MOUNT PLEASANT OPERATION

NOISE MANAGEMENT PLAN

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1 INTRODUCTION

The Mount Pleasant Operation (MPO) is located in the Upper Hunter Valley of New South Wales (NSW), approximately 3 kilometres (km) north-west of Muswellbrook and approximately 50 km north-west of Singleton (Figure 1). The village of Aberdeen and locality of Kayuga are located approximately 5 km north-northeast and 1 km north of the MPO boundary, respectively (Figure 1). MACH Energy Australia Pty Ltd (MACH Energy) purchased the MPO from Coal & Allied Operations Pty Ltd (Coal & Allied) in 2016.

MACH Mount Pleasant Operations Pty Ltd is the manager of the MPO as agent for, and on behalf of, the unincorporated Mount Pleasant Joint Venture between MACH Energy (95 per cent [%] owner) and J.C.D. Australia Pty Ltd (5% owner).

The initial development application for the MPO was made in 1997 supported by an Environmental Impact Statement (EIS) prepared by Environmental Resources Management (ERM) Mitchell McCotter (ERM Mitchell McCotter, 1997). On 22 December 1999, the then Minister for Urban Affairs and Planning granted Development Consent DA 92/97 to Coal & Allied. This allowed for the "Construction and operation of an open cut coal mine, coal preparation plant, transport and rail loading facilities and associated facilities" at the MPO. The consent allowed for operations 24 hours per day, seven days per week and the extraction of 197 million tonnes (Mt) of run-of-mine (ROM) coal over a 21 year period, at a rate of up to 10.5 Mt of ROM coal per year.

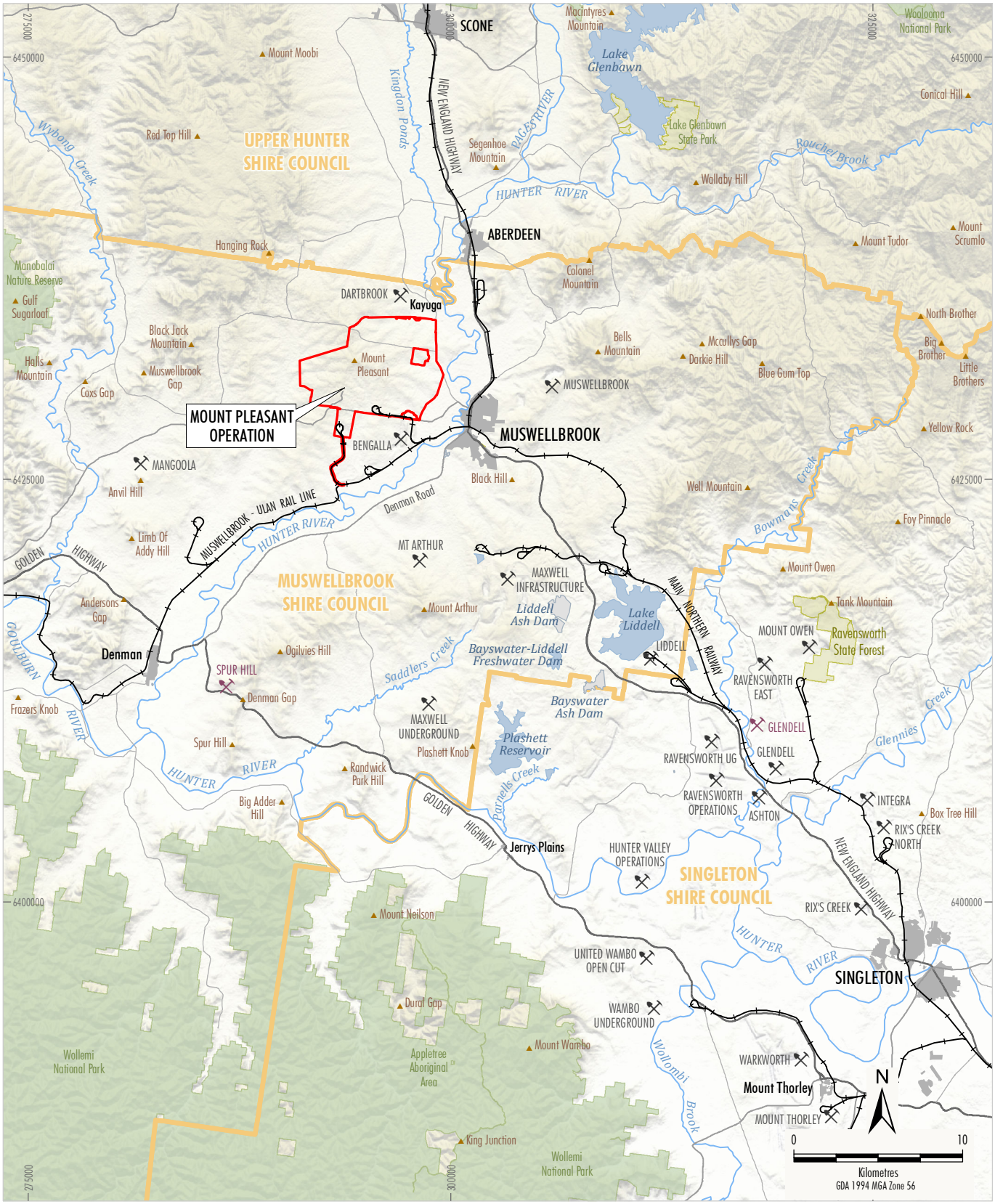
The Mount Pleasant Project Modification (MOD 1) was submitted on 19 May 2010 with a supporting Environmental Assessment (EA) (EMGA Mitchell McLennan, 2010). MOD 1 included the provision of an infrastructure envelope for siting the mine infrastructure, the provision of an optional conveyor/service corridor linking the MPO facilities with the Muswellbrook-Ulan Rail Line and modification of the existing Development Consent DA 92/97 boundaries to accommodate the optional conveyor/service corridor and minor administrative changes. MOD 1 was approved on 19 September 2011.

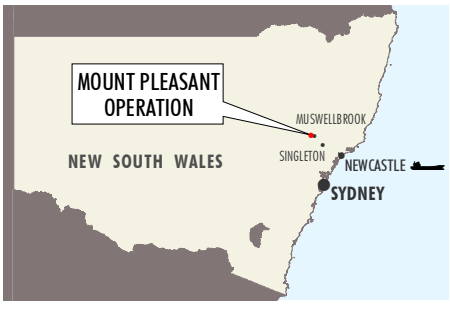
The MPO South Pit Haul Road Modification (MOD 2) was submitted on 30 January 2017 with a supporting EA prepared by MACH Energy (MACH Energy, 2017a). MOD 2 proposed to realign an internal haul road to enable more efficient access to the South Pit open cut, with no other material changes to the approved MPO. MOD 2 was approved on 29 March 2017.

The MPO Mine Optimisation Modification (MOD 3) was submitted on 31 May 2017 with a supporting EA prepared by MACH Energy (MACH Energy, 2017b). MOD 3 comprised an extension to the time limit on mining operations (to 22 December 2026) and extensions to the South Pit Eastern Out of Pit Emplacement to facilitate development of an improved final landform. MOD 3 was approved on 24 August 2018.

The MPO Rail Modification (MOD 4) was submitted on 18 December 2017 with a supporting EA prepared by MACH Energy (MACH Energy, 2017c). MOD 4 proposed the following changes:

- duplication of the approved rail spur, rail loop, conveyor and rail load-out facility and associated services;
- duplication of the Hunter River water supply pump station, water pipeline and associated electricity supply that followed the original rail spur alignment; and
- demolition and removal of the redundant approved infrastructure within the extent of the Bengalla Mine, once the new rail, product loading and water supply infrastructure has been commissioned and is fully operational.





LEGEND

- Mining Operation
- Proposed Mining Operations (Application Lodged)
- Railway
- Local Government Boundary
- State Forest/Reserve
- National Parks and Wildlife Estate
- Mining Lease Boundary (Mount Pleasant Operation)

Source: NSW Spatial Services (2021)

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Project Location

Figure 1

MAC-18-03 MP 2021_Figure 1_Rev A

MOD 4 was approved on 16 November 2018 by the Secretary of the Department of Planning and Environment (under Delegation). Appendix 2 of the modified Development Consent DA 92/97 illustrates the Conceptual Project Layout Plan of the approved MPO at 2021 and 2025, Approved Surface Disturbance Plan and Conceptual Final Landform (Attachment 1) incorporating the MOD 4 infrastructure relocations.

2 PURPOSE AND SCOPE

This Noise Management Plan (NMP) has been prepared by MACH Energy to satisfy the requirements of Condition 9, Schedule 3 of Development Consent DA 92/97 (Table 1).

Table 1
Specific Development Consent Conditions

MPO Development Consent DA 92/97 Schedule 3	Section Where Addressed in this NMP
9. *The Applicant must prepare a Noise Management Plan for the development to the satisfaction of the Secretary. The plan must:*	This document
(a) be submitted to the Secretary for approval by 30 June 2019, unless otherwise agreed by the Secretary;	This document is to be approved by the Department of Planning, Industry and the Environment (DPIE)
(b) describe the measures (including both proactive and reactive mitigation measures) to be implemented to:	Sections 7, 8, 9 and 10
• *ensure compliance with the noise criteria and operating conditions in this consent;*	
• *minimise rail noise (including wheel and brake squeal) to the greatest extent practicable; and*	
• *minimise the noise impacts of the development during noise-enhancing meteorological conditions when the operational noise criteria in this consent do not apply (see Notes to condition 3 of Schedule 3);*	
(c) include a noise monitoring program that:	Section 9
• *uses a combination of real-time and supplementary attended monitoring to evaluate the performance of the development;*	Sections 9.2 and 9.3
• *accounts for the occurrence of any noise enhancement between the site, and any sensitive receivers located beyond the site boundary; and*	Sections 9.2 and 9.3
• *includes a protocol for determining exceedances of the relevant conditions of this consent.*	Section 9.2.5
(d) include a protocol that has been prepared in consultation with the owners of the nearby mines (including the Bengalla mine) to minimise the cumulative noise impacts of the mines.	Section 8.6
The Applicant must implement the management plan as approved by the Secretary.	

This NMP describes the management of noise associated with construction and operation of the MPO, in accordance with Development Consent DA 92/97.

The NMP applies to all employees and contractors at the MPO and covers all areas within the MPO boundary. The NMP applies to the life of the MPO, including (but not limited to) the period of mining operations specified in Development Consent DA 92/97, which currently permits mining until 22 December 2026. As required by Condition 5, Schedule 2 of Development Consent DA 92/97, the NMP will continue to apply (excluding mining operations) beyond 22 December 2026, as required, until the rehabilitation and any additional undertakings (required by the Secretary of the DPIE, or Resources Regulator within the Department of Regional NSW [DRNSW]) have been carried out satisfactorily.

2.1 PREVIOUS VERSIONS

A previous version of the NMP was submitted by Coal & Allied as a Construction Noise Management Plan (CNMP) and was approved in 2012. The CNMP was submitted as a staged plan limited to the construction stage of the project, excluding any coal handling and processing.

A revised version of the CNMP was submitted by Coal & Allied in 2015 and approved on 2 December 2015. As per the previous version of the CNMP, this plan was limited to construction activities at the MPO, excluding the development of the box-cut and any activities related to the extraction of coal.

A new version of the NMP was prepared by MACH Energy to replace the CNMP described above. Consistent with Condition 9, Schedule 3 of Development Consent DA 92/97, this version of the NMP was prepared to allow for both construction and operation of the MPO and was approved on 14 June 2017.

A new version of the NMP was required to relocate site monitoring locations consistent with the Air Quality and Greenhouse Gas Management Plan, to transition from construction to operations. In particular, monitor N-B02 and weather mast M-WM2 were relocated approximately 800 metres (m) to the south-east. The revised NMP was approved on 15 February 2018.

Revision of the NMP was required to document the relocation of site monitoring locations following the approval of MOD 3 and MOD 4 (24 August 2018 and 16 November 2018, respectively) and the commencement of open cut mining operations. The noise criteria were updated, additional detail regarding both proactive and reactive mitigation measures were included and restrictions related to construction activities were removed. This revision was approved on 31 October 2019.

2.2 CURRENT VERSION

The current version of the NMP was updated with the revised site monitoring locations following a review commissioned by MACH Energy in 2020. This review was conducted to identify opportunities to improve noise management practices and further minimise noise impacts at the MPO pursuant to Condition 8, Schedule 3 of Development Consent DA 92/97. Consistent with the recommendations of the review, monitor N-AT3 will be relocated approximately 600 m to the north-east (i.e. the location shown on Figure 6) and the real-time response triggers for N-B02 will be adjusted.

3 FORMAT OF THE PLAN

This NMP consists of the following sections:

Section 1: Introduction.

Section 2: Purpose and Scope – describes particular components of this NMP as specified in the development consent conditions.

Section 3: Format of the Plan.

Section 4: Statutory Obligations – MACH Energy's statutory requirements and other obligations applicable to this NMP.

Section 5: Existing Environment – outlines the existing environment including baseline data and sensitive receptors in the vicinity of the MPO.

Section 6: Noise Criteria – outlines the relevant noise criteria applicable to the MPO.

Section 7: Performance Indicators – outlines the specific performance indicators that MACH Energy proposes to use to guide the implementation of the noise management measures and judge their performance.

Section 8: Noise Management and Control Measures – describes the noise management and control measures to be implemented for the MPO.

Section 9: Noise Monitoring Program – outlines the noise monitoring program components including nominal locations, frequency and parameters.

Section 10: Contingency Plan – provides a contingency plan to manage unprecedented impacts and their consequences.

Section 11: Review and Improvement of Environmental Performance – provides details of the review process (through the Annual Review and revisions of this NMP) and improvement of the environmental performance of the MPO (through the Independent Environmental Audit and revisions of this NMP).

Section 12: Reporting Procedures – describes the management and reporting of incidents, complaints and non-compliances.

Section 13: References – provides references cited in this NMP.

4 STATUTORY OBLIGATIONS

Activities at the MPO will be managed in accordance with a number of licences, permits and leases that have been issued or are pending issue.

MACH Energy's statutory obligations are contained in:

- the conditions of Development Consent DA 92/97;
- the conditions of the Commonwealth Approval EPBC 2011/5795;
- relevant licences (including Environment Protection Licence [EPL] 20850), permits and mining leases (MLs) (ML 1645, ML 1708, ML 1709, ML 1713, ML 1750 and ML 1808); and
- other relevant legislation.

In addition, MACH Energy operates in accordance with the approved MPO Mining Operations Plan, as amended from time to time.

Obligations relevant to this NMP are described below.

4.1 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979 DEVELOPMENT CONSENT

The conditions of Development Consent DA 92/97 relevant to the content and structure of this NMP are described below. A comprehensive list of all conditions in Development Consent DA 92/97 relevant to noise is provided in Appendix A.

4.1.1 Noise Management Plan Requirements

Condition 9, Schedule 3 of Development Consent DA 92/97 requires the preparation of a NMP (refer Table 1).

4.1.2 Management Plan (General) Requirements

Condition 2, Schedule 5 of Development Consent DA 92/97 outlines the general management plan requirements that are also applicable to the preparation of this NMP. Table 2 presents these requirements and indicates where each is addressed within this NMP.

Table 2
General Development Consent Conditions

MPO Development Consent DA 92/97 Schedule 5	NMP Section
2. The Applicant must ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include:	
(a) detailed baseline data;	Section 5
(b) a description of:	
• *the relevant statutory requirements (including any relevant consent, licence or lease conditions);*	Section 4
• *any relevant limits or performance measures/criteria;*	Section 6
• *the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;*	Section 7
(c) *a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;*	Sections 7, 8, 9 and 10
(d) a program to monitor and report on the:	Section 11
• *impacts and environmental performance of the development;*	
• *effectiveness of any management measures (see c above);*	
(e) a contingency plan to manage any unpredicted impacts and their consequences;	Section 10
(f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 11
(g) a protocol for managing and reporting any:	Section 12
• *incidents;*	
• *complaints;*	
• *non-compliances with statutory requirements; and*	
• *exceedances of the impact assessment criteria and/or performance criteria; and*	
(h) a protocol for periodic review of the plan.	Section 11.2
Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.	

4.2 OTHER LEGISLATION

Other NSW Acts and Regulations that may be applicable to noise at the MPO include, but are not limited to, the:

- *Protection of the Environment Operations Act, 1997*;
- *Protection of the Environment Operations (General) Regulation, 2009*;
- *Roads Act, 1993;*
- *Work Health and Safety Act, 2011*;
- *Work Health and Safety Regulation, 2011*;
- *Work Health and Safety (Mines) Act, 2013*; and
- *Work Health and Safety (Mines) Regulation, 2014*.

Other guidelines and standards that were considered during the preparation of this NMP include:

- *NSW Industrial Noise Policy* (INP) (NSW Environment Protection Authority [EPA], 2000);
- Application Notes – INP (EPA, 2013);
- *Noise Policy for Industry* (NPfI) (EPA, 2017);
- *Interim Construction Noise Guideline* (ICNG) (EPA, 2009);
- *Voluntary Land Acquisition and Mitigation Policy* (NSW Department of Planning and Environment, 2018).
- Australian Standard (AS) 2659.1-1998 *Guide to the use of sound measuring equipment – Portable sound level meters*;
- AS 1259.2-1990 *Acoustics – Sound level meters Integrating – Averaging*;
- AS 2012.1-1990 *Acoustics – Measurement of airborne noise emitted by earth-moving machinery and agricultural tractors – Stationary test condition Determination of compliance with limits for exterior noise*; and
- AS 1055.1-1997 *Acoustics – Description and measurement of environmental noise General procedures*.

5 EXISTING ENVIRONMENT

5.1 BASELINE DATA

5.1.1 1997 Environmental Impact Statement Representative Background Noise Levels

The EIS prepared in 1997 (ERM Mitchell McCotter, 1997) included long term noise monitoring data at seven representative residential locations. Section 12.1 of the EIS describes the surrounding environment and details the baseline noise survey undertaken at that time. Representative background noise levels were then determined for the EIS using the 90th percentile of measured L_{A90} noise levels. While the levels were not determined consistent with the INP (as the EIS predated the INP), the background noise levels adopted in the EIS are provided in Table 3.

