Castlereagh Coal

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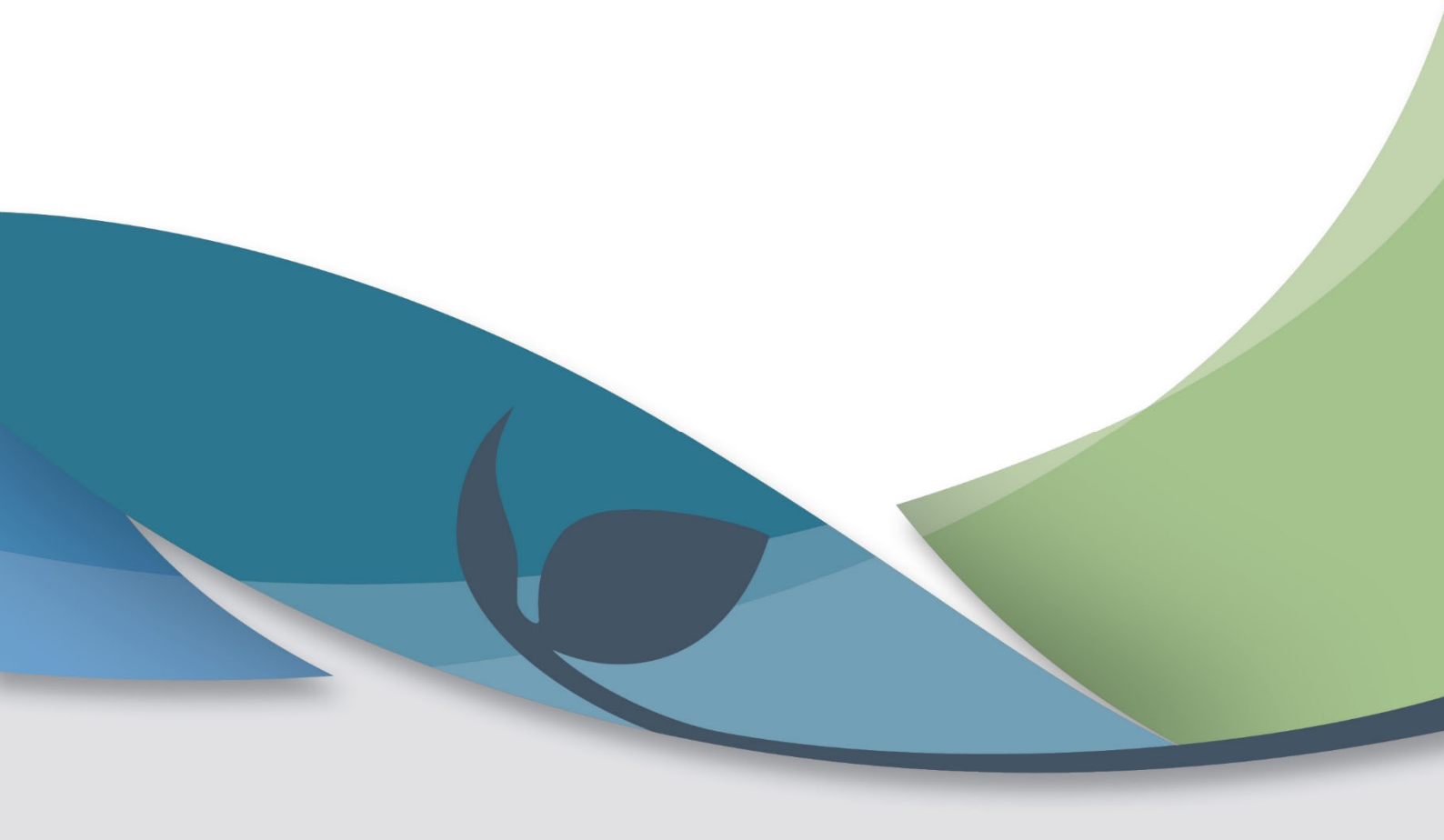
CULLEN VALLEY MINE

ENVIRONMENTAL MANAGEMENT STRATEGY

for Shoalhaven Coal Pty Ltd

20 April 2022



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1. INTRODUCTION

1.1 Background

Cullen Valley Mine (CVM) is located near Cullen Bullen in the Western Coalfields of NSW, approximately 30 km north-west of Lithgow (see **Figure 1**). Underground mining commenced at CVM (formerly Tyldesley Colliery) around 1904 and continued up until the 1960s when the workings were abandoned. Early open cut operations were conducted on the site between 1948 and 1953.

The current development consent for CVM (DA 200-5-2003) was granted by the Department of Infrastructure and Planning (now the Department of Planning and Environment (DPE)) in August 2004 for a period of 21 years. The conditions of DA 200-5-2003 were subsequently modified in December 2004 to allow for the transportation of product coal from CVM to domestic destinations other than Mount Piper Power Station (MPPS). The conceptual layout of the site as approved under DA 200-5-2003 is shown on **Figure 2**.

Mining of coal at CVM under DA 200-5-2003 commenced in May 2000 using open cut methods following a four-month construction phase and continued until the site was placed in Care and Maintenance in early 2013.

Shoalhaven Coal Pty Ltd (trading as Castlereagh Coal Pty Ltd (Castlereagh Coal)) purchased CVM in May 2015 and has operated the mine under Care and Maintenance since that time. Castlereagh Coal intends to recommence open cut coal mining operations at CVM in early 2022 within the existing disturbance area approved under DA 200-5-2003. The operations are planned to recover approximately 450,000 tonnes of coal and to carry out associated rehabilitation activities, which are scheduled to be undertaken over a period of approximately 9 months. Coal produced from these operations will be transported by road to domestic destinations as currently approved.

1.2 Document Purpose & Scope

This Environmental Management Strategy (EMS) document has been prepared to outline how Castlereagh Coal manage environmental aspects, impacts and performance at CVM and provides a summary of the specific Environmental Management Plans (EMPs) required to be prepared for the site under DA 200-5-2003.

This revision of the EMS and the associated EMPs outlined in **Section 2** have been prepared in accordance with the requirements of DA 200-5-2003 for use by Castlereagh Coal during the recommencement of mining operations on site.

1.3 Document Objectives

The objectives of this document are to:

- Provide an overview of the environmental management framework at CVM;
- Assist with the management of compliance with CVM environmental approvals, leases and licencing; and
- Outline procedures for communication with external CVM stakeholders, particularly those in the local community.

Statutory requirements from DA 200-5-2003 that relate to this EMS and where they are addressed in this document are provided in **Table 1**.

Other statutory approvals and licences in place for CVM are summarised in **Table 2**.

