



NAMOI MINING PTY. LTD.

A.C.N. 071 158 373 A.B.N. 24 071 158 373

Namoi Mining Pty Ltd

Noise Monitoring Program

for the

Sunnyside Coal Project

Incorporating a

Noise Management Protocol

and

Noise Monitoring Program



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Sunnyside Coal Project
Including a
Noise Management Protocol
and
Noise Monitoring Program

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ACRONYMS USED THROUGHOUT THIS REPORT

AEMR	-	Annual Environmental Management Report
CCC	-	Community Consultative Committee
CHPP	-	Coal Handling and Preparation Plant
DECC (EPA)	-	Department of Environment and Climate Change (Environment Protection Authority)
DoP	-	Department of Planning
DPI-MR	-	Department of Primary Industries - Mineral Resources
EA	-	Environmental Assessment
EMS	-	Environmental Management Strategy
ENCM	-	Environmental Noise Control Manual
GSC	-	Gunnedah Shire Council
INP	-	Industrial Noise Policy
ISO	-	International Standards Organisation
NMP	-	Noise Management Program
NSC	-	Narrabri Shire Council
PA	-	Project Approval
ROM	-	Run of Mine
WCMPL	-	Whitehaven Coal Mining Pty Ltd
NMPL	-	Namoi Mining Pty Ltd

1 INTRODUCTION

The Sunnyside Coal Project is located approximately 15km west of Gunnedah and 2km north of Oxley Highway (see **Figure 1**). The mine site is 231 ha and is located entirely within the property known as “Sunnyside”. The mine is being developed by Namoi Mining Pty Ltd (NMPL) as an open cut mining operation. NMPL is a 100% subsidiary company of Whitehaven Coal Ltd.

The Sunnyside Project is being conducted under Exploration License (EL5183) and Consolidated Coal Lease (CCL701). MLA 321 has also been lodged and is pending approval, and is coincident with the project site boundary.

There are two components of the project that have separate noise management measures. These are Site establishment (Construction) and normal site operations (Operations).

Site Establishment (Construction)

- Installation and/or construction of mine site infrastructure and services, e.g. power supply, water management structures and internal access roads.
- Establishment of site facilities such as offices, workshops, amenities, coal loader, etc.
- Construction of purpose built roads and upgrades to existing roads as part of a coal transport route.

Operations

- Coal mining by open cut and (potential) auger mining methods over an area of approximately 80-100ha.
- Crushing, screening and stockpiling of coal.
- Transportation of coal from the mine via a purpose built road parallel to and northeast of the existing Coochooboonah Lane, upgrading intersections and road shoulder surfaces on an established route along the Oxley Highway, Blackjack Road, Quia Road and Torrens Road, and use of this route to the Whitehaven Coal Handling and Preparation Plant (CHPP) and rail Loading Facility at the Whitehaven Siding.
- Final Rehabilitation of the areas of disturbance within the Mine Site following completion of the Mine.

It is recognised that the operation of the mine has the potential to increase noise levels received at residences neighbouring the mine site. In order to manage the potential impacts on local noise amenity, the following Noise Monitoring Program (NMP) has been prepared.

A Final Statement of Commitments was compiled in Response to Submissions received during the exhibition of the environmental assessment for the project. These commitments are designed to effectively manage, mitigate, guide and monitor the Project from initial construction through to full production and eventually final site rehabilitation.

The following commitments related to Noise and Vibration apply to the generation and management of noise.

The desired outcome is for all activities to be undertaken in such a manner as to reduce the noise level generated and minimise impacts on surrounding landholders and/or residents. This will be achieved through the following actions.

- seal the re-aligned Coochoonah Lane and all other upgraded road section
- Regularly maintain all roads comprising the proposed coal transport route under a contribution plan with Gunnedah Shire Council.
- Avoid all noisy activities occurring concurrently during construction particularly before 9:00am when affects of local inversions may be noticeable.
- Construct the out of pit overburden emplacement to provide an acoustic barrier between the open cut and Non-Project related residences.
- Construct the amenity bund around the coal processing area to act as an acoustic barrier.

Noise generated by the construction and operational activities will be minimised to reduce impact on neighbouring landowners or residents. by application of the following.

