

Noise Management Plan

for the

New Berrima Clay/Shale Quarry

PA08_0212

Prepared by:



R.W. CORKERY & CO. PTY. LIMITED

September 2018

Approved by
the Secretary's nominee, Megan Dawson,
on 28 September 2018

Noise Management Plan

for the

New Berrima Clay/Shale Quarry

PA08_0212

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COMMONLY USED ACRONYMS

AHD	Australian Height Datum
AS	Australian Standard
CCC	Community Consultation Committee
DPE	Department of Planning and Environment
ENCM	Environmental Noise Control Manual
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPA	Environment Protection Authority
EPL	Environment Protection Licence
INP	Industrial Noise Policy
NATA	National Association of Testing Authorities
PA	Project Approval
RBL	Rating Background Level

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1. INTRODUCTION

This *Noise Management Plan* (the NMP) has been prepared by R W Corkery & Co Pty Limited on behalf of The Austral Brick Company Pty Limited (Austral) for the New Berrima Clay/Shale Quarry (the Quarry). The Quarry is located within the “Mandurama” property approximately 1.5km east of New Berrima in the Southern Highlands of NSW (**Figure 1**). For the purposes of this document, the area of the approved quarry is referred to as “the Quarry Site”.

This NMP represents the second revision of the NMP and has been prepared in satisfaction of Project Approval (PA) 08_0212 *PA Condition 3(8) and 5(3)*¹. The Environment Protection Agency (EPA) and three surrounding landholders have also previously been consulted in relation to the NMP and the noise monitoring locations (see Section 9.3.2).

This NMP forms part of the Quarry’s overall Environmental Management System which includes the preparation and implementation of the following management plans.

- Environmental Management Strategy.
- Transport Management Plan.
- Air Quality Management Plan.
- Water Management Plan.
- Landscape Management Plan.
- Aboriginal Heritage Management Plan.

2. APPROVED ACTIVITIES AND STAGED OPERATIONS

2.1 Approved Activities

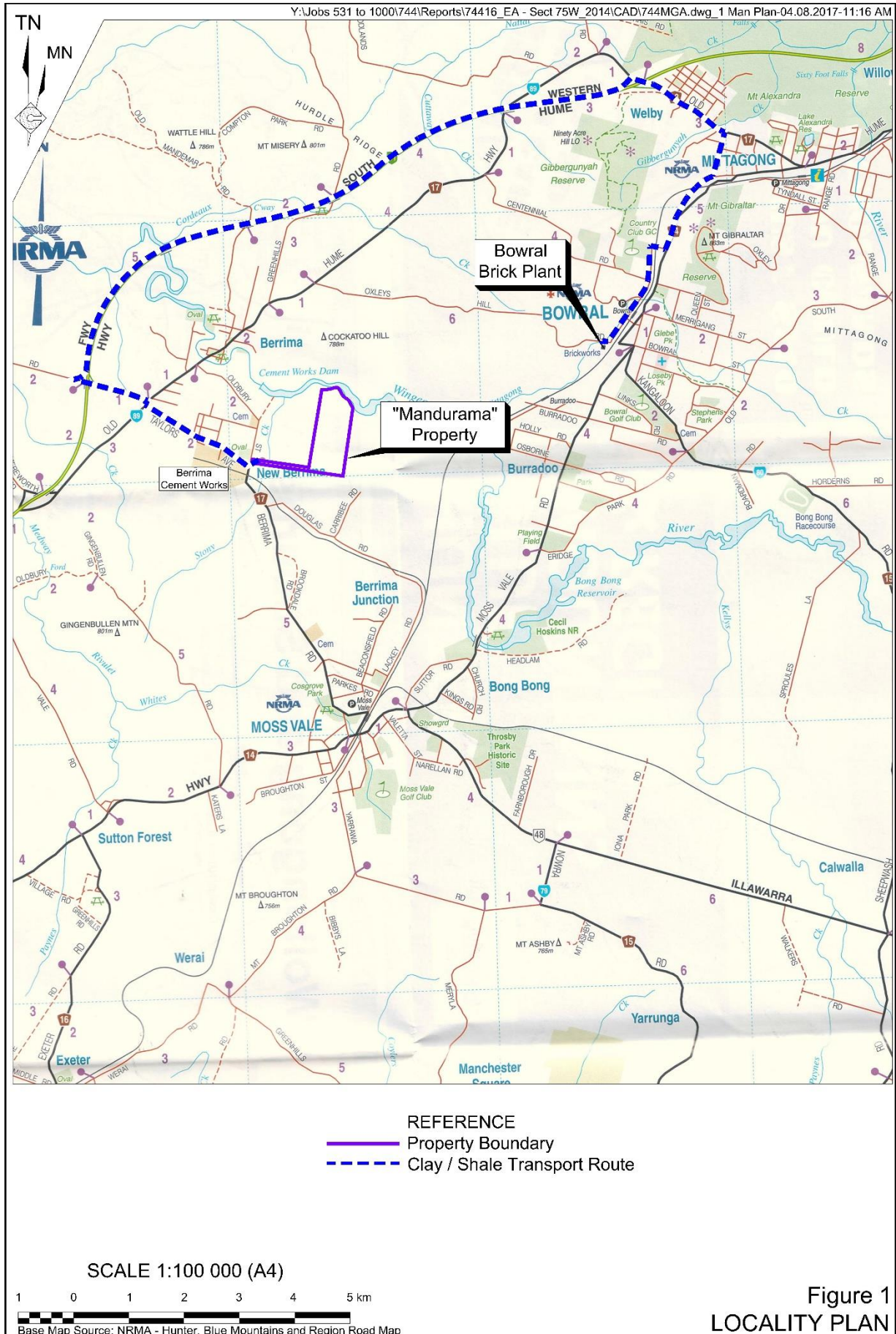
The principal activities approved at the Quarry (**Figure 2**) comprise the following.

