



MAULES CREEK

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WHC_PLN_MC_ NOISE MANAGEMENT PLAN

NOISE MANAGEMENT PLAN

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1.0 INTRODUCTION

Global Acoustics was commissioned by Hansen Bailey on behalf of Maules Creek Coal Pty Ltd (MCC) to prepare a Noise Management Plan (NMP) for the Maules Creek Coal Project (the Project). The Project involves the development of a 21 year open cut coal mining operation and associated infrastructure.

1.1 Background

The ownership of the Project currently lies with the Maules Creek Coal Joint Venture (MCJV), which is 75% owned by Aston Coal 2 Pty Limited (a company 100% owned by Whitehaven Coal), 15% owned by Itochu Coal Resources Australia Maules Creek Pty Ltd (ICRA MC) and 10% owned by J-Power Australia (J-Power).

The Project is an open-cut coal mine located on the northwest slopes and plains of NSW in the Gunnedah Coal basin.

Land-use in the local area is dominated by agricultural operations and open cut mining, with rural residential holdings mainly located to the north and west of the Project. The Project Boundary is situated on land largely occupied by the Leard State Forest (which has historically been predominantly utilised for forestry, recreation and more recently mining related activities). Various coal mines exist within close proximity to the Project including Boggabri Coal Mine, Tarrawonga Coal Mine and Goonbri Exploration Lease located to the south, southeast of the Project Boundary.

There are a number of isolated rural residences associated with the surrounding farms within the vicinity of the Project, as well as the Fairfax Public School located in the Maules Creek Village. The location of sensitive receptors in the vicinity of Project is shown in Figure 1 to Figure 5. Figure 1 also shows the Landownership surrounding the Project and identifies properties already owned by MCC or are currently under negotiation. The surrounding terrain is gently undulating in the north with steeper slopes emerging near ridgelines towards the central portion of the Project. Much of the higher ground and steeper slopes retain moderately dense woodland cover, which forms part of the National Parks, and State Forests found within the region.

1.2 Project Description

MCC submitted a Project Application to the NSW Department of Planning and Infrastructure (DP&I) (formerly Department of Planning (DoP)) in August 2010 for a new Project Approval under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to enable the construction and operation of the Project. The application was supported by an Environmental Assessment (EA). Project Approval (PA) 10_0138 (the approval) was granted on 23 October 2012 by the Planning Assessment Commission under delegation of the Minister for Planning and Infrastructure.



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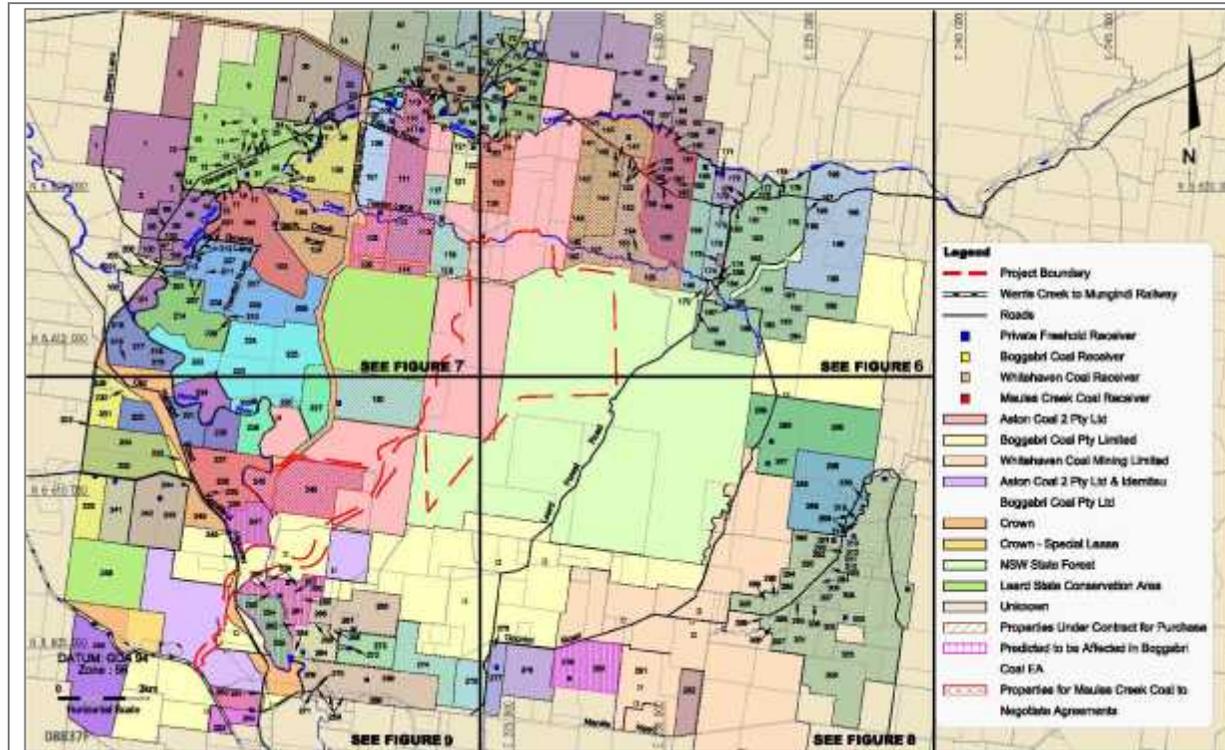


Figure 1: Land Ownership (Overview)



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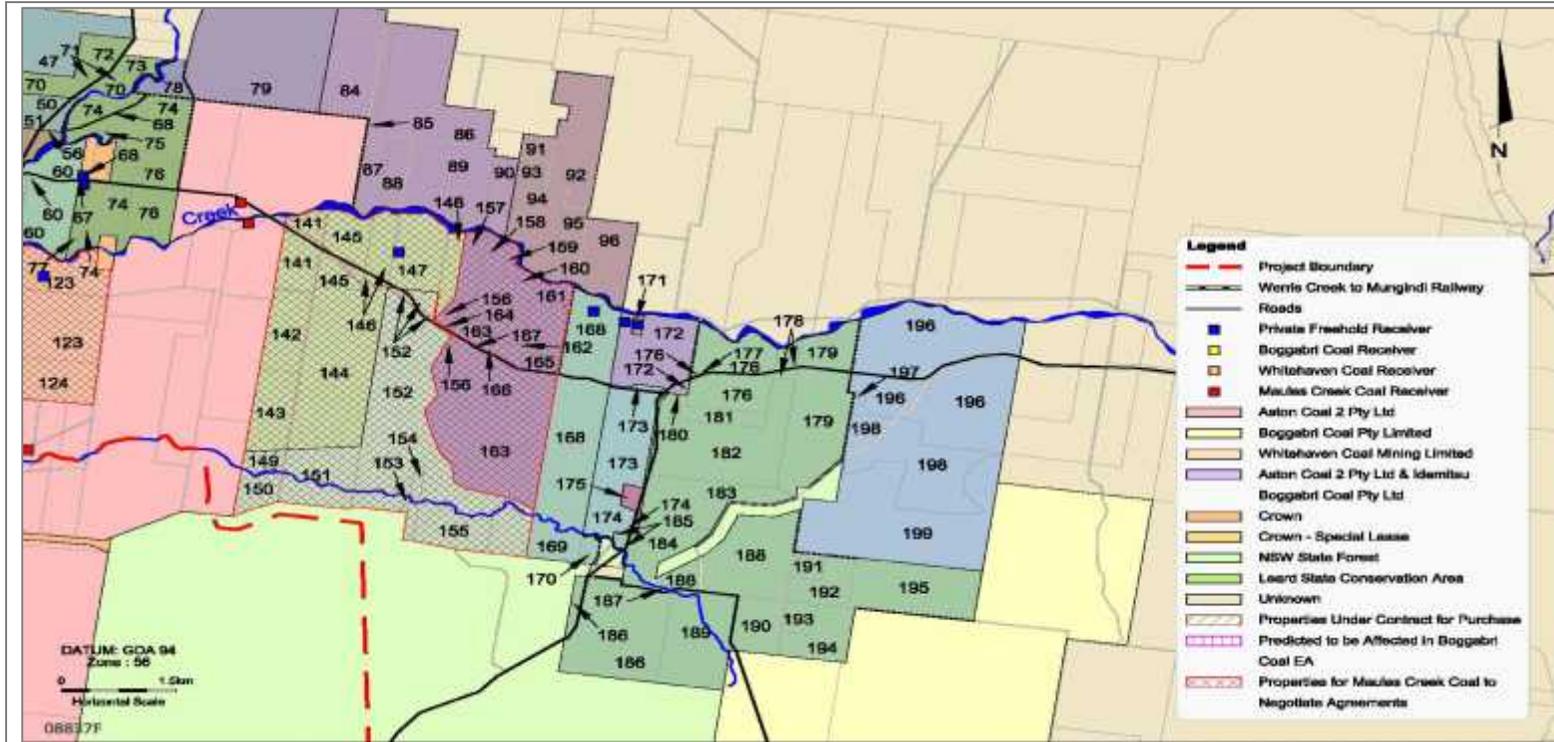


Figure 2: Land Ownership (Northeast)



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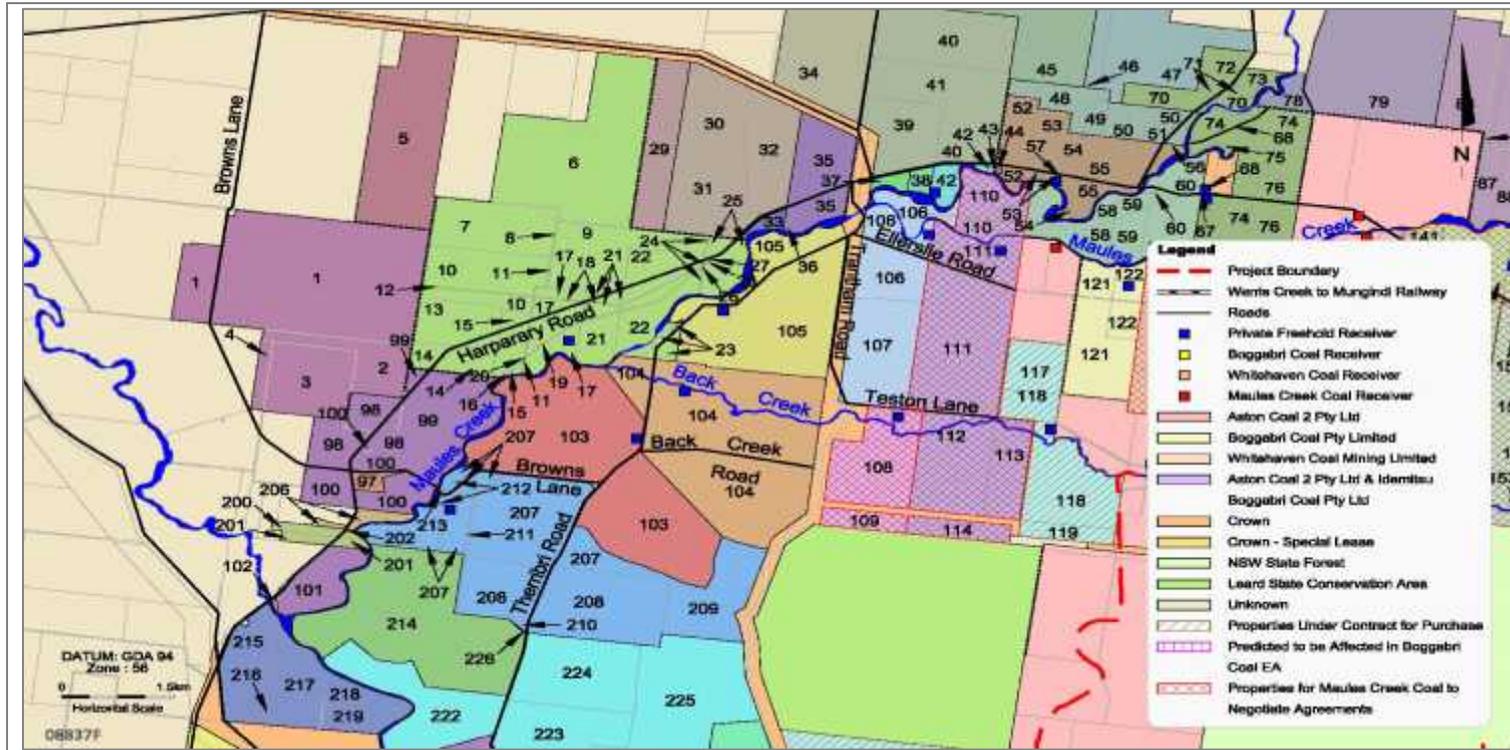


Figure 3: Land Ownership (Northwest)



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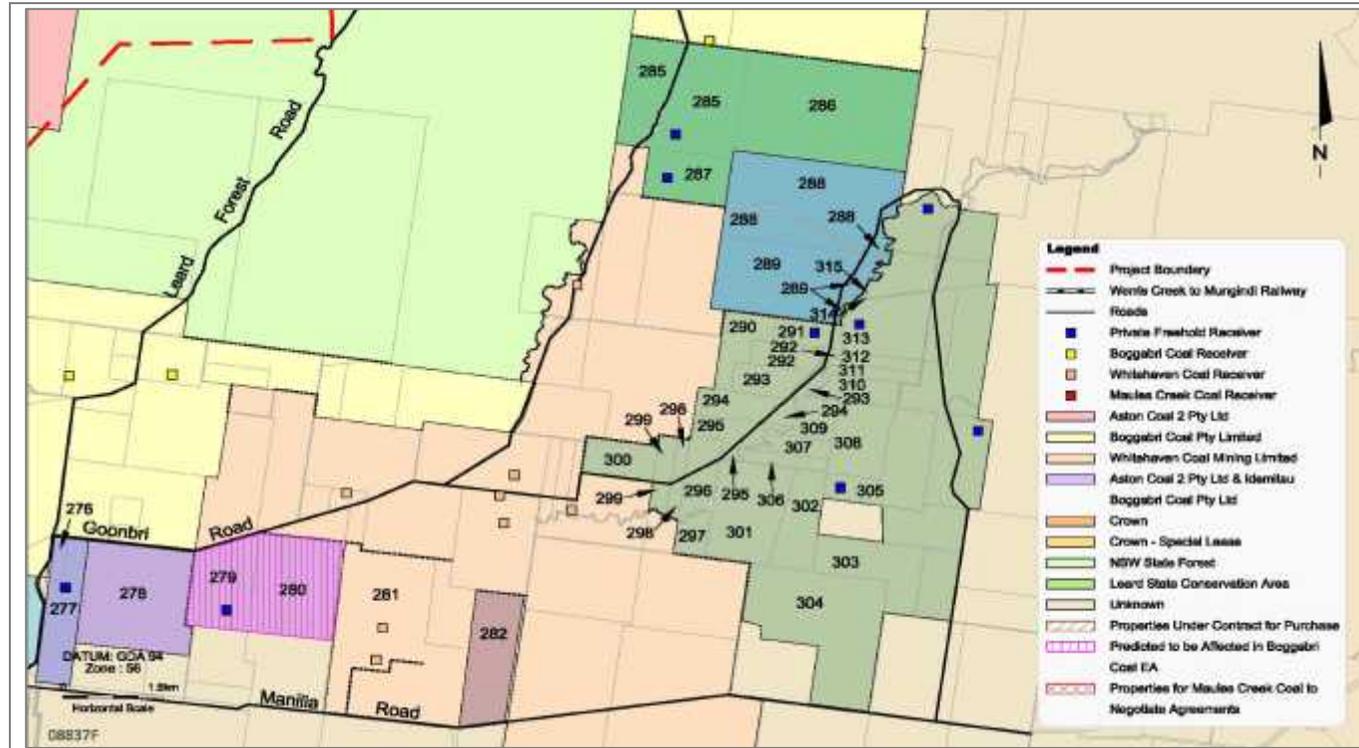