- adhere strictly to hours of operation, including transport activities, enforced by Mine Management
- Use equipment with lower sound power levels in preference to more noisy equipment
- Regularly service all equipment used on site to ensure power sound levels remain at or below the levels used in the modelling to assess generated noise levels and compliance with the criteria.
- Ensure that bulldozers operate in first gear when reversing on the out-of-pit emplacement
- Manage scraper operation to avoid operations during inversion conditions and to reduce the number of scrapers operating from two to one when noise monitoring demonstrates the $L_{Aeq(15\text{minute})}$ criteria of 35dB (A) is or will be exceeded.
- Confine operations to lower levels of in-pit overburden emplacement to mitigate noise exceedances under adverse wind conditions, (i.e. to avoid operations on elevated sections of the overburden emplacements during inversions and SSW winds
- Fit mid-high frequency broadband beepers to mobile mining equipment, decreasing sound power levels by 2dB (A) to 3dB (A).
- Ensure that on-site road network is well maintained to limit body noise from empty trucks travelling on internal roads
- Maintain dialogue with neighbours and local community to ensure any concerns are addressed. , Noise modelling predictions will then be assessed through the active attended monitoring program to ensure compliance can be achieved.
- Document all proposed noise management strategies formally in this Noise Management Plan

The NMP has been prepared with reference to relevant legislation and guidelines, and is consistent with the commitments in the following documentation which was prepared prior to the granting of development consent.

- Noise and Vibration Assessment – included as Part 2 of the Specialist Consultant Studies Compendium accompanying the *Environmental Assessment* for the Sunnyside Coal Project.
- *Environmental Assessment* – specifically Section 4B.2 and Section 5 (8).
- Statement of Commitments – specifically commitments 8.1 to 8.20.

2 NOISE IMPACT ASSESSMENT CRITERIA

Noise impact assessment criteria for the various stages and activities associated with the mine's development were established in the *Environmental Assessment* using relevant DECC guidelines.

2.1 Noise Limits

SCHEDULE 3 SPECIFIC ENVIRONMENTAL CONDITIONS

NOISE

Construction Noise Impact Assessment Criteria

2. The proponent shall ensure that the noise generated during the construction of the project does not exceed the level set out in Table 1:

Table 1: Construction noise impact assessment criteria dB(A)

Day/Evening L _{A10} (15 minute)	Land
40	Any residence on, or more than 25% of, any privately owned land (except at "Lilydale")

Operational Noise Impact Assessment Criteria

3. The proponent shall ensure that the noise generated during mining operations and other activities does not exceed the level set out in Table 2.

Table 2: Operational noise impact assessment criteria dB(A)

Day/Evening $L_{Aeq(15\text{ minute})}$	Land
35	Any residence on, or more than 25% of, any privately owned land (except at "Lilydale")

Notes:

- To determine compliance with the $L_{Aeq(15\text{ minute})}$ noise limits, noise from the Project is to be measured at the most affected point within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary. Where it can be demonstrated that direct measurement of noise from the Project is impractical, the Department and DECC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.
- These limits apply meteorological conditions of:
 - wind speeds of 3m/s at 10 metres above ground level; or
 - up to 3 degreesC/100m temperature inversion strength for all receivers, plus a 2m/s source or receiver component drainage flow wind at 10 metres above ground level for those receivers where applicable.

However, if the proponent has a written negotiated noise agreement with any landowner of any land, and a copy of this agreement has been forwarded to the Department and DECC, then the Proponent may exceed the noise limits in Table 1 or Table 2 in accordance with the negotiated noise agreement.

Land Acquisition Criteria

4. If the noise generated by the project exceeds the criteria in Table 3, the Proponent shall, upon receiving a written request for acquisition from the landowner, acquire the land in accordance with the procedures in conditions 8-10 of schedule 4.

Table 3: Land acquisition criteria dB(A)

Day/Evening $L_{Aeq(15\text{ minute})}$	Land
40	Any residence on, or more than 25%, of any privately owned land (except at "Lilydale")

Note: Noise generated by the project is to be measured in accordance with the notes presented below Table 1.

Additional Operational Noise Mitigation Measures

5. Upon receiving a written request from the landowner of:
 - (a) "Illili", "Ferndale", or
 - (b) Any residence on privately owned land where noise generated by the project exceeds 37 dB(A) $L_{Aeq(15\text{ minute})}$,

the Proponent shall implement noise mitigation measures such as double glazing, insulation, and/or air conditioning at any residence on the land in consultation with the landowner.

These additional mitigation measures must be reasonable and feasible.

If within 3 months of receiving this request from the landowner, the Proponent and the landowner 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.

Within 3 months of this approval, the proponent shall notify all applicable landowners of their entitlements under this condition.

Traffic Noise Impact Assessment Criteria

6. The Proponent shall implement all reasonable and feasible measures to ensure that the traffic noise generated by the project combined with the traffic noise generated by other mines does not exceed the level in **Table 4:**

Table 4: Traffic noise criterion dB(A)

Day/Evening	Road
$L_{Aeq}(1\text{ hour})$	
55	Any residence adjacent to Torrens Road

Note: Traffic noise generated by the project is to be measured in accordance with the relevant procedures in the DECC's Environmental Criteria for Road Traffic Noise.