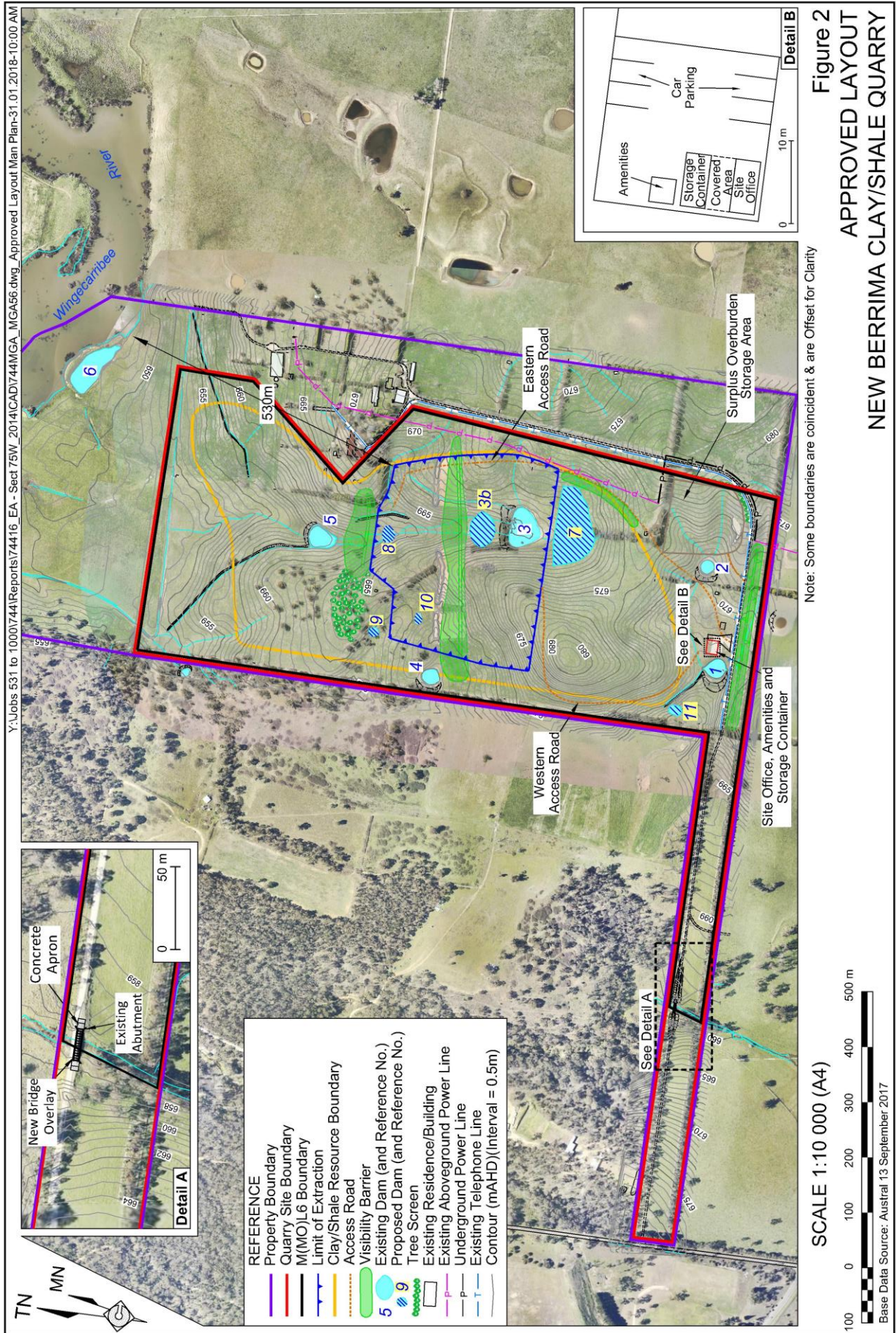
- Construction of visibility barriers to provide visual screening for the quarry operations.
- Extraction and stockpiling of clay/shale from the extraction area using standard ripping, pushing and loading techniques.
- Transportation of up to 150 000t per year of quarry products via Berrima Road using articulated and rigid trucks not exceeding 19m in length.

The relevant limitations upon the approved activities nominated in Conditions within PA08_0212 are as follows.

- “The Proponent must not carry out any development in the extraction area below a level of 640m AHD” *PA Condition 2(6)*.
- “The Proponent must not extract more than 150 000 tonnes of extractive materials from the site in any calendar year” *PA Condition 2(7)*.

¹ All conditions in Project Approval 08_0212 are referred to as the schedule number followed by the condition number in brackets, e.g. *PA Condition 3(8)*.





- “The Proponent must not transport more than:
 - a) 150,000 tonnes of product from the site in any calendar year;
 - b) 68 laden trucks from the site in a day; and
 - c) 8 laden trucks from the site in an hour.

The approved quarry life is until 31 December 2045 and the approved hours of operation are outlined in **Table 1**.

Table 1
Hours of Operation

Day	Construction & Extraction Operations	Clay/Shale Transportation
Monday – Friday	7:00am to 5:00pm	7:00am to 4:00pm
Saturday	8:00am to 1:00pm	8:00am to 1:00pm
Sundays and Public Holidays	None	None

2.2 Staged Operations

Figure 3 displays the staging sequence throughout the life of the Quarry. The southern section would be extracted in four stages, namely Stages 1 to 4. Once extraction ceases in the southern section, extraction would commence in the northern section with extraction undertaken in three stages, namely Stages 5 to 7. It is noted that, whilst the stages will progress sequentially, the actual timing for each stage will be largely dependent on the raw material requirements at the Bowral Brick Plant.

3. LEGAL AND OTHER REQUIREMENTS

3.1 Project Approval 08_0212

Austral was granted PA08_0212 by the Director-General of Planning and Infrastructure on 7 July 2012 pursuant to Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Modification 1 of PA08_0212 was approved on 15 December 2015 to incorporate modifications to the Quarry associated with an alternate extraction area boundary. Modification 2 of PA08_0212 was approved on 6 July 2017 to incorporate modifications to the Quarry associated with the construction of a new bridge over Stony Creek, the realignment of the western access road, the repositioning of the site office, amenities and storage container, and the installation of underground power and removal of a section of overhead power line. PA08_0212 includes the criteria that Austral needs to comply with and sets out the matters that need to be addressed within this NMP.