Table 3
Representative Background Noise Levels Adopted for the Environmental Impact Statement – 1997

Location		90th Percentile L_{A90}, dB(A)	
Name	Relative to Site	Day (7.00 am to 10.00 pm)	Night (10.00 pm to 7.00 am)
Location 1	North-east (Kayuga)	30	30
Location 2	East (Kayuga Rd)	30	29
Location 3	East (Wybong Rd)	30	32
Location 4	East (Muswellbrook)	38	30
Location 5	South-east (Muswellbrook)	34	32
Location 6	North-east (Kayuga)	32	34
Location 7	South-east (Muswellbrook)	42	41

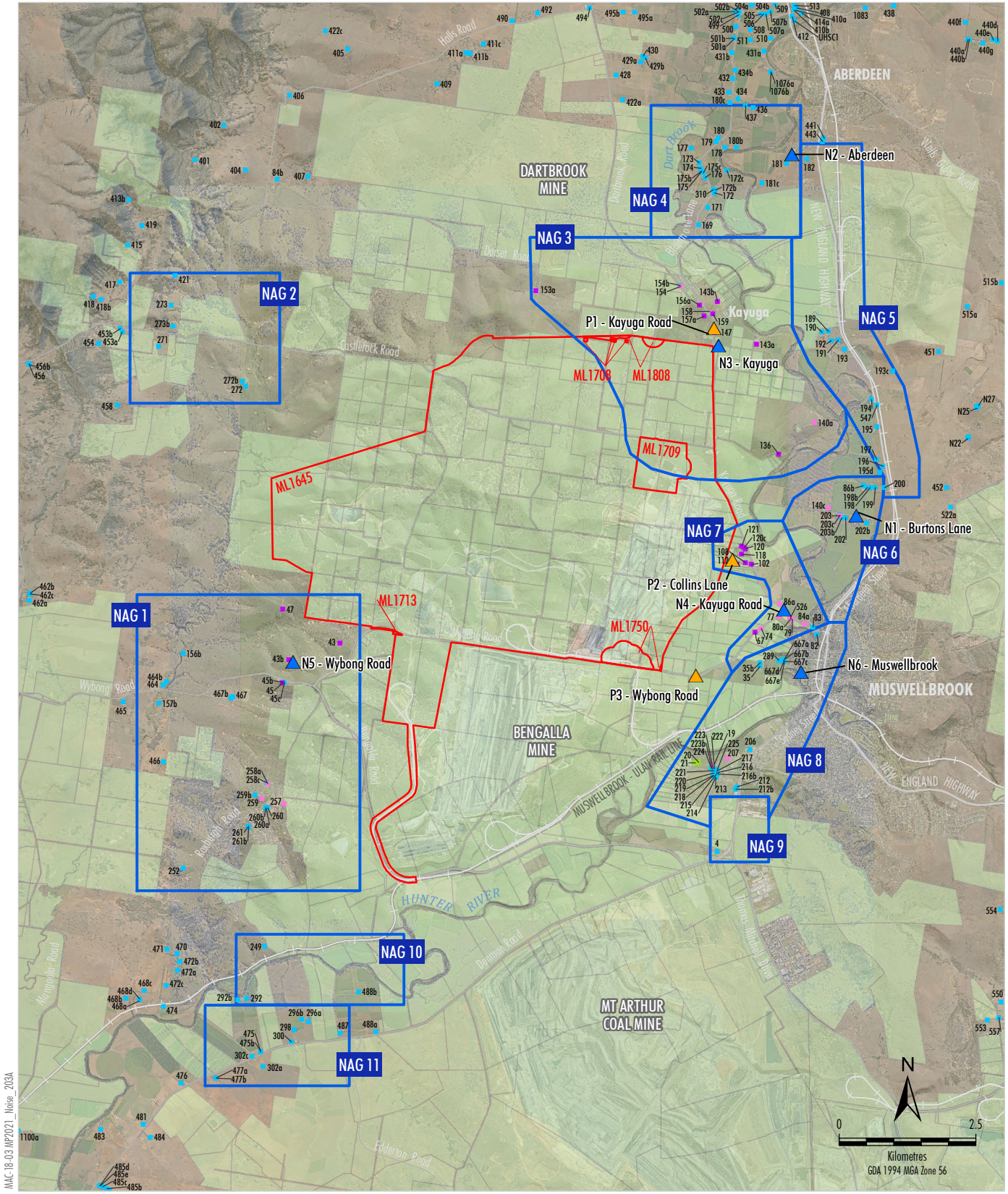
Source: ERM Mitchell McCotter, 1997.
dB(A) = A weighted decibels.

5.1.2 2010 Environmental Assessment Report Rating Background Levels

In 2000, the EPA (the then Department of Environment, Climate Change and Water) released the INP, which provides guidelines for determining the rating background level (RBL).

The MOD 1 EA prepared in 2010 (EMGA Mitchell McLennan, 2010) utilised unattended noise monitoring results from ongoing MPO baseline surveys. The MOD 1 EA utilised monitoring data collected in 2009 at locations considered representative of groupings of private receivers based on background noise levels, described as Noise Assessment Groups (NAGs) (Figure 2).

The RBLs measured for the MOD 1 EA were generally comparable to the representative background levels determined for the EIS (EMGA Mitchell McLennan, 2010). The RBLs measured for the MOD 1 EA are detailed in Table 4.



LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Mine-controlled Land
- Privately-owned - Acquisition on Request
- Privately-owned - Mitigation on Request
- Privately-owned - Mitigation/Acquisition on Request*
- Other Privately-owned
- Noise Assessment Group (NAG) (MOD 1)

Previous Noise Monitoring Site

- Q1, 2006 - Q1, 2007
- Q3, 2007 - Q3, 2014

* Mitigation on Request - rail noise/Acquisition on Request - air quality. MACH is only required to acquire and/or install air quality mitigation measures at this property if not reasonably achievable under a separate approval for the Bengalla Mine.

Source: MACH (2021); NSW Spatial Services (2021)
Orthophoto: MACH (2021, 2020)

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Previous Noise Monitoring Sites

Figure 2

Table 4
Rating Background Levels Measured for the Environmental Assessment – 2010

Location		Measured RBL, dB(A)[1]		
Name	Relative to Site	Day	Evening	Night
Burtons Lane	Far east (north of Muswellbrook), near the New England Highway	32	37	32
Aberdeen	North-east	32	34	31
Kayuga	North north-east	30	30	30
Kayuga Road	North-east	35	38	32
Wybong Road	South-west, conveyor area	30	30	30
Muswellbrook	South-east	36	40	34
Racecourse Road	South-east	38	37	36
Yammanie	South-east (south-east of Racecourse)	34	33	32
East Antiene, New England Highway	South-east (applies to residences near New England Highway east of site)	36	35	34

Source: EMGA Mitchell McLennan, 2010.

Notes:

[1] Where RBL values below 30 dB(A) were measured, the INP's minimum recommended background of 30 dB(A) was adopted.

5.1.3 Operator-attended Monitoring

Operator-attended noise monitoring has been conducted quarterly around the site to quantify and characterise the existing noise environment prior to the mine being established.

Operator-attended monitoring was conducted in accordance with the INP (EPA, 2000) and AS 1055 'Acoustics, Description and Measurement of Environmental Noise'. Meteorological parameters were also measured at the time of monitoring.

Operator-attended monitoring was undertaken quarterly throughout 2006 and in Quarter 1 of 2007 at three locations around the site. The historical operator-attended monitoring locations were (Figure 2):

- P1 – Little Acres, Kayuga Road, Kayuga;
- P2 – Collins Lane; and
- P3 – Wybong Road near the intersection with Logues Lane.

Operator-attended monitoring locations were revised and expanded in the second half of 2007 (i.e. Quarter 3 onwards) and operator-attended monitoring was conducted at these locations quarterly (until Quarter 3, 2014). The revised historical operator-attended monitoring locations were (Figure 2):

- N1 – Burtons Lane, Muswellbrook (Burtons Lane);
- N2 – Gordon Street, Aberdeen (Aberdeen);
- N3 – Little Acres, Kayuga Road, Kayuga (Kayuga);
- N4 – Corner of Kayuga and Wybong Roads, Muswellbrook (Kayuga Road);
- N5 – 1232 Wybong Road (Wybong Road); and
- N6 – Corner of Brooks and Scott Streets, Muswellbrook (Muswellbrook).

The duration for each measurement was 15 minutes. Monitoring was carried out once at each monitoring site during the night period. A combination of road noise, rail movements, mine noise from active mining operations and rural noise sources including insects and frogs generally dominated the acoustic environment at most locations.

Noise monitoring was not undertaken during the period Quarter 4 of 2014 to Quarter 4 of 2016. Regular operator-attended noise monitoring re-commenced in Quarter 4 of 2016.

Summary of Attended Monitoring Results

Detailed results for the operator-attended monitoring conducted from Quarter 1 of 2006 until Quarter 1 of 2007 (including L_{A10}, L_{Aeq} and L_{A90}) are provided in Tables B1 to B3 (Appendix B) (Coal & Allied, 2007; 2008). Detailed results for the operator-attended monitoring conducted from Quarter 3 of 2007 until Quarter 3 of 2014 (including L_{A1}, L_{A10}, L_{Aeq} and L_{A90}) are provided in Tables B4 to B9 and Figures B1 to B6 (Appendix B) (Coal & Allied, 2008, 2009; 2010; 2011; 2012; 2013; 2014; 2015).

Monitoring undertaken at N1 (Burtons Lane) indicated noise levels (L_{Aeq}) varied throughout the monitoring period, ranging from approximately 26 decibels (dB) to 57 dB. Results typically ranged between 40 and 50 dB although noise levels dropped significantly in 2014 compared to previously recorded levels (see Appendix B, Table B4 and Figure B1).

Monitoring undertaken at N2 (Aberdeen) indicated noise levels (L_{Aeq}) were relatively consistent throughout the monitoring period, ranging from approximately 35 dB to 49 dB (typically around 42 dB), with a slow decline evident throughout the monitoring period (see Appendix B, Table B5 and Figure B2).

Monitoring undertaken at N3 (Kayuga) indicated noise levels (L_{Aeq}) were relatively consistent throughout the monitoring period, ranging from approximately 31 dB to 42 dB (typically around 37 dB) (see Appendix B, Table B6 and Figure B3).

Monitoring undertaken at N4 (Kayuga Road) indicated noise levels (L_{Aeq}) were relatively consistent throughout the monitoring period, ranging from approximately 32 dB to 48 dB (typically around 39 dB) (see Appendix B, Table B7 and Figure B4).

Monitoring undertaken at N5 (Wybong Road) indicated noise levels (L_{Aeq}) fluctuated throughout the monitoring period, ranging from approximately 19 dB to 49 dB (see Appendix B, Table B8 and Figure B5).

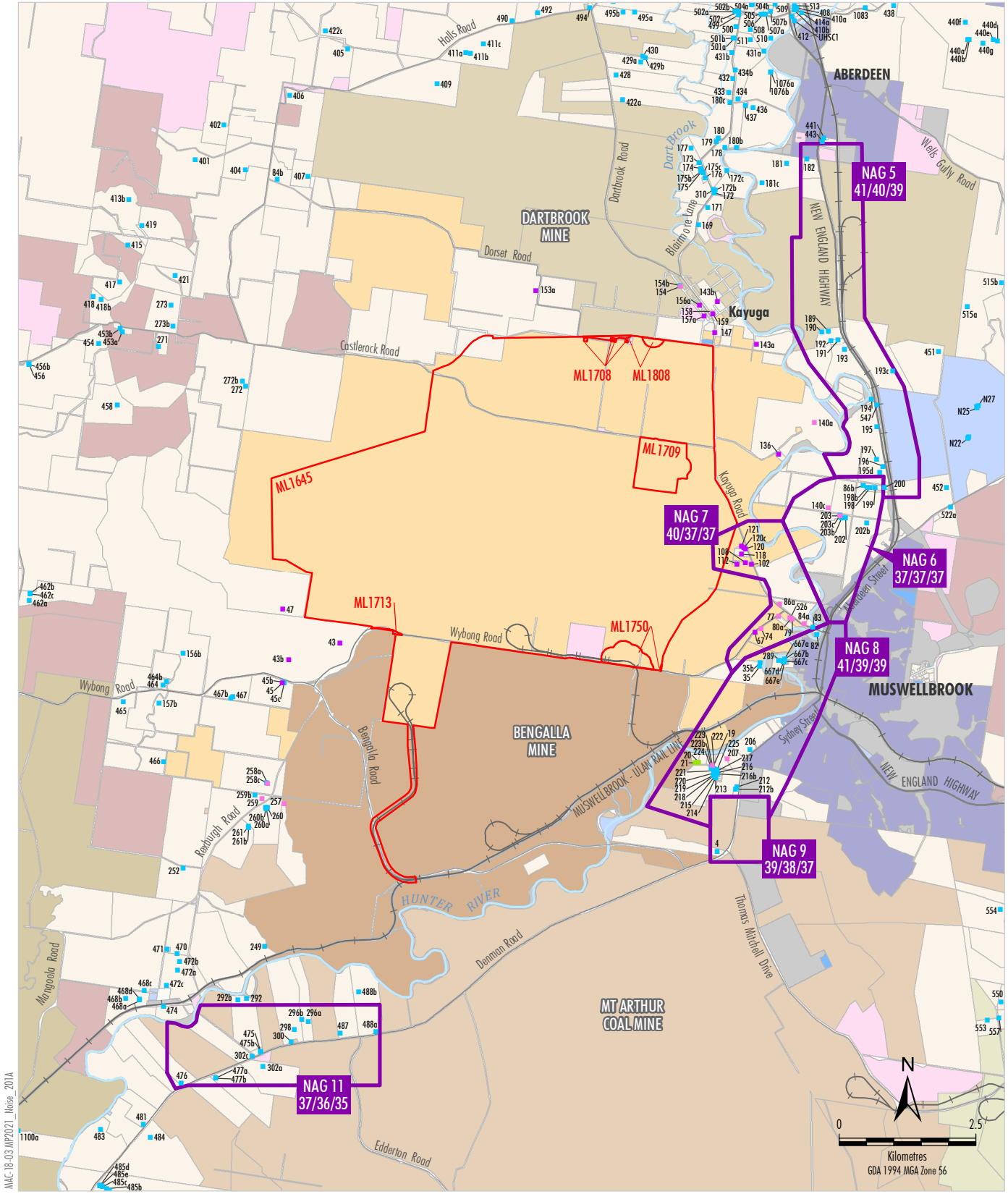
Monitoring undertaken at N6 (Muswellbrook) indicated noise levels (L_{Aeq}) were relatively consistent throughout the monitoring period, ranging from approximately 32 dB to 56 dB (typically around 41 dB), with recorded levels generally increasing over time (see Appendix B, Table B9 and Figure B6).

5.2 SENSITIVE RECEPTORS AND NOISE ASSESSMENT GROUPS

Subsequent to the issue of the Modified Development Consent DA 92/97 in November 2018, a number of formerly privately-owned residences have been acquired by the MPO or other mining operations.

An expanded list of noise sensitive residences (compared to that assessed in the MOD 3 and MOD 4 EAs and as shown on Figure 3), based on contemporary land ownership and recent site validation by MACH Energy, is provided in Appendix C.

Locations of relevant potentially sensitive receptors and the current NAGs are shown on Figure 3.



LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Mount Pleasant-controlled
- Bengalla-controlled
- Dartbrook-controlled
- Mangoola-controlled
- Muswellbrook Coal-controlled
- Mt Arthur-controlled
- Other Mining/Resource-controlled
- Crown
- The State of NSW
- Muswellbrook Shire Council
- Upper Hunter Shire Council
- Privately-owned Land
- Muswellbrook and Upper Hunter LEP Zones B2, B5, R1, R5
- Muswellbrook and Upper Hunter LEP Zones IN1, SP2, RE1, RE2, W1
- Privately-owned - Acquisition on Request
- Privately-owned - Mitigation on Request
- Privately-owned - Mitigation/Acquisition on Request*
- Other Privately-owned
- Noise Assessment Group (NAG)
- 37/36/35 Default NAG Noise Criteria for Day/Evening/Night

* Mitigation on Request - rail noise/Acquisition on Request - air quality. MACH is only required to acquire and/or install air quality mitigation measures at this property if not reasonably achievable under a separate approval for the Bengalla Mine.

Source: MACH (2021); NSW Spatial Services (2021)

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Relevant Sensitive Receivers and Noise Assessment Groups

Figure 3

5.3 NOISE GENERATING ACTIVITIES

5.3.1 Construction

Open cut mining has commenced and the MPO is now in the operational phase. As such, previous restrictions on construction activities described in earlier versions of this NMP no longer apply and Development Consent DA 92/97 will be used to regulate on-site noise generating activities, with the exception of construction works associated with MOD 4.

A separate Construction Environment Management Plan has been prepared for the MOD 4 construction works (including relocating the rail spur and loop and Hunter River pump station and water pipeline).

5.3.2 Operation

The key noise generating activities/equipment from the operation of the MPO will be as follows:

- drills;
- excavators;
- loaders;
- haul trucks;
- dozers;
- scrapers;
- other mobile fleet;
- fixed plant (e.g. coal handling and preparation plant); and
- rail loading facilities.

The approved hours of operation for these activities are shown in Table 5.

Table 5
Hours of Operation

Operation	Description	Currently Approved
On-site	Mine maintenance, operation, coal handling	24 hours a day, 7 days a week
Off-site	Rail traffic	
	Road traffic	

Blasting related noise is addressed in the Blast Management Plan.

6 NOISE CRITERIA

6.1 DEVELOPMENT CONSENT DA 92/97

6.1.1 Noise Criteria

Condition 3, Schedule 3 of Development Consent DA 92/97 requires MACH Energy to ensure the operational noise generated by the MPO does not exceed the criteria in Table 6 at any residence on privately-owned land.

The criteria specified in Table 6 do not apply to the noise-affected land subject to acquisition upon request conditions (Section 6.1.3). It is noted that the nearest private receivers to the MPO fall within this category (Figure 3). These criteria also do not apply if MACH Energy has a written agreement with the relevant landowner to exceed the criteria, and MACH Energy has advised the DPIE in writing of the terms of this agreement.

Table 6
Noise Criteria (dBA)

Receiver or other location	Day	Evening	Night	
	$L_{Aeq(15min)}$	$L_{Aeq(15min)}$	$L_{Aeq(15min)}$	$L_{A1(1min)}$
68[1], 74	43	42	42	45
86a	42	42	42	45
35, 35b, 77	42	41	41	45
79, 80a, 140c, 526	41	41	41	45
289	41	40	40	45
84a, 139, 154, 203, 257, 258a	40	40	40	45
83	40	39	39	45
86b, 140a, 202, 259	39	39	39	45
198, 202b	38	38	38	45
260, 261	37	37	37	45
169, 272	36	36	36	45
NAG 5 – All privately-owned land	41	40	39	45
NAG 6 – All privately-owned land	37	37	37	45
NAG 7 – All privately-owned land	40	37	37	45
NAG 8 – All privately-owned land	41	39	39	45
NAG 9 – All privately-owned land	39	38	37	45
NAG 11 – All privately-owned land	37	36	35	45
All other privately-owned land	35	35	35	45

Source: After Development Consent DA 92/97.

Notes:

[1] This property is now owned by MACH Energy.

- To identify the locations referred to in Table 6, see Figure 3; and
- Noise generated by the development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions), of the NSW INP, with the exception of the application of modifying factors under Fact Sheet C of the NPfI.

6.1.2 Cumulative Noise Criteria

Condition 5, Schedule 3 of Development Consent DA 92/97 requires MACH Energy to implement all reasonable and feasible measures to ensure the operational noise generated by the MPO, combined with the noise generated by other mines in the area, does not exceed the criteria in Table 7 at any residence on privately-owned land. These criteria do not apply to the noise-affected land subject to acquisition upon request conditions (Section 6.1.3)

Table 7
Cumulative Noise Criteria (dBA)

Location	Day	Evening	Night
	$L_{Aeq(period)}$	$L_{Aeq(period)}$	$L_{Aeq(period)}$
NAG 8, 9	55	45	40
All other privately-owned land	50	45	40

Source: Development Consent DA 92/97.

Notes:

- To identify the locations referred to in Table 7, see Figure 3; and
- Cumulative noise is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW INP.

6.1.3 Acquisition Criteria

Condition 1, Schedule 3 of Development Consent DA 92/97 requires MACH Energy, upon receiving a written request for acquisition from the owner of the land listed in Table 8, to acquire the land in accordance with the procedures in Condition 6 and Condition 7, Schedule 4 of Development Consent DA 92/97.

Table 8
Land Subject to Acquisition Upon Request

Basis	Receiver
Noise	23, 45, 47, 67, 96, 102, 108, 112, 118, 120, 120c, 121, 136, 143a, 143b, 143c, 143d, 143e, 147, 153a, 153b, 156a, 157a, 158, 159, 447, 448, 449
Noise & Air	43, 43b
Air	20, 21

Source: Development Consent DA 92/97.

Notes:

- To identify the locations referred to in Table 8, see Figure 4.
- MACH Energy is only required to acquire and/or install mitigation measures at receivers 20 and 21 if acquisition and/or mitigation is not reasonably achievable under a separate approval for the Bengalla Mine.
- Receivers 143c, 143d, 143e, 153b, 447, 448 and 449 are vacant lots of land with no dwellings.

6.1.4 Additional Mitigation Criteria

Condition 2, Schedule 3 of Development Consent DA 92/97 requires MACH Energy, upon receiving a written request from the owner of any residence on the land listed in Table 8 or Table 9, to implement additional noise mitigation measures (such as double-glazing, insulation, and/or air conditioning), as relevant, at the residence in consultation with the landowner.

These measures must be reasonable and feasible and related to the noise and/or dust impacts on the residence. MACH Energy is responsible for the reasonable costs of ongoing maintenance of these additional measures until the cessation of mining operations.

Table 9
Land Where Additional Mitigation Measures are Available on Request

Basis	Receiver
Noise	19, 20, 21, 68[1], 74, 77, 79, 80a, 84a, 86a, 139, 140a, 140c, 154, 203, 207, 257, 258, 259, 526

Source: After Development Consent DA 92/97.

Notes:

[1] This property is now owned by MACH Energy.

- To identify the locations referred to in Table 9, see Figure 3.

If MACH Energy and the owner cannot agree on the measures to be implemented within three months of receiving this request from the owner, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary of the DPIE for resolution.