Additional Traffic Noise Mitigation Measures

7. If the traffic noise generated by the project exceeds the criteria in Table 4, the Proponent shall, upon receiving a written request from any landowner adjacent to Torrens Road, implement noise mitigation measures such as double glazing, insulation, and/or air conditioning at any residence on the land in consultation with the landowner.

These additional mitigation measures must be reasonable and feasible.

If within 3 months of receiving this request from the landowner, the Proponent and the landowner 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.

Within 3 months of this approval, the Proponent shall notify all applicable landowners of their entitlements under this condition.

Continuous Improvement

8. The Proponent shall:
- implement all reasonable and feasible best practice noise mitigation measures;
 - investigate ways to reduce the noise generated by the project, including off-site road noise; and
 - report on these investigations and the implementation and effectiveness of these measures in the AEMR,
- to the satisfaction of the Director-General.

Monitoring

9. The Proponent shall prepare and implement a detailed Noise Monitoring Program for The project to the satisfaction of the Director-General. This program must:
- (a) be prepared in consultation with DECC;
 - (b) be submitted to the Director-General for approval prior to carrying out any development on site, and
 - (c) include:
 - attended monitoring measures; and
 - a noise monitoring protocol for evaluating compliance with the noise impact assessment and land acquisition criteria in this approval.

3 MANAGEMENT SAFEGUARDS AND AMELEORATIVE ACTIONS

The following actions and strategies will be implemented to minimize the potential for noise impacts at residential receivers during construction and operational phase of the mine

3.1 Construction Noise Controls

The safeguards to minimise the likelihood of noise criteria exceedance due to construction activities are:

- Exceedances were predicted of 6dB (A) for the two-week period when construction activities are closest (200m) to the residence R9 “Lilydale” The actions detailed in this plan form the Construction Noise Management Plan and will minimise the potential for exceedance of the Construction Noise Criteria at R9.
- As far as practical, construction activities will be restricted to only one of the more noisy activities at a time (e.g. tree felling or top-soil stripping).
- Due to the construction noise nature being a day-time only activity and the relatively short duration in the life of the Project and the difficulty/cost of effectively reducing noise emissions the recommended operational criteria has been determined at 40dB(A).
- Monthly monitoring of construction noise would be carried out during this period to determine compliance with the criterion.
- If unavoidable, noisier activities would only occur after 9:00am when the affects of local temperature inversions are likely to be minimal.

SCHEDULE 2 ADMINISTRATIVE CONDITIONS

Hours of Operation

8 Construction activities may take place only between 7am to 6pm Monday to Friday and 7am to 4pm on Saturdays and not on public holidays.

In addition to the above controls, the following procedures will be adopted to control noise from site construction activities.

- (a) Contractors, including all personnel and sub-contractors, will be made aware of noise compliance limits prior to the commencement of work by any contractor, or sub-contractor, whose work is likely to create noise.
- (b) Potentially affected residents will be notified prior to noisy activities and will be kept informed throughout the construction phase.
- (c) Prior to being brought onsite, all earthmoving equipment would be required to exhibit sound power levels consistent with the schedules in the noise assessment by Spectrum Acoustics presented in **Table 5**. Equipment not listed in **Table 5** must have

a maximum dynamic Sound Power Level of 115 dB(A) as measured generally in accordance with ISO 6395:1988 “Acoustics – Measurement of exterior noise emitted by earthmoving machinery – Dynamic test conditions”

Table 5
Equipment Sound Power Levels

Major Construction Noise Sources, dB,L₁₀	
Source	Sound Power Level dB(A)
Earth works (grader + scraper + truck)	115
Water Cart and roller	116
Major Operational Noise Sources, dB,L_{eq(15-minutes)}	
Source	dB(A)
Coal processing area ¹	113
Overburden placement ²	115
Excavator plus trucks	114
Excavator plus trucks	114
Overburden trucks hauling on slope ³	115
Overburden trucks hauling on flat	112
Overburden trucks hauling coal	111
DM 45 Blasthole drill	113
1. Coal crushing plant and CAT 988 front end loader 2. Four CAT 785 trucks per 15 minutes and D11 dozer 3. Four uphill and four down hill per 15 minutes	
Major Impact Sources, dB,L_{max}	
Source	dB(A)
Overburden Placement (with dozer)	128
Excavator plus trucks	125
Overburden transport route (flat section)	118
Overburden transport route (downhill)	124

- (d) High frequency reversing alarms will not be permitted on any equipment brought onto site. Rather, all reversing alarms should be of the lower/mid range frequency type.
- (e) Site equipment will be selected as to have the lowest practical level of sound emission and will be maintained in good order
- (f) Conditions will be assessed on a daily basis, and the Mine Manager will ensure regular interaction with the site meteorological station to assess weather conditions for construction activities

- (g) In accordance with recommendations of Spectrum Acoustics' Noise Assessment, construction noise monitoring will be conducted during road construction operations and in response to complaints.