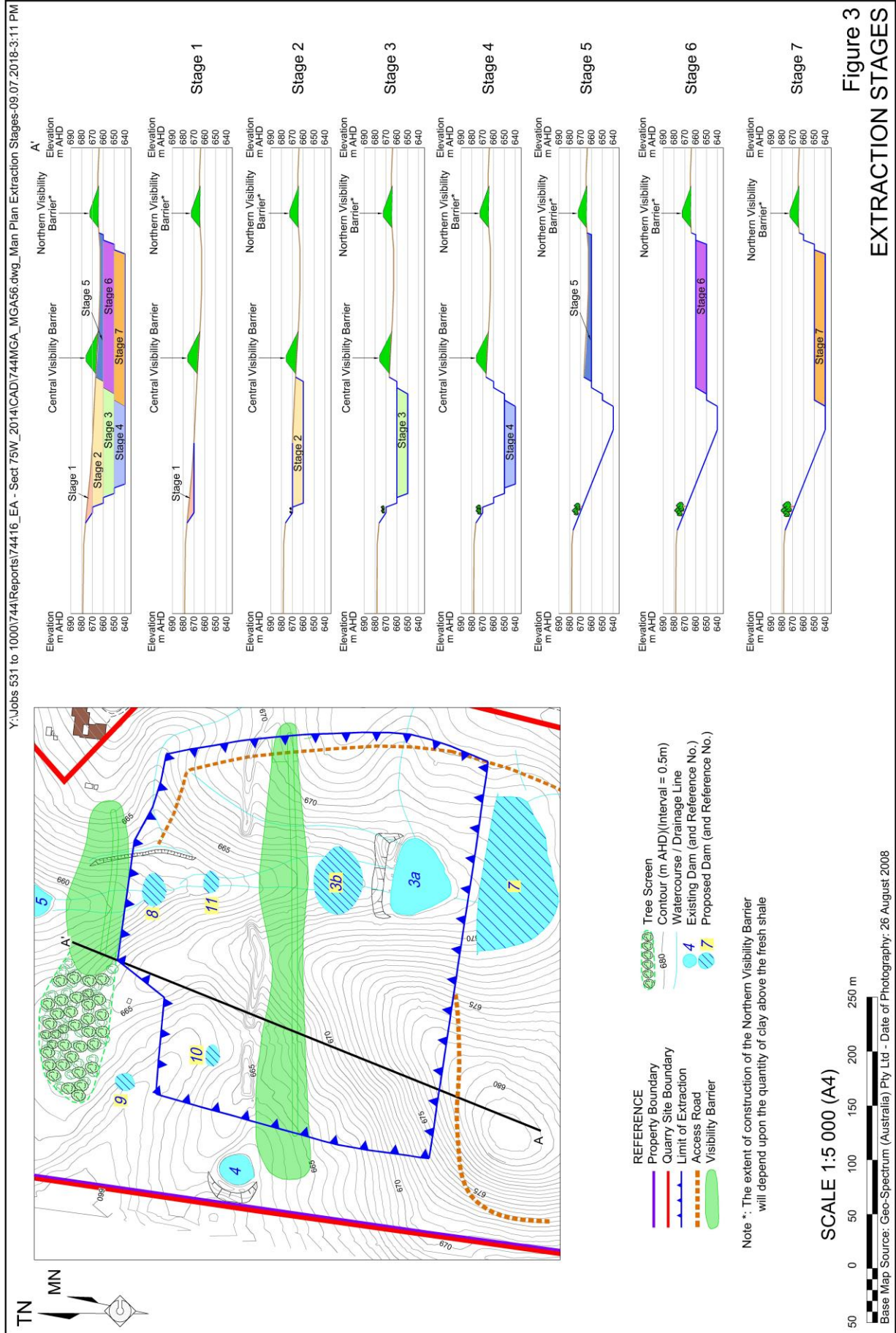


Figure 3
EXTRACTION STAGES

Relevant noise-related conditions in PA08_0212 are reproduced in **Tables 2** and **3** with a reference provided to the Section(s) of this document where each condition is addressed.

Table 2
Project Approval Requirements Relating to Noise

Page 1 of 3

Cond No.	Requirement	Plan Section																
3(3)	The Proponent must construct the visibility barriers prior to carrying out any extraction operations on site under this approval to the satisfaction of the Secretary. This condition does not prohibit the winning of extractive material on site to be used in the construction of the visibility barriers. <i>Note: The visibility barriers are shown on Figure 2.</i>	Section 7.2																
3(4)	During the construction of the visibility barriers, the Proponent must ensure that the noise generated on site does not exceed the criteria in Table 1. Table 1 – Noise Criteria – Bund Construction <table border="1"> <thead> <tr> <th>Receiver</th> <th>L_{Aeq(15min)}dB(A)</th> </tr> </thead> <tbody> <tr> <td>R2</td> <td>43</td> </tr> <tr> <td>All other receivers</td> <td>38</td> </tr> </tbody> </table> <p>Notes:</p> <ul style="list-style-type: none"> Receiver locations are shown in Figure 3. Noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy. 	Receiver	L _{Aeq(15min)} dB(A)	R2	43	All other receivers	38	Section 8.2										
Receiver	L _{Aeq(15min)} dB(A)																	
R2	43																	
All other receivers	38																	
3(5)	Except for the period when the visibility barriers are being constructed, the Proponent must ensure that the noise generated by the project does not exceed 38dB(A) LAeq (15min) at any residence on privately-owned land. However, this criterion does not apply if the Proponent has a written agreement with the relevant landowner to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement.	Section 8.2																
3(6)	The Proponent must comply with the operating hours in Table 2. Table 2 – Operating Hours <table border="1"> <thead> <tr> <th>Day</th> <th>Transport</th> <th>Quarrying Operations</th> <th>Construction</th> </tr> </thead> <tbody> <tr> <td>Monday – Friday</td> <td>7:00am to 4:00pm</td> <td>7:00am to 5:00pm</td> <td>7:00am to 5:00pm</td> </tr> <tr> <td>Saturday</td> <td>8:00am to 1:00pm</td> <td>8:00am to 1:00pm</td> <td>8:00am to 1:00pm</td> </tr> <tr> <td>Sundays and Public Holidays</td> <td>None</td> <td>None</td> <td>None</td> </tr> </tbody> </table> <p>Note: Maintenance activities may occur at any time provided they are inaudible at privately-owned residences</p>	Day	Transport	Quarrying Operations	Construction	Monday – Friday	7:00am to 4:00pm	7:00am to 5:00pm	7:00am to 5:00pm	Saturday	8:00am to 1:00pm	8:00am to 1:00pm	8:00am to 1:00pm	Sundays and Public Holidays	None	None	None	Section 7.1
Day	Transport	Quarrying Operations	Construction															
Monday – Friday	7:00am to 4:00pm	7:00am to 5:00pm	7:00am to 5:00pm															
Saturday	8:00am to 1:00pm	8:00am to 1:00pm	8:00am to 1:00pm															
Sundays and Public Holidays	None	None	None															
3(7)	The Proponent must: <ol style="list-style-type: none"> implement best practice noise management to minimise the construction, operational, low frequency and traffic noise of the project; minimise the noise impacts of the project during meteorological conditions when the noise limits in this approval do not apply; maintain the effectiveness of any noise suppression equipment on plant at all times and ensure defective plant is not used operationally until fully repaired; and regularly assess noise monitoring data and relocate, modify, and/or stop operations onsite to ensure compliance with the relevant conditions of this approval, to the satisfaction of the Secretary. 	Sections 7.3 and 7.4 Section 5, 7.2 Sections 7.3 and 7.4 Sections 9 and 11																