6.1.5 Rail Noise

Condition 7, Schedule 3 of Development Consent DA 92/97 requires MACH Energy to only use locomotives and rolling stock that are approved to operate on the NSW rail network in accordance with the noise limits in Sydney Trains' EPL (No. 12208) and Australian Rail Track Corporation's (ARTC's) EPL (No. 3142).

6.1.6 Operating Conditions

Condition 8, Schedule 3 of Development Consent DA 92/97 requires MACH Energy to:

(a) implement best practice noise management, including all reasonable and feasible noise mitigation measures to minimise the construction, operational, low frequency, and rail noise generated by the development;

(b) minimise the noise impacts of the development during temperature inversions;

(c) regularly assess the real-time noise monitoring and meteorological forecasting data and relocate, modify, and/or stop operations on site to ensure compliance with the relevant conditions of this consent; and

(d) co-ordinate the noise management on site with the noise management at nearby mines (including the Bengalla mine) to minimise the cumulative noise impacts of the mines;

to the satisfaction of the Secretary.

Note: Monitoring under this consent is not required at all residences and the use of representative monitoring locations can be used to demonstrate compliance with criteria, if agreed to by the Secretary.

6.1.7 Notifications

Condition 2, Schedule 4 of Development Consent DA 92/97 requires MACH Energy, as soon as practicable after obtaining monitoring results showing an exceedance of the relevant criteria in Schedule 3, to notify the affected landowner and tenants in writing of the exceedance, and provide regular monitoring results to each of these parties until the development is complying with the relevant criteria again.

6.2 OTHER LICENCE CONDITIONS

Noise criteria and other noise related conditions stipulated in EPL 20850 are generally consistent with those prescribed in Development Consent DA 92/97.

7 PERFORMANCE INDICATORS

The following noise-related performance indicators will be used to judge the performance of the MPO:

- effective implementation of the Real-time Response Protocol for noise (Section 8.5);
- results of attended noise monitoring (Section 9.2), conducted and assessed in accordance with the INP, are compliant with the noise criteria in Table 6; and
- complaints are minimised and appropriate management actions are implemented following receipt of a complaint (Section 12).

Section 10 details the Contingency Plan that will be implemented to manage any unpredicted impacts. Section 12 details the reporting that will be undertaken by MACH Energy against the above performance indicators.

8 NOISE MANAGEMENT AND CONTROL MEASURES

MACH Energy will implement best management practice to minimise the noise generated by the MPO to achieve the levels required by Development Consent DA 92/97 and EPL 20850. Noise management and control measures include:

- Planning controls.
- Construction and operational controls.

The effectiveness of noise management and control measures at the MPO will be continually assessed, and where relevant improved, through real-time and attended noise monitoring (Section 9).

8.1 PLANNING CONTROLS

The following planning controls will be implemented at the MPO:

- Sound power testing of new operational mobile fleet, and, on an annual basis, a sample of mobile equipment and fixed plant operating under dynamic conditions to check on noise performance.
- Procurement of new and/or best available technology plant where it is reasonable and feasible[1] to do so.
- Periodically refining the MPO noise model by using noise monitoring data to assist with model calibration over the life of the mine.
- Predicted meteorological conditions and potential implications for noise levels will be made available to the shift managers at the start of each shift (Section 8.4).
- Negotiating with select nearby landowners regarding possible land acquisition, entering into a written negotiated agreement or implementing reasonable and feasible at-receiver mitigation measures, where it is mutually agreeable to do so.
- Developing an awareness and understanding of potential noise issues through site inductions for staff, contractors and visitors.
- Coordinating noise management on-site with the noise management at nearby mines (including the Bengalla, Dartbrook and Mt Arthur Mines) to minimise the cumulative noise impacts of the mines (Section 8.6).
- Designing the relocated rail spur with consideration of the potential for wheel and brake squeal, and developing an awareness of the potential for wheel and brake squeal with train operators.
- Confirming with Sydney Trains and/or ARTC that locomotives and rolling stock are approved to operate on the NSW rail network in accordance with the noise limits in Sydney Trains' and ARTC's EPLs (EPL No. 12208 and EPL No. 3142, respectively).

[1] As per Condition 8, Schedule 3 of Development Consent DA 92/97.

8.2 CONSTRUCTION AND OPERATIONAL CONTROLS

The following proactive and reactive construction and operational noise management measures and controls will be implemented at the MPO where it is reasonable and feasible[1] to do so, to facilitate compliance with the noise criteria and operating conditions described in Section 6:

- Plant will operate in less exposed areas during the more sensitive evening/night period.
- Vegetation clearance will be limited to daytime hours.
- "Quackers" will be used in place of reverse beepers.
- Noise suppression will be provided on major operational mobile plant.
- Temporary cessation of work within an area, or from a particularly noisy piece of equipment, will be considered when adverse weather conditions are present.
- All plant and machinery used on-site will be maintained regularly to minimise noise generation.
- All plant and machinery used on site will be operated in a proper and efficient manner (e.g. at correct speed) to minimise noise generation.
- Regular communication and updates will be provided to local residents on the status and nature of site construction and operational activities.
- In the event of a complaint from a local resident, MACH Energy will implement the complaints response process.

Additional construction and operational noise management measures and controls may be identified during construction and operational activities (e.g. as an outcome of the real-time or attended noise monitoring and associated review mechanisms).

If significant wheel and brake squeal from the relocated rail spur is experienced at the nearest privately-owned receivers, MACH Energy will investigate further reasonable and feasible options to reduce such noise with Sydney Trains and ARTC.

In accordance with Condition 1, Schedule 3 of Development Consent DA 92/97, upon receipt of a written request for acquisition from the owner of the land listed in Table 8, MACH Energy will acquire the land in accordance with Conditions 6 and 7, Schedule 4 of Development Consent DA 92/97.

8.3 AT-RECEIVER NOISE CONTROLS

In accordance with Condition 2, Schedule 3 of Development Consent DA 92/97, upon receiving a written request from the owner of any residence on the land listed in Table 8 or Table 9, MACH Energy will implement additional reasonable and feasible mitigation measures (such as double-glazing, insulation, and/or air conditioning) at the residence in consultation with the landowner.

8.4 PREDICTIVE MODELLING

MACH Energy will operate two predictive models which will be used in conjunction with the real-time response protocols (Section 8.5) as part of the comprehensive noise management system at the MPO:

- Predictive meteorological forecasting – which will predict the presence of favourable or unfavourable noise conditions based on meteorological data; and
- Predictive noise level forecasting – which will predict operational noise levels at nearby receivers based on meteorological conditions, operating locations and equipment information.

Predictive forecasting information will be available at the start of every operational shift to inform the need for any control of the locations of major mobile equipment (i.e. to maintain compliance with Development Consent DA 92/97 noise criteria [Section 6]).

8.5 REAL-TIME RESPONSE PROTOCOLS

Real-time response triggers will be implemented to assist with the management of noise from the MPO. The real-time response triggers will evolve over time as a result of gaining a greater understanding of the local weather patterns and operational conditions as well as validation against attended monitoring data. The real-time response triggers are based on noise modelling conducted for the EIS and MOD 1, MOD 3 and MOD 4 EAs, as well as recorded meteorological parameters and noise levels.

The real-time response trigger levels are shown in Table 10. In the event that the real-time response trigger level is exceeded, SMS alarms will be directed to key staff/operational personnel. The adequacy of these alarms will be reviewed as needed with any changes reported in the Annual Review and subsequent revisions of this NMP.

Table 10
Real-time Response Trigger Levels[1] for All Periods (Day, Evening and Night)

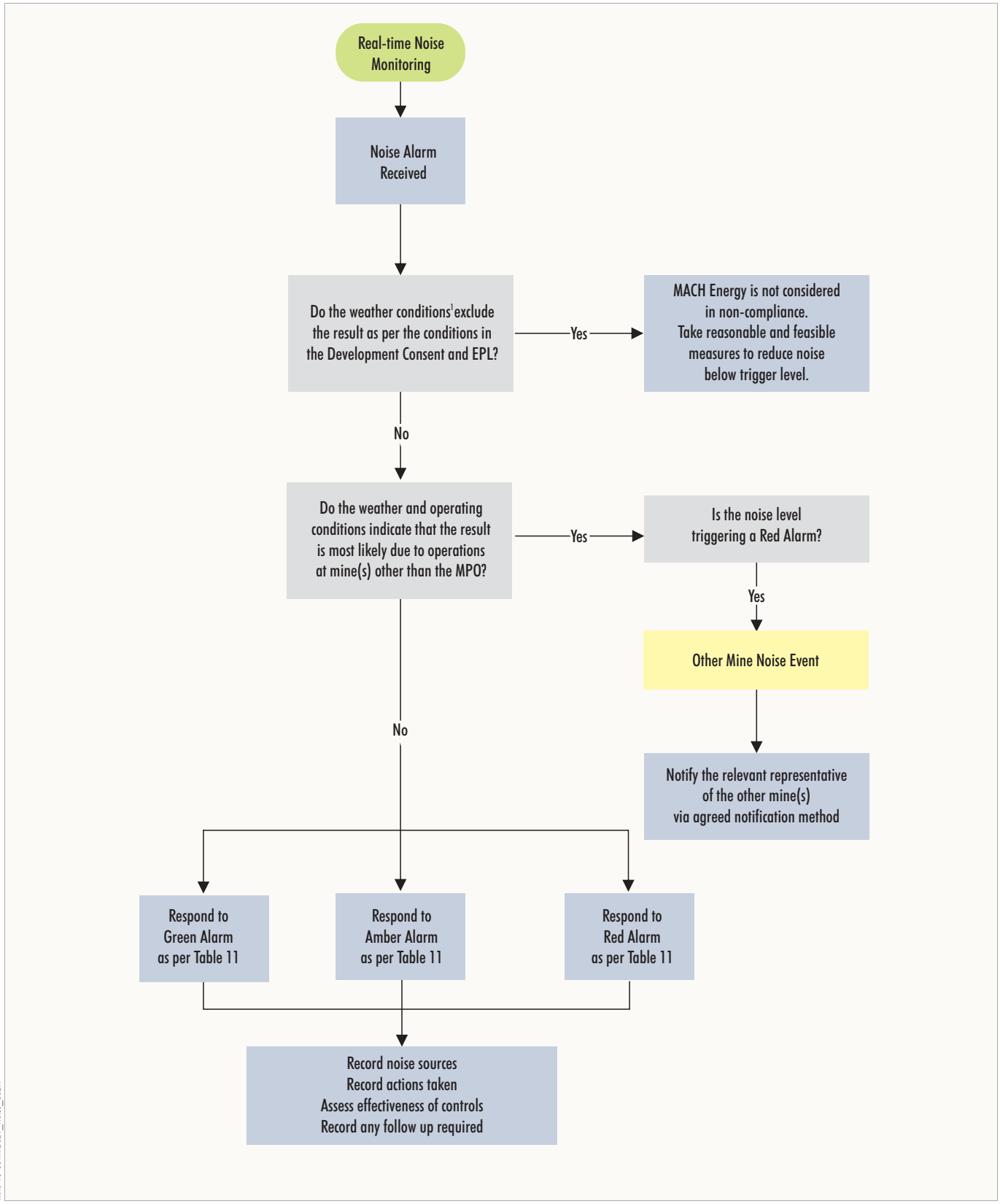
Monitor	Green	Amber	Red
N-B01	Low pass noise L_{Aeq} >39 dBA for two consecutive 15 minute periods	Low pass noise L_{Aeq} >41 dBA for two consecutive 15 minute periods	Low pass noise L_{Aeq} >43 dBA for a 15 minute period
N-B02	Low pass noise L_{Aeq} >38 dBA for two consecutive 15 minute periods	Low pass noise L_{Aeq} >40 dBA for two consecutive 15 minute periods	Low pass noise L_{Aeq} >42 dBA for a 15 minute period
N-B04	Low pass noise L_{Aeq} >40 dBA for two consecutive 15 minute periods	Low pass noise L_{Aeq} >42 dBA for two consecutive 15 minute periods	Low pass noise L_{Aeq} >44 dBA for a 15 minute period
N-B05	Low pass noise L_{Aeq} >37 dBA for two consecutive 15 minute periods	Low pass noise L_{Aeq} >39 dBA for two consecutive 15 minute periods	Low pass noise L_{Aeq} >41 dBA for a 15 minute period

Note: Low pass noise refers to noise that has been filtered to remove higher frequencies that are generally not attributable to mining related noise sources (e.g. insect noise).

[1] Trigger levels subject to applicable meteorological conditions as described in Figure 4.

In the event that a real-time response trigger is exceeded, MACH Energy will implement the real-time response protocol as detailed in Figure 4 and implement the real-time response management actions listed in Table 11 (dependent upon the trigger level determined).

At the end of every month, the occurrence of real-time triggers will be reviewed. If a monitor shows a trend of increasing frequency of consecutive red alarms, additional attended monitoring will be arranged in the next month to confirm the real-time monitoring results are reflective of MPO-generated noise and that the management measures being implemented on-site are appropriate.



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Notes: 1. Applicable meteorological conditions in accordance with EPL 20850.

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Real-time Noise Monitoring Response Flow Chart

Figure 4

Table 11
Real-time Response Management Actions

Colour	Management/Control Action	Responsible
Green	• Review the audio to determine noise source. Record observations. • If MPO noise is audible and a significant contributor to total noise levels: – Review predicted weather conditions[1] to identify if noise enhancing conditions are forecast or likely to occur for the rest of the shift. – Review predicted noise impacts for the shift[1] against observations. • Prepare a priority list of operating equipment in order of proximity to the monitor. • Monitor the changes in noise levels until noise levels drop below the alarm trigger. • Record management strategies. This includes details of investigation, type of response (if any required), real-time monitoring results and actions taken.	Control Room Operator (or delegate)
Amber	• Review the audio to determine noise source. Record observations. • If MPO noise is audible and a significant contributor to total noise levels: – Prepare a priority list of operating equipment in order of proximity to the monitor (if amber alarm is triggered without a prior green alarm). – Relocate or shut down 'high priority' operating equipment as per the priority list generated. – Review predicted weather conditions[1] to identify if noise enhancing conditions are forecast or likely to occur for the rest of the shift. – Review predicted noise impacts for the shift[1] against observations. • Monitor the changes in noise levels until noise levels drop below the alarm trigger. • Monitor changes in weather conditions and noise levels and progressively reinstate equipment once noise levels have dropped below the alarm trigger. • Record management strategies. This includes details of investigation, type of response (if any required), real-time monitoring results and actions taken.	Control Room Operator (or delegate)
Red	• Review the audio to determine noise source. Record observations. • If MPO noise is audible and a significant contributor to total noise levels: – Prepare a priority list of operating equipment in order of proximity to the monitor (if red alarm is triggered without a prior green or amber alarm). – Progressively relocate or shutdown 'high priority' and then 'lower priority' operating equipment as per the priority list. – Review predicted weather conditions[1] to identify if noise enhancing conditions are forecast or likely to occur for the rest of the shift. – Review predicted noise impacts for the shift[1] against observations. • Monitor changes in noise levels against operational changes. • Monitor the changes in noise levels until noise levels drop below the alarm trigger. • Monitor changes in weather conditions and noise levels and progressively reinstate equipment once noise levels have dropped below the alarm trigger. • Record management strategies and their effectiveness. This includes details of investigation, type of response (if any required), real-time monitoring results and actions taken.	Control Room Operator (or delegate)

Notes: [1] Predictive meteorological/noise level forecasting as described in Section 8.4.

Conditions 3 and 5, Schedule 3 of Development Consent DA 92/97 require that noise generated by the MPO is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions), of the NSW INP. Of relevance to certain meteorological conditions, the NSW INP states:

> *To ensure that the consent or licence condition applies under typical meteorological conditions relevant to the site (that is, the condition determined from Section 5) a consent or licence condition may be based on the following:*
>
> - *For developments where F-class inversions (normally associated with non-arid areas such as the Hunter Valley and coastal areas) were found to be a feature of the area (that is, using the procedure outlined in Section 5.2) the following statement could accompany the noise limits in the condition:*
>   - *'The noise limits apply under all meteorological conditions except*
>   - *during rain and wind speeds greater than 3 m/s; and*
>   - *from 6 pm to 7 am during intense inversions, which are indicated by cloud cover less than 40 per cent and wind speeds less than 1.0 m/s.'*
>
> *Note: Wind data should be collected at 10 m height.*
>
> *The latter point above excludes non-standard inversions (which are intense inversions—G-class inversions in this case), and is based on parameters specified in the Turner methodology for determining temperature inversions (described in Appendix E).*

Condition L2.3 of EPL 20850 states:

> *L2.3 The noise limits set out in this licence apply under all meteorological conditions except for the following:*
>
> *a) Wind speeds greater than 3 metres/second at 10 metres above ground level; or*
>
> *b) Stability category F temperature inversion conditions and wind speeds greater that 2 metres/second at 10 metres above ground level; or*
>
> *c) Stability category G temperature inversion conditions.*
>
> *For the purposes of this condition:*
>
> *i) Data recorded by the meteorological station within the licensed premises must be used to determine meteorological conditions; and*
>
> *ii) Temperature inversion conditions (stability category) are to be determined by the sigma-theta method referred to in Part E4 of Appendix E to the NSW Industrial Noise Policy.*

The meteorological condition exclusions detailed in EPL 20850 are generally consistent with the generic text provided in the NSW INP, however includes more site-specific detail regarding temperature inversions. As such, the exclusions from EPL 20850 would be applied to noise monitoring.

Note, however, that strong inversion conditions typically occur during the evening or night, when plant will be operating in less exposed areas (as described in Section 8.2). Similarly, when wind speeds are greater than 3 metres per second (m/s) towards sensitive receivers, operational changes may be undertaken to reduce potential air quality impacts on sensitive receivers, which would also reduce potential noise impacts. Notwithstanding the above, weather conditions will be monitored (Section 9.4) and where adverse conditions are experienced or predicted, operational changes will be implemented to avoid or reduce noise impacts.

8.6 CUMULATIVE NOISE MANAGEMENT

Condition 8(d), Schedule 3 of Development Consent DA 92/97 states:

> *8. The Applicant must:*
>
> *...*
>
> *(d) co-ordinate the noise management on site with the noise management at nearby mines (including the Bengalla mine) to minimise the cumulative noise impacts of the mines,*
>
> *to the satisfaction of the Secretary.*

Condition 9(d), Schedule 3 of Development Consent DA 92/97 states the following in regard to this NMP:

> *9. The Applicant must prepare a Noise Management Plan for the development to the satisfaction of the Secretary. This plan must:*
>
> *...*
>
> *(d) include a protocol that has been prepared in consultation with the owners of the nearby mines (including the Bengalla mine) to minimise the cumulative noise impacts of the mines.*

The following mines have been identified nearby the MPO (Figure 1) and have been consulted with respect to cumulative noise management:

- Bengalla Mine (immediately south);
- Mt Arthur Coal Mine (further south);
- Dartbrook Mine (immediately north)
- Mangoola Coal (south-west); and
- Muswellbrook Coal Mine (east).

An overall Master Cooperation Agreement has been developed between MACH Energy and the Bengalla Mine.

The cumulative noise management protocol prepared in consultation with the above mines is described in Section 8.6.1.