A Noise Monitoring Protocol is included in this document as **Appendix 1**.

3.2 Operational Noise Controls

The safeguards to minimise the likelihood of noise criteria exceedance during operational activities were presented in the Noise and Vibration Assessment (pp 2-29 to 2-36) and are as follows:

- Topsoil and subsoil stripped in advance of mining activities will be placed in a stockpile and perimeter stockpiles to provide an acoustic barrier between the open cut and nearest non-Project-related residence (“Lilydale”).
- Activities on the out of pit emplacement will not occur during inversion conditions which may require the delay of commencement of operations on clear calm winter mornings.
- The dozers working the out-of-pit emplacements are to use only first gear when reversing (reducing noise by 7-8 dB compared to second gear) during adverse conditions.
- Overburden emplacement and elevated haul truck tipping will be restricted, wherever possible to the leading side of the emplacement area. This would locate the noise source the maximum distance possible from the nearest residence downwind.
- Using a low-level in pit overburden emplacement area, noise levels from scrapers can be mitigated. However in locations exposed to R9 “Lilydale” under conditions of inversion it may be necessary to avoid the use of more than one scraper particularly early on calm winter mornings.

SCHEDULE 2 ADMINISTRATIVE CONDITIONS

Hours of Operation

9. Mining operations may take place only between 7am to 10pm Monday to Friday and 7am to 6pm on Saturdays and not on public holidays.

Other noise management measures to be adopted to control operational noise are set out below:

- (a) Contractors, including all personnel and sub-contractors, will be advised of noise compliance limits prior to their work commencing. Contractors will be expected to take practical measures to limit noise generation during their activities where possible.
- (b) Prior to being brought onsite, all earthmoving equipment would be required to exhibit sound power levels consistent with the schedules in the noise assessment by Spectrum Acoustics presented in **Table 5**. Equipment not listed in **Table 5** must have a maximum dynamic Sound Power Level of 115 dB(A) as measured generally in accordance with ISO 6395:1988 “Acoustics – Measurement of exterior noise emitted by earthmoving machinery – Dynamic test conditions”
- (c) Site equipment will be selected as to have the lowest practical level of sound emission and will be maintained in good order

- (d) Conditions will be assessed on a daily basis, and the Mine Manager will ensure regular interaction with the site meteorological station to assess weather conditions for operation activities.
- (e) Site personnel will be required to pay due attention to site weather conditions and modify or stand down from operational activities if directed by mine management
- (f) All noise complaints will be registered and responded to in accordance with the complaints procedure in the EMS
- (g) In recommendation of Spectrum Acoustics' Noise Assessment, operational noise monitoring will be conducted monthly for the first six months of mining operations (longer if needed), reverting to 3 monthly on confirmation that noise model predictions from the EA are validated, and noise levels are compliant with consent criteria.

3.3 Transport Noise Controls

In order to minimise noise levels generated by mine-related traffic, the following noise controls will be implemented.

- (a) All the roads which make up the coal transport route will be sealed prior to the commencement of Coal transportation and will be regularly maintained under a contribution plan with Gunnedah Shire Council.
- (b) Strict adherence to the approved hours of operation as specified in Schedule 2(10) of the Project Approval for transport activities will be enforced by mine management

10. Transport of coal may take place only between 7am to 6pm Monday to Friday (or between 7am to 8pm during Eastern Summer Time) and between 7am to 4pm on Saturdays, and not on public holidays.

- (c) Truck operating procedures will be developed with the Coal Transport contractor. All truck operators will be instructed to avoid the use of engine compression brakes when approaching the Mine entrance and intersections of Coocooboonah Lane and the Oxley Highway and on Torrens Road and to be mindful of noise when accelerating.

- (d) All access roads will be signposted and speed limited to minimise transport noise

The contracted coal haulage fleet will have the following noise mitigating features;

- (a) Prime mover specifications, including model, motor size, differential ratios, and gearbox selection will be engineered to comply with emission and noise criteria
- (b) Testing of coal truck noise compliance with Australian design rule ADR28/01 will be conducted prior to the commencement of coal transportation.