Table 2 (Cont'd)
Project Approval Requirements Relating to Noise

Page 2 of 3

Cond No.	Requirement	Plan Section
3(8)	The Proponent must prepare and implement a Noise Management Plan for the project to the satisfaction of the Secretary. This plan must:	Section 1
	(a) be prepared in consultation with the EPA, and submitted to the Secretary for approval prior to the construction of the visibility barriers;	
	(b) describe the measures that would be implemented to ensure: <ul style="list-style-type: none"> - best management practice is being employed on site; - the noise impacts of the project are minimised during meteorological conditions when the noise limits in this approval do not apply; and - compliance with the relevant conditions of this approval; 	Section 7
	(c) describe the proposed noise management system in detail; and	Section 7
	(d) include a monitoring program that: <ul style="list-style-type: none"> - is capable of evaluating the performance of the project; - includes a protocol for determining exceedances of the relevant conditions in this approval; and - evaluates and reports on the effectiveness of the noise management system on site. 	Section 8
4(1)	As soon as practicable after obtaining monitoring results showing an:	Sections 9 and 11
	(a) exceedance of any relevant criteria in schedule 3, the Proponent must notify affected landowners in writing of the exceedance, and provide regular monitoring results to each of affected landowner until the project is again complying with the relevant criteria.	
5(3)	The Proponent must ensure that the Management Plans required under this approval are prepared in accordance with any relevant guidelines, and include:	Section 8.2
	(a) detailed baseline data;	
	(b) a description of: <ul style="list-style-type: none"> - the relevant statutory requirements (including any relevant approval, licence or lease conditions); - any relevant limits or performance measures/criteria; and - the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures; 	Sections 3, 8 and 9
	(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	Section 7
	(d) a program to monitor and report on the: <ul style="list-style-type: none"> - impacts and environmental performance of the project; and - effectiveness of any management measures (see (c) above); 	Section 8
	(e) a contingency plan to manage any unpredicted impacts and their consequences;	Section 11
	(f) a program to investigate and implement ways to improve the environmental performance of the project over time;	Section 11
	(g) a protocol for managing and reporting any: <ul style="list-style-type: none"> - incidents; - complaints; - non-compliances with statutory requirements; and - exceedances of the impact assessment criteria and/or performance criteria; and 	Sections 9, 10 and 12
	(h) a protocol for periodic review of the plan. <i>Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.</i>	Section 14

Table 2 (Cont'd)
Project Approval Requirements Relating to Noise

Page 3 of 3

Cond No.	Requirement	Plan Section
5(4)	By the end of December 2016, and annually thereafter, the Proponent must review the environmental performance of the project to the satisfaction of the Secretary. This review must: <ul style="list-style-type: none"> (a) describe the development (including rehabilitation) that was carried out in the previous calendar year, and the works that are proposed to be carried out over the next year; (b) include a comprehensive review of the monitoring results and complaints records of the project over the past year, which includes a comparison of these results against: <ul style="list-style-type: none"> - the relevant statutory requirements, limits or performance measures/criteria; - the monitoring results of previous years; and - the relevant predictions in the documents listed in condition 2 of Schedule 2; (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 project; (e) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and (f) describe what measures will be implemented over the next year to improve the environmental performance of the project. 	Section 14
5(7)	The Proponent must notify, at the earliest opportunity, the Secretary and any other relevant agencies of any incident that has caused, or threatens to cause, material harm to the environment. For any other incident associated with the project, the Proponent must notify the Secretary and any other relevant agencies as soon as practicable after the Proponent becomes aware of the incident. Within 7 days of the date of the incident, the Proponent must provide the Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.	Section 12
5(8)	The Proponent must provide regular reporting on the environmental performance of the project on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this approval.	Section 13

Table 3
Statement of Commitments Relating to Noise

Commitment		Plan Section
Minimisation of the noise impacts attributable to extraction and transportation of clay /shale product from the Project Site.	5.1 Retain the existing tree screen on the eastern side of the extraction area.	Section 7.2
	5.2 Regularly service all equipment on Site to ensure sound power levels of each item remains at or below that nominated for noise modelling purposes.	Section 7.3
	5.3 Ensure all earth-moving equipment are fitted with mid-frequency band reversing alarms.	Section 7.3

3.2 Other Approvals, Leases and Licences

Other approvals and licences relevant to the site include Mining (Mineral Owners) Mining Lease 6 which was granted by the Department of Planning and Environment, Division of Resources and Geoscience on 27 June 2017 for the area displayed on **Figure 2** and Environment Protection Licence (EPL) 20377 issued by the Environment Protection Authority on 1 August 2016.

Mining (Mineral Owners) Mining Lease 6 does not contain any specific requirements relevant to this NMP. EPL 20377 contains requirements relevant to this NMP which are summarised in **Table 4** with a reference to the section(s) in this document where the requirement is addressed.

Table 4
EPL 20377 Requirements Relating to Noise

Cond No.	Requirement			Plan Section
L2.	Noise from the premise must not exceed the noise limits in the table below:			8.3
	Identification Point	Noise Limit at any time - dB(A) LAeq(15 minute)	Location	
	N1	42	North of the quarry void and labelled N1 on map titled "Environmental Monitoring Locations" dated 20 November 2015 (DOC16/206245).	
	N2	49	East of the quarry void and labelled N2 on map titled "Environmental Monitoring Locations" dated 20 November 2015 (DOC16/206245).	
	N3	44	Southeast of the quarry void and labelled N3 on map titled "Environmental Monitoring Locations" dated 20 November 2015 (DOC16/206245).	