Table 1 EMS Requirements

DA 200-5-2003 Condition	Requirement	Where Addressed
Schedule 6, Condition 1	Within 6 months of the date of this consent, the Applicant shall prepare (and then implement) an Environmental Management Strategy for the development to the satisfaction of the Director-General. This strategy must:	**Appendix A**
	(a) provide the strategic context for environmental management of the development;	**Section 2**
	(b) identify the statutory requirements that apply to the development;	**Sections 1** and **2**
	(c) describe in general how the environmental performance of the development would be monitored and managed during the development;	**Sections 1 - 3**
	(d) describe the detailed procedures that would be implemented to: • keep the local community and relevant agencies informed about the operation and environmental performance of the development; • receive, handle, respond to, and record complaints; • report any environmental incidents; • resolve any disputes that may arise during the course of the development; • respond to any non-compliance; • manage cumulative impacts; and • respond to emergencies; and	**Sections 3, 4** and **6** **Section 6.1** **Section 6.1** **Section 6.1** **Section 6.1** **Section 4** **Section 6.1**
	(e) describe the role, responsibility, authority, and accountability of all the key personnel involved in environmental management of the development.	**Section 5**
Schedule 6, Condition 2	Within 14 days of the Director-General's approval, the Applicant shall: (a) send copies of the approved strategy to the relevant agencies, Council, and the CCC [Community Consultative Committee]; and (b) ensure the approved strategy is publicly available during the development.	**Section 6.3**

Table 2 CVM Statutory Approvals

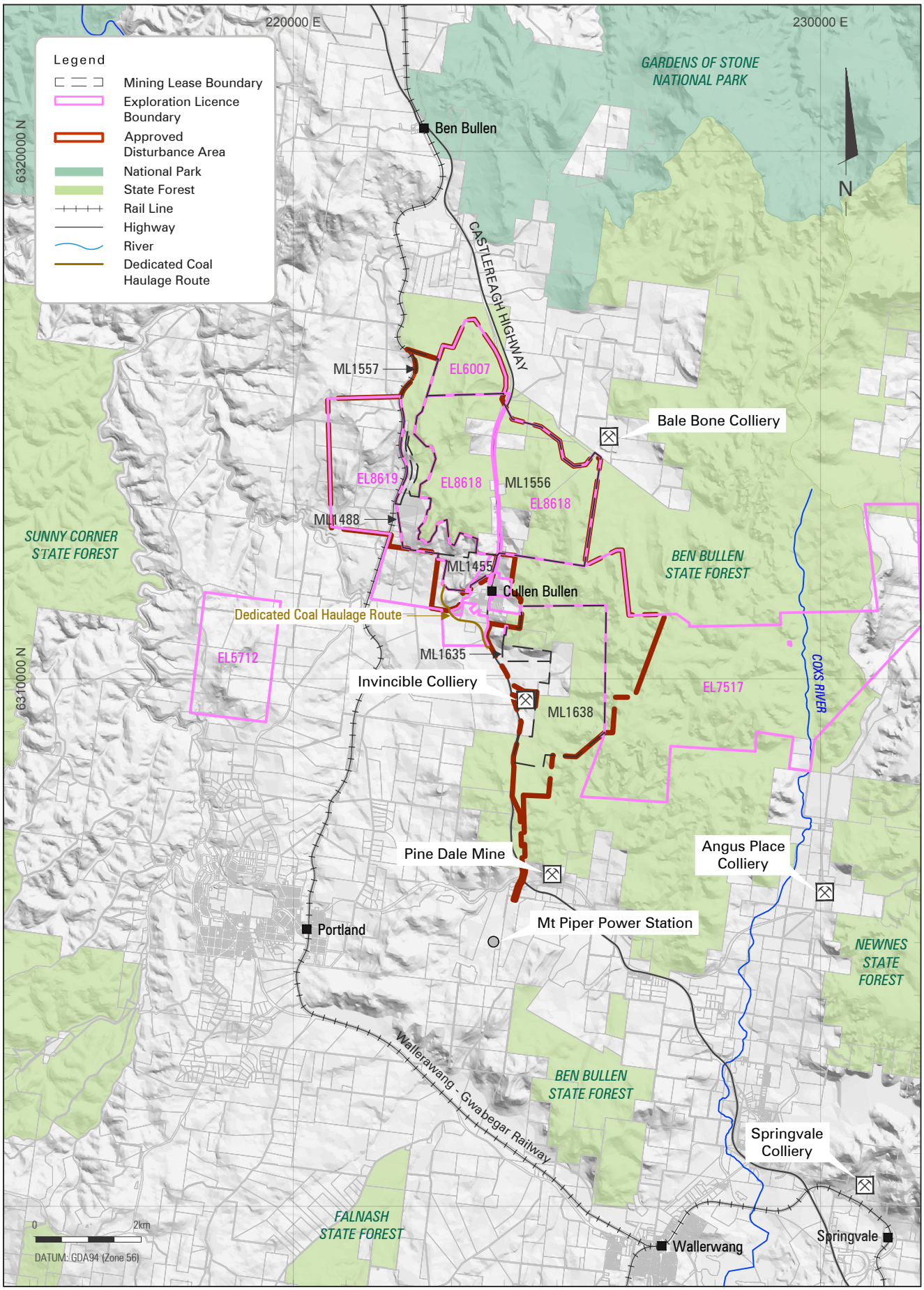
Description	Approval Authority	Expiry
Development Approval (DA-200-5-2003)	DPE	19 August 2025
Environmental Protection Licence (EPL) 10341	EPA	10th December - Renewed Annually
EL 5712	MEG	10 April 2019 (renewed - determination pending)
EL 6007	MEG	8 October 2024
EL 8618	MEG	12 July 2023

Description	Approval Authority	Expiry
EL 8619	MEG	12 July 2023
ML 1455	MEG	18 August 2020 (renewed - determination pending)
ML 1488	MEG	20 June 2022
ML 1556	MEG	19 September 2025
ML 1557	MEG	19 September 2025
Water Access Licence (WAL) 27898	Water NSW	Perpetuity
Water Supply Work Approval 80WA 706148	Water NSW	5 July 2025

1.4 Document Structure

This document is structured as follows:

- **Section 1** outlines purpose, scope and objectives of this EMS and provides relevant background information;
- **Section 2** provides an overview of this EMS and associated environmental management documents for CVM;
- **Section 3** summarises monitoring and management procedures for key environmental aspects at CVM;
- **Section 4** outlines the stakeholder engagement undertaken in preparing this EMS;
- **Section 5** provides an overview of the roles and responsibilities of CVM personnel in relation to environmental management on site;
- **Section 6** outlines the reporting requirements relevant to this EMS; and
- **Sections 7** and **8** provide a list of refence documents and abbreviations used in this document.