Figure 4: Land Ownership (Southeast)



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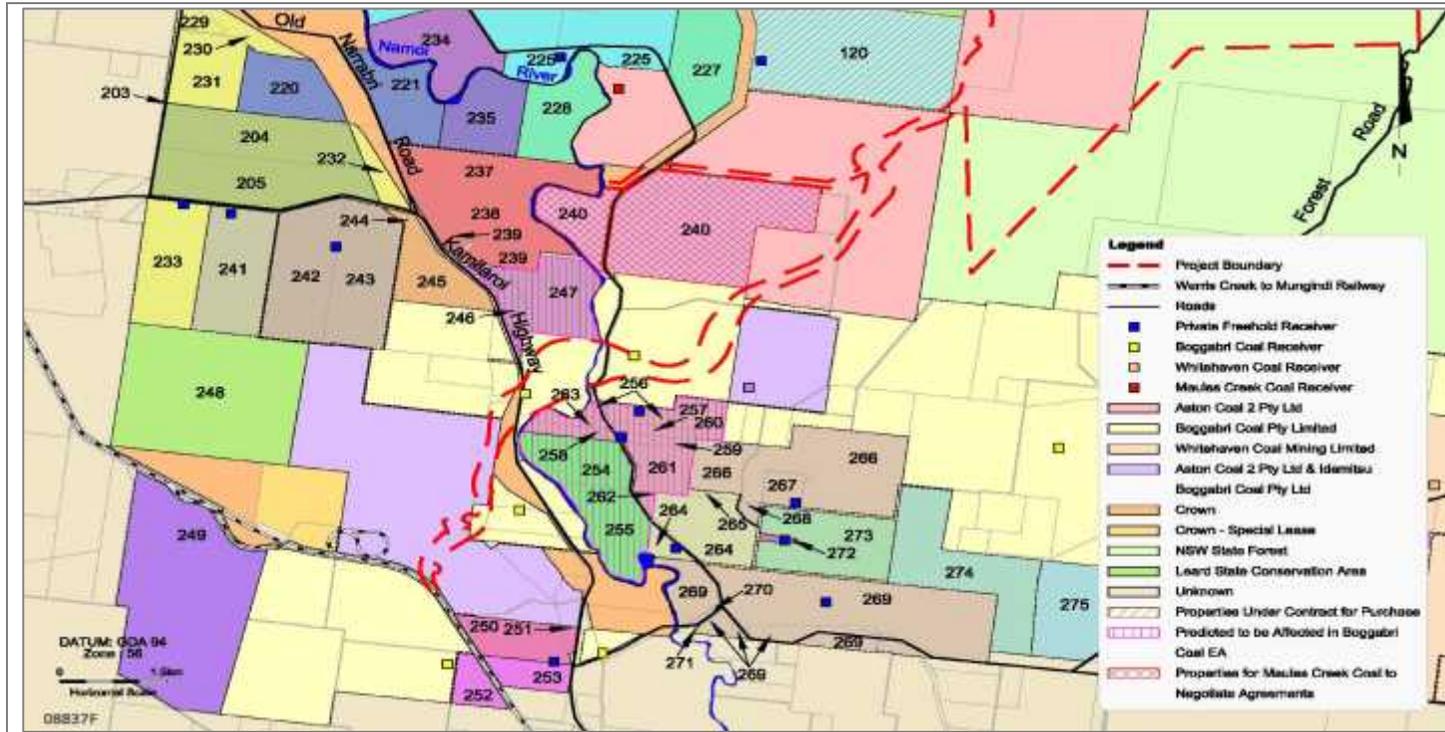


Figure 5: Land Ownership (Southwest)

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The Project involves the construction and operation of an open cut coal mine, with the recovery of up to 13 Mtpa Run of Mine (ROM) coal for a period of 21 years. Key aspects of the Project are illustrated in Figure 6 and include:

- Open cut mining operation extracting up to 13 Mtpa ROM coal to the Templemore Seam;
- Open cut mining fleet including excavator / shovels and fleet of haul trucks, dozers, graders and water carts utilising up to 470 permanent employees;
- Coal Handling and Preparation Plant (CHPP) with a throughput capacity of 13 Mtpa ROM coal;
- Tailings Drying Area;
- Rail spur, rail loop, associated load out facility and connection to the Werris Creek to Mungindi Railway Line;
- Water Management infrastructure including a water pipeline, pumping station and associated infrastructure for access to water from the Namoi River;
- Supporting power and communications infrastructure;
- Explosive magazine and storage areas
- Mine Access Road; and
- Administration, workshop and related facilities.

A modification was submitted in April 2013 seeking approval for the construction and operation of a 132kV Transmission line, a 132KV Switch Station and minor realignment of the CHPP and associated facilities. This modification was approved in July 2013. Additionally, the shared rail spur, as identified in Figure 6 will be constructed and managed by the Boggabri Coal Project.

Construction activities that have the potential to generate noise from the Project are shown in Figure 6.

Snapshots of the indicative mine plans for Years 1 to 5 of the Project are provided in Figure 7 to Figure 11. The figures give an indication of the locations of noise generating activities (e.g. active mining areas) for these initial mining periods. These figures also indicate the various infrastructure that will be constructed in the initial construction period for the Project.

1.3 Scope

This NMP has been prepared in accordance with the requirements of PA 10_0138. The aim of this plan is to manage project specific and cumulative noise impacts associated with the construction and operational phases of the Project. This plan is a requirement of conditions 16 and 25 of Schedule 3 of the approval. Condition 3 of Schedule 5 of the approval prescribes the content requirements of management plans.

This NMP has been prepared in consultation with the NSW Environment Protection Authority (EPA) in accordance with the requirements of the approval. Copies of communication with the EPA are included in Appendix A. Whilst this NMP is dynamic and changes will be made as warranted over time, the formal life of this Plan is one year as inferred in the approval (Schedule 5, Condition 5 a)).



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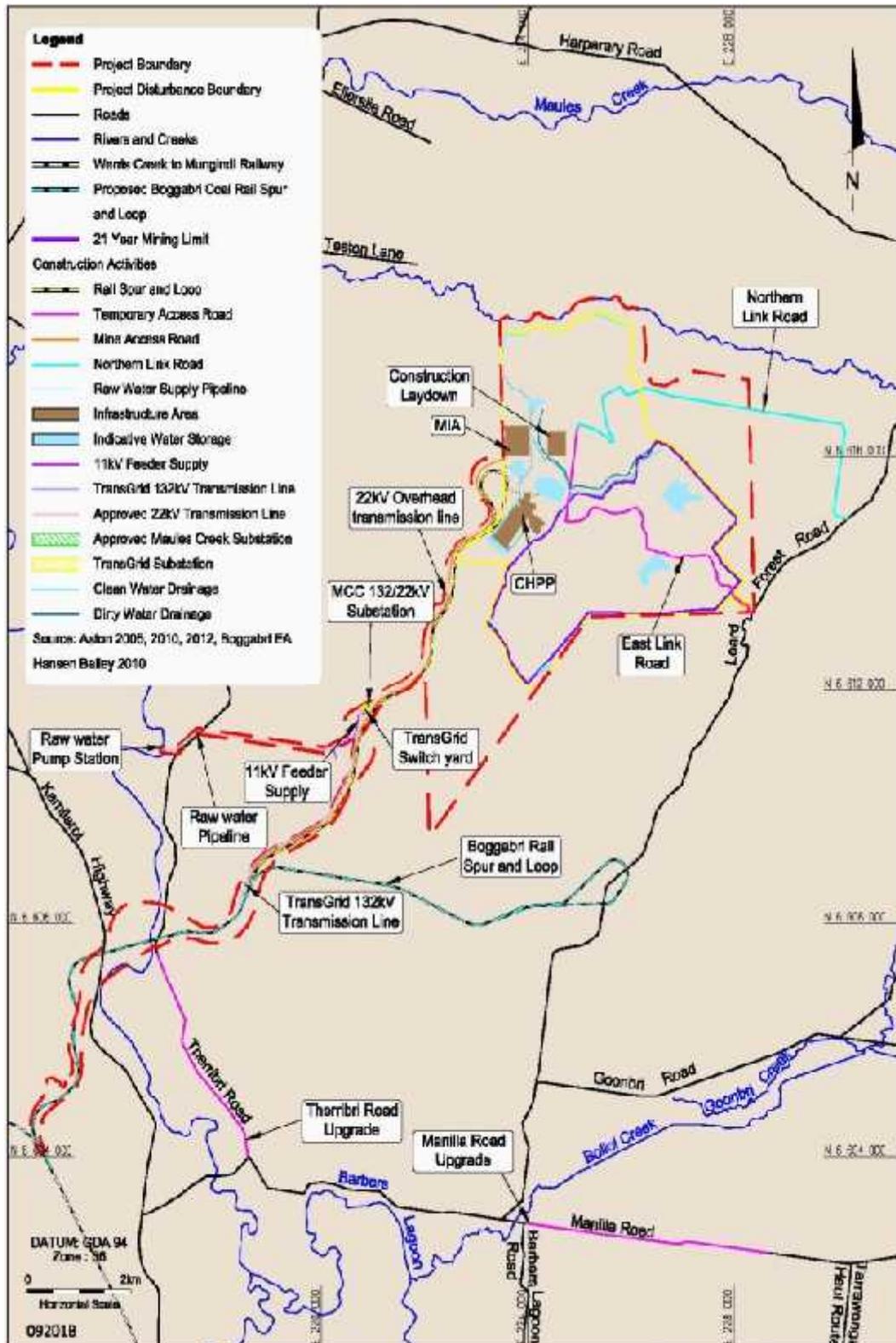


Figure 6 Project Layout



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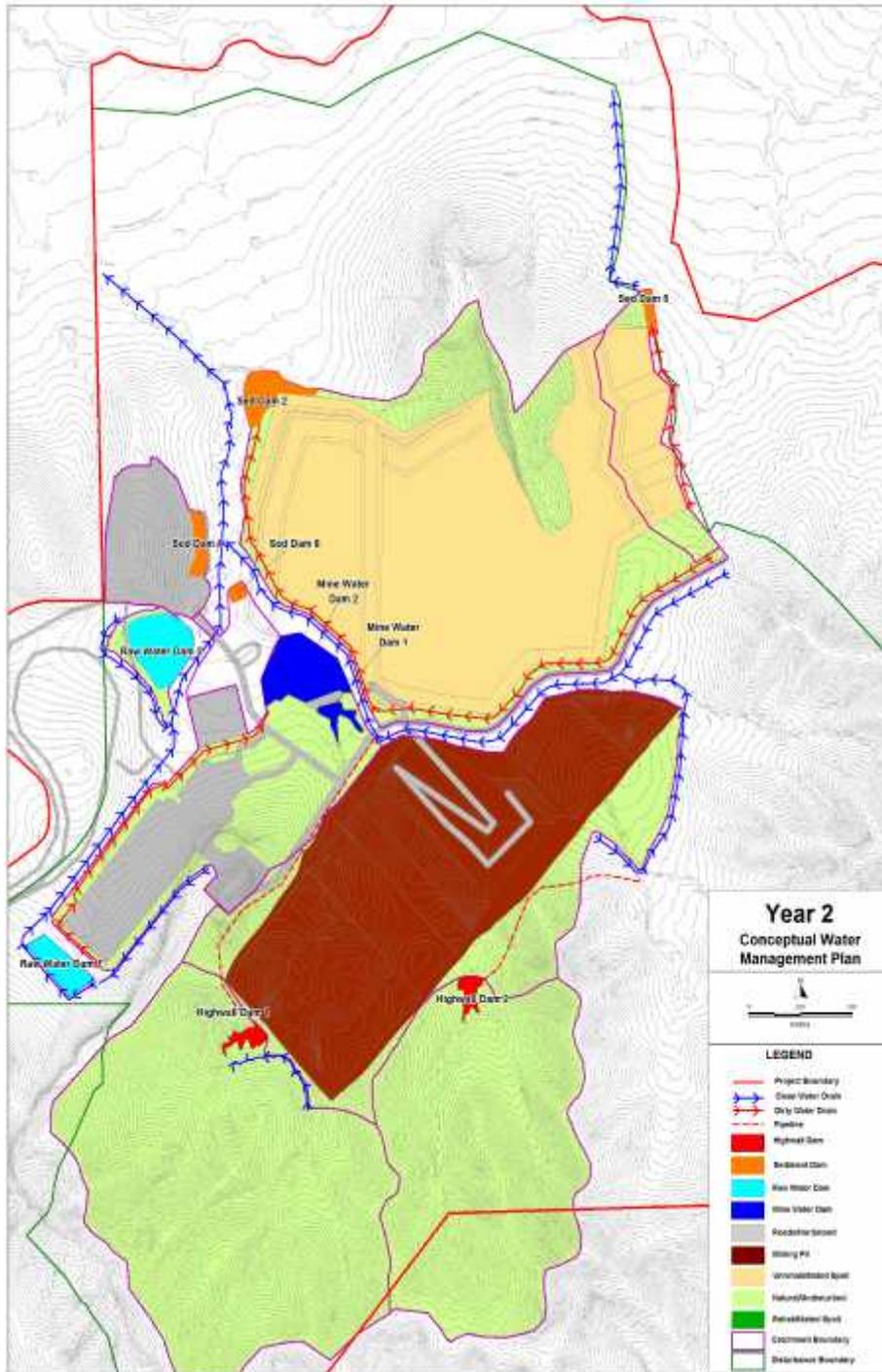