4. ROLES AND RESPONSIBILITIES

Table 5 lists the roles and responsibilities of the personnel responsible for the development and operation of the New Berrima Clay / Shale Quarry and implementation of this NMP.

Table 5
Roles and Responsibilities

Roles*	Responsibilities
NSW Manufacturing Manager	<ul style="list-style-type: none"> Ensure all documentation is reviewed, as required. Ensure adequate resources are available to enable implementation of the NMP.
Raw Materials & Mining Manager	<ul style="list-style-type: none"> Ensure for the overall environmental performance of the New Berrima Quarry operations, including the following outcomes of this NMP and specifically the implementation of all noise controls outlined in Section 7.
Compliance & Environmental Coordinator	Manage the implementation of the following components of this NMP. <ul style="list-style-type: none"> Incident reporting as outlined in Section 12 Noise monitoring as outlined in Section 8 Evaluation of compliance as outlined in Section 9 and related follow-up actions. Complaints handling and response as outlined in Section 10. Coordinate Environmental Monitoring and publishing of data as outlined in Section 13. Review of this NMP as outlined in Section 14. Conduct environmental component of site induction for all employees and contractors.
All personnel	<ul style="list-style-type: none"> Ensure training and awareness induction has been undertaken. Compliance with this NMP.

*Or equivalent position delegated these responsibilities.

5. COMPETENCE TRAINING AND AWARENESS

All Austral personnel and contractors and their employees will undergo noise management awareness training as part of the site induction program. The Compliance & Environmental Coordinator or delegate will be responsible for ensuring that all relevant employees and contractors are appropriately inducted prior to undertaking any on-site operational activities and are re-inducted on at least a 2-yearly basis.

6. SURROUNDING RESIDENCES

Figure 4 displays the locations of residences surrounding the Quarry Site.

7. NOISE MITIGATION MEASURES

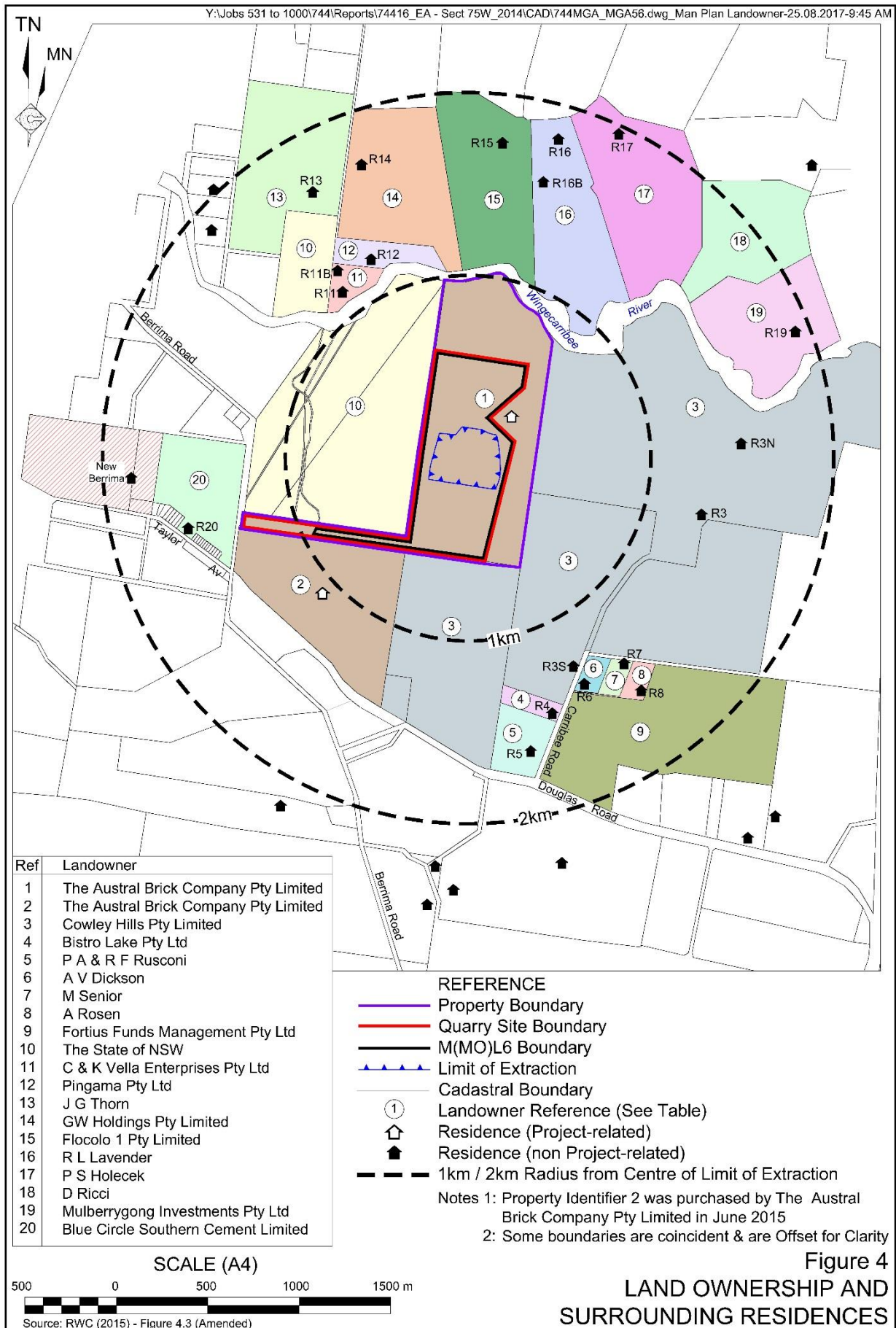
7.1 Introduction

PA Condition 3(8)(b) requires that this NMP describes the noise mitigation measures that will be adopted to ensure compliance with *PA Conditions 3(4), 3(5), and 3(6)* (**Table 2**). This section has been prepared in satisfaction of that requirement. The mitigation measures comprise design and operational safeguards and engineering and procedural noise controls.