3.4 Other Noise Controls and Operational Procedures

In addition to the Mine's design and operational features, the following noise controls will be implemented:

- (a) Equipment with lower sound power levels would be used in preference to more noisy equipment
- (b) All equipment used onsite will be regularly serviced to ensure the sound power levels remain at or below the levels used in the modelling to assess generated noise levels and compliance with the criteria.
- (c) Mid-high frequency broadband reverse beepers would be fitted to mobile mining equipment, decreasing sound power levels by 2 to 3 dB(A)
- (d) The on-site road network will be well maintained to limit body noise from empty trucks travelling on internal roads.
- (e) NMPL will maintain good communications with neighbours and the local community to ensure any concerns in relation to construction, operations or transport noise are addressed.

4 MANAGEMENT OF COMMUNITY CONSULTATION

4.1 Community Consultation

Community consultation was an important element throughout the planning and investigation stages into the Sunnyside Coal Project. This program will continue throughout the life of the mine, with NMPL addressing any concerns raised by the local community in a timely and efficient manner.

Within 3 months of project approval, a Community Consultation Committee (CCC) will be established to address any concerns raised by local members of the community.

SCHEDULE 5 ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING AND REPORTING

COMMUNITY CONSULTATIVE COMMITTEE

9. Within 3 months of this approval, the Proponent shall establish a Community Consultative Committee (CCC) for the Project to the satisfaction of the Director-General, in general accordance with the Guideline for Establishing and Operating Community Consultative Committees for Mining Projects (Department of Planning, 2007), or its latest version.

4.2 Complaints Handling and Monitoring

NMPL will:

- establish and maintain a system for recording complaints with respect to construction and mining activities. A publicly advertised telephone complaints line will be utilized to receive complaints during operating hours and record complaints at other times;
- ensure that all complaints are entered into a log book or similar database;
- ensure that an initial response is provided within 24 hours of receipt of a complaint except in the event of complaints recorded when the mine is not operational; and
- provide a report of complaints received every 12 months to DoP, NSC, GSC, DECC, DPI (Mineral Resources) and the CCC through the AEMR.

The NMPL complaints record will include the following details for noise complaints.

- The date and time of complaint.
- Any personal details the complainant wishes to provide or if no such details are provided a note to that effect.
- The nature of the noise that led to the complaint, including the time of the noise and its duration.
- The action taken by NMPL in relation to the complaint, including any follow-up contact with the complainant.
- If no action was taken by NMPL, the reason why no action was taken.

4.3 Contingency Measures When Noise Complaints are Received

If noise levels of any item of plant or machinery exceed the levels outlined in **Table 5**, or if noise levels at any residence exceed the noise impact assessment criteria, the noise producing plant or machine will be measured by an independent acoustic consultant. Sound attenuation measures will be installed to plant and equipment where necessary to ensure that noise emissions comply with the relevant noise levels in **Table 5**. Alternatively, the equipment will be stood down or removed from site.

4.4 Best Practice Methodology and Continuous Improvement

There are no specific noise mitigation measures in the *Environmental Assessment* that require engineering design. However, the NMP incorporates best practice techniques of identifying potential noise related impacts, avoiding certain adverse times and weather conditions and field verification of predicted noise levels early in the life of the Project. The community liaison program, complaints register and response methods and regular monitoring as identified in **Section 6** and **Appendix 1** in this document are all best practice procedures in the mining industry. The processes detailed in this plan will help ensure that site practice, monitoring, reporting and corrective action will lead to continuous improvement and reduce noise impacts in the community.

5 MONITORING AND REPORTING

SCHEDULE 3 SPECIFIC ENVIRONMENTAL CONDITIONS

Monitoring

9. The Proponent shall prepare and implement a detailed Noise Monitoring Program for the project to the satisfaction of the Director-General. This program must:
- (a) be prepared in consultation with DECC;
 - (b) be submitted to the Director-General for approval prior to carrying out any development on site; and
 - (c) include:
 - attended monitoring measures; and
 - a noise monitoring protocol for evaluating compliance with the noise impact assessment and land acquisition criteria in this approval.

5.1 Noise Monitoring Programs

Noise monitoring will be undertaken for noise model validation purposes as presented in the EA for the development, and for ongoing compliance monitoring to assess compliance with operational noise criteria.

Noise model validation monitoring will be undertaken by attended monitoring on a monthly basis during site establishment and during the first 6 months of mining at nearby residences. Should monitoring confirm validation of predictions, monitoring will revert to ongoing compliance monitoring.

Ongoing compliance monitoring will be undertaken by attended monitoring on a 3 monthly basis at residences to monitor compliance with operational noise criteria. 3 monthly attended monitoring would also be undertaken at other residences during coal transport hours to monitor compliance with traffic noise criteria.

In circumstances where noise complaints are made relating to operations at the mine site, or from coal transport activities, targeted noise investigations will also be undertaken at those receivers in order to assess and/or validate the complaint.