8.6.1 Cumulative Noise Management Protocol

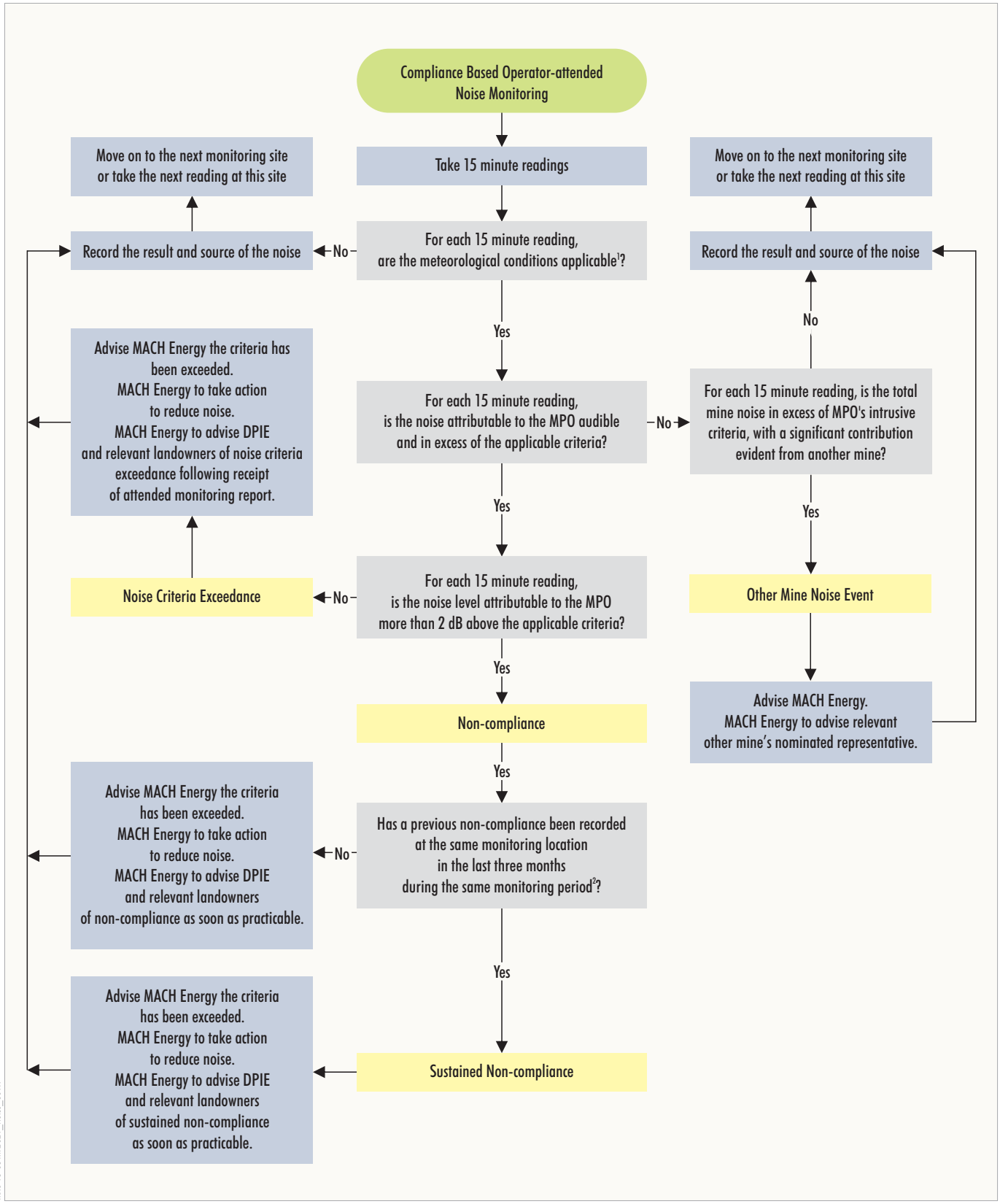
In the event that real-time or attended monitoring identifies an 'Other Mine Noise Event', the Environmental Superintendent (or delegate) will (subject to agreement by the other mine) immediately notify the nominated representative of the relevant other mine(s). A representative of another mine will only be contacted once per monitoring period (i.e. day, evening or night).

An 'Other Mine Noise Event' is defined for real-time monitoring as presented on Figure 4, whereby:

- a real-time monitoring "Red Alarm" is triggered;
- the weather conditions at the time are applicable conditions in accordance with EPL 20850; and
- review of the observed source of the noise and forecast/observed weather conditions indicates that the source of excessive noise is likely to be another mine.

An ‘Other Mine Noise Event’ is defined for operator-attended monitoring as presented on Figure 5, whereby:

- the weather conditions at the time of a 15 minute reading are applicable conditions in accordance with EPL 20850;
- review of the observed source of the noise and forecast/observed weather conditions indicates that noise attributable to the MPO is not in exceedance of the MPO’s intrusive criteria; and
- the total mine noise recorded is in excess of the MPO’s intrusive noise criteria at the monitoring location, with a significant contribution from another mine.



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Notes: 1. As defined in EPL 20850.
2. Period refers to day, evening or night.

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Compliance Review and Evaluation Process

Figure 5

9 NOISE MONITORING PROGRAM

9.1 GENERAL REQUIREMENTS

As per the requirements of Development Consent DA 92/97, the MPO noise monitoring program will comprise both attended (Section 9.2) and real-time (Section 9.3) noise monitoring.

The results of attended monitoring will be used to assess compliance with relevant noise impact assessment criteria. Real-time monitoring will be used as a management tool to assist MACH Energy to take pre-emptive actions to avoid potential non-compliances.

Meteorological monitoring will also be conducted (Section 9.4).

9.2 ATTENDED NOISE MONITORING

9.2.1 Purpose

Attended noise monitoring will be undertaken to determine compliance with the noise criteria in Development Consent DA 92/97.

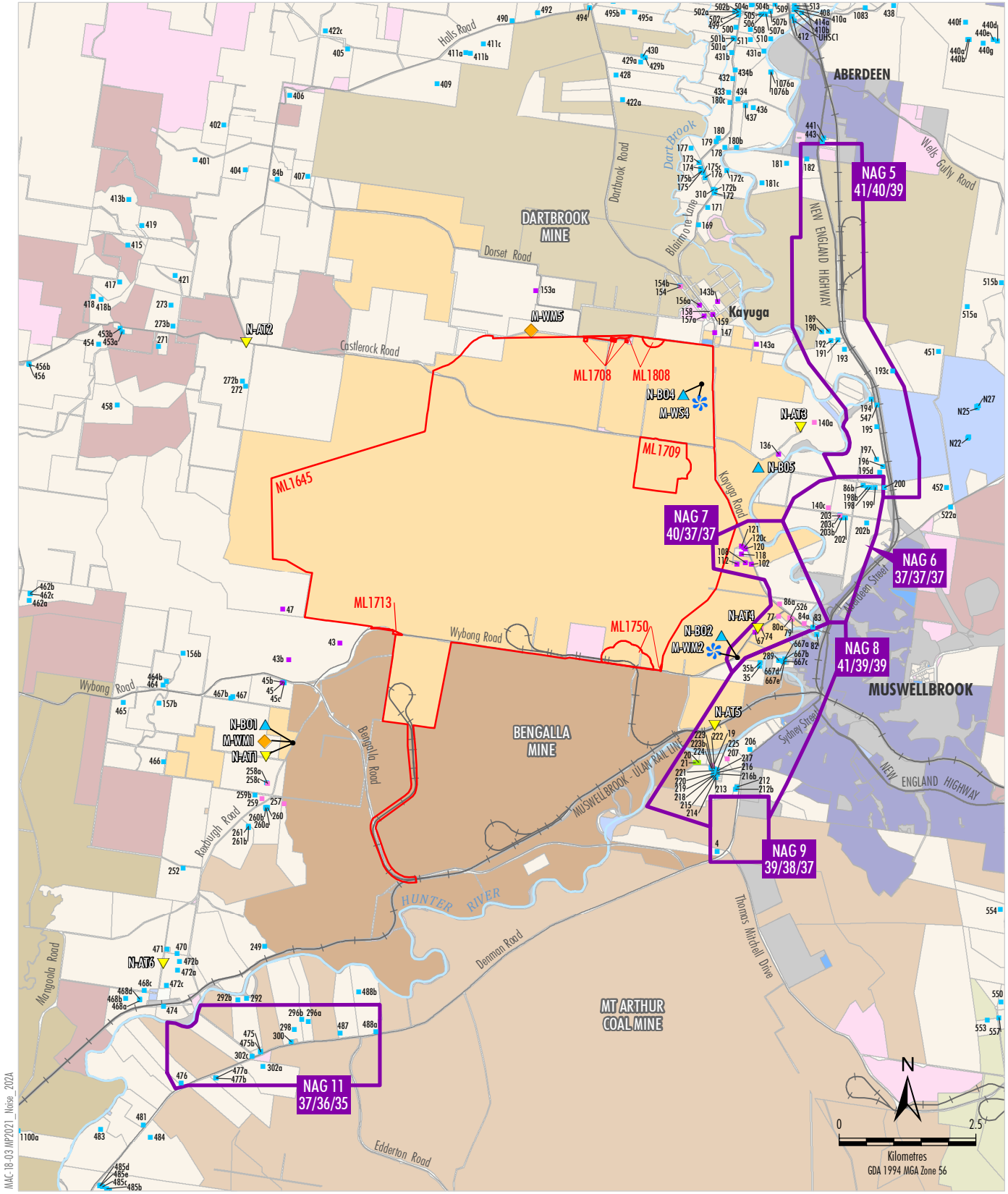
9.2.2 Monitoring Locations

Attended noise monitoring will initially be undertaken at the nominal locations described in Table 12 and shown on Figure 6.

Table 12
Indicative Operator-attended Noise Monitoring Locations

Location				Frequency	Justification
Site ID	Description	Easting	Northing		
N-AT1	South-west of the MPO	291465	6427182	Monthly	Representative of dwellings to the south-west
N-AT2	North-west of the MPO	290608	6434490	Monthly	Representative of dwellings to the north-west
N-AT3	East of the MPO	300725	6432946	Monthly	Representative of dwellings to the north-east and east (e.g. NAG 5)
N-AT4	South-east of the MPO	299947	6429264	Monthly	Representative of dwellings to the east (i.e. NAGs 6 and 7)
N-AT5	South-east of the MPO	299161	6427503	Monthly	Representative of dwellings to the south-east (i.e. NAGs 8 and 9)
N-AT6	South-west of the MPO	289092	6423155	Monthly	Representative of dwellings to the south-southwest (e.g. NAG 11)

Monitoring locations have been selected as being representative of residential and other sensitive receivers in the vicinity of mining at the MPO. Locations were also selected based on prevailing weather conditions and with consideration given to the privacy of residents. These nominal locations will be periodically updated based on noise monitoring results and review of applicable EPL 20850 requirements that may be updated by the EPA from time to time.



LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Mount Pleasant-controlled
- Bengalla-controlled
- Dartbrook-controlled
- Mangoola-controlled
- Muswellbrook Coal-controlled
- Mt Arthur-controlled
- Other Mining/Resource-controlled
- Crown
- The State of NSW
- Muswellbrook Shire Council
- Upper Hunter Shire Council
- Privately-owned Land
- Muswellbrook and Upper Hunter LEP Zones B2, B5, R1, R5
- Muswellbrook and Upper Hunter LEP Zones IN1, SP2, RE1, RE2, W1

- Privately-owned - Acquisition on Request
- Privately-owned - Mitigation on Request
- Privately-owned - Mitigation/Acquisition on Request*
- Other Privately-owned
- Noise Assessment Group (NAG)
- 37/36/35 Default NAG Noise Criteria for Day/Evening/Night

Monitoring Sites

- Attended Noise Monitoring Site
- Real-time Noise Monitoring Site
- Weather Station
- Weather Mast

* Mitigation on Request - rail noise/Acquisition on Request - air quality. MACH is only required to acquire and/or install air quality mitigation measures at this property if not reasonably achievable under a separate approval for the Bengalla Mine.

Source: MACH (2021); NSW Spatial Services (2021)

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Nominal Noise and Meteorological Monitoring Sites

Figure 6

9.2.3 Methodology

The operator-attended noise monitoring will be conducted on a monthly basis in accordance with Condition M9.1 of EPL 20850. Monitoring would be conducted in accordance with AS 1055:1997 *Acoustics – Description and Measurement of Environmental Noise* and the INP.

In accordance with Condition 3, Schedule 5 of Development Consent DA 92/97, the results of the attended monitoring will be compared with the noise criteria (Section 6).

Monitoring reports will be made publicly available on the MACH Energy website in accordance with Condition 11, Schedule 5 of Development Consent DA 92/97. A summary of all monitoring results for each year will be reported in the MPO Annual Review in March the following year, in accordance with Condition 3, Schedule 5 of Development Consent DA 92/97.

Timing

In accordance with EPL 20850, attended noise monitoring will be undertaken for a minimum of 15 minutes within an assessment period and during a period that is representative of typical operating conditions (e.g. not during a shutdown period).

Measurement

Measurement will be undertaken by a suitably experienced and capable person.

Acoustic instrumentation used in attended monitoring will comply with AS 1259.2:1990 *Sound Level Meters* and carry current National Association of Testing Authorities or manufacturer calibration certificates. Instrument calibration will be conducted before and after each survey, with the variation in calibrated levels not to exceed ± 0.5 dB(A).

Wind direction, wind speed, air temperature and relative humidity will all be recorded as part of the attended noise monitoring. Notes will be taken if there are changes in wind speed/direction at the various monitoring locations or if other relevant changes occur. While this information is gathered, the site data (wind speed/direction) will be included in compliance reports as this is taken at the required 10 m above ground level.

In accordance with EPL requirements, $L_{Aeq(15\ minute)}$ noise monitoring for compliance purposes at a specific residence will be undertaken approximately on the property boundary (where any dwelling is situated 30 m or less from the property boundary closest the premises), or within 30 m of the dwelling (where the dwelling is more than 30 m from the boundary, if previously agreed with the landowner). However, if monitoring is being undertaken at a representative location for a number of receivers, as would generally be the case, this requirement will not apply.

Comprehensive field notes will be taken to indicate mine sources (haul truck, dozer tracks, etc.) and other sources (birds, insects, dogs, passing cars, etc.) and when they occurred during the measurement to the nearest second. The recorded time-trace (at one second intervals) and wavefile will be analysed to quantify the noise contribution from each source. Notes about maximum mine noise levels (source and times) will also be taken. Where practicable, the data would be recorded using a sound level meter or noise logger with the capability to record time-traces and wavefiles.

The intrusive noise level contribution from MPO activities will be quantified over a 15 minute measurement period. In addition, measurements will be made in both A-weighting and C-weighting. Only parameters relevant to noise criteria will be reported.

Modifying factors from Fact Sheet C of the NPfI will be used where applicable. Tonality and low frequency will be assessed by analysis of the measured L_{Aeq} spectrum. In the event that the measured dBC-dBA level is greater than 15 dB, the 1/3 octave levels would be compared to the thresholds in Fact Sheet C of the NPfI (EPA, 2017) to determine the appropriate modifying factor. Analysis should be conducted on a spectrum representative of potential MPO noise. The use of smaller sampling periods may be necessary to assess the applicability of modifying factors.

Details of corrective actions taken to address any noise criteria exceedances, and confirmation of their successful implementation, will be recorded by MACH Energy.

Recording

The following information will be recorded for each monitoring survey:

- operator's name;
- time and date;
- locations of attended or unattended noise instruments;
- recording intervals;
- meteorological conditions for each measurement location (as collected by a hand held meter) and also a combination of graphs and tables presenting the weather conditions for the entire survey period;
- statistical noise level descriptors together with notes identifying the principal noise sources;
- notes of recorded mine-related noise sources, including approximate start and finishing times;
- project operating conditions including train loading times together with mobile and ancillary equipment operation and predominant location; and
- instrument calibration details.

9.2.4 Applicable Meteorological Conditions

As described in Section 8.5, the noise limits set out in Development Consent DA 92/97 and in EPL 20850 do not apply under the following meteorological conditions:

- rain; or
- wind speeds greater than 3 m/s at 10 m above ground level; or
- stability category F temperature inversion conditions and wind speeds greater than 2 m/s at 10 m above ground level; or
- stability category G temperature inversion conditions.

Notwithstanding the above, weather conditions will be monitored (Section 9.4) and, where adverse conditions are experienced or predicted, operational changes will be implemented to avoid or reduce noise impacts.

9.2.5 Compliance Assessment Protocol

Attended noise surveys are the primary method for describing the acoustic environment and determining compliance against the relevant noise criteria. Attended noise monitoring is the method for determining sustained compliance with the noise criteria (Table 6), as this allows for an accurate determination of the MPO's contribution to the measured ambient noise levels.

To determine compliance with the $L_{Aeq(15\ minute)}$ noise limits, attended noise surveys will measure $L_{Aeq(15\ minute)}$ noise levels at representative monitoring locations[2]. Recorded results (rounded to the nearest decibel) will be compared with the noise criteria in Table 13.

Table 13
Operator-attended Noise Monitoring Criteria

Location		Operator-attended Noise Criteria			
Site ID	Description	Day	Evening	Night	Night
		$L_{Aeq(15\ minute)}$			$L_{A1(1\ minute)}$
N-AT1	Representative of receivers to the south-west	43	43	43	45
N-AT2	Representative of receivers to the north-west	36	36	36	45
N-AT3	Representative of receivers to the east/north-east (e.g. NAG 5)	41	41	41	45
N-AT4	Representative of receivers to the east (i.e. NAGs 6 and 7)	43	42	42	45
N-AT5	Representative of receivers to the south-east (i.e. NAGs 8 and 9)	40	40	40	45
N-AT6	Representative of receivers to the south-southwest (e.g. NAG 11)	35	35	35	45

To determine compliance with the $L_{A1(1\ minute)}$ noise levels generated by the MPO, attended noise surveys will measure $L_{A1(1\ minute)}$ noise levels at the representative monitoring locations and then compare the recorded result (rounded to the nearest decibel) with the noise criteria in Section 6. A minimum of one $L_{A1(1\ minute)}$ survey will be conducted during each $L_{Aeq(15\ minute)}$ survey. If it is evident that the $L_{A1(1\ minute)}$ criterion may be approached or exceeded due to MPO noise, arrangements will be made with the landowner to identify the potentially most impacted area of the residence and to conduct future measurements at 1 m from that area where access has been agreed with the landowner.

For the purposes of determining the noise generated at the MPO, the modification factors in Fact Sheet C of the NPfI will be applied, as appropriate, to the noise levels measured by the noise monitoring equipment. In the event that the measured dBC-dBA level is greater than 15 dB, the 1/3 octave levels would be compared to the thresholds in Fact Sheet C of the NPfI (EPA, 2017) to determine the appropriate modifying factor.

The operator-attended monitoring and noise compliance review process is illustrated in Figure 5.

[2] In accordance with Condition L2.6 of EPL 20850, a non-compliance will still occur where noise generated from the MPO, in excess of the appropriate limit, is measured at a location other than specified in Section 9.2.2.

In determining the noise emission contribution from the MPO, an assessment of the following factors will be undertaken:

- the applicability of the prevailing meteorological conditions (Sections 8.5 and 9.2.4);
- neighbouring mining activities;
- other non-mine related activities, such as:
  - adjacent non-mining related construction activities;
  - adjacent agricultural activities;
  - traffic on the local road network; and
  - adjacent residential activities (e.g. mowing lawns);
- intermittent, tonal or low frequency sound modification factors; and
- reasonableness of data.

In the event of a potential noise criteria exceedance, an assessment will be conducted to determine whether the exceedance is valid. This assessment will include:

- The timing of the exceedance.
- The location of the exceedance.
- The exclusion of non-mine related noise and noise from non-MPO mining activities (e.g. can the exceedance be attributed directly to the MPO). This will include consideration of:
  - the methods and type of equipment being used at the MPO at the time of the exceedance and proximity to the locations at which the exceedance was recorded;
  - the location of non-MPO mining activities or agricultural activities and proximity to the locations at which the exceedance was recorded; and
  - the meteorological conditions at the time of the exceedance, including confirmation that meteorological conditions are relevant in accordance with Development Consent DA 92/97 and EPL 20850 and the noise criteria apply (see Section 9.2.4).

If the above assessment determines that a potential noise criteria exceedance is due to MPO-related noise during applicable meteorological conditions, then:

- the exceedance will be reported as soon as practicable to the DPIE, any affected landowners and any other relevant agencies as a noise incident in accordance with Section 12 of this NMP; and
- the noise criteria exceedance will be reported in the Environmental Monitoring Reports and the Annual Review.

Table 3 of Development Consent DA 92/97 specifies the use of the INP for measuring noise generated by the development. It is noted that Section 11.1.3 of the INP includes allowance for the materiality of a noise exceedance, stating:

> *A development will be deemed to be in non-compliance with a noise consent or licence condition if the monitored noise level is more than 2 dB above the statutory noise limit specified in the consent or licence condition.*

Therefore, while an exceedance of the criteria in Table 3 of Development Consent DA 92/97 (i.e. Table 6 of this NMP) of 1 to 2 dB will be considered a noise incident, the DPIE would determine if the exceedance is considered a non-compliance with Development Consent DA 92/97.

If the above determines that a potential noise criteria exceedance is due to MPO-related noise during applicable meteorological conditions and is a non-compliance, then:

- the non-compliance will be reported as soon as practicable to the DPIE, any affected landowners and any other relevant agencies in accordance with Section 12 of this NMP, and in consideration of Section 11.1.3 of the INP; and
- the non-compliance will be reported in the Environmental Monitoring Reports and Annual Review.