7.2 Design and Construction Safeguards

The following design features and construction safeguards will be implemented.

- The construction of the central visibility barrier during Stage 1 of extraction to provide noise screening to residences on the northern side of Wingecarribee River during extraction Stages 2 to 4.
- The northern visibility barrier will be constructed to continue noise screening to residences on the northern side of Wingecarribee River during extraction Stages 5 to 7.
- The construction of a southern visibility barrier if surplus material is available after construction of the central and northern visibility barrier.
- Retention of existing tree screens at the northwestern and northeastern corners of the extraction area, and retain the existing tree screen on the eastern side of the extraction area
- Planting of a southeastern tree screen to increase tree screening surrounding the Surplus Overburden Stockpile Area.
- No processing of materials will be conducted at the Quarry.
- The transport route avoids wherever possible residential, school and other sensitive receiver areas. Significant proportions of the proposed route include State or regional roads or an existing transportation route.



7.3 Engineering Noise Controls

The following engineering noise controls will be implemented.

- All equipment at the Quarry would be regularly serviced to ensure sound power levels of each item remains as low as practicable and that tonal or rattle noises are minimised (such as occurs from poorly maintained equipment).
- Reversing alarms (mid frequency band) would be fitted to all earthmoving equipment to avoid high frequency noise associated with conventional alarms.

7.4 Procedural Noise Controls

7.4.1 Extraction Operations

The following operational noise management controls will be adopted.

- Austral will ensure that the operating hours and conditions identified in *PA Conditions 3(6)* are strictly complied with. The Compliance & Environmental Coordinator or their delegate will be responsible for ensuring the operating hours are included in the site induction and that no departures will be tolerated outside of these hours.
- Mobile plant will be fitted with standard mufflers. These will be maintained to manufacturer's specifications.
- Regular and effective maintenance of all earthmoving equipment either at the Quarry or off site. Prompt attention will be given to repair of loose or rattling parts and broken equipment. All maintenance work will be carried out by qualified persons.
- All Company personnel and contractors and their employees will be made aware of their obligations and responsibilities with regard to minimising noise emissions. Contractors will be required to familiarise themselves with methods of controlling noisy equipment.

The Raw Materials & Mining Manager will be responsible for all implementation of procedural noise controls and to ensure the noise level from all Quarry activities are within the required noise criteria during operations at the Quarry.

7.4.2 Traffic

The following traffic noise management measures will be implemented to minimise truck noise.

- Recording of heavy vehicle departure times via Austral's recording system.
- Implementation of a Drivers' Code of Conduct (see Transport Management Plan).
- Enforcement of speed limit of 30km/hr on the Quarry access road. The 30km/hr limit will be sign posted at the entrance to the Quarry.

The Raw Materials & Mining Manager will be responsible for the implementation of procedural noise controls.

8. MONITORING

8.1 Introduction

PA Condition 3(8)(d) requires that this NMP include a monitoring program that:

- is capable of evaluating the performance of the Quarry;
- includes a protocol for determining exceedances of the relevant conditions in this approval; and
- evaluates and reports on the effectiveness of the noise management system on site.

Additionally, PA Condition 5(3)(a) requires that this NMP include detailed baseline data.

This section has been prepared in satisfaction of those requirements.

It is noted that the criteria nominated in PA Condition 3(4) relate to all Quarry-related activities undertaken within Austral’s property including extraction, processing, product loading and truck movements until they depart from the Quarry onto Berrima Road.

8.2 Baseline Monitoring

Ambient noise levels at three representative locations were measured in 2008 by Spectrum Acoustics to support the 2010 *Environmental Assessment*. Noise levels were measured at 15 minute statistical intervals using Svan 949 sound and vibration analysers as environmental noise loggers. The measurements were undertaken in accordance with relevant guidelines and AS 1055-1997 “Acoustics – Description and Measurement of Environmental Noise”. The noise loggers used complied with the requirements of AS IEC 61672.1-2004 “Acoustics – Sound Level Meter Specifications”, and have current NATA calibration certification.

The loggers were programmed to continuously register environmental noise levels over 15 minute intervals, with internal software calculating and storing Ln percentile noise levels for each sampling period. Calibration of the loggers was performed as part of the instruments’ initialisation procedures, with calibration results being within the allowable ± 0.5 dB(A) range.

Ambient L_{Aeq} and Rating Background Levels (RBL, L_{A90}) are shown in **Table 6**. Most of the noise data were found to be wind-affected, with noise from nearby trees contributing strongly to data at R1 and R2. The logger at R3 was placed in an open paddock and, in the interests of conservatism, the daytime RBL of 33 dB(A), L_{90} has been adopted for all assessed receivers.

Table 6
Ambient Noise Levels

Location	Leq (day)	Leq (eve)	Leq (night)	L90 (day)	L90 (eve)	L90 (night)
R1 “Mandurama”	57	57	54	48	47	46
R2 “Chesley Park”	46	44	43	39	36	38
R3 “Carrabee Farm”	55	46	46	33	32	34

8.3 Compliance Monitoring

8.3.1 Purpose

The purpose of the attended compliance noise monitoring will be to determine compliance with the applicable noise criteria (see Section 8.3.3).

8.3.2 Noise Monitoring Locations

Attended noise monitoring will be conducted at three locations near the Quarry property boundary (to the north, east and southeast) to measure compliance with the Quarry noise criterion. **Figure 5** displays noise monitoring locations.

It is noted that, to minimise disturbance and inconvenience for surrounding land owners, noise monitoring locations are within the Quarry Site boundary between the proposed extraction area and the respective representative residences. The EPA has agreed that demonstration of compliance at those locations will satisfy the requirements of *PA Conditions 3(4), 3(5) and 3(8)*.

Noise monitoring will also be undertaken at surrounding residences in the event of a substantiated complaint, i.e. subject to access being granted to undertake the attended noise monitoring (see Section 8.4 - Supplementary Noise Surveys).

8.3.3 Noise Criteria

It is noted that the criterion throughout the operational life of the Quarry at any non-Quarry-related residence at any time of day, including during visibility barrier construction is 38dB(A) L_{Aeq} 15 minutes.

The noise criteria relevant to each noise monitoring location is set out below recognising that each location lies between the approved Quarry operations and the respective representative residences.