5.2 Noise Monitoring Locations

For the construction stage of the project construction noise monitoring will be conducted at sites R4 "Illili", and R5 "Ferndale" north of the site and at R9 "Lilydale" south of the project site. For ongoing operations noise monitoring will be conducted at the most likely affected residences comprising R2 "Ivanhoe", R4 "Illili", R5 "Ferndale", R6 "Plain View", and R9 "Lillydale". Truck Road noise will be monitored at "Roslyn" on Torrens Lane. Noise monitoring locations (excluding road noise) are identified on **Figure 1** and in **Table 6**. Upon completion of the validation monitoring and compilation of sufficient operational noise data, NMPL may seek to reduce the noise monitoring sites by removing either R4 or R5 from ongoing monitoring if noise monitoring results indicate ongoing compliance.

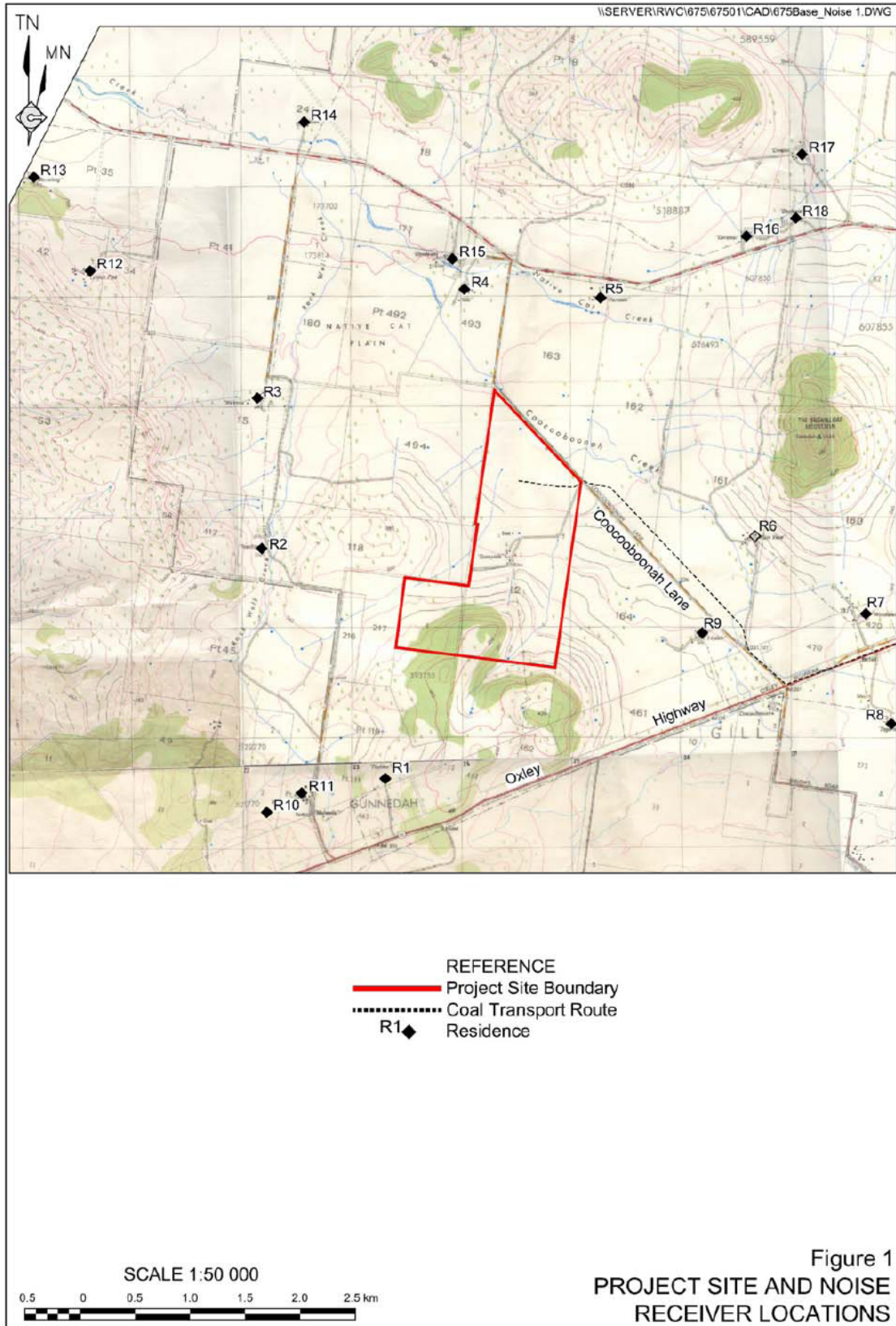


Figure 1
PROJECT SITE AND NOISE
RECEIVER LOCATIONS

Figure Prepared by R.W. Corkery & Co. Pty Ltd

Table 6
Noise Monitoring Locations¹

RECEIVER NUMBER (AS PER FIGURE 1)
R2 "Ivanhoe"
R4 "Illili"
R5 "Ferndale"
R6 "Plainview"
R9 "Lilydale"

All monitoring will be conducted within 30m of the residences.