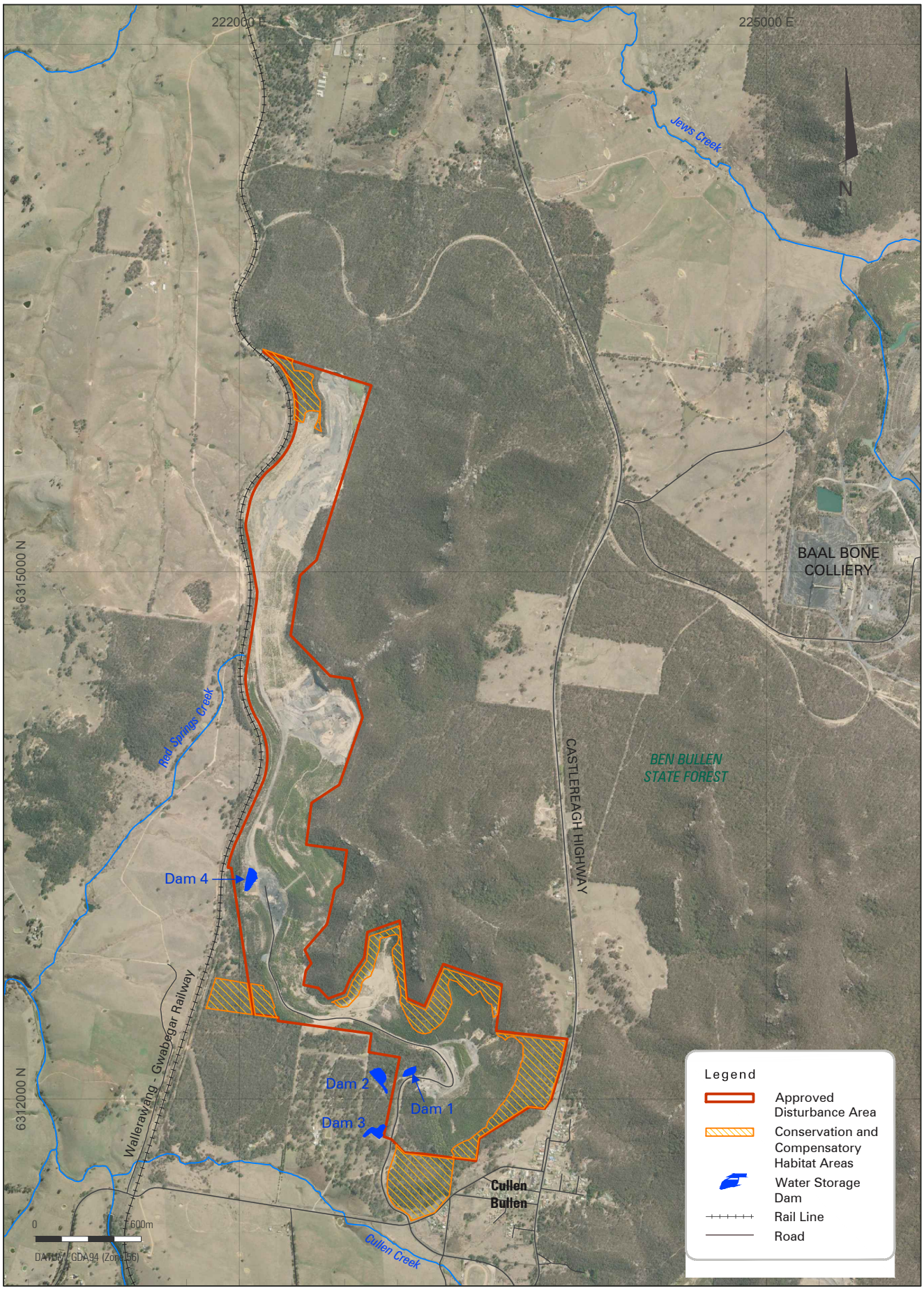


JBA 2187 CVM - F 01 REGIONAL LOCALITY (12/04/2022)

CULLEN VALLEY MINE

Regional Locality

FIGURE 1



JBA 2187 CVM - F 00 CONCEPTUAL PROJECT LAYOUT (9/02/2022)

CULLEN VALLEY MINE

Conceptual Project Layout

FIGURE 2

2. EMS OVERVIEW

This EMS provides a summary of the EMPs required under DA-200-5-2003 for CVM (refer **Table 3**).

The EMPs listed in **Table 3** have previously been prepared to describe the management of environmental aspects and impacts for CVM. These plans will be updated as required for the recommencement of mining at CVM (refer **Section 1.1**) and prepared for the endorsement of relevant regulatory agencies.

Table 3 Summary of EMPs Required for CVM

DA 200-5-2003 Schedule 4 Condition	Requirements	Where Addressed
14	Prepare and implement a Blast Management Plan for the development. The Plan must: • Describe what measures would be implemented to minimise the potential blasting impacts on the Wallerawang-Gwabegar Railway Line, Red Springs Rd, and Hillcroft and Forest Lodge properties. • Monitor the performance of these measures • Describe procedures to address any blasting related impacts.	Separate EMP titled 'Blast Management Plan' to be prepared and approved by regulatory agencies prior to any blasting on site.
30	Prepare and implement a Flora and Fauna Management Plan for the development. This Plan must include: • Compensatory Habitat Plan • Vegetation Clearance Protocol • Weed Management Strategy • Ecological Monitoring Program • Description of who would be responsible for monitoring, reviewing and implementing the plan	Separate EMP titled 'Flora and Fauna Management Plan'.
31	The Compensatory Habitat Plan shall: • Describe the immediate and long-term compensatory habitat proposal, and demonstrate how this proposal would be integrated with the proposed rehabilitation of the site and surrounding areas of remnant vegetation. • Identify strategies to protect areas excluded from open cut mining from disturbance during mining operations • Identify options for the permanent protection of areas of compensatory habitat • Provide baseline data on the existing flora and fauna in the proposed compensatory habitat areas • Describe how the compensatory habitat proposal would be implemented • Set completion criteria for the compensatory habitat proposal	Contained in separate EMP titled 'Flora and Fauna Management Plan'.
32	The vegetation Clearance Protocol should include: • Plans showing the vegetation communities in the area, highlighting important fauna habitat areas and threatened species locations, the areas to be cleared, and the proposed clearing program.	Contained in separate EMP titled 'Flora and Fauna Management Plan'.

DA 200-5-2003 Schedule 4 Condition	Requirements	Where Addressed
	• Procedures for progressive vegetation clearing and soil management • Strategies for minimising vegetation clearance within the development area and protection of vegetated areas outside that area. • Identification of fauna management strategies e. Collection of seed from the local area • Salvage and reuse of material from the site • A habitat tree management program, including fauna recovery procedures • Potential for relocation of hollow bearing trees, compensatory management measures • Where possible, strategies for re-using individuals or populations of any threatened plant species that would otherwise be destroyed by the development in rehabilitation works	
33	The Weed Management Strategy shall include: • Weed identification • Weed eradication methods and protocols for the use of herbicides • Methods to treat and re-use weed infested topsoil.	Contained in separate EMP titled 'Flora and Fauna Management Plan' and separate Weed Identification Kit.
34	The Ecological Monitoring Program shall include: • A program to monitor revegetation of disturbance areas including: - visual monitoring to determine the need for maintenance and/or contingency measures - monitoring of the quality of rehabilitation using a systems based approach • A program to monitor the effectiveness of rehabilitation	Contained in separate EMP titled 'Environmental Monitoring Program'.
38	Before carrying out any underground mining operations that will potentially lead to subsidence of the land surface, prepare a Subsidence Management Plan.	N/A. No underground mining has occurred under DA 200-5-2003.
43	Prepare and implement a Site Water Management Plan for the development, and must include: • The predicted site water usage • A Surface Water Monitoring Program • An Erosion and Sediment Control Plan.	Contained in separate EMP titled 'Site Water Management Plan'.
44	The Surface Water Monitoring Program shall include: • Detailed baseline data on surface water flows and quality • Surface water impact assessment criteria • A program to monitor surface water flows and quality • A program to monitor the effectiveness of the Erosion and Sediment Control Plan.	Contained in separate EMP titled 'Environmental Monitoring Program'.
45	The Erosion and Sediment Control Plan shall:	Contained in separate EMP titled 'Erosion and Sediment Control Management Plan'.