If two non-compliant $L_{Aeq(15\ minute)}$ readings (e.g. during applicable meteorological conditions and attributable to the MPO) are taken in the same monitoring period within three months of each other, then the non-compliance would be considered to be sustained and would be reported as such to the DPIE, any affected landowners and any other relevant agencies.

Section 11.1.3 of the INP states the following in relation to when a development is in breach of a noise condition:

> *A development will be in breach of a noise consent or licence condition if sustained non-compliances are not addressed and rectified.*

If a sustained non-compliance with the noise criteria is deemed to have occurred, MACH Energy will report the sustained non-compliance to the DPIE and any other relevant agencies in accordance with Section 12 of this NMP, and in consideration of Section 11.1.3 of the INP.

Where a landowner considers the MPO to be exceeding the noise criteria (Table 6), the landowner may request an independent review of the impacts in accordance with Condition 3, Schedule 4 of Development Consent DA 92/97.

In accordance with Condition 7, Schedule 5 of Development Consent DA 92/97, as soon as MACH Energy becomes aware of any incident associated with the MPO, MACH Energy will immediately notify the Secretary of the DPIE and any other relevant agencies of the incident.

9.2.6 Cumulative Noise Protocol

Attended noise monitoring results will include identification of noise from all industrial sources, as well as all traffic and environmental sources.

Where analysis of the short-term (i.e. 15-minute) attended monitoring results indicates that noise from the nearby mines may contribute to a potential exceedance of the MPO cumulative noise criteria, then MACH Energy will use its best endeavours to coordinate noise management with the relevant mines to minimise cumulative noise impacts.

If each of the mines in the area is complying with its intrusive noise criteria, the cumulative noise criteria are unlikely to be exceeded. Notwithstanding, MACH Energy has developed a process to identify “Other Mine Noise Events” (Figures 4 and 5), whereby noise from another mine(s) contributes significantly to total mine noise levels in excess of the MPO intrusive noise criteria and the MPO contribution is less than the intrusive noise criteria.

In the event that cumulative noise levels become an issue at a particular location once the MPO is operating at maximum approved production levels, MACH Energy would engage with the DPIE and other relevant mine operator(s) to address the concern at that time and update this NMP accordingly.

9.3 REAL-TIME NOISE MONITORING

9.3.1 Purpose

Real-time noise monitoring will be used as a noise management tool and will not be used to assess compliance with noise criteria. This will involve the use of the real-time response protocol (Section 8.5) for ongoing performance assessment and will assist in the implementation of pre-emptive management actions to avoid potential non-compliances.

9.3.2 Monitoring Locations

The approximate real-time monitoring locations are shown in Table 14 and Figure 6.

Table 14
Indicative Real-time Noise Monitoring Locations

Location				Frequency	Justification
Site ID	Description	Easting	Northing		
N-B01	South-west	291465	6427182	Continuous	Proximal to private dwellings to the south-west.
N-B02[1]	South-east	299575	6428744	Continuous	Proximal to private dwellings in the direction of Muswellbrook.
N-B04	North-east	298922	6433746	Continuous	Proximal to private dwellings in the direction of Kayuga.
N-B05[2]	East	299957	6432218	Continuous	Proximal to private dwellings in the vicinities of Kayuga Road and Aberdeen Street.

[1] The location of site N-B02 was revised in Q1 2018 to transition from construction to operation.

[2] The location of site N-B05 was added in mid-2020.

9.3.3 Methodology

The real-time noise monitors will include the following general specifications:

- recording of 15 minute statistical noise data (including L_{A1}, L_{A10}, and L_{A90});
- $L_{Aeq(15\ minute)}$ and $L_{Aeq(period)}$ noise levels;
- $L_{Aeq(15\ minute)}$ for a selected direction;
- $L_{Aeq(15\ minute)}$ in a selectable low frequency range ($L_{Aeq,LF}$);
- back to back audio file capture; and
- access to local meteorological data (e.g. wind direction, wind speed, temperature, humidity and rainfall).

Each monitor will be set up to record noise levels 24 hours per day, seven days per week. The recorded audio information can be downloaded so the listener can determine whether the noise source is mine-related. There are numerous other potential noise sources apart from mine noise, such as wind, traffic, machinery, animals and general non-mining anthropogenic activities which may influence noise monitoring results.

Noise data will be processed to exclude data recorded during meteorological conditions that are not relevant to the noise criteria in accordance with Sections 8.5 and 9.2.4. The temperature lapse rate data and wind speed data from the Automatic Weather Station (AWS) will be used to determine these conditions. Consistent with EPL 20850, temperature inversion classes will be determined using the sigma-theta method.

Noise Investigation Triggers

The system also enables remote triggering to start or stop recording $L_{A1(1\ minute)}$ statistical noise levels to assist in the assessment of sleep disturbance. Real-time data from the system will be able to be received at predetermined intervals or will be able to be accessed remotely as required. The system will be programmed to provide SMS / email alerts to relevant staff/operators where noise levels reach predetermined triggers.

9.4 METEOROLOGICAL MONITORING

Meteorological data will be collected by the AWS and Weather Masts at the MPO (locations described in Table 15 and shown on Figure 6) in accordance with the requirements in the Approved Methods for Sampling of Air Pollutants in NSW (DEC NSW, 2007). The AWS will continuously measure the temperature lapse rate in accordance with the INP. Meteorological forecasting (Section 8.4) will be undertaken as part of the noise management system.

Table 15
Meteorological Monitoring Locations

Location				Frequency
Site ID	General Description	Easting	Northing	
M-WM1	Weather mast, located to the south-west	291465	6427182	Continuous
M-WM2[1]	Weather mast, located to the south-east	299575	6428744	Continuous
M-WS4	AWS, located to the north-east	298922	6433746	Continuous
M-WM5	Weather mast, located to the south-east	295811	6434714	Continuous

[1] The location of site M-WM2 was revised in Q1 2018 to transition from construction to operation.

9.5 PLANT AND EQUIPMENT SOUND POWER LEVEL MONITORING

A program will be implemented to test the sound power levels (SWLs) of new major operational mobile fleet, and on an annual basis, a sample of mobile equipment and fixed plant operating under dynamic conditions. The results of this testing will be maintained by MACH Energy in their monitoring database and will be used to inform ongoing servicing and maintenance of mobile equipment. The results from the SWL testing will be incorporated into any future updates of the noise model. The results of this modelling will be used to inform any additional reasonable and feasible[3] mobile plant attenuation or mine planning controls (if required).

[3] As per Condition 8, Schedule 3 of Development Consent DA 92/97.

The mobile equipment and fixed plant SWL monitoring will be conducted in accordance with a testing methodology based on the following standards:

- AS 2012.1-1990 "*Acoustics - Measurement of airborne noise emitted by earth-moving machinery and agricultural tractors – Stationary test condition - Determination of Compliance With Limits for External Noise*";
- International Organization for Standardization (ISO) 3744-2010 "*Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure – Engineering methods for an essentially free field over a reflecting plane*";
- ISO 3746-2010 "*Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure — Survey method for an essentially free field over a reflecting plane*";
- ISO 6393-2008(E) "*Earth-moving machinery – Determination of sound power level - Stationary test conditions*"; and
- ISO 6395-2008(E) "*Earth-moving machinery – Determination of sound power level noise emissions – Dynamic test conditions*".

The following information will be recorded for each SWL survey:

- operator's name, time and date;
- equipment ID, type, make and model;
- location and operating mode of the equipment (e.g. haul road, waste, loaded, upgrade);
- meteorological conditions during the survey period;
- L_{Aeq} and L_{Amax} noise level descriptors together with notes identifying the principal noise sources;
- details of any extraneous noise; and
- instrument calibration details.

MACH Energy will maintain a register of all measured SWLs and, in the event that any mobile equipment or fixed plant has a material degradation in noise performance under comparable noise conditions (e.g. records a SWL >3 dB higher than that measured once the equipment was commissioned on-site), will schedule appropriate maintenance of the mobile equipment/fixed plant.

10 CONTINGENCY PLAN

In the event that a non-compliance related to noise is considered to have occurred, as per the compliance assessment protocol described in Section 9.2.5, MACH Energy will implement the following Contingency Plan:

- The Environmental Superintendent will report the potential noise non-compliance or noise incident in accordance with Section 12.
- MACH Energy will identify the appropriate course of action with respect to the identified impact(s), in consultation with technical specialists, DPIE and any other relevant agencies, as necessary. For example, contingency measures, such as, but not limited to, those described in Section 10.1.
- MACH Energy will, in the event there is a dispute over the proposed remedial course of action or if the actions conflict with current approvals, submit the appropriate course of action to the DPIE for approval.
- MACH Energy will implement the appropriate course of action to the satisfaction of the DPIE.

10.1 POTENTIAL CONTINGENCY MEASURES

Potential contingency measures will be reviewed during revisions of this NMP. Key potential contingency measures to be implemented (following non-compliances and completion of the compliance assessment protocol as described in Section 9.2.5) may include the following:

- MACH Energy will notify (in writing) the affected landowners and tenants of the exceedance as soon as practicable and provide them with regular noise monitoring results, until the results show that noise at the MPO is complying with the noise criteria.
- MACH Energy will, on request, implement reasonable and feasible at-receiver noise controls in accordance with Condition 2, Schedule 3 of the Development Consent DA 92/97, where a breach of the relevant criteria has occurred.
- MACH Energy will investigate further operational noise controls, if noise monitoring results indicate this is required.
- MACH Energy will, on request, acquire noise-affected properties in accordance with Condition 1, Schedule 3 of Development Consent DA 92/97, where a sustained and systemic breach of the relevant criteria has occurred.

11 REVIEW AND IMPROVEMENT OF ENVIRONMENTAL PERFORMANCE

11.1 ANNUAL REVIEW

In accordance with Condition 3, Schedule 5 of Development Consent DA 92/97 MACH Energy will review and evaluate the environmental performance of the MPO by the end of March each year (for the preceding calendar year) or other such timing as agreed by the Secretary of the DPIE.

In relation to noise, the Annual Review will:

- include a comprehensive review of the attended noise monitoring results and noise related complaints records relating to the MPO over the past year, which includes a comparison of these results to evaluate compliance against the:
  - relevant statutory requirements, limits or performance measures/criteria (refer Sections 4 and 6);
  - monitoring results of the previous years; and
  - relevant predictions in the EIS and MOD 1, MOD 2, MOD 3 and MOD 4 EAs;
- identify any noise related non-compliance over the past year, and describe what actions were (or are being) taken to ensure compliance;
- identify any trends in the noise monitoring data over the life of the MPO;
- identify any discrepancies between the predicted and actual noise impacts of the MPO, and analyse the potential cause of any significant discrepancies; and
- describe what noise-related measures will be implemented over the next year to improve the environmental performance of the MPO where it is reasonable and feasible[4] to do so.

The Annual Review will be made publicly available on the MACH Energy website (http://www.machenergyaustralia.com.au) in accordance with Condition 11, Schedule 5 of Development Consent DA 92/97.

11.2 NOISE MANAGEMENT PLAN REVISION

In accordance with Condition 4, Schedule 5 of Development Consent DA 92/97, this NMP will be reviewed, and if necessary revised (to the satisfaction of the Secretary of the DPIE), within three months of the submission of:

- an Annual Review (Condition 3, Schedule 5);
- an incident report (Condition 7, Schedule 5);
- an Independent Environmental Audit (Condition 9, Schedule 5); and/or
- any modification to the conditions of Development Consent DA 92/97.

Within 4 weeks of conducting any such review, the Secretary of the DPIE will be advised of the outcomes of the review and any revised documents would be submitted to the Secretary for approval.

[4] As per Condition 8, Schedule 3 of Development Consent DA 92/97.

In accordance with Condition 4A, Schedule 5 of Development Consent DA 92/97, MACH Energy may submit a revised NMP for the approval of the Secretary at any time, and may also submit any revision to this NMP required under Development Consent DA 92/97 on a staged basis.

If agreed with the Secretary of the DPIE, a revision to this NMP required under Development Consent DA 92/97 may be prepared without undertaking consultation with all parties nominated under the relevant Condition of Development Consent DA 92/97.

This NMP will be made publicly available on the MACH Energy website, in accordance with Condition 11, Schedule 5 of Development Consent DA 92/97.

11.3 INDEPENDENT ENVIRONMENTAL AUDIT

In accordance with Condition 9, Schedule 5 of Development Consent DA 92/97, an independent environmental audit of the MPO will be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary of the DPIE.

The independent environmental audit will assess the environmental performance of the MPO and review the adequacy of this NMP. If necessary, appropriate measures or actions to improve the environmental performance of the MPO or this NMP will be recommended.

12 REPORTING PROCEDURES

In accordance with Condition 2, Schedule 5 of Development Consent DA 92/97, MACH Energy has developed protocols for managing and reporting the following:

- incidents;
- complaints;
- non-compliances with statutory requirements; and
- exceedances of the impact assessment criteria and/or performance criteria.

These protocols are described in detail in the MPO Environmental Management Strategy (MACH Energy, 2021).

In accordance with Condition 8, Schedule 5 of Development Consent DA 92/97, MACH Energy will provide regular reporting on the environmental performance of the MPO on the MACH Energy website.

13 REFERENCES

Coal & Allied (2007) *Mount Pleasant – Annual Environmental Management Report 2006.*

Coal & Allied (2008) *Mount Pleasant – Annual Environmental Management Report 2007.*

Coal & Allied (2009) *Mount Pleasant Project – Annual Environmental Management Report 2008.*

Coal & Allied (2010) *Mount Pleasant Project – Annual Environmental Management Report 2009.*

Coal & Allied (2011) *Mount Pleasant Project – Annual Environmental Management Report 2010.*

Coal & Allied (2012) *Mount Pleasant Project – Annual Environmental Management Report 2011.*

Coal & Allied (2013) *Mount Pleasant Project – Annual Environmental Management Report 2012.*

Coal & Allied (2014) *Mount Pleasant Project – Annual Review 2013.*

Coal & Allied (2015) *Mount Pleasant Project – Annual Review 2014.*

Department of Environment and Conservation NSW (2007) *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales.*

Department of Planning and Environment *(2018) Voluntary Land Acquisition and Mitigation Policy.*

EMGA Mitchell McLennan (2010) *Mount Pleasant Project Modification Environmental Assessment.*

Environment Protection Authority (2000) *New South Wales Industrial Noise Policy.*

Environment Protection Authority (2009) *New South Wales Interim Construction Noise Guideline.*

Environment Protection Authority (2013) *Application Notes – Industrial Noise Policy.*

Environment Protection Authority (2017) *Noise Policy for Industry.*

Environmental Resources Management Mitchell McCotter (1997) *Mount Pleasant Mine Environmental Impact Statement.*

HLA – Envirosciences (2002) *Muswellbrook Coal Company No.1 Open Cut Extension Environmental Impact Statement – Noise and Vibration Assessment*

MACH Energy (2017a) *Mount Pleasant Operation (DA 92/97) – South Pit Haul Road Modification*.

MACH Energy (2017b) *Mount Pleasant Operation – Mine Optimisation Modification Environmental Assessment.*

MACH Energy (2017c) *Mount Pleasant Operation – Rail Modification Environmental Assessment.*

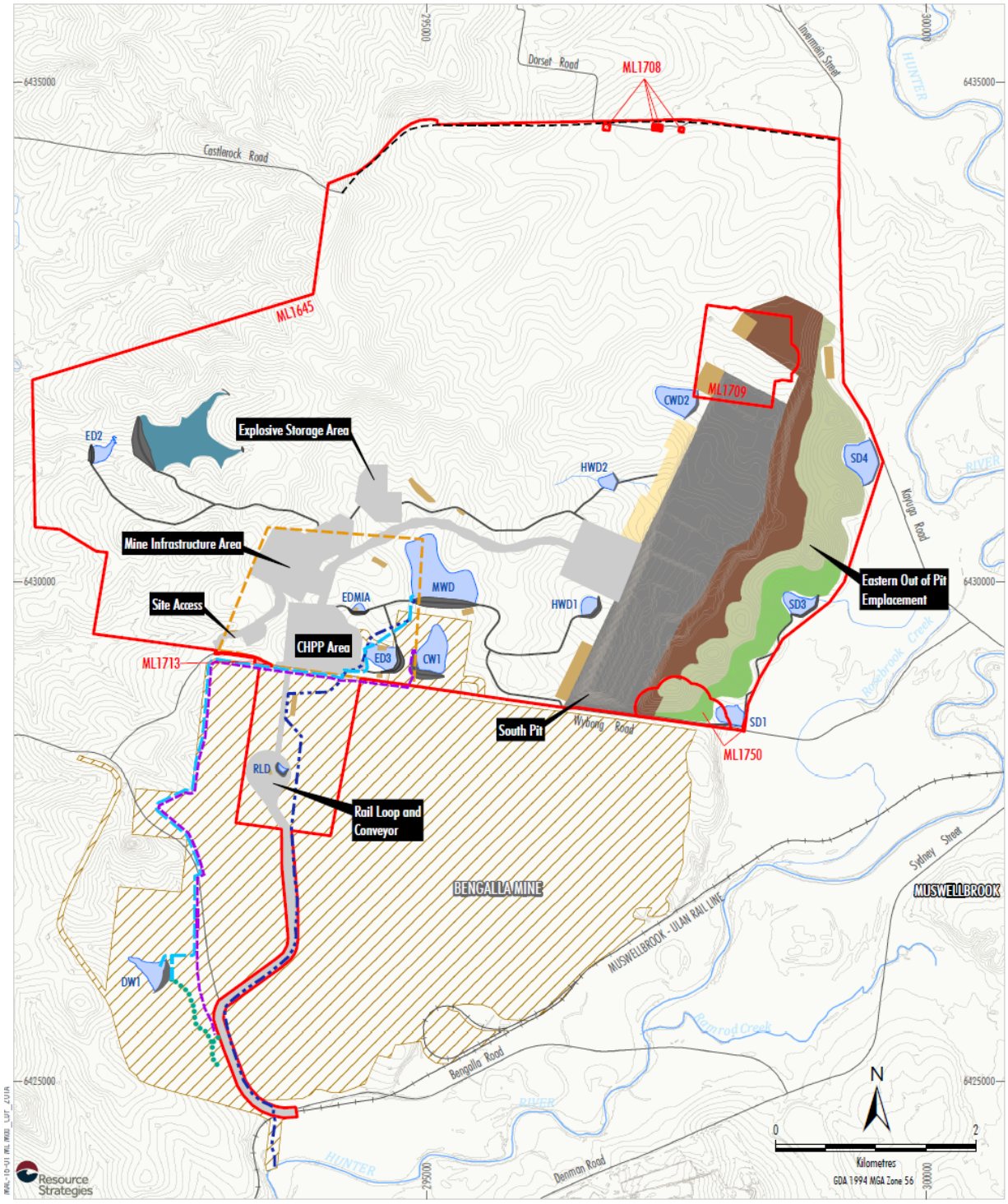
MACH Energy (2021) *Mount Pleasant Operation Environmental Management Strategy.*

Umwelt (2020) *Mt Pleasant Operation Noise Management Review.*

ATTACHMENT 1

APPENDIX 2 OF DEVELOPMENT CONSENT DA 92/97

APPENDIX 2
FIGURE 1 - CONCEPTUAL PROJECT LAYOUT PLAN AT 2021



LEGEND

- Mining Lease Boundary
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Infrastructure Area Envelope
- Active Stripping Area
- Active Mining Area
- Active Overburden Emplacement Area
- Topsoil Stockpile
- Initial Rehabilitation
- Established Rehabilitation
- Infrastructure and Borrow/Stockpile Area
- Access Road
- Northern Link Road

Indicative Water Pipeline Alignment

- MPO Hunter River Supply Pipeline
- MPO DW1 Pipeline (Bi-directional)
- Bengalla Mine CW1 Pipeline
- Approximate Extent of Scour Protection
- Water Dam
- Fines Emplacement Area

Source: NSW Land & Property Information (2017); NSW Division of Resources & Energy (2017); MACH Energy (2017)

