

WILPINJONG COAL MINE  
REHABILITATION MANAGEMENT PLAN



PREPARED BY  
WILPINJONG COAL PTY LIMITED

December 2022

Summary Table	
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1	December 2022	WCPL	DPE	RMP revised to align with Rehabilitation Strategy approved on 6/12/2022 in accordance with Con 61, Sch 3 of SSD-6764.

**Table of Contents**

**1.0 Part 1 – Introduction to Mining Project ..... 1**

1.1 History of Operations ..... 1

1.2 Current Development Consents, Leases and Licences ..... 2

1.3 Land Ownership and Land Use ..... 3

**2.0 Part 2 – Final Land Use ..... 9**

2.1 Regulatory Requirements for Rehabilitation ..... 9

2.2 Final Land Use Options Assessment ..... 9

2.3 Final Land Use Statement ..... 9

2.4 Final Land Use & Mining Domains ..... 9

2.4.1 Final Land Use Domains ..... 9

2.4.2 Mining Domains ..... 10

**3.0 Part 3 – Rehabilitation Risk Assessment ..... 11**

**4.0 Part 4 – Rehabilitation Objectives and Rehabilitation Completion Criteria ..... 21**

4.1 Rehabilitation Objectives and Rehabilitation Completion Criteria ..... 21

4.1.1 Rehabilitation Objectives ..... 21

4.1.2 Rehabilitation Completion Criteria ..... 22

4.2 Rehabilitation Objectives and Rehabilitation Completion Criteria – Stakeholder Consultation  
27

**5.0 Part 5 – Final Landform and Rehabilitation Plan ..... 29**

5.1 Final Landform and Rehabilitation Plan (Electronic Copy) ..... 29

**6.0 Part 6 –Rehabilitation Implementation ..... 32**

6.1 Life of Mine Rehabilitation Schedule ..... 11

6.1.1 Five Year Mine Rehabilitation Schedule ..... 12

6.1.2 Conceptual Life of Mine Rehabilitation Schedule ..... 12

6.2 Phases of Rehabilitation and General Methodologies ..... 32

6.2.1 Active Mining Phase ..... 32

6.2.2 Decommissioning ..... 41

6.2.3 Landform Establishment ..... 44

6.2.4 Growth Medium Development ..... 47

6.2.5 Ecosystem and Land Use Establishment ..... 48

6.2.6 Ecosystem and Land Use Development ..... 50

6.3 Rehabilitation Areas Affected by Subsidence ..... 51

**7.0 Part 7 – Rehabilitation Quality Assurance Process ..... 52**

**8.0 Part 8 – Rehabilitation Monitoring Program ..... 54**

8.1 Analogue Site Baseline Monitoring ..... 57

8.2 Rehabilitation Establishment Monitoring ..... 57

8.3 Measuring Performance Against Rehabilitation Objectives and Rehabilitation Completion  
Criteria ..... 57

**Rehabilitation BioMetric Performance Criteria ..... 57**



<b>Rehabilitation Biometric Completion Criteria</b> .....	57
<b>9.0 Part 9 – Rehabilitation Research, Modelling and Trials</b> .....	<b>59</b>
9.1 Current Rehabilitation Research, Modelling and Trials .....	59
9.2 Future Rehabilitation Research, Modelling and Trials .....	59
<b>10.0 Part 10 – Intervention and Adaptive Management</b> .....	<b>61</b>
<b>11.0 Part 11 – Review, Revision and Implementation</b> .....	<b>66</b>
11.1 Review and Revision .....	66
11.2 Implementation .....	67
11.3 Reporting .....	67
11.4 References .....	69

**TABLES**

Table 1 Mine Approvals, Leases and Licences .....	2
Table 2 Summary of Approved Operations .....	2
Table 3 Final Land Use Domains .....	10
Table 4 Mining Domains .....	11
Table 5 Potential Risks to Rehabilitation .....	18
Table 6 Rehabilitation Objectives as Required by Development Consent (SSD-6764) .....	21
Table 7 Rehabilitation Indicators and Completion Criteria .....	23
Table 8 Summary of Consultation with Stakeholders .....	27
Table 9 Typical BVT Seed Mix Rates .....	49
Table 10 General Cover Crop Combinations and Rates .....	49
Table 11 Key Rehabilitation Quality Assurance Actions and Process .....	52
Table 12 Rehabilitation Trigger Action Reponse Plan .....	61
Table 13 Management Plan Roles and Responsibilities .....	67
Table 14 Reporting Framework .....	68

**FIGURES**

Figure 1 Project Locality .....	4
Figure 2 Land Use Environment .....	5
Figure 3 Land Ownership .....	6
Figure 4 Vegetation and Heritage .....	7
Figure 5 Contours and Catchments .....	8
Figure 6 – Life of Mine Rehabilitation Schedule (Year 2022) .....	14
Figure 7 – Life of Mine Rehabilitation Schedule (Year 2027) .....	15
Figure 8 – Life of Mine Rehabilitation Schedule (Year 2032) .....	16
Figure 9 – Life of Mine Rehabilitation Schedule (Year 2033 Final Land Use) .....	17

## **APPENDICIES**

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**APPENDIX A: Land Ownership and Land Use**

**APPENDIX B: Regulatory Requirements for Rehabilitation**

**APPENDIX C: Stakeholder Consultation**

## 1.0 Part 1 – Introduction to Mining Project

This Rehabilitation Management Plan (RMP) has been prepared by Wilpinjong Coal Pty Limited (WCPL) in accordance with the NSW Resources Regulator (NSW RR) *Form and Way-Rehabilitation Management Plan for Large Mines* (NSW RR, July2021). This RMP has been developed to satisfy the requirements of Condition 64, Schedule 3 of Development Consent (SSD-6764). The development of a Rehabilitation Management Plan (RMP) also satisfies the requirements of Mining Leases (ML) ML1573, ML 1779 and ML1795.

The WCPL Mining Operations Plan (MOP) 2021-2022 will prevail for rehabilitation requirements until the expiry of the transitional period on 2 July 2022, at which point the MOP will be superseded by this RMP and supported by the Annual Rehabilitation Report and Forward Program (ARRFP).

The RMP has also been developed to build upon several other existing management plans (where applicable) as required by Development Consent (SSD-6764), including the Biodiversity Management Plan (BMP), Water Management Plan (WMP), including the Surface Water Management Program (SWMP) and the Groundwater Management Plan (GWMP) and Environmental Management Strategy (EMS).

### 1.1 History of Operations

The Wilpinjong Coal Mine (the Mine) is owned by WCPL, a wholly owned subsidiary of Peabody Australia Pty Ltd (Peabody). The Mine is an existing open cut coal mining operation situated approximately 40 kilometres (km) north-east of Mudgee, near the Village of Wollar, within the Mid-Western Regional Local Government Area, in central New South Wales (NSW) (**Figure 1**).

On 24 April 2017, WCPL was granted Development Consent (SSD-6764)<sup>1</sup> for the Wilpinjong Extension Project (WEP) that provides for the continued operation of the Mine at rates of up to 16 million tonnes per annum (Mtpa) of run-of-mine (ROM) out to 2033, and access to approximately 800 hectares (ha) of open cut extensions. A summary of the Mine's approved operations is provided in **Table 1**.

The Mine produces thermal coal products which are transported by rail to domestic customers for use in electricity generation and to port for export. Open cut mining, coal handling operations and associated mobile equipment movements are undertaken 24 hours per day, seven days per week. The Mine also undertakes exploration and prospecting activities across WCPL's exploration licence and mining lease areas for the purposes of geological, geotechnical and hydrogeological investigations. Open cut mining occurs within Open Cut Pits 1, 2, 3, 4, 5, 6, 7 and 8.

Mine waste rock emplacements have been progressively re-shaped behind the active mining block to construct landforms generally consistent with the pre-mining landform surface. Other Project components including areas of tailings emplacements have also been progressively rehabilitated as the area has become available. Revegetation of completed landforms has been progressively undertaken since 2008 and has included establishing both woodland and grassland vegetation communities, consistent with the Project's rehabilitation objectives and post-mining land use. As of December 2021, approximately 901ha of completed landforms<sup>2</sup> have been rehabilitated.

Prior to the WEP approval, the majority of the Mine's facilities were constructed under the now surrendered Project Approval (PA 05-0021), including the office administration complex, ROM pad, Coal Handling and Preparation Plant (CHPP) rail spur, rail loop and rail loading infrastructure, water treatment facility (WTF), workshop, tailings filter press, lime silo at the CHPP and visual bunds. Other completed development and construction activities associated with the approved WEP to support mining included extension of the Ulan-Wollar Road relocations and rail crossings, extension and

<sup>1</sup> The Mine originally operated under Project Approval (PA 05-0021) that was granted on 1 February 2006. PA05-0021 was surrendered on the 28 April 2020 as required by Condition 9, Schedule 2 of SSD-6764

<sup>2</sup> Of the historical completed landforms to date that are currently under pasture or considered not woodland, these landforms will be progressively upgraded with relevant woodland species to meet the biometric vegetation types (BVT) requirements.

relocation of local electrical transmission lines (ETLs) and 330kV ETL, extension of Pit 3 and development of Pit 8, development of satellite mine infrastructure areas and ROM pads.

## 1.2 Current Development Consents, Leases and Licences

WCPL operate under Development Consent (SSD-6764). **Table 2** provides a summary of the other approvals, leases and licences that the Mine operates under.

**Table 1 Mine Approvals, Leases and Licences**

Approval	Name of Approval	Approval Date	Expiry Date
SSD-6764	Project Approval	24 April 2017	24 April 2033
ML1573	Mining Lease (ML)	08 February 2006	08 February 2027
ML1779	Mining Lease (ML)	20 December 2018	20 December 2039
ML1795	Mining Lease (ML)	27 September 2019	27 September 2040
EL6169	Exploration Licence (EL)	22 December 2003	28 November 2022 <sup>^</sup>
EL7091	Exploration Licence (EL)	03 March 2008	03 March 2024
EL9399	Exploration Licence (EL)	03 May 2022	03 May 2028
Notification Areas A & B	Dam Safety	Approved 24 January 2014	N/A
EPL 12425	Environmental Protection Licence (EPL)	02 March 2021	N/A
Radiation Licence	Licence No. 5061384		02 January 2023
Explosives Licence	Licence No. XSTR200024		24 March 2023
Water Licences	Various (Refer to Water Licence Summary in Groundwater Management Plan)		
EPBC	EPBC Act Approval	08 August 2017	31 December 2033

**Note:** Copies of the Development Consent (SSD-6764), EPL 12425, ML 1573, ML1779 and ML1795 are available on the Peabody Energy website (<http://www.peabodyenergy.com>) <sup>^</sup> Renewal for EL6169 submitted and pending approval.

**Table 2 Summary of Approved Operations**

Component	Approved Wilpinjong Coal Mine
<b>Mining Method</b>	<ul style="list-style-type: none"> <li>Open cut mining operation extracting ROM coal.</li> </ul>
<b>Open Cut Extent</b>	<ul style="list-style-type: none"> <li>Eight contiguous open cut pits and associated contained infrastructure area comprising approximately 2,790 hectares.</li> </ul>
<b>ROM Coal Production Rate</b>	<ul style="list-style-type: none"> <li>Up to 16 Mtpa of ROM coal.</li> </ul>
<b>Waste Rock Management</b>	<ul style="list-style-type: none"> <li>Waste rock deposited predominantly within mined-out voids.</li> <li>Elevated waste emplacement area (Pit 2).</li> </ul>
<b>Annual Waste Rock Production</b>	<ul style="list-style-type: none"> <li>Annual waste rock production of approximately 43 million bank cubic metres.</li> </ul>
<b>Coal Washing</b>	<ul style="list-style-type: none"> <li>Beneficiation of ROM coal in the CHPP.</li> <li>Facilities for the handling and stockpiling of both washed and unwashed (bypass) coal.</li> </ul>
<b>Product Coal</b>	<ul style="list-style-type: none"> <li>Approximately 13 Mtpa of thermal product coal for domestic electricity generation and export, capped at maximum rail limits.</li> </ul>
<b>Coal Rejects (tailings and coarse rejects)</b>	<ul style="list-style-type: none"> <li>Coal rejects placed predominantly within mine voids.</li> <li>Tailings filter press to allow co-disposal of the tailings with coarse rejects</li> </ul>
<b>Water Supply</b>	<ul style="list-style-type: none"> <li>Make-up water demand to be met from runoff recovered from mine operational areas, recovery from tailings disposal areas, open cut dewatering, advanced dewatering of pit areas and supply from a borefield (if required).</li> <li>Recovery of water from tailings via tailings filter press.</li> </ul>
<b>Water Disposal</b>	<ul style="list-style-type: none"> <li>Mine water treated in a Water Treatment Facility (WTF) and discharged to Wilpinjong Creek in accordance with Environment Protection Licence (EPL) 12425.</li> </ul>
<b>Project Life</b>	<ul style="list-style-type: none"> <li>28 years (from the date of grant of a Mining Lease 1573).</li> </ul>
<b>Product Coal Transport</b>	<ul style="list-style-type: none"> <li>An average of six and a maximum of 10 laden trains per day leaving the mine.</li> <li>Transport via the Sandy Hollow-Gulgong Railway.</li> </ul>
<b>Hours of Operation</b>	<ul style="list-style-type: none"> <li>Open cut mining, handling and processing of ROM coal at the CHPP and train loading at the Wilpinjong Coal Mine is currently undertaken 24 hours per day, seven days per week.</li> </ul>

### 1.3 Land Ownership and Land Use

WCPL owns the majority of land in and surrounding the Mine area. Land use and land ownership for properties within and surrounding the Mine area are shown in **Figure 2** and **Figure 3**. **Figure 4** and **Figure 5** show vegetation and heritage and contours and catchments respectively. WCPL-owned lands not subject to mining are mainly used for stock grazing through leases or agistment. Isolated lots of Crown Land and Crown Roads occur within the Mine area. **Appendix A** provides the land ownership table relevant to WCPL's Project Boundary.

The main infrastructure area is contained centrally within the mining operations area with satellite infrastructure located to the east and west of the operation. Only mobile infrastructure (e.g. environmental monitoring equipment and water management infrastructure) is located outside of the central mining operations and satellite areas.

A substantial buffer of WCPL owned land and Crown Land occurs to the south and east of the Mine. To the west of the Mine, the land is largely owned by WCPL and by Moolarben Coal Complex. The Moolarben Coal Complex and WCPL share the western boundary along Pit 6.

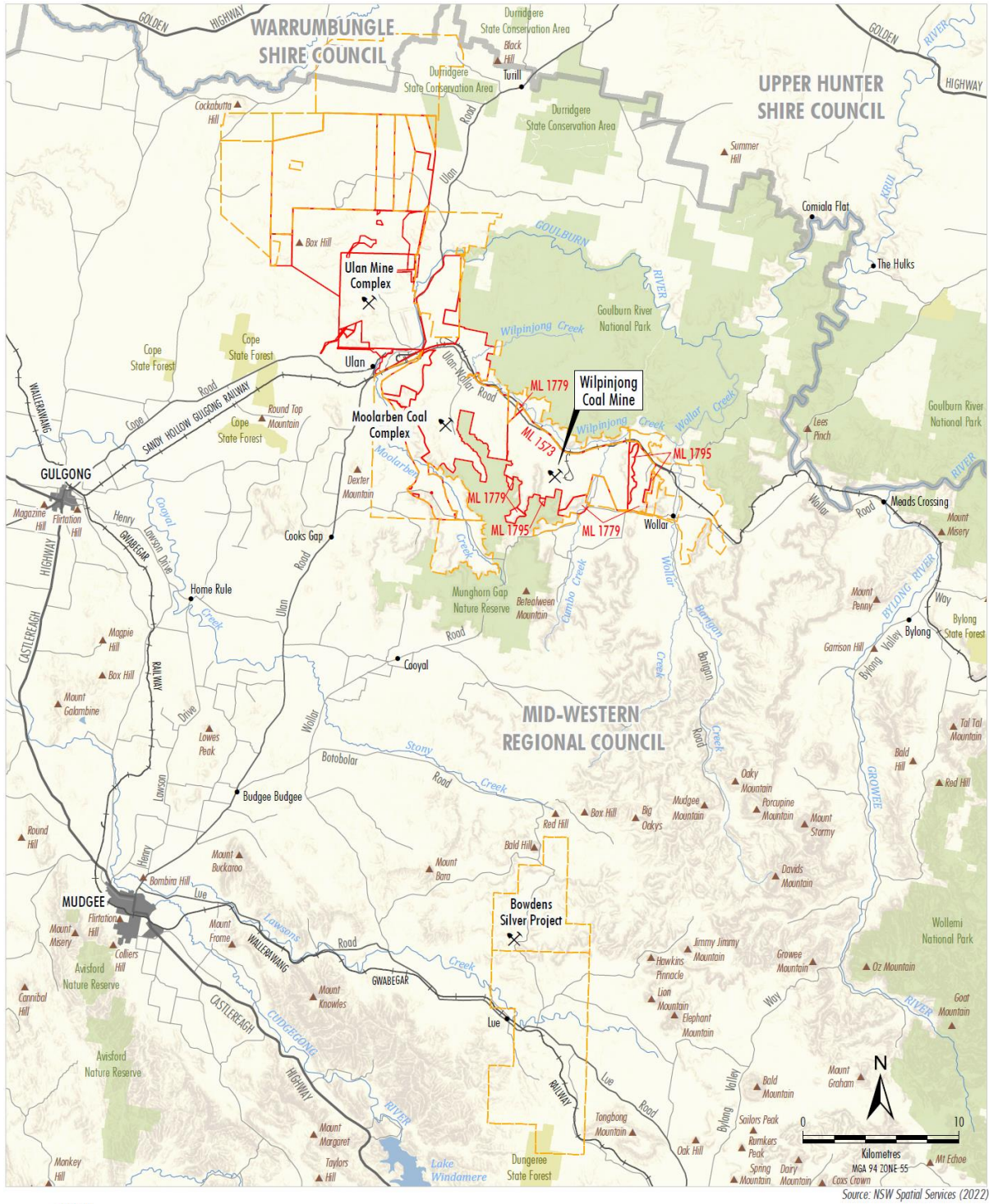
In accordance with Condition 61(a), Schedule 3 of Development Consent (SSD-6764) WCPL continues to consult with Moolarben Coal Operations Pty Ltd (MCO) to investigate potential options to integrate the Wilpinjong Coal Mine and Moolarben Coal Complex final landforms. Further west and adjacent to the Moolarben Coal Complex is the Ulan Coal Complex operated by Ulan Coal Mines Pty Limited (UCMPL) (**Figure 1**).

Large areas of the National Parks Estate occur to the north (i.e. Goulburn River National Park) and south-east (i.e. Munghorn Gap Nature Reserve) of the Mine (**Figure 2**). Some Council owned roads and Crown Land roads remain open within the ML despite applications to close these roads having been submitted.

Consultation with Mid-Western Regional Council (MWRC) and Department of Primary Industries – Lands is ongoing regarding the applications to close these roads. This process is expected to be finalised during 2023. The nearest private receivers (i.e., residents within the Wollar Village) are situated approximately 1.5 km from mining operations (**Figure 3**).