Figure 8 Mine Plan Year 2



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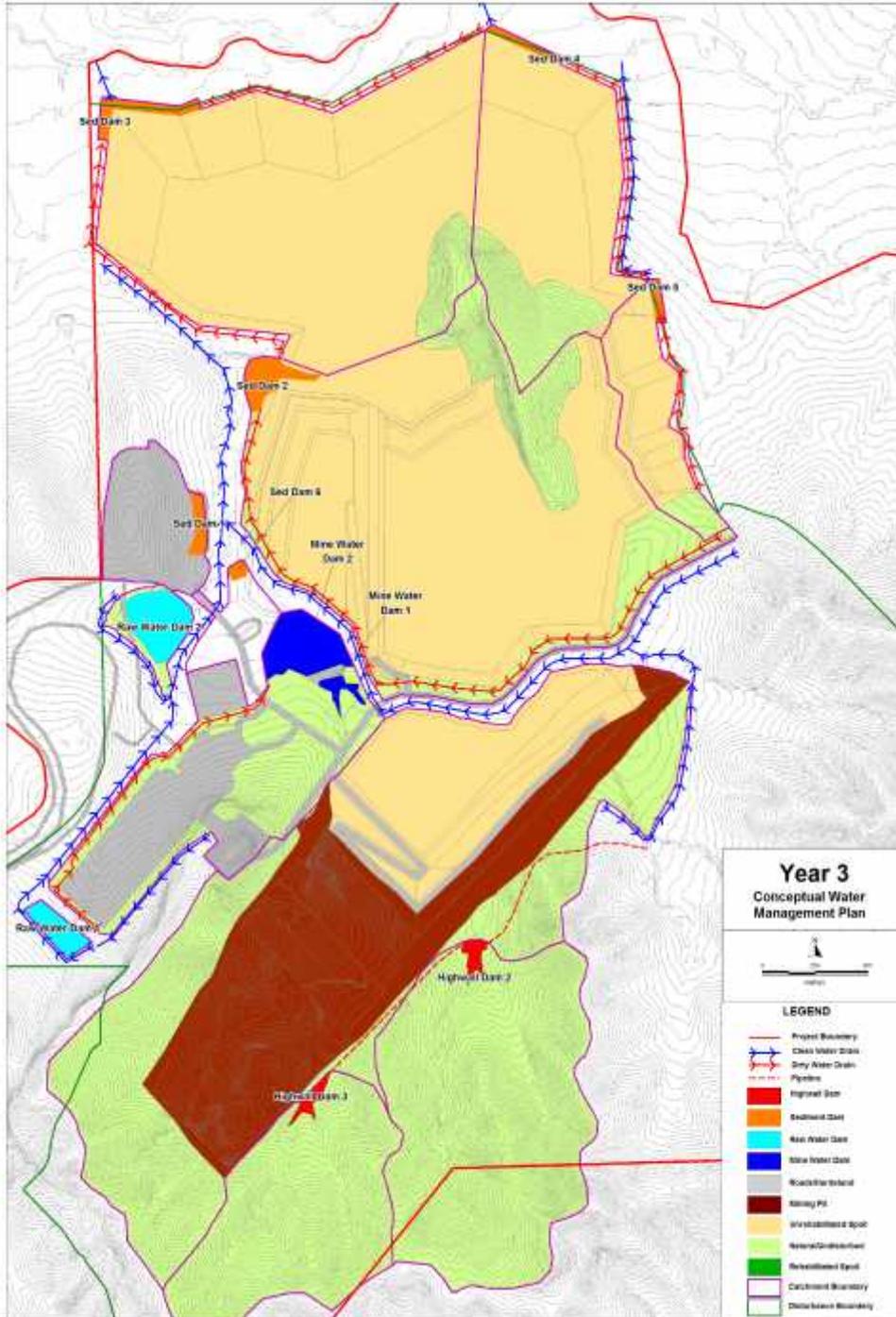


Figure 9 Mine Plan Year 3



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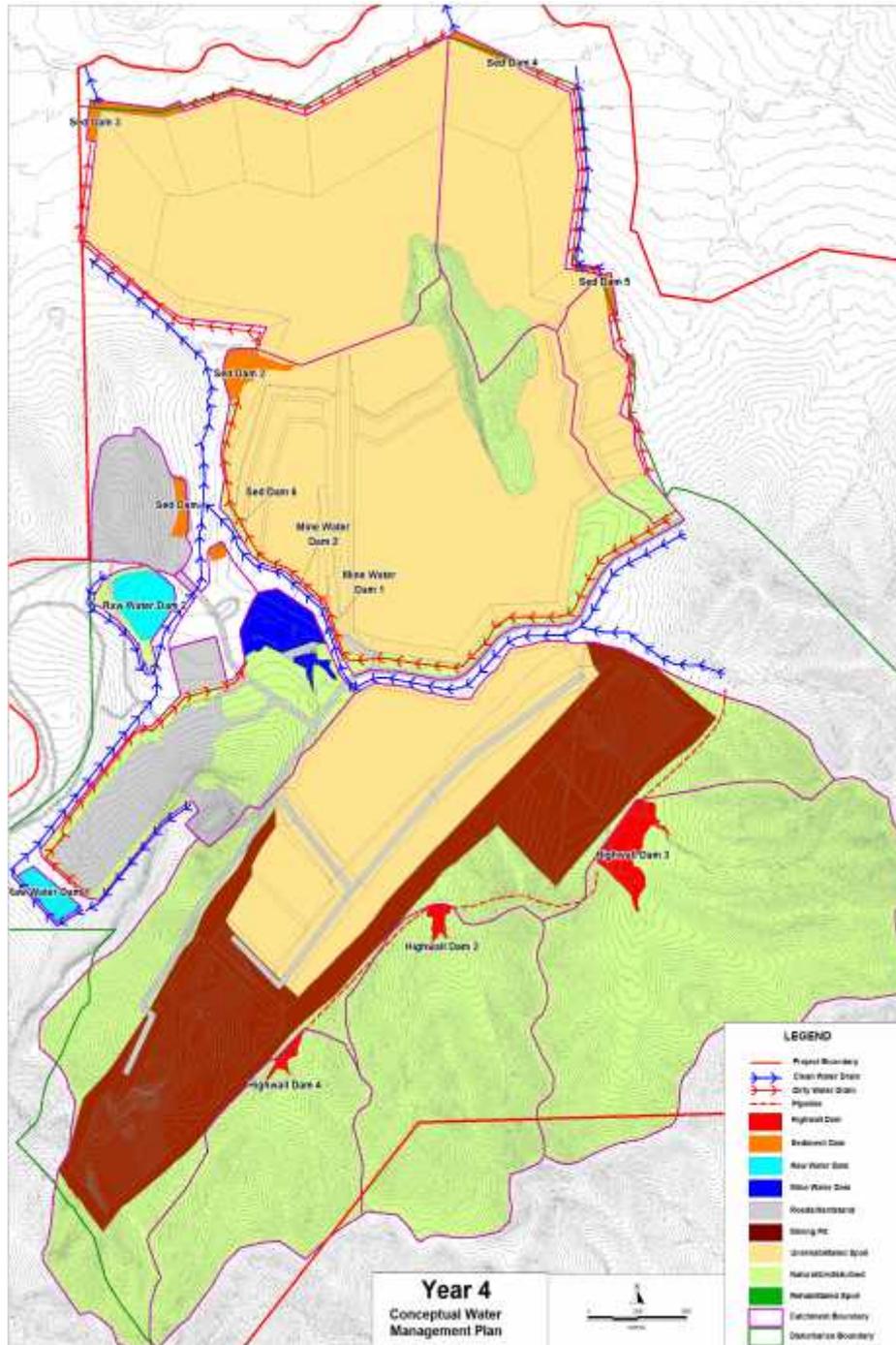


Figure 10 Mine Plan Year 4



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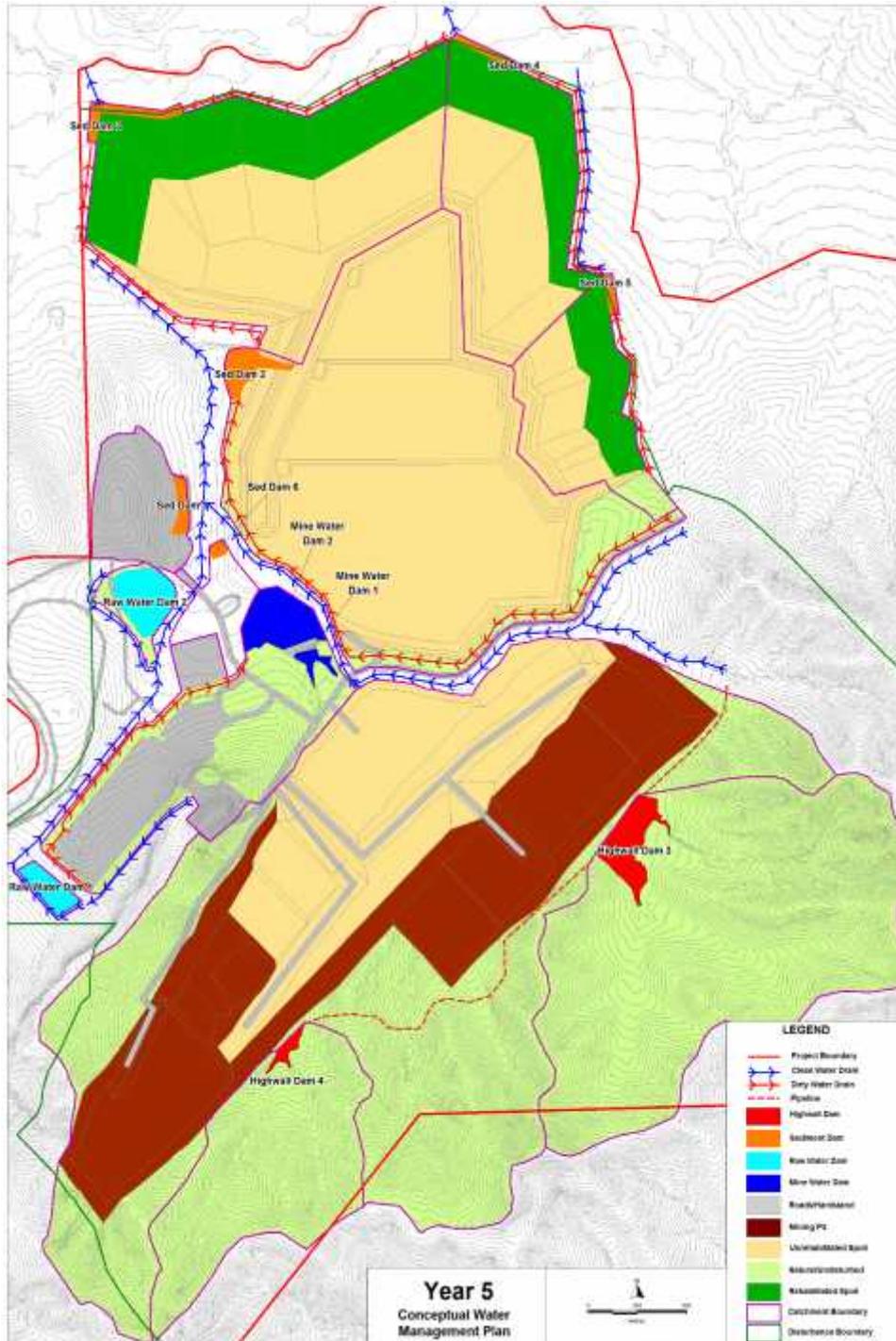


Figure 11 Mine Plan Year 5

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1.4 Objectives

The objectives of this management plan are to:

- ensure that construction noise, operational noise and vibration from MCC are minimised;
- maintain compliance with conditions of the development approval, environmental protection licence and legislation relating to noise;
- provide a protocol for monitoring and evaluation of noise impacts on surrounding private residences and sensitive receivers;
- manage project specific and cumulative noise impacts associated with the MCC mining operations; and
- communicate with the local community and regulators regarding MCC activities.

All of the noise related approval requirements are addressed in this document, as detailed in Section 2.0.



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2.0 STATUTORY REQUIREMENTS AND COMMITMENTS

This management plan has been prepared to fulfil the requirements of relevant legislation, approved conditions, EA commitments, and, relevant standards and guidelines.

2.1 Relevant Legislation

The *Protection of the Environment Operations Act 1997* (POEO Act) is the principal piece of legislation governing noise emissions in NSW. The POEO Act requires an Environmental Protection Licence (EPL) be held for mining operations such as Maules Creek. The EPA has been consulted during the preparation of this management plan, which will support the application for an EPL.

2.2 Project Approval Conditions

This NMP aims to ensure that the noise criteria presented in the approval are met during the construction and operation of the Project.

2.2.1 Construction Conditions

Conditions 4 to 6 of Schedule 3 of the approval which address the construction noise requirements are reproduced in Table 1.

Table 1: Construction Noise and Vibration Criteria

Approval Condition	NMP Reference									
Schedule 3										
Construction Noise and Vibration Criteria – Maules Creek and Boggabri Share Rail Spur Lines.										
<p>4. During the hours of:</p> <ul style="list-style-type: none"> (a) 7 am to 6 pm Monday to Fridays, inclusive; (b) 8 am to 1 pm on Saturdays; and (c) At no time on Sundays or public holidays, <p>noise from activities associated with the construction and / or upgrade of the Maules Creek rail spur line and shared section of the Boggabri rail spur line shall meet the criteria in Table 4.</p> <p>Table 4: Rail spur line construction noise criteria dB (A)</p> <table border="1"> <thead> <tr> <th rowspan="2">Location Property / ID</th> <th>Construction Noise Criteria</th> </tr> <tr> <th>Day dB(A) LAeq(15min)</th> </tr> </thead> <tbody> <tr> <td>256</td> <td>50</td> </tr> <tr> <td>259</td> <td>45</td> </tr> <tr> <td>All other privately-owned residences</td> <td>40</td> </tr> </tbody> </table> <p><i>Note: To interpret the locations referred to in Table 4, see the applicable figure in Appendix 4.</i></p>	Location Property / ID	Construction Noise Criteria	Day dB(A) LAeq(15min)	256	50	259	45	All other privately-owned residences	40	Section 5.1.2
Location Property / ID		Construction Noise Criteria								
	Day dB(A) LAeq(15min)									
256	50									
259	45									
All other privately-owned residences	40									
<p> Vibration from activities associated with the construction and / or upgrade of the Maules</p>	Section 5.1.2									



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Approval Condition	NMP Reference
<p>creek rail spur line and shared section of the Boggabri rail spur line shall comply with the following:</p> <ul style="list-style-type: none"> (a) for structural damage, the vibration limits set out in the German Standard DIN 4150-3: Structural Vibration – effects of vibration on structures; and (b) for human exposure, the acceptable vibration values set out in the <i>Environmental Noise Management Assessing Vibration: A Technical Guideline</i> (Department of Environment and Conservation, 2006). 	
<p> If the Proponent proposed to undertaken any construction works associated with the Maules Creek rail spur line (and shared section of the Boggabri rail spur line) outside the hours specified above, then the Proponent must prepare and implement an Out of Hours Work protocol for these works to the satisfaction of the Director-General. This protocol must be prepared in consultation with the EPA and the residents who would be affected by the noise generated by these works, and be consistent with the requirements of the <i>Interim Construction Noise Guideline</i> (Department of Environment and Climate Change, 2009). The Proponent shall not carry out any out of hours construction works before this protocol has been approved by the Director-General.</p> <p><i>Note: For areas where construction noise from the Maules Creek rail spur line and shared section of the Boggabri rail spur line is predicted to be at or below 35dB(A) and / or below operational noise criteria at sensitive receptors, this is likely to provide sufficient justification for the need to operate outside of recommended standard hours as specified in the ICNG.</i></p>	Section 4.1



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2.2.2 Operational Noise Criteria

Conditions 7 and 10 of Schedule 3 of the approval provide the operational noise criteria. These criteria are reproduced in Table 2.