MACHEnergy
MOUNT PLEASANT OPERATION

FIGURE 2 - CONCEPTUAL PROJECT LAYOUT PLAN AT 2025

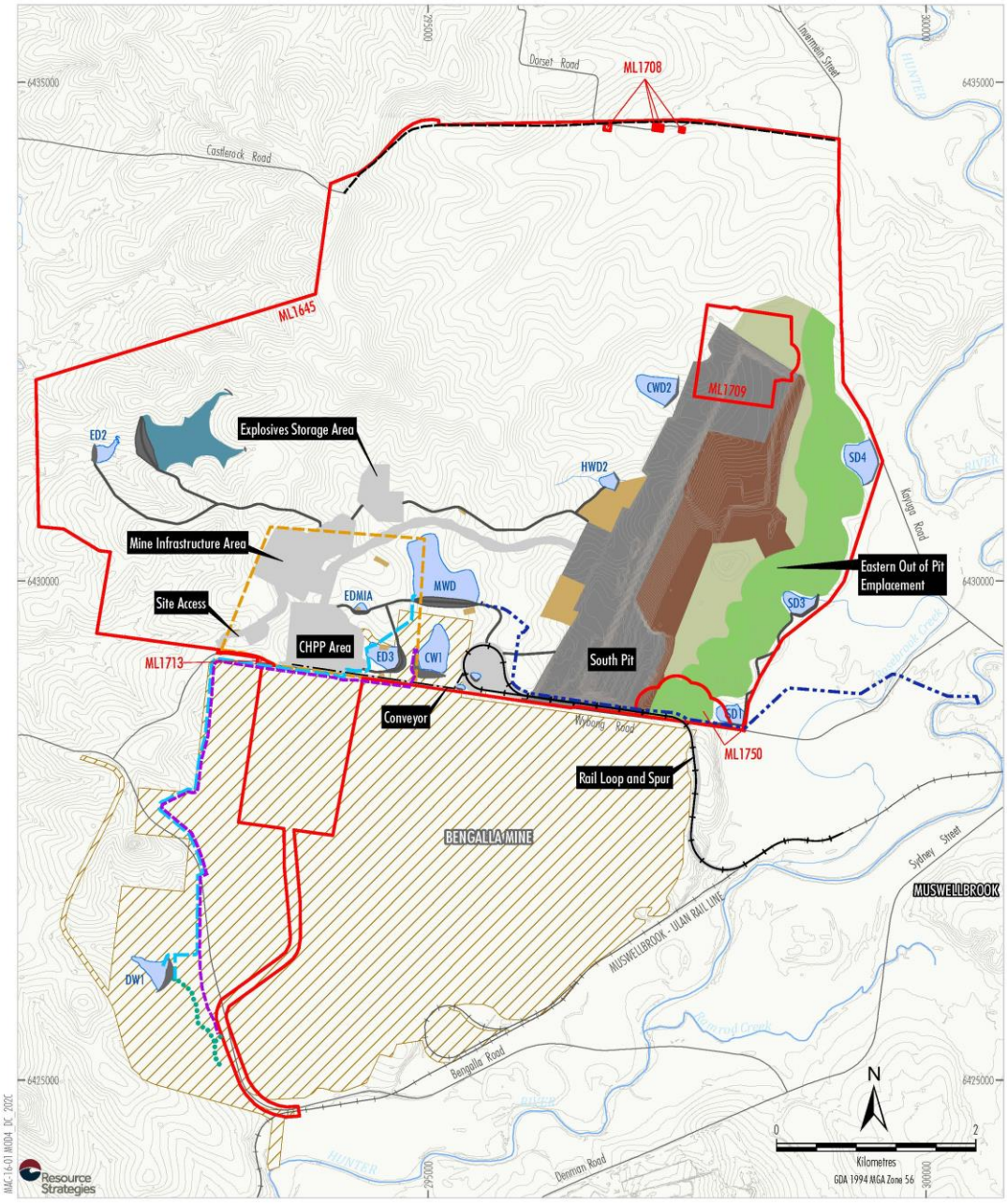
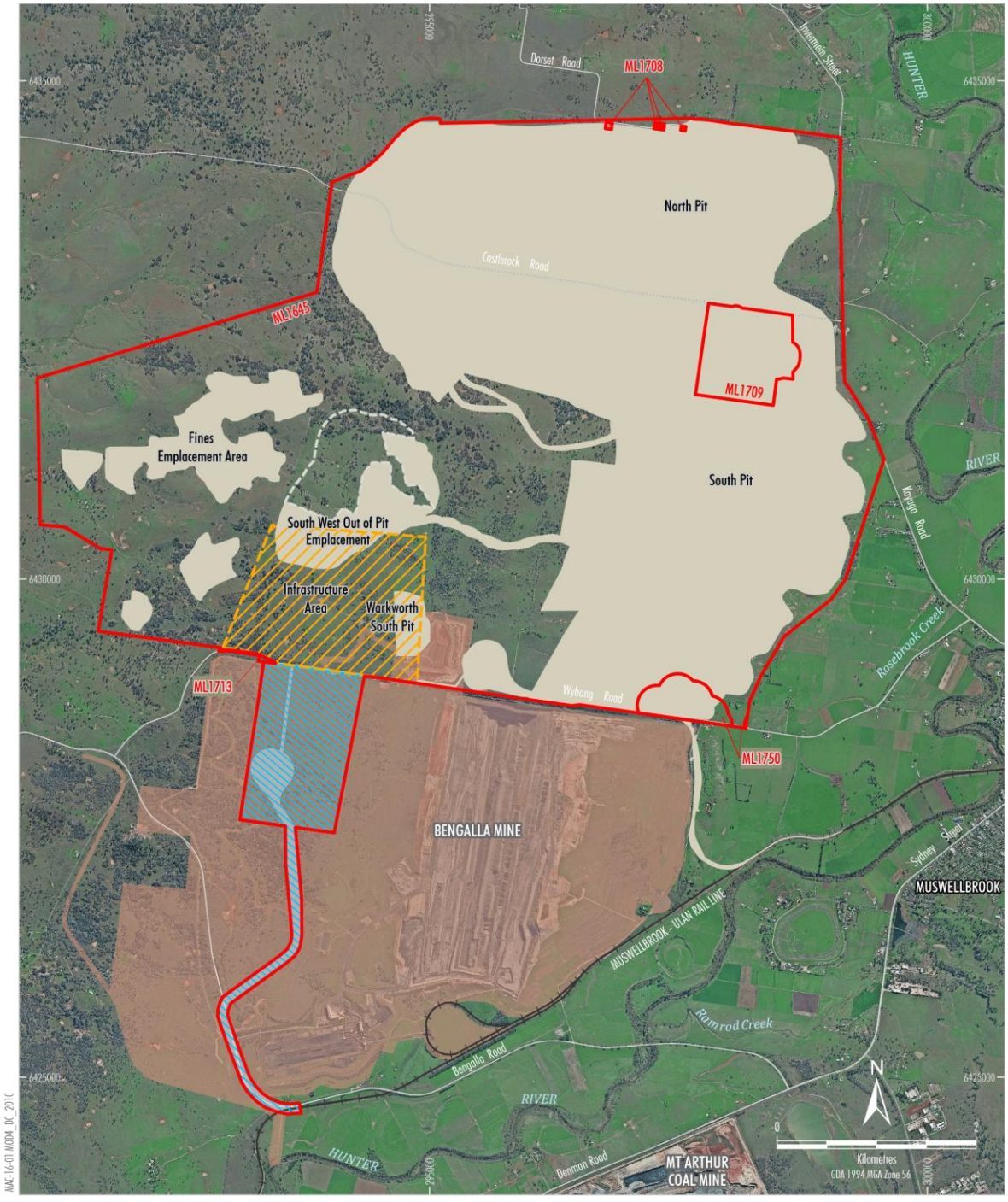


FIGURE 3 - APPROVED SURFACE DISTURBANCE PLAN



LEGEND

- Mining Lease Boundary
- Approximate Extent of Approved Surface Development [1]
- Area Relinquished for Overburden Emplacement and Major Infrastructure
- Infrastructure Area Envelope
- Infrastructure to be removed under the Terms of Condition 37, Schedule 3
- Indicative Existing Coal Transport Infrastructure
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)

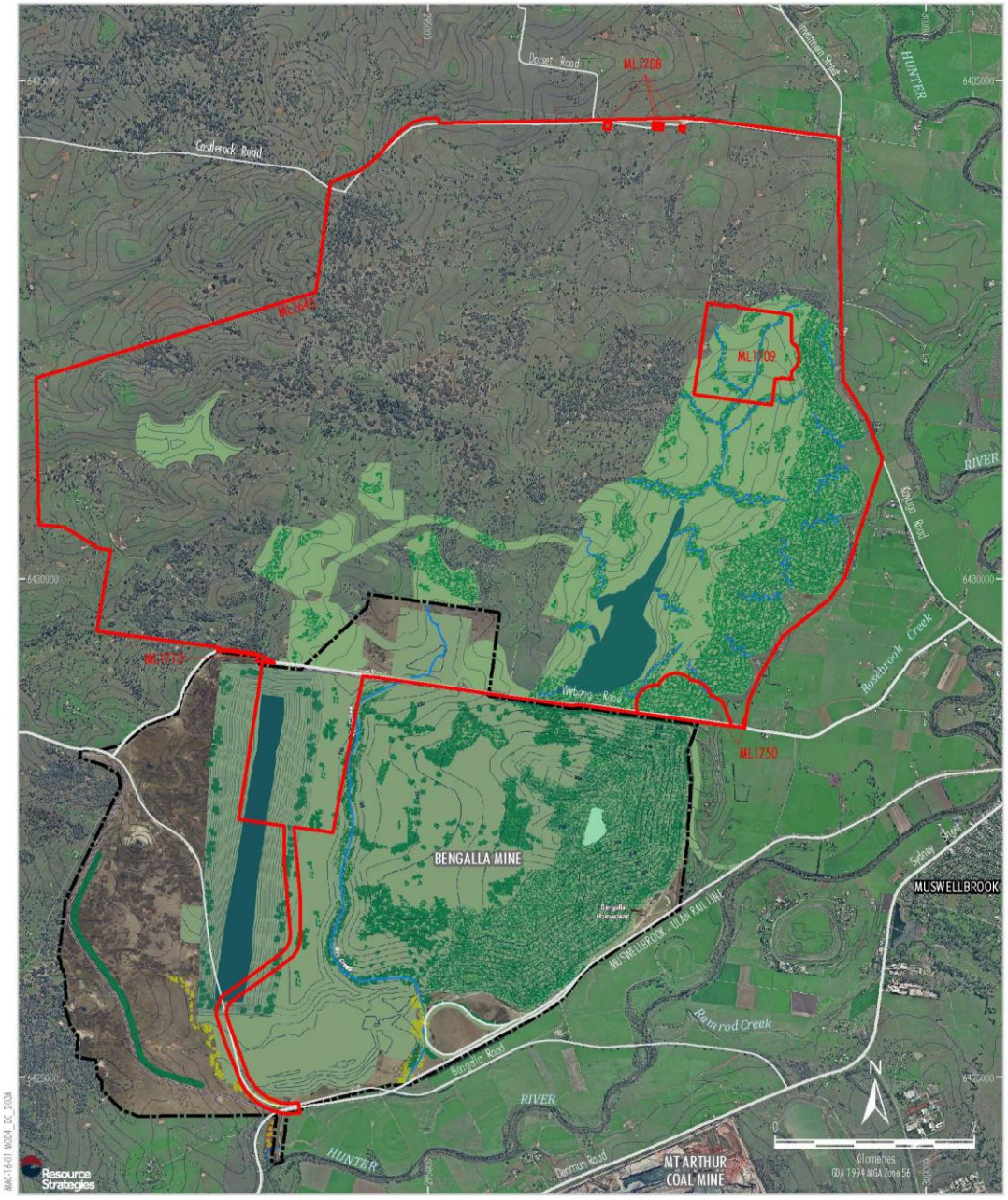
NOTE

1. Excludes some project components such as water management infrastructure, infrastructure within the Infrastructure Area Envelope, offsite coal transport infrastructure, road diversions, access tracks, topsoil stockpiles, power supply, temporary offices, signalling, other ancillary works and construction disturbance.

Source: NSW Land & Property Information (2017); NSW Division of Resources & Energy (2018); Department of Planning and Environment (2016); MACH Energy (2017)
Orthophoto: MACH Energy (Aug 2016)

MACHEnergy
MOUNT PLEASANT OPERATION
Approved Surface Disturbance Plan

FIGURE 4 - CONCEPTUAL FINAL LANDFORM



APPENDIX A

NOISE RELATED CONDITIONS
DEVELOPMENT CONSENT DA 92/97

Table A1
Noise Related Development Consent DA 92/97 Conditions

<table>
<tr><th>Development Consent DA 92/97</th><th>NMP Section</th></tr>
<tr><td colspan="2">Schedule 3</td></tr>
<tr><td>ACQUISITION UPON REQUEST
1. If the Applicant receives a written request for acquisition from the owner of any land listed in Table 1, the Applicant must acquire the land in accordance with the procedures in conditions 6-7 of Schedule 4.
Table 1: Land subject to acquisition upon request
<table>
<tr><th>Basis</th><th>Receiver</th></tr>
<tr><td>Noise</td><td>23, 45, 47, 67, 96, 102, 108, 112, 118, 120, 120c, 121, 136, 143a, 143b, 143c, 143d, 143e, 147, 153a, 153b, 156a, 157a, 158, 159, 447, 448, 449</td></tr>
<tr><td>Noise & Air</td><td>43, 43b</td></tr>
<tr><td>Air</td><td>20[2], 21[2]</td></tr>
</table>
Notes:
1 To identify the locations referred to in Table 1, see the figures in Appendix 5.
2 The Applicant is only required to acquire and/or install mitigation measures at this property if acquisition and/or mitigation is not reasonably achievable under a separate approval for the Bengalla mine.</td><td>Section 6</td></tr>
<tr><td>ADDITIONAL MITIGATION UPON REQUEST
2. Upon receiving a written request from the owner of any residence on any land listed in Table 1 (unless the owner of that land has requested acquisition) or Table 2, the Applicant must implement additional:
(a) noise mitigation measures (such as double-glazing, insulation and/or air conditioning); and/or
(b) air quality mitigation measures (such as air filters, a first flush roof water drainage system and/or air conditioning),
as relevant, at the residence(s) in consultation with the owner.
These measures must be reasonable and feasible, and directed towards reducing the noise and/or air quality impacts of the development on the residence(s). The Applicant must also be responsible for the reasonable costs of ongoing maintenance of these additional mitigation measures until the cessation of mining operations.
If within 3 months of receiving this request from the owner, the Applicant and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution.
Table 2: Land where additional mitigation measures are available on request
<table>
<tr><th>Basis</th><th>Receiver</th></tr>
<tr><td>Noise</td><td>19, 20, 21, 68, 74, 77, 79, 80a, 84a, 86a, 139, 140a, 140c, 154, 203, 207, 257, 258, 259, 526</td></tr>
</table>
Note:
1 To identify the locations referred to in Table 2, see the figures in Appendix 5.</td><td>Section 6</td></tr>
<tr><td>NOISE
Noise Criteria
3. Except for the noise-affected land referred to in Table 1, the Applicant must ensure that the operational noise generated by the development does not exceed the criteria in Table 3 at any residence on privately-owned land.
Table 3: Noise criteria dB(A)
<table>
<tr><th rowspan="2">Receiver or other location</th><th>Day</th><th>Evening</th><th colspan="2">Night</th></tr>
<tr><th>$L_{Aeq(15min)}$</th><th>$L_{Aeq(15min)}$</th><th>$L_{Aeq(15min)}$</th><th>$L_{A1(1min)}$</th></tr>
<tr><td>68, 74</td><td>43</td><td>42</td><td>42</td><td>45</td></tr>
<tr><td>86a</td><td>42</td><td>42</td><td>42</td><td>45</td></tr>
<tr><td>35, 35b, 77</td><td>42</td><td>41</td><td>41</td><td>45</td></tr>
</table></td><td>Section 6</td></tr>
</table>

Development Consent DA 92/97					NMP Section
79, 80a, 140c, 526	41	41	41	45	
289	41	40	40	45	
23, 84a, 139, 154, 203, 257, 258a	40	40	40	45	
83	40	39	39	45	
86b, 140a, 202, 259	39	39	39	45	
198, 202b	38	38	38	45	
260, 261	37	37	37	45	
169, 272	36	36	36	45	
NAG 5 - All privately-owned land	41	40	39	45	
NAG 6 - All privately-owned land	37	37	37	45	
NAG 7 - All privately-owned land	40	37	37	45	
NAG 8 - All privately-owned land	41	39	39	45	
NAG 9 - All privately-owned land	39	38	37	45	
NAG 11 - All privately-owned land	37	36	35	45	
All other privately-owned land	35	35	35	45	

Notes:

- *To identify the locations referred to in Table 3, see the figures in Appendix 5.*
- *Noise generated by the development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy, with the exception of the application of modifying factors under Fact Sheet C of the Noise Policy for Industry.*

However, these criteria do not apply if the Applicant has a written agreement with the relevant landowner to exceed the criteria, and the Applicant has advised the Department in writing of the terms of this agreement.

4. Deleted

Cumulative Noise Criteria

5. Except for the noise-affected land referred to in Table 1, the Applicant must implement all reasonable and feasible measures to ensure that the operational noise generated by the development combined with the noise generated by other mines in the area does not exceed the criteria in Table 5 at any residence on privately-owned land.

Section 6

Table 5: Cumulative noise criteria dB(A) $L_{Aeq(period)}$

Location	***Day***	***Evening***	***Night***
NAG 8, 9	55	45	40
All other privately-owned land	50	45	40

Notes:

- *To identify the locations referred to in Table 5, see the figures in Appendix 5; and*
- *Cumulative noise is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy.*

6. Deleted

Rail Noise

7. The Applicant must only use locomotives and rolling stock that are approved to operate on the NSW rail network in accordance with the noise limits in Sydney Trains' EPL (No. 12208) and ARTC's EPL (No. 3142).

Section 6

Noise Operating Conditions

8. The Applicant must:

(a) implement best practice noise management, including all reasonable and feasible noise mitigation measures to minimise the construction, operational, low frequency, and rail noise generated by the development;

Section 8

(b) minimise the noise impacts of the development during temperature inversions;

Section 8

Development Consent DA 92/97	NMP Section
(c) regularly assess the real-time noise monitoring and meteorological forecasting data and relocate, modify, and/or stop operations on site to ensure compliance with the relevant conditions of this consent; and	Sections 8.4 and 8.5
(d) co-ordinate the noise management on site with the noise management at nearby mines (including the Bengalla mine) to minimise the cumulative noise impacts of the mines,	Section 8.6
to the satisfaction of the Secretary. *Note: Monitoring under this consent is not required at all residences and the use of representative monitoring locations can be used to demonstrate compliance with criteria, if agreed to by the Secretary.*	
Noise Management Plan	
9. The Applicant must prepare a Noise Management Plan for the development to the satisfaction of the Secretary. The plan must:	
(a) be submitted to the Secretary for approval by 30 June 2019, unless otherwise agreed by the Secretary;	
(b) describe the measures (including both proactive and reactive mitigation measures) to be implemented to:	Sections 7, 8, 9 and 10
• ensure compliance with the noise criteria and operating conditions in this consent;	
• minimise rail noise (including wheel and brake squeal) to the greatest extent practicable; and	
• minimise the noise impacts of the development during noise-enhancing meteorological conditions when the operational noise criteria in this consent do not apply (see Notes to condition 3 of Schedule 3);	
(c) include a noise monitoring program that:	Section 9
• uses a combination of real-time and supplementary attended monitoring to evaluate the performance of the development;	Sections 9.2 and 9.3
• accounts for the occurrence of any noise enhancement between the site, and any sensitive receivers located beyond the site boundary; and	Sections 9.2 and 9.3
• includes a protocol for determining exceedances of the relevant conditions of this consent.	Section 9.2.5
(d) include a protocol that has been prepared in consultation with the owners of the nearby mines (including the Bengalla mine) to minimise the cumulative noise impacts of the mines.	Section 8.6
The Applicant must implement the management plan as approved by the Secretary.	
METEOROLOGICAL MONITORING	
24. For the life of the development, the Applicant must ensure that there is a meteorological station operating in the vicinity of the site that:	
(a) complies with the requirements in the *Approved Methods for Sampling of Air Pollutants in NSW* guideline; and	Section 9.4
(b) is capable of continuous real-time measurement of temperature lapse rate in accordance with the *NSW Industrial Noise Policy*, or as otherwise approved by the Secretary.	Section 9.4
Schedule 5	
2. The Applicant must ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include:	
(a) detailed baseline data;	Section 5
(b) a description of:	
• the relevant statutory requirements (including any relevant consent, licence or lease conditions);	Section 4
• any relevant limits or performance measures/criteria;	Section 6
• the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	Section 7

Development Consent DA 92/97	NMP Section
(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	Sections 7, 8, 9 and 10
(d) a program to monitor and report on the: • impacts and environmental performance of the development; • effectiveness of any management measures (see c above);	Section 11
(e) a contingency plan to manage any unpredicted impacts and their consequences;	Section 10
(f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 11
(g) a protocol for managing and reporting any: • incidents; • complaints; • non-compliances with statutory requirements; and • exceedances of the impact assessment criteria and/or performance criteria; and	Section 12
(h) a protocol for periodic review of the plan. *Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.*	

APPENDIX B

BASELINE OPERATOR-ATTENDED MONITORING RESULTS (2006 to 2014)

Table B1
Operator-attended Monitoring Results at P1 (Kayuga Road) (2006 – 2007)

Date	L_{A10} (dB)	L_{Aeq} (dB)	L_{A90} (dB)
Q1, 2006	43	41	37
Q2, 2006	40	37	33
Q3, 2006	29	29	26
Q4, 2006	37	36	34
Q1, 2007	46	46	44

Source: Coal & Allied, 2007; 2008.