Figure 1 Project Locality



- Exploration Licence Boundary
- Mining Lease Boundary
- Local Government Area
- State Forest
- National Park, Nature Reserve or State Conservation Area
- Coal Mining Operation

**Peabody**  
 WILPINJONG COAL MINE  
 Regional Location

Figure 2 Land Use Environment

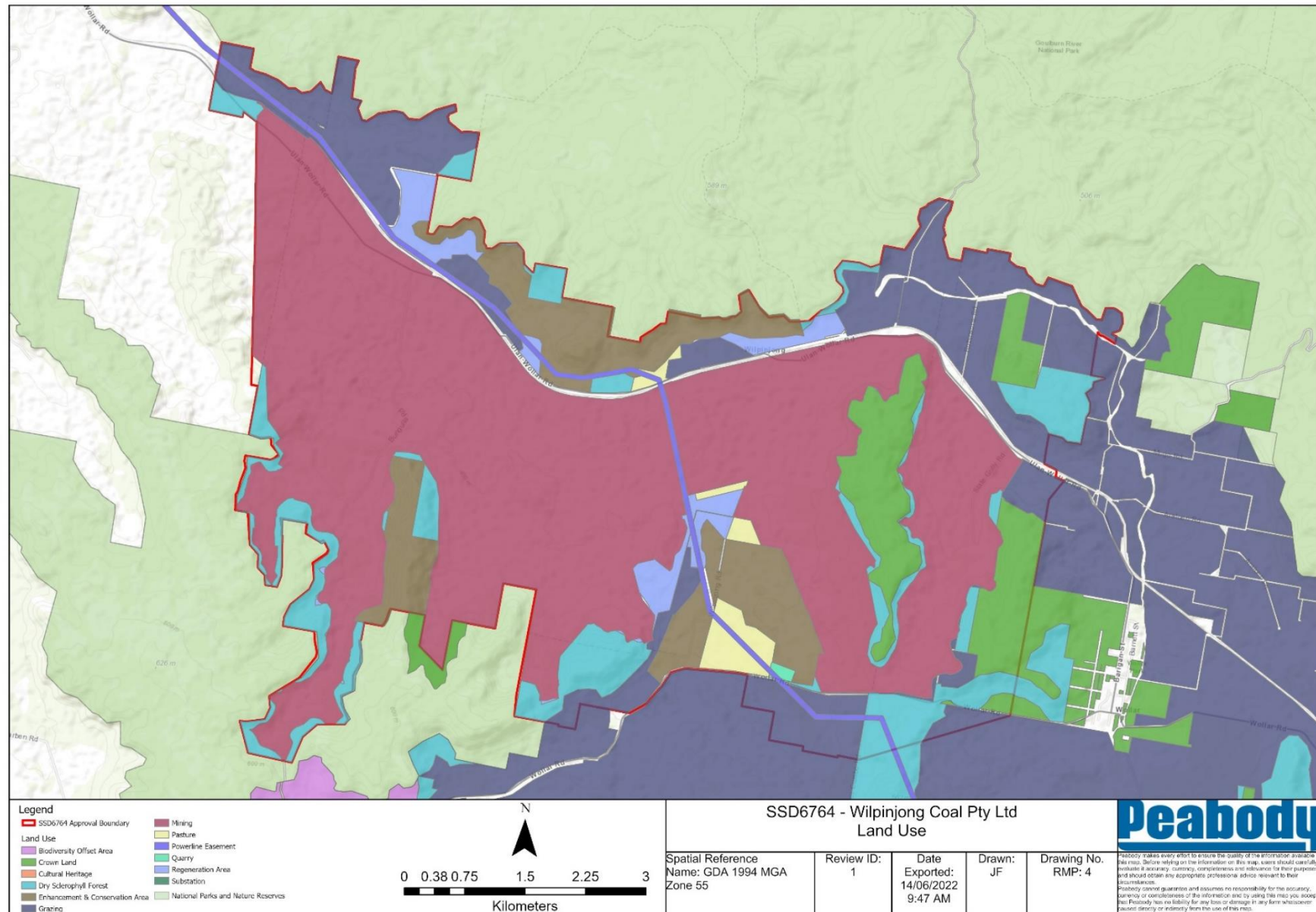




Figure 3 Land Ownership

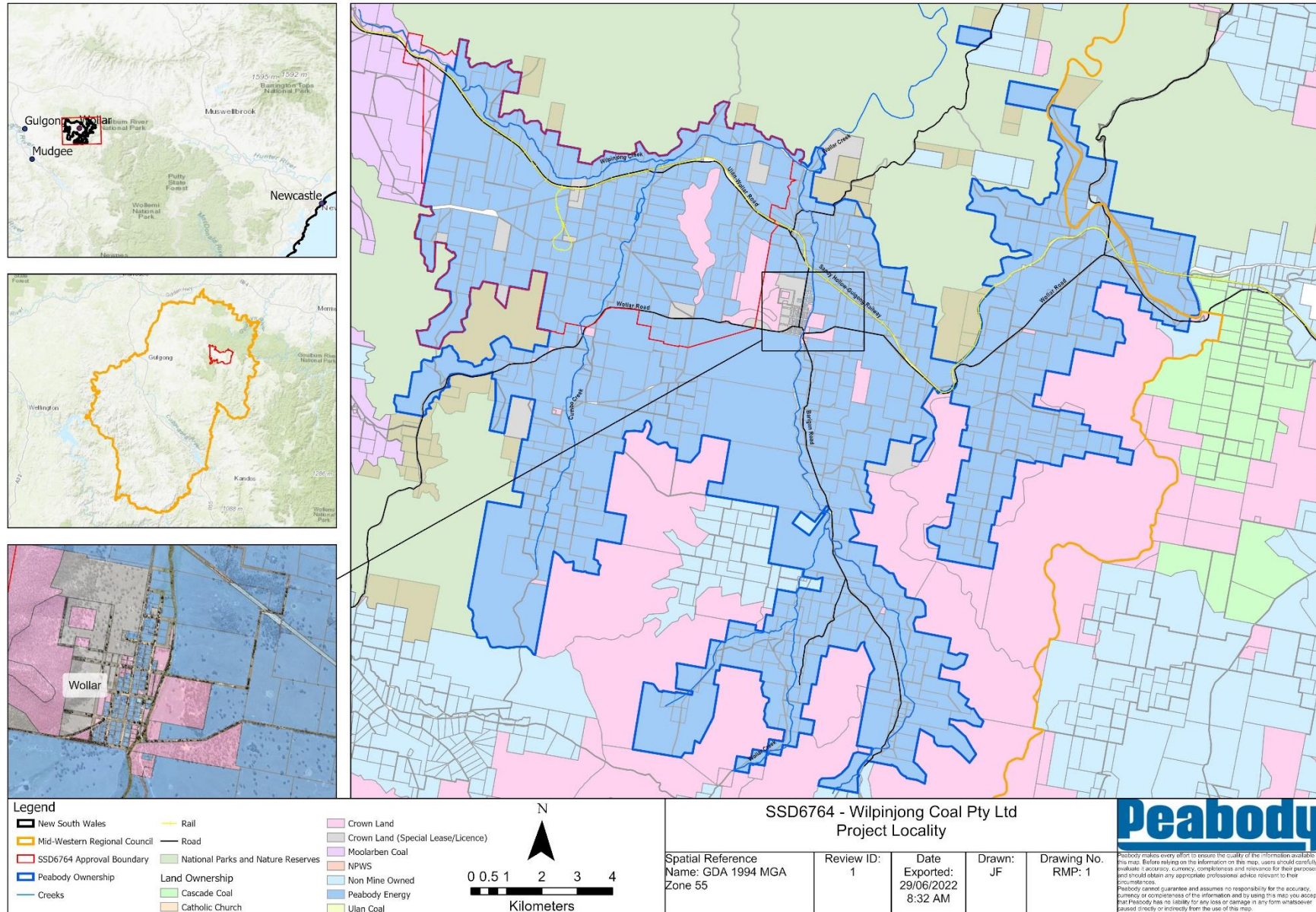




Figure 4 Vegetation and Heritage

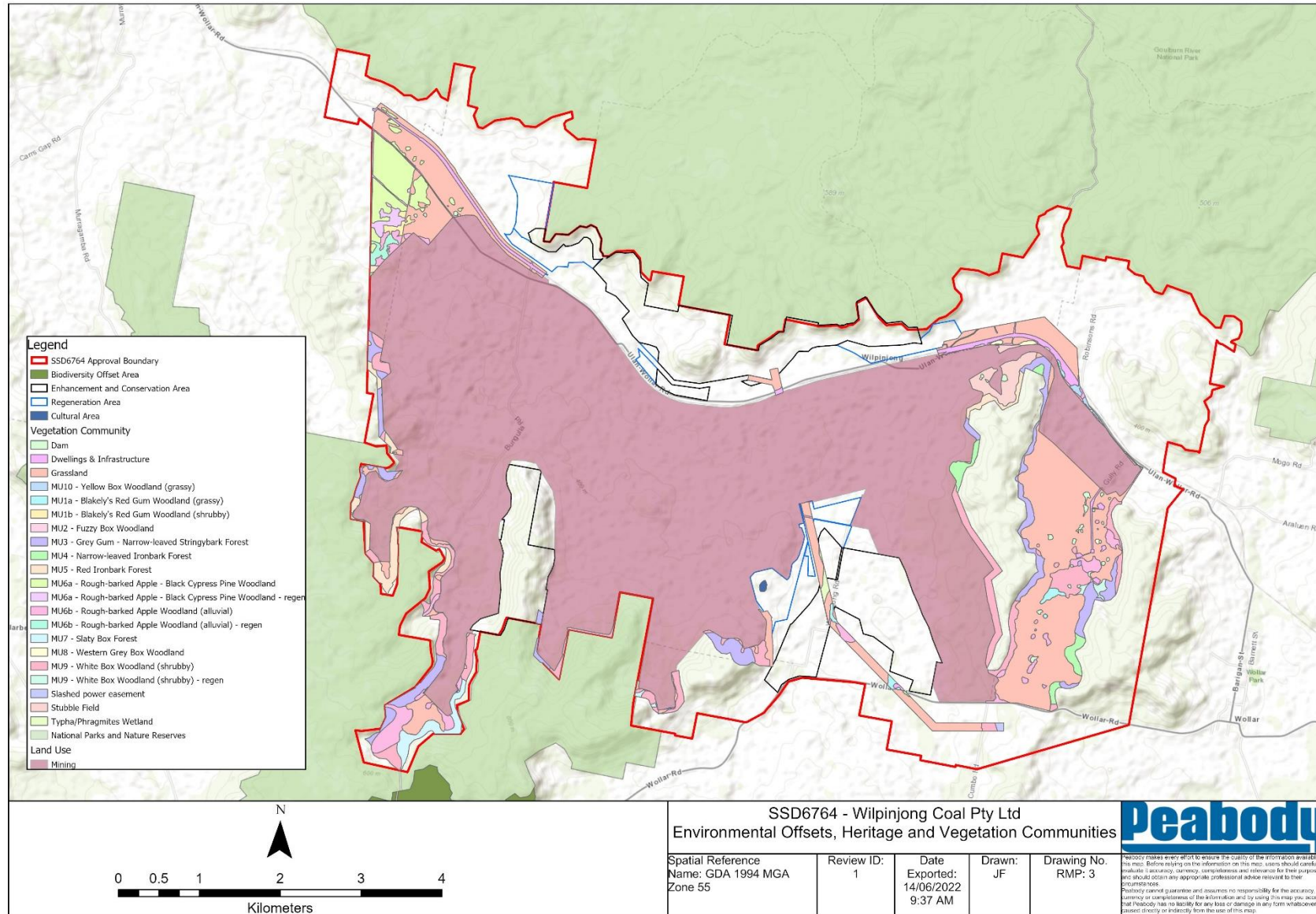
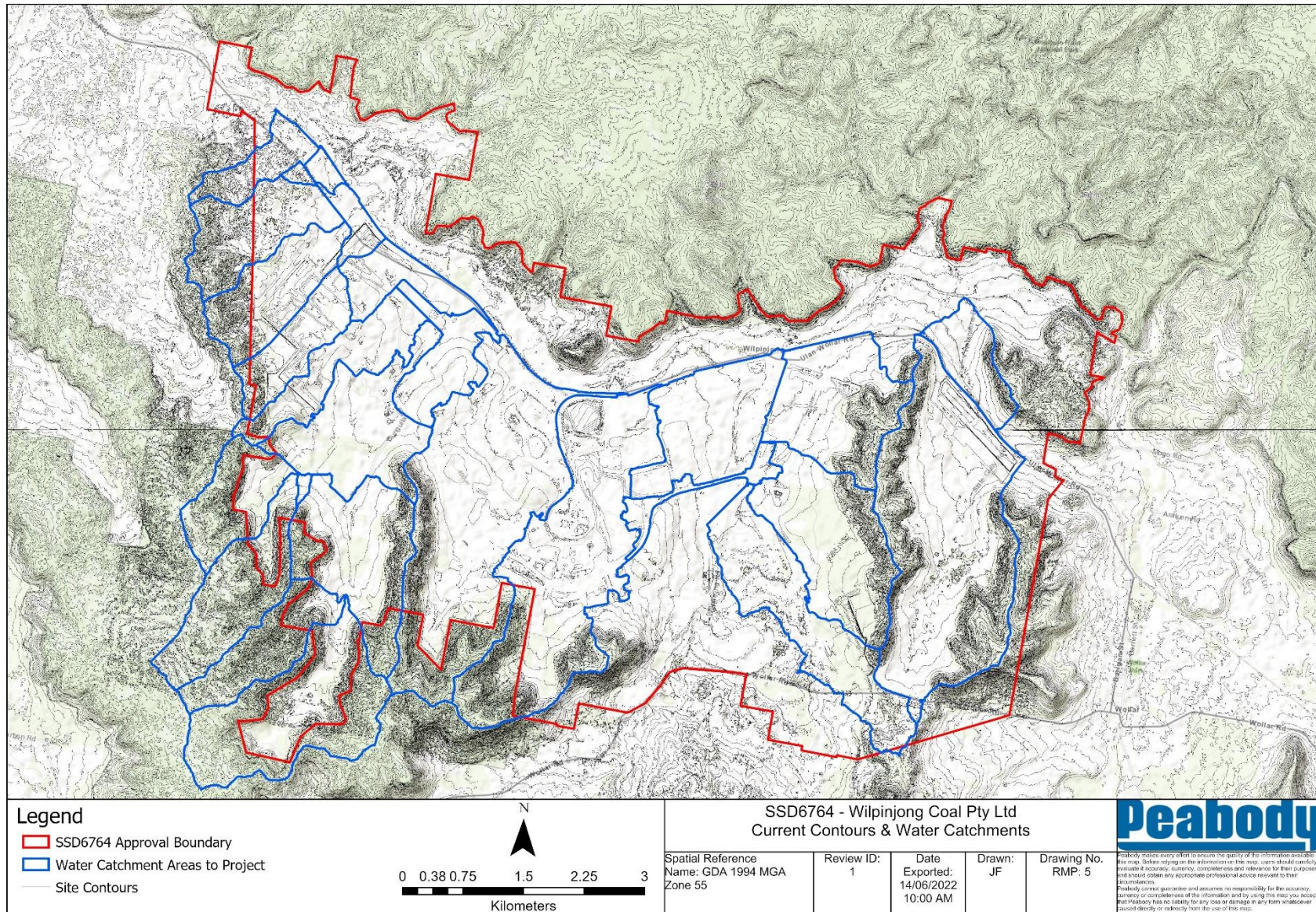




Figure 5 Contours and Catchments





## 2.0 Part 2 – Final Land Use

### 2.1 Regulatory Requirements for Rehabilitation

Conditions 60 to 65, Schedule 3 of Development Consent (SSD-6764) details the regulatory requirements relating to rehabilitation including the objectives and strategies and development of a Rehabilitation Management Plan (RMP) (**Appendix B**).

**Appendix B** outlines the RMP conditions and other associated rehabilitation as required by Development Consent (SSD-6764) and indicates where they are addressed in the RMP.

**Appendix B** also outlines the approval conditions within ML1573, ML1779 and ML1795 as they relate to the RMP and rehabilitation requirements and where they are addressed in the RMP.

### 2.2 Final Land Use Options Assessment

The ‘approved conceptual final landform’ and land use is shown in Appendix 8 of Development Consent (SSD-6764). At the time of preparing the original version of this RMP in July 2022, WCPL had resubmitted for approval the Rehabilitation Strategy as required by Condition 61, Schedule 3 of Development Consent (SSD-6764).

The Rehabilitation Strategy was conditionally approved on the 6 December 2022 by the Secretary which included a ‘revised conceptual final landform’. The Rehabilitation Strategy was developed to be consistent with the requirements of Condition 61, presenting a revised final landform that builds on the rehabilitation objectives in Table 11 of Development Consent (SSD-6764), including:

- incorporation of micro-relief;
- landform stability; and
- hydrological and ecological function

The revised conceptual final landform plan and final land use is provided in **Plan 1: Final Landform Features** and **Plan 2: Final Landform Contours** in **Section 5.1**.

To address the conditions of approval for the Rehabilitation Strategy (**Table 8** and **Appendix C**), the Rehabilitation Strategy may be subject to future updates, therefore requiring an update of this RMP accordingly.

### 2.3 Final Land Use Statement

As part of the WEP EIS, WCPL identified an opportunity to prioritise woodland establishment within the existing mine rehabilitation areas where previous rehabilitation under PA 05-0021 focussed on the establishment of productive pasture for grazing since 2008.

WCPL conducted a re-evaluation of the previous rehabilitation areas against contemporary biometric vegetation types (BVT) classifications to prioritise Regent Honeyeater<sup>3</sup> habitat establishment within existing mine rehabilitation areas. Therefore, the revised entire post mining land use is now woodland to prioritise Regent Honeyeater habitat establishment within existing mine and future rehabilitation areas and contribute to the biodiversity offset requirements for the project.

The revised conceptual final landform plan and final land use is provided in **Plan 1: Final Landform Features** and **Plan 2: Final Landform Contours** in **Section 5.1**.

### 2.4 Final Land Use & Mining Domains

#### 2.4.1 Final Land Use Domains

Final land use domains are land management units characterised by a similar post mining land use objective and BVT requirements. The final land use domains at WCPL are detailed in **Table 3**. The

<sup>3</sup> In accordance with Schedule 3, Condition 37 of the Development Consent SSD-6764

objectives of the final landform design and rehabilitated landform is to establish a safe, non-polluting and stable landform that is compatible with the surrounding landscape and that meets the requirements of the post mining land use. This will incorporate selected vegetation communities (i.e. BVTs) considered most beneficial for the Regent Honeyeaters, as determined by Biodiversity, Conservation and Science Directorate (BCS) and DPE.

The development of the final landform will include incorporating micro-relief principles, landform stability and hydrological and ecological function.

The conceptual final landform plan and final land use domains are in **Plan 1: Final Landform Features** and **Plan 2: Final Landform Contours** in **Section 5.1**, with specific vegetation communities detailed in **Section 6.2.5**.

**Table 3 Final Land Use Domains**

Final Land Use Domain	Description
Native Ecosystem*	HU547 – Fuzzy Box Woodland
	HU697 – Mugga Ironbark-Black Cypress Pine Open Forest
	HU732 – Yellow Box Grassy Woodland
	HU824 – White Box-Black Cypress Pine Shrubby Woodland
	HU825 – Narrow-leaved Ironbark-Black Cypress Pine Grass Woodland
Final Voids	Final void remaining in Pit 2 and Pit 6 that form part of the final landform design

**Notes:** \*The Biodiversity Offset Areas alone will not satisfy the credits required, however the residual credits will be generated through the establishment of woodland rehabilitation at the Mine site

The WEP requires clearance of approximately 354 ha of native vegetation in the open cut extension and infrastructure areas, including the clearance of 9.5 ha of Box-Gum Woodland EEC/CEEC. WCPL has developed a Biodiversity Offset and Rehabilitation Strategy (the Strategy)<sup>4</sup> to compensate for the biodiversity impacts. The Biodiversity Offset Strategy developed by WCPL addresses unavoidable impacts on threatened species, populations and communities that are listed under the NSW *Threatened Species Conservation Act, 1995* (TSC Act) and the *Commonwealth Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act).

The Biodiversity Offset Strategy comprises a package of Biodiversity Offset Area properties that has been set aside for conservation and is to be managed in perpetuity via inclusion in the National Parks and Wildlife Service estate. In addition, the Biodiversity Offset Strategy also includes on-site rehabilitation to establish the BVTs and fauna habitat as required in the Development Consent, a number of Enhancement and Conservation Areas (ECAs) and residual Regeneration Areas that will strengthen the linkages between the woodland rehabilitation areas, and the Goulburn River National Park and Munghorn Gap Nature Reserve. The Biodiversity Offset Strategy will also assist in the faunal recolonisation of Project rehabilitation areas and regeneration areas. For further details refer to the BMP.

#### 2.4.2 Mining Domains

Mining domains have been identified on the basis of their operational and functional purpose within the mining disturbance boundary. Mining domains can be defined as land management units within the

<sup>4</sup> The original Biodiversity Offset and Rehabilitation Strategy was developed as part of the EIS (WCPL, 2006) to compensate for the 290 ha of remnant woodland which would be cleared as a result of the Mine. This strategy included the establishment of three ECAs (480 ha) and nine Regeneration Areas (380 ha) as well as 1920 ha of Rehabilitation Areas.

mine site, usually with unique operational and functional purpose and therefore similar geophysical characteristics. Mining domains outline current land use during the RMP period.

**Table 4 Mining Domains**

Mining Domain	Description
Infrastructure Areas	Constrained Infrastructure Area: <ul style="list-style-type: none"> <li>Main Workshop Area, Heavy Vehicle Wash Down, Refuelling Facility, Hydrocarbon Storage, Demountable Buildings, Carpark, Powerlines, Substations and Water Management Infrastructure.</li> </ul>
	Mine Infrastructure Area: <ul style="list-style-type: none"> <li>Rail Loop, Haul Roads, LV Roads, Meteorological Tower, Mine Entry Road, Reverse Osmosis (RO) Plant, Rail Load Out Bin, Powerlines and Substations and Water Pipelines.</li> </ul>
	Coal Handling Preparation Plant Area: <ul style="list-style-type: none"> <li>ROM and Product Stockpiles, Coal Handling Preparation Plant, Conveyors and Gantries, Belt Filter Press Plant, ROM Crushers, Reclaim Tunnel, Water Management Infrastructure, Powerlines and Substations and Water Pipelines.</li> </ul>
Water Management Areas	Ed's Lake, Clean Water Dam, Recycled Water Dam, Pit 2 West, Pit 5 Fill Point Dam and Pit 8 CWD and clean water diversion structures in Pit 8 and Pit 6
Mining Domain	Description
Overburden Placement Areas	Overburden placement areas in Pit 1, Pit 2, Pit 3, Pit 4, Pit 5, Pit 6, Pit 7 and Pit 8
Tailings Storage Areas	Tailings are directed to purpose-built tailings storage facilities TD6 and TD7 when constructed (if required).
Active Mining Areas	Active mining areas in Pit 1, Pit 2, Pit 3, Pit 4, Pit 5, Pit 6, Pit 7 and Pit 8

## 2.5 Life of Mine Rehabilitation Schedule

Mine waste rock emplacements have been progressively re-shaped behind the active mining block to construct landforms generally consistent with the pre-mining landform surface. Other rehabilitation components including areas of tailings emplacements have also been progressively rehabilitated as the area has become available.

To minimise the area of disturbance at any one time, rehabilitation occurs progressively<sup>5</sup> at the Mine as ancillary disturbance areas and final mine landforms become available for revegetation. The mine waste rock emplacements behind the advancing open cut are constructed to approximate the pre-mining topography or the final landform approved by Development Consent (SSD-6764). Mine waste rock emplacements are shaped by dozers prior to the commencement of rehabilitation activities i.e. re-profiling, reapplication of topsoil/subsoil, soil amelioration and revegetation activities (**Section 6.2.3**).

WCPL have an approved Rehabilitation Strategy (**Section 2.3**). The Rehabilitation Strategy has been prepared to address Condition 61, Schedule 3 of Development Consent (SSD-6764), including:

- Consultation with the proponent of the Moolarben Coal Mine, to investigate options to integrate the final landform with the Moolarben Coal Mine, including options to integrate final voids and minimise the sterilisation of land post-mining;
- An assessment of partially backfilling final voids in Pit 2 and Pit 6 above the groundwater equilibrium level having regard to the final void rehabilitation objectives, including consideration of downstream water quality and the objectives in Table 6;
- A revised final landform plan which builds on the rehabilitation objectives, including

<sup>5</sup> In accordance with Condition 62, Schedule 3 of SSD6764 progressively rehabilitated may be subject to further disturbance at some later stage of the development. It is also accepted that delays in rehabilitation due to extended wet or dry conditions may occur.

- incorporation of micro-relief, landform stability, hydrological and ecological function; and
- Detailed justification for proposed changes to the final landform, having regard to the approved post-mining land use.

The Rehabilitation Strategy forms the overarching guide for the development of this RMP for the Wilpinjong Coal Mine. Consistent with the requirements of Condition 61, the Rehabilitation Strategy presents a 'revised conceptual final landform' that builds on the rehabilitation objectives in Table 11 of Development Consent (SSD-6764). The rehabilitation requirements in the Rehabilitation Strategy include:

- Incorporation of micro-relief;
- Landform stability; and
- Hydrological and ecological function.

Condition 64(d), Schedule 3 of Development Consent (SSD-6764) requires a conceptual life of mine rehabilitation schedule (**Section 2.5.2**), a detailed rehabilitation schedule covering a period of up to 3 years (**Section 2.5.1**), and an annual program for reviewing and revising the schedule (**Section 6.1.2**).

### 2.5.1 Three Year Mine Rehabilitation Schedule

An indicative three-year mining sequence and rehabilitation sequence is provided in plans **Plan 2A Mining and Rehabilitation Year 1, Plan 2B Mining and Rehabilitation Year 2 and Plan 2C Mining and Rehabilitation Year 3** as submitted in WCPL's ARFP. The indicative three-year mining sequence and rehabilitation sequence involves primarily the rehabilitation of mine waste rock emplacements as they become available within the overburden emplacement area mining domain. The indicative LOM progression of mining and rehabilitation is provided in **Figure 6 to Figure 9**.

There are no scheduled decommissioning and/or demolition activities planned for the Mine's major infrastructure in this period. Decommissioning phases will generally involve the consolidation of tailings dams prior to capping and rehabilitation and the relocation of mobile crib huts and other satellite mine infrastructure.

### 2.5.2 Conceptual Life of Mine Rehabilitation Schedule

The Mine is not planned for closure until 2033. WCPL has approval to carry out mining operations on site until the 31 December 2033 in accordance with Condition 5, Schedule 2 of Development Consent (SSD-6764). The general arrangements, as provided by Figures 2-8 to 2-15 in Section 2 of the WEP EIS, provides a conceptual progression of rehabilitation throughout the life of the mine (LOM).

As provided in **Section 6.1**, the assumptions and principles to achieve the LOM rehabilitation schedule are provided in the Rehabilitation Strategy. The indicative LOM progression of mining and rehabilitation is provided in **Figure 6 to Figure 9**.

It is noted that the LOM rehabilitation schedule may be subject to change in accordance with any mining sequence changes. Any proposed changes to the LOM rehabilitation schedule as provided in this RMP will be in consultation with DPE and DPE-RR. Subsequently this RMP will be amended accordingly and resubmitted for approval. If required, reviews of the LOM rehabilitation schedule will be undertaken by the Environment & Community Manager (ECM) and by the Technical Services Manager (TSM). For further information regarding the review process for the RMP see **Section 11**.

Construction on the Mine's major facilities are now complete. Construction and development activities that would progressively occur to support normal mining activities during the LOM include:

- Progressive development and augmentation of dams, pumps, pipelines, up-catchment water diversions, drains, water storages and structures, remote infrastructure areas (MIAs), haul roads, light vehicle access roads and services (e.g. electrical and water supply, sewage treatment facilities, site communications, fuel storage and refuelling areas), remote crib huts and hard stand areas;
- Construction of tailings facility TD7 (if required);

- Replacement and/or upgrades to fixed and mobile plant; and
- Installation or replacement of environmental monitoring equipment required for environmental management plans.

As outlined in Section 5 of the WEP EIS, a Mine Closure Plan (MCP) would be developed for the Mine in consultation with the MWRC, DPE and the local community. As required by Development Consent (SSD-6764) the MCP will also provide a strategy to minimise the adverse socio-economic effects associated with mine closure. Likely social impacts and opportunities in relation to mine closure are described in WCPL's Social Impact Management Plan (SIMP).

The development of the MCP will have a Final Void Management Plan (FVMP), as a component of the MCP in advance of mine closure, in consultation with the DPE, DPE-RR and other relevant authorities.

Condition 64(g), Schedule 3 of Development Consent (SSD-6764) requires the RMP to describe measures that would be implemented to address all aspects of rehabilitation including mine closure, final landform (including final voids), biodiversity values and final land use. **Appendix B** outlines where the rehabilitation regulatory requirements are addressed in this RMP regarding mine closure.

The strategies and planning set out in the RMP, with respect to mine closure, reflect the current stages of mine development and will be reviewed in consultation with all relevant government and community stakeholders during the LOM as strategies and planning mature and develop further. This will allow the RMP to be used as a dynamic document that can be continually improved over the LOM.



Figure 6 – Life of Mine Rehabilitation Schedule (Year 2022)

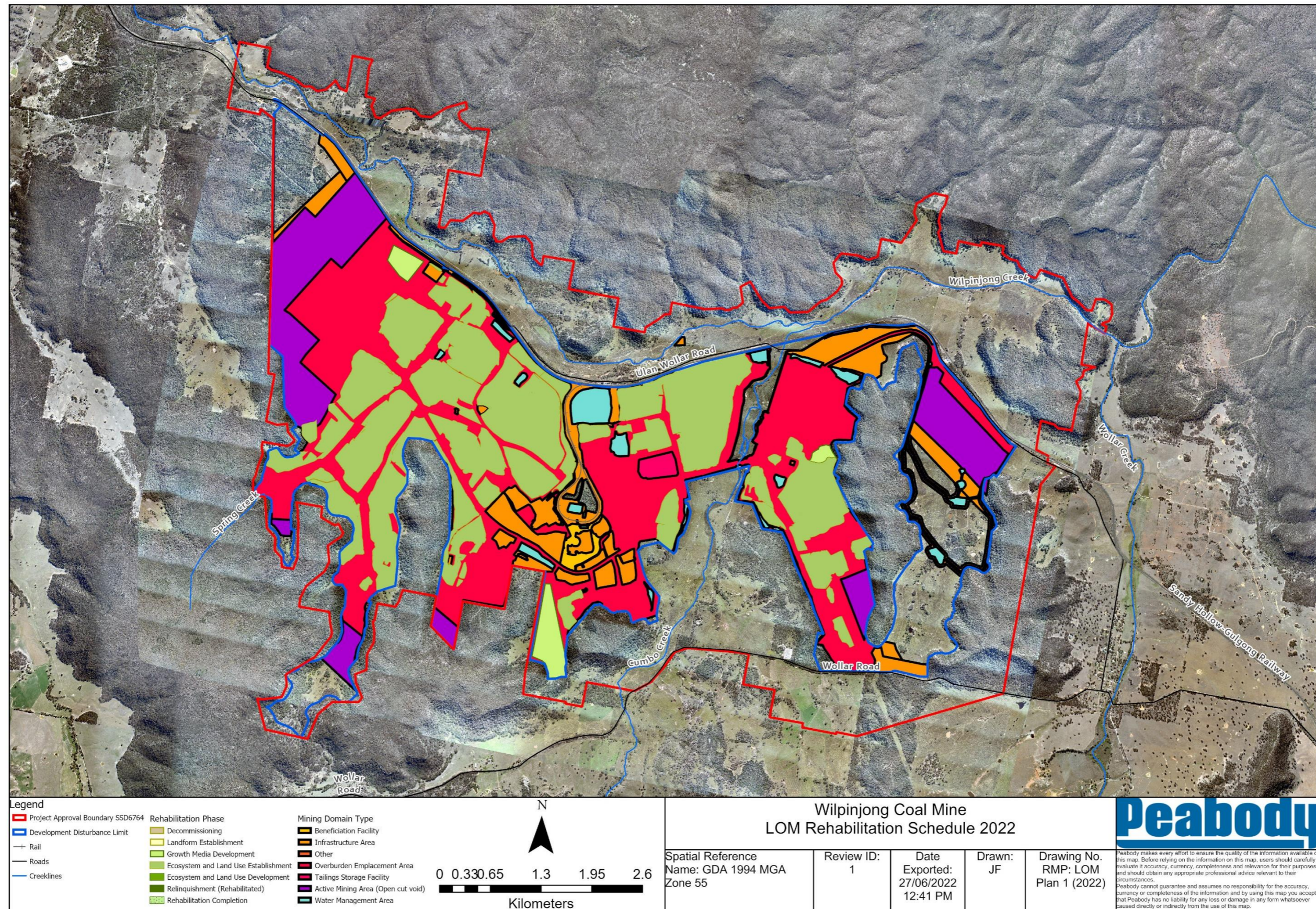




Figure 7 – Life of Mine Rehabilitation Schedule (Year 2027)

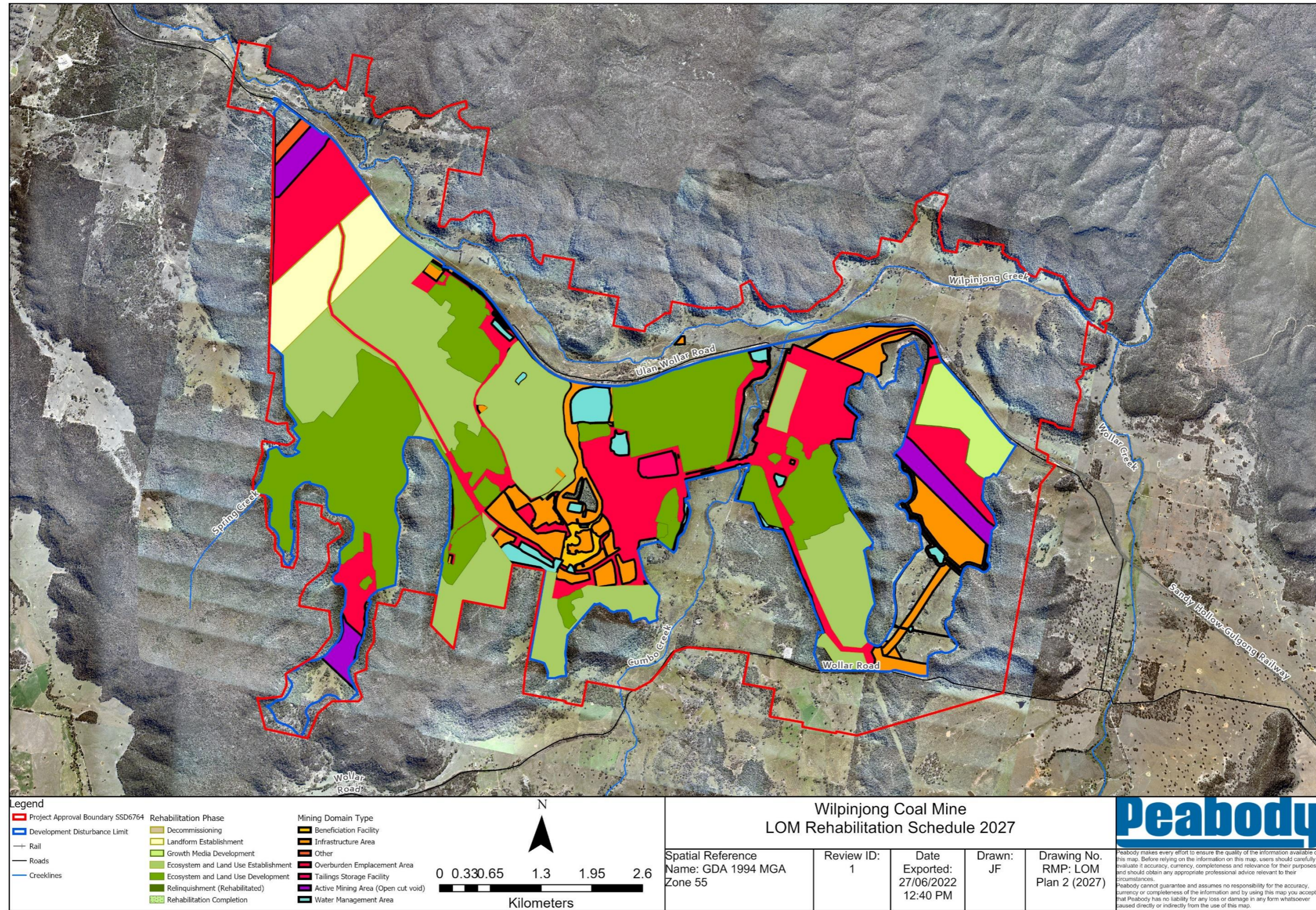




Figure 8 – Life of Mine Rehabilitation Schedule (Year 2032)

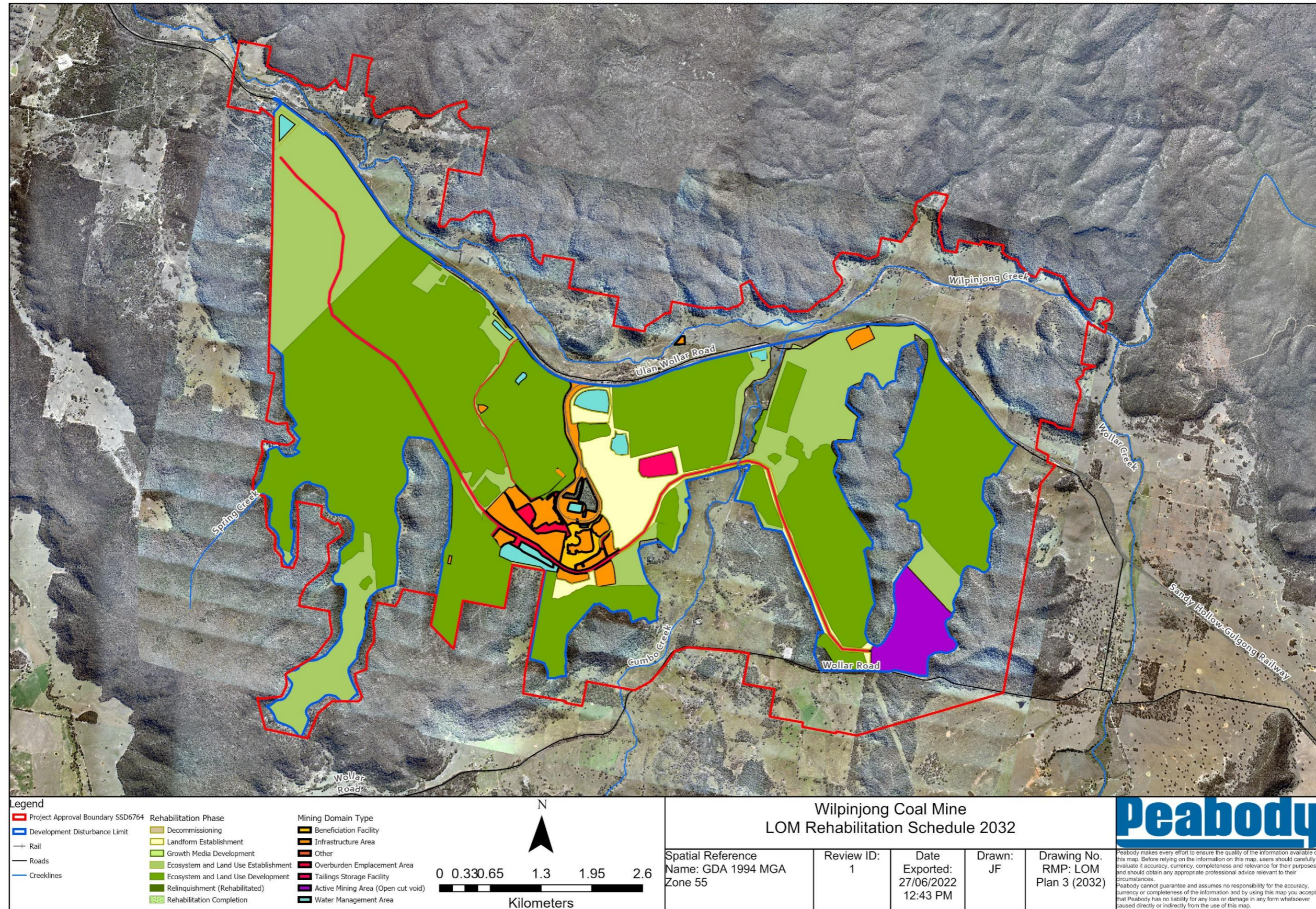
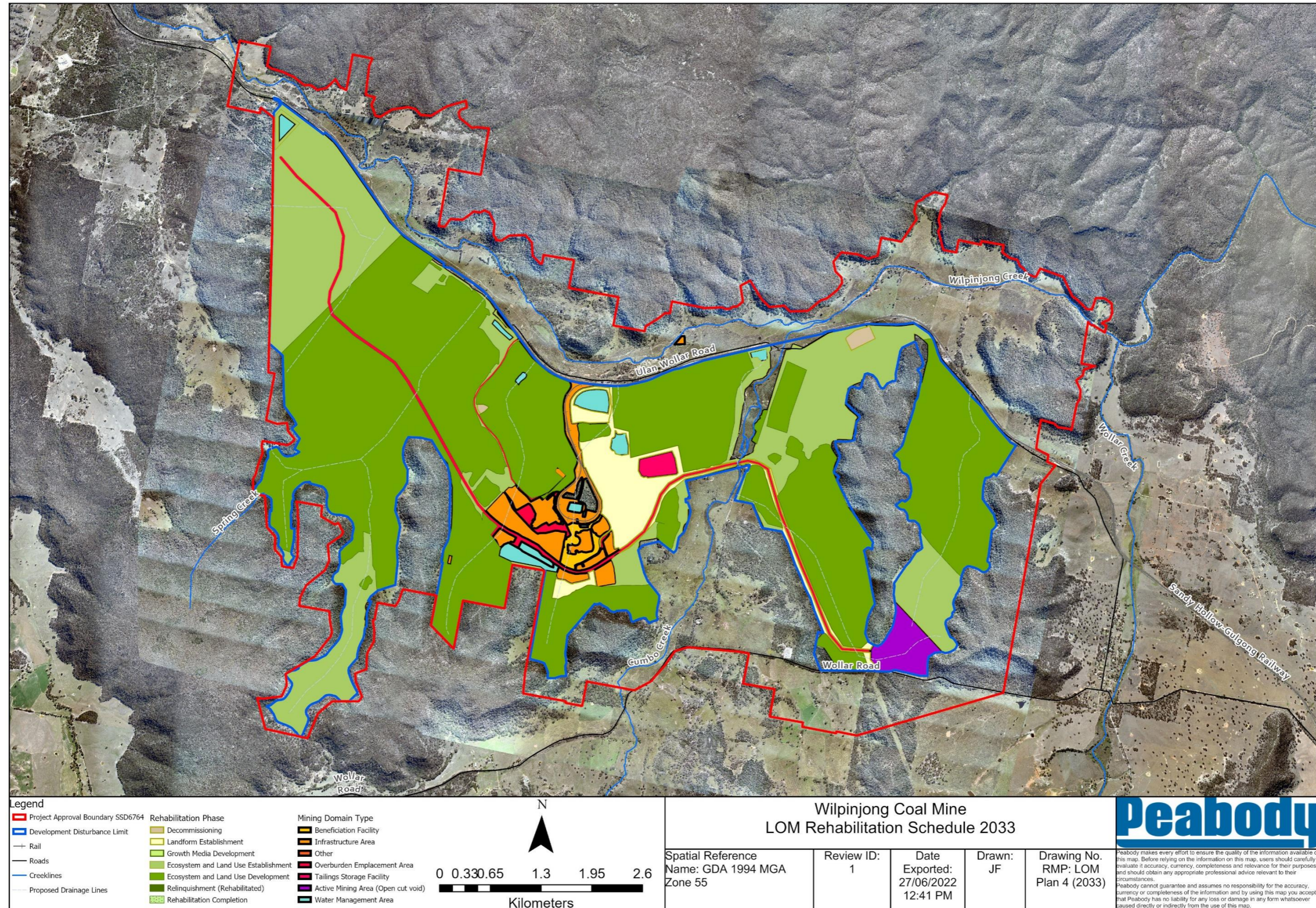




Figure 9 – Life of Mine Rehabilitation Schedule (Year 2033 Final Land Use)





### 3.0 Part 3 – Rehabilitation Risk Assessment

WCPL completed a rehabilitation risk assessment workshop on 17 February 2022 involving a team of operational, technical and environmental staff and specialist consultants with knowledge of, and experience in, WCPL rehabilitation planning and implementation. The risk assessment workshop team session was facilitated by Risk Mentor Pty Ltd – a company specialising in risk assessment and risk management processes.

Consistent with the *AS NZS ISO 31000:2018 Risk Management – Guidelines* the risk assessment workshop included:

- establishing the context including review of supporting information and objectives;
- identifying risks via several risk management techniques, including:
  - brain writing;
  - modified hazard and operability analysis; and
  - gap analysis against the issues contained in the Guideline;
- analysis of identified risks and nomination of key potential environmental issues; and
- prioritisation and subsequent ranking of the risks, including consideration of prevention and mitigation measures.

The following **Table 5** presents a mapping of the WCPL control framework analysis to the RMP risk requirements.

**Table 5 Potential Risks to Rehabilitation**

Potential Risk	Risk Summary	Where Addressed in this RMP
<b>General</b>		
Skills of personnel	Insufficient skills and experience of rehabilitation personnel.	Section 11.2
Poor organisation structure	Lack of clearly defined responsibilities.	Section 11.2
Lack of resource applied to rehabilitation	Insufficient funding for or prioritisation of rehabilitation activities.	Section 11.2
<b>Active Mining Phase of Rehabilitation</b>		
Failing to identify and preserve site resources for rehabilitation	Active mining phase of rehabilitation - Biological resource salvage and maintenance (e.g. subsoil, topsoil, vegetative material, seedbank, rocks, habitat resources) through clearing, salvage and handling practices.	Section 4.1.2 Section 6.2.1 Section 10
Lack of site resources for rehabilitation	Active mining phase of rehabilitation - Limited pre-existing biological resources for salvage (e.g. topsoil, weeds)	Section 6.2.1 Section 10
Poor timing/extent of clearing	Active mining phase of rehabilitation - Clearing in adverse seasonal and weather conditions when salvaging biological resources.	Section 6.2.1
Exposing geochemically active materials	Active mining phase of rehabilitation - Adverse geochemical/chemical composition of materials such as overburden, interburden, processing wastes, subsoils and topsoils and imported cover materials.	Section 4.1.2 Section 6.2.1
Poor handling of chemically active materials	Active mining phase of rehabilitation - Handling and containment of geochemical and geotechnically unsuitable tailings and reject materials.	Section 4.1.2 Section 6.2.1
Surface/ground water quality and quantity	Active mining phase of rehabilitation - Adverse surface and groundwater quality and quantity (underground and surface operations).	Section 4.1.2 Section 6.2.1 Section 10

Potential Risk	Risk Summary	Where Addressed in this RMP
<b>Decommissioning Phase of Rehabilitation</b>		
Failing to identify and subsequently impacting heritage items	Impacts on heritage items.	Section 6.2.1
Long term hazards from site infrastructure	Hazards associated with retained infrastructure.	Section 4.1.2 Section 6.2.2
Site contamination causing rehabilitation failure	Contamination resulting from associated activities (e.g. storage and use of hydrocarbons/chemicals, drilling fluids, spillage of dirty or produced saline water, brine, sewage).	Section 4.1.2 Section 6.2.2
Demolition generated wastes impacting rehabilitation	Generation of material and waste products from the demolition process.	Section 4.1.2 Section 6.2.2
<b>Landform Establishment Phase of Rehabilitation</b>		
Poor QA/QC leading to unstable landforms	Unstable landform due to erosion and/or mass movement issues associated with inappropriate design and/or quality assurance during landform construction.	Section 4.1.2 Section 6.2.3 Section 10
Geochemically active materials not contained in final landform	Exposure or release of geochemical and/or geotechnically adverse material (typically tailings or waste rock) associated with containment design and construction, including capping/cover system, drainage and liner (if required).	Section 4.1.2 Section 6.2.3 Section 10
Lack of capping materials	Lack of availability of suitable materials for encapsulation or capping of adverse materials.	Section 4.1.2 Section 6.2.3
Borehole/gas well seal failure	Borehole or gas well seals failure.	Section 4.1.2 Section 6.2.3
Final landform not suited to final land use	Final landform unsuitable for final land use (e.g. large rocks present affecting cultivation, settlement and surface subsidence leading to extended ponding).	Section 4.1.2 Section 6.2.3
Final landform not suited to target species	Landform aspect not suitable for intended target plant species.	Section 4.1.2 Section 6.2.3
<b>Growth Medium Development Phase of Rehabilitation</b>		
Poor substrate impacts rehab quality	Physical and structural properties of substrate.	Section 4.1.2 Section 6.2.4
Insufficient topsoil for rehab	Growth medium development phase of rehabilitation - Subsoil and topsoil deficit for rehabilitation activities.	Section 4.1.2 Section 6.2.4 Section 10
Lack of soil biota in substrate impacting rehab quality	Growth medium development phase of rehabilitation - Substrate inadequate to support revegetation or agricultural land capability (e.g. lack of organic matter, nutrient deficiency, lack of soil biota, adverse soil chemical properties, exposed hostile geochemical materials, and any other factors impeding the effective rooting depth).	Section 4.1.2 Section 6.2.4
<b>Ecosystem and Land Use Establishment Phase of Rehabilitation</b>		
Insufficient seed available for rehabilitation	Lack of availability and quality of target seed resources, including genetic integrity.	Section 6.2.5
Poor seed management leads to planting failures in rehabilitation	Poor seed viability, seed dormancy.	Section 6.2.5
Insect predation of seed	Ant and insect predation of seed.	Section 6.2.6
Poor planting practices leads to rehabilitation failure	Damage to seed through revegetation process.	Section 6.2.5 Section 6.2.6
Poor tube-stock quality	Poor quality tubestock.	Section 6.2.5

Potential Risk	Risk Summary	Where Addressed in this RMP
Weed infestations during rehabilitation phase	Weed infestation associated with both introduction and control (or lack thereof).	Section 4.1.2 Section 6.2.5 Section 6.2.6
Poor mix of rehabilitation equipment leading to rehabilitation failings	Adopting inappropriate or inadequate rehabilitation techniques, including equipment fleet.	Section 6.2.4 Section 6.2.5
Final vegetation mix not suited to rehabilitation goals	Inappropriate revegetation species mix for targeted final land use.	Section 6.2.5
Weather impacts on rehabilitation	Weather and climatic influences (e.g. drought; intense rainfall events; bushfire and climate change).	Section 6.2.5
Poor rehabilitation planning causing lack of space for planting in optimal seasons	Availability of areas for revegetation in optimal seasonal conditions.	Section 6.2.5
Not establishing suitable habitats for target species in final rehabilitation	Habitat structures for colonisation or use.	Section 6.2.1 Section 6.2.5
Weather impacts rehab quality	Weather and climatic influences (e.g. drought; intense rainfall events; bushfire and climate change).	Section 6.2.5
Long term water quality not suited to surrounding environment	Long term water quality and quantity issues (e.g. acid-drainage, high salinity).	Section 4.1.2 Section 6.2.1 Section 10
Third party damage to rehabilitated areas	Damage to rehabilitation (e.g. fauna, domestic stock, vandalism, vehicular interactions, bushfire, insects and plant disease).	Section 6.2.1
Disturbance of rehabbed areas by mining activities	Re-disturbance of established rehabilitation areas.	Section 4.1.2 Section 6.2.2
Final fauna/flora mix not suited to rehabilitation goals	Insufficient establishment of target species and limited species diversity.	Section 6.2.5 Section 6.2.6 Section 8 Section 10
Revegetation doesn't provide fauna habitats	Limited vegetation structural development and habitat for targeted fauna species.	Section 6.2.5 Section 6.2.6 Section 8 Section 10
Erosion of rehabilitated lands	Erosion and failure of landform, drainage and water management/storage structures.	Section 4.1.2 Section 6.2 Section 8 Section 10
Infrastructure not provided to suit final land use	Lack of infrastructure to support intended final land use (e.g. dams, fences, watering facilities).	Section 4.2.1 Section 6.1.2 Section 6.2.2

WCPL have developed specific environmental management plans as required by SSD-6764 (**Section 3.2**) that have considered the potential environmental and community risks identified through such risk assessment processes and describe the necessary controls to manage those identified risks.

At the time of preparing this RMP, almost all required management plans had been revised and resubmitted for re-approval in June 2022, as a result of the most recent environmental independent audit and submission of the Annual Review, in accordance with Development Consent SSD-6764.

## 4.0 Part 4 – Rehabilitation Objectives and Rehabilitation Completion Criteria

Rehabilitation objectives and rehabilitation completion criteria (**Section 4.1**) are required to be provided to the Secretary for approval under Clause 12, Schedule 8A of the *Mining Regulation 2016* (Mining Regulation). The rehabilitation objectives and completion criteria are provided in this RMP to satisfy the requirement of Clause 12(1)(a) and Clause 12 (1)(b) of the Mining Regulation.

### 4.1 Rehabilitation Objectives and Rehabilitation Completion Criteria

#### 4.1.1 Rehabilitation Objectives

Rehabilitation areas include areas disturbed by the Mine which will be rehabilitated and revegetated to a condition capable of achieving the final land use (**Section 2**).

Condition 64, Schedule 3 of Development Consent (SSD-6764) requires the development of a Rehabilitation Management Plan (RMP). **Table 6** outlines the rehabilitation objectives as required by Development Consent (SSD-6764).

**Table 6 Rehabilitation Objectives as Required by Development Consent (SSD-6764)**

Feature	Objective
<b>Mine site (as a whole)</b>	<ul style="list-style-type: none"> <li>• Safe, stable and non-polluting</li> <li>• Final landforms designed to incorporate micro-relief and integrate with surrounding natural landforms and adjacent mine rehabilitation</li> <li>• Final landforms maximise geotechnical performance, stability and hydrological function</li> <li>• Constructed landforms maximise surface water drainage to the natural environment (excluding final void catchments)</li> <li>• Minimise long term groundwater seepage from the site to ensure negligible environmental consequences beyond those predicted for the development</li> <li>• Minimise visual impact of final landforms as far as is reasonable and feasible</li> </ul>
<b>Final Voids</b>	<ul style="list-style-type: none"> <li>• Minimise to the greatest extent practicable:               <ul style="list-style-type: none"> <li>○ the size and depth of final voids</li> <li>○ the drainage catchment of final voids</li> <li>○ any high wall and low wall instability risk</li> <li>○ risk of flood interaction for all flood events up to and including</li> </ul> </li> </ul>
<b>Surface Infrastructure</b>	<ul style="list-style-type: none"> <li>• To be decommissioned and removed, unless the Secretary agrees otherwise</li> </ul>
<b>Rehabilitation</b>	<ul style="list-style-type: none"> <li>• Rehabilitate at least 2,906 hectares of self-sustaining woodland ecosystem to the BVTs specified in Tables 8 and 9;</li> <li>• Establish self-sustaining ecosystem function in areas of:               <ul style="list-style-type: none"> <li>○ aquatic habitat, within diverted and/or re-established drainage lines and retained water features, with consideration of hydro- geomorphological constraints</li> <li>○ habitat for threatened flora and fauna species; and</li> </ul> </li> </ul>
<b>Cumbo Creek</b>	Restored in accordance with conditions 26 to 28 of Schedule 3.
<b>Other reinstated drainage lines</b>	Drainage lines are restored in accordance with the principles, concepts and techniques described in “ <i>A rehabilitation manual for Australian streams (Rutherford, I; Jerie, K; Marsh, N 2000)</i> ”
<b>Community</b>	<ul style="list-style-type: none"> <li>• Ensure public safety</li> <li>• Minimise the adverse socio-economic effects associated with mine closure</li> </ul>

#### 4.1.2 Rehabilitation Completion Criteria

During the WEP approval process, the NSW Government revised the final rehabilitation and land use for the mine site. As a result, and in accordance with Condition 37, Schedule 3 of Development Consent SSD 6764, WCPL has developed suitable rehabilitation and completion criteria for prescribed Biometric Vegetation Types (BVTs) and Regent Honeyeater habitat in consultation with the BCD, Department of Agriculture, Water and the Environment (DAWE) and DPE (for the BVTs listed below);

- HU547 – Fuzzy Box Woodland;
- HU697 – Mugga Ironbark-Black Cypress Pine Open Forest;
- HU732 – Yellow Box Grassy Woodland;
- HU824 – White Box-Black Cypress Pine Shrubby Woodland; and
- HU825 – Narrow-leaved Ironbark-Black Cypress Pine Grass Woodland

The performance and completion criteria for the above BVTs was endorsed in June 2021 by BCD. With this endorsement, **Table 7** details the updated Local BVT reference site biometric data and the revised rehabilitation performance and completion criteria.

Rehabilitation completion criteria applies to rehabilitation domains which have been established and rehabilitated 10 years post landform establishment. With respect to the Regent Honeyeater habitat the relevant criteria is suitable progress against the Native Over-Storey Performance Criteria.

The site attribute values for each Framework Biological Assessment (FBA) plot will be averaged in order to determine the site value if a vegetation zone and the average Overall Site Value Score should be equal to or greater than 7 based on Generating biodiversity credits for ecological rehabilitation of previously mined land (OEH, 2015).

WCPL's rehabilitation completion criteria has been developed based on the BioMetric methodology for assessing ecosystem function (Gibbons *et al.*, 2009). Landscape Function Analysis (LFA) (Tongway and Hindley 2004) and remote sensing to determine landform stability, slope, erosion and germination success using drone and/or LIDAR will be used for assessing rehabilitation progress and success.

The ongoing refinement of the rehabilitation completion criteria will involve, but not limited to, results from research and rehabilitation trials and monitoring results from the various monitoring programs as outlined in **Section 8.0**



**Table 7 Rehabilitation Indicators and Completion Criteria**

Final Land Use Domains	Mining Domains	Rehabilitation Objectives	Rehabilitation Completion Criteria	Indicator	Justification/Validation Methods
<b>Native Ecosystems</b> <b>Biodiversity Offsets</b> BVT: HU547 Fuzzy Box Woodland BVT: HU697 Mugga Ironbark-Black Cypress Pine BVT: HU732 Yellow Box Grassy Woodland BVT: HU824 White Box-Black Cypress Pine Shrubby Woodland BVT: HU825 Narrow-leaved Ironbark-Black Cypress Pine Grass Woodland	<b>All Domains</b> <b>(Excluding Final Voids)</b>	<b>Removal of Infrastructure</b> All infrastructure not used as part of the final landform, to be decommissioned and removed, unless the Resources Regulator agrees otherwise Safe, stable and non-polluting Ensure public safety	All electrical, water and communication services including overhead, buried and remote services to be disconnected in preparation for removal from site.	All electrical, water and communication services have been disconnected and removed.	Retain records and confirmed against the Mine's schedule that all redundant services have been identified and disconnected. Retain electrical disconnection record from utility provider.
			All demolition work is carried out in accordance with <i>Australia Standards AS2601-2001: The Demolition of Structures</i> (or its latest version).	Demolition of infrastructure.	<i>Australia Standards AS2601-2001</i> Retain records of demolition and compliance certificates issued by Council (where applicable).
			The removal of all buildings, fixed and mobile plant/equipment and associated mining infrastructure including: Rail loop and loadout facility, conveyors, coal crushing, coal stacking and reclaiming system, coal handling process plant (CHPP), belt press filter facility (BPF), demountable buildings; workshops, sheds, storage and hardstand areas, all concrete slabs and foundations and culverts, all tanks, bitumen carparks and roads and associated road furniture; power poles and pipelines, pumps and pontoons, all remote infrastructure and communications and meteorological towers.	Infrastructure removed	As required by the approved conceptual final landform plan Rehabilitation Strategy. Retain all survey plans, demolition reports and photographic records, wastes removed, wastes disposed on site, materials recycled and records of hazardous waste disposed off site in accordance with the Waste Management Plan (prepared at Mine Closure).
			All waste to be classified against relevant guidelines for appropriate disposal and transportation.	All waste generated has been classified in accordance with the EPA Waste Classification Guidelines and disposed of accordingly	In accordance with the Waste Management Plan (prepared at Mine Closure). <i>Protection of the Environment Operations Act 1997</i> (POEO Act).
			All exploration holes and redundant groundwater monitoring and production bores to be grouted and rehabilitated in accordance with relevant legislation, guidelines and conditions of water licences.	All exploration holes and redundant groundwater monitoring and production bores have been grouted and rehabilitated.	Retain all survey plans, grouting certificates, photographic and rehabilitation records. Water licence conditions issue under the <i>Water Act 1912</i> . NSW Exploration Codes of Practice under the <i>Mining Act 1992</i> .
			Dewater all water in pipelines and mine water dams back into the Mine's water management system prior to removing pipelines and preparing mine dams for backfilling and integration into final landform.	Dewatering of pipelines and mine water dams back into the Mine's retained water management system completed.	Section 120 of the <i>Protection of the Environment Operations Act 1997</i> (POEO Act).
			Assessment of contamination to be completed in accordance with relevant legislation and reporting guidelines.	Assessment of contamination has been completed	Assessment of contamination report provided by an EPA certified contaminated land consultant (practitioner). <i>Contaminated Land Management Act 1997</i> (CLM Act). <i>National Environment Protection (Assessment of Site Contamination) Measure 2013</i> (ASC NEPM 2013).
			Contamination areas identified during investigations are to be remediated to a condition that does not pose a threat of environmental harm or restrict the intended final land use.	Contamination has been remediated	Verification report that contamination has been remediated provided by an EPA certified contaminated land consultant (practitioner).

Final Land Use Domains	Mining Domains	Rehabilitation Objectives	Rehabilitation Completion Criteria	Indicator	Justification/Validation Methods
			Site security to be maintained during all phases of mine closure and post mining rehabilitation phases.	Site security is maintained during all phases of mine closure and post mining rehabilitation phases with no authorised access or security incident.	Retain records of fencing, locked access points and security monitoring.
<b>Native Ecosystems</b> BVT: HU547 Fuzzy Box Woodland BVT: HU697 Mugga Ironbark-Black Cypress Pine BVT: HU732 Yellow Box Grassy Woodland BVT: HU824 White Box-Black Cypress Pine Shrubby Woodland BVT: HU825 Narrow-leaved Ironbark-Black Cypress Pine Grass Woodland	<b>All Domains (Excluding Final Voids)</b>	<b>Landform Stability</b> Safe, stable and non-polluting Final landforms designed to incorporate micro-relief and integrate with surrounding natural landforms and adjacent mine rehabilitation Final landforms maximise geotechnical performance, stability and hydrological function Constructed landforms maximise surface water drainage to the natural environment (excluding final void catchments) Minimise long term groundwater seepage from the site to ensure negligible environmental consequences beyond those predicted for the development Minimise visual impact of final landforms as far as is reasonable and feasible Drainage lines are restored in accordance with the principles, concepts and techniques described in "A rehabilitation manual for Australian streams (Rutherford, I; Jerie, K; Marsh, N 2000).	Mine water dams (excluding approved final voids) to be backfilled and integrated into the final landform.	Mine water dams have been backfilled to design with inert overburden material, compacted and integrated into the final landform as confirmed by survey against the final landform design.	As required by the approved conceptual final landform in Rehabilitation Strategy. Retain all survey plans of restored landforms, final design reports and photographic records.
			All life of mine (LOM) carbonaceous reject material and residual carbonaceous material to be placed at least 2m below the surface of the backfilled mine void landform and placed at least 5m below the surface of the Elevated Waste Rock Emplacement (Pit 2), so not to pose a threat of environmental harm or restrict the intended final land use.	All LOM carbonaceous material and residual carbonaceous material has been placed at least 2m below the surface of the backfilled mine void landform and placed at least 5m below the surface of the Elevated Waste Rock Emplacement (Pit 2) as confirmed by confirmed by survey against the final landform design.	Section 5 of the Wilpinjong Extension Project (WEP) Environmental Impact Statement (EIS). Retain all survey plans of restored landforms, final design reports and photographic records.
			There will be no spontaneous combustion in the final landform so not to pose a threat of environmental harm or restrict the intended final land use.	There is no spontaneous combustion in the final landform as confirmed by survey and thermal imaging against the final landform design.	Section 2 of the Wilpinjong Extension Project (WEP) Environmental Impact Statement (EIS). Retain all survey plans, thermal imaging, final design reports of restored landforms and photographic records.
			Site investigation by suitably qualified tailings engineer to confirm if sufficient strength within tailings dam has been achieved prior to capping activities.	Tailings engineer confirms sufficient strength of tailings has been achieved and tailings dam is ready for capping.	As required by design report for tailings storage facility. Verification report provided by tailings engineer.
			Tailings dams to be capped with compacted inert overburden material to a minimum depth of cover of 2m, prior to final profiling and rehabilitated so not to pose a threat of environmental harm or restrict the intended final land use.	Tailings dams are capped appropriately in accordance with capping design as confirmed by survey against the final landform design.	Section 5 of the Wilpinjong Extension Project (WEP) Environmental Impact Statement (EIS). Retain all survey plans of restored landforms, final design reports and photographic and monitoring records.
			No significant forms of erosion that would constitute a safety hazard and/or compromise the intended final land use and/or compromise the effectiveness of drainage structures.	The final landform has been constructed in general accordance with the Rehabilitation Strategy and its intended land use. Landforms and drainage structures are confirmed stable by survey against the final landform design. Ground vegetation is to be generally >70%. Erosion riling to be generally <0.3m (w). No gully erosion.	As required by the Biodiversity Management Plan (BMP). Retain all survey plans of restored landforms, final design reports, monitoring reports and photographic records.
			A self-sustaining stable landform is deemed to have been achieved either with LIDAR aerial surveys and/or Land Function Analysis (LFA) score of 50 or more is recorded.	LIDAR aerial surveys confirm landforms are stable by surveyor and/or LFA score of 50 or more has been recorded by suitably quality ecologists or mine rehabilitation specialists.	As required by the Biodiversity Management Plan (BMP). Retain all rehabilitation monitoring reports and photographic records
			The final landform is to be constructed generally in accordance with the approved conceptual final landform design and integrates with the surrounding natural landforms and incorporates detailed drainage design plans with micro-relief drainage features which does not exceed the maximum approved elevation.	The final landform has been constructed generally in accordance with the approved final landform design and integrates with the surrounding natural landforms and incorporates detailed drainage design plans with micro-relief drainage features and a maximum elevation of 440m AHD, as confirmed by survey against the final landform design.	Section 5 of the Wilpinjong Extension Project (WEP) Environmental Impact Statement (EIS) As required by the approved conceptual final landform plan Rehabilitation Strategy. Retain all survey plans of restored landforms, final design reports and photographic records.

Final Land Use Domains	Mining Domains	Rehabilitation Objectives	Rehabilitation Completion Criteria	Indicator	Justification/Validation Methods
			Backfilled rehabilitation landforms will be designed and constructed with final landform gradients of no more than 1:6 (10 degrees or 17%) (with the exception of slopes associated with final voids and safety bunds).	Backfilled rehabilitation landforms have been designed and constructed with final landform gradients of no more than 1:6 (10 degrees or 17%) and confirmed by survey and engineer in charge.	Section 5 of the Wilpinjong Extension Project (WEP) Environmental Impact Statement (EIS) Retain all survey plans of restored landforms, final design reports and photographic records.
			The final landform is to be constructed generally in accordance with the approved conceptual final landform design to improve the hydrological and ecological function of the landform.	The final landform has been constructed generally in accordance with the approved conceptual final landform design to improve the hydrological and ecological function of the landform as confirmed by survey against the final landform design and hydrological and ecological specialists.	As required by the approved conceptual final landform plan Rehabilitation Strategy. Retain all survey plans of restored landforms, final design reports, hydrological performance and ecological specialist reports and photographic records.
			Drainage lines within the final landform are to be constructed generally in accordance with the approved conceptual final landform design and restored in accordance with best practice principles, concepts and techniques for rehabilitating Australian streams.	Drainage lines within the final landform have been constructed generally in accordance with the approved conceptual final landform design and restored in accordance with the principles, concepts and techniques described in "A rehabilitation manual for Australian streams (Rutherford, I; Jerie, K; Marsh, N 2000) as confirmed by survey against the final landform design and hydrological and ecological specialists.	As required by the approved conceptual final landform plan Rehabilitation Strategy. Retain all survey plans of restored landforms, final design reports, hydrological performance and ecological specialist reports and photographic records.
			Runoff water quality from rehabilitation into Wilpinjong Creek via completed drainage lines within the final landform will be within the long-term range of water quality recorded historically within the rehabilitated drainage lines and the runoff water quality does not pose environmental harm for receiving waters.	Runoff water quality from final landform rehabilitated areas into Wilpinjong Creek via the completed drainage lines will be within the performance criteria range of water quality parameters for pH, EC, turbidity, sulphate and selected metals (Pb, Se, As and Mo) as specified in the SWMP and does not pose environmental harm for receiving waters in accordance with Australian River Assessment System (AUSRIVAS) by a surface water specialist.	Section 4 of the Wilpinjong Extension Project (WEP) Environmental Impact Statement (EIS). Australian River Assessment System (AUSRIVAS). Retain all surface water quality monitoring reports and aquatic health reports.
			Groundwater quality and groundwater regime are within range as predicted against the latest calibration of the groundwater model.	Groundwater quality and groundwater regime have been confirmed within range as predicted the latest calibration of the groundwater model by groundwater specialists.	Section 4 of the Wilpinjong Extension Project (WEP) Environmental Impact Statement (EIS) Groundwater model (latest calibration). Retains all groundwater assessment reports.
<b>Native Ecosystems</b> BVT: HU547 Fuzzy Box Woodland BVT: HU697 Mugga Ironbark-Black Cypress Pine BVT: HU732 Yellow Box Grassy Woodland BVT: HU824 White Box-Black Cypress Pine Shrubby Woodland BVT: HU825 Narrow-leaved Ironbark-Black Cypress Pine Grass Woodland	<b>All Domains (Excluding Final Voids)</b>	Rehabilitate at least 2,906 hectares of self-sustaining woodland ecosystem to the BVTs specified in Tables 8 and 9 of Development Consent (SSD-6764); Establish self-sustaining ecosystem function in areas of: - aquatic habitat, within diverted and/or re-established drainage lines and retained water features, with consideration of hydro-geomorphological constraints; - habitat for threatened flora and fauna species; and - habitat for flora and fauna species known to occur in the region.	All possible rehabilitation materials are to be recovered, managed and used to the greatest extent.  The overburden material in the final landform will be considered suitable if the results from the material characterisation prior to applying topsoil are within the applicable range for ECe and pH.  Topsoil is to be applied at a minimum of 100 mm thickness to a maximum of 300 mm in all areas and 'keyed' into the final landform.	All possible recoverable rehabilitation materials have been recovered including topsoil, fallen logs or felled trees, rocks during the clearing phase in accordance with Ground Disturbance Permit (GDP) and utilised in the rehabilitation as confirmed by survey against the final landform design.  The overburden material in the final landform is considered suitable if the results from the material characterisation determine soil salinity (ECe) <4dS/m and soil pH 5.0 to 8.9 as confirmed by rehabilitation specialist.  Topsoil has been applied at a minimum of 100 mm thickness to a maximum of 300 mm in all areas and 'keyed' into the final land form as confirmed by survey against the final landform design.	As required by the Biodiversity Management Plan (BMP). Retain all survey plans of restored landforms, final design reports, rehabilitation and ecological monitoring reports and photographic records.  Review of <i>Soil Parameters for Post Mining Rehabilitation Criteria</i> (Minesoils, June 2022). Retain all survey plans of restored landforms, final design reports, rehabilitation and spoil monitoring and amelioration reports and photographic records.  Section 5 of the Wilpinjong Extension Project (WEP) Environmental Impact Statement (EIS). Retain all survey plans of restored landforms, final design reports, topsoil confirmation reports and photographic records.

Final Land Use Domains	Mining Domains	Rehabilitation Objectives	Rehabilitation Completion Criteria	Indicator	Justification/Validation Methods
			Topsoil material in the final landform will be considered suitable if the results from the material characterisation are within range for E <sub>Ce</sub> , pH, CEC and ESP.	Topsoil material in the final landform will be considered suitable if the results from the material characterisation are within range for E <sub>Ce</sub> <4dS/m, pH 5.0 to 8.9, Cation Exchange Capacity (CEC) 3 to 25meq/100g and Soil Exchange Sodium Percentage (ESP) <6% as confirmed by soil specialist.	Review of <i>Soil Parameters for Post Mining Rehabilitation Criteria</i> (Minesoils, June 2022). Retain all survey plans of restored landforms, final design reports, rehabilitation and topsoil monitoring and amelioration reports and photographic records.
			Biometric Vegetation Types (BVT) and Regent Honeyeater habitat will be established generally in accordance with the Conceptual Final Rehabilitation plan.	Biometric Vegetation Types (BVT) and Regent Honeyeater habitat have established generally in accordance with the Conceptual Final Rehabilitation plan as confirmed by ecological specialists.	As required by the Biodiversity Management Plan (BMP). Retain all survey plans of restored landforms, final design reports, rehabilitation and ecological monitoring reports and photographic records.
			Exotic Plant Cover (EPC) within all relevant BVTs will need to achieve the Biometric Performance & Completion Criteria for EPC.	Exotic Plant Cover (EPC) within all relevant BVTs is in compliance with a EPC coverage of <45% as confirmed by ecological specialists.	As required by the Biodiversity Management Plan (BMP). Retain all rehabilitation and biodiversity monitoring reports and photographic records.
			Naturally regenerating over storey species within BVTs will need to achieve the Biometric Performance & Completion Criteria for over storey species naturally generating.	Naturally regenerating over storey species within BVTs is in compliance when 25% of over storey species is naturally generating as confirmed by ecological specialists.	As required by the Biodiversity Management Plan (BMP). Retain all rehabilitation and biodiversity monitoring reports and photographic records.
			The overall site value score (SVS) from Biometric monitoring of BVTs will need to achieve the Biometric Performance & Completion Criteria for SVS.	The overall site value score (SVS) from Biometric monitoring of BVTs is in compliance with an SVS score is >17 as confirmed by ecological specialists.	As required by the Biodiversity Management Plan (BMP). Retain all rehabilitation and biodiversity monitoring reports and photographic records.
<b>Final Voids</b>	<b>Final Voids</b>	Minimise to the greatest extent practicable. - the size and depth of final voids - the drainage catchment of final voids - any high wall and low wall instability risk - risk of flood interaction for all flood events up to and including the probable maximum flood (PMF).	The final landform is to be constructed generally in accordance with the approved conceptual final landform design to include two final voids located within Pit 2 (22ha) and Pit 6 (8ha) with catchment areas minimised to the greatest extent possible.	The final landform has been constructed generally in accordance with the approved conceptual final landform design with two final voids located within Pit 2 (22ha) and Pit 6 (8ha) with catchment areas as confirmed by survey against the approved conceptual final landform design.	Section 5 of the Wilpinjong Extension Project (WEP) Environmental Impact Statement (EIS) As required by the approved conceptual final landform plan Rehabilitation Strategy. As required by Final Void Management (FVMP) to be developed as part of the Mine Close Plan.
			The final landform is to be constructed generally in accordance with the approved final landform design to minimise surface water inflows to the final voids.	The final landform has been constructed generally in accordance with the approved conceptual final landform design to minimise surface water inflows to the final voids and as confirmed by survey against the final landform design.	As required by design report for final voids in the FVMP Verification of geotechnical stability for final voids provided by engineer as required by the FVMP.
			Final void highwalls will be designed and constructed incorporating geotechnical design and factors of safety for long term stability as a final landform feature.	Final void highwalls have been designed and constructed incorporating geotechnical design and factors of safety for long term stability as a final landform feature as confirmed by survey against the final landform design.	Flood study and groundwater regime behaviour reports (post mining) provided by relevant surface water and groundwater specialist in the FVMP Retain all survey plans of restored landforms, final design reports, rehabilitation and ecological monitoring reports and photographic records.
			The final landform is to be constructed generally in accordance with the approved final landform design with safety bunds around final voids.	The final landform is to be constructed generally in accordance with the approved final landform design with safety bunds around final voids as confirmed by survey against the final landform design.	
			The final voids will act as groundwater sinks, limiting the flow of water from the waste rock emplacement areas to the Wilpinjong Creek and surrounding environment.	The final voids are acting as groundwater sinks, limiting the flow of water from the waste rock emplacement areas to the Wilpinjong Creek and surrounding environment as confirmed in final void study completed by groundwater specialists.	



## 4.2 Rehabilitation Objectives and Rehabilitation Completion Criteria – Stakeholder Consultation

Extensive consultation was conducted in establishing the environmental controls and management measures developed as part of the WEP EIS. In preparation of this RMP and the previous MOP, WCPL completed consultation with key government departments and other relevant stakeholders including the CCC, as summarised in **Table 8. Appendix C** provides copies of the relevant correspondence undertaken during the preparation on the RMP.

**Table 8 Summary of Consultation with Stakeholders**

Government Departments	Summary of Consultation	Issues Raised
DPE-RR	Zoom meeting with Mark Greally, Christina Faucett and Matt Newton Friday 4 <sup>th</sup> March 2022. Discussion regarding: Mine status update; Rehabilitation strategy development; Landform optimisation; Moolarben Coal Mine interaction status and Rehabilitation reforms update.  Meeting with Matthew Newton Wednesday 11 May 2022. Discussed potential timing issues with the submission of the RMP given the status of the rehabilitation strategy and NSW DPE.  Consultation via Webinar with Matthew Newton 28 June 2022 to clarify reporting period for ARRFP.	No issues raised.
DPE	30 <sup>th</sup> March 2022, 3 May 2022 ongoing consultation with DPE regarding the Rehabilitation Strategy with the revised conceptual final landform submitted for SSD-6764.	DPE seeking further request for information and resubmission of the Rehabilitation Strategy
CCC	6 <sup>th</sup> June 2022, CCC presented with update of the MOP to be replaced with RMP (Development of Rehabilitation Management Plan in accordance with <i>Form and Way - Rehabilitation Management Plan for Large Mines</i> )	No issues raised.
BCD	22 <sup>nd</sup> June 2022 seeking feedback with regards to WCPL Development of Rehabilitation Management Plan in accordance with <i>Form and Way - Rehabilitation Management Plan for Large Mines</i> )	No issues raised.
MWRC	22 <sup>nd</sup> June 2022 seeking feedback with regards to WCPL Development of Rehabilitation Management Plan in accordance with <i>Form and Way - Rehabilitation Management Plan for Large Mines</i> )	No issues raised.
DPI-Water	22 <sup>nd</sup> June 2022 seeking feedback with regards to WCPL Development of Rehabilitation Management Plan in accordance with <i>Form and Way - Rehabilitation Management Plan for Large Mines</i> )  27 <sup>th</sup> June 2022 received reply from DPI-Water will await provision of the draft RMP to consider the need for comment.	No issues raised.
DPE	6 December 2022 the Secretary approved the Rehabilitation Strategy subject to conditions including updating the groundwater model within 18 months of his approval and updating the Rehabilitation Strategy as required, post groundwater review in consideration of an updated mine plan in consultation with MCO regarding an integrated landform.	Refer to conditional approval ( <b>Appendix C</b> )

Ongoing consultation is completed in accordance with the WCPL Environmental Management Strategy (EMS)<sup>6</sup>, which includes, operation of the community consultative committee (CCC) and maintaining information on the Peabody website.

The website is maintained<sup>7</sup> in accordance with Development Consent (SSD-6764). The website provides the wider community with access to the sites monitoring results, details of current activities, proposed blast times, policies, environmental management plans and monitoring programs and any

<sup>6</sup> Condition 1, Schedule 5 of Development Consent (SSD-6764)

<sup>7</sup> Condition 12, Schedule 5 of Development Consent (SSD-6764)

other information in relation to the site operation that may be considered of interest to the community. The Peabody Energy website address for WCPL is:

<https://www.peabodyenergy.com/Operations/Australia-Mining/New-South-Wales-Mining/Wilpinjong-Mine>

## 5.0 Part 5 – Final Landform and Rehabilitation Plan

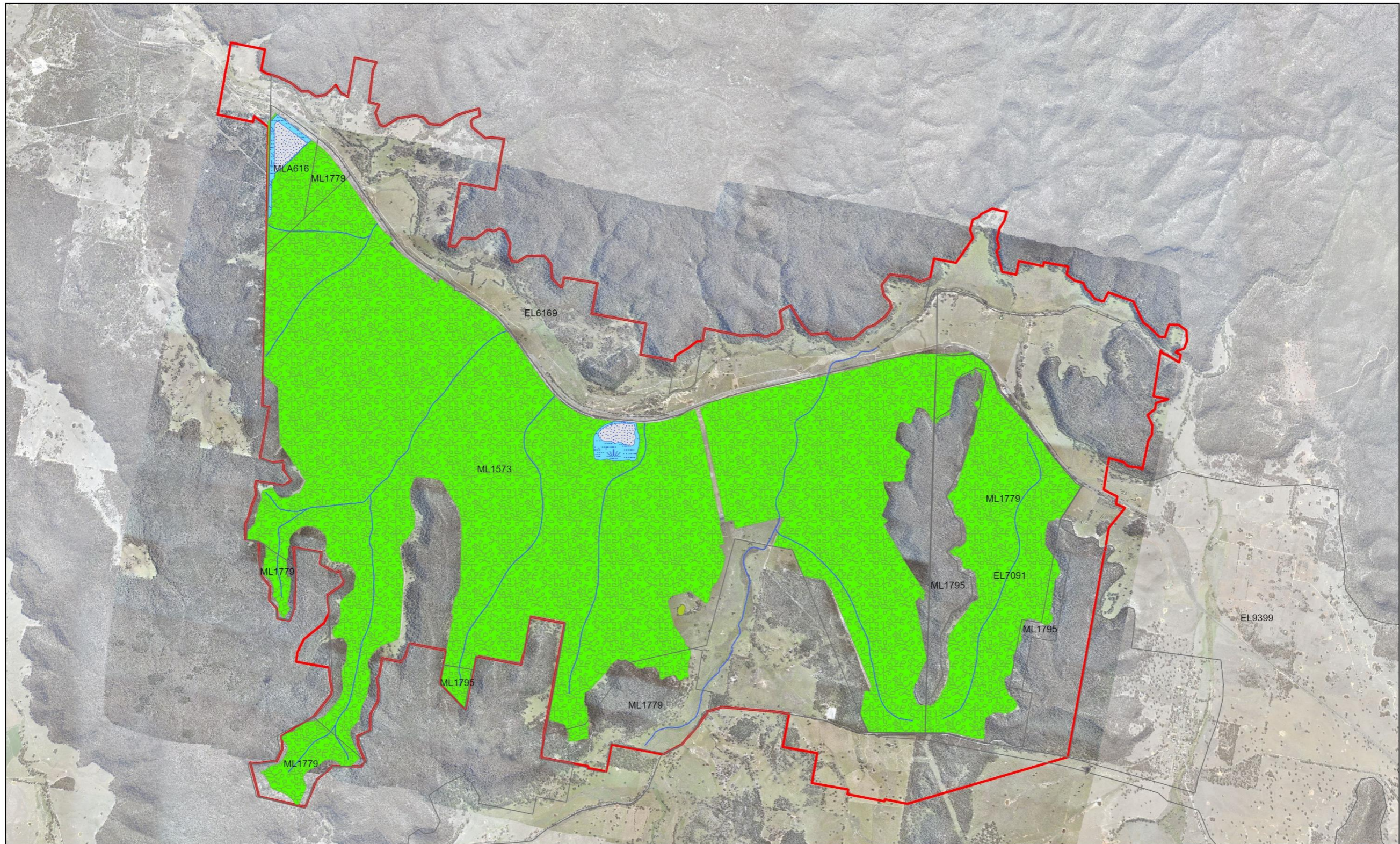
The final landform and rehabilitation plan are defined under Clause 12 of the Regulation as Rehabilitation Outcome Documents required to be submitted to the Secretary for approval. The final landform and rehabilitation at the end of mining life (**Figure 9**) is provided in this RMP to satisfy the requirement Clause 12(1)(c) of the Regulation. Spatial files associated with **Figure 9** as required by the Regulation will be provided separately to the Department.

In accordance with the requirements of the RMP guidelines, a Final Land Use and Rehabilitation Plan (**FLRP Plan 1** and **FLRP Plan 2**) has been prepared to show the proposed final land use and final landform at the end of mine life. Copies of the Plans are included in **Section 5.1**.

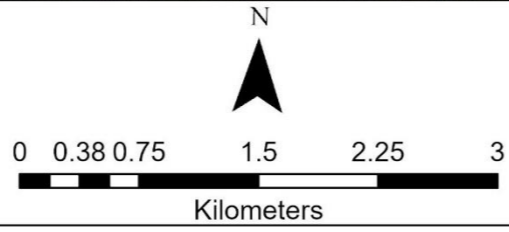
### 5.1 Final Landform and Rehabilitation Plan (Electronic Copy)



FLRP Plan 1 – Final Landform Features



- Legend**
- SSD6764 Approval Boundary
  - Final Landuse Domain
  - Rehabilitation Biodiversity Offset Area
  - Final Void
  - Heritage Area
  - Water Management Areas

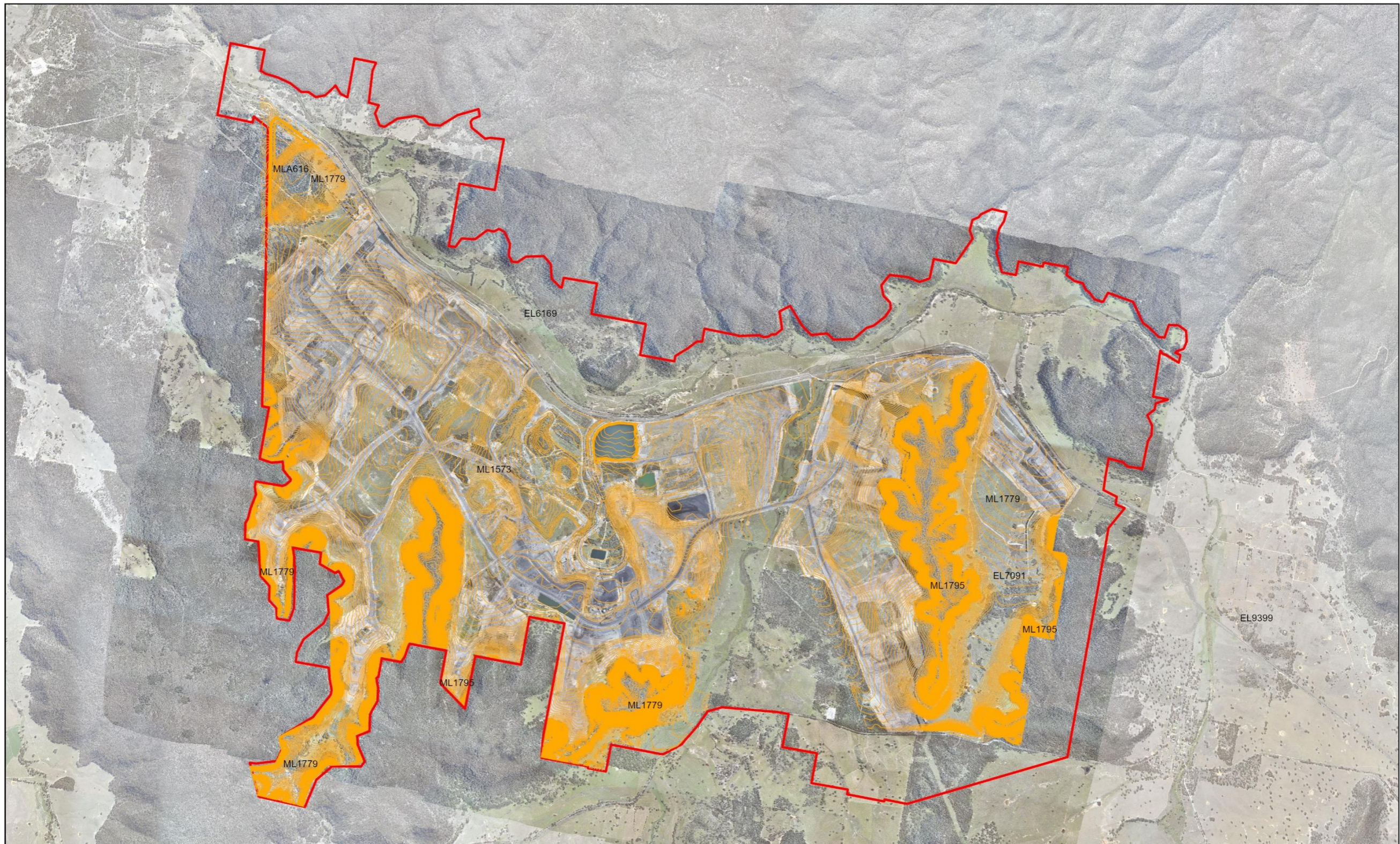


Wilpinjong Coal Mine FLRP Plan 1: Final Landform Features				
SpatiaReference Name:GDA1994MGAZone65	Review ID: 1	DateExported: 20/12/2022 9:33PM	Drawn: JH	NSW RR Portal: Submission ID Numbers 1761, 3797

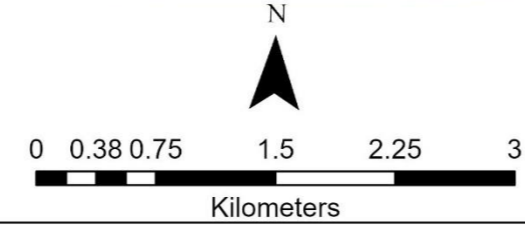
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FLRP Plan 2 - Final Landform Contours



**Legend**  
 [Red outline] SSD6764 Approval Boundary  
 [Orange shading] Final Landform Contours (2m)



Wilpinjong Coal Mine  
 FLRP Plan 2: Final Landform Contours



SpatialReference Name:GDA1994MGAZone55	Review ID: 1	DateExported: 20/12/2022 8:37PM	Drawn: JH	NSW RR Portal: Submission ID Numbers 1761, 3796	Peabody makes every effort to ensure the quality of the information available on this map. Before relying on the information on this map, users should carefully evaluate its accuracy, currency, completeness and relevance for their purposes, and should obtain any appropriate professional advice relevant to their circumstances. Peabody cannot guarantee and assumes no responsibility for the accuracy, currency or completeness of the information and by using this map you accept that Peabody has no liability for any loss or damage in any form whatsoever caused directly or indirectly from the use of this map.
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## 6.0 Part 6 – Rehabilitation Implementation

### 6.1 Phases of Rehabilitation and General Methodologies

The processes to achieve the rehabilitation objectives (**Section 4**) and the final land use (**Section 2**) implemented by WCPL, are primarily associated with the advancing open cut and waste rock emplacement areas. Typically, the following rehabilitation phases of the Mine include:

- **Active Mining:**
  - Areas where operational mining activities occur. Rehabilitation activities associated with this phase include topsoil management, flora and fauna management, overburden emplacement, waste management, geology and geochemistry, spontaneous combustion, reject/tailings, erosion and sediment control, biological resources, cultural heritage and exploration activities.
- **Decommissioning:**
  - The consolidation of tailings dams prior to capping and rehabilitation, removal of hard stand areas and roads, mine infrastructure and buildings, wastes, contaminated and hazardous materials.
- **Landform Establishment:**
  - Incorporates mine waste rock emplacements progressively re-shaped behind the active mining areas to achieve the post mining landform including; appropriate gradient, slope, aspect, drainage, substrate material characterisation and morphology to attain a safe and stable landform;
- **Growth Medium Development:**
  - Incorporates physical, chemical and biological components of the growing media and ameliorants that are used to optimise the potential of the media in terms of the preferred vegetative cover;
- **Ecosystem and Land Use Establishment:**
  - Incorporates revegetated lands and habitat augmentation; species selection, species presence and growth together with weed and pest animal control /management and establishment of flora;
- **Ecosystem and Land Use Development:**
  - Incorporates monitoring and management of floristic structure, nutrient cycling, recruitment and recovery, community structure and function which are the key elements of a sustainable landscape; and
- **Rehabilitation Completion**
  - Rehabilitated areas that have met the required completion criteria and the land is determined suitable to be relinquished for the mining tenement.

#### 6.1.1 Active Mining Phase

Ground disturbances within the Mine are managed by WCPL using the Ground Disturbance Permit (GDP) (refer to the EMS). A GDP is required to be completed prior to the commencement of new projects or activities requiring ground disturbance. Where required, a site-specific erosion and sediment control plan is developed as part of this process. The GDP must be approved by the Environment and Community Manager (ECM) (or delegate) prior to works commencing. Ground disturbing activities are not authorised to proceed without an approved GDP. Pre-clearance surveys by an appropriately qualified ecologist will also be undertaken as required, in accordance with the Biodiversity Management Plan (BMP) and the GDP.

WCPL have an approved BMP as required by Development Consent (SSD-6764). The BMP outlines strategies, procedures, controls and monitoring programs required to manage flora and fauna within, but not limited to Rehabilitation Areas, in accordance with Development Consent (SSD-6764).



Regular inspections of clearance areas will be undertaken by respective project managers and WCPL's Environmental Representatives to ensure adequate controls are implemented and maintained during the disturbance activity. Inspection frequency will be determined based on the scale of the disturbance and with consideration to the environmental risks. Controls may need to be amended to accommodate changes in construction activities, adverse weather conditions, disturbance areas, drainage paths and other conditions. Such changes are to be approved by the ECM (or delegate).

Direct and indirect impacts to the Munghorn Gap Nature Reserve will be avoided by detailed mine planning and delineation of areas to be cleared as part of the vegetation clearance protocol (including GDPs). In accordance with Schedule 3, Condition 40 of the Development Consent, all open cut pits will be set back at least 20 m from the boundary of the Munghorn Gap Nature Reserve, delineation of the boundary of the (MGNR), through cadastral, survey was completed prior to commencement of development under the WEP. It is noted that mine support infrastructure (required for site access and water management purposes) is allowable within the 20m set back area.

As required by Development Consent (SSD-6764), WCPL will commence the ecosystem and land use establishment phase of rehabilitation for areas within 50m of the Munghorn Gap Nature Reserve, within 2 years of ceasing mining operations in those areas.

#### **a) Soils and Materials**

Prior to topsoil stripping rehabilitation materials such as tree hollows, fallen logs, felled trees and other habitat features (e.g. rocks, stag trees) will be identified for salvage to improve habitat values in rehabilitation areas as required by the BMP and GDP. Where practicable, these materials will be salvaged during the clearing stage of development and set aside within the Mine for later use in rehabilitation areas. For further information refer to the BMP.

Soil landscapes were classified and mapped in accordance with descriptions in the Soil Landscapes of the Dubbo 1:250,000 Sheet (NSW Department of Land and Water Conservation [DLWC], 1998) and Mine field surveys. Three soil landscapes, viz. Ulan, Barigan Creek and Lees Pinch (DLWC, 1998) were identified in the original project area and WEP areas with limitations such as high erosion hazards under low surface coverage, salinity in localised areas, moderate to very low fertility and water holding capacity.

Major soil types identified include red podzolic soils which occur over the majority of mining leases on lower to mid slopes, yellow podzolic soils which occur on lower slopes and minor drainage lines, and earthy sands which occur along Bens Creek and at the bases of sandstone escarpments. Brown earths occur in small patches on the eastern bank of Cumbo Creek and yellow solodic soils occur as a thin band in the south-east of ML1573. Lithosols occur on the higher plateaus and escarpments adjoining the Munghorn Gap Nature Reserve and the steeper slopes in the east of ML1573. Alluvial soils occur along drainage lines (WEP, 2015).

Prior to soil stripping, soil resources will be quantified. Where a deficit of topsoil is identified, investigations will be undertaken to determine the viability of the use of subsoils and to identify the need for treatment measures (e.g. use of ameliorants) applied where there is a deficit of topsoil. Where direct spreading is not practicable, the stripped soil will be stockpiled and managed as summarised below:

- Completed GDP prior to land disturbance activities/clearing;
- Quantification of soil resources and identification of rehabilitation materials;
- Recommended topsoil stripping depths<sup>1</sup> as provided by the soil survey in the WEP EIS:
  - Red Podzolic (~150mm)
  - Yellow Podzolic (~200mm)
  - Brown Earth (~250mm)
  - Alluvial (~300mm)
- Topsoil will be placed directly onto reshaped areas where possible;

- Topsoils and subsoils within WEP will be stripped at the following depths, upon confirmation of soil assessments:
  - Topsoil stripping depths generally ~150mm.
  - Subsoils within areas of shallow soils, rocks or high salinity generally ~350mm.
  - Subsoils in Pit 8 generally ~850mm.
- Preferably, topsoil and subsoil will be stripped during periods of greater moisture content;
- Mulching (when required) of vegetation prior to topsoil stripping, where possible, to provide additional organic matter;
- Selective stockpiling of rehabilitation materials as close as possible to rehabilitation areas;
- Selective stockpiling of soils according to soil type and soil characteristics will be stockpiled separately to the greatest extent possible and stockpiled at <3m in height, outside of high traffic areas; and
- When necessary, implementation of management measures to ensure long-term viability of soil resources including erosion and sediment control, application of ameliorants, weed control, cover crops and signage.

WCPL topsoil inventories have identified that the site will have sufficient topsoil resources to complete rehabilitation across the life of mine.

#### **b) Flora**

Pre-clearance surveys prior to disturbance are undertaken as required, to identify if any protected or endangered species or ecological communities are in the proposed disturbance area boundary in accordance with the GDP and Pre-Clearance Protocol in the BMP.

WCPL has implemented a native seed collection and propagation program, to ensure that the genetic integrity, structure and composition of local vegetation types are maintained throughout the broader landscape. Where available, the collection and propagation of locally sourced native seed will be carried out opportunistically by a suitably qualified, licensed provider, who is trained in plant identification, seed collection, data recording, seed storage techniques and propagation. WCPL's seed collection provider will follow best practice principles, with the FloraBank guidelines (FloraBank, 2013) to be used to guide the seed collection process.

The seed collection program will take into account the seasonality of seed availability and the specific target seed lists required to establish the various BVTs across the mine rehabilitation areas as specified in Section 6 of the BMP.

Seeds of the threatened *Ozothamnus tessellatus* have been collected and propagated by WCPL for use in the rehabilitation and Regeneration Areas. Seeds from *Ozothamnus tessellatus* will be collected during November (or other relevant times that seed is available) from the known populations within the open cut extension and infrastructure areas and throughout the BOAs (where the species is also known to occur).

Annual and opportunistic monitoring of weeds across mine rehabilitated areas is undertaken to determine appropriate weed control programs. Treatment of weeds will be undertaken by suitably qualified and experienced personnel. For more information regarding weed control refer to the BMP.

When required, WCPL's use of cover crops is a way of providing stabilisation and soil improvement. Essentially a cover crop can be grown before being ploughed into the soil when the plant is still 'green' and then re-seeded with the applicable BVT species and/or included into the seed mix with the applicable BVT species during initial seeding. At WCPL, the cover crop has included various combination of legumes (cow peas, clover), sorghum, millet, sudan grass, and oats. Further information regarding revegetation refer to **Section 6.2.5**.



WCPL's Biodiversity Monitoring Program in the BMP, includes annual monitoring of flora. This monitoring program will be used to evaluate ecosystem function and performance and the success of specific management actions implemented across the Mines rehabilitation areas.

### **c) Fauna**

Pre-clearance surveys prior to disturbance are undertaken as required, to identify if any protected or endangered species or ecological communities are in the proposed disturbance area boundary in accordance with the GDP and Pre-Clearance Protocol in the BMP.

Additionally, during the clearance stage, rehabilitation materials such as sensitive wildlife habitats such as tree hollows, are identified within the proposed disturbance area. Other rehabilitation materials including fallen logs, felled trees and other habitat features (e.g. rocks, stag trees) will be identified for salvage to improve habitat values in rehabilitation areas. Where practicable, these materials will be salvaged and set aside within the Mine for later use in rehabilitation areas. For further information refer to the BMP.

Habitat augmentation involves the establishment of habitat structures within selected rehabilitation areas. This includes the relocation of surplus trees removed from the Mine footprint that are not required for mine site rehabilitation and re-establishment as log habitat or the establishment of nest boxes. Procedures, monitoring methodology, performance criteria and recording requirements will be developed for the re-establishment of logs and establishment of nest boxes and stags prior to their installation. The requirement for installation of such features will be determined by appropriately trained ecologists and will be provided as recommendations through the biodiversity monitoring program Section 9 of the BMP.

Fallen logs, felled trees and other habitat features (e.g., rocks, stag trees) will be used to improve habitat values in rehabilitation areas. Materials (e.g., stags) will be salvaged during the clearing stage of development and used in the appropriate management domains. Logs will be sourced from the revegetation / rehabilitation works, once they have been successfully established. The main harvesting period is anticipated to be in the period 10-15 years where tree thinning will be undertaken to yield fallen logs with a minimum diameter of 10 cm. Shrub species such as *Acacia linearifolia* may also be used for this purpose, especially given their capacity to generate significant amounts of stem biomass of greater than 10 cm diameter in short timeframes.

WCPL have set aside a log stockpile area within the Mine for the stockpiling of felled timber from WCPL land and externally sourced logs for later use in rehabilitation areas.

WCPL's Biodiversity Monitoring Program in the BMP, includes annual monitoring of fauna. This monitoring program will be used to evaluate ecosystem function and performance and the success of specific management actions implemented across the Mines rehabilitation areas.

### **d) Rock/Overburden Emplacement**

Mined waste rock (including overburden and interburden) would continue to be progressively placed in mine voids behind the advancing open cut operations, once the coal has been removed. A combination of temporary and permanent out-of-pit waste rock emplacements are located adjacent to the open cut mining operations (**Figure 6**).

Mine waste rock emplacements behind the advancing open cut are constructed to approximate the pre mining topography. The waste rock emplacements would be progressively shaped (as soon as reasonably practicable following disturbance)<sup>8</sup> by dozers for rehabilitation activities (i.e. re-contouring, topsoiling and revegetation). Some of the overburden is also utilised to construct internal walls for the tailings emplacements and visual bunds along select pit boundaries.

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<sup>8</sup> In accordance with Condition 62, Schedule 3 of SSD6764 progressively rehabilitated may be subject to further disturbance at some later stage of the development. It is also accepted that delays in rehabilitation due to extended wet or dry conditions may occur.

Final landform levels and topography of the backfilled mine landforms would generally approximate the pre mining topography, with some variations, and would be designed with an allowance for the long-term settlement of mine overburden.

Inert cover will be placed on top of the final landform surface to provide a benign barrier between any overburden that has not completely equilibrated with surface geochemical conditions.

Carbonaceous material will be placed at least 2 m below the surface of the backfilled mine void landform and at least 5 m below the surface of the Elevated Waste Rock Emplacement (Pit 2).

The elevated waste rock emplacement in Pit 2 would be temporarily rehabilitated at a height of up to approximately 450m AHD, before being reshaped and pushed down to a maximum elevation of approximately 440m AHD at the end of the mine life as a component of finalising site landforms and slopes.

WCPL materials balance calculation for waste rock emplacement has identified that the site will have sufficient material for LOM to complete rehabilitation across the life of mine<sup>9</sup>.

### **e) Waste Management**

WCPL has implemented a waste management strategy. The key waste streams at the Mine comprise of sewage and wastewater, recyclable and non-recyclable wastes and hazardous wastes. WCPL have engaged an appropriately licensed waste management contractor to perform the following activities in relation to waste management, including but not limited to;

- On-site waste management including waste segregation of scrap steel, general waste, recyclables, hydrocarbons and hazardous materials;
- Off-site disposal to licensed waste facilities;
- Off-site recycling to licensed waste centres; and
- Recording and reporting waste volumes.

In accordance with EPL 12425, WCPL can dispose up to 350 tonnes of waste tyres per annum on-site within mine void waste rock emplacement areas. In addition, WCPL would continue to dispose of both on and offsite inert waste from demolition of Peabody owned dwellings and structures in the waste rock emplacements in accordance with existing approvals.

The sewage treatment and disposal facilities at the Mine currently include a number of sewage treatment and pumping systems that discharge to within the rail loop and rehabilitation areas near remote crib huts and the CHPP. These facilities are currently serviced regularly by a licensed contractor as required. This is undertaken in accordance with Condition O4 of EPL 12425.

Various waste materials are collected and sorted for recycling including paper, cardboard, metals, glass, air filters, oil filters, waste oil, waste grease, oil rags and hydraulic hoses by WCPL licensed waste contractor.

In the event hydrocarbons have contaminated soil material as a result from spillages for example, the contaminated material will either removed from site by WCPL licensed waste contractor to an appropriate licensed facility for treatment or removed to WCPL's on site bioremediation area for remedial treatment. The bioremediation area is located within Pit 1 area. The material is disposed of within active waste emplacement areas only after the material has been successfully remediated.

Waste hydrocarbons will be collected, stored and removed by licensed waste transporters. The workshop infrastructure includes waste oil extraction equipment for efficient removal of waste oil during machinery servicing. Runoff from the workshop floor and apron, refuelling pads and truck washdown

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<sup>9</sup> WCPL currently have a revised rehabilitation management strategy for approval with DPE, subsequent to mine sequence changes to maintain operations and employment. The change in mine sequence, together with an identified material balance shortfall, required a revision to the approved final landform. Subject to approval of the revised rehabilitation management strategy, this RMP will be updated accordingly.



area pass through purpose-built oil/water separator systems which are inspected and maintained on a regular basis. Oily water from the oil/water separators are removed from site by WCPL licensed waste contractor.

#### **f) Geology and Geochemistry**

WCPL completed a review of the geochemical properties of the Mine area and the WEP area in February 2015. The Environmental Geochemistry Assessment of Overburden, Interburden and Coal Rejects (February 2015) was undertaken by Geo-Environmental Management Pty Ltd (GEM).

The test work by GEM included acidity, sodicity, electrical conductivity (EC), acid base accounting, and element enrichment and solubility. The results from the GEM investigations concluded waste rock materials would typically be neutral to slightly alkaline, generally non-saline and is expected to be in the range from non-sodic to moderately sodic and non-acid forming (NAF).

The acid base accounting test work indicates however that a small quantity of interburden associated with the lower plies of the Ulan Coal Seam would be potentially acid forming – low capacity (PAF-LC) and coal from the Goulburn and Turill Seams would be potentially acid forming (PAF) or PAF-LC.

The results from the GEM investigations were generally consistent with the results for the 2005 EIS, i.e. the overburden and interburden materials are expected to be non-saline and non-acid forming (NAF) and the coarse reject and tailings material produced from the CHPP is expected to contain some sulphur and is likely to have some capacity to be potential acid forming (low capacity) and be moderately saline (EIS, 2005).

Detailed description of the physical and chemical characteristics of the overburden, interburden, coarse reject and tailings materials is provided in Section 2 of WEP EIS.

#### **g) Material Prone to Spontaneous Combustion**

Spontaneous combustion events at the Mine have historically been associated with both ROM coal stockpiles and carbonaceous material located in temporary waste rock emplacements. While these events have been managed in accordance with the Spontaneous Combustion Management Plan (SCMP), they have at times resulted in perceptible odour and/or associated environmental complaints from nearby private receivers and/or users of Ulan-Wollar Road and Mogo Road.

The coal stockpile spontaneous combustion events arose due to stockpiling of ROM coal for an extended period, and this is now avoided by close monitoring and priority washing of select ROM coal types after they have been stockpiled on-site for a designated period.

Current measures for preventing outbreaks include mine planning, spontaneous combustion propensity testing, risk identification and assessment, and identification of potential hot spots. Mine planning considerations include:

- Placement and capping of carbonaceous material to minimise the potential for spontaneous combustion outbreaks;
- Placing higher-risk materials as low as practicable in the backfilled mine voids and elevated waste rock emplacement profiles
- Sealing exposed seams of non-active highwall faces with inert material (where exposed for an extended period); and
- Stockpile management.

WCPL has developed an inspection program for spontaneous combustion at the Mine. An inspection program of spoil emplacements, stockpiles and tailings emplacement areas has been implemented, based on visual and odour assessment, targeting cool moist periods when signs will be most visible, in accordance with the SCMP.

WCPL conducts reviews of spontaneous combustion propensity characteristics throughout the target coal seams (including partings). Results from the testing program will guide improvements to

carbonaceous material management and mitigation. This review would also be applied to the design, construction and monitoring of the elevated waste rock emplacement that would be developed in Pit 2

Risk identification and assessment involves identifying and closely monitoring coal stockpiles that have a higher propensity to spontaneously combust. Additionally, selected ROM coal types (that are showing signs of heating or have been stockpiled on-site for an extended period) are prioritised for washing in the CHPP.

Using thermal imaging technology and visual inspections, existing spontaneous combustion hot spots across the Mine have been identified. These hot spots are monitored and assessed on a regular basis to determine appropriate mitigation strategies as well as providing feedback into the understanding of spontaneous combustion at the mine (i.e. appropriate capping depths and timeframe for reactivity of carbonaceous material).

#### ***h) Material Prone to Acid Mine Drainage***

The bulk of the waste rock is expected to be NAF, non-saline and barren in terms of acid generation and neutralisation, apart from a small quantity of potential acid forming/low capacity (PAF/LC) material occurring in the floor rock of the G seam (2015 GEM).

Coarse reject material produced from the CHPP is expected to be non-saline and PAF/LC and the tailings were expected to be either potential acid forming (PAF) or PAF/LC (2015 GEM). There are no known acid mine drainage (AMD) issues associated with waste rock emplacements at WCPL, notwithstanding the implementation of management strategies in regards to PAF/LC and PAF materials, includes:

- Waste rock materials encountered from the floor rock of the G seam are managed so that no zones of PAF or PAF/LC material are exposed near the surface and the material blended well with NAF producing an overall NAF material or encapsulated with NAF material;
- Inert cover will be placed on top of the rehabilitation final landform surface to provide a benign barrier between any overburden that has not completely equilibrated with the surface geochemical conditions;
- PAF or PAF-LC material is placed at least 2 m below the surface of the backfilled mine void landform and at least 5 m below the surface of the elevated waste rock emplacement;
- The PAF tailings would continue to be managed in such a way as to minimise potential oxidation during disposal, including lime dosing if required when disposal occurs irregularly to dedicated tailings storage facilities;
  - The tailings dams are progressively capped with inert overburden material to a minimum depth of cover of 2 m creating a stable landform ready for final profiling, topsoiling (0.15m to 0.3m layer) and revegetation;
- The topsoil management strategies including topsoil characterisation and mine waste rock characterisation to determine appropriate ameliorates e.g. the use of lime, gypsum and/or fertiliser to improve the chemical and/or nutrient properties of the soil; and
- The geochemical monitoring program of rehabilitated areas for pH, Electrical Conductivity (EC) and major cations to determine whether the vegetation substrate is approaching conditions similar to those found in the reference sites.
- Coarse reject material would be dispersed throughout the overburden within the mine waste rock emplacements with the aim of producing a mix with a sulphur content that has an acid producing potential less than the acid neutralising capacity of the overburden;
  - A blend ratio of at least 2:1 (overburden: coarse rejects) would be used. The total tonnage of coarse rejects produced over the life of the Mine would be approximately one-seventh



of the total mine waste rock produced, therefore there would be scope to increase the blending ratio, if required;

- Coarse rejects would not be placed within 2m of the final landform surface so there is sufficient coverage by non-acid forming overburden to provide a barrier to oxygen movement through the rehabilitated profile;
- Coarse reject material is deposited below the natural surface in the mined-out voids and dispersed throughout to manage its geochemical characteristics (i.e. acid generation potential);
- Coarse rejects are placed so there is sufficient coverage by non-acid forming overburden to reduce oxygen movement through the rehabilitated profile, which also assists to minimise spontaneous combustion potential within the rehabilitated waste rock emplacement landform.

#### ***i) Ore Beneficiation Waste Management (Reject and Tailings Disposal)***

The CHPP rejects consist of fine rejects and slimes, as well as coarse rejects.

- The coarse coal reject material from the CHPP is hauled back to the mining operation and deposited below the natural surface in the mined-out voids as close to the pit floor as practically possible. Coarse reject material is dispersed throughout the overburden within the mine waste rock emplacements to manage its geochemical characteristics i.e. acid generation potential.
- Fine rejects and slimes from the thickener are dewatered in the tailings filter press to allow co-disposal of tailings with coarse rejects and to increase water efficiency. The tailings filter press has been operational since April 2015. Coarse and fine CHPP rejects are hauled back to the mining operation and deposited below the natural surface in the mine voids.
- When the tailings filter press is not operational (e.g. scheduled maintenance or breakdown) tailings are directed to purpose-built tailings storage facilities TD6 (TD7 when built, if required) constructed within mine voids, or may alternatively be transferred to temporary holding and dewatering cells to be constructed in the vicinity of the CHPP to allow subsequent co-disposal with the coarse rejects within the mine voids, as described above.

Implementation of management strategies in regard to both reject and tailings disposal is provided in **Section 6.2.1d and Section 6.2.1h**.

#### ***j) Erosion and Sediment Control***

WCPL have developed a Surface Water Management Plan (SWMP) which provides sediment and erosion control strategies, principles and design criteria to control sediment laden water from areas disturbed by mining activities to maintain downstream water quality. The SWMP is a component plan of the Water Management Plan (WMP), as required by Development Consent (SSD-6764).

The Rehabilitation Strategy includes a revised conceptual final landform plan that builds on the rehabilitation objectives in Table 11 of the Development Consent (SSD-6764). One objective of the final landform is to develop drainage features in the post-mine landform that mitigate erosion potential and incorporate micro-relief (i.e. geomorphic landform design).

WCPL is also reviewing the final drainage system for the conceptual Wilpinjong Coal Mine landform, and with the assistance of GeoFluv landform design specialists has been incorporating natural drainage features (e.g. point bars, pinch points and boulders) to naturally attenuate flows and improve the long-term erosional stability of some key drainage lines within the backfilled open cuts. This work includes consideration of pre-mine drainage and the post-mining bed profiles, geomorphic parameters and hydraulic modelling of stream power and shear stress.

Sediment control dams may need to be constructed along major drainage lines in rehabilitated landforms to reduce suspended solids in water flowing from site. Rock waterways are most likely to be

required when rehabilitating out of pit dumps as these landforms will have the steepest slopes and therefore the highest velocity water flows from the top to the bottom of the landforms.

WCPL are implementing auto water samplers at two locations within the final landform to monitor surface water flows to build a baseline of data for surface water quality across rehabilitated landforms. This data will be used to inform the runoff water quality parameters for rehabilitation relinquishment and will be provided in forthcoming revisions of the Surface Water Management Plan (SWMP).

Annual and opportunistic inspections are undertaken across mine rehabilitated areas to identify areas of erosion requiring management measures to remediate.

#### ***k) Ongoing Management of Biological Resources for Use In Rehabilitation***

Details of the management measures of biological resources for the use in rehabilitation including topsoil, tree hollows, fallen timber and native seed collection are provided in **Section 6.2.1a**, **Section 6.2.1b** and **Section 6.2.1c**.

#### ***l) Mine Subsidence***

WCPL is an open cut mining operation with no occurrence of underground mining since the Mine commenced and therefore mining related subsidence is not applicable.

#### ***m) Management of Potential Cultural and Heritage Issues***

WCPL have developed an Aboriginal Cultural Heritage Management Plan (ACHMP). The ACHMP also includes an Archaeological Salvage Program. The ACHMP has been prepared to assist WCPL in the investigation, salvage and management of Aboriginal heritage issues at the Mine and has been developed in consultation with OEH and all Registered Aboriginal Parties (RAPs).

The ACHMP summarises the archaeological surveys and provides site specific management strategies for previously identified sites. The monitoring programme described in the ACHMP will continue to be implemented during the RMP.

WCPL will not undertake any ground disturbance activities except in accordance with the terms of this ACHMP and following the issuing of a GDP. Archaeological investigations will only be undertaken by archaeologists qualified and experienced in Aboriginal heritage, in consultation with and/or the involvement of the RAPs and will occur prior to any development impacts occurring to those specific areas or sites.

Aboriginal artefacts salvaged from areas to be disturbed will continue to be collected and relocated to a “keeping place” where the artefacts are stored after analysis, documented by the archaeologist in accordance with the ACHMP. Replacement of objects from the Keeping Place onto rehabilitated landforms and/or Conservation Areas, will be undertaken in accordance with the general guidelines as provided in the ACHMP.

As of June 2022, areas approved for mining related disturbance out to two years in advance of mining, have been cleared by RAPs in accordance with the ACHMP.

The WEP Historical Heritage assessment, identified 21 sites of local historical heritage significance and three items with no historical heritage significance. Of the identified 21 sites of local heritage significance, four have the potential to be impacted by the Project. One site, namely the Historical Shale Oil Mine Complex is located in Slate Gully, partially within the Project open cut boundaries. The Road Embankment is located within the construction area for the realignment of the TransGrid Wollar to Wellington 330 kV ETL. A further two sites (Pine Park and William Carr’s Hut are located in relatively close proximity to the Mine.

To manage any potential mining effects upon the know local heritage sites, WCPL has developed a Historic Heritage Management Plan as required by Development Consent (SSD-6764). Management measures such as the realignment of the electricity transmission lines were implemented (where reasonable) to minimise Mine related impacts upon heritage items, such as the “stone wall”.



## **n) Exploration Activities**

Exploration activities were contemplated in the WEP and approved pursuant to a Development Consent SSD-6764, under the *Environmental Planning and Assessment Act 1979* (EP&A Act). The exploration drilling program will continue to update gas and coal quality data for WCPL. Exploration activities and annual reporting will continue to occur as required within exploration licences (EL) EL 6169, EL 7091 and EL 9399 and within ML1573, ML1779 and ML1795. Mitigation measures relevant to exploration and land clearing activities at WCPL include the following:

- Drilling sites and access will be located to avoid areas of remnant vegetation, other sensitive areas and minimise the requirement for vegetation clearance.
- A vegetation clearance protocol and a GDP procedure have been developed. The GDP requires the approval of WCPL Environmental Manager prior to any land clearing activities taking place.
- The vegetation clearance protocol and GDP aim to minimise environmental impacts, including minimising the area required for disturbance for drill sites and access tracks, identify environmental issues such as Aboriginal and European heritage sites, identify sensitive flora and fauna communities, outline erosion and sediment control measures, provide topsoil management and limiting soil disturbance measures, avoiding threatened species, and the identification of any seed or timber resources that can be salvaged.
- Following the environmental review process as required by the GDP, the proposed disturbance footprint will be prepared using small earthmoving equipment to allow for the work to be undertaken safely and in a manner that minimise environmental impacts. These works will continue to comply with the latest version of the Resource Regulator's *ESG5: Assessment Requirements for Exploration Activities and/or other relevant guidelines*.
- In accordance with GDP process, follow up inspections are completed by WCPL's Environmental Department to ensure the GDP is carried out and each drill site is rehabilitated to the appropriate standard.
- At the completion of exploration and prospecting activities, bore holes will be decommissioned in accordance with DPE-RR's relevant guidelines. All disturbed areas including non-essential access tracks, sumps and drill pads will be rehabilitated if future disturbance is not proposed.
- WCPL may install additional groundwater monitoring piezometers utilising exploration boreholes within the Mine's MLs and ELs to extend groundwater monitoring network required by the Groundwater Management Program (GWMP).

### **6.1.2 Decommissioning**

As outlined in Section 5 of the WEP EIS, a Mine Closure Plan (MCP) would be developed for the Mine in consultation with the MWRC, DPE and the local community. The development of the MCP will have a Final Void Management Plan (FVMP), as a component of the MCP in advance of mine closure, in consultation with the DPE, DPE-RR and other relevant authorities.

When available, revegetation of Mine disturbance areas would be conducted progressively as mining proceeds, with coal removal and the formation of final landforms behind the advancing face of the open cut (i.e. completed mine waste rock emplacements). Rehabilitation and revegetation of infrastructure areas would also be undertaken progressively as infrastructure is decommissioned.

The strategies and planning set out in the RMP, with respect to mine closure and the MCP, reflect the current stages of mine development and will be reviewed in consultation with all relevant government and community stakeholders during the LOM as strategies and planning mature and develop further. Notwithstanding, the following management activities proposed by WCPL at the cessation of mining activities are provided below.

**a) Site Security**

Measures to be implemented by WCPL to minimise risks to public safety during decommissioning and other mine closure activities include:

- Maintain existing boundary fencing along mining leases, signage and locked gates;
- Review the requirements for additional security fencing in specific areas, for example in more remote areas of the Mine and/or around voids to prevent authorised access;
- Utilise security contractors where necessary; and
- Maintain site communication and induction protocols for visitors and contractors required to access the site.

Further details of site security measures at the decommissioning phase and during other mine closure activities will be provided in the MCP.

**b) Infrastructure to be Removed or Demolished**

Infrastructure with no ongoing beneficial use would be removed from the site at the completion of the project. Infrastructure removal and demolition activities at mine closure will include:

- All electrical, water and communication services including overhead, buried and remote services to be disconnected and removed from site. However, if further assessment of buried services (e.g. pipelines, cables, etc.) identifies a greater disturbance to remove, the infrastructure may be left in situ and surveyed to record the location, provided they do not pose constraints to the post mining land use.
- All demolition work is carried out in accordance with *Australia Standards AS2601-2001: The Demolition of Structures* (or its latest version).
- The removal of all buildings, fixed and mobile plant/equipment and associated mining infrastructure including:
  - Rail loop and loadout facility, conveyors, coal crushing, coal stacking and reclaiming system, reclaim tunnel, coal handling process plant (CHPP), belt press filter facility (BPF), demountable buildings; workshops, sheds, storage and hardstand areas, all concrete slabs and foundations and culverts, all tanks, bitumen carparks and roads and associated road furniture; power poles and pipelines, pumps and pontoons, all remote infrastructure and communications, meteorological towers and all mobile mining equipment.
- All waste to be classified against relevant guidelines for appropriate salvage, disposal and transportation.
- All exploration holes and redundant groundwater monitoring and production bores to be grouted and rehabilitated in accordance with relevant legislation, guidelines and conditions of water licences.
- Dewater all water in pipelines and mine water dams back into the Mine's water management system prior to removing pipelines and preparing mine dams for backfilling and integration into final landform.
- Water management structures and sediment control structures would either be retained as water sources for future land uses or decommissioned and rehabilitated. Selected water management structures and sediment control structures would either be retained as wetland habitat/water features or decommissioned and rehabilitated. The design, capacity and final location of these post mining water management structures will be refined and detailed in revised water management plans as the Mine progresses towards mine closure.
- Foundation concrete slabs would be excavated for disposal or buried in a void in an approved manner.



The tailings in a completed tailings dam would be allowed to consolidate prior to the commencement of rehabilitation. Rehabilitation of tailings dam to occur only when they are deemed to be suitably safe by an appropriately qualified engineer.

Haul roads and light vehicle roads that have no specific post-mining use would be ripped, topsoiled and revegetated after the removal of any surface carbonaceous material. Some light vehicle access roads may be retained post-mining to enable access and for use in bushfire and other land management activities.

In consultation with regulatory authorities during the preparation of the MCP, there may be the need to remove redundant and/or establish additional monitoring sites to complement existing programs at mine closure, for example establishing groundwater monitoring sites.

**c) Buildings, Structures and Fixed Plant to be Retained**

As required by Development Consent (SSD-6764), unless the Secretary agrees otherwise, all buildings, structures and fixed plant as described in **Section 6.2.2b** will be removed from the Mine at the cessation of mining.

During the preparation of the MCP, WCPL will undertake further assessments regarding buildings, structures and fixed plant likely to have a beneficial post mining use for the Secretary's consideration.

**d) Management of Carbonaceous/Contaminated Material**

All carbonaceous reject material and residual carbonaceous material (i.e., haul roads, CHPP, stockpile bases, under conveyors etc) to be removed and placed at least 2m below the surface of the backfilled mine void landform and placed at least 5m below the surface of the Elevated Waste Rock Emplacement (Pit 2), so not to pose a threat of environmental harm or restrict the intended final land use.

Assessment of contamination to be completed in accordance with *Contaminated Land Management Act 1997* (CLM Act) and reporting guidelines *National Environment Protection (Assessment of Site Contamination) Measure 2013* (ASC NEPM 2013), by an EPA certified contaminated land consultant (practitioner).

Contamination areas identified during investigations are to be remediated to a condition that does not pose a threat of environmental harm or restrict the intended final land use. Verification reports will be issued to confirm that contamination has been remediated provided by an EPA certified contaminated land consultant (practitioner).

**e) Hazardous Materials Management**

Process reagents, hydrocarbons and chemicals unused at the completion of mining would either:

- Be returned to the supplier (if applicable) or disposed of by an appropriate licenced waste provider, in accordance with the relevant safety and handling procedures;
- Assessed against the Mine's register of hazardous products for removal and disposal from site; and
- Stored at the Mine in accordance with manufactures and legislative requirements until removal.

All storage historical hazardous materials storage areas and facilities at the Mine will undergo the contamination assessments as described in **Section 6.2.2d**.

**f) Underground Infrastructure**

WCPL is an open cut mining operation with no occurrence of underground mining since the Mine commenced and therefore underground infrastructure as it relates to an underground mining operation is not applicable. However, there is a reclaim tunnel buried under the product stockpile which will be exposed and removed (**Section 6.2.2b**).

### 6.1.3 Landform Establishment

As identified in the WEP, mine waste rock emplacements including infrastructure areas would cover an area of approximately 2,790 ha. Consistent with the requirements of Condition 61, the Rehabilitation Strategy presents a revised conceptual final landform that builds on the rehabilitation objectives in Table 11 of Development Consent (SSD-6764). The rehabilitation requirements in the Rehabilitation Strategy include:

- Incorporation of micro-relief;
- Landform stability; and
- Hydrological and ecological function.

The following sections provide an overview of the key characteristics of the final landform as shown in the final landform and rehabilitation plan **FLRP Plan 1** and **FLRP Plan 2** in **Section 5.1**.

#### a) *Water Management Infrastructure*

To achieve WCPL's rehabilitation objectives for the Mine to construct a safe, stable and non-polluting landform that is designed to incorporate micro-relief and integrate with surrounding natural landforms and adjacent mine rehabilitation, maximising geotechnical performance, stability and hydrological function, the following general design principles are implemented;

- Selected water management structures and sediment control structures would either be retained as wetland habitat/water features or decommissioned and rehabilitated. The design, capacity and final location of these post mining water management structures will be refined and detailed in revised water management plans as the Mine progresses towards mine closure.
- A pattern of creek features (flow paths) would be formed over the final landforms comparable to the pre-mine regime. These reconstructed creek features would convey upslope runoff across the Mine area to Wilpinjong Creek.
- The natural pre-mining drainage direction at Wilpinjong Coal Mine is from south to north. Water drains from the base of the Munghorn Gap Nature Reserve area north to Wilpinjong Creek and onto the Goulburn River. This drainage pattern will be reinstated during construction of the final landform and completion of rehabilitation works.
- The domain would be profiled to a free-draining landform with runoff reporting to the natural environment (e.g. no settlement and surface subsidence leading to extended ponding).
- The application of micro-relief concepts to open cut mining activities is principally focussed on "complex landforms", such as the design of large elevated out of pit waste emplacement landforms, key principles that have been considered, and where relevant applied, include:
  - Establishing valleys in rehabilitated landscapes consistent with the types of valleys observed in natural landscapes.
  - Rehabilitated areas should blend into and complement the drainage pattern of the surrounding terrain.
  - Designing channels of progressively higher orders and of greater capacity and cross-sectional area (Hannan, 1984).
  - Establishing watercourses that become progressively steeper as one moves upstream (Environment Australia, 1998, p.20).
- WCPL has engaged Golder Associates to undertake a review of key areas of the revised final landform plan and implement geomorphic design refinement in future rehabilitation areas with potential erosion risk or to increase micro-relief variation in the final landform. GeoFluv™ design techniques have been applied in various areas as part of ongoing development of final landform designs.



- WCPL is also reviewing the final drainage system for the conceptual Wilpinjong Coal Mine landform, and with the assistance of GeoFluv landform design specialists, has been incorporating natural drainage features (e.g. point bars, pinch points and boulders) to naturally attenuate flows and improve the long-term erosional stability of some key drainage lines within the backfilled open cuts. This work includes consideration of pre-mine drainage and the post-mining bed profiles, geomorphic parameters and hydraulic modelling of stream power and shear stress.

At the completion of final landform plan and implement geomorphic design reviews, this RMP will be updated to reflect the revised drainage design for the mine rehabilitated areas.

#### **b) Final Landform Construction: General Requirements**

To achieve WCPL's rehabilitation objectives for the Mine to construct a safe, stable and non-polluting landform that is designed to incorporate micro-relief and integrate with surrounding natural landforms and adjacent mine rehabilitation, the following general design principles are implemented;

- Final landform levels and topography of the backfilled mine landforms will generally approximate the pre-mining topography within the open cut areas, with some variations, and are designed with an allowance for the long-term settlement of mine overburden.
- The surface of mine waste rock emplacements would be constructed to approximate (where practicable) the existing topographic form of the shallow valleys which drain the Project area. Mine waste rock emplacement surfaces would be formed to enhance rainfall absorption. Regular slopes and sharp transition angles would be varied and rounded to provide a more natural appearance.
- Where long slopes are present, contour drains or deep staggered rips would be established to assist in initial surface stabilisation.
- Mine waste rock emplacements would be shaped by dozer prior to the commencement of rehabilitation activities (i.e. re-profiling, re application of topsoil/subsoil and revegetation).
- The elevated waste rock emplacement (Pit 2) would be temporarily rehabilitated at a height of up to approximately 450 m AHD, before being reshaped and pushed down to a maximum elevation of approximately 440 m AHD at the end of the mine life as a component of finalising site landforms and slopes.
- Inert cover will be placed on top of the final landform surface to provide a benign barrier between any overburden that has not completely equilibrated with surface geochemical conditions.
- Non-sodic waste rock material would preferentially be placed on the surface of the backfilled mine void landform (or sodic waste rock material would be treated with a material containing soluble calcium [e.g. gypsum, calcium chloride or limestone]).
- With the exception of highwall slopes associated with final voids and areas adjoining natural escarpments, rehabilitated mine landforms are to be constructed to no greater than 1:6 (10 degrees or 17%) across the entire ML area.
- If required, graded banks will be considered for construction across the slope of rehabilitated areas to collect and direct water flowing from newly rehabilitated areas into rock waterways. Graded banks would be constructed at 50 m intervals down the slope of the elevated waste rock emplacement and would be constructed at 1% longitudinal grade to the contour of the slope.
- An approximate 0.1 to 0.3 m layer of soil would be placed on the backfilled landform prior to revegetation. Revegetation of the mine waste rock emplacements is described in **Section 6.2.5**.
- No significant forms of erosion that would constitute a safety hazard and/or compromise the intended final land use and/or compromise the effectiveness of drainage structures.

- There will be no spontaneous combustion in the final landform so as not to pose a threat of environmental harm or restrict the success of the intended final land use.
- The post closure monitoring and measurement program will be similar to that undertaken during the active mining operation to ensure rehabilitation works have been completed in accordance with the relevant rehabilitation criteria and objectives.

**c) Final Landform Construction: Reject Emplacement Area and Tailings Dam**

To achieve WCPL rehabilitation objectives for the Mine to construct a safe, stable and non-polluting landform, the following general design principles are implemented;

- Carbonaceous or any PAF or PAF-LC material would be placed at least 2 m below the surface of the backfilled mine void landform and at least 5 m below the surface of any elevated waste rock emplacement areas.
- An approximate 0.1 to 0.3 m layer of soil would be placed on the backfilled landform and tailings dam prior to revegetation. Revegetation of the mine waste rock emplacements is described in **Section 6.2.5**.
- Site investigation by suitably qualified tailings engineer to confirm if sufficient strength within the tailings dam has been achieved prior to capping activities
- The tailings dams would be progressively covered with overburden material to a minimum depth of cover of 2 m to create a stable landform. Non-sodic waste rock material would preferentially be used for the overburden cover (or sodic waste rock material would be treated with a material containing soluble calcium [e.g. gypsum, calcium chloride or limestone]).
- Tailings dams are capped appropriately in accordance with capping design as confirmed by survey against the final landform design.
- The final landform levels and topography of the rehabilitated tailings disposal areas will generally approximate the pre-mining topography, with some variations, and are designed with an allowance for the long-term settlement of tailings and an inert capping layer.
- No significant forms of erosion that would constitute a safety hazard and/or compromise the intended final land use and/or compromise the effectiveness of drainage structures.
- There will be no spontaneous combustion in the final landform so as not to pose a threat of environmental harm or restrict the intended final land use.
- The post closure monitoring and measurement program will be similar to that undertaken during the active mining operation to ensure rehabilitation works have been completed in accordance with the relevant rehabilitation criteria and objectives.

**d) Final Landform Construction: Final Voids, Highwalls and Low Walls**

At the completion of mining, the approved Mine's final landform would include final voids located in the north-west of Pit 6 and in Pit 2. Specific rehabilitation objectives for final void areas are to minimise to the greatest extent practicable, the size and depth of final voids, the drainage catchment, any high wall and low wall instability risk and risk of flood interaction for all flood events up to and including the PMF.

Once mining operations cease, groundwater inflows to the final voids would no longer be collected and pumped out, and as a result, the two final voids would gradually begin to fill with water. Water in other on-site operational storages may also be transferred to the final voids in Pits 2 and 6 to facilitate decommissioning and rehabilitation.

Inflows into the final voids would comprise incidental rainfall, runoff within the final void catchment area and groundwater. The catchment area of the final voids would be defined by permanent perimeter bunds, diversion channels and/or bunds/ embankment walls.



Updated final void modelling of the revised conceptual final landform for the Rehabilitation Strategy was completed in early in 2022. The key outcomes included:

- The revised Pit 6 final void would have a larger catchment area.
- The revised Pit 2 and Pit 6 final voids would continue to function as groundwater sinks.
- The maximum void water levels are expected to remain well below the crest of the void and hence would not spill to the environment.
- The total surface area of the final void waterbodies is similar to the approved concept, with some increase in the size of the ultimate Pit 6 void waterbody.

Final void design criteria will be detailed in the Final Void Management Plan (FVMP), as a component of the Mine Closure Plan to ensure minimal highwall instability risk, based on site-specific geotechnical information. To ensure the final voids achieve their specific rehabilitation objectives, the final void design will incorporate the following:

- The final surface catchment of the final voids would also be minimised by the use of contour landforms.
- Perimeter bunding would be formed around the final voids in order to restrict access to steeper slopes. Any further final void access restrictions (e.g. fencing) for safety and exclusion of livestock would be designed and implemented in consultation with relevant authorities.
- While the open cut depths at Wilpinjong Coal Mine are relatively modest, final void highwalls will be subject to detailed geotechnical design and factors of safety would be adjusted to reflect that these voids will be a final landform feature.
- The reduced slope of the Pit 6 void low-wall provides improved accessibility to the final void waterbody. This is considered a beneficial change for post-mining access to the waterbody (subject to appropriate water quality considerations).

#### **e) Construction of Creek/River Diversions**

As outlined in the Water Management Plan (WMP), it does not include the Cumbo Creek Relocation Plan. As provided for in Condition 31, Schedule 5, WCPL has requested a deferral of preparation of the Cumbo Creek Relocation Plan until closer to the time of the intended relocation.

As agreed with DPE, consistent with the requirements of the note to Condition 31, Schedule 3 of Development Consent (SSD-67-64), WCPL will commence the Cumbo Creek Relocation Plan in the following alternative timeframe:

- 2019 to 2021 – development of mine planning, engineering and supporting technical advice for the creek relocation;
- 2022 – preparation of the draft Cumbo Creek Relocation Plan and conduct of associated regulatory consultation; and
- 2023 – submission of the Cumbo Creek Relocation Plan.

WCPL would update this WMP to incorporate the Cumbo Creek Relocation Plan (CCRP), subject to approval of the CCRP.

#### **6.1.4 Growth Medium Development**

Topsoil is to be placed on top of the final landform to act as germination medium for vegetation and as a seed source from the natural seed bank present at the time of topsoil stripping. Topsoil placement shall only proceed once the final landform and major drainage works, as described in **Section 6.2.3a**, have been completed. Topsoil is to be applied at a minimum of 100 mm thickness and maximum of 300 mm in all areas.

Topsoiling must be undertaken from the top of slopes or top of sub drainage catchment to minimise erosion damage created by storm runoff from bare upslope areas. Care should be taken to minimise the travel over previously spread topsoil by running on bare spoil and turning onto the spreading run. Topsoiling must be conducted along the general run of the contour. Topsoil is not to be placed in down slope bands as this increases the incidence of erosion. Generally, no topsoil is to be placed in the invert of drainage lines or drainage works.

Topsoil will not be required where vegetation trials have demonstrated that inert cover can be used as a suitable substitute. Lime and/or gypsum, cow manure or fertiliser will be applied on inert cover or topsoil materials used for rehabilitation activities if necessary to assist in improving the physical and chemical characteristics of the rehabilitation materials.

Deep ripping, seeding and fertilizing will be undertaken following the placement of topsoil and construction of drainage structures on the reshaped final landform. Ripping will be carried out generally to a depth of 300 mm to 500 mm on the contour with survey control. Full and continuous ripping is to be undertaken where practicable. Deep ripping will be utilised so that rip lines remain open for erosion control and to encourage infiltration of water where required. Seeding and fertilising should be undertaken contemporaneously with contour ripping.

WCPL own and maintain various specialist mobile equipment to undertake rehabilitation activities at the Mine, operated by trained and experienced WCPL personnel.

#### **6.1.5 Ecosystem and Land Use Establishment**

On completion of landform contouring, topsoiling and erosion and sediment control works, a vegetative cover would be applied as soon as practicable with the aim at sowing specified seed species reflecting seasonal conditions. This would involve sowing cover pasture species and seeding and planting of selected shrub and tree species.

Timing for initial vegetation establishment is an important factor for successful revegetation. Where possible, sowing and planting are planned to occur as soon as possible prior to the expected onset of reliable rains or after a break of the season (i.e. Autumn and Spring).

As required by Development Consent (SSD-6764), WCPL will commence the ecosystem and land use establishment phase of rehabilitation for areas within 50m of the Munghorn Gap Nature Reserve, within 2 years of ceasing mining operations in those areas<sup>10</sup>.

Where rehabilitation areas are to be seeded, a suitable seedbed would be prepared using appropriate equipment to increase the chances for successful seedling establishment. Where necessary, seed would be sown with fertiliser. Areas seeded may be lightly scarified to assist shallow seed burial. Both seeding and direct planting techniques would be utilised for tree and shrub species.

As of December 2021, approximately 901ha of completed Mine landforms have been rehabilitated. The landforms<sup>11</sup> that are currently completed to pasture or considered not woodland, will be progressively upgraded with relevant woodland species to meet the BVT requirements.

The entire revegetation programme for the Mine rehabilitation areas is to provide BVT woodland areas. The selection of BVTs for the revegetation are displayed in Figure 11 of the BMP. The revegetation programme for the Mine rehabilitation areas would establish some 2906 ha of woodland vegetation, and in association with the establishment of woodland vegetation in the regeneration areas and ECAs, would contribute to an overall net increase in woodland vegetation of some 1,095 ha.

The rehabilitation programme has been designed to link the revegetated woodland areas and the regeneration areas to the adjacent existing remnant vegetation surrounding the operation, namely the Goulburn River National Park and Munghorn Gap Nature Reserve.

<sup>10</sup> Ancillary infrastructure would need to be retained for access and water management.

<sup>11</sup> Rehabilitated to the requirements of the now surrendered PA05-0021



The most common method of vegetation establishment at WCPL is broadcast and direct seeding of selected groundcover and/or tree seed mixes. Aerial seeding is also utilised. Seed sowing is usually supplemented by the concurrent application of granulated fertiliser. Sowing is undertaken shortly after topsoil spreading to avoid loss of topsoil due to wind and rain action.

Tubestock planting by appropriately experienced providers, will be utilised where it is considered natural regeneration of native species is unlikely to occur in a timely manner and to establish a staging in plant ages. Species composition and stems per hectare rates for tubestock planting will be reflective of the adjacent communities, pre-clearing vegetation community types and applicable Performance and Completion Criteria for the intended Rehabilitation BVTs. Seedlings are propagated from local provenance seed stock where possible. WCPL's preference will be to source regionally grown quality tubestock species as they have demonstrated to be more adaptable to local climatic conditions.

WCPL continue to maintain a native seed inventory partly collected from local, native seed sources carried out by suitably qualified personnel which will be used in rehabilitation activities. WCPL's native seed inventory is reviewed annually, with seed viability testing as required. WCPL's seed collection provider will follow best practice principles, with the FloraBank guidelines (FloraBank, 2013) to be used to guide the seed collection process. Typical BVT species and rates are shown in **Table 9**.

**Table 9 Typical BVT Seed Mix Rates**

BVT Species	Average Rates (kg/ha)
HU547 – Fuzzy Box Woodland	25kg
HU697 – Mugga Ironbark – Black Cypress Pine Shrub/Grass Open Forest	23kg
HU732 – Yellow Box Grassy Woodland	30kg
HU824 – White Box – Black Cypress Pine Shrubby Woodland	25kg
HU825 – Narrow Leaf Ironbark Black Cypress Pine Shrub/Grass Woodland	30kg

As required, WCPL's will continue to utilise cover crops on a case-by-case basis, as a temporary or transitional method of providing stabilisation and soil improvement and dust control. Essentially a cover crop can be grown before being ploughed into the soil when the plant is still 'green' and then re-seeded with the applicable BVT species and/or included into the seed mix with the applicable BVT species during initial seeding. Typical cover crops have included various combination of legumes (cow peas, clover), sorghum, millet, sudan grass, at rates generally shown in **Table 10**.

**Table 10 General Cover Crop Combinations and Rates**

Cover Crop Species	Rates (kg/ha)	Cover Crop Species	Rates (kg/ha)
<b>Chicory</b>	4kg	<b>Cowpea</b>	12kg
<b>Cowpea</b>	12kg	<b>Sudan Grass</b>	10kg
<b>Sorghum</b>	6kg		
<b>Cowpea</b>	12kg	<b>Oates</b>	60kg
<b>Jap Millett</b>	6kg	<b>Clover</b>	15kg
<b>Cowpea</b>	12kg		
<b>Sorghum</b>	6kg		

Fertiliser application is beneficial to vegetation establishment to replenish any nutrient deficiencies. The type of fertiliser and application rate varies according to the specific site, soil type and post mining use of the area. When applying any additional chemical or products to the soil, the effects of runoff and leaching will be considered on WCPL's mine water management system, as rapid leaching from organic wastes are known to provide ideal conditions for algal blooms and exacerbate weed growth and infestation.

Following the changes in topography, drainage and soil conditions that results from open cut mining, some local provenance species may not be suitable for revegetation and seed sourced from outside the immediate district may be required. The most appropriate species to use to rehabilitate the area are

those most suited to the soil types, drainage status, aspect and climate of the site. The biodiversity values of the surrounding native vegetation communities are considered during rehabilitation planning. Distribution of vegetation type and species selection will be designed to enhance these values, whilst ensuring that weed and fire hazards are not increased for surrounding local agricultural areas

Where practicable, habitat features (e.g. large hollows) would be salvaged during vegetation clearance activities and utilised in the rehabilitation areas, regeneration areas and other management domains. In addition, artificial roosting/nesting boxes for fauna, particularly threatened fauna, may be used in the rehabilitation areas, regeneration areas and other management domains to provide additional habitat resources. For more information regarding habitat augmentation refer to the BMP

The Biodiversity Monitoring Program, as described in detail in the BMP includes monitoring of flora and fauna, and a range of landscape function indicators. This monitoring program will be used to evaluate ecosystem function and performance and the success of specific management actions implemented across the various management Domains. Reference sites have been established during the first round of biodiversity monitoring and will also be established in areas of equivalent habitat type adjacent to the management Domains.

Annual and routine weed management program in rehabilitated areas of the Mine are implemented to prevent further spread. Treatment of all weeds will be undertaken by suitably qualified and experienced personnel. For more information regarding weed control refer to the BMP.

#### **6.1.6 Ecosystem and Land Use Development**

This section presents a summary of rehabilitation monitoring program as described in the BMP. A detailed description of this program is set out in **Section 8**. Rehabilitation performance will be monitored to ensure vegetation is establishing and to determine the need for any maintenance and/or contingency measures. An overview of the content of the rehabilitation monitoring program is provided below:

- A series of monitoring locations have been set up in the rehabilitation areas on the mine site, to monitor establishment and regeneration of vegetation. These sites are visited annually to record changes in vegetation progress.
- Visual monitoring of revegetation will be conducted as part of other routine environmental activities to ensure vegetation is establishing and to determine the need for any maintenance and/or contingency measures (such as the requirement for supplementary plantings, erosion control and weed and animal pest control). Annual photographic recording of each established vegetation monitoring site will also be recorded.
- Conventional vegetation monitoring is carried out in rehabilitated spoil areas on the mine site as well as the regeneration areas. This involves using quadrats and transects to measure vegetation parameters which allows a progressive assessment of vegetation progress. Monitoring at these sites is undertaken annually. Analogue sites (i.e. reference sites) sites are compared to the other monitoring sites and act as a “calibration” to account for variations between seasons.
- Rehabilitated spoil areas will be monitored for spoil pH, electrical conductivity (EC), major cations and organic matter to determine whether the vegetation substrate is approaching conditions similar to those found in the reference sites. This data will be used to identify potential spoil deficiencies over time and assist with the development of maintenance programs if underperforming areas are identified during visual and other monitoring. This will also assist with determining/demonstrating whether the spoil is suitable as a long-term substrate for sustainable rehabilitation.
- Terrestrial fauna surveys will be conducted to sample fauna species diversity and abundance in the rehabilitation areas. Systematic survey sites have been established to monitor amphibians, reptiles, birds and mammals.
- Further details of flora and fauna monitoring are provided in the BMP



### **6.3 Rehabilitation Areas Affected by Subsidence**

WCPL is an open cut mining operation with no occurrence of underground mining since the Mine commenced and therefore mining related subsidence in rehabilitated areas is not applicable.

## 7.0 Part 7 – Rehabilitation Quality Assurance Process

**Table 11** outlines the key rehabilitation quality assurance actions and processes WCPL have implemented for each of the rehabilitation phases.

**Table 11 Key Rehabilitation Quality Assurance Actions and Process**

Rehabilitation Phase	Quality Assurance Process/Key Actions	Document & Recording Methodologies	Review and Refinement Process	Responsibilities
Active Mining	<ul style="list-style-type: none"> <li>Mine plan in accordance with approved Development Consent (SSD-6764)</li> <li>Waste rock, rejects and tailings placed correctly in landform based on geochemical properties.</li> </ul>	<ul style="list-style-type: none"> <li>Landform Design, Rehabilitation Implementation and Inspection Form*</li> <li>Surveyed and identified on mine plans</li> <li>Notes* within the above document</li> </ul>	<ul style="list-style-type: none"> <li>Rehabilitation Verification Document*</li> </ul>	<ul style="list-style-type: none"> <li>Technical Services Manager</li> <li>Mine Manager</li> </ul>
	<ul style="list-style-type: none"> <li>Ground disturbance and pre-clearance surveys in accordance with BMP and GDP process.</li> <li>Soils and other rehabilitation materials salvaged and stockpiled in accordance with BMP and GDP.</li> <li>Inspections during ground disturbance activities in accordance with GDP</li> </ul>	<ul style="list-style-type: none"> <li>GDP Register</li> <li>Surveyed and identified on mine plans.</li> <li>Pre-clearance reports from ecological specialists</li> <li>Annual reporting in Annual Review;</li> <li>Biodiversity and rehabilitation monitoring reports;</li> <li>Annual rehabilitation report (ARR) and Forward Plan;</li> <li>Inspections confirm rehabilitation resources salvaged and stockpiled.</li> </ul>	<ul style="list-style-type: none"> <li>As required by the Annual Review (at the end of each reporting year, following an incident or independent environmental audit or a modification to Development Consent (SSD-6764).</li> <li>As required by ARRFP</li> </ul>	<ul style="list-style-type: none"> <li>Environment and Community Manager</li> </ul>
Decommissioning	<ul style="list-style-type: none"> <li>All services, equipment and infrastructure identified for removal in accordance with the MCP.</li> <li>Consolidation of tailings in accordance with engineering requirements.</li> <li>Contamination assessments and remediation completed as required by MCP.</li> <li>Classification of wastes for disposal/recycling.</li> </ul>	<ul style="list-style-type: none"> <li>Register of redundant infrastructure, equipment and services.</li> <li>Waste disposal records from licenced waste provider.</li> <li>Engineering reports confirm tailings ready for capping.</li> <li>Remediation of contamination validation reports</li> <li>Annual reporting in accordance with MCP.</li> </ul>	<ul style="list-style-type: none"> <li>To be included in the MCP (at the end of each reporting year, following an incident or independent environmental audit or a modification to Development Consent (SSD-6764).</li> </ul>	<ul style="list-style-type: none"> <li>Mine Closure Team (MCP)</li> <li>Environment and Community Manager</li> </ul>
Landform Establishment	<ul style="list-style-type: none"> <li>Mine plan in accordance with approved Development Consent (SSD-6764)</li> <li>Waste rock, rejects and tailings placed correctly in landform based on geochemical properties.</li> </ul>	<ul style="list-style-type: none"> <li>Landform Design, Rehabilitation Implementation and Inspection Form</li> <li>Surveyed and identified on mine plans</li> </ul>	<ul style="list-style-type: none"> <li>As required by the Annual Review (at the end of each reporting year, following an incident or independent environmental audit or a modification to Development Consent (SSD-6764).</li> <li>As required by ARRFP</li> </ul>	<ul style="list-style-type: none"> <li>Technical Services Manager</li> <li>Mine Manager</li> </ul>



Rehabilitation Phase	Quality Assurance Process/Key Actions	Document & Recording Methodologies	Review and Refinement Process	Responsibilities
	<ul style="list-style-type: none"> <li>Landforms constructed in accordance with the Rehabilitation Strategy (i.e. incorporating micro relief, stable and hydrological and ecological functional) and Development Consent (SSD-6764)</li> <li>Tailings dams and waste rock emplacements areas capped to requirements</li> </ul>	<ul style="list-style-type: none"> <li>Surveyed landforms confirmed against designs.</li> <li>Annual monitoring and opportunistic inspections</li> <li>Biodiversity and rehabilitation monitoring reports;</li> <li>Annual rehabilitation report (ARR) and Forward Plan;</li> <li>Reporting in the Annual Review;</li> <li>Reports maintain by E&amp;C Department</li> <li>Records of capping tailings dams in accordance with engineering designs maintained by Tech Services</li> </ul>		<ul style="list-style-type: none"> <li>Technical Services Manager</li> <li>Environment and Community Manager</li> </ul>
<b>Growth Medium Development</b>	<ul style="list-style-type: none"> <li>Soil characterisation completed.</li> <li>Geochemical analysis of overburden material.</li> <li>Application of topsoil at nominated depths Ameliorants applied.</li> <li>Surface preparation completed (e.g. ripping and keying).</li> </ul>	<ul style="list-style-type: none"> <li>Landform Design, Rehabilitation Implementation and Inspection Form</li> <li>Surveyed and identified on mine plans</li> <li>Annual monitoring and opportunistic inspections</li> <li>Biodiversity and rehabilitation monitoring reports;</li> <li>Annual rehabilitation report (ARR) and Forward Plan;</li> <li>Reporting in the Annual Review</li> <li>Reports maintain by E&amp;C Department</li> </ul>	<ul style="list-style-type: none"> <li>As required by the Annual Review (at the end of each reporting year, following an incident or independent environmental audit or a modification to Development Consent (SSD-6764).</li> <li>As required by ARRFP</li> </ul>	<ul style="list-style-type: none"> <li>Technical Services Manager</li> <li>Environment and Community Manager</li> </ul>
<b>Ecosystem and Land Use Establishment</b>	<ul style="list-style-type: none"> <li>Application of appropriate BVT seed species within the final landform</li> <li>Rehabilitation monitoring;</li> <li>Surface water monitoring; and</li> <li>Land management.</li> </ul>	<ul style="list-style-type: none"> <li>Landform Design, Rehabilitation Implementation and Inspection Form</li> <li>Surveyed and identified on mine plans.</li> <li>Annual monitoring and opportunistic inspections</li> <li>Biodiversity and rehabilitation monitoring reports;</li> <li>Annual rehabilitation report (ARR) and Forward Plan;</li> <li>Reports maintain by E&amp;C Department</li> </ul>	<ul style="list-style-type: none"> <li>As required by the Annual Review (at the end of each reporting year, following an incident or independent environmental audit or a modification to Development Consent (SSD-6764).</li> <li>As required by ARRFP</li> </ul>	<ul style="list-style-type: none"> <li>Environment and Community Manager</li> </ul>
<b>Ecosystem and Land Use Development</b>	<ul style="list-style-type: none"> <li>Rehabilitation monitoring;</li> <li>Surface water monitoring; and</li> <li>Land management.</li> </ul>	<ul style="list-style-type: none"> <li>Annual monitoring and opportunistic inspections</li> <li>Biodiversity and rehabilitation