Table 2: Operational Noise Criteria

Approval Condition	NMP Reference						
Schedule 3							
Noise Criteria							
<p> Except for the noise affected land in Table 1, the Proponent shall ensure that operational noise generated by the project does not exceed the criteria in Table 5.</p> <p style="text-align: center;">Table 5: Noise criteria dB(A)</p> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th style="width: 40%;">Land</th> <th style="width: 30%;">Day / Evening / Night LAeq (15min)</th> <th style="width: 30%;">Night LA1 (1min)</th> </tr> </thead> <tbody> <tr> <td>All privately owned residences</td> <td>35</td> <td>45</td> </tr> </tbody> </table> <p><i>Note:</i></p> <ul style="list-style-type: none"> Noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy. Operational noise includes noise from the mining operations and the use of private roads and rail spurs. <p>However, these noise criteria do not apply if the Proponent has an agreement with the owner(s) of the relevant residence or land to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement.</p>	Land	Day / Evening / Night LAeq (15min)	Night LA1 (1min)	All privately owned residences	35	45	Section 5.1.1
Land	Day / Evening / Night LAeq (15min)	Night LA1 (1min)					
All privately owned residences	35	45					
Cumulative Noise Criteria							
<ul style="list-style-type: none"> Except for the land in Table 1, the Proponent shall ensure that the operational noise generated by the project combined with the noise generated by other mines does not exceed the criteria in Table 6 at any residence or privately-owned land. 	Section 5.1.1						



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2.2.3 Mitigation and Acquisition

Conditions 1, 2, 3, 8, 9 and 11 of Schedule 3 set out the mitigation and acquisition obligations related to noise impacts from the Project. These are shown in Table 3.

Table 3: Mitigation and Acquisition

Approval Condition	NMP Reference								
Schedule 3									
Acquisition on Request									
<p>1. Upon receiving a written request for acquisition from the owner(s) of the land listed in Table 1, the Proponent shall acquire the land in accordance with the procedures in conditions 8-9 of schedule 4.</p> <p style="text-align: center;">Table 1: Land subject to acquisition upon request</p> <table border="1"> <thead> <tr> <th>Acquisition Basis</th> <th>Land</th> </tr> </thead> <tbody> <tr> <td>Noise & Air</td> <td>110-114</td> </tr> <tr> <td>Noise</td> <td>61-66, 108-109, 117-120, 123-124, 125-131, 132-140, 141-148, 149-155, 236, 256-263</td> </tr> <tr> <td>Air</td> <td>279-280</td> </tr> </tbody> </table> <p>However, this condition does not apply if the Proponent has an agreement with the owner(s) of the relevant properties to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement.</p> <p><i>Notes:</i></p> <p>B? To interpret location referred to in Table 1 see the applicable figure(s) in Appendix 4.</p> <p>C? The Proponent is only required to acquire property 279-280 if the owner of the land no longer has acquisition rights under any planning approval for the Boggabri mine and / or Tarrawonga mine.</p> <p>3. For the purposes of acquisition under this condition, parcels of land that are in close proximity and operated as a single agricultural enterprise should be included as part of the land to be acquired. Where the Proponent and the owner(s) cannot agree on whether non-contiguous parcels of land should be included, either party may refer the matter to the Director-General for resolution. The Director-General's decision as to the lands to be included for acquisition under the procedures in conditions 8 and 9 of Schedule 4 shall be final.</p>	Acquisition Basis	Land	Noise & Air	110-114	Noise	61-66, 108-109, 117-120, 123-124, 125-131, 132-140, 141-148, 149-155, 236, 256-263	Air	279-280	Chapter 6.0
Acquisition Basis	Land								
Noise & Air	110-114								
Noise	61-66, 108-109, 117-120, 123-124, 125-131, 132-140, 141-148, 149-155, 236, 256-263								
Air	279-280								



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Noise Affected Residences

2. For privately-owned residences within the project's 35dB(A) noise impact contour (See Table 2 and Appendix 4A) the owner(s) can make a written request to the Proponent for one of the following:
- Mitigation (such as double-glazing, insulation and air conditioning) at the residence in consultation with the owner(s). These measures must be reasonable and feasible and directed towards reducing the noise impacts of the project on the residence. If within 3 months of receiving this request from the owner(s), the Proponent and owner(s) 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 Director-General for resolution; or
 - Acquisition of the residence and land in accordance with the procedures in conditions 8-9 of Schedule 4.

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Table 2: Residence subject to acquisition or noise mitigation on request

<i>Residences</i>
61, 108, 118, 120, 126, 134, 236, 256 and 259

Upon receiving a written request from the owner(s), the Proponent must undertake whichever option has been requested by the owner(s).

However, this condition does not apply if the Proponent has an agreement with the owner(s) of the relevant residence to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement.

Notes:

- To interpret the locations referred to in Table 2 see the applicable figure(s) in Appendix 4.*
- For the purposes of this condition a privately-owned residence is defined as a residence not owned by a mining company that: is regularly occupied; or is an existing residence that is not regularly occupied but for which a valid development consent exists; or is a proposed residence for which a development application has been lodged with the relevant authority prior to the date of this approval*
- For the purposes of acquisition under this condition, parcels of land that are in close proximity and operated as a single agricultural enterprise should be included as part of the land to be acquired. Where the Proponent and the owner(s) cannot agree on whether non-contiguous parcels of land should be included, either party may refer the matter to the Director-General for resolution. The Director-General's decision as the lands to be included for acquisition under the procedures in conditions 8 and 9 of Schedule 4 shall be final.*



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Maximum Predicted Noise Levels

3. Where the owner(s) of a residence included in Table 2 of this schedule have opted for either an agreement to generate higher noise levels or noise mitigation under condition 2, and the owner(s) have reason to believe that the noise impacts at the residence are more than 3dB(A) above the predicted noise levels for that residence (see Table 3), the owner(s) can request an independent noise assessment for the residence. The request shall be made in writing to the Director-General. If the Director-General considers that a noise impact assessment is warranted, then the Proponent shall commission the assessment.
- If the noise impact assessment determines that the noise generated by the project causes sustained exceedances, or is likely to cause sustained exceedances, of the predicted noise levels by more than 3dB(A), the owner(s) may require the Proponent to acquire the residence and land in accordance with the procedures in conditions 8-9 of Schedule 4.

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Table 3: Maximum Predicted Noise Levels

Location Property / ID	Day (LAeq(15min))	Evening (LAeq(15min))	Night (LAeq(15min))	Night (LA1(1min))
61	35	43	43	53
108, 120	35	39	39	45
118	40	44	44	45
126	45	48	48	53
134, 236	35	36	36	45
256	35	40	40	50
259	35	39	39	49

Notes:

- To interpret the locations referred to in Table 3, see the applicable figure in Appendix 4
- The noise assessment must be undertaken by a suitable qualified, experienced and independent person, whose appointment has been approved by the Director-General and include either:
 - Sufficient monitoring at the affected residence to allow for assessment of the impacts under a range of meteorological conditions (including adverse conditions) likely to be experienced at the residence; or
 - Sufficient monitoring to allow reliable prediction of the likely impacts under the range of meteorological conditions (including adverse conditions) likely to be experienced by the residence.
- Monitoring should be conducted in accordance with the requirements of the NSW Industrial Noise Policy.
- Where predictions of likely impacts is to be used, either in substitution for, or in conjunction with, direct measurement of noise impacts at the residence, it must be based on sufficient monitoring data to provide a reliable estimate of the impacts (including under adverse meteorological conditions) and be derived using standard noise modelling techniques accepted by the EPA.
- The Proponent shall ensure that the requested noise impact assessment is submitted



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to the Director-General within 3 months of the Director-General's decision that the assessment was warranted. The Proponent shall also provide a copy of the assessment to the owner(s) of the residence at the same time it is submitted to the Director-General.

6. *Note 3 to condition 1 of this Schedule applies to the acquisition under this condition.*

Noise Acquisition Requirements – Residences

8. If the owner(s) of a privately-owned residence, which is not within the project's 35dB(A) noise impact contour (see condition 2, Table 2 and Appendix 4A), have reason to believe that operational noise from the project is causing the criteria in Table 5 to be exceeded at the residence, the owner(s) can request an independent noise impact assessment for the residence. The request shall be made in writing to the Director-General. If the Director-General considers that a noise impact assessment is warranted, then the Proponent shall commission the assessment.

If the noise impact assessment determines that the noise generated by the project causes sustained exceedances, or is likely to cause sustained exceedances, of the criteria in Table 5, the owner(s) can make a written request to the Proponent for one of the following:

- a. Mitigation (such as double glazing, insulation and air conditioning) at the residence in consultation with the owner(s). These measures must be reasonable and feasible and directed towards reducing the noise impacts of the project on the residence. If within 3 months of receiving this request from the owner(s), the Proponent and owner(s) cannot agree on the measures, then either party may refer the matter to the Director-General for resolution; or
- b. Acquisition of the residence and land in accordance with the procedures in conditions 8-9 of Schedule 4.

Upon receiving a written request from the owner(s), the Proponent must undertake whichever option has been requested by the owner(s).

However, this condition does not apply if the Proponent has an agreement with the owner(s) of the relevant residence to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement.

Notes:

 For the purposes of this condition a privately-owned residence is defined as a residence not owned by a mining company that: is regularly occupied; or is an existing residence that is not regularly occupied but for which a valid development consent exists; or is a proposed residence for which a development application has been lodged with the relevant authority prior to the date of this approval.

 For the purposes of acquisition under this condition, parcels of land that are in close proximity and operated as a single agricultural enterprise should be included as part of the land to be acquired. Where the Proponent and the owner(s) cannot agree on whether non-contiguous parcels of land should be included, either party may refer the matter to the Director-General for resolution. The Director-General's decision as to the lands to be included for acquisition under the procedures in conditions 8 and 9 of Schedule 4 shall be final.

 Notes 2, 3, 4 and 5 of condition 3 apply to this condition.

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Noise Acquisition Requirements – Land

9. If the owner(s) of land containing privately owned residence, which is not listed in Table 1, have reason to believe that operational noise from the project is causing noise levels to exceed 40 dB(A) LAeq(15min) over more that 25% of that land, the owner(s) can request

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an independent noise impact assessment for the residence. The request shall be made in writing to the Director-General. If the Director-General considers that a noise impact assessment is warranted, then the Proponent shall commission the assessment.

If the noise impact assessment determines that the noise generated by the project causes sustained exceedances, or is likely to cause sustained exceedances, of the 40 dB(A) criteria, the owner(s) can make a written request to the Proponent for acquisition of the residence and land in accordance with the procedures in conditions 8-9 of Schedule 4.

Upon receiving a written request from the owner(s), the Proponent must purchase the residence and land in accordance with the procedures in conditions 8-9 of Schedule 4.

However, this condition does not apply if the Proponent has an agreement with the owner(s) of the relevant residence to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement.

Notes:

 For the purposes of this condition a privately-owned residence is defined as a residence not owned by a mining company that: is regularly occupied; or is an existing residence that is not regularly occupied but for which a valid development consent exists; or is a proposed residence for which a development application has been lodged with the relevant authority prior to the date of this approval.

 For the purposes of acquisition under this condition, parcels of land that are in close proximity and operated as a single agricultural enterprise should be included as part of the land to be acquired. Where the Proponent and the owner(s) cannot agree on whether non-contiguous parcels of land should be included, either party may refer the matter to the Director-General for resolution. The Director-General's decision as to the lands to be included for acquisition under the procedures in conditions 8 and 9 of Schedule 4 shall be final.

 Notes 2, 3, 4 and 5 of condition 3 apply to this condition.

Cumulative Noise Acquisition Requirements

11. If the owner(s) of a privately-owned residence, which is not listed in Table 1, reasonably	Chapter 6.0
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believes that the noise limits in Table 6 are being exceeded at the residence and that the exceedance is caused by operational noise from the project and one or more other mines (including use of private roads or rail spurs), the owner(s) can request an independent noise impact assessment for the residence. The request shall be made in writing to the Director-General. If the Director-General considers that a noise impact assessment is warranted, then the Proponent shall commission the assessment.

Where the noise impact assessment determines that the cumulative noise generated by the project combined with the noise from other mine(s) causes, or is likely to cause, sustained exceedances of the criteria in Table 6, then the owner(s) can make a written request to the Proponent for one of the following:

- (a) Mitigation (such as double glazing, insulation and air conditioning) at the residence in consultation the owner(s). These measures must be reasonable and feasible and directed towards reducing the noise impacts of the project on the residence. If within 3 months of receiving this request from the owner(s), the Proponent and owner(s) 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 Director-General for resolution; or
- (b) Acquisition of the residence and land in accordance with the procedures in conditions 8-9 of Schedule 4.

Upon receiving a written request from the owner(s), the Proponent must undertake whichever option has been requested by the owner(s).

However, this condition does not apply if the Proponent has an agreement with the owners of the relevant residence to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement.

The Proponent may seek to recover an equitable share of the costs incurred from the other mines contributing to the cumulative impact. Unless otherwise agreed between the mines, the proportional contributions should be based on expert analysis of the monitoring results to assess relative contribution to the impact. In the event of a dispute between the mines the Proponent, or one of the contributing mines, may submit the matter to the Director-General for resolution. The Director-General's decision shall be final.

Notes:

For the purposes of this condition a privately-owned residence is defined as a residence not owned by a mining company that: is regularly occupied; or is an existing residence that is not regularly occupied but for which a valid development consent exists; or is a proposed residence for which a development application has been lodged with the relevant authority prior to the date of this approval.

For the purposes of acquisition under this condition, parcels of land that are in close proximity and operated as a single agricultural enterprise should be included as part of the land to be acquired. Where the Proponent and the owner(s) cannot agree on whether non-contiguous parcels of land should be included, either party may refer the matter to the Director-General for resolution. The Director-General's decision as to the lands to be included for acquisition under the procedures in conditions 8 and 9 of Schedule 4 shall be final.

Notes 2, 3, 4 and 5 of condition 3 apply to this condition.

The noise impact assessment shall include assessment of the relative contribution of the mines to the impact at the residence.

2.2.4 Noise Control and Management



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Conditions 12 to 17 of Schedule 3 describe the various noise management measures required to be implemented to the Project. These requirements are reproduced in **Table 4**.