DA 200-5-2003 Schedule 4 Condition	Requirements	Where Addressed
	• Comply with the requirements of the Department of Housing's Managing Urban Stormwater: Soils and Construction manual • Identify activities that could cause soil erosion or discharge sediment or water pollutants from the site • Describe the location, function and capacity of all erosion and sediment control structures, and nominate which, if any, of these structures would be used as water sources for the development • Describe the measures to minimise soil erosion and the potential migration of sediments to downstream waters	
3 and 52	Prepare and implement a Coal Haulage Vehicle Management Plan to: • to reduce impacts of coal haulage traffic from the development on public roads to the satisfaction of the Director General.	Contained in separate EMP titled 'Coal Haulage Vehicle Management Plan'.
57(b)	Prepare a Fire Management Plan.	Contained in separate EMP titled 'Fire Management Plan'.

3. ENVIRONMENTAL MONITORING & MANAGEMENT

3.1 Air Quality

3.1.1 Air Quality Standards

Table 4 summarises the air quality limits for privately owned land that are specified under Condition 20 of DA-200-5-2003. The air quality goals relate to the total dust burden in the air and not just the dust from the project. In other words, some consideration of background levels needs to be made when using these goals to assess impacts. Privately owned land surrounding the CVM (to which these criteria relate) is illustrated in **Figure 3**.

Table 4 Limits for Particulate Matter

Pollutant	Averaging period	Criterion
Long term impact assessment criteria for particulate matter		
Total Suspended Particulate (TSP) matter	Annual	90 µg/m³
Particulate matter < 10µm (PM10)	Annual	30 µg/m³
Short term impact assessment criterion for particulate matter		
Particulate matter < 10µm (PM10)	24 hour	50 µg/m³

In addition to health impacts, airborne dust also has the potential to cause nuisance impacts by depositing on surfaces. In order to control dust emissions from a site, criteria for dust fallout levels have been set, as specified in **Table 5**.

Estimated dust emission totals were modelled as part of the *Cullen Valley Mine Lease Extension Project Environmental Impact Statement* (IEC, 2003) (EIS). These estimates assumed some control of dust emissions is achievable through the use of water carts on all unsealed haul roads and other mitigation measures described in the following section.

Table 5 Long Term Impact Assessment Criteria for Deposited Dust

Pollutant	Averaging Period	Maximum increase in deposited dust level	Maximum total deposited dust level
Deposited Dust	Annual	2 g/m² Month	4 g/m² Month

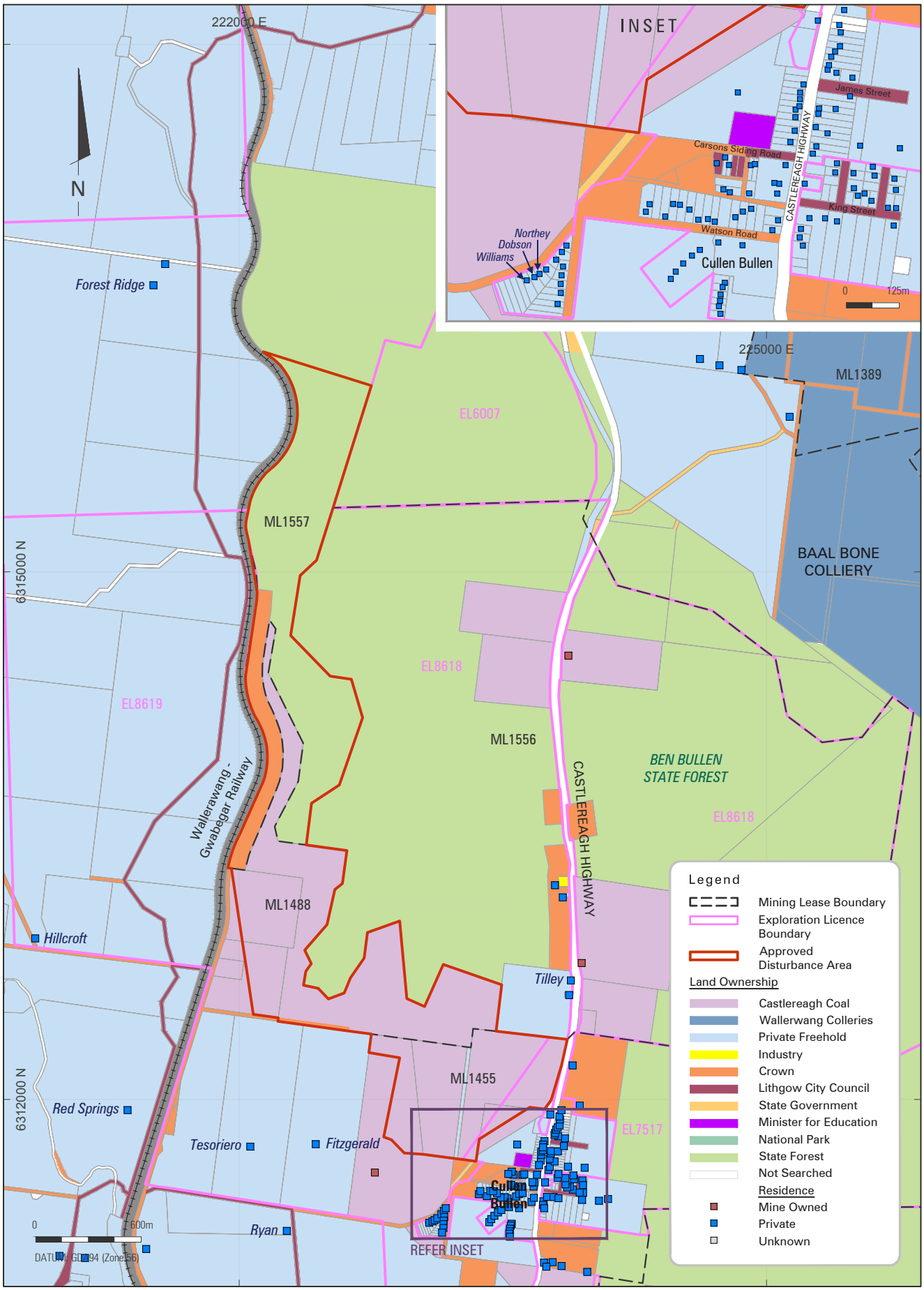
Note: Deposited dust is assessed as insoluble solids as defined by Standards Australia, 1991, AS 3580.10.1-1991: Methods for Sampling and Analysis of Ambient Air - Determination of Particulates - Deposited Matter - Gravimetric Method.

3.1.2 Monitoring and Management

Air quality monitoring and management controls to be implemented for CVM are described in the Environmental Monitoring Program and Air Quality Management Plan.

3.1.3 Land Acquisition Process

The process of land acquisition would be triggered by the mine exceeding the criteria specified by Schedule 4, Condition 24 of DA 200-5-2003, as shown in **Table 5** and **Table 6**.



JBA 2187 CVM - F 03 LAND OWNERSHIP (UPDATE) (12/04/2022)

CULLEN VALLEY MINE

Land Ownership

FIGURE 3

Table 6 Short Term Land Acquisition Criteria for Particulate Matter

Pollutant	Averaging period	Criterion	Percentile[1]	
Particulate matter < 10µm (PM10)	24 hour	150 µg/m³	99[2]	Total[3]
Particulate matter < 10µm (PM10)	24 hour	50 µg/m³	98.6	Increment[4]

1 Based on the number of block 24 hour averages in an annual period.
2 Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agreed by the Director-General in consultation with the DEC.
3 Background PM10 concentrations due to all other sources plus the incremental increase in PM10 concentrations due to the mine alone.
4 Incremental increase in PM10 concentrations due to the mine alone.

3.2 NOISE

3.2.1 Noise Level Descriptors

The loudness of fluctuating environmental noise is usually described by reference to the percentile noise level or the noise exceedance level.

The most common percentile levels are the statistical values designated as LAN. These are usually determined by statistical sound level measurement equipment. The parameters generally regarded as being the most significant amongst these are:

- "LA90", the A-weighted sound level exceeded for 90% of the sample period and which is commonly termed the "average minimum noise level" or background level.
- "LAeq", is the energy equivalent sound level, or the average energy level for the sample period.

3.2.2 Noise Assessment Goals

Relevant noise assessment goals in NSW are described under the EPA *Noise Policy for Industry* (2017) (NPI). The NPI assessment procedure for industrial noise sources has two (2) components:

- Controlling intrusive noise; and
- Maintaining noise level amenity.

The intrusiveness of a noise source is considered to be acceptable if the LAeq, 15 minute noise level does not exceed the RBL by more than 5dB(A). In order to determine the amenity noise goal, the ambient LAeq noise levels should not normally exceed the acceptable noise levels. Where existing LAeq noise levels approach or exceed acceptable noise levels, design goals are set below the existing LAeq in order to limit any further increase or "creep" in the ambient levels.

It is noted in the EPA NPI, that the criteria presented above are best regarded as planning tools. Noise emission limits for CVM operations on privately owned land as provided within DA 200-5-2003 and are listed in **Table 7**. Privately owned land surrounding the CVM (to which these criteria relate) is illustrated in **Figure 3**.

Table 7 Noise Limit Conditions

Day	Evening	Night	Night	Land descriptor
LAeq(15 minutes)			LA1(1 minute)	
43	38	35	45	• Ryan • Tesoriero • Fitzgerald • Tilley • Red Springs (during mining to the west of the railway line) • Hillcroft (during mining to the west of the railway line) • Dobson • Williams • Northey
40	40	38	45	Forest lodge
37	35	35	45	Red Springs (during mining to the east of the railway)
35	35	35	45	Hillcroft (during mining east of the railway) and all other land (including vacant land)

However, additional conditions apply, whereby if the noise limits specified in **Table 7** are exceeded, land acquisition consistent with the conditions of consent must proceed (refer **Table 8**).

Table 8 Noise Limits Triggering Land Acquisition

Day	Evening	Night	Land descriptor
LAeq(15 minutes)			
43	40	40	• Ryan • Tesoriero • Fitzgerald • Tilley • Red Springs (during mining to the west of the railway line) • Hillcroft (during mining to the west of the railway line) • Dobson • Williams • Northey
42	40	40	Red Springs (during mining to the east of the railway)
40	40	40	Hillcroft (during mining east of the railway) and all other land (including vacant land)

3.2.3 Ambient Background Noise

During the EIS process, recordings were made of the existing background noise levels at four of the most affected locations, and are provided in **Table 9**.

Table 9 Measured RBL and LAeq Noise Levels

Date	Assessment Background Level			Equivalent Continuous Level		
	Day	Evening	Night	Day	Evening	Night
Location 1: 'Red Springs'						
Wed 1/5/02	-	29	28	-	40	41
Thu 2/5/02	33	29	29	47	38	40
Fri 3/5/02	34	30	29	45	34	34
Sat 4/5/02	34	28	29	48	36	33
Sun 5/5/02	29	28	29	44	33	37
Mon 6/5/02	29	28	29	48	41	47
Tue 7/5/02	37	29	30	51	46	45
Wed 8/5/02	32	29	29	49	48	41
Thu 9/5/02	31	27	28	50	46	37
RBL	32	29	29			
Ambient LAeq				**48**	**43**	**42**
Location 2: 'Hillcroft'						
Wed 1/5/02	29	28	28	-	51	52
Thu 2/5/02	29	28	28	54	48	47
Fri 3/5/02	28	28	28	49	31	32
Sat 4/5/02	28	27	28	55	32	34
Sun 5/5/02	28	27	28	55	29	33
Mon 6/5/02	28	28	28	57	52	55
Tue 7/5/02	30	28	28	56	52	52
Wed 8/5/02	27	29	28	58	56	50
Thu 9/5/02	31	27	27	65	54	45
RBL	29	28	28			
Ambient LAeq				**55**	**51**	**50**
Location 3: 'Forest Lodge'						
Wed 1/5/02	-	28	27	-	41	41
Thu 2/5/02	27	28	29	44	39	44
Fri 3/5/02	28	29	28	47	33	35
Sat 4/5/02	27	28	28	42	38	34
Sun 5/5/02	27	28	29	41	31	32
Mon 6/5/02	27	28	29	47	35	43
Tue 7/5/02	29	29	30	56	43	44
Wed 8/5/02	29	26	26	63	43	37
Thu 9/5/02	29	26	26	53	32	32

Date	Assessment Background Level			Equivalent Continuous Level		
	Day	Evening	Night	Day	Evening	Night
RBL	27	28	29			
Ambient LAeq				50	39	41
Location 4: 25 acre allotments to the north						
Wed 1/5/02	-	25	24	-	45	44
Thu 2/5/02	24	25	25	37	47	41
Fri 3/5/02	25	26	25	43	34	30
Sat 4/5/02	24	24	25	34	31	29
Sun 5/5/02	24	25	25	41	30	30
Mon 6/5/02	24	25	26	49	30	48
Tue 7/5/02	26	26	27	49	34	48
Wed 8/5/02	23	25	26	38	37	42
Thu 9/5/02	25	24	24	52	50	50
RBL	24	25	25			
Ambient LAeq				**45**	**44**	**44**

3.2.4 Predicted Noise Emissions

Noise emissions from mining activities were modelled and assessed in terms of continuous operational noise from fixed and mobile plant including haul trucks. The plant schedule and sound power levels summarised in **Table 10** were adopted in the EIS for the purpose of predicting noise from the site. The sound power levels were established from site attended audit measurements and manufacturers data.

Table 10 Mine Plant Sound Power Levels

Plant Description	Sound Power Level, dB(A)								
	dB(A)	63	125	250	500	1k	2k	4k	8k
Normal Mining operations									
Dozer (CATD11R)	117	108	108	108	113	111	112	104	94
Dozer (CATD9N)*	115	106	106	106	111	109	110	102	92
Water Cart/Grader	106	116	108	101	101	101	101	94	84
Drill Rig	110	107	120	104	107	104	103	96	88
Front End Loader x2 (CAT988C)	114	108	118	106	111	109	108	102	97
Excavator (Liebherr 994)	108	111	113	107	104	103	99	94	87
Haul Truck x 2 (CAT785B)	112	114	116	110	110	107	102	96	87
Haul Truck x 2 (CAT777C)*	113	115	117	111	111	108	103	97	88
Haul Truck x 2 (CAT769C)	111	113	108	102	105	106	106	99	95
Excavator (Komatsu	115	113	113	110	110	112	109	98	92

PC1000)									
Excavator (CAT375)	116	114	114	111	111	113	110	99	93
Excavator (CAT245)*	114	112	112	109	109	111	108	97	91
Crusher and associated conveyors	118	114	114	112	114	111	110	110	107

Plant and equipment with an asterisk (*) beside them were at IDLE in the EIS modelling scenario, resulting in a 12 dB(A) reduction of the Sound Power Level.

The noise predictions made in the EIS show that the noise limits are satisfied at 'Red Springs' (R1) for initial and normal mining operations during calm and adverse wind conditions. Noise exceedances of 2-4dB(A) are predicted during temperature inversion conditions.

The noise predictions show that the 35dB(A) noise limit is satisfied at 'Hillcroft' (R2) during calm and adverse wind conditions. Noise exceedances of 4-7dB(A) are predicted during temperature inversion conditions.

At 'Forest Lodge' the noise modelling results identify compliance with the 35dB(A) goal for Stage 1 and 2 during calm, adverse wind and temperature inversion conditions. In Stage 3, exceedances are predicted for the day, evening and night-time goal of 35dB(A) by 1dB(A) – calm; 5dB(A) – south wind; and 5dB(A) – temperature inversion.

For the 25 acre allotments (R4) to the north, the initial noise modelling results showed compliance with the day, evening and night-time (35dB(A)) limit for Stages 1 and 2 with some potential exceedances during original limit of mining. This limit was subsequently modified to a point where no noise exceedances are likely.

The results of the noise predictions for intermittent noise during night-time hours has shown that the recommended goal of La1, 1min 45 dB(A) is achieved at the reference assessment locations.

3.2.5 Monitoring and Management

Noise monitoring and management controls to be implemented for CVM are described in the Environmental Monitoring Program and Noise Management Plan.

3.3 Blasting

The use of blasting to support open cut operations for the removal of rock overburden material to allow access to the underlying coal resources was assessed in the *Cullen Valley Mine Lease Extension Project* (IEC, 2003) (EIS), with impacts predicted for blast vibration and overpressure impacts.

Castlereagh Coal will develop a Blast Management Plan prior to any blasting on site, to the approval of relevant regulatory agencies. This plan will describe a monitoring network (assessing blast vibration and overpressure levels at locations representative of the closest residential receivers and heritage site C-S-1) and blast management and mitigation strategies for the site.

3.4 Water

3.4.1 Water Demand

The water demand for the open cut mining operations will occur in two main areas:

- Process water is required for the surface facilities including makeup water for dust suppression on haul roads and coal handling equipment; and
- Potable water is required in the workshop kitchen and crib hut.

The total water demand will be approximately:

- Process water 10 ML/annum; and
- Potable water 0.5 ML/annum.

The main process water usage is for dust suppression. For the significantly reduced day shift only production schedule (to be conducted over a 9-month period), the use of process water will not exceed a 10 ML annual average. Additional non-potable water is also retained for firefighting purposes, which must be available at all times.

Water Supply System

The primary source of water for CVM is from the old mine underground workings. The water is pumped from the workings to two 150,000 L tanks. Distribution around the site is by gravity fed water mains. A secondary source of process water comes from the mine's pollution control dams. These dams control runoff from the active mining area and areas that have been rehabilitated. Additional pollution control dams will be progressively built as the mine develops to the north.

One feature of the existing water pollution control dam system is the interconnection of all the dams via overland water distribution pipelines that allow water to be moved from dam to dam. The lowest dam in the system, located near the mine office, is fitted with a pump, which allows the water to be returned to the mine header tanks. This system allows all water to be recycled on site.

It is proposed to extend the existing system as the mine develops. The additional pollution control ponds required for the open cut mine will be joined by either pipeline or channels to allow transfer of water.

The potable water supply will be sourced from an external provider and trucked to site.

3.4.2 Drainage and Water Pollution Controls

The existing Site Water Management Plan will be revised to reflect the recommencement of operations. The fundamental principles of the water management system will remain in place, being is the separation of clean and dirty water systems and the provision of sufficient pollution control facilities to treat contained dirty water for reuse, or to a standard acceptable for discharge off site. Velocity control structures, hay bales and sediment fences will be used to enhance the performance of permanent structures.

Water reuse is an important feature of the Site Water Management Plan and any water contained within future pollution control structures would be preferentially used within the process water system. Dirty water from all disturbed areas passes through at least one primary settling pond prior to discharging into the main water storage dam.

Sewage Treatment

Two sewage treatment systems have been installed at the CVM which are approved by the Lithgow City Council (LCC). Effluent from the sewage treatment systems is removed on a regular basis (monthly) by a locally based licenced contractor and disposed of at the LCC waste treatment facility.

3.4.3 Surface Water Impact Monitoring

The main aim of the Site Water Management Plan is to prevent negative impacts on downstream aquatic systems. In order to achieve this, all water discharged from site will meet the criteria specified in **Table 11**, as specified by DA 200-5-2003.

Table 11 Surface Water Discharge Limits

Pollutant	Units of Measure	100% Concentration Limit
Total suspend solids	mg/L	50
Oil and grease	mg/L	10
pH	pH units	6.5-8.5

Adherence to these discharge limits will be verified through the monitoring program described in the CVM Environmental Monitoring Program and Site Water Management Plan.

3.5 Erosion & Sediment Control

3.5.1 Soils

Soils in the open cut mine have been developed on the Illawarra Coal Measures and are naturally low in fertility, slightly acidic and moderately erosive. Soil resources are described below:

- Structured loams and Gleyed Podzolic Soils. Confined to narrow open drainage depressions with slope gradients > 5%. These soils occur on the open valleys and may be stripped to an average depth of 15 cm.
- Yellow Podzolic Soils. Located on convex crests and adjacent side slopes with gradients < 10%. Only small sections of this soil type occur, usually on steeper sections above and around the valleys. These soils may be stripped to an average depth of 10 cm.
- Skeletal Sandy Soils. Located on the undisturbed main ridge and steep side slopes. This area will not yield high volumes of soil, but where available will be stripped to a depth of 10 cm.

The remaining soils are generally shallow and stony and not conducive for rehabilitation purposes. Heavy clay subsoils will be used as required to line dams and any additional tank bunding but will otherwise be buried within the rehabilitated landform. Lighter clay subsoils are generally used to dress finished landforms prior to topsoiling. There are no acid sulphate soils on site.

3.5.2 Soil and Erosion Management

The primary objective of the erosion and sediment control system is to safeguard against soil loss and in turn, minimise the risk of potential water quality impacts. Surface runoff occurs during heavy rainfall events and particular attention will be paid to site drainage and erosion control.

Soil and erosion and sediment control management at CVM is described in the Erosion and Sediment Control Management Plan.

3.6 Coal Haulage

Management and mitigation requirements for the haulage of product coal from CVM by road are described in the CVHMP.

4. STAKEHOLDER ENGAGEMENT

4.1 EMS Consultation

Records of consultation with CVM stakeholders during the preparation of this EMS are provided in **Appendix A**.

Copies of this document and associated EMPs will be provided to CVM stakeholders upon request and published on the Castlereagh Coal website. Consultation with the community and regulators is ongoing and the EMS will be updated to reflect relevant changes to CVM operations as required (refer **Section 6**).

Castlereagh Coal will also manage CVM operations to ensure that the potential for cumulative noise, air and blasting impacts with activities at Baal Bone Colliery and Invincible Colliery are minimised. Both Baal Bone Colliery and Invincible Colliery in care and maintenance.

5. ROLES & RESPONSIBILITIES

Table 12 outlines the key roles and responsibilities for CVM personnel in relation to this EMS.

Table 12 EMS Roles and Responsibilities

Ref	Control Measure	Responsibility	Timing
1.	• Review and approve this EMS and provide adequate resources for its implementation on site.	Operations Manager	Ongoing
2.	• Complete regular reviews of site operations to confirm mining activities are generally undertaken in accordance with this EMS and associated EMPs. • Assist the Environment Officer with investigations into environmental incidents, non-compliances, and complaints.	Mining Supervisor	Ongoing As required
3.	• Manage the implementation of this EMS during CVM operations. • Respond to environmental complaints and maintain CVM Complaints Register. • Investigate environmental incidents and non-compliances against this EMS and prepare associated reporting. • Facilitate regular training of CVM personnel in the requirements of this EMS. • Complete review of this EMS to ensure consistency with current CVM operations and industry standards and procedures.	Environment Officer	Ongoing Ongoing As required Annual Five Yearly
4.	• Comply with the requirements of this EMS.	All CVM personnel	Ongoing

6. REVIEW & REPORTING

6.1 REPORTING

6.1.1 Annual Reporting

In accordance with Schedule 6, Condition 5 of DA-200-5-2003, Castlereagh Coal will prepare an Annual Review of the environmental performance of the CVM each calendar year. The Annual Review will be prepared following the guidance provided within the DPE's *Annual Review Guideline* (DPE, 2015). The Annual Review will specifically address the following aspects of DA-200-5-2003, which are directly relevant to the EMS:

- Identify the standards and performance measures that apply to the development;
- Include a detailed summary of the complaints received during the past year, and compare this to the complaints received in the previous 5 years;
- A detailed summary and analysis of the monitoring results against the relevant impact assessment criteria, monitoring results from previous years, and predictions made in the EIS;
- Identification of any trends in the monitoring data over the life of the development;
- Identification of any non-compliances during the reporting period; and
- A description of management actions were or are being taken to ensure compliance with relevant planning criteria.

A copy of each CVM Annual Review is provided to DPE, Department of Regional NSW – Resources Regulator (RR), EPA, LCC and the representatives of the mine Community Consultative Committee (CCC). Each CVM Annual Review is also made publicly available on the Castlereagh Coal website.

6.1.2 Stakeholder Reporting

In accordance with Schedule 6, Condition 8 of DA 200-5-2003 CVM has established a CCC to oversee the environmental performance of the mine. While in operation, the CCC will meet at least twice a year and will review and provide advice on environmental performance including this document, monitoring results, audit reports or complaints.

6.1.3 Community Complaints

All community complaints received by CVM are recorded in the Castlereagh Coal Complaints Register. Upon receiving a complaint, Castlereagh Coal will:

- Confirm the receipt of the complaint with the complainant in a timely and professional manner and identify the exact concerns of the individual or organisation;
- Formulate actions that will best address (within reason) the concerns that were raised;
- Consult with the complainant about the issues raised and the actions created to address them; and
- Continue to inform complainant on the status of actions either until they are completed or the individual or organisation requests ceasing communication on the topic.

The register is regularly maintained and published on the Castlereagh Coal website to document all complaints received and follow-up actions taken by CVM personnel in response.

6.1.4 Incidents and Non-Compliances

Schedule 5, Condition 1 of DA 200-5-2003 requires CVM to report exceedances of DA 200-5-2003 impact criteria listed to the DPE and relevant landholders and provide quarterly monitoring results to these parties until further results show compliance with the relevant criteria.

Any reporting of exceedances to the relevant impact criteria will outline the following:

- The date, time, and nature of the exceedance/incident; and
- The cause (or likely cause) of the exceedance/incident;
- Reference to the development consent condition which is considered to be non-compliant and the reasons for it;
- What action has been taken to date; and
- Describe the proposed measures to address the exceedance/incident and the proposed timeframe for completion.

Any incident will be reported to DPE and other relevant regulatory authorities immediately after becoming aware of the incident. Any non-compliance must be notified to DPE by the operator within seven days of becoming aware of the non-compliance. These notifications for incidents or non-compliances will be submitted in writing via the DPE's Major Projects Website and identify the development (including the development application number and name) and set out the location and nature of the incident, as outlined above.

This condition of DA 200-5-2003 also provides the procedures to be followed in responding to landholder requests for independent monitoring of noise and air quality impacts or during any land acquisition process that may be required or requested by community landholders. These incidents and outcomes will be reported on in the Annual Review.

In the event that a landowner considers that CVM is exceeding the air quality criteria at his or her property, the landowner may request an independent review of the air quality or noise impacts at the property. The independent review will be conducted in accordance with the procedure described in Schedule 5, Condition 2 of DA 200-5-2003.

6.1.5 Emergency Response

Castlereagh Coal has implemented an Emergency Management Plan (CC-SMS-EMP-01) covering the management of emergency situations at CVM. Knowledge of emergency management procedures associated with this plan are covered in site inductions and the Emergency Management Plan is reviewed at regular intervals and/or following an emergency event.

A Pollution Incident Response Management Plan (PIRMP) has been prepared and implemented at CVM in accordance with the *Protection of the Environment Operations Act 1997* (POEO Act) and the *Protection of the Environment Operations (General) Regulation 2021* (POEO (G) Regulation). This PIRMP will be tested and revised on an annual basis to ensure that the information included in the plan is accurate and up to date, and that the plan is capable of being implemented in a workable and effective manner. The plan will also be tested within one month of any pollution incident.

6.2 AUDITING

In accordance with Schedule 5, Condition 6 of DA 200-5-2003, Castlereagh Coal is required to commission an Independent Environmental Audit within 2 years of the date of consent, and every five years thereafter, for submission to DPE, unless otherwise approved. This audit report is required to consider the effectiveness of the AQMP and will provide environmental management advice to ensure its ongoing effectiveness.

6.3 REVIEW

This EMS will be reviewed on at least a five yearly basis to ensure that it remains consistent with operations at CVM and in accordance with general industry standards and procedures. Reviews will consider the need to modify the associated management measures in place at CVM. The EMS will also be reviewed (and if necessary, updated) in response to:

- Relevant findings from Independent Environmental Audits;
- Findings from investigations of community complaints or monitoring non-compliances relating to air quality impacts; and
- Directions from regulatory agencies.

Approval of any major amendments to this EMS will be sought from the Secretary of DPE and other stakeholders, as required under DA 200-5-2003.

Revised versions of this document will be published on the Castlereagh Coal website and provided to the parties required under DA 200-5-2003 within two weeks of approval by DPE.

6.4 DISPUTE RESOLUTION

In the event of a disagreement between Castlereagh Coal and a member of the local community over environmental impacts from the site outside of the general complaint response process (refer **Section 6.1.3**), the CVM Environment Officer will co-ordinate the initial consultation and endeavour to resolve the issues raised.

In relation to any dispute over the acquisition of a property or property damage resulting from CVM operations, the matter will be referred to the Secretary of the DPE for resolution, in accordance with the process outlined in DA 200-5-2003.

7. REFERENCES

Castlereagh Coal (2022) *Cullen Valley Mine Environmental Management Strategy*.

Castlereagh Coal (2022) *Cullen Valley Mine Environmental Monitoring Program*.

Department of Planning and Environment (2015) *Annual Review Guideline, Post-approval requirements for State significant mining developments.*

International Environmental Consultants (2003) *Cullen Valley Mine Lease Extension Project Environmental Impact Statement*

8. ABBREVIATIONS

Abbreviation	Meaning
CCC	Community Consultative Committee
CHVMP	Coal Haulage Vehicle Management Plan
CVM	Cullen Valley Mine
dB(A)	A-weighted decibels
DPE	Department of Planning and Environment
RR	Department of Regional NSW – Resources Regulator
EIS	Environmental Impact Statement
EMP	Environmental Monitoring Program
EMS	Environmental Management Strategy
EPL	Environmental Protection Licence
GVM	Gross Vehicle Mass
L10	Leq sound levels exceeding 10%
LA90	A-weight Leq sound levels exceeding 90%
LAeq	A-weight Leq sound levels
LCC	Lithgow City Council
MEG	Mining, Exploration and Geoscience
ML/annum	Mega Litres per annum
MOP	Mining Operations Plan
NPI	Noise Policy for Industry
OCE	Open Cut Examiner
PM10	Particulate Matter with a diameter of 10 micrometres
RBL	Rating Background Levels
TSP	Total Suspended Particulates
TSS	Total Suspended Solids

APPENDIX A

STAKEHOLDER ENGAGEMENT

Management Plan Review
Cullen Valley Mine (DA-200-5-2003)
Environmental Management Strategy - 2022

Condition 1 of Schedule 6 Environmental Management Strategy	Satisfactory (Yes/No)	DPE Comments	Action Required	Proponent Response
Within 6 months of the date of this consent, the Applicant shall prepare (and then implement) an Environmental Management Strategy for the development to the satisfaction of the Director-General. This strategy must:				
(a) Provide the strategic context for environmental management of the development	**Yes**	Strategic context is adequately described in Section 1	Nil	
(b) Identify the statutory requirements that apply to the development	**Partial**	Statutory requirements are identified in Table 1 and 2, although the approval authority for exploration licenses and mining leases is incorrectly identified as DPIE. Also, the table does not include any water licensing details.	Update Table 2 to reference the correct approval authority for authorisations issued under the *Mining Act 1992* (i.e., Mining Exploration and Geoscience). Also include details of any relevant licenses under the *Water Act 1912* or *Water Management Act 2000*.	Table 2 of EMS has been updated to update approval authority for mining authorities under the *Mining Act 1992*. Current water licensing details have been included in Table 2. Will provide an update to DPE regarding any water license changes in the future.
(c) Describe in general how the environmental performance of the development would be monitored and managed during the development	**Yes**	Environmental monitoring and management is set out in Section 3	Nil	
(d) Describe the detailed procedures that would be implemented to:	**-**	-	-	
• Keep the local community and relevant agencies informed about the operation and environmental performance of the development;	**Partial**	Stakeholder engagement procedures are set out in Section 4 and Section 6.1. Section 6.1.1 incorrectly refers to the AQMP. Section 6.1.1 should describe all Annual Review reporting requirements, consistent with condition 5 of Schedule 6. It is also recommended that the EMS makes reference to preparing the Annual Review in accordance with the Department's Annual Review Guideline.	Update Section 6.1.1 to describe all Annual Review (formerly AEMR) reporting requirements consistent with condition 5 of Schedule 6. It is also recommended to include a commitment to prepare the Annual Review in accordance with the Department's Annual Review Guideline.	Section 6.1.1 of the EMS has been updated to reflect the reporting requirements in Schedule 6, condition 5 of DA 200-5-2003. Reference has been made to the Department's Annual Review Guideline in Section 6.1.1.

• Receive, handle, respond to, and record complaints;	**Partial**	Community complaints management is described in 6.1.3. The procedure described is limited to recording complaints in a complaint register and publishing it on the website. It is recommended the procedure is updated to describe the process for handling and responding to complaints, consistent with the requirements of the condition.	It is recommended the procedure is updated to describe the process for handling and responding to complaints, consistent with the requirements of the condition.	Section 6.1.3 has been updated to reflect the requirements of Schedule 6, condition 1 with a complaints procedure now outlined.
• Report any environmental incidents;	**Partial**	The process for reporting any environmental incidents is set out in Section 6.1.4. The process does not include a description of the incident and non-compliance notification timeframes or reporting mechanisms.	Update the incident and non-compliance reporting process consistent with current DPE requirements. E.g: ***Incident Notification*** *The Applicant must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must be in writing via the Department's Major Projects Website and identify the development (including the development application number and name) and set out the location and nature of the incident.* ***Non-Compliance Notification*** *Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the noncompliance. The notification must be in writing via the Department's Major Projects Website and identify the development (including the development application number and name), set out the condition of this consent that the development is non-compliant with, why it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.* *Note: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance*	Section 6.1.4 has been updated to reflect the requirements of DA 200-5-2003. Note, the timing provided in DPE comments is not required under DA 200-5-2003, however it has been accepted as a best practice measure.

• Resolve any disputes that may arise during the course of the development;	**Yes**	The dispute resolution process is set out in Section 6.4.	Nil	
• Respond to any non-compliance;	**Partial**	See comments above regarding the process for reporting environmental incidents.	See comments above regarding the process for reporting environmental incidents.	Addressed as per response above.
• Manage cumulative impacts;	**Yes**	Cumulative impact management is mentioned in Section 4.1. The Department notes that Invincible Colliery and Baal Bone Colliery are in care and maintenance.	Nil	
• Respond to emergencies; and	**Yes**	The emergency response process is set out in Section 6.1.5.	Nil	
(e) Describe the role, responsibility, authority and accountability of all the key personnel involved in environmental management of the development.	**Yes**	Roles and responsibilities are set out in Section 5.	Nil	
Other Comments				
Update the document to include the most up-to-date references to agency names. E.g. the Department of Planning Industry and Environment is now the Department of Planning and Environment. Update Appendix A to include copies of agency advice, once received.				Agency names updated and Appendix A includes this correspondence. No other agency advice required for EMS.