5.3 Noise Monitoring Frequency

The frequency of monitoring for the various noise monitoring programs is nominated in **Table 7**. If conditions on the day of monitoring are not suitable (ie. high winds, rain, etc.) then the monitoring event must be rescheduled as soon as practicable to ensure ongoing compliance with the monitoring frequency. The Noise Model validation may also require additional monitoring events if the monthly monitoring program does not cover adverse conditions such as inversions and adverse winds. The Noise modelling will be validated as part of the noise monitoring protocol and will be presented annually in the AEMR.

Table 7
Noise Monitoring Summary

Type	Frequency	Responsibility	Comments
Noise Model Validation			
Attended noise surveys	Monthly during construction phase.	Suitably Qualified Acoustical Consultant.	Noise monitoring methodology provided in Section 5 of NMP
Construction, Road Traffic and Operational Noise			
Attended noise surveys	Monthly for first 6 months of mining and then 3 monthly	Suitably Qualified Acoustical Consultant.	Noise monitoring methodology provided in Section 5 of NMP
Site Construction Equipment and Mobile Mine Equipment Sound Power Levels			
Construction Machinery Noise	During construction and upon request from NMPL Manager	WCMPPL or qualified Acoustical Consultant	The sound power levels are to be recorded.
Mobile Mine Equipment	Reviewed opportunistically for extraneous noise	NMPL Mine Manager or delegate and Individual Contractors	Equipment producing excessive noise will be taken out of service and repaired or additional sound power level measurements will be taken to ensure its suitability.

5.4 Noise Monitoring Procedures

Attended noise surveys will be conducted as follows.

1. All noise investigations will be carried out in accordance with NSW DECC's Industrial Noise Policy, 2000 (INP), Environmental Noise Control Manual (ENCM) and applicable Australian Standards.
2. Noise levels will be measured in one-third octave bands using an instrument with IEC Type 1 characteristics as defined in AS 1259-1990 "Sound Level Meters". The instrument will have current calibration as per manufacturer's instructions and field calibration will be confirmed before and after measurements with a sound level calibrator.
3. The instrument will be set to A-weighting, "fast" response and measurements of $L_{Aeq(15\text{ minute})}$, L_{Amax} , $LA1$, $LA10$, $LA90$, L_{Amin} will be taken at each location in **Table 6**. Each measurement will be stored at a sampling rate of no greater than 5 seconds for further analysis.
4. During the site establishment phase, a measurement will be taken at a location nearest to where the activities will be occurring immediately prior to the commencement of those activities. Two further measurements will be taken during those construction activities. If no mine related noise is audible at the monitoring locations and if weather/operating conditions remain unchanged during the same day to record the noise levels attributable to the survey, then only one measurement will be taken at that location.
5. During operations, attended surveys will be conducted during the approved hours of operation with at least three measurements taken during one day at each location in **Table 6**, so that noise levels during the full range of operating times (day and evening) are monitored. This will ensure assessment of compliance against the day, and evening criteria. Targeted monitoring will be included to ensure activities are assessed against compliance criteria. This will require pre-arranged monitoring to coincide with the occurrence of the activity.
6. Field notes will be taken during each measurement recording the time and duration of noise events, noise sources, instantaneous noise levels and the frequency range of identified site noise sources. Where an obvious noise exceedance is detected, the noise monitor must notify the mine manager of the exceedance and obtain relevant information as to the possible source of the exceedance, ie. malfunctioning equipment, additional activity contributing to noise levels etc to ensure appropriate reporting and action on the exceedance.
7. Extraneous noise sources will be filtered from the measured signal using Bruel & Kjaer Evaluator Software and the $L_{Aeq(15\text{-minute})}$, L_{Amax} , $LA1$, $LA10$, $LA90$, L_{Amin} level attributable to WCMPL activities will be identified and compared with the relevant criteria.
8. Details regarding plant configuration, survey interval, weather conditions, extraneous noise sources, monitoring locations and times of measurement will be recorded for inclusion in the noise monitoring report.

The Environmental Officer will review the results of all noise monitoring and in accordance with DECC requirements, report any incident of exceedance in noise criteria within 24 hours of detecting the exceedance to the DoP and DECC. Within 6 days of providing this notification, WCMPL will provide those agencies with a written report identifying the date, time and nature

of the exceedance, identify the cause or likely cause of the exceedance, describe actions taken in relation to the exceedance, and identify any measures being undertaken to minimise the risk of future exceedance of noise criteria. Any exceedance in noise criteria will also be reported in the Annual Environmental Management Report (AEMR).

The results of the monitoring program will also be made available on the Whitehaven Coal website and updated on a regular basis as required.

6 RESPONSIBILITIES AND ACCOUNTABILITIES

During the construction and operational phases of the development, the Sunnyside Coal Project will be managed by the General Manager – Operations and Mine Manager respectively. These persons will have overall responsibility for ensuring contractors, employees and service providers comply with all laws, regulations, licences, approvals and conditions of the development consent.

All significant contractors will be required to undertake an environmental risk assessment and undertake site induction training prior to commencing works on site. At this time they will also be instructed in the environmental rules, procedures and processes applicable whilst they are on the site and the requirement for equipment to be fitted with all appropriate attenuation equipment in order to achieve the nominated sound power levels for their items of equipment.

7 APPENDIX

7.1 Appendix 1: Noise Monitoring Protocol

Sunnyside Coal Mine – Noise Monitoring Protocol

Control/ Action	Timing / Trigger	Responsibility	Monitoring	Reporting
NMPL and all contractors will provide environmental training on noise control and awareness for all personnel and sub-contractors.	This training will take place before the commencement of work by any employee, contractor, or sub-contractor whose work is likely to create loud noise.	NMPL Manager or nominated representative / Individual Contractors.	This awareness training will be incorporated into site inductions.	The effectiveness of this control will be monitored by the Environmental Officer and will be reported annually in the AEMR.
Potentially affected residents will be notified prior to potentially noisy activities and will be kept informed during the construction phase.	One week prior to potentially noisy phases of activity being undertaken or within a lesser period agreed to by the resident(s).	NMMPL Manager / Environmental Officer	The effectiveness of this control can be determined in the community consultation process.	The effectiveness of this control will be reported annually in the AEMR.
Machinery to be used during construction will be required to satisfy maximum sound power levels as specified in Table 5.	On entry to site and on request from NMPL Manager.	NMPL Manager, Individual Contractors	Validation testing. Upon request by NMPL Manager.	Sound power levels of all machinery tested will be recorded.
Mobile mining equipment will be required to satisfy maximum sound power levels as specified in Table 5.	Mobile mining equipment used on site must be certified as compliant with the relevant noise standard and will be tested on site entry	NMPL Manager, Individual Contractors	Mobile mining equipment noise levels will be reviewed opportunistically.	Sound power levels of all mining equipment will be recorded.
Site equipment will be selected so as to have the lowest practical level of sound emission and will be maintained in good order.	This will be a continual process.	NMPL Manager, Individual Contractors.	Noisy equipment is to be highlighted in regular inspections of operations and noise monitoring programs.	The effectiveness of this control will be reported annually in the AEMR.
Due attention will be paid to adverse weather conditions, so that modifications can be made to the work program where necessary. A real time link between meteorological station and operator will be created advising of adverse meteorological conditions.	This will be a continual process.	NMPL Manager, Individual Contractors	On-site meteorological station will highlight adverse conditions. The effectiveness of this will also be determined in the community consultation process.	The effectiveness of this control will be reported annually in the AEMR.
Heavy vehicle reversing alarms will be of the broadband type.	Before use of machinery on site.	NMPL Manager and Individual Contractors.	This control will be monitored in conjunction with the complainant.	The effectiveness of this control will be reported annually in the AEMR.

Control/ Action	Timing / Trigger	Responsibility	Monitoring	Reporting
All complaints will be registered and responded to in accordance with the complaints procedure in the EMS.	Whenever a complaint is received.	NMPL Manager	This control will be monitored in the complaints handling and follow-up process.	The effectiveness of this control will be reported annually in the AEMR.
Monitoring of emitted noise levels will be undertaken during construction stage and initial mining to verify noise predictions and compliance with consent criteria, and to assess the need for additional noise attenuation measures.	On a monthly basis.	NMPL Environmental Officer and Mine Manager.	By suitably qualified acoustical consultant or trained NMPL employee approved by the Director-General.	Monitoring results and the effectiveness of any controls used will be reported in the relevant AEMR.
Monitoring of emitted noise levels will be undertaken during operational phase to verify compliance with noise criteria and to assess the need for additional noise attenuation measures.	Monthly for first 6 months and then on a 3 monthly basis	NMPL Environmental Officer and Mine Manager.	By suitably qualified acoustical consultant or trained NMPL employee approved by the Director-General.	Monitoring results and the effectiveness of any controls used will be reported annually in the AEMR.