Table 4: Noise Management Measures

Approval Condition	NMP Reference
Schedule 3	
Attenuation of Plant	
<p> The Proponent shall:</p> <p>(a) Ensure that:</p> <ul style="list-style-type: none"> All mining trucks and water carts used on the site are commissioned as noise suppressed (or attenuated) units; Ensure that all equipment and noise control measures deliver sound power levels that are equal to or better than the sound power levels identified in the EA, and correspond to best practice or the application of the best available technology economically achievable; Where reasonable and feasible, improvements are made to existing noise suppression equipment as better technologies become available; and <p>(b) Monitor and report on the implementation of these requirements annually on its website.</p>	Sections 5.1.4 and 5.2.4
<p> The Proponent shall:</p> <p>(a) Conduct an annual testing program of the attenuated plant on site to ensure that the attenuation remains effective;</p> <p>(b) Restore the effectiveness of any attenuation if it is found to be defective; and</p> <p>(c) Report on the results of any testing and / or attenuation work annually on its website.</p>	Sections 5.1.4 and 5.2.4
Maules Creek Rail Spur Line – Noise Impacts	
<p> The Proponent shall:</p> <p>(a) Commission suitably qualified and experienced person(s) to review the design of the Maules Creek rail spur line, and determine whether it incorporates all reasonable and feasible noise mitigation measures, including suitable measures to minimise low frequency noise;</p> <p>(b) Implement the recommendations of this acoustic review;</p> <p>(c) Undertake commissioning trials of the spur line to determine the optimal train speed to minimise noise impacts; and</p> <p>(d) Following commissioning of the spur line, undertake targeted noise monitoring to determine the accuracy of predicted acoustic impacts and effectiveness of any noise reduction measures, including monitoring during adverse inversion conditions, to the satisfaction of the Director-General.</p>	Section 4.1



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Operating Conditions

<p> The Proponent shall:</p> <ul style="list-style-type: none"> Implement best management practice to minimise the construction, operational, low frequency, road and rail traffic noise of the project; Operate a comprehensive noise management system on site that uses a combination of predictive meteorological forecasting and real-time noise monitoring data to guide the day to day planning of mining operations and the implementation of both proactive and reactive noise mitigation measures to ensure compliance with the relevant conditions of this approval; Maintain the effectiveness of noise suppression equipment on plant at all times and ensure defective plant is not used operationally until fully repaired. Ensure that noise attenuated plant is deployed preferentially in locations relevant to sensitive receivers; Minimise the noise impacts of the project during meteorological conditions when the noise limits in this approval do not apply; Ensure that the Maules Creek rail spur line is only accessed by locomotives that are approved to operate on the NSW rail network in accordance with the noise limits in ARTC's EPL (No.3142); Use its best endeavours to ensure that the rolling stock supplied by service providers on the rail spur line is designed, constructed and maintained to minimise noise. Ensure any new rail rolling stock manufactured specifically for the project is designed, constructed and maintained to minimise noise; and Coordinate the noise management on site with the noise management at other mines within the Leard Forest Mining Precinct to minimise the cumulative noise impacts of these mines, to the satisfaction of the Director-General. 	<p>This document</p> <p>Sections 5.1.5</p> <p>Sections 5.1.4 and 5.2.4</p> <p>Section 5.1.5</p> <p>Section 5.2.3</p> <p>Section 5.1.4</p> <p>Section 5.1.4</p> <p>Section 5.1.4</p> <p>Chapter 8.0</p>
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Noise Management

<p> The Proponent shall prepare and implement a Noise Management Plan for the project to the satisfaction of the Director-General. This plan must:</p> <ol style="list-style-type: none"> (a) Be prepared in consultation with the EPA, and submitted to the Director-General for approval prior to the commencement of construction; (b) Describe the measures that would be implemented to ensure: <ul style="list-style-type: none"> • Best management practice is being employed; • The noise impacts of the project are minimised during meteorological conditions when the noise limits in this approval do not apply; and • Compliance with the relevant conditions of this approval; (c) Describe the proposed noise management system in detail; (d) Include a risk/response matrix to codify mine operational responses to varying levels of risk resulting from weather conditions and specific mining activities; (e) Include commitments to provide summary reports and specific briefings at CCC meetings on issues arising from noise monitoring; (f) Include a program that: <ul style="list-style-type: none"> • Uses a combination of real time and supplementary attended monitoring to 	<p>This document and the Boggabri Tarrawonga Maules Creek Precinct Noise Management Strategy</p>
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<p>evaluate the performance of the project:</p> <ul style="list-style-type: none"> • Adequately supports the proactive and reactive noise management system on site; • Includes a protocol for determining exceedances of the relevant conditions of this approval; • Includes monitoring of inversion strength at an appropriate sampling rate to determine compliance with noise limits; • Evaluates and reports on the effectiveness of the noise management system on site; and • Provides for the annual validation of the noise model for the project; and <p>(g) includes a Leard Forest Mining Precinct Noise Management Strategy that has been prepared in consultation with the other coal mines in the Precinct to minimise the cumulative noise impacts of all the mines within the precinct, and includes:</p> <ul style="list-style-type: none"> • a description of the measures that would be implemented to ensure that the noise management of the mines is properly co-coordinated to ensure compliance with the relevant noise criteria; • a suitable monitoring network for the precinct; • protocols for data sharing; and • procedures for identifying and apportioning the source/s and contribution/s to cumulative noise impacts for the operating mines and other sources, using the noise and meteorological monitoring network and appropriate investigative tools. <p><i>Note: The Leard Forest Mining Precinct Noise Management Strategy can be developed in stages and will need to be subject to ongoing review dependent upon the determination and commencement of other mining projects in the area.</i></p>	
<p>Noise Measurement</p>	
<p> Where conditions in this approval refer to measurement on noise within the context of the NSW Industrial Noise Policy the inversion class to be applied to the project is Class G.</p> <p>However, the Proponent may undertake an investigation to determine whether a proposal for change in this classification could be considered for approval by the Director-General. Any such investigation must be conducted in consultation with the EPA and be conducted by a suitably qualified person whose appointment has been endorsed by the EPA and approved by the Director-General. The report and recommendation must be submitted to the EPA for endorsement prior to submission to the Director-General. If the Director-General is satisfied that the recommendation is reasonable, then the Director-General may amend the inversion class applying to the project under this approval.</p>	<p>Section 5.1.2</p>

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2.2.5 Environmental Protection Licence

An Environment Protection Licence (EPL) will be issued by the NSW Environment Protection Authority (EPA) prior to the commencement of construction and will contain conditions related to noise management which will be addressed as part of this NMP. The NMP will be updated as required, following issuing of the EPL.

2.3 Commitments Made in Environmental Assessment

The Project Approval granted for the Project was based, amongst other things, on the government's consideration of the EA that accompanied the Project Application. The Statements of Commitments in the EA make certain commitments in respect of noise management at Maules Creek. Such commitments have been addressed in this NMP. Table 5 sets out the relevant commitments and where they are addressed.

MCC has committed to implementing the necessary noise control and management measures as required to seek to ensure that the EA predicted noise levels at private receivers are not exceeded. Typical noise control and management measures that would be implemented are discussed further in Chapter 5.0.

MCC will install a real time noise monitoring system at locations selected in consultation with EPA, as presented within this NMP. Ongoing consultation has occurred with Boggabri and Tarrawonga Coal Mines in an attempt to develop a holistic network for the region. Section 5.1.1 provides further detail on the Real Time Noise System to be installed and operated in conjunction with Boggabri and Tarrawonga Coal Mines.

Table 5: Statement of Commitments

Statement of Commitments	NMP Reference
Noise	
12. Noise Management Plan	
9 Aston will implement the necessary noise control and management measures as required to seek to ensure that the predicted noise levels at private receivers as listed in Table 23 are not exceeded.	Chapter 5.0
10 Aston will install a real time noise monitoring system at locations selected in consultation with OEH. Consultation will also occur with Boggabri and Tarrawonga Coal Mines in an attempt to develop an holistic network for the region.	Section 5.1

2.4 Relevant Standards and Guidelines

Guidelines and standards applying to noise at MCC include:

- New South Wales Industrial Noise Policy (INP, 2000); and
- Australian Standard AS 1055 'Acoustics, Description and Measurement of Environmental Noise'.



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3.0 EXISTING ENVIRONMENT

3.1 Meteorological Data

As part of the Maules Creek EA, an analysis of local weather conditions was undertaken. It resulted in a site representative meteorological data set being produced; which identified prevailing conditions for the area as shown in Table 6.

Table 6: Prevailing Noise Meteorological Conditions

Atmospheric Parameter	Day		Evening and Night		
	Neutral	Prevailing	Inversion No Wind	Inversion ESE Wind	Inversion SSE Wind
Temperature (°C)	20	20	10	10	10
Relative Humidity (%)	70	70	90	90	90
Wind Speed (m/s)	0	3	0	2	2
Wind Direction	-	South	-	ESE	SSE
Temp Gradient (°C/100 m)	-1	-1	3	3	3

An automatic weather station (AWS) was installed on the western edge of the Project Boundary on 14 May 2010. The monitoring site and instrumentation is in compliance with Australian Standard (AS) 2923 – 1987: “Ambient Air Guide for the measurement of horizontal wind for air quality applications”. The location of the AWS will be reviewed following the establishment of site infrastructure and operational areas. The parameters measured are presented in Table 7.

Table 7: Weather Station Parameters

Parameter	Unit	Frequency	Averaging Period
Rainfall	mm	Continuous	1 hour
Temperature @ 2m	Degrees C		15 minutes
Temperature @ 10m	Degrees C		
Wind Speed @ 10 m	m/s		
Wind Direction @ 10 m	Degrees magnetic		
Sigma Theta	Degrees		
Solar Radiation	W/m2		

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3.2 Background Noise Levels

The Project is located in a quiet rural area at some distance from major sources of background noise such as arterial roads or other industrial developments. The Boggabri Coal Mine is located to the south of the Project Boundary. The Tarrawonga Coal Mine is immediately to the south of the Boggabri Coal Mine.

Background environmental noise levels were monitored at five representative locations during the period 8 September to 20 September 2010 as part of the Acoustics Impact Assessment conducted by Bridges Acoustics for the EA.

Background noise levels at each monitoring location were determined in accordance with the INP requirements. As explained in the INP, background noise levels below LA90,15min 30 dB should be considered as LA90,15min 30 dB for the purposes of determining noise criteria. Accordingly, a background level of LA90,15min 30 dB was adopted for all receiver locations.

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4.0 APPROVED NOISE AND VIBRATION

4.1 Construction Noise and Vibration

Construction activities can result in noise and vibration emissions that are detectable at residences surrounding those activities.

The approval stipulates criteria for construction noise and vibration (Schedule 3, Conditions 4 to 6), however, only in relation to the rail spur. For the purposes of this NMP, the same criteria have been applied to road construction activities. These activities are to occur well away from the proposed mine site, and sometimes, relatively close to residences.

The construction activities for the other components of the Project will comply with the operational noise criteria. The locations of proposed construction activities are shown in Figure 6.

Time periods approved for construction include:

- Rail spur line construction hours between 7:00 am to 6:00 pm Monday to Friday inclusive and 8:00 am to 1:00 pm on Saturday; and
- Other construction activities for the Project may occur 24 hours per day, 7 days per week.

In accordance with Schedule 3, Condition 6, an Out of Hours Work (OOHW) Protocol will be prepared for any work on the construction of the rail spur that is proposed to occur in the periods outside those permissible. The OOHW Protocol will be developed in consultation with EPA and the residents who would be affected by the noise generated from these works and approved by the Director General prior to carrying out any works beyond the permissible hours.

The OOHW Protocol will be implemented for any construction works on the Maules Creek Rail Spur that will occur outside the hours detailed above and will include the following:

- Details of work to be completed during OOHW;
- Noise modelling of proposed activities to determine that the proposed activities can be undertaken, whilst meeting the relevant criteria;
- Monitoring throughout the work at nearest residence/s to ensure the relevant criteria is being met;
- Communicating night time works to residents that occur within 2 km of the proposed night time work area; and
- Provide contact details of the construction superintendent to residents with 2 km of the proposed work area.

As per the note below Schedule 3, Condition 6, where construction noise on the rail spur line “*is predicted to be at or below 35 dB(A) and/or below operational noise criteria at sensitive receptors, this is likely to provide sufficient justification for the need to operate outside of recommended standard hours as specified in the ICNG*”. In this regard, MCC is committed to ensuring that construction activities on its section of rail spur line during the night time operations, remain below 35 dB(A) and/or below operational noise criteria at sensitive receptors using the OOHW Protocol outlined above.

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The Project will seek the Director General's approval for the OOHW Protocol separate to the approval of this NMP.

4.2 Operational Noise Emissions

The site operates 24 hours per day, seven days per week.

Noise generating activities can occur at any time, but must comply with criteria in the approval.

Noise emissions can be from mobile or fixed plant used for the Project. These noise emissions have the potential to adversely affect the acoustic environment and residences surrounding the Project. Noise emissions for the Project were modelled within the Maules Creek EA for the assessment of impacts. This identified the key areas requiring management. Noise exceedances were categorised in the Maules Creek EA as mild, moderate and significant as is typically appropriate.

The Planning Assessment Commission in their Assessment Report stipulates that exceedances of LAeq 35 dB are significant. Therefore any privately owned property that was predicted to be within the 35 dB(A) noise impact contour, are either subject to an agreement with MCC or have the right to acquisition upon request. Schedule 3, Table 1 of PA 10_0138 provides those privately owned properties for which have acquisition rights. MCC is in ongoing discussions with these landholders in regard to meeting agreement over the management of noise or have agreed to purchase the property. Figures 1 to 5 provide landownership information within and surrounding the Project Boundary including the location of neighbouring receivers and monitoring locations. MCC will continue to liaise and consult with the owners of the properties where effects of operational noise have been identified.

For the remaining privately owned properties that are noted in Table 1 and Table 2 of PA 10_0138 that have not been purchased by MCC or another neighbouring mining company, the requirements of Schedule 3 Condition 3 will still apply.

An assessment of worst-case construction and operational road traffic noise impacts was conducted as part of the EA. It was concluded that predicted worst case operational traffic noise levels would remain well below the 55 LAeq_(1hr) day criterion and within the 50 LAeq_(1hr) night criterion at all private receivers.

Product coal is transported by rail, to the Port of Newcastle. Various trains including coal, general freight and passenger services currently use the Werris Creek to Mungindi Railway Line. The impact assessment concluded that the proposed coal train movements would produce a similar maximum noise level as current train movements; no increase in maximum noise levels is anticipated.

Noise from trains on the Werris Creek to Mungindi Railway Line is regulated through the Australian Rail Track Corporation's (ARTC's) Environmental Protection Licence (EPL) (No. 3142). Noise emissions from Project trains on the rail spur and loop to the Werris Creek to Mungindi Railway line are to comply with approval noise limits. As part of the detailed design, a review of the rail spur design will be undertaken by a suitably qualified and experienced person to determine whether it incorporates reasonable and feasible noise mitigation measures, including suitable measures to minimise low frequency noise as required by Schedule 3 Condition 14 of the approval.

Upon the completion of construction activities, MCC will undertake commissioning trials to determine the optimal train speeds to minimise noise impacts. Noise monitoring of the rail spur will also be undertaken to



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determine the accuracy of predicted acoustic impacts and effectiveness of any noise reduction measures, including monitoring during adverse inversion conditions.

Cumulative noise impacts may potentially be caused by simultaneous operation of the Project, Boggabri Coal Mine and Tarrawonga Coal Mine. These are addressed within the Leard Forest Mining Precinct Noise Management Strategy which is outlined in Section 8.0.

4.2.1 Mobile Plant

Open cut mining of coal is undertaken using large earthmoving machinery. These machines can operate at various locations in and around the mine. At times mobile plant, particularly rear dump trucks and dozers, can be at elevated and exposed locations (relative to receptors). Maximum sound power levels for proposed operational equipment are listed in Table 8. Those items that are not listed are insignificant noise generators (in the context of a mining environment), for example, light vehicles. Sound Power Levels (SPL) for mining and coal processing equipment have been derived from the EA noise assessment. Further Sound Power Controls are detailed in Section 5.1.4. Final operational fleet numbers are currently being identified in line with the detail mine plan, however, any mining fleet whether owned by MCC, hired or supplied by a contractor will comply with or be better than the below sound powers.

Table 8: Noise Generating Mobile Plant and Modelled Sound Power

Code, Source	dBL Total	dBA Total
E1, Shovel 1000t	128	123
E2, Excavator 600t	128	123
E3, Excavator 350t	131	119
E4, Excavator 250t	131	119
T1, Truck 330t	124	117
T2, Truck 230t	124	117
T3, Truck 185t	124	117
Dz, Dozer, no track noise 2	122	115
Dzt, Dozer with track noise	129	127
Dr, Drill	122	118
G, Grader 16H	118	112
W, Water cart 777	122	115
L, Loader 992	122	115



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4.2.2 Fixed Plant

Fixed infrastructure at the site and sources with fixed locations (road and rail) that generate noise are listed in Table 9.

Table 9: Noise Generating Permanent Infrastructure and Modelled Sound Power

Code, Source	dBL Total	dBA Total
PP, Prep plant	133	117
C2, Conveyor 200m	113	108
C5, Conveyor 500m	117	112
Pri, Primary sizers	117	109
Sec, Secondary sizers	121	112
Sk, Stacker	111	104
Rec, Reclaimer	122	115
Tr, Transfer station	117	103
Lo, Locomotive	106	96
TB, Train loadout	114	103
X, Train on rail spur 3	112	108
R, Access road 4	103	95

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5.0 NOISE MANAGEMENT

Measures to manage construction and operational noise have been divided into proactive measures that aim to prevent incidents in the first place, and reactive measures that aim to minimise environmental impact in the event of an exceedance occurring.

As required by Schedule 3, Condition 14 (b) of the approval, MCC will operate a comprehensive noise management system on site. The noise management system will use a combination of predictive noise and meteorological forecasting and real-time noise monitoring data to guide day to day planning of mining operations. The implementation of both proactive and reactive noise mitigation measures will also occur to ensure compliance with the relevant approval criteria.

5.1 Proactive Measures

The proactive measures discussed below are required by the approval.

5.1.1 Noise and Vibration Monitoring

Construction noise and vibration levels will be measured on a monthly basis at residences in close proximity to the proposed construction activities that MCC has agreements for access to. Various real time monitoring units will also be installed during the construction phase and prior to operations. Once the real time monitoring units are installed and commissioned, they will also be used to manage and monitor noise emissions from the construction activities. The monitoring locations will change throughout the construction phase, depending on the timing and location of these activities.

Operational noise levels are to be measured continuously at strategic locations around the site using unattended equipment, and, by attended monitoring at regular intervals. The number and location of monitoring units is shown on Figure 12.

Attended monitoring is the methodology for determining compliance with prescribed limits; since it allows an accurate determination of the contribution by activities associated with the Project, if any, to measured noise levels.

Unattended monitoring data allows management by site staff if and when noise issues arise. It also provides a history that can be used to identify trends and is useful for management, planning and decision-making related to noise control.

Both forms of monitoring can quantify cumulative mining noise.

5.1.2 Attended Monitoring

Attended monitoring is required to assess compliance with regulatory limits. The limits relevant to this management plan cover the following aspects:

- Construction noise: Noise from road and rail construction;
- Construction vibration: Vibration, not from blasting, from road and rail construction;
- Operational noise: Noise from site activities only; and



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- Cumulative noise: Simultaneous noise from multiple mines.

Construction noise and vibration monitoring is to be undertaken one day per month. Noise monitoring will be conducted at the nearest residences to the activity that MCC has an agreement to access within two kilometres of construction current at that time. Vibration monitoring will only be required at residences within 500 metres of construction current at that time. These locations will be determined in consideration of the location of works at the time of monitoring.

Noise and Vibration propagation from construction and mining noise during various periods of the Project will be minimal on receptors not already identified in Tables 1 and 2 of PA 10_0138 given that all other privately owned residences are located a considerable distance from the proposed construction and mining activities. In determining the appropriate distance for monitoring of noise and vibration the following has been considered:

- mining noise is typically inaudible during the day period, particularly once the ground heats up (daytime is not usually a problem period). It is acknowledged that meteorological conditions that occur during the night period can extend into the early part of the day period;
- evening is a transitional period from day to night, from the hours 1800 to 2200. Meteorological conditions at 1800 hours are usually as per day (broad daylight in summer), but as per night at 2200 hours; and
- highest mining noise levels will be received offsite, for the vast majority of times, during the night period.

Therefore, it is usually sufficient to prove compliance by monitoring during the night period with the assumption that compliance would then result during the periods either side.

Additional reasons for monitoring at night only are:

- other activities (farming, road traffic etc.) are more common during the day and evening, making it difficult to measure the source of interest; and
- air movement during the day is often above speeds during which monitoring can take place, and, greater than speeds in which criteria apply.

Given the above, this NMP does not include day or evening monitoring.

Other benefits of this approach are:

- less visits are required to each location, reducing potential annoyance to residents; and
- time and cost saved on day and evening monitoring could be used to conduct additional night monitoring when required (which also equals additional day and evening monitoring).

Notwithstanding the above, operational noise monitoring is to be undertaken three evenings and nights per quarter. This monitoring will occur nominally once per month.

In addition to this monitoring, the data from real time monitors will be reviewed to determine any potential impacts, where this data shows elevated noise levels, an investigation will be undertaken and further attended noise monitoring will be implemented to ensure the Project remains compliant.

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Operational noise monitoring locations, as shown in Table 10 and Figure 12, have been selected as representative of residential receivers that are predicted to be potentially impacted by mining operations, and with consideration given to the privacy of residents (e.g. not monitoring immediately adjacent the dwelling). Locations have been selected to ensure coverage in terms of demonstrating compliance with the noise criteria within the approval.

Operational noise monitoring locations will be reviewed and where necessary modified as a result of monitoring results, changes to the mining operations or, changes in land ownership.

Table 10: Noise Monitoring Locations

Location ID	Location No
NM1	68
NM2	108
NM3	225
NM4	122
NM5	168
NM6	104

Attended noise monitoring will be conducted in accordance with INP guidelines and *Australian Standard AS 1055 'Acoustics, Description and Measurement of Environmental Noise'*. The duration of each measurement is to be 15 minutes.

If site noise were not measurable due to masking, then suitable methods must be employed as per the INP (e.g. measure closer and back calculate) to determine a value for assessment of compliance.

As indicated in the notes below Table 5 of Schedule 3, Condition 7 of the approval, *'Noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy'*. In accordance with Chapter 9 of the INP as modified by condition 17 of the project approval, noise criteria will apply during all meteorological conditions except:

- rain; and
- wind speed greater than three (3) metres per second (at 10 metres height).

The procedures referred to above include the assessment of modifying factors from Section 4 of the INP, where applicable. Years of noise monitoring have indicated that noise levels from mining operations, particularly those levels measured at significant distances from the source are relatively continuous. Given this, noise levels at the monitoring locations are unlikely to be intermittent or impulsive. However, tonality and low frequency are to be assessed by analysis of the measured LAeq and/or LCEq spectrum.

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Attended noise monitoring reports will include a comparison of measured noise levels to all relevant criteria detailed in the current approval and EPL as detailed in Sections 2.2 and 2.2.5. All attended measurement result analysis should consider criteria applicability (for impact, mitigation, cumulative and acquisition criteria) with regard to wind speed and vertical temperature gradient. As per Section 11.1.3 of the INP, measured noise levels must exceed the relevant criterion by 2 dB before the development is '*deemed to be in non-compliance...*'.

Vibration monitoring will be conducted in accordance with '*Assessing Vibration: a technical guideline*' (EPA, 2006).

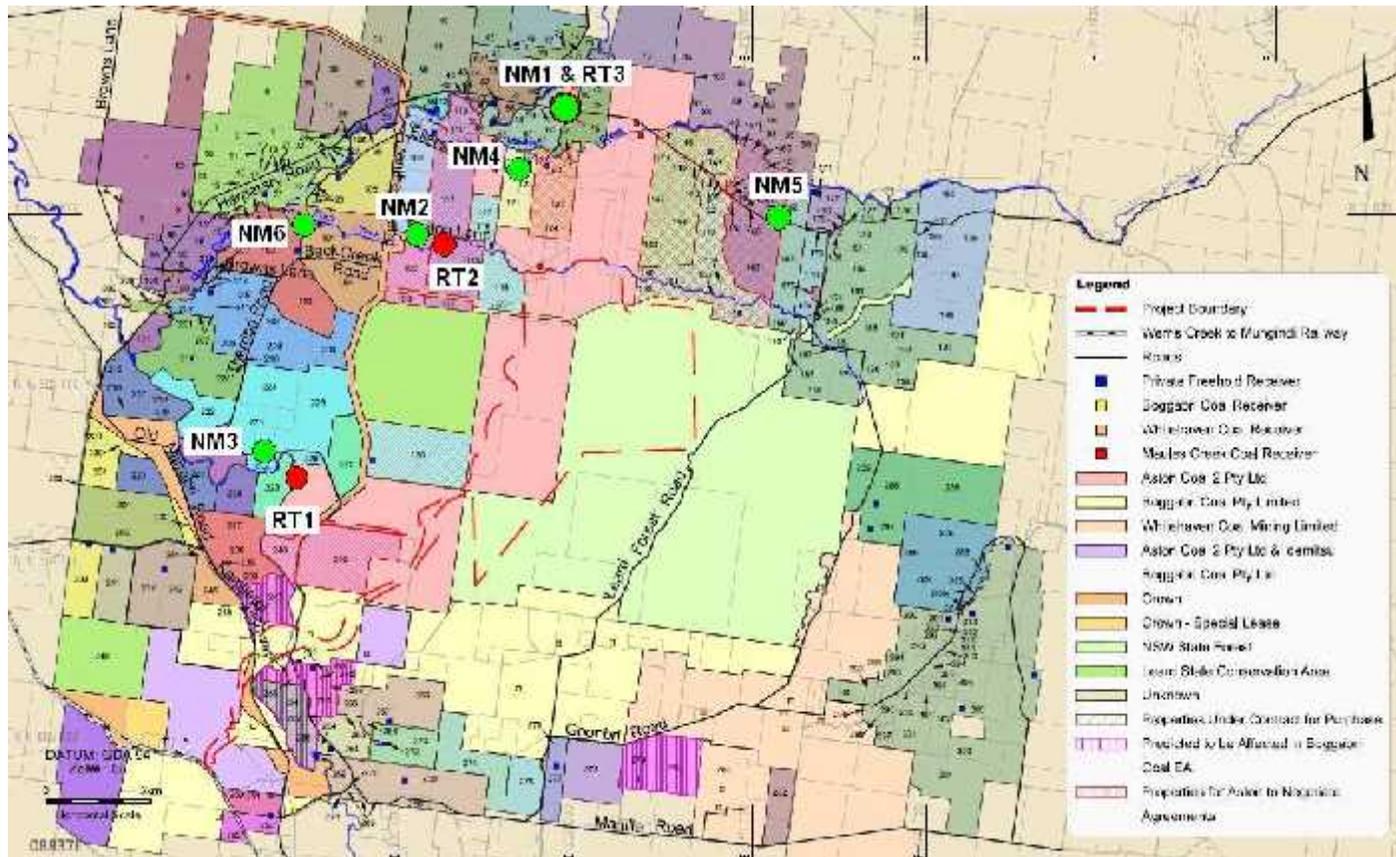


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Figure 12 Noise Monitoring Locations





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5.1.3 Unattended Monitoring

Continuous unattended noise monitoring (referred to in the approval as 'real time' monitoring) is required as a management tool to satisfy the requirements of Schedule 3, Conditions 15 b) and e) and Condition 16 b), of the approval. Results from the real time monitoring system should not be used to determine compliance, since the noise levels recorded do not represent only noise from the mine. The recorded noise levels represent noise from all sources. Compliance is the official performance of the site relative to compliance limits. Any modifications to the site operations as a result of real time noise monitoring will be documented.

A network of real-time monitors will be used to monitor and manage noise. They will be located as shown in **Table 11** and Figure 12 and will be commissioned prior to the commencement of 24 hour operations.

Table 11: Real-Time Monitor Locations

Location ID	Location No	Area Represented
RT1	68	North
RT2	112	North West and West
RT3	236	South West

These preferred locations have been selected with consideration of a number of factors, with the primary focus being on the suitability if the location to be representative of the noise impacts that would be experienced for the adjacent area and privately owned residences nearby. The installation of any monitoring infrastructure on mine owned land is also beneficial to ensure the security of the equipment, as well as unimpeded ease of access for planned or unplanned maintenance. It also minimises disturbance to landowners and the local community. Alternate locations will be considered throughout the life of the Project, although are subject to the Project having landowner agreement to access the location.

Unattended noise monitoring will be undertaken using equipment capable of determining the contribution of mining alone to total measured levels, with sufficient detail to allow management of operations to minimise noise in the surrounding environment. This will be achieved using omni-directional monitors.

Any unattended data will be collected and stored on site for a minimum period of 4 years to allow a data trend analysis to be completed as required.

The following data parameters (as returned from each unattended monitoring site and the site weather station) will be trended in real time and display available in the operation dispatch area as a management tool:

- omnidirectional low pass LA90 + 3 dB (estimated total mining LAeq);
- wind speed;
- wind direction;
- atmospheric stability class;
- the relevant impact criterion; and



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- the relevant cumulative criterion.

The data trend display will be highlighted where a noise parameter value exceeds the relevant criterion for any period.

A noise notification will be triggered when the:

- average wind speed is less than 5 metres per second;
- time is between 19:00 and 08:00 hours; and
- the low pass LAeq is 33 dB or above.

These triggers will be reviewed on a regular basis and updated as required following reviews of monitoring results and/or community complaints.

Once a noise notification is triggered, the system will send an SMS to the Open Cut Examiner (OCE) and CHPP supervisor. A data evaluation will be undertaken by the OCE or delegate within one half hour of notification receipt. A response, if required, will be undertaken by the OCE or delegate, or the CHPP supervisor or delegate, within one hour of each notification as per the procedures in Section 5.2.2 of this document.

Implementation of management and control measures will be the responsibility of the OCE and/or CHPP supervisor and would typically involve relocation or shutdown of equipment suspected of being responsible for elevated off-site noise levels. A reassessment of noise levels will be required after each relocation/shutdown to determine effectiveness of that action.

5.1.4 Sound Power Control

Acceptability of noise from the site, and hence granting of approval, was based on operational noise modelling undertaken as part of the EA. A key input to that modelling is sound power of plant to be operated on site.

To ensure the highest likelihood of compliance with regulatory limits, and an acceptable acoustic environment around the site, it is important that plant sound power is regularly checked and, any non-compliant item is modified and/or repaired as necessary as per Schedule 3, Condition 12 of the approval.

All mobile plant types that are significant noise generators have sound power limits specified in the document *Mobile Plant Sound Power Specification (Global Acoustics, 2013)*. Listed plant in Table 10 requires a sound power test:

- on delivery and before acceptance for use on site (for both purchased and hire equipment); and
- at least annually once in service.

In addition to plant operated by MCC, it is an approval condition that locomotives accessing the spur have noise emissions in accordance with the ARTC EPL 3142. MCC will ensure through its contractual arrangements and reporting requirements that the rail providers who will be engaged to transport coal from the Project, supply locomotives and rolling stock that meet the requirements of ARTC's EPL. Regular auditing of the rail provider will be undertaken by MCC to ensure rolling stock is designed, constructed and maintained to minimise noise as far as reasonable and feasible.



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5.1.5 Proactive Noise Planning

Condition 15 (b) of Schedule 3 of the approval requires '*proactive ... mitigation measures*'. This is best achieved, when planning each shift, by using a comparison of short-term meteorological forecasts with pre-prepared noise model outputs.

This requires a suite of modelled scenarios with outputs for a comprehensive range of meteorological conditions to allow mine planners to look up results for the modelled scenario nearest to that planned for next night shift. That way any predicted noise concerns can be identified and shift operational plans changed if required.

The short-term mine plan provided to production will then already be optimised for best-expected noise performance. Further details are shown on Figure 13.

This requires model results being available for all:

- haul routes, individually for each truck type;
- dig locations, individually for each dig/load unit type;
- dump locations, individually for each dozer type;
- drill locations, individually for each drill type; and
- CHPP operation, including stockpile reclaimer and other activities within this area.

The model results are to be:

- for a comprehensive range of meteorological conditions that can be aligned with Weather Research and Forecasting (WRF) model outputs; and
- predicted to key receptor locations.

Interface with the model results will be via an internet browser. The software (accessed via the browser) will allow:

- allocation of dig/load units;
- selection of active haul routes;
- nomination of type and quantities of truck per route;
- allocation of dozers; and
- allocation of drills.

Once an operational scenario is configured, as above, the software will determine, by selection and addition of relevant results based on current meteorological forecasts, a pass or fail result for the key receptor locations. If any fails are predicted, then a reconfiguration of the scenario is required until predicted results for all locations are acceptable. As required by PA 10_0138, Schedule 5, Condition 13 (a), the outcomes of this analysis, and meteorological forecast data used, will be provided daily on the Whitehaven website.

The model calculation results will require ongoing updates for, but not limited to, the following reasons:

- mine plans change/developing new areas;
- new machinery is acquired;
- existing machinery sound powers change; or



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- model calibration factors are optimised.

The operational scenarios modelled will be revised as mining operations progress. Updates to the modelling will be sought as new mining plans are developed.

The use of proactive planning and the identified risk and the responsibilities as described in Figure 14 has been adopted in lieu of a risk/response matrix as it allows more comprehensive management of potential noise issues.

Condition 15 (f) of Schedule 3 requires an “*annual validation of the noise model for the project*”. A regularly updated site noise model will be used for proactive operational planning. Validation of the model and of the effectiveness of that aspect of site noise control is to be conducted using attended and unattended monitoring data. As such, the annual validation will be an ongoing process that is reported annually.



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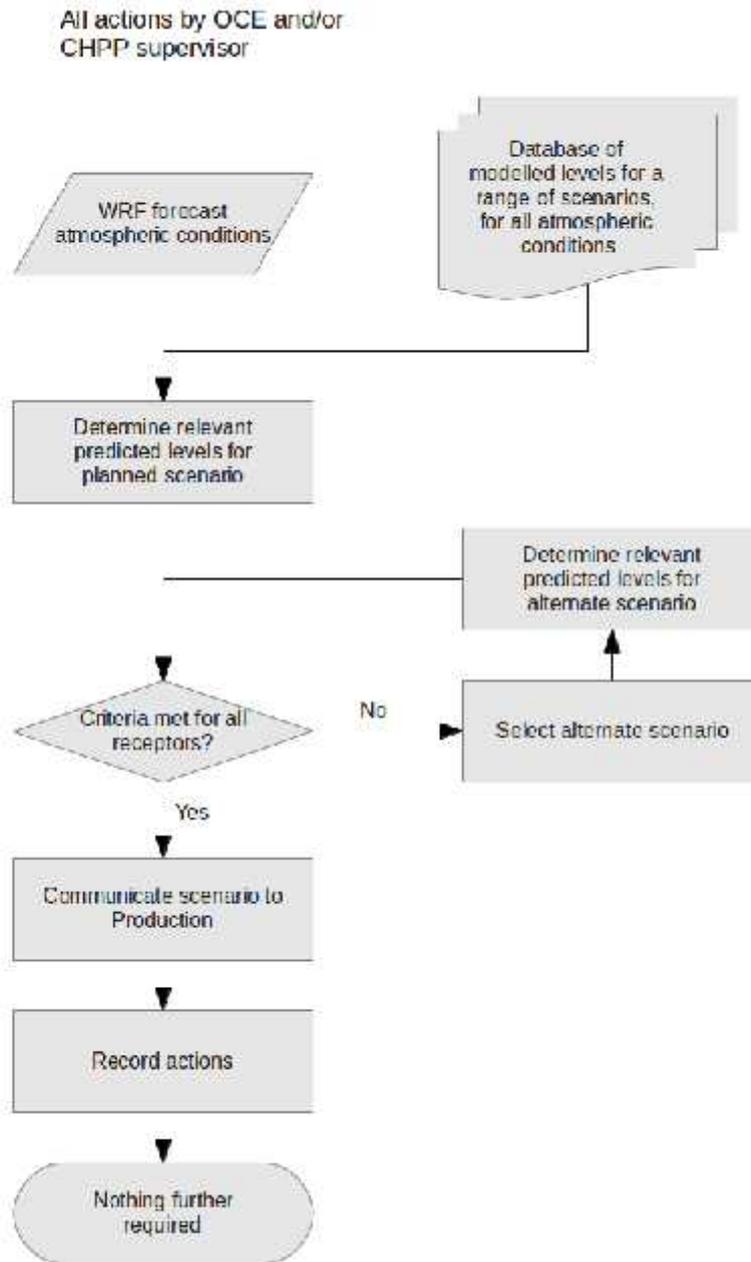


Figure 13 Proactive Management



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5.1.6 Review Data for Trends

In addition, to facilitate a real-time noise management system, unattended monitoring data from around the site will be analysed to ascertain what instances of, or combinations of, operations and meteorological conditions typically generate higher mine contributed noise levels off-site. These observations will be used for:

- Validation of proactive actions undertaken;
- Providing/refining an empirical guide to operational controls required during a range of meteorological conditions; and
- Calibration of site noise models.

The outcome of these data analyses will be communicated to the relevant superintendents and managers (as an aid to understanding the effectiveness of proactive noise planning) and to any external contractors that may provide modelling services to site.

5.2 Reactive Measures

The reactive measures which follow are as required by the relevant conditions of the Project Approval.

5.2.1 Community Complaint Received

All responses to community complaints will be in accordance with the procedure described in the Maules Creek Environmental Management Strategy and as described in Chapter 6.0.

The purpose of noise criteria is to ensure community amenity is not impacted by the Project. Accordingly, the key measure of the noise management measures effectiveness, the effectiveness of this plan, is the number of complaints. The aim is not to have any valid noise complaints.

5.2.1.1 Noise Complaint

In the event that a community complaint is received regarding current operations, and noise levels are found to be in exceedance of relevant criteria, the OCE and/or CHPP Supervisor is to alter operations until compliance is achieved. All actions and operational details (before and after changes) are to be logged and reported to the Environment Department. The identified risk and the responsibilities is shown on Figure 14.

In the event of a community complaint about previous operations (complaint received post-event), all relevant information pertaining to the time of alleged noise nuisance is to be gathered as follows:

- locations and quantities of mining plant operational;
- meteorological conditions; and
- noise monitoring data from nearest real-time noise monitor.

Using the above data an assessment is to be made as to the validity of the noise complaint.



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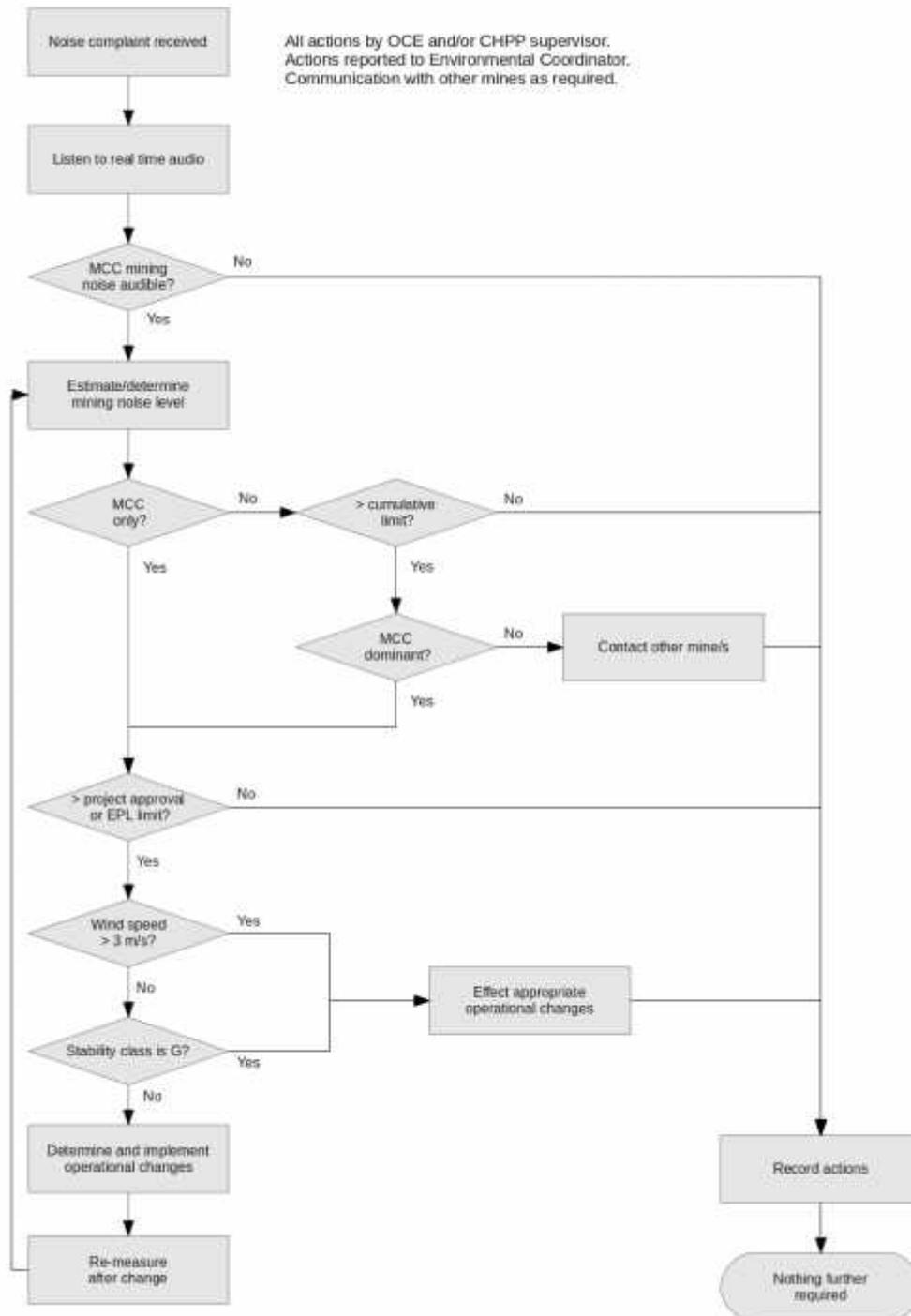


Figure 14 Community Complaint Response (Current Operations)



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5.2.2 Unattended Noise Monitoring Notification Received

Unattended monitoring data will be utilised to determine whether a noise exceedance has been caused by the Project. If the notification system is triggered by Project related activities, production will modify operations until such time as compliance is achieved. The Environmental Department is to be notified of all actions and outcomes.

The identified risk and the responsibilities are shown in Figure 15.

After each unattended monitoring notification that was determined to be a noise criterion exceedance, the following actions are to take place:

- check proactive planning was undertaken;
- check proactive plan was implemented;
- determine if actual meteorological conditions were as predicted;
- evaluate effectiveness of production changes; and
- implement any identified procedural improvements as described below in the risk/response matrix.

5.2.2.1 Risk Response

Possible control actions for various noise sources are listed below in Table 12.

Table 12: Risk/Response Matrix

Identified Problem Noise Source	Possible Control Option
Northern Emplacement Area	Operate a shielded emplacement location
	Reduce number of trucks accessing the emplacement area
	Operate dozers in first gear only
	Cease operations in that area
Excavators	Reduce number of trucks loaded per 15-minute period
	Reduce number of operating excavators
	Cease excavator operations
Drills	Move drills to less exposed pattern
	Cease drilling



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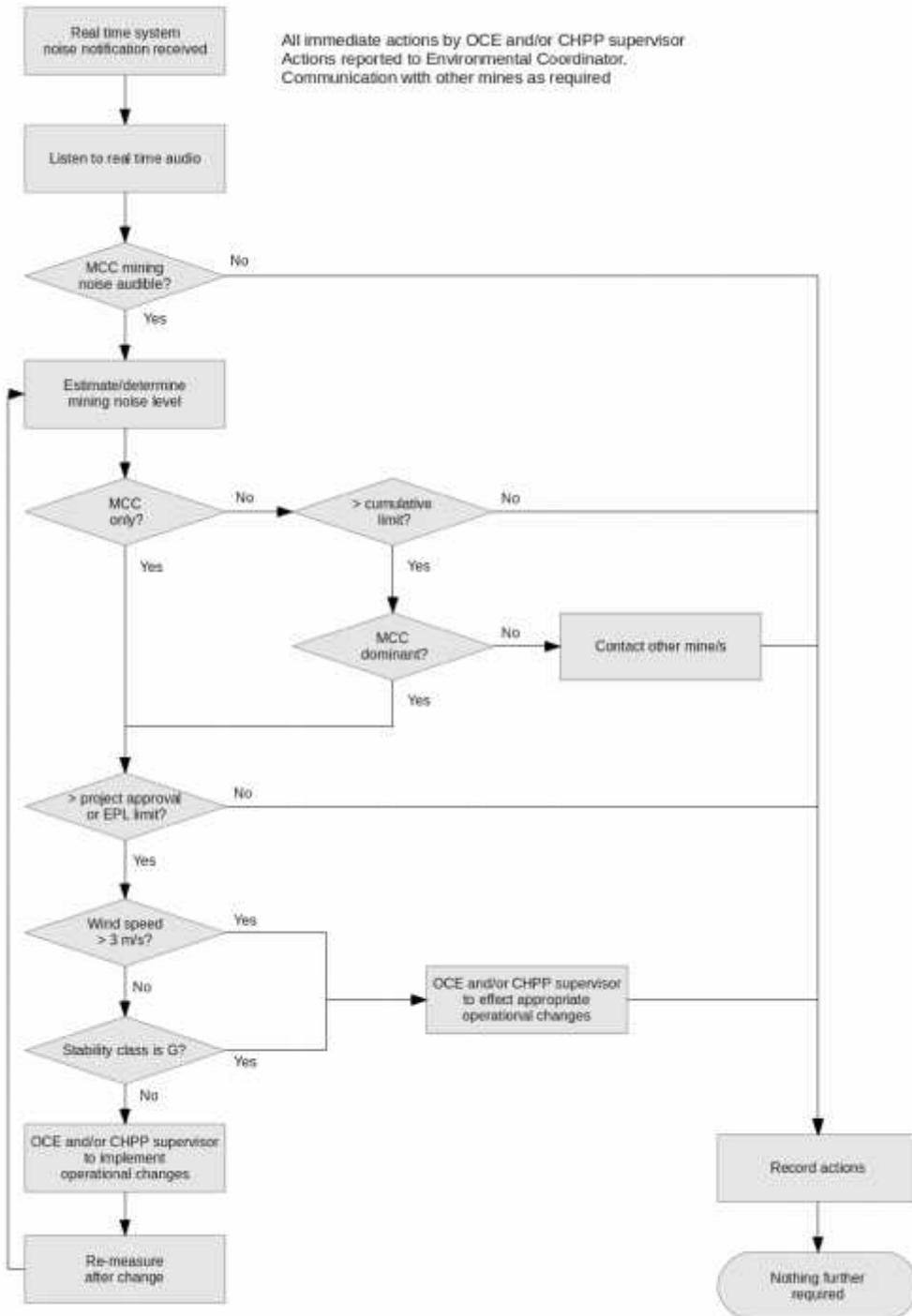


Figure 15 Unattended Notification Procedure



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5.2.3 Attended Monitoring Exceedance Measured

Any exceedance of a noise criterion is to be investigated immediately. The acoustic consultant undertaking the attended monitoring is to contact the Environmental Manager to advice of the recorded results and to discuss possible changes to operations (with reference to, but not limited to actions listed in the risk response matrix) that should lead to compliance. A remeasure is required to evaluate the effectiveness of any change implemented.

This Management Program is to be issued to any consultant conducting attended noise monitoring for the site so they understand all relevant procedures.

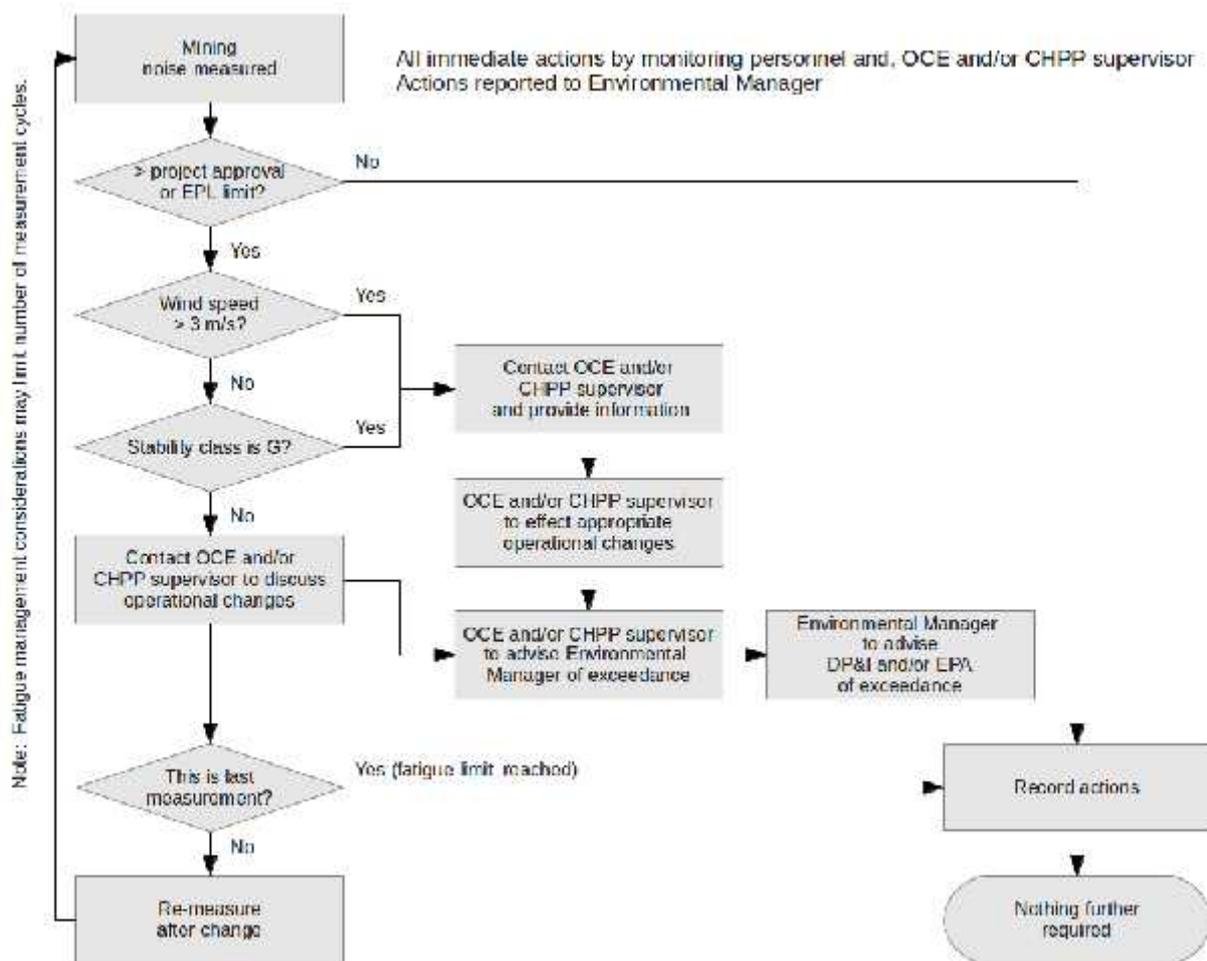


Figure 16 Attended Monitoring Exceedance Procedure



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5.2.4 Attenuation of Plant

While plant will not be accepted for use on site unless it meets noise emission specifications, there is the possibility that those emissions can increase over time. Schedule 3, Condition 13 of the approval requires annual testing of plant, repair of any defective attenuation fittings and, annual reporting of testing and rectification.

Accordingly, any plant items found to operate with sound powers greater than those specified in Section 4.2 will be withdrawn from service to allow rectification. In accordance with the approval, items will need testing to ensure compliance with limits before being re-accepted for use on site.



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6.0 COMPLAINT RESPONSE PROTOCOL

MCC have implemented a Maules Creek Coal Community Response Procedure as described in the Maules Creek Environmental Management Strategy. The procedure provides details how to receive, respond to, record and action any community complaints received in relation to the operation. MCC will keep a legible record of specific details relating to any community complaint including;

- the nature of the complaint;
- the method of the complaint, e.g. telephone or via email through the Whitehaven website;
- relevant monitoring results, including meteorological conditions at the time of the incident;
- site investigation outcomes and specific data as detailed in Sections 5.2.1 above;
- site activity and activity changes; and
- any necessary actions assigned.

Records of complaints will be maintained in the complaints register database and kept on file for a period of no less than five years.

MCC maintains a 24-hour complaints hotline (1800 Maules) to respond to any complaints from neighbouring residents or interested stakeholders. The complaints hotline is advertised in the local media on at least a quarterly basis and is available on the Whitehaven website and in community newsletters.

Complaints received relating to current noise emissions will be dealt with immediately by the supervisor on shift to ensure an investigation into the complaint is instigated immediately and the operations modified as required. For other less critical complaints, the complainants will be contacted within 24 hours of the initial complaint to gather additional information. Every effort will be made to ensure that concerns are addressed in a manner that facilitates a mutually acceptable outcome for both the complainant and MCC.

Any operational responses, as a result of a complaint and the subsequent investigation will be updated on the Whitehaven website.

If any complaints are received from residences listed in Conditions 1 to 3, Schedule 3, of the approval, then an investigation into the complaints will be conducted and negotiations for mitigation or acquisition will be suggested.

If any complaints are received from residences not listed in Conditions 1 to 3, Schedule 3, of the approval, they will be made aware of their rights as set out in Conditions 8, 9 and 11, Schedule 3, of the approval.



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7.0 REPORTING AND REVIEW

7.1 Reporting

7.1.1 Scheduled Reporting

MCC's environmental noise performance is reported a number of ways. External reporting includes:

- an Annual Review (AR);
- quarterly updates of monitoring results on the Whitehaven website; and
- Community Consultative Committee (CCC) meetings.
- Updates on the Whitehaven website of operational responses to weather forecasts, noise monitoring results and plant attenuation implementation and testing results
- Notification of monitoring results to affected receivers

A summary report on any noise issues identified during monitoring will be provided on the Whitehaven website and at CCC meetings.

The AR will, in accordance with the requirements of Schedule 5, Condition 4 of the approval:

a) describe the development ... that was carried out in the past calendar year, and the development that is proposed to be carried out over the current calendar year;

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

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

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

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

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

(f) describe what measures will be implemented over the next year to improve the environmental performance of the project.

A copy of the AR will be forwarded to relevant stakeholders including, but not limited to DP&I, EPA, NOW, OEH, Narrabri Shire Council and members of the CCC. The AR will also be placed on the Whitehaven website.



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7.1.2 Exceedance Reporting

In the event it is determined that an exceedance of a noise criterion has occurred, at the earliest opportunity (as soon as practicable) MCC will notify to NSW DP&I, EPA and other relevant agencies.

In accordance with Schedule 5, Condition 8 of the approval, MCC will, within 7 days of exceedance date, notify the NSW DP&I and other relevant agencies. MCC will submit a written report that:

- describes the date, time, and nature of the exceedance;
- identifies the cause (or likely cause) of the exceedance;
- describes what action has been taken to date; and
- describes the proposed measures to address the exceedance.

7.2 Plan Reviews

In accordance with Schedule 5, Condition 5 of the approval, this NMP will be reviewed within 3 months of any annual review, incident report, audit or modification to conditions. Should this review identify any requirement to change the NMP, this document will be updated accordingly in accordance with the approval.



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8.0 CUMULATIVE NOISE

Cumulative operational noise will be managed using the communication protocol between Maules Creek Coal, Boggabri Coal and Tarrawonga Coal. Should the cumulative real-time noise monitoring network identify significant noise resulting from the neighbouring mines, the relevant operation will need to be modified to minimise noise from their site. Maules Creek may need to assist in contacting the relevant operation via a call to the on shift OCE (or equivalent), or, if unsuccessful, to their environmental hotline to ensure they are aware of elevated noise levels recorded at the monitoring units.

The real time noise monitoring network will comprise up to 7 omni-directional noise monitors. These will be located around the sites with:

- up to 3 east of Boggabri Coal and Tarrawonga Coal;
- up to 2 south of Boggabri Coal and Tarrawonga Coal;
- 1 southwest of Boggabri Coal and Maules Creek; and
- 1 west of Boggabri Coal and Maules Creek.

Of these, however, only those west (120) and southwest (256) of Boggabri Coal and Maules Creek will be relevant for cumulative noise from Maules Creek; the others will only be relevant for Boggabri Coal and Tarrawonga Coal.

Since the monitors to be used do not determine direction, it will not be possible to directly allocate measured mining noise to Boggabri Coal or Maules Creek using data returned. Accordingly, until a sites noise history has been developed, it will have to be assumed that Maules Creek is responsible for mining noise as follows:

- at 120 when the wind direction is less than 102 degrees magnetic; and
- at 256 when the wind direction is less than 57 degrees magnetic.

It should be noted that significant mining noise levels (excluding rail spur movements) are not expected at these locations for wind directions greater than 147 and less than 12 degrees magnetic. Further, mining noise is not expected to be additive at these locations, rather, one or the other mine would be primarily responsible for measured levels. It is expected, based on experience elsewhere, that on occasions when both mines are contributing to measured levels the atmospheric enhancement would not be strong and so total levels would not be significant.

This NMP will be updated following the finalisation and the relevant Government approval of the BTM Precinct Noise Management Strategy.



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9.0 ROLES AND RESPONSIBILITIES

The roles and responsibilities of staff at Maules Creek in respect of this NMP are presented below in Table 13.

Table 13: Roles and Responsibilities

Role or Responsibility	Person/People	Timing
Implementation of management plan	Environment & Heritage Manager	Ongoing
Coordination of noise monitoring consultant	Environment & Heritage Manager	Ongoing
Manage maintenance of unattended monitoring network	Environment & Heritage Manager	Ongoing
Attended noise monitoring	Consultant	Ongoing
Sound power testing	Mechanical Superintendent	On delivery of new plant and annually
Provide mine plans for proactive model	Senior Mining Engineer	Monthly
Proactive noise management	OCE and/or CHPP Mgr or their equivalent	Daily
Data review	Environment & Heritage Officer	Quarterly
Respond to community complaint	Environment & Heritage Officer	As required
Response to noise alarms (attended and unattended monitoring)	OCE and/or CHPP Mgr or their equivalent	As required
Repair of noisy plant	Mechanical Superintendent	As required
Scheduled reporting	Environment & Heritage Manager	Quarterly and annually
Exceedance reporting	Environment & Heritage Manager	As required
Plan reviews	Environment & Heritage Manager	Annually or as otherwise required



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10.0 REFERENCES

Project Approval 10_0138 (Department of Planning and Infrastructure, 23 October 2012)

NSW Industrial Noise Policy (EPA, 2000)

Assessing Vibration: a technical guideline (EPA, 2006)

Australian Standard 1055 (Standards Australia, 1997)

Australian Standard AS 2187.2 (Standards Australia, 2006)

Mobile Plant Sound Power Specification (Global Acoustics, November 2012)

Maules Creek Coal Project Environmental Assessment (Hansen Bailey, July 2011)



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11.0 GLOSSARY

LA - The A-weighted root mean squared (RMS) noise level at any instant.

LA90 - The level exceeded for 90 per cent of the time, which is approximately the average of the minimum noise levels. The LA90 level is often referred to as the “background” noise level and is commonly used to determine noise criteria for assessment purposes.

LAeq - The average noise energy during a measurement period.

dB(A) - Noise level measurement units are decibels (dB). The “A” weighting scale is used to describe human response to noise.

Sound power level (L_w) - 10 times the logarithm of energy radiated from a source (as noise) divided by a reference power, the reference power being 1 picowatt.

Sound pressure level (SPL) - Fluctuations in pressure measured as 10 times a logarithmic scale, the reference pressure being 20 micropascals.

Hertz (Hz) - Cycles per second, the frequency of fluctuations in pressure, sound is usually a combination of many frequencies together.



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APPENDIX A REGULATORY CORRESPONDENCE