Table B2
Operator-attended Monitoring Results at P2 (Collins Lane) (2006 – 2007)

Date	L_{A10} (dB)	L_{Aeq} (dB)	L_{A90} (dB)
Q1, 2006	35	33	31
Q2, 2006	35	33	31
Q3, 2006	33	33	29
Q4, 2006	36	34	31
Q1, 2007	35	33	29

Source: Coal & Allied, 2007; 2008.

Table B3
Operator-attended Monitoring Results at P3 (Wybong Road) (2006 – 2007)

Date	L_{A10} (dB)	L_{Aeq} (dB)	L_{A90} (dB)
Q1, 2006	39	36	31
Q2, 2006	39	36	34
Q3, 2006	40	38	35
Q4, 2006	32	29	24
Q1, 2007	38	37	35

Source: Coal & Allied, 2007; 2008.

Table B4
Operator-attended Monitoring Results at N1 (Burtons Lane) (2007 – 2014)

Date	L_{A1} (dB)	L_{A10} (dB)	L_{Aeq} (dB)	L_{A90} (dB)
Q3, 2007	50	46	43	37
Q4, 2007	52	48	44	36
Q1, 2008	58	53	48	32
Q2, 2008	54	49	45	37
Q3, 2008	52	48	44	34
Q4, 2008	50	46	42	35
Q1, 2009*	N/A	N/A	N/A	N/A
Q2, 2009	65	61	57	38
Q3, 2009	66	61	57	44
Q4, 2009	46	41	39	35
Q1, 2010	61	53	51	42
Q2, 2010	51	45	41	30
Q3, 2010	56	52	49	34
Q4, 2010	57	52	48	37
Q1, 2011	45	43	42	41
Q2, 2011	30	28	26	25
Q3, 2011	54	51	46	36
Q4, 2011	59	48	46	33
Q1, 2012	58	54	49	39
Q2, 2012	54	49	45	40
Q3, 2012	57	53	48	37
Q4, 2012	50	47	44	37
Q1, 2013	53	50	45	38
Q2, 2013	59	48	47	37
Q3, 2013	56	49	46	34
Q4, 2013	60	52	46	50
Q1, 2014	37	35	34	32
Q2, 2014	37	34	32	29
Q3, 2014	35	30	28	25

Source: Coal & Allied, 2008; 2009; 2010; 2011; 2012; 2013; 2014; 2015.

* Monitoring was only conducted at three sites during Quarter 1, 2009 (N3, N4 and N5).

Figure B1
Operator-attended Monitoring Results at N1 (Burtons Lane) (2007 – 2014)

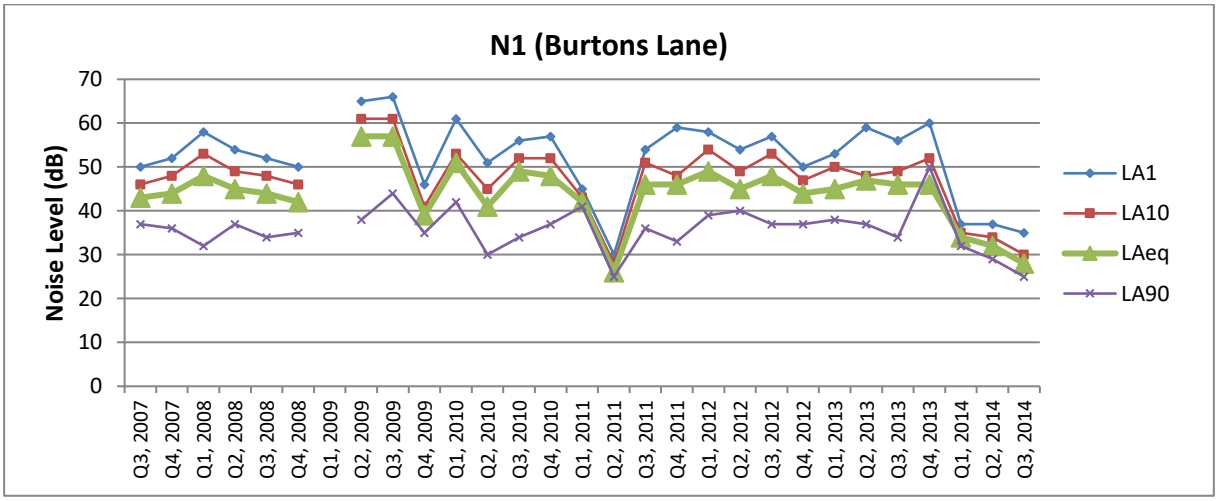


Table B5
Operator-attended Monitoring Results at N2 (Aberdeen) (2007 – 2014)

Date	L_{A1} (dB)	L_{A10} (dB)	L_{Aeq} (dB)	L_{A90} (dB)
Q3, 2007	57	53	49	37
Q4, 2007	54	48	44	34
Q1, 2008	58	50	48	37
Q2, 2008	56	49	46	35
Q3, 2008	47	42	38	29
Q4, 2008	57	51	47	32
Q1, 2009*	N/A	N/A	N/A	N/A
Q2, 2009	52	48	46	43
Q3, 2009	53	49	46	39
Q4, 2009	47	42	39	34
Q1, 2010	57	49	46	36
Q2, 2010	56	53	49	36
Q3, 2010	52	48	45	37
Q4, 2010	50	45	42	35
Q1, 2011	51	47	43	34
Q2, 2011	51	45	42	34
Q3, 2011	49	43	39	31
Q4, 2011	52	45	42	28
Q1, 2012	52	48	44	35
Q2, 2012	46	43	40	35
Q3, 2012	53	47	43	34
Q4, 2012	51	46	42	36
Q1, 2013	46	43	40	35
Q2, 2013	50	46	43	38
Q3, 2013	48	42	39	32
Q4, 2013	44	41	37	38
Q1, 2014	44	40	38	36
Q2, 2014	43	38	35	29
Q3, 2014	45	42	37	29

Source: Coal & Allied, 2008; 2009; 2010; 2011; 2012; 2013; 2014; 2015.

* Monitoring was only conducted at three sites during Quarter 1, 2009 (N3, N4 and N5).

Figure B2
Operator-attended Monitoring Results at N2 (Aberdeen) (2007 – 2014)

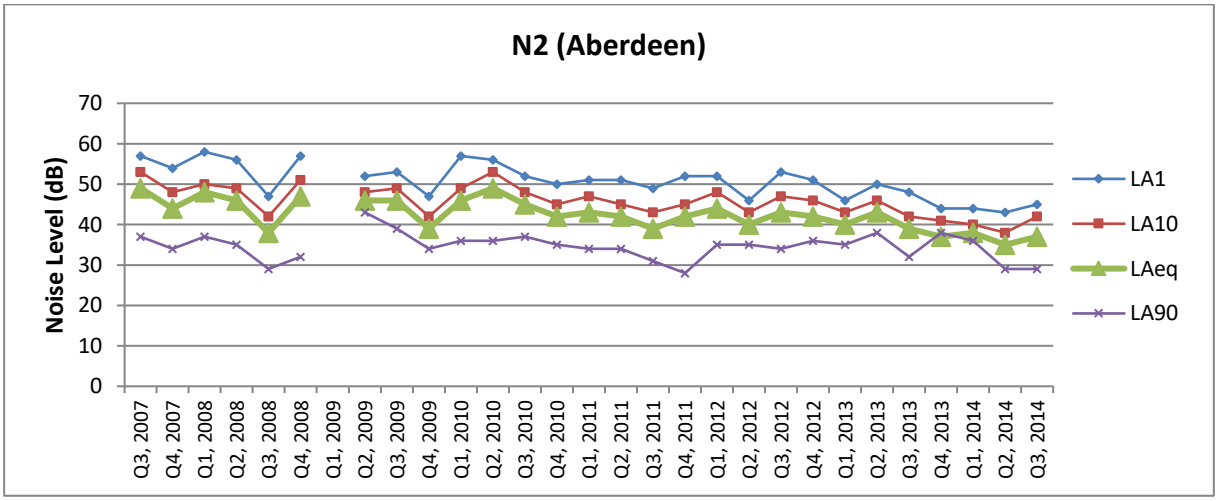


Table B6
Operator-attended Monitoring Results at N3 (Kayuga) (2007 – 2014)

Date	L_{A1} (dB)	L_{A10} (dB)	L_{Aeq} (dB)	L_{A90} (dB)
Q3, 2007	49	41	38	30
Q4, 2007	42	40	38	36
Q1, 2008	43	38	36	34
Q2, 2008	45	41	38	31
Q3, 2008	42	37	34	27
Q4, 2008	51	40	39	31
Q1, 2009	47	43	40	36
Q2, 2009	47	44	41	35
Q3, 2009	48	41	39	32
Q4, 2009	43	36	36	33
Q1, 2010	48	42	41	39
Q2, 2010	49	42	39	28
Q3, 2010	39	36	34	30
Q4, 2010	43	36	35	31
Q1, 2011	42	39	38	35
Q2, 2011	46	41	38	30
Q3, 2011	38	35	33	30
Q4, 2011	44	40	38	34
Q1, 2012	43	37	36	32
Q2, 2012	46	42	39	34
Q3, 2012	45	42	38	28
Q4, 2012	36	33	31	29
Q1, 2013	50	35	37	31
Q2, 2013	45	41	39	35
Q3, 2013	45	41	37	28
Q4, 2013	43	38	34	35
Q1, 2014	47	43	40	37
Q2, 2014	47	40	38	34
Q3, 2014	50	45	42	37

Source: Coal & Allied, 2008; 2009; 2010; 2011; 2012; 2013; 2014; 2015.

Figure B3
Operator-attended Monitoring Results at N3 (Kayuga) (2007 – 2014)

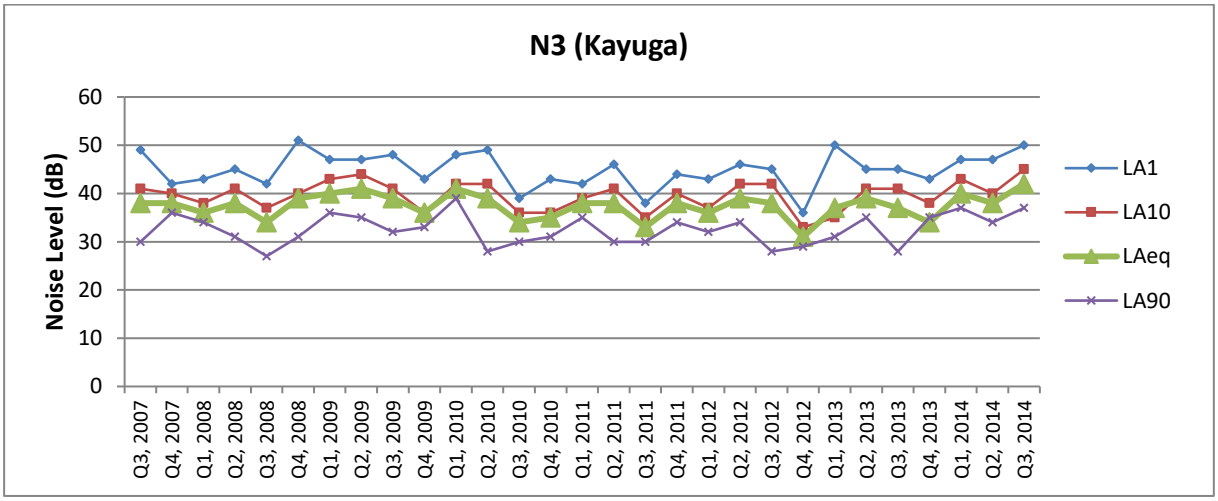


Table B7
Operator-attended Monitoring Results at N4 (Kayuga Road) (2007 – 2014)

Date	L_{A1} (dB)	L_{A10} (dB)	L_{Aeq} (dB)	L_{A90} (dB)
Q3, 2007	47	40	37	31
Q4, 2007	46	41	38	32
Q1, 2008	40	37	35	33
Q2, 2008	45	42	38	31
Q3, 2008	40	35	32	28
Q4, 2008	46	43	38	31
Q1, 2009	58	43	47	35
Q2, 2009	56	52	48	42
Q3, 2009	54	48	44	36
Q4, 2009	41	39	38	36
Q1, 2010	43	39	37	34
Q2, 2010	41	39	36	33
Q3, 2010	41	37	33	27
Q4, 2010	42	38	36	32
Q1, 2011	46	44	42	41
Q2, 2011	41	38	36	33
Q3, 2011	48	44	40	34
Q4, 2011	45	41	38	32
Q1, 2012	48	46	45	43
Q2, 2012	53	44	43	39
Q3, 2012	46	43	39	34
Q4, 2012	45	43	40	35
Q1, 2013	45	42	40	37
Q2, 2013	51	44	41	34
Q3, 2013	44	39	37	28
Q4, 2013	53	43	39	42
Q1, 2014	54	49	45	35
Q2, 2014	49	47	44	37
Q3, 2014	44	39	36	30

Source: Coal & Allied, 2008; 2009; 2010; 2011; 2012; 2013; 2014; 2015.

Figure B4
Operator-attended Monitoring Results at N4 (Kayuga Road) (2007 – 2014)

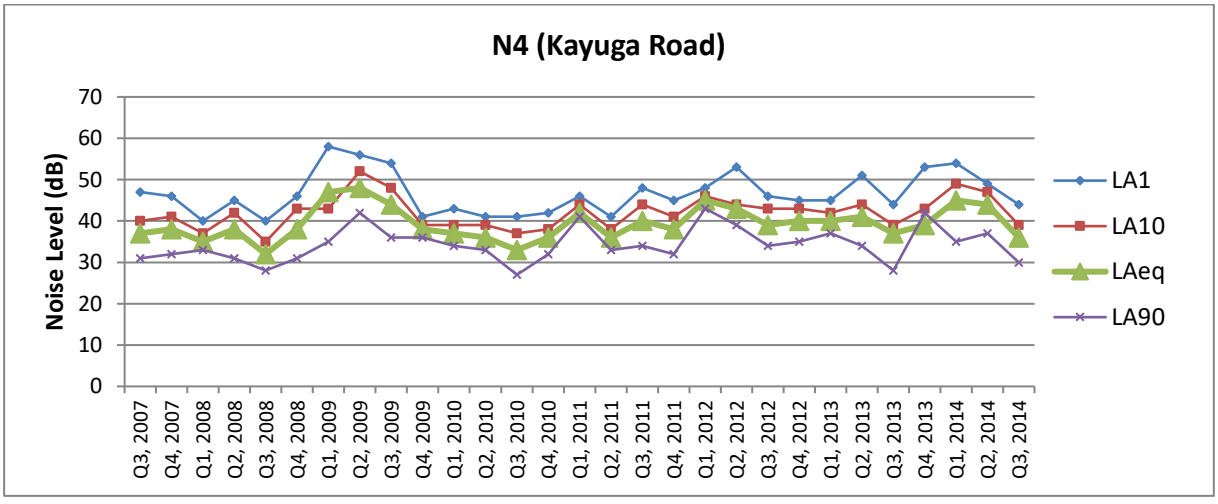


Table B8
Operator-attended Monitoring Results at N5 (Wybong Road) (2007 – 2014)

Date	L_{A1} (dB)	L_{A10} (dB)	L_{Aeq} (dB)	L_{A90} (dB)
Q3, 2007	24	19	19	16
Q4, 2007	47	44	41	38
Q1, 2008	44	37	36	33
Q2, 2008	31	29	27	26
Q3, 2008	35	33	32	30
Q4, 2008	43	39	38	36
Q1, 2009	42	39	37	34
Q2, 2009	27	24	21	18
Q3, 2009	40	34	33	29
Q4, 2009	39	37	35	34
Q1, 2010	47	46	41	32
Q2, 2010	31	28	26	23
Q3, 2010	28	25	24	22
Q4, 2010	45	43	41	39
Q1, 2011	52	52	49	45
Q2, 2011	30	28	26	25
Q3, 2011	44	40	37	30
Q4, 2011	41	39	37	34
Q1, 2012	44	38	38	35
Q2, 2012	46	35	34	29
Q3, 2012	42	34	33	30
Q4, 2012	37	36	34	32
Q1, 2013	44	37	36	33
Q2, 2013	44	41	38	35
Q3, 2013	27	24	23	21
Q4, 2013	39	29	25	28
Q1, 2014	49	44	41	36
Q2, 2014	55	51	47	37
Q3, 2014	56	52	48	37

Source: Coal & Allied, 2008; 2009; 2010; 2011; 2012; 2013; 2014; 2015.

Figure B5
Operator-attended Monitoring Results at N5 (Wybong Road) (2007 – 2014)

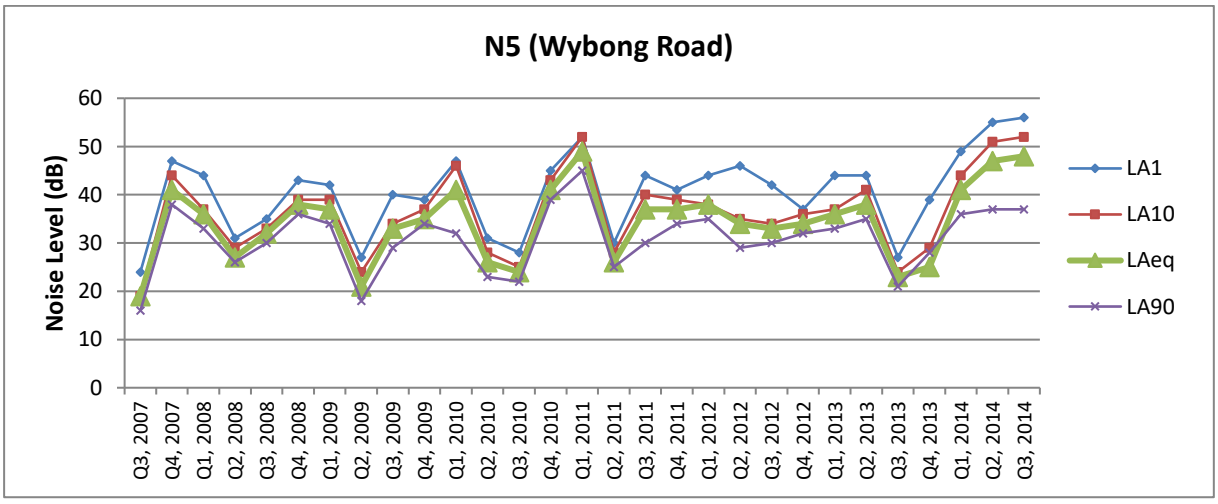


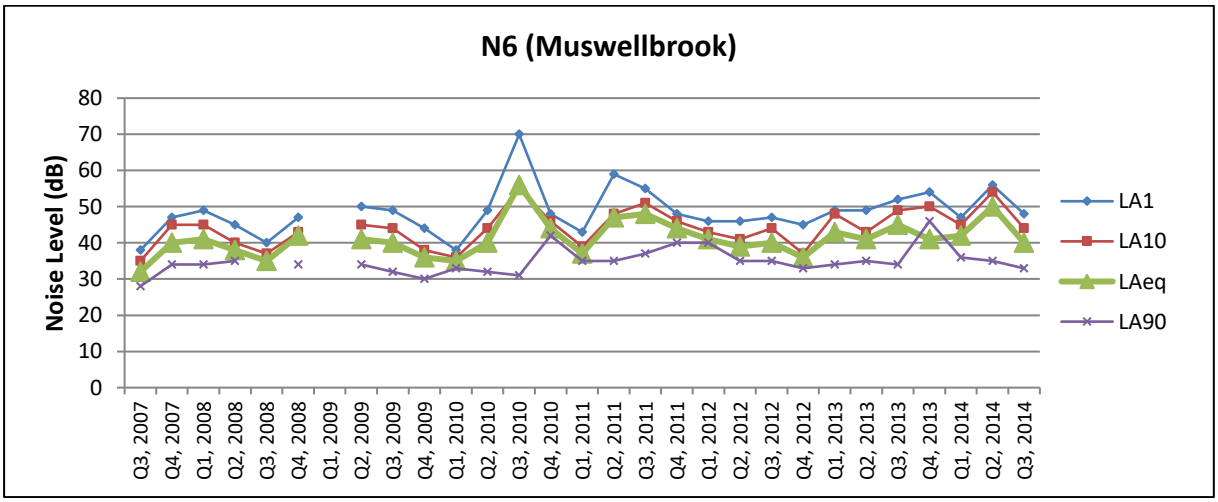
Table B9
Operator-attended Monitoring Results at N6 (Muswellbrook) (2007 – 2014)

Date	L_{A1} (dB)	L_{A10} (dB)	L_{Aeq} (dB)	L_{A90} (dB)
Q3, 2007	38	35	32	28
Q4, 2007	47	45	40	34
Q1, 2008	49	45	41	34
Q2, 2008	45	40	38	35
Q3, 2008	40	37	35	N/A
Q4, 2008	47	43	42	34
Q1, 2009*	N/A	N/A	N/A	N/A
Q2, 2009	50	45	41	34
Q3, 2009	49	44	40	32
Q4, 2009	44	38	36	30
Q1, 2010	38	36	35	33
Q2, 2010	49	44	40	32
Q3, 2010	70	55	56	31
Q4, 2010	48	46	44	42
Q1, 2011	43	39	37	35
Q2, 2011	59	48	47	35
Q3, 2011	55	51	48	37
Q4, 2011	48	46	44	40
Q1, 2012	46	43	41	40
Q2, 2012	46	41	39	35
Q3, 2012	47	44	40	35
Q4, 2012	45	37	36	33
Q1, 2013	49	48	43	34
Q2, 2013	49	43	41	35
Q3, 2013	52	49	45	34
Q4, 2013	54	50	41	46
Q1, 2014	47	45	42	36
Q2, 2014	56	54	50	35
Q3, 2014	48	44	40	33

Source: Coal & Allied, 2008; 2009; 2010; 2011; 2012; 2013; 2014; 2015.