- N1 - 42dB(A)
- N2 - 49dB(A)
- N3 - 44dB(A)

Each of the above criteria are nominated in Condition L2.1 of EPL20377 and were established by Spectrum Acoustics based upon back calculation using the acoustic model developed to assess the noise impacts of the Quarry. Compliance with the above intermediate noise levels would ensure the 38dB(A) criterion will be achieved at the surrounding residences.

It is noted that the above criteria do not apply under the following meteorological conditions.

- a) Wind speeds greater than 3 metres/second at 10 metres above ground level.
- b) Stability category F temperature inversion conditions and wind speeds greater than 2 metres/second at 10 metres above ground level; or
- c) Stability category G temperature inversion conditions.

During the above meteorological conditions, Austral will review the locations of the operating equipment to identify any changes that could be implemented under these conditions. In any event, Austral will discuss the neighbour's perceptions of the noise levels under these conditions as part of its ongoing consultation with neighbours.

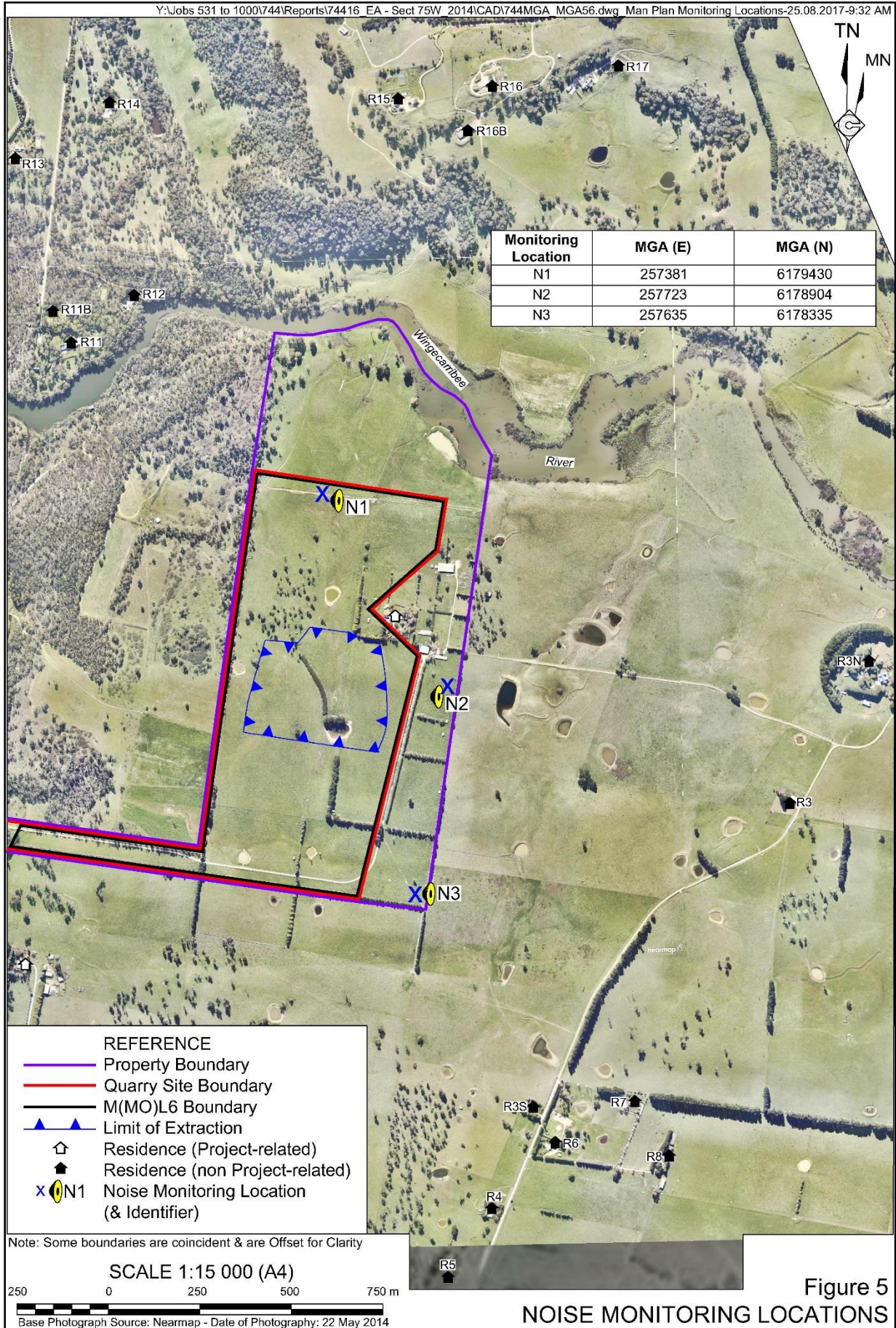


Figure 5
NOISE MONITORING LOCATIONS

8.3.4 Methodology

Attended noise monitoring will be undertaken quarterly during construction activities. Once clay/shale extraction commences, attended noise monitoring will be undertaken annually. Austral may undertake and/or commission more frequent attended noise monitoring during the initial stages of the extraction operations to ensure that the nominated noise-related management and mitigation measures are effective as anticipated.

Attended noise monitoring will be undertaken during the approved operating hours, and will cover a sufficient period to ensure that all project-related operations are monitored. All attended noise monitoring will be conducted in accordance with the requirements of the following documents, as amended.

- *NSW Industrial Noise Policy (INP)*.
- *AS 1055.1-1997 “Acoustics – Description and Measurement of Environmental Noise – General Procedures”*.

Attended monitoring will be undertaken using a Type 1 integrating sound level meter with 1/3 octave filter and will be set to A-weighting (fast response).

Attended noise monitoring will expressly seek to identify and quantify any relevant modification factors referred to in Chapter 3 of the INP.

All acoustic instrumentation employed throughout the monitoring program will comply with the requirements of AS IEC 61672-2004, *Electroacoustics – Sound Level Meters*, as amended, and will carry current NATA or manufacturer calibration certificates. Instrument calibration will be checked before and after each survey, with the variation in calibrated levels not exceeding $\pm 0.5\text{dB(A)}$.

The maximum ($L_{A\text{max}}$), and the energy equivalent ($L_{A\text{eq}}$) intrusive noise level from operations within the Quarry Site over a 15 minute measurement period will be recorded. On some occasions, the L_{A90} noise level (i.e. without contributions from the Quarry) will also be recorded to identify the prevailing background noise level. Information that will be recorded during monitoring and about each location will include:

- the name of the person undertaking the monitoring;
- location(s) of the monitoring;
- recording intervals (date and times);
- meteorological conditions, i.e. temperature, humidity, cloud cover, and wind speed and direction drawn from the on-site weather station;
- statistical noise level descriptors together with notes identifying the principal noise sources;
- instrument make, model, serial number and calibration details; and
- a brief description of activities occurring within the Quarry during the monitoring period.

Austral will record the type of mobile equipment and their locations operating during the period of noise monitoring.

8.4 Supplementary Noise Surveys

In the event of a substantiated noise-related complaint that cannot otherwise be satisfactorily resolved with the complainant, Austral will undertake or commission a supplementary attended noise survey as described in Section 8.3.3. In the event that the supplementary noise survey records compliance, further monitoring would not be undertaken / would be undertaken at the discretion of Austral. In the event the supplementary noise survey records exceedance of noise criteria, appropriate management measures would be implemented, and further supplementary noise surveys would be completed to demonstrate compliance.

In addition, Austral may at its discretion, particularly during the initial construction stages of the Quarry, undertake supplementary attended noise surveys in accordance with the procedures identified in Section 8.3.3.

9. EVALUATION OF COMPLIANCE

A noise monitoring report will be prepared within 7 days of each attended noise monitoring event. This report will include an assessment of the monitoring results against the criteria identified in Section 8.3.3.

All monitoring reports will be reviewed by the Compliance & Environmental Coordinator and a copy included within each *Annual Review*.

If attended noise monitoring identifies an exceedance of the noise criteria, Austral will initiate incident reporting procedures and appropriate corrective and preventative actions as discussed in Sections 11 and 12.

A copy of the investigation report and regular updates on the status of the identified corrective and/or preventative actions will be provided to the NSW Department of Planning and Environment (DPE) and EPA and, if required, the complainant, in accordance with the procedures identified in Sections 10 and 11. A summary of the outcomes of the investigation will be included in the subsequent *Annual Review*.

10. COMPLAINTS HANDLING AND RESPONSE

Noise-related complaints may be received via one of the following methods.

- Directly via the 24-hour, 7 day per week Community Information Line (1800 635 620) or via the Bowral Brick Plant phone line (02 4862 1062).
- Directly via a dedicated email address compliance-ab@australbricks.com.au which is advertised in a similar manner to the Community Information Line.
- Indirectly via a local or state government agency.

Following receipt of any noise-related complaint, Austral will implement the following procedure.

1. The complaint will be reviewed by the Compliance & Environmental Coordinator or their delegate in conjunction with Quarry personnel to confirm that complaint is justified, and if so to determine (and record) the nature, date and time of the offending noise source(s).
2. If required in order to address the complaint (see Section 8.3.4), a supplementary attended noise survey will be undertaken in accordance with the procedures identified in Section 8.3.3 during the next period when operations are comparable to those during the period relating to the complaint. The resulting attended noise monitoring report will be provided to the complainant on receipt.
3. Should the attended noise monitoring report indicate that no exceedance of the criteria identified in *PA Condition 3(4) or 3(5)* has occurred, the Compliance & Environmental Coordinator will continue to consult with the complainant in relation to managing noise emissions within the Quarry Site.
4. Should the attended noise monitoring report indicate that an exceedance of the criteria identified in *PA Condition 3(4) or 3(5)* has occurred, the Environmental Officer will notify the EPA and DPE in accordance with the procedures identified. In addition, the Environmental Officer will continue to consult with the complainant, as required, in relation to the complaint.
5. No further monitoring will be undertaken in the event that further complaints are received from the same person(s) and Austral can demonstrate compliance with the criteria identified in *PA Conditions 3(4) or 3(6)*.

All complaints would be recorded using a proforma complaints book developed for all sites operated by Austral Bricks throughout NSW.

11. CORRECTIVE AND PREVENTATIVE ACTIONS

In the event that attended noise monitoring identifies an exceedance of the noise criteria identified in *PA Conditions 3(4) and 3(5)*, the Compliance & Environmental Coordinator, or their delegate, will first notify relevant agencies in accordance with Section 12. The exceedance will then be reviewed to determine the likely cause(s). The review will seek to determine:

- whether the exceedance of the criteria was directly related to a source associated with the Quarry or if environmental factors contributed to the exceedance;
- the primary cause of the exceedance;
- any contributing factors which led to the exceedance;
- whether appropriate controls were implemented to prevent the exceedance; and
- corrective and preventative measures that may be implemented to prevent a recurrence of the exceedance.

Corrective and/or preventative actions will be assigned to relevant personnel of either Austral or its contractor. Actions will be communicated internally, such as through planning meetings and toolbox talks, and outstanding actions will be monitored for their effectiveness upon completion.

12. INCIDENT REPORTING

In the event of an exceedance of noise criterion (note: the noise criterion relate to noise generated by the Quarry²), as described in Section 9, the exceedance will be reported in accordance with the Incident Reporting Procedure outlined within the Environmental Management Strategy for the Quarry (prepared in accordance with *PA Condition 5(1)*). Additionally, the affected landowners will be notified in writing and a copy of the noise monitoring reports provided to the landowners until noise monitoring confirms a return to compliance.

13. PUBLICATION OF MONITORING INFORMATION

Austral will place a summary of all attended noise monitoring, on Austral's website.

In addition, Austral will include a copy of the noise monitoring reports within each respective *Annual Review* for the period ending 31 December each year and addresses the relevant requirements of *PA Condition 5(4)*. That document, once approved by the relevant government agencies, will also be published on Austral's website.

14. PLAN REVIEW

This NMP will be reviewed, and amended if necessary, following the receipt of an updated Environment Protection Licence.

In accordance with *PA Condition 5(5)*, this *Noise Management Plan* will also be reviewed and, if required, revised within 3 months of:

- the submission of an annual review under *PA Condition 5(4)*;
- the submission of an incident report under *PA Condition 5(7)*;
- the submission of an independent environmental audit report under *PA Condition 5(9)*; and
- any modification to the conditions of PA08_0212.

² Refer to *PA Conditions 3(4)* and *3(5)*.

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