

Sincerely,

Chris Hang PhD. ME. BE. M.A.A.S.

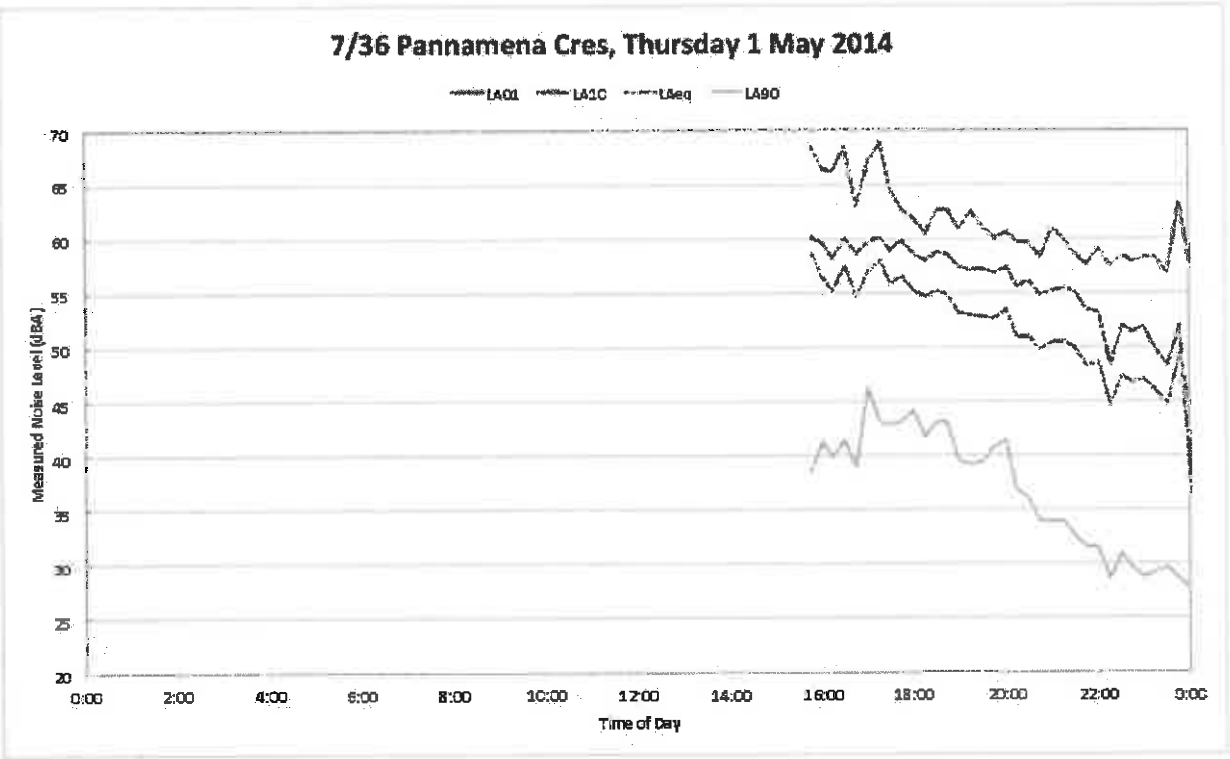
Section 6 - Appendices

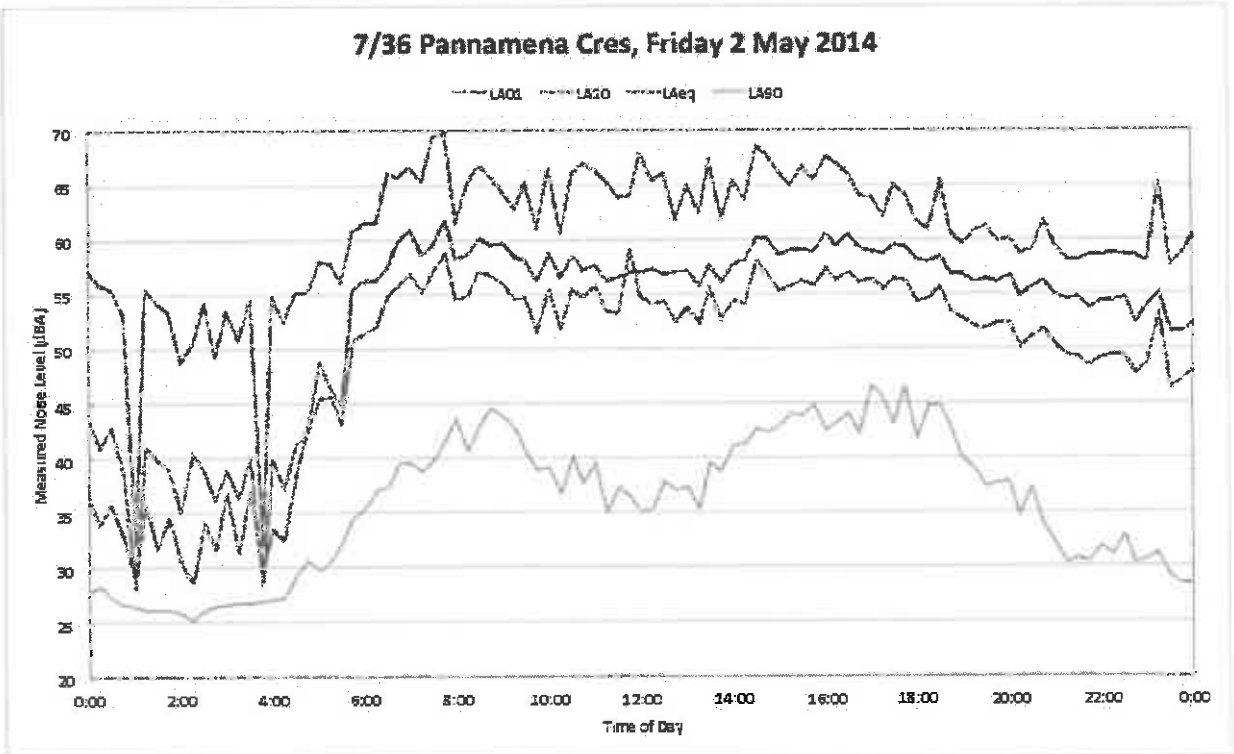
Appendix A Glossary of Terms

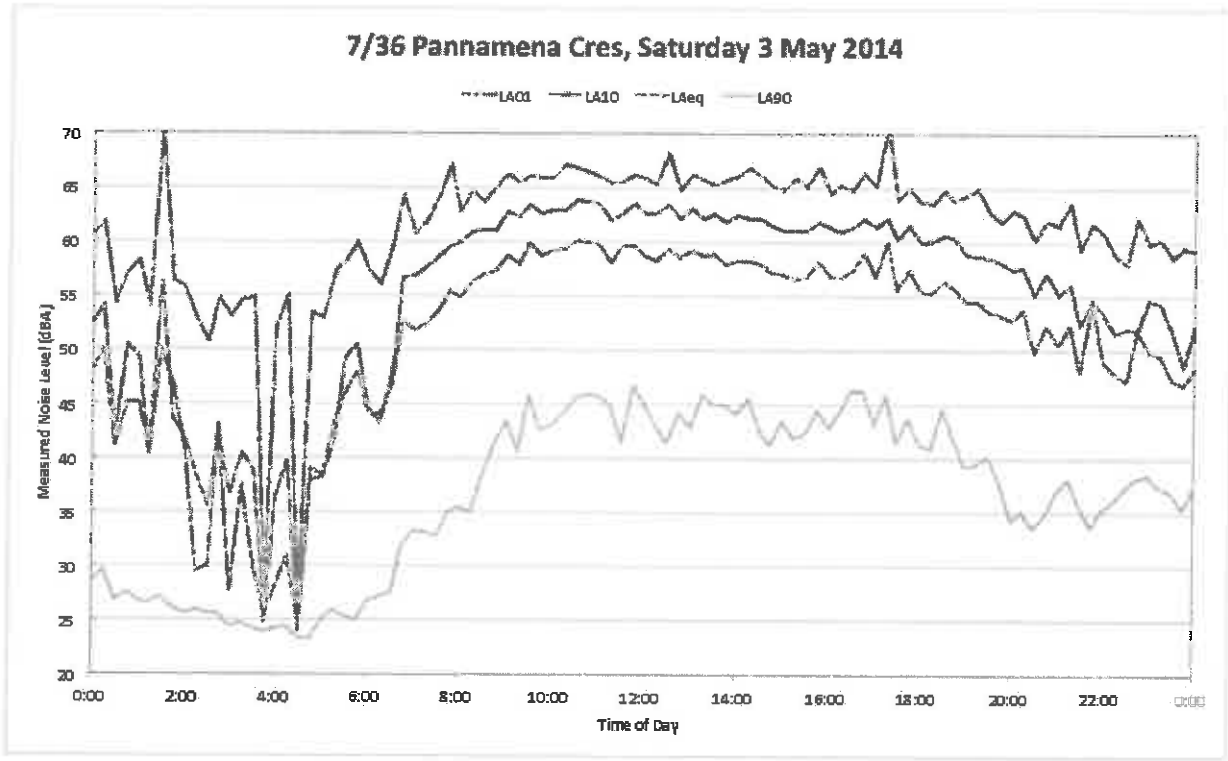
dB	Decibel. This is the unit measurement of sound.
dBA	A weighted decibel is the most commonly used descriptor. The A weighting is an adjustment to the raw sound level to approximate what the a verage human ear can hear, which is less sensitive at very low and very high frequencies.
Lw or SWL	Sound power level. This is the total radiated sound energy.
Lp or SPL	Sound pressure level. This is the measurable sound level at a given distance from an item.
L_{max}	The RMS maximum noise level of a measurement
L_{10}	90^{th} percentile sound level of a measurement. Often called the average maximum noise level
L_{eq}	The energy average noise level of a measurement.
L_{90}	10^{th} percentile sound level of a measurement. Often called the average background noise level
L_{min}	The minimum noise level of a measurement
$L_{eq(T)}$	The time (T) equivalent energy noise level. The time interval is often in blocks of 10 or 15 minutes for short term measurements, or hours for long-term measurements. Common increments for long term measurements are 1 hour, day, night, 18 hours and 24 hours.
$L_{eq(8h)}$	The 8 hour equivalent energy noise level. Primarily used for occupational noise assessments
LC_{peak}	The C weighted peak noise level. Primarily used for occupational noise assessments
Dw	The Weighted Level Difference as defined in AS/NZS ISO 717.1:2004. This is the single number rating describing the ability of a partition to reduce noise as measured in the field with no standardisation or normalisation.
Rw	The Weighted Sound Reduction Index. This is the single number rating describing the ability of a building element to reduce noise as measured in a laboratory. Assessed in accordance with AS/NZS ISO 717.1:2004.
NRC	Noise Reduction Coefficient. The NRC defines how much sound is absorbed by a surface. An NRC of 0 means it absorbs no sound while an NRC of 1 means it will absorb most sound.
CAC	Ceiling Attenuation Class. The CAC determines how much cross-talk will occur between one room and another through the ceiling cavity where both rooms have the tested ceiling tile. This is an ideal situation, with no wall head leaks and no services penetrations in the ceiling. Therefore, it defines the ideal, best possible result as tested in a laboratory.

Appendix B Long Term Logging Results

B.1 7/36 Pannamena Crescent, Jerrabomberra NSW






7/36 Pannamena Cres, Saturday 3 May 2014
LA01
LA10
LAeq
LA90
Measured Noise Level [dBA]
70
65
60
55
50
45
40
35
30
25
20
0:00
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14:00
16:00
18:00
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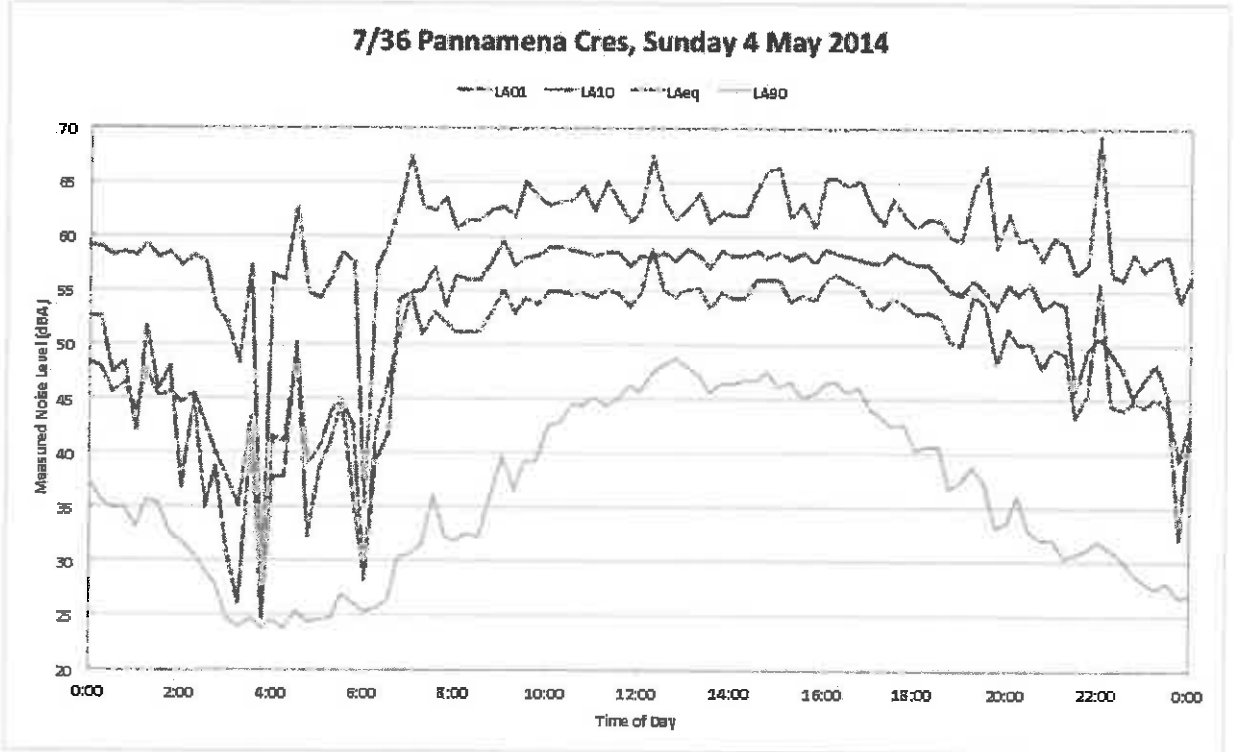
22:00
Time of Day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LA10
LAeq
LA90
Measured Noise Level [dBA]
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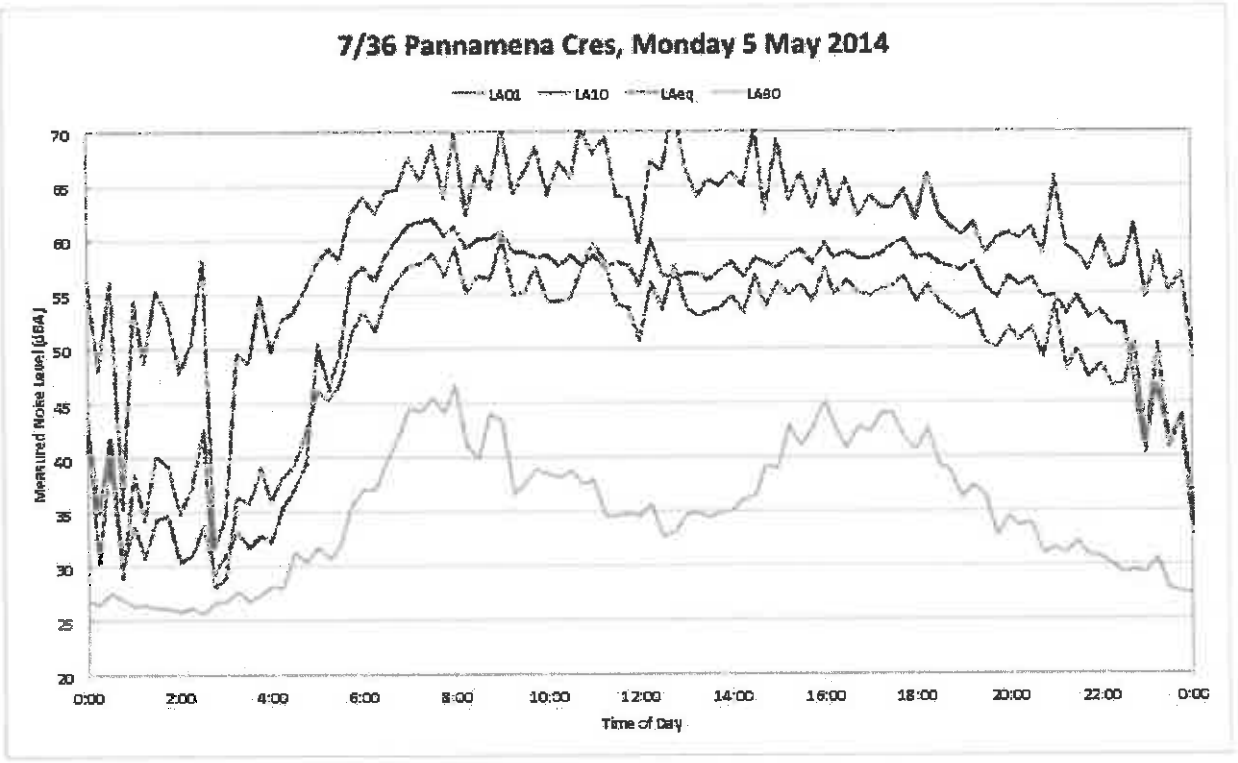
Time of Day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LAeq
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Measured Noise Level (dBA)
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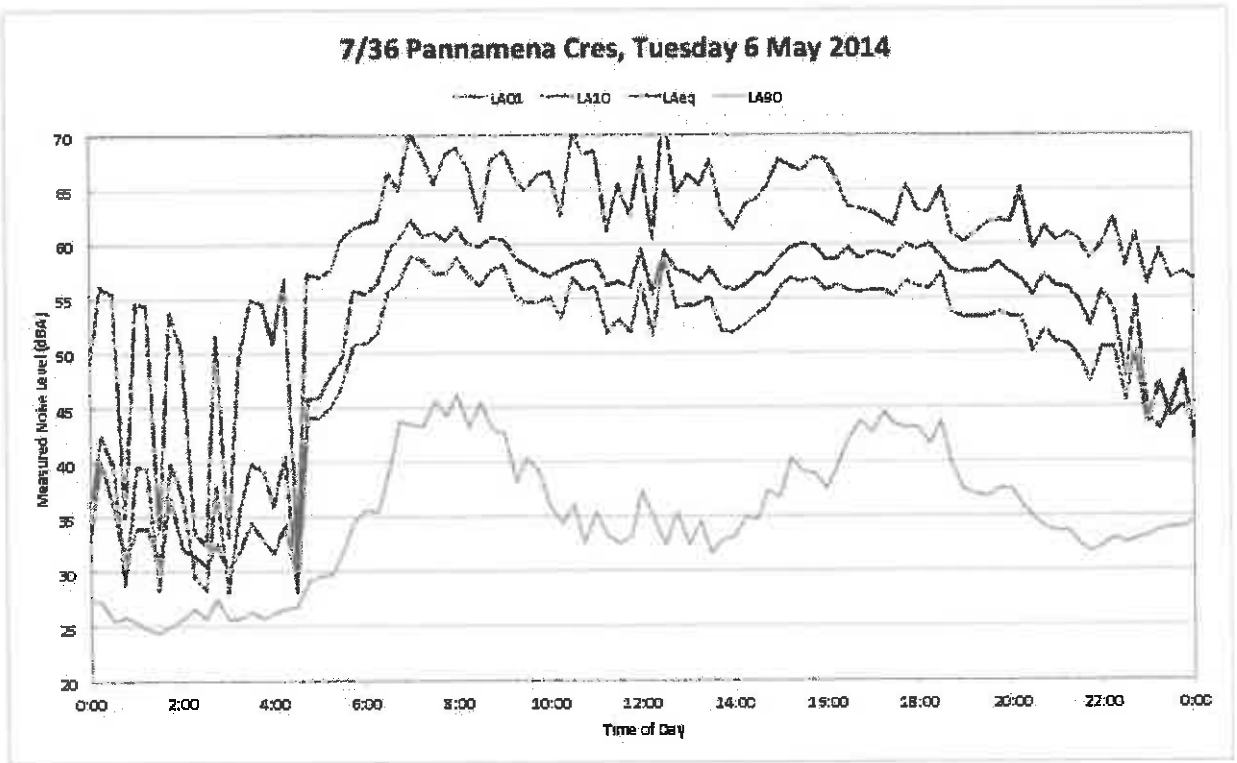
0:00
Time of Day


7/36 Pannamena Cres, Tuesday 6 May 2014
LA01
LA10
LAeq
LA90
Measured Noise Level (dBA)
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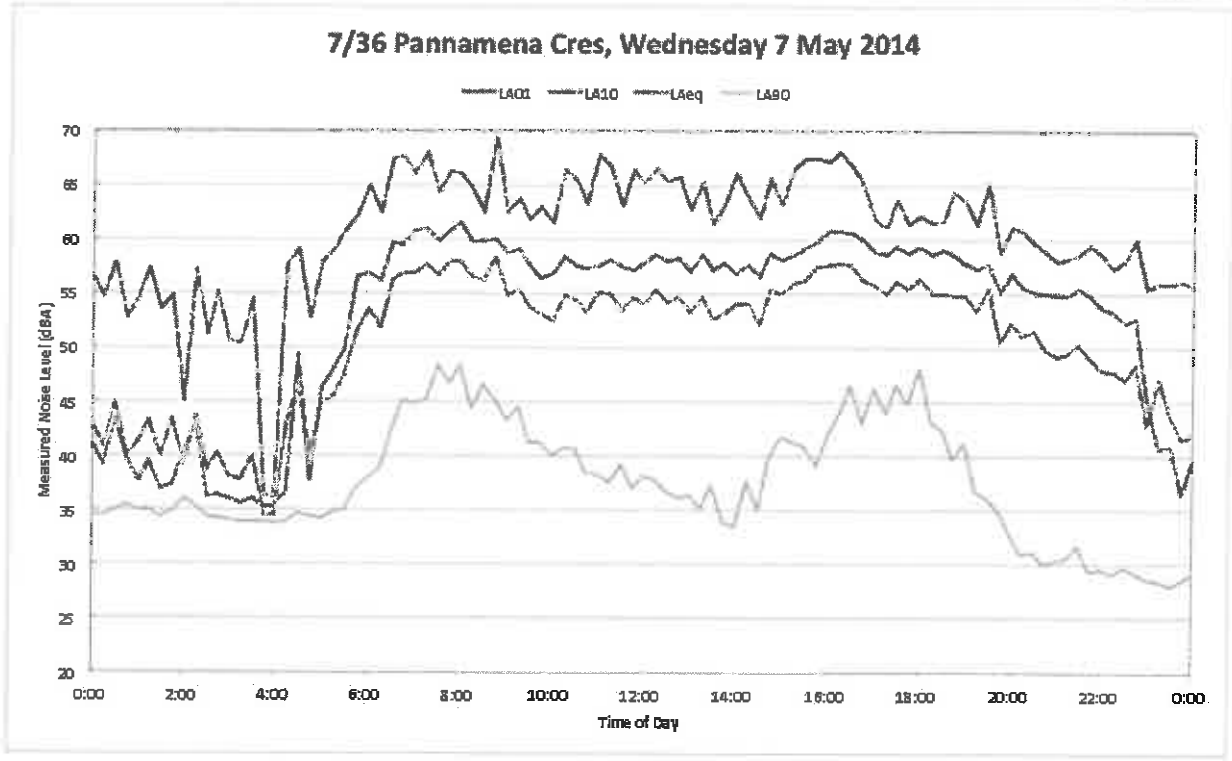
Time of Day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LAeq
LA90
Measured Noise Level [dBA]
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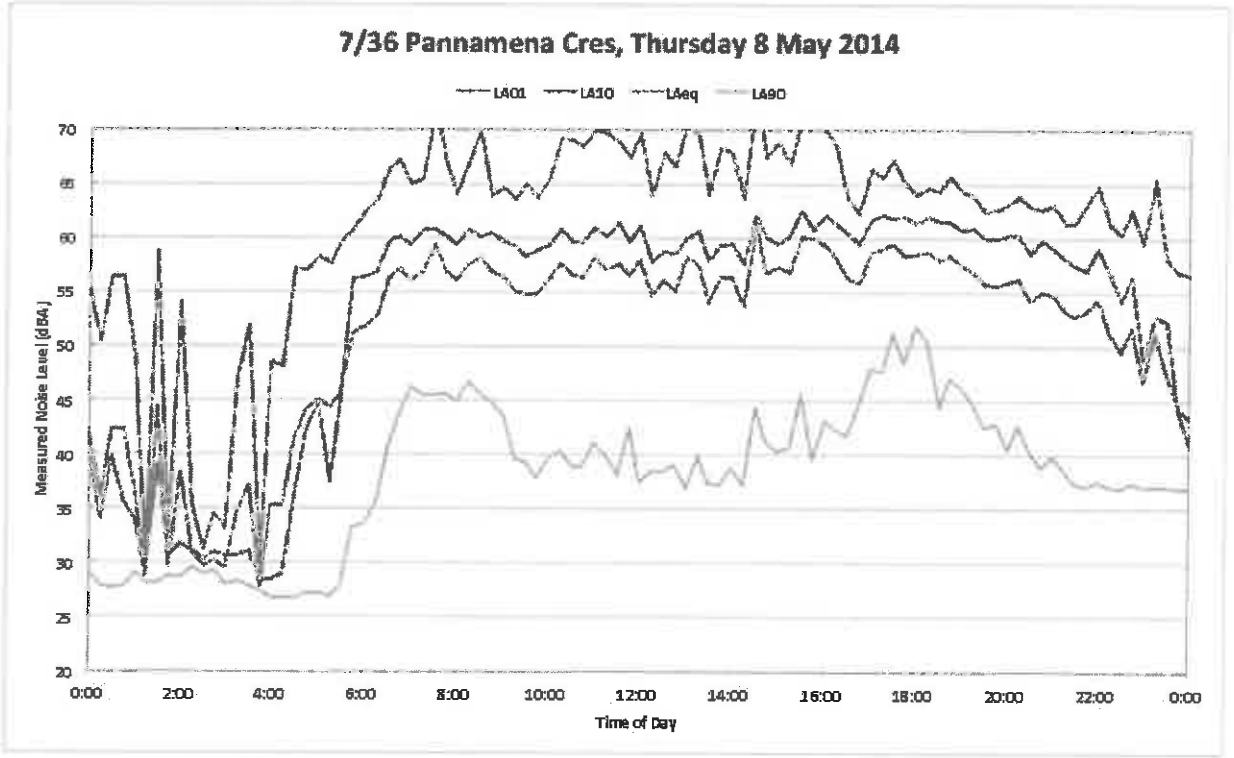
Time of Day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LA01
LA10
LAeq
LA90
Measured Noise Level [dBA]
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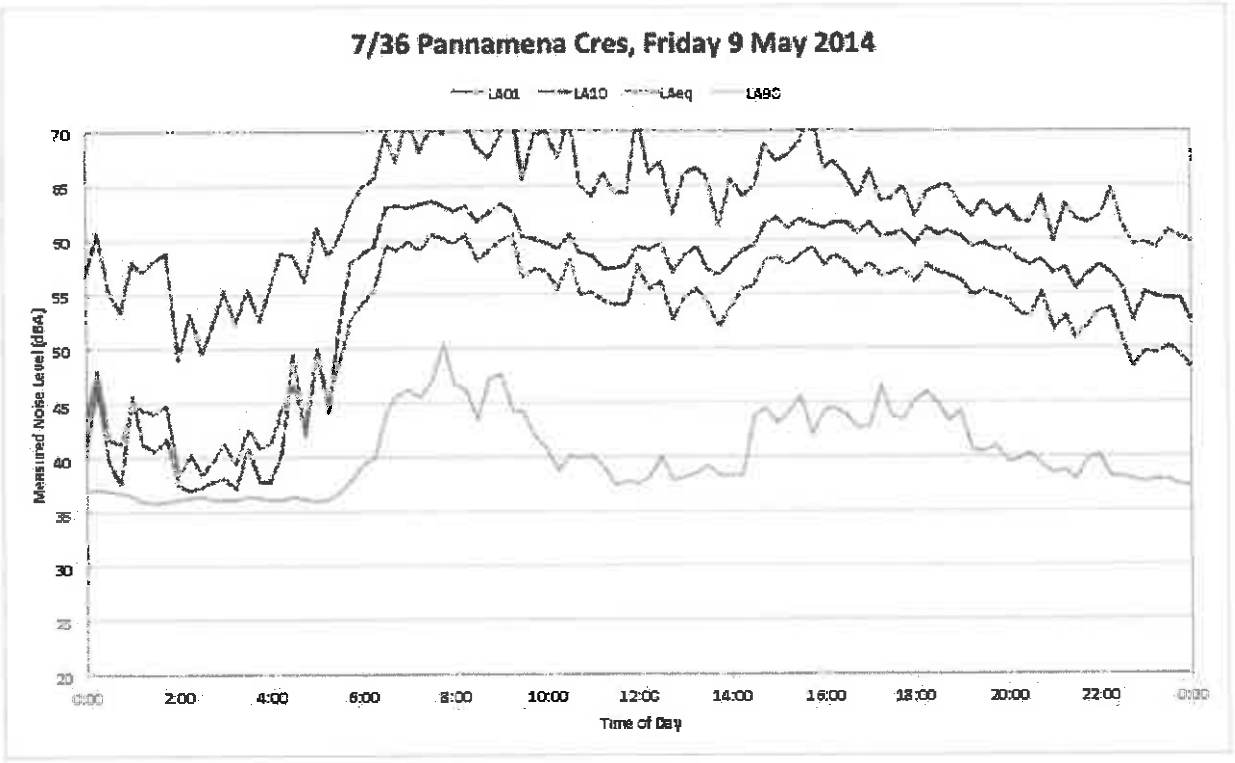
Time of Day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LA10
LAeq
LA90
Measured Noise Level [dBA]
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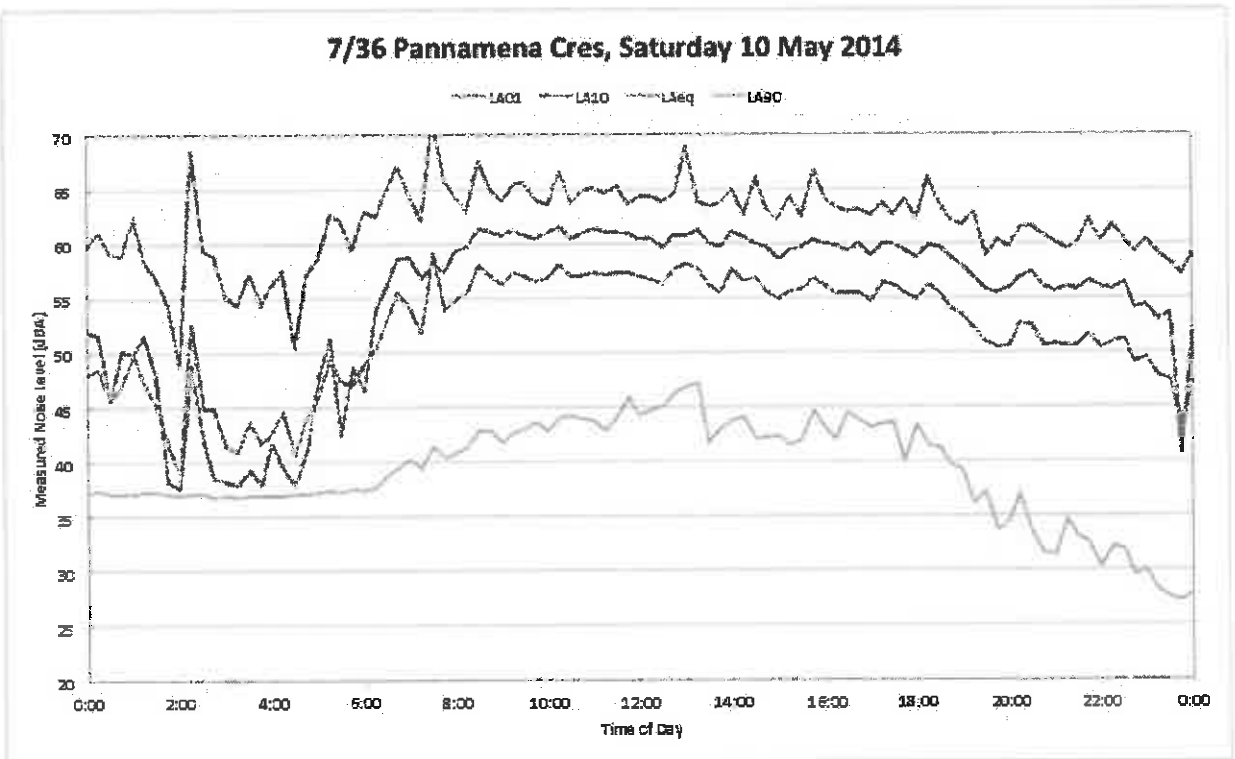
Time of Day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LA01
LA10
LAeq
LA90
Measured Noise Level [dBA]
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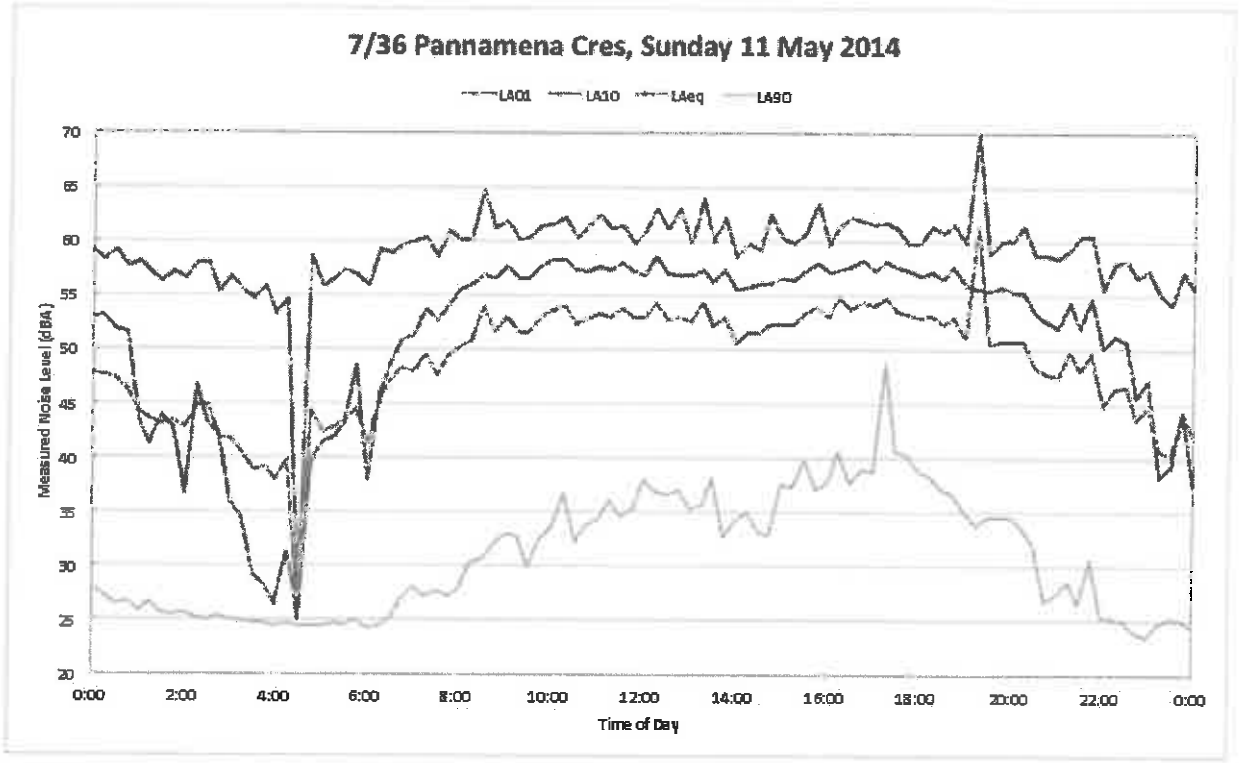
Time of Day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LA90
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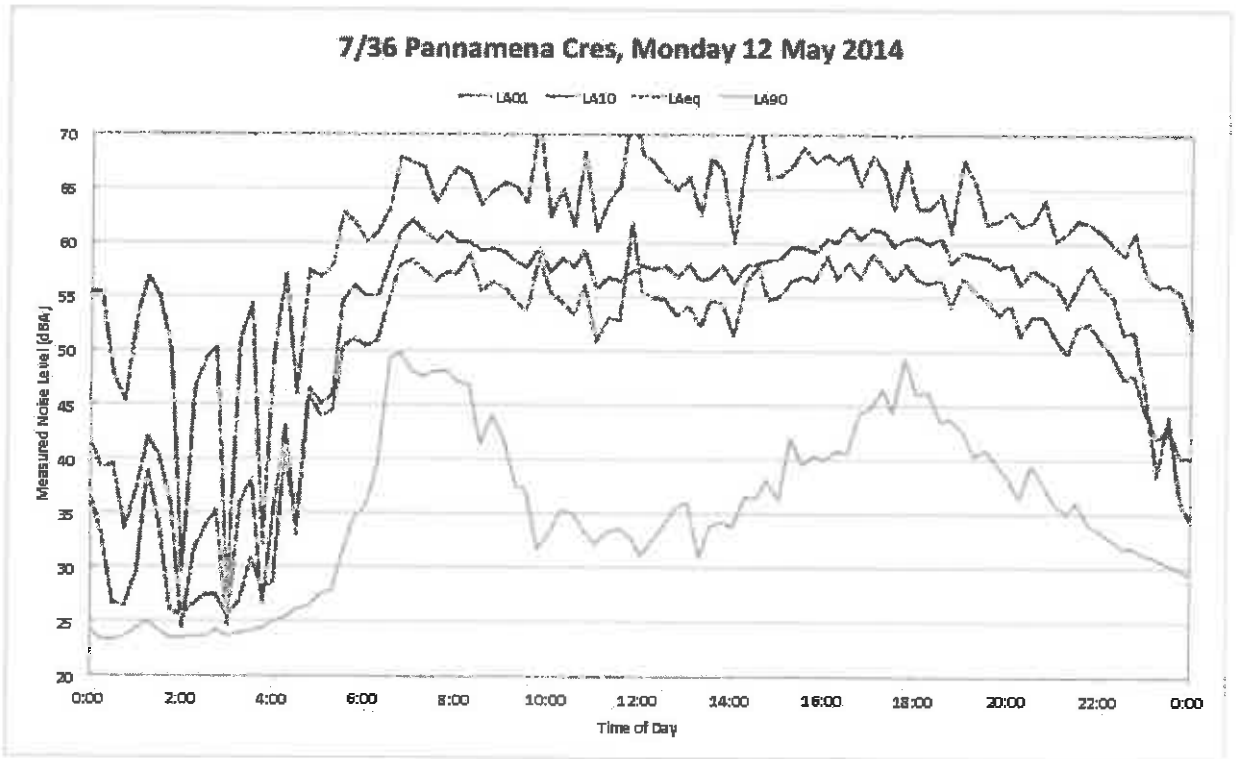
Time of Day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LAeq
LA90
Measured Noise Level (dBA)
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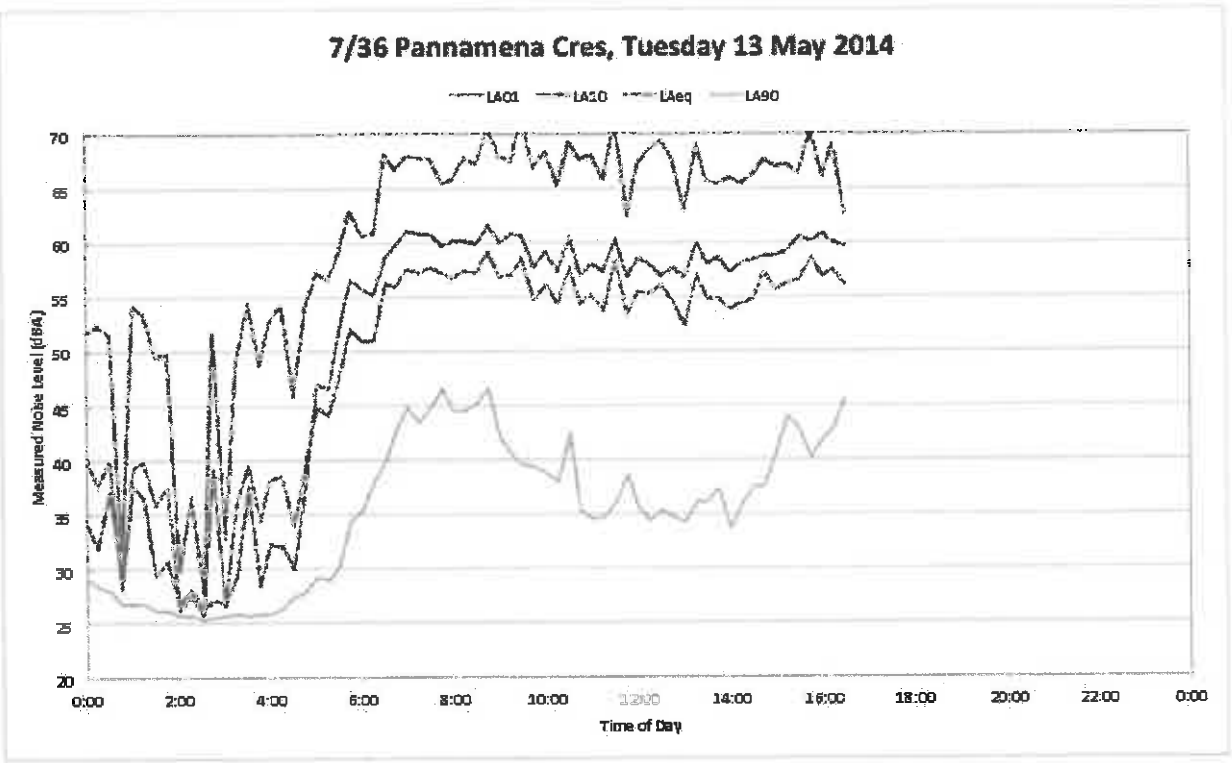
Time of Day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LA90
Measured Noise Level (dBA)
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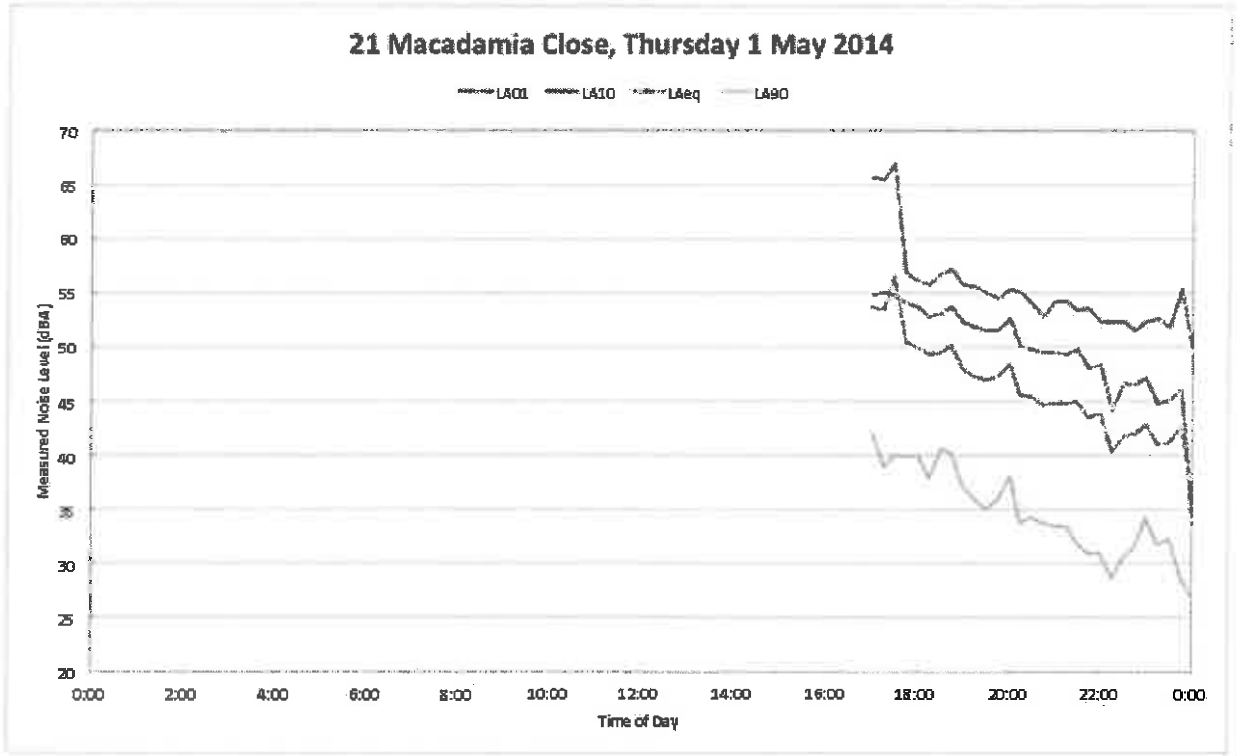
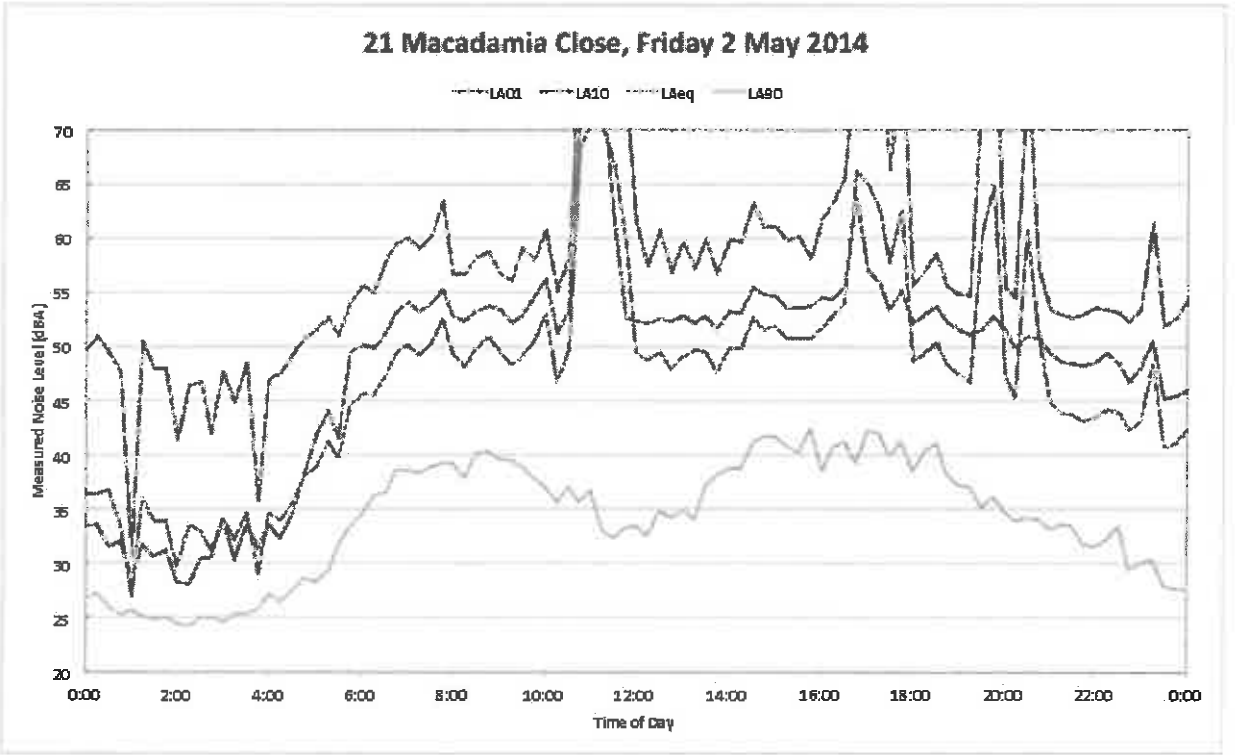
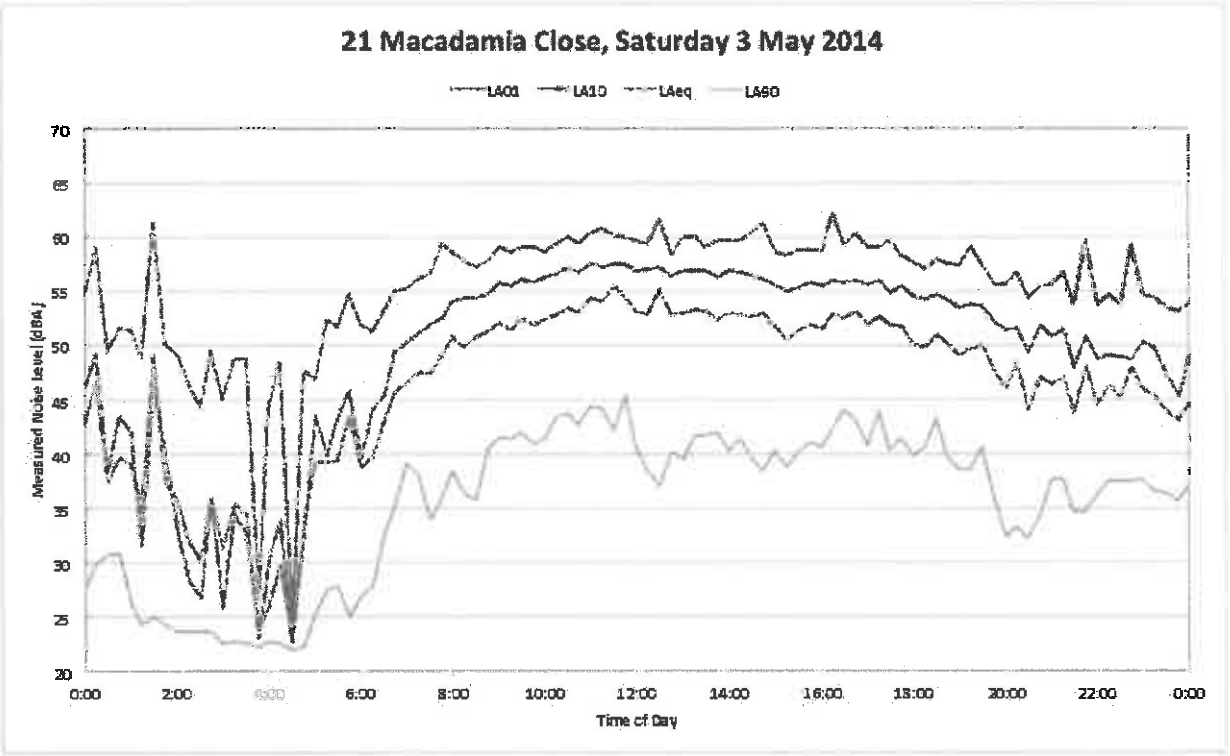
Time of Day

B.2 21 Macadamia Close, Jerrabomberra NSW



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LA01
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Measured Noise Level (dBA)
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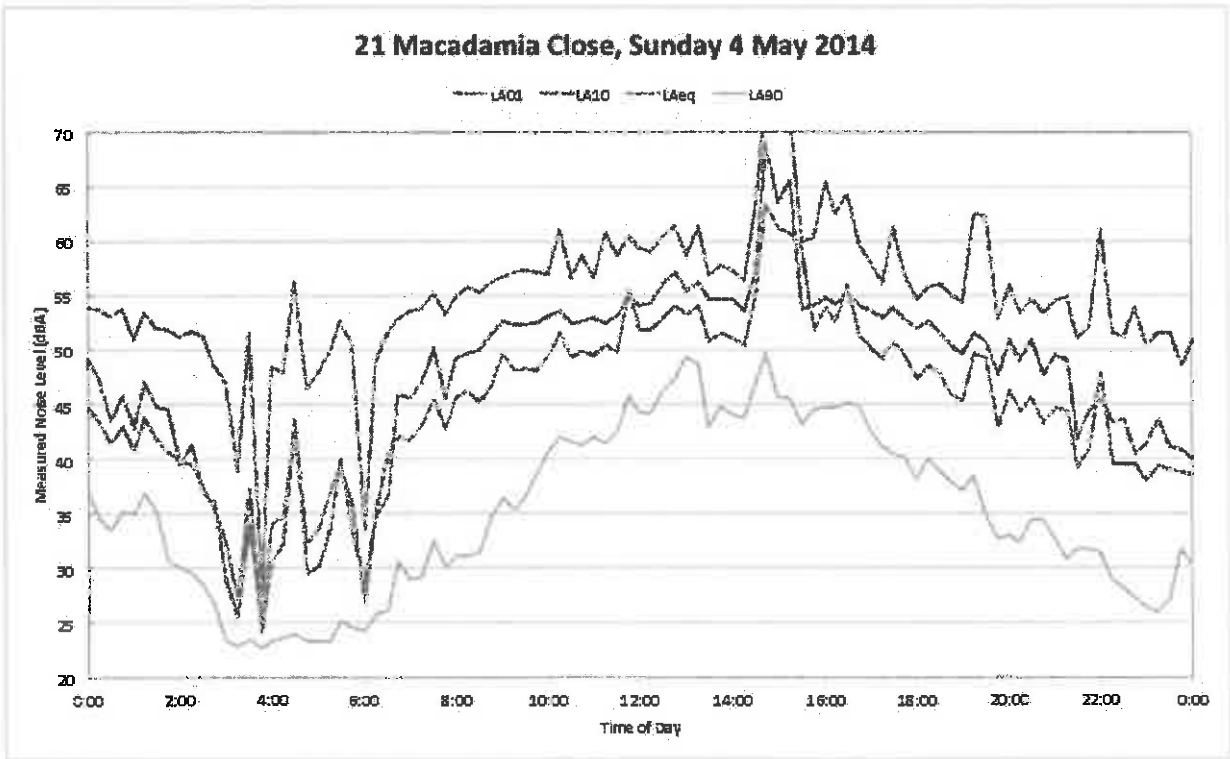
Time of Day


21 Macadamia Close, Sunday 4 May 2014
LA01
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LAeq
LA90
Measured Noise Level (dBA)
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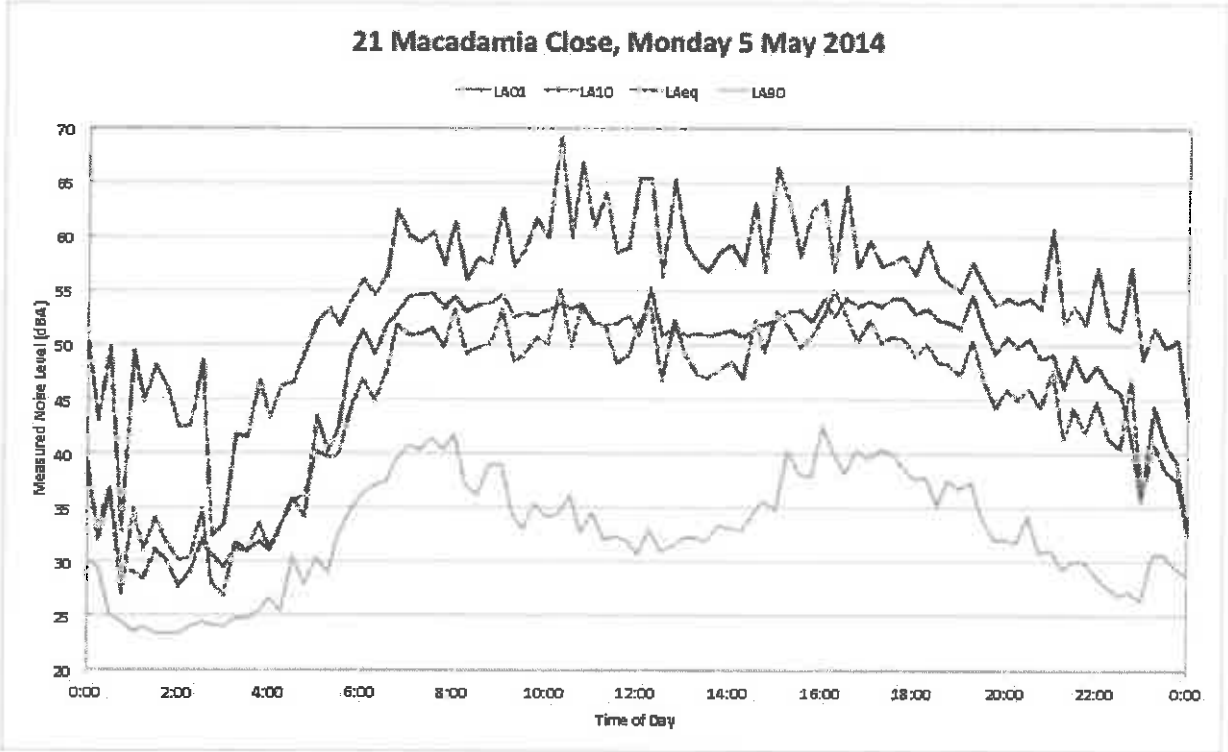
Time of Day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LA90
Measured Noise Level (dBA)
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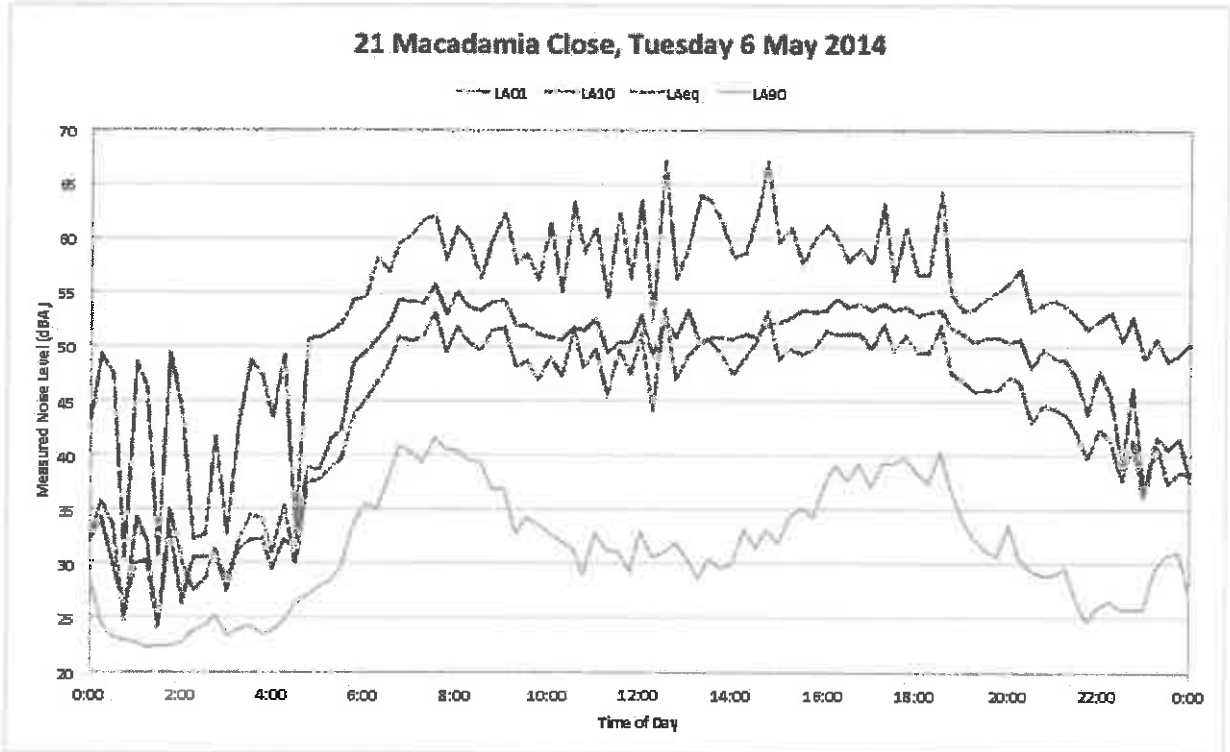
Time of Day


21 Macadamia Close, Tuesday 6 May 2014
LA01
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LA90
Measured Noise Level (dBA)
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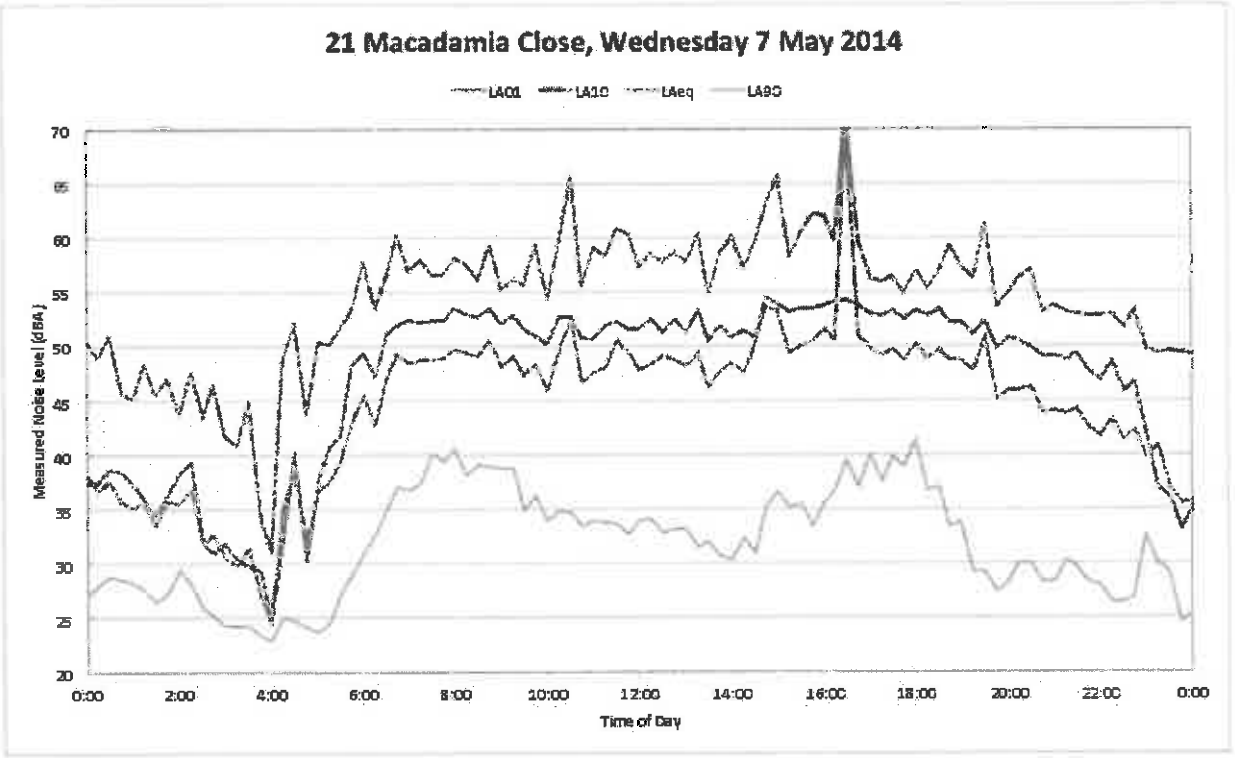
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LAeq
LA90
Measured Noise Level (dBA)
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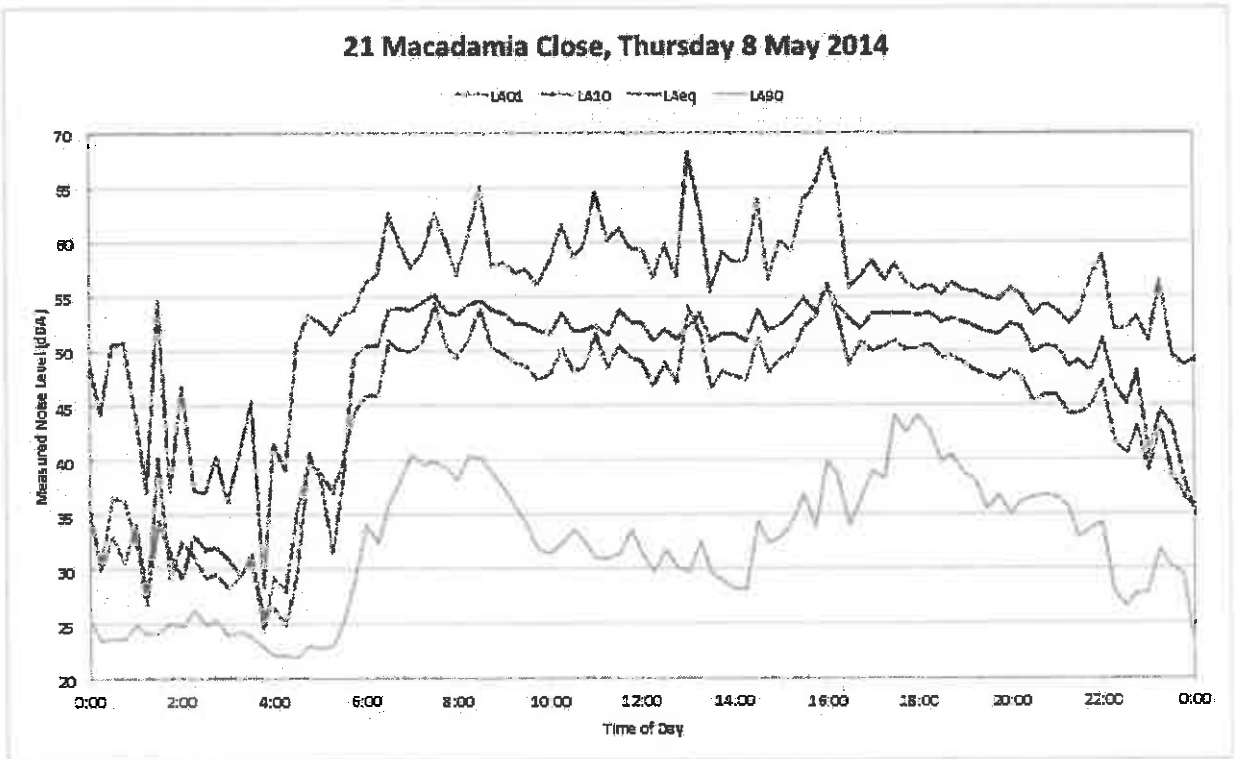
Time of Day


21 Macadamia Close, Thursday 8 May 2014
LA01
LA10
LAeq
LA90
Measured Noise Level (dBA)
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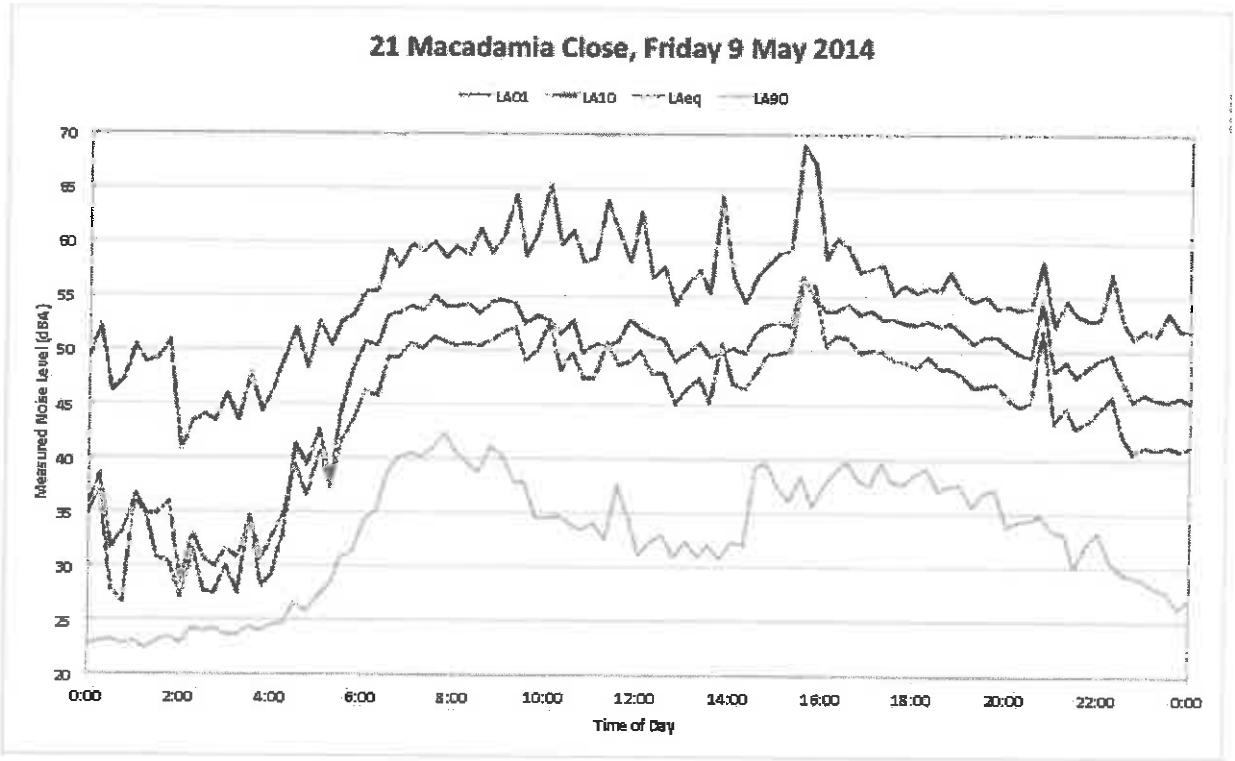
Time of Day


21 Macadamia Close, Friday 9 May 2014
LA01
LA10
LAeq
LA90
Measured Noise Level [dBA]
70
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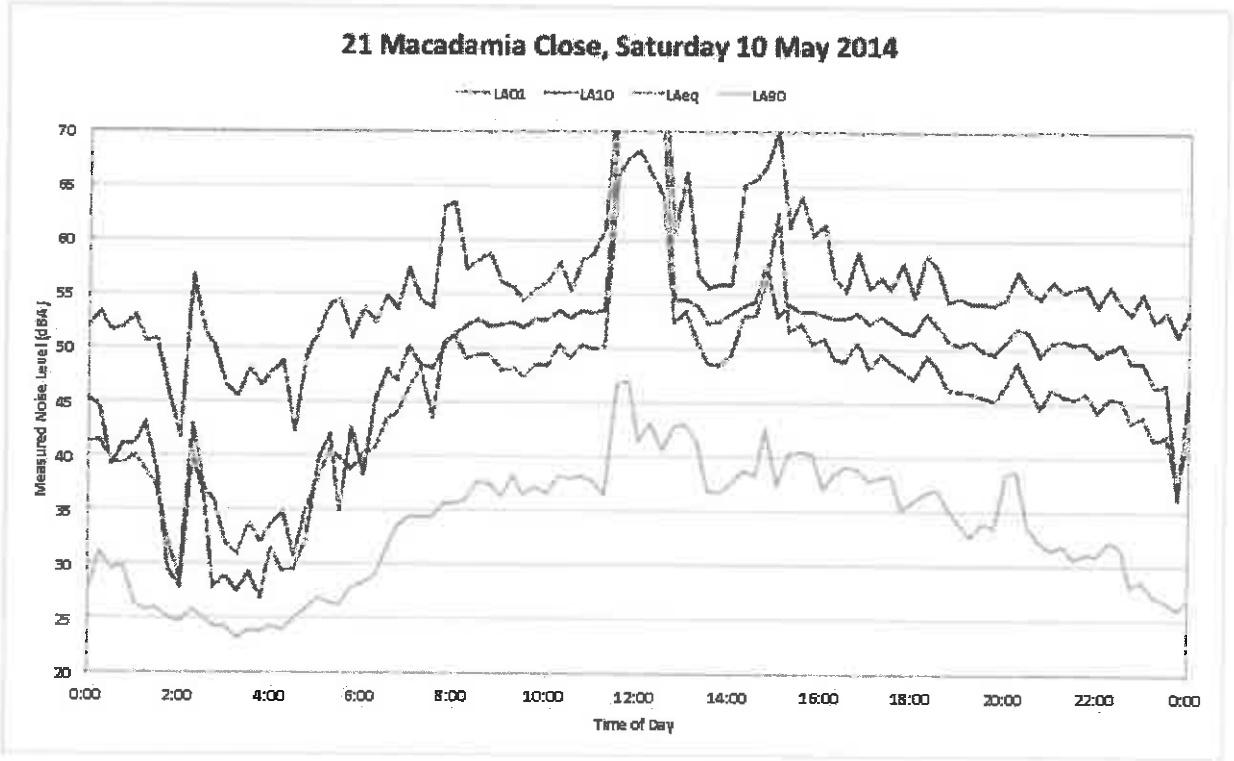
Time of Day


21 Macadamia Close, Saturday 10 May 2014
LA01
LA10
LAeq
LA90
Measured Noise Level [dBA]
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25
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0:00
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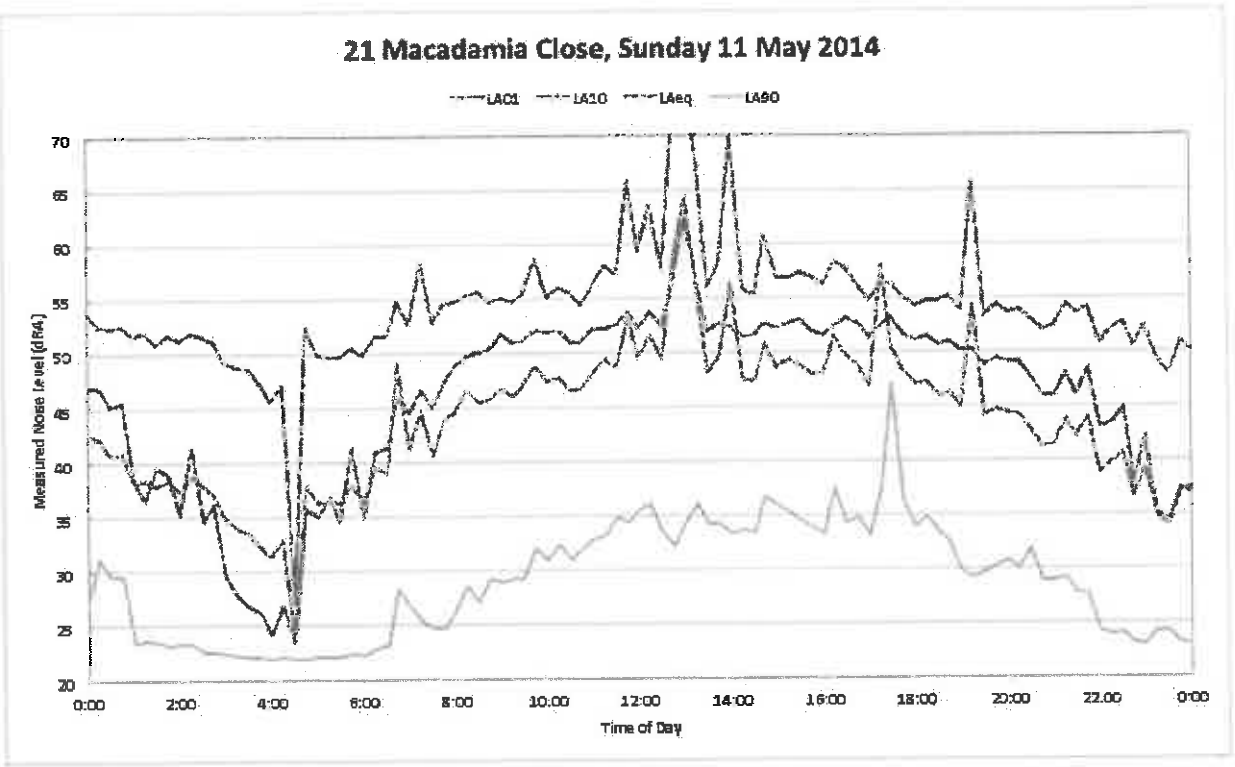
0:00
Time of Day


21 Macadamia Close, Sunday 11 May 2014
LAC1
LA10
LAeq
LA90
Measured Noise Level [dBA]
70
65
60
55
50
45
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35
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25
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0:00
2:00
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8:00
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18:00
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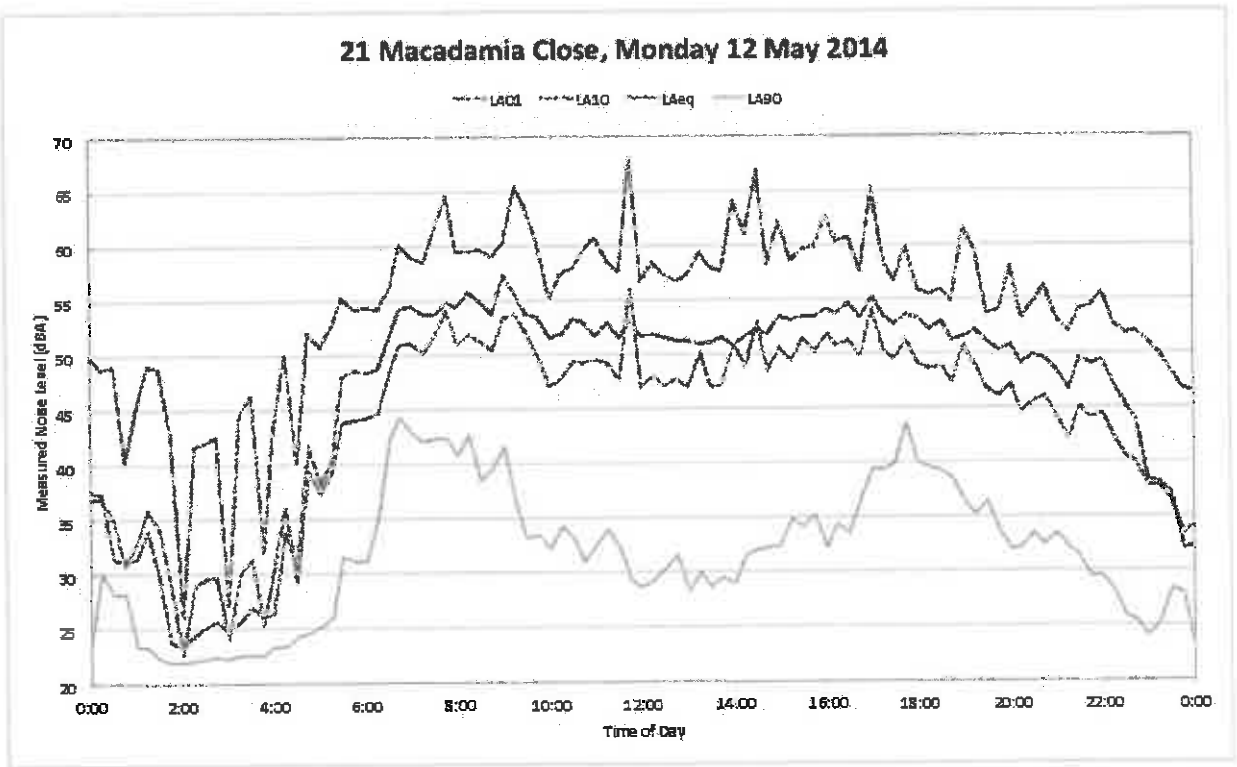
Time of Day


21 Macadamia Close, Monday 12 May 2014
LAC1
LA10
LAeq
LA90
Measured Noise Level [dBA]
70
65
60
55
50
45
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30
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0:00
2:00
4:00
6:00
8:00
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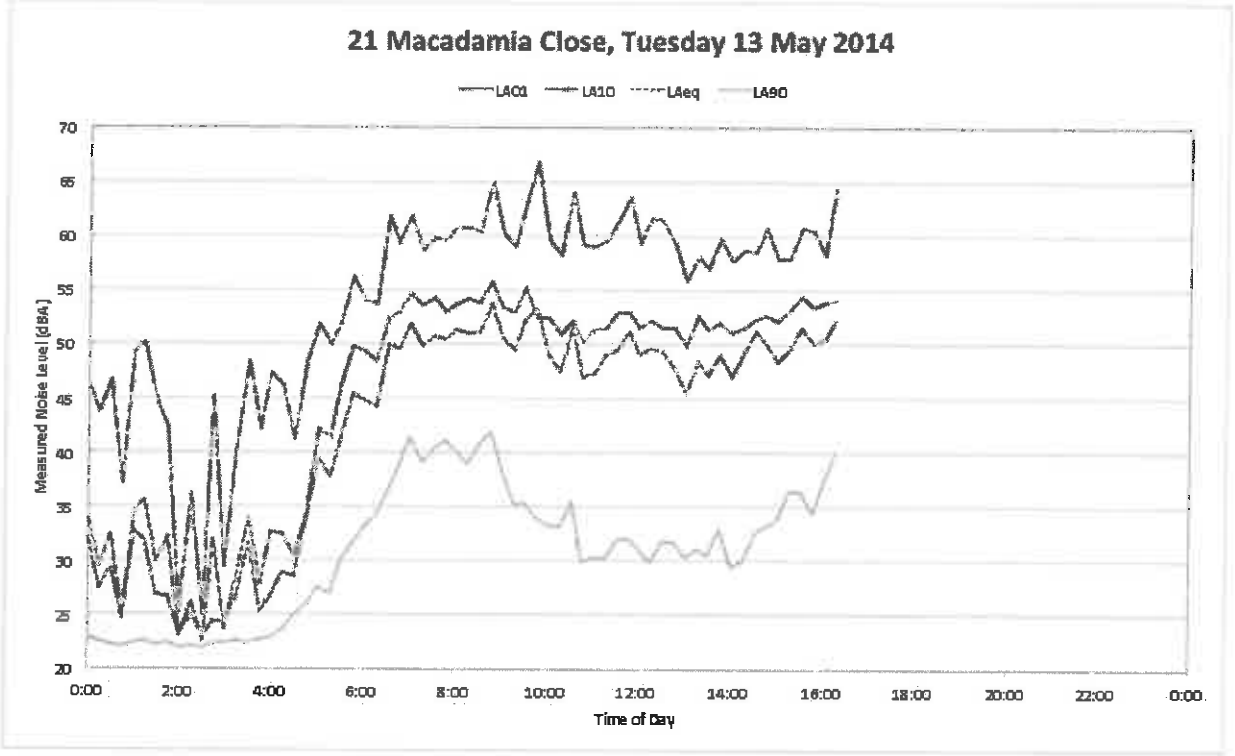
16:00
18:00
20:00
22:00
0:00
Time of Day


21 Macadamia Close, Tuesday 13 May 2014
LAQ1
LA10
LAeq
LA90
Measured Noise Level [dBA]
70
65
60
55
50
45
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35
30
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20
0:00
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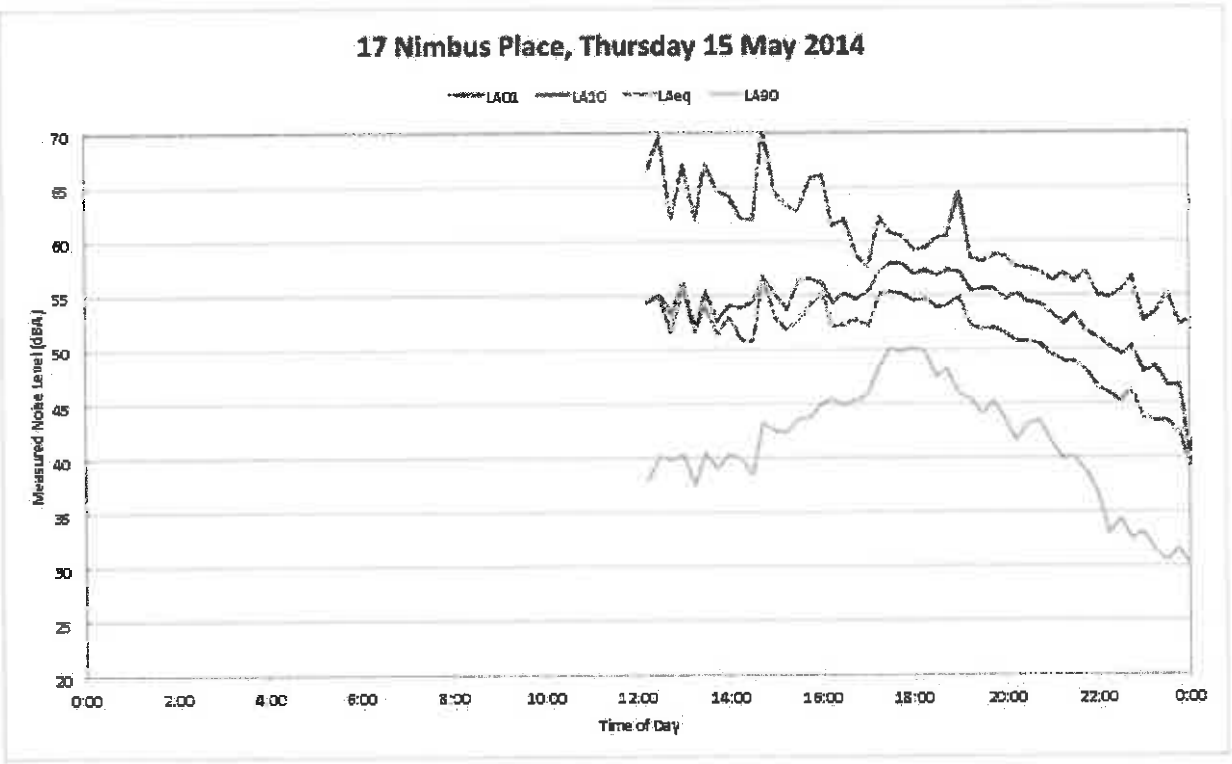
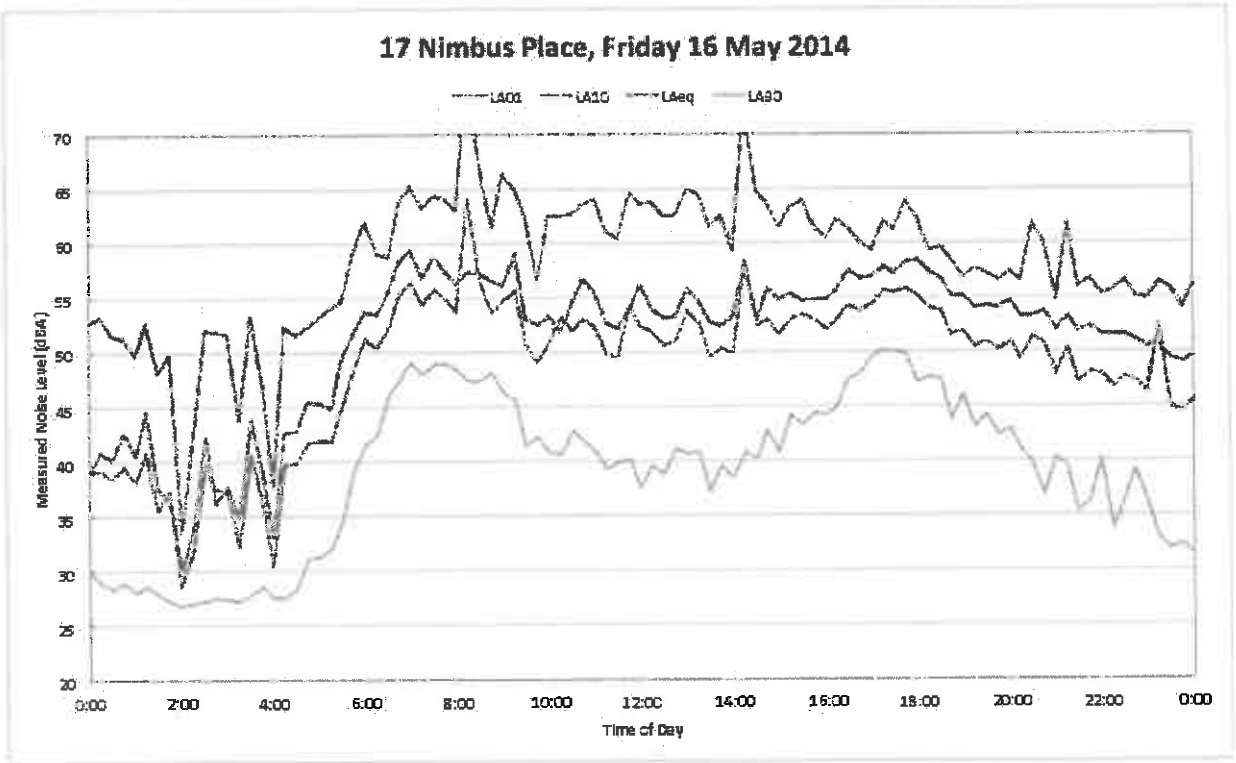
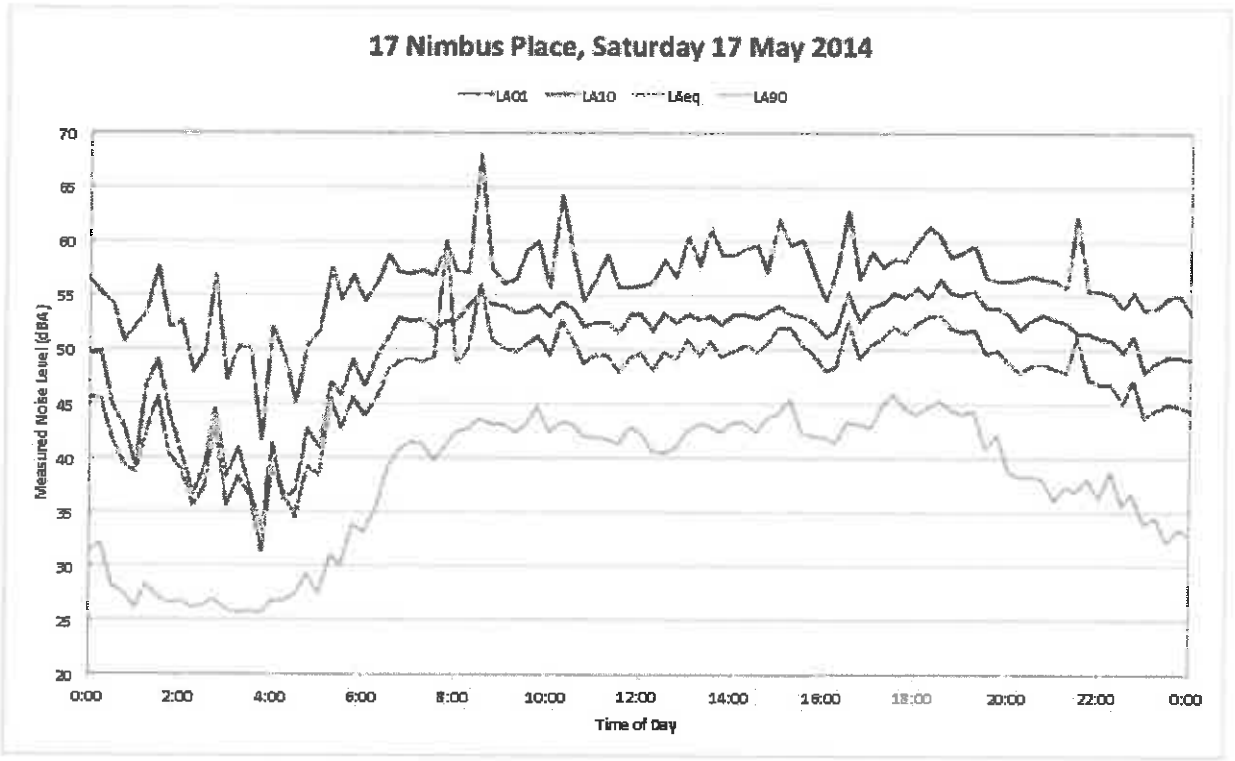
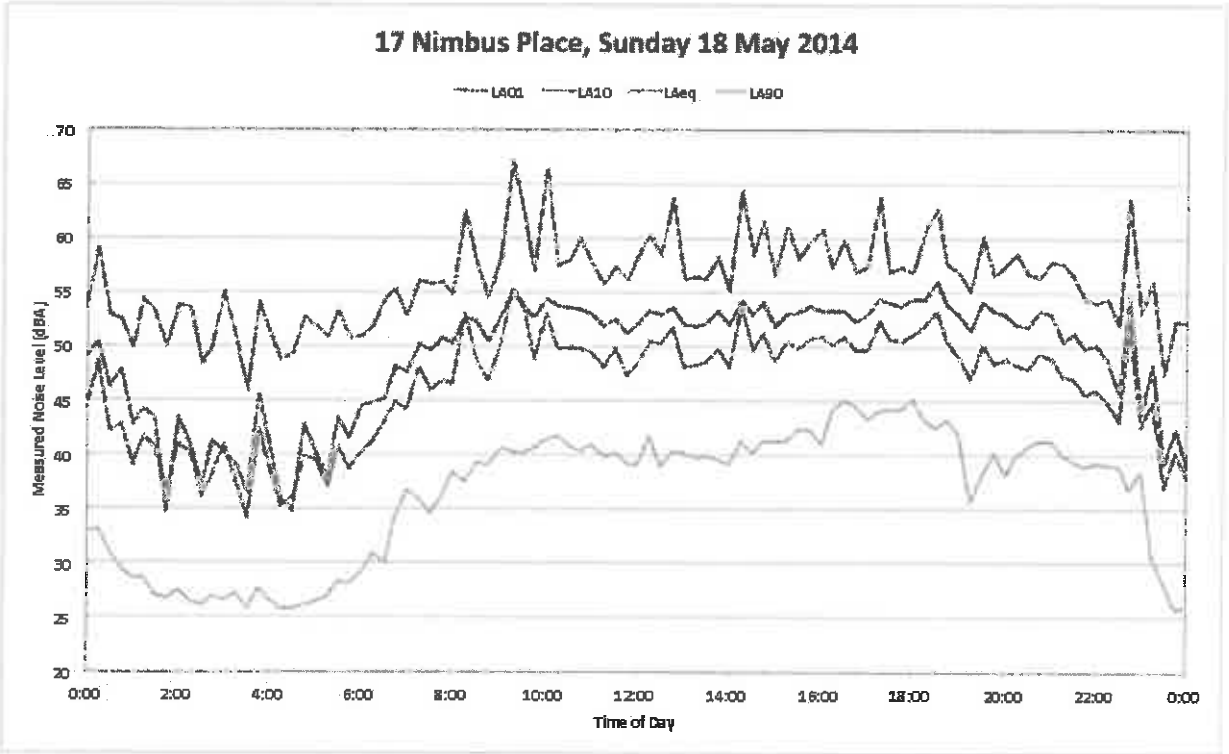
0:00
Time of Day

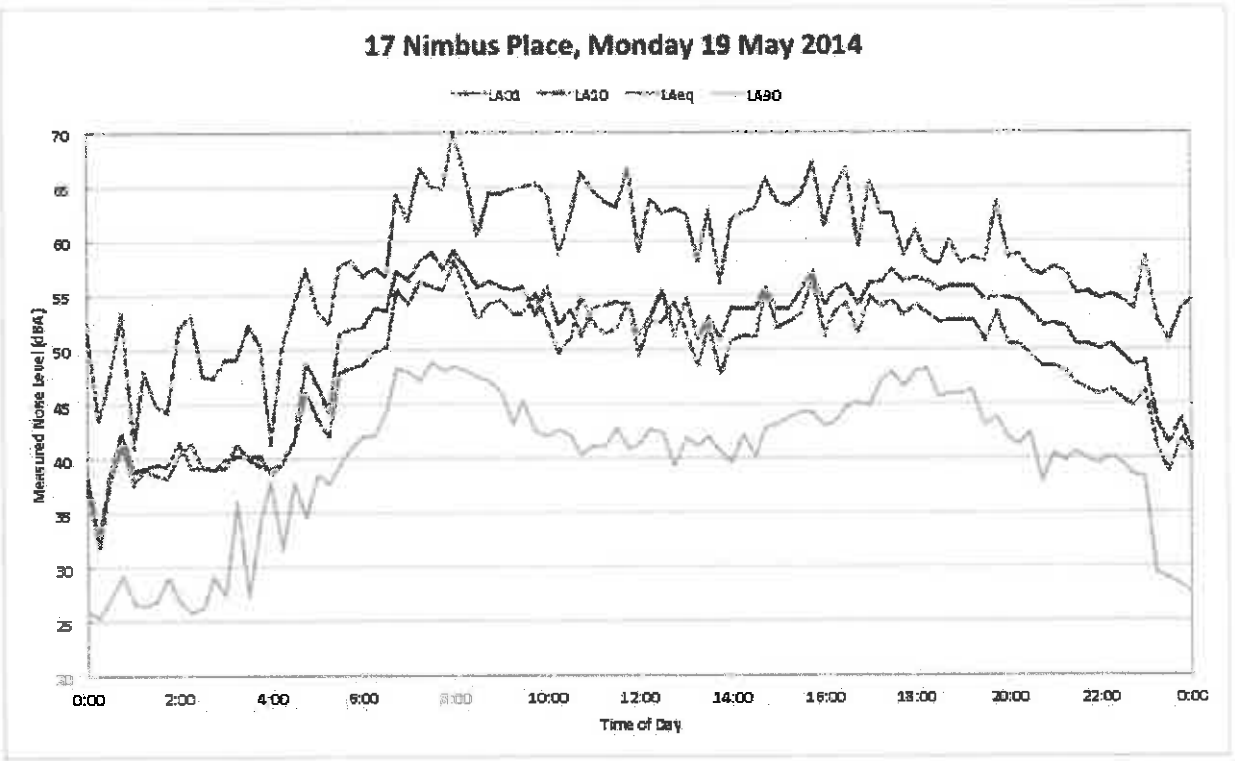
B.3 17 Nimbus Place, Karabar NSW






17 Nimbus Place, Saturday 17 May 2014
LA01
LA10
LAeq
LA90
Measured Noise Level (dBA)
70
65
60
55
50
45
40
35
30
25
20
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
0:00
Time of Day


17 Nimbus Place, Sunday 18 May 2014
LA01
LA10
LAeq
LA90
Measured Noise Level (dBA)
70
65
60
55
50
45
40
35
30
25
20
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
0:00
Time of Day


17 Nimbus Place, Monday 19 May 2014
LA01
LA10
LAeq
LA90
Measured Noise Level [dBA]
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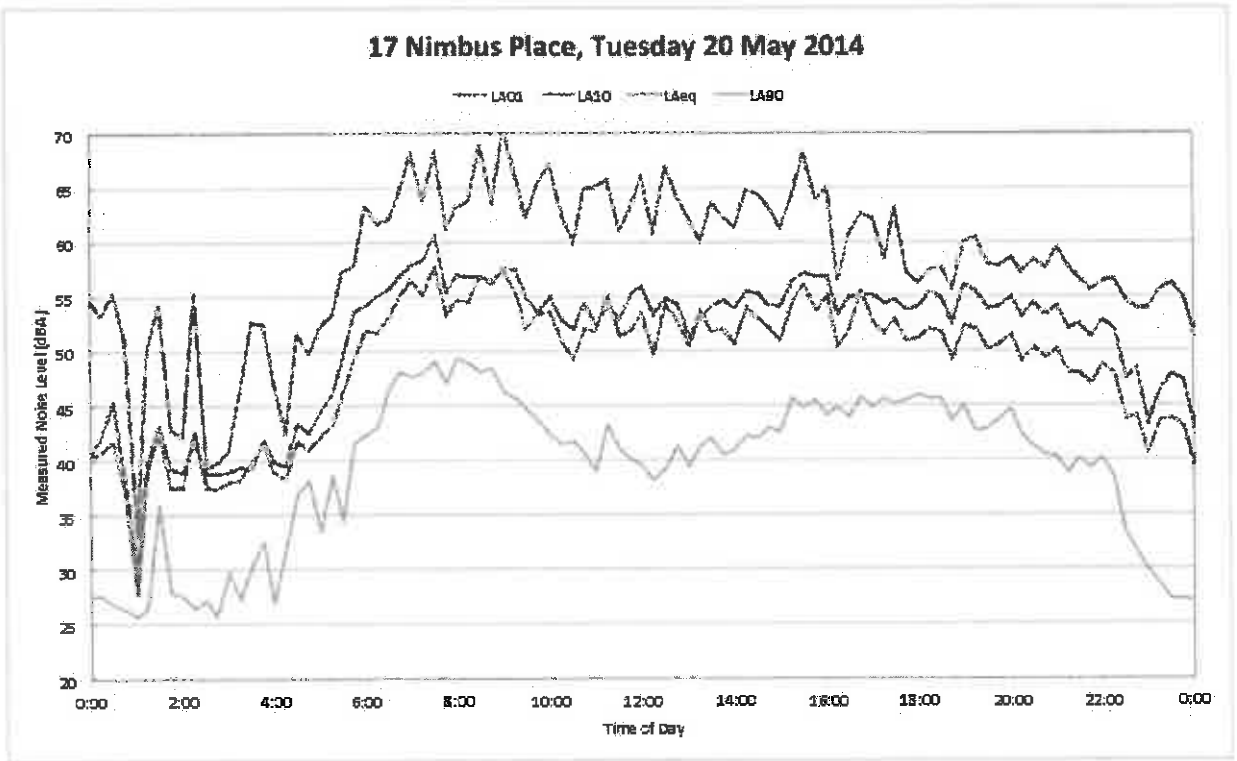
65
60
55
50
45
40
35
30
25
20
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
0:00
Time of Day


17 Nimbus Place, Tuesday 20 May 2014
LA01
LA10
LAeq
LA90
Measured Noise Level [dBA]
70
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60
55
50
45
40
35
30
25
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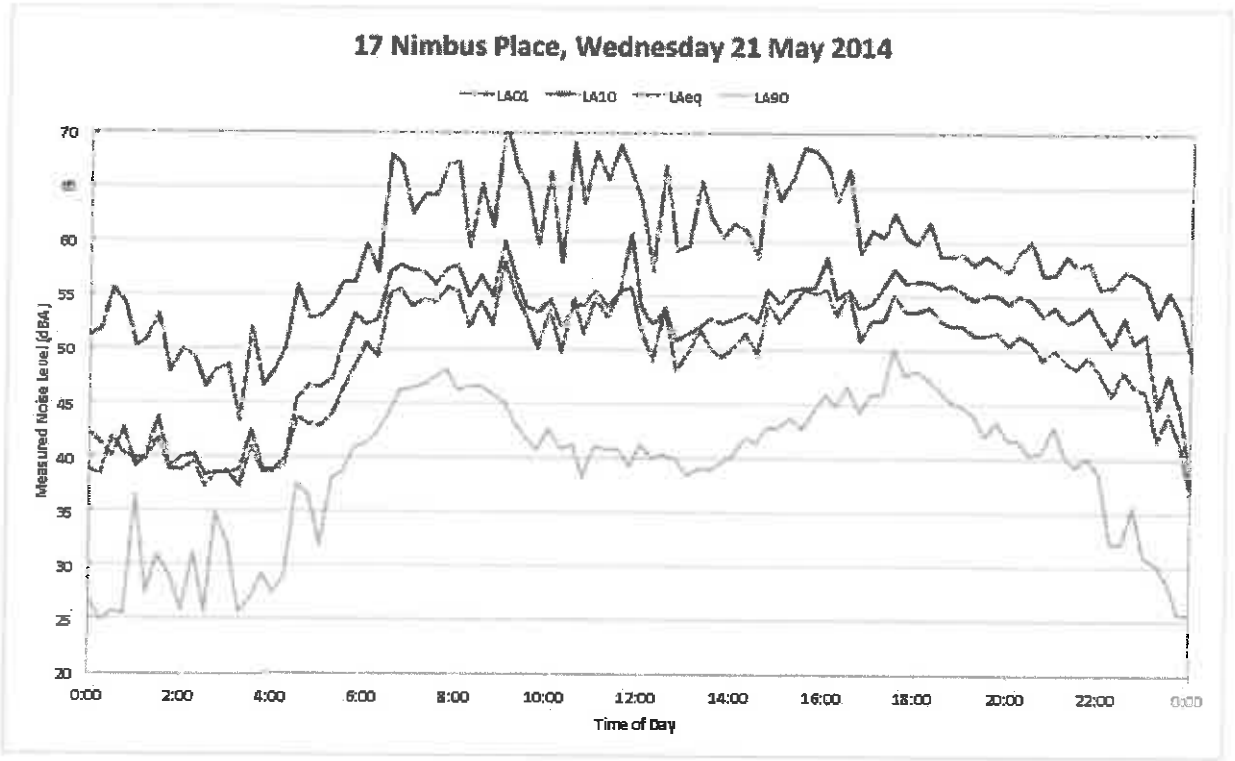
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
0:00
Time of Day


17 Nimbus Place, Wednesday 21 May 2014
LA01
LA10
LAeq
LA90
Measured Noise Level [dBA]
70
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60
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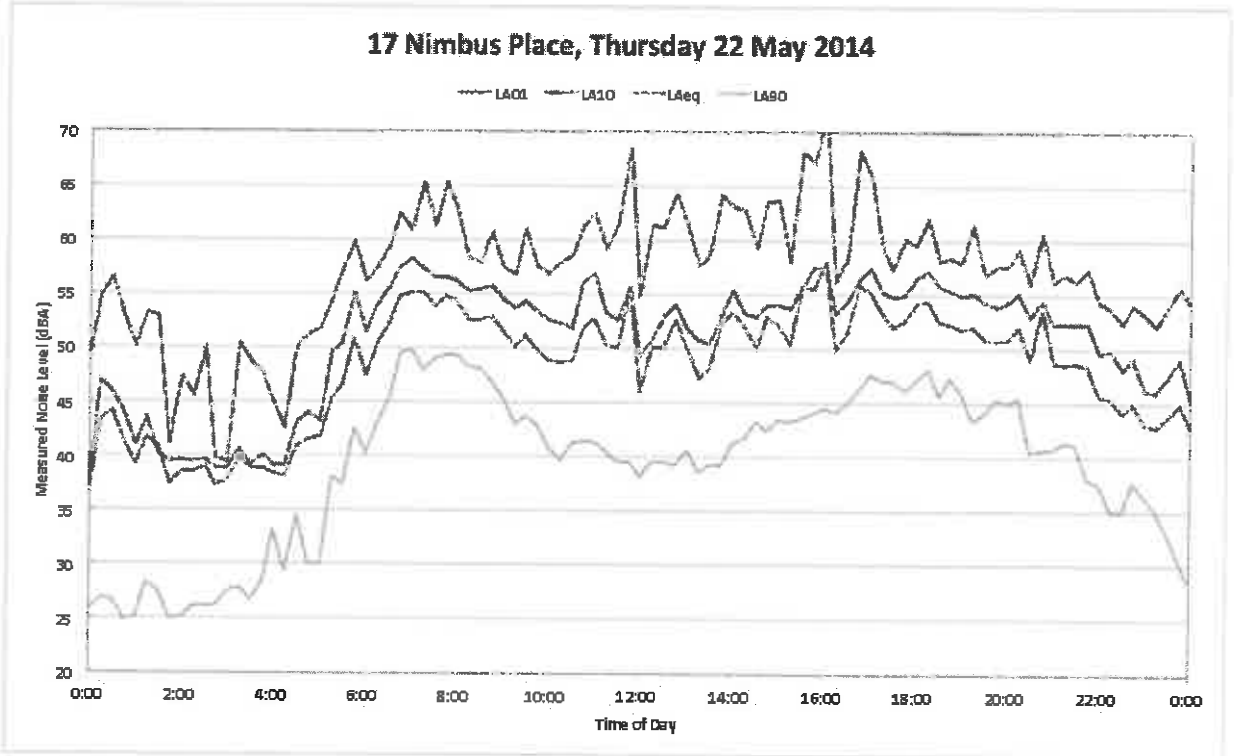
40
35
30
25
20
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
0:00
Time of Day


17 Nimbus Place, Thursday 22 May 2014
LA01
LA10
LAeq
LA90
Measured Noise Level [dBA]
70
65
60
55
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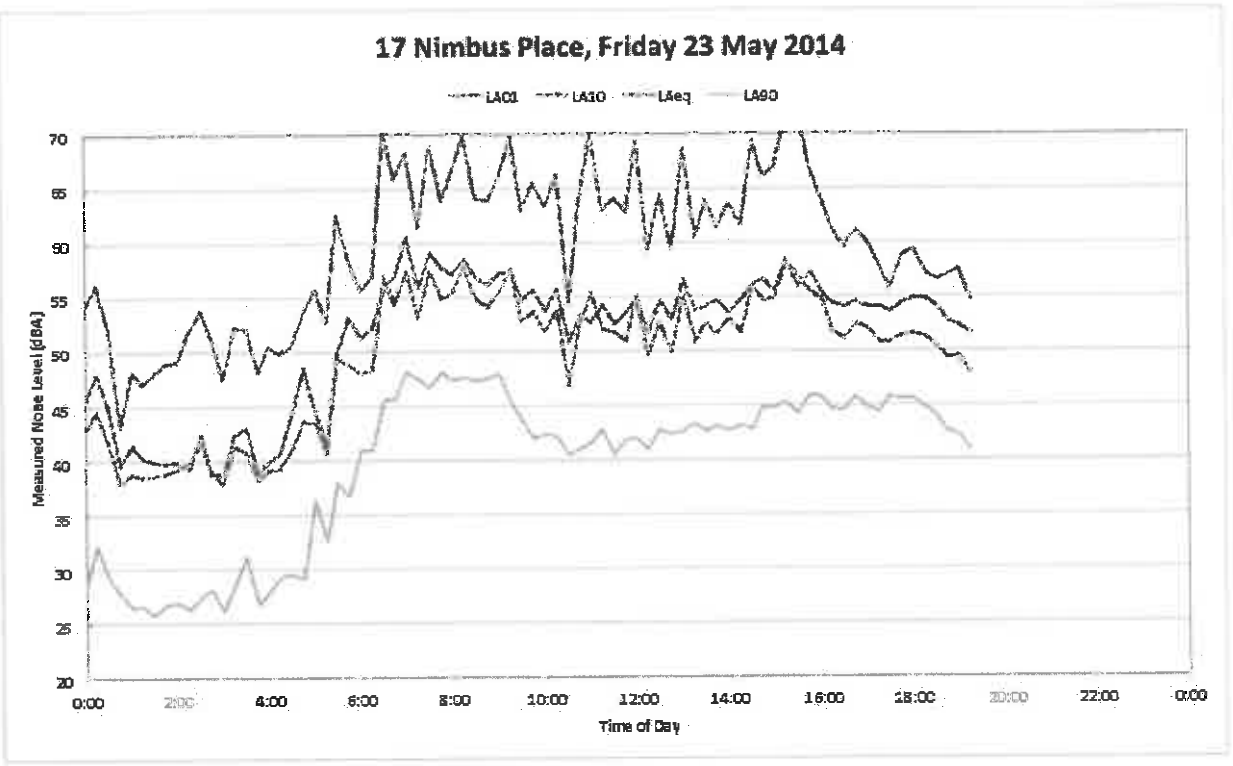
45
40
35
30
25
20
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
0:00
Time of Day


17 Nimbus Place, Friday 23 May 2014
LA01
LA10
LAeq
LA90
Measured Noise Level [dBA]
70
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60
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50
45
40
35
30
25
20
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
0:00
Time of Day

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Appendix 2: Moses Morley Kiln Surveys 2014

Craven Elliston & Hayes (Dapto) Pty Ltd
ABN 81 056 544 604
Registered Surveyors

Monday, 20 April 2015

Our Ref: D302/25341

Holcim Australia
Cooma Road Quarry

QUEANBEYAN NSW 2620

Re: Monitoring of Heritage Infrastructure

Location Ruins
Base Survey on 11/06/2014

Mark	Easting	Northing	Elevation
T1	974.919	996.063	101.312
T2	976.108	993.964	102.142
T3	983.133	986.175	102.205
T4	984.463	983.314	102.637
T5	983.356	979.866	103.251
T6	983.204	979.943	102.985
T7	980.625	978.824	103.216

Diagram of Survey Marks

Torrens and Strata Subdivisions · Land Development
Volumetric Surveys · Project Management
Residential Surveys · Commercial Surveys
Mine surveyors · Industrial Surveys

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9001

Member of the Australian Association of Consulting Surveyors NSW

Location Primary Crusher
Base Survey on 11/06/2014

Mark	Easting	Northing	Elevation
DH 1	1522.846	1500.443	597.977
DH 2	1514.142	1505.346	597.915
T11 - RSJ	1523.538	1500.650	598.919
T12 - RSJ	1512.807	1506.508	597.756
T13	1502.466	1509.642	597.416
T14	1497.901	1507.188	596.836

Location Ruins
Survey on 16/04/2015
Observations

T1	974.918	996.063	101.312
T2	976.108	993.964	102.14
T3	983.132	986.176	102.205
T4	984.463	983.314	102.64
T5	983.356	979.868	103.252
T6	983.197	979.938	102.985
T7	980.624	978.822	103.219

Table of difference from Base Survey

0.001	0	0
0	0	0.002
0.001	-0.001	0
0	0	-0.003
0	-0.002	-0.001
0.007	0.005	0
0.001	0.002	-0.003

Craven Elliston & Hayes (Dapto) Pty Ltd
ABN 81 056 544 604
Registered Surveyors

Wednesday, 29 October 2014

Our Ref: D302/25341

Holcim Australia
Cooma Road Quarry

QUEANBEYAN NSW 2620

Re: Monitoring of Heritage Infrastructure

Location Ruins
Base Survey on 11/06/2014

Mark	Easting	Northing	Elevation
T1	974.919	996.063	101.312
T2	976.108	993.964	102.142
T3	983.133	986.175	102.205
T4	984.463	983.314	102.637
T5	983.356	979.866	103.251
T6	983.204	979.943	102.985
T7	980.625	978.824	103.216

Diagram of Survey Marks

· Torrens and Strata Subdivisions
· Volumetric Surveys
· Residential Surveys
· Mine surveyors
· Land Development
· Project Management
· Commercial Surveys
· Industrial Surveys

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Appendix 3: INX Incident & Complaints Register 2014

Incident - Community Complaint

Incident - Community Complaint Report - Complaint from blasting

Details

Sub Classification

[X] Blasting

Event Date/Time:	11-Jun-2014 0:00	Department:	Cooma Road Quarry
Reported Date/Time:	13-Jun-2014 0:00	Exact Location:	
Due Date:		Country:	
Responsible Organisation:			

Reported By

Name: SCOTT, Elliott, 1244851

Reported To

Name: Occupation:

Sub-section Aggregates

Description

After Blasting on the 11/6/14, the EPA has recieved a call about blasting on site. All monitoring results have been checked, there has been no breach of limits.

Immediate Action Taken

Actual Outcome

[X] Minor - Category 1

Potential Risk

Consequence:	Minor - Category 1	Likelihood:	C - Possible	Level of Risk:	Low

Management Summary

Assigned To:

Environmental Factors

Receiving Medium:	Air	[ ] Final Point of Impact	
Mechanism of Incident:	Community complaint		
Nature of Incident:	N/A		
Agency of Incident:	Other	Agent:	
Volume of Agent Released:	N/A	Volume (L):	
Volume of Agent Recovered:	N/A	Volume(L):	
Area of Impact:	Outside site boundary	Area (m²):	
Duration of Incident:	< 1 day	0.50 Hours	
Comments:			

Corrective Actions

Action No. 1

Incident - Community Complaint

Incident - Community Complaint Report - Complaint from blasting

Observation:	Complaint from blasting
Action:	EPA require data to prove compliance.
Action Progress:	
Comments:	Compliance data sent to EPA
Cost:	
Risk:	E - Rare;Minor - Category 1;Low
Progress:	
Responsibility:	BERTRAM, Adam, 1242085
Due Date:	20-Jun-2014
Completion Date:	16-Jun-2014
Original Due Date:	20-Jun-2014