* Monitoring was only conducted at three sites during Quarter 1, 2009 (N3, N4 and N5).

Figure B6
Operator-attended Monitoring Results at N6 (Muswellbrook) (2007 – 2014)



APPENDIX C

RELEVANT SENSITIVE RECEPTOR LOCATIONS

Table C1
Relevant Sensitive Receptor Locations

ID	Landholder	Structure Type	Easting (m)	Northing (m)
4	JR SCRIVEN	Dwelling	299204	6425199
19	DP ENGLEBRECHT	Dwelling	299120	6426780
20	KB & JA BARNETT	Dwelling	298865	6426827
21	MJ MCGOLDRICK	Dwelling	298804	6426823
35	C HORNE	Dwelling	299981	6428578
35b	C HORNE	Dwelling	299987	6428649
43	JB MOORE	Dwelling	292319	6429013
43b	JB MOORE	Dwelling	291386	6428704
45	BA & TE STRACHAN	Dwelling	291265	6428277
45b	BA & TE STRACHAN	Dwelling	291282	6428296
45c	BA & TE STRACHAN	Dwelling	291304	6428289
47	BL & ML BATES	Dwelling	291276	6429621
67	PN SIMPSON	Dwelling	299896	6429203
74	M & N SORMAZ	Dwelling	300004	6429277
77	BE & WB WHITEHEAD	Dwelling	300331	6429494
79	MH RAY	Dwelling	300571	6429446
82	AK BIRCH	Dwelling	301019	6429169
83	CM & LG KELMAN	Dwelling	300958	6429302
84a	GE PITMAN	Dwelling	300797	6429363
84b	GE PITMAN	Dwelling	291180	6437474
86a	COWTIME INVESTMENTS PTY LIMITED	Dwelling	300343	6429725
86b	COWTIME INVESTMENTS PTY LIMITED	Dwelling	301866	6431881
102	AJPS MATHER	Dwelling	299830	6430444
108	JS GIBSON	Dwelling	299716	6430474
112	BD BARRY	Dwelling	299569	6430451
118	JM & CA HAYES	Dwelling	299654	6430631
120	DL & PA MOORE	Dwelling	299721	6430733
120c	DL & PA MOORE	Dwelling	299694	6430747
121	C & JM MOORE	Dwelling	299655	6430781
136	DG YORE	Dwelling	300332	6432454
140a	DAPKOS PTY. LIMITED	Dwelling	300978	6433036
140c	DAPKOS PTY. LIMITED	Dwelling	301238	6431475
143a	JS & NM LONERGAN	Dwelling	299926	6434460
143b	JS & NM LONERGAN	Dwelling	299210	6435242
147	MJ & RG ADNUM	Dwelling	299166	6434677
153a	EM LEECE	Dwelling	295895	6435445
154	PD & F STANDING	Dwelling	298538	6435519
154b	PD & F STANDING	Dwelling	298530	6435540
156a	JE LONERGAN	Dwelling	298881	6435174
156b	JM & JE & ST LONERGAN and LA PARKES and PM HOWARD	Dwelling	289455	6428817
157a	RB PARKINSON	Dwelling	298964	6434979
157b	RB PARKINSON	Dwelling	289022	6427911
159	JE & MS DUCEY	Dwelling	299130	6435011
169	J WATTUS and L GREENSILL	Dwelling	298867	6436641
171	J WATTUS and L GREENSILL	Dwelling	299038	6436959
172	RL & CE THOMPSON	Dwelling	299157	6437229

ID	Landholder	Structure Type	Easting (m)	Northing (m)
172b	RL & CE THOMPSON	Dwelling	299167	6437280
172c	RL & CE THOMPSON	Dwelling	299380	6437633
310	RL & CE THOMPSON	Dwelling	299136	6437287
173	JA WARD and TL KING	Dwelling	298878	6437774
174	ML POWER	Dwelling	298907	6437677
175	ML POWER	Dwelling	298924	6437623
175b	ML POWER	Dwelling	298907	6437621
175c	ML POWER	Dwelling	298949	6437595
176	JAF & LA ALLAN	Dwelling	298986	6437511
177	FW & SA & HM WHEATLEY	Dwelling	298729	6438048
178	PA NEELY	Dwelling	299347	6438055
179	F. A. WHEATLEY & SON PTY LIMITED	Dwelling	299188	6438161
180	F. A. WHEATLEY & SON PTY LIMITED	Dwelling	299231	6438235
180b	F. A. WHEATLEY & SON PTY LIMITED	Dwelling	299556	6438056
180c	F. A. WHEATLEY & SON PTY LIMITED	Dwelling	299443	6438875
181	K.L. & H.R. DAY PTY. LIMITED	Dwelling	300473	6437761
181c	K.L. & H.R. DAY PTY. LIMITED	Dwelling	300024	6437408
182	JG & AJ SADLER	Dwelling	300847	6437842
189	OB O'BRIEN	Dwelling	301237	6434699
190	OB O'BRIEN	Dwelling	301114	6434684
191	JA & JE FIBBINS	Dwelling	301415	6434535
192	IG & CW INGLE	Dwelling	301288	6434533
193	GM & KL SMITH	Dwelling	301528	6434368
193c	GM & KL SMITH	Dwelling	302408	6433967
194	TC & JBA HARRIS	Dwelling	302020	6433459
195	T & RK YOUNG	Dwelling	302120	6432953
197	T & RK YOUNG	Dwelling	302116	6432365
196	T & RK YOUNG	Dwelling	302230	6432239
195d	T & RK YOUNG	Dwelling	302172	6432125
198	TJ & NP GOLDRICK	Dwelling	301994	6431849
198b	TJ & NP GOLDRICK	Dwelling	301949	6431847
199	NA BURLING	Dwelling	302093	6431847
200	R EASTON	Dwelling	302256	6431849
202	DN RAPHAEL	Dwelling	301547	6431296
202b	DN RAPHAEL	Dwelling	301939	6431208
203	RF & MA MILLARD	Dwelling	301444	6431329
203b	RF & MA MILLARD	Dwelling	301482	6431298
203c	RF & MA MILLARD	Dwelling	301446	6431341
206	WJ HARDES	Dwelling	299807	6427072
207	SW & KL BARKLEY	Dwelling	299389	6426888
212	DR & CJ TUBB	Dwelling	299568	6426382
212b	DR & CJ TUBB	Dwelling	299544	6426340
213	ENGLEBRECHT RACING STABLES PTY. LIMITED	Dwelling	299175	6426542
214	RC WEIR and AL THOMSON-WEIR	Dwelling	299180	6426558
215	WJ & CB MCINTOSH	Dwelling	299187	6426609
216	NJ KEEVERS	Dwelling	299191	6426638
216b	NJ KEEVERS	Dwelling	299215	6426621
217	RRA FARNSWORTH	Dwelling	299197	6426668
218	SY JOHNSON	Dwelling	299137	6426582
219	GL & KL ANDREWS	Dwelling	299134	6426597

ID	Landholder	Structure Type	Easting (m)	Northing (m)
220	MA MOLLER and RA BYRNES	Dwelling	299145	6426635
221	TD BARRON	Dwelling	299149	6426680
222	ML & EA SWEENEY	Dwelling	299152	6426716
223	MC& LJ DOBIE	Dwelling	299126	6426722
223b	MC& LJ DOBIE	Dwelling	299113	6426701
224	DL ROBINSON	Dwelling	299097	6426729
225	JR GLEESON and MR CRANFIELD	Dwelling	299208	6426699
249	TW ROOTS	Dwelling	290948	6423469
252	RM & KF MERRICK	Dwelling	289458	6424902
257	PG & CM LANE	Dwelling	291300	6426071
258a	NJ & RY ELLIS	Dwelling	291000	6426444
258c	NJ & RY ELLIS	Dwelling	290978	6426456
259	MR PEEL	Dwelling	290893	6426165
259b	MR PEEL	Dwelling	290771	6426234
260	PSJ MURRAY	Dwelling	291001	6426005
260a	PSJ MURRAY	Dwelling	290975	6425981
260b	PSJ MURRAY	Dwelling	290967	6426001
261	PR ELLIS	Dwelling	290650	6425665
261b	PR ELLIS	Dwelling	290655	6425637
271	DE KILGANNON and DS MACDOUGALL	Dwelling	289007	6434419
272b	GC SPARRE	Dwelling	290544	6433781
272	GC SPARRE	Dwelling	290599	6433699
273	IJ & CM RICHARDS	Dwelling	289237	6435182
273b	IJ & CM RICHARDS	Dwelling	289270	6434795
289	RA & EA LAWMAN	Dwelling	300328	6428693
292	GR & MK WALSH	Dwelling	290619	6422528
292b	GR & MK WALSH	Dwelling	290459	6422499
300	MG & LJ LATHAM	Dwelling	291433	6421730
298	MG & LJ LATHAM	Dwelling	291487	6421947
296a	JM WILD	Dwelling	291746	6422106
296b	JM WILD	Dwelling	291623	6422136
302a	MJ & MJ DUNCAN	Dwelling	290912	6421269
302c	MJ & MJ DUNCAN	Dwelling	290718	6421467
401	JL & DG DAY	Dwelling	289678	6437838
402	PC BRITTAN	Dwelling	290202	6438460
404	JL & RW & DG DAY	Dwelling	290589	6437642
405	GL & JL DANIELS	Dwelling	292459	6439852
406	LE & SR HOLDSWORTH	Dwelling	291408	6439011
407	AD LONERGAN	Dwelling	291737	6437529
408	SN BATEMAN	Dwelling	300656	6440603
409	AP CORLISS	Dwelling	294094	6439216
410a	V BATEMAN	Dwelling	300631	6440563
410b	V BATEMAN	Dwelling	300610	6440560
411a	DL CADDEY	Dwelling	294623	6439788
411b	DL CADDEY	Dwelling	294701	6439774
411c	DL CADDEY	Dwelling	294939	6439950
412	JA BAILEY	Dwelling	300573	6440442
413b	MJH LUMBY	Dwelling	288466	6437109
414a	PG LUCK	Dwelling	300751	6440513
415	SJ FRANKLAND	Dwelling	288449	6436268

ID	Landholder	Structure Type	Easting (m)	Northing (m)
417	M & JA CASTELLANA	Dwelling	288298	6435593
418	PB WATTS	Dwelling	287815	6435334
418b	PB WATTS	Dwelling	287964	6435284
419	KM BATES and TG WOODS	Dwelling	288702	6436633
421	GW RICHARDS	Dwelling	289314	6435712
422a	ME DANIELS	Dwelling	297479	6438929
422c	ME DANIELS	Dwelling	292052	6440193
428	JM GOWING	Dwelling	297359	6439377
429a	JJ & MD & KP COLLINS and ML WILLIAMSON	Dwelling	297808	6439616
429b	JJ & MD & KP COLLINS and ML WILLIAMSON	Dwelling	297897	6439690
430	DJ HULBERT	Dwelling	297849	6439727
431a	GJ DAY	Dwelling	300058	6439816
431b	GJ DAY	Dwelling	299476	6439794
432	REN & TR ADAM and KL CONE	Dwelling	299493	6439313
433	JP BRENNAN and CJ ASHFORD	Dwelling	299413	6439062
434	GJ & RL JONES	Dwelling	299588	6438944
434b	GJ & RL JONES	Dwelling	299533	6439471
436	MEDEGATE PTY. LIMITED	Dwelling	299862	6438782
437	BG & S CANVIN	Dwelling	299724	6438830
438	WALFERTAN PROCESSORS PTY LIMITED	Dwelling	302429	6440644
440a	DARLEY AUSTRALIA PTY LIMITED	Dwelling	303777	6440030
440b	DARLEY AUSTRALIA PTY LIMITED	Dwelling	303810	6440026
440d	DARLEY AUSTRALIA PTY LIMITED	Dwelling	304322	6440005
440e	DARLEY AUSTRALIA PTY LIMITED	Dwelling	304249	6440021
440f	DARLEY AUSTRALIA PTY LIMITED	Dwelling	303736	6440339
440g	DARLEY AUSTRALIA PTY LIMITED	Dwelling	304063	6439958
441	MACQUEEN PROJECTS PTY LTD	Dwelling	301154	6438223
443	RG & K BRADLEY	Dwelling	301121	6438168
451	GK & HM SANSOM	Dwelling	303247	6434331
452	AJR MADDEN	Dwelling	303395	6431851
453a	SC & ME DEVER	Dwelling	288347	6434692
453b	SC & ME DEVER	Dwelling	288309	6434747
454	AP & PE MCMANUS	Dwelling	287915	6434470
456	GT KEAST	Dwelling	286643	6434110
456b	GT KEAST	Dwelling	286650	6434092
458	HJ WRIGHT	Dwelling	288255	6433351
462a	SH JENNAR	Dwelling	286649	6429789
462b	SH JENNAR	Dwelling	286664	6429919
462c	SH JENNAR	Dwelling	286664	6429905
464	JL SMITH and KL BALMER	Dwelling	289094	6428237
464b	JL SMITH and KL BALMER	Dwelling	289152	6428303
465	FN & WL GOOGE	Dwelling	288368	6427932
466	GT MCNEILL	Dwelling	289104	6426843
467	AR & F FLETCHER	Dwelling	290362	6428029
467b	AR & F FLETCHER	Dwelling	290329	6428001
468a	S.R. & J. W. LAWSON (LINDISFARNE) PTY. LIMITED	Dwelling	288663	6422488
468b	S.R. & J. W. LAWSON (LINDISFARNE) PTY. LIMITED	Dwelling	288413	6422516
468c	S.R. & J. W. LAWSON (LINDISFARNE) PTY. LIMITED	Dwelling	288744	6422670
468d	S.R. & J. W. LAWSON (LINDISFARNE) PTY. LIMITED	Dwelling	288667	6422511
470	PJ & JI BROWN	Dwelling	289352	6423345

ID	Landholder	Structure Type	Easting (m)	Northing (m)
471	PJ BROWN	Dwelling	289166	6423423
472a	JDM MARKHAM	Dwelling	289359	6423042
472b	JDM MARKHAM	Dwelling	289391	6423191
472c	JDM MARKHAM	Dwelling	289154	6422757
474	AA & BT MEYER	Dwelling	289101	6422375
475	EJ & CA DENTON	Dwelling	290871	6421547
475b	EJ & CA DENTON	Dwelling	290870	6421557
476	LA & CA MACPHERSON	Dwelling	289424	6420979
477a	MW TURNER	Dwelling	290061	6421069
477b	MW TURNER	Dwelling	290048	6421063
481	RL WILKS	Dwelling	288729	6420219
483	RW JONES	Dwelling	287951	6420135
484	TR & KM PAULSEN	Dwelling	288861	6419989
485b	PR & M BURGMANN	Dwelling	288066	6419050
485c	PR & M BURGMANN	Dwelling	287988	6419082
485d	PR & M BURGMANN	Dwelling	287933	6419095
485e	PR & M BURGMANN	Dwelling	287953	6419103
487	E RANKIN	Dwelling	292323	6421880
488a	WJ & E RANKIN	Dwelling	292981	6421913
488b	WJ & E RANKIN	Dwelling	292667	6422647
490	RL GORDON	Dwelling	295469	6440374
492	HM & CR GOODSELL	Dwelling	295927	6440522
494	BJ & KF FLAHERTY	Dwelling	296874	6440609
495a	DAVHAM NOMINEES PTY LIMITED	Dwelling	297697	6440526
495b	DAVHAM NOMINEES PTY LIMITED	Dwelling	297490	6440531
499	RD & TL JONES	Dwelling	299595	6440475
500	GWRD HOLDINGS PTY LIMITED	Dwelling	299549	6440260
501a	JW TAYLOR	Dwelling	299518	6440043
501b	JW TAYLOR	Dwelling	299501	6440052
502a	LC SCOWEN	Dwelling	299525	6440537
502b	LC SCOWEN	Dwelling	299575	6440542
502c	LC SCOWEN	Dwelling	299598	6440534
504a	MT O'CONNELL	Dwelling	299827	6440661
504b	MT O'CONNELL	Dwelling	299849	6440673
505	GC O'HARA	Dwelling	300012	6440495
506	SA & RP WITHERS	Dwelling	300054	6440492
507a	MJ & NJ ORMSBY KELAHER	Dwelling	300091	6440496
507b	MJ & NJ ORMSBY KELAHER	Dwelling	300176	6440541
508	VG FOSTER	Dwelling	299810	6440203
509	GJ DAY and J WATTUS	Dwelling	300258	6440669
510	SG & YR WILKS	Dwelling	300185	6440043
511	DJ & CL CLYDSDALE	Dwelling	299817	6440019
513	GJ & DC WILTON	Dwelling	300618	6440648
515a	SB & JA REICHEL	Dwelling	303771	6435159
515b	SB & JA REICHEL	Dwelling	304395	6435587
522a	BJ & VR PASSLOW	Dwelling	303468	6431491
526	LG WICKS	Dwelling	300536	6429474
547	FK & G & LA BRYANT	Dwelling	302119	6433355
550	KT RYAN	Dwelling	304389	6422458
553	MF & AV DOHERTY	Dwelling	304139	6422116

ID	Landholder	Structure Type	Easting (m)	Northing (m)
554	K CASBEN	Dwelling	304376	6424137
557	CJ & LE DUCK	Dwelling	304348	6422171
667a	B LAWMAN	Dwelling	300416	6428684
667b	B LAWMAN	Dwelling	300443	6428720
667c	B LAWMAN	Dwelling	300417	6428676
667d	B LAWMAN	Dwelling	300414	6428656
667e	B LAWMAN	Dwelling	300427	6428663
1076a	210 GLENCOE PTY LIMITED	Dwelling	300189	6439437
1076b	210 GLENCOE PTY LIMITED	Dwelling	300182	6439425
1083	LE & CA STEANE	Dwelling	301910	6440602
1100a	SPUR HILL AGRICULTURAL PTY LIMITED	Dwelling	286450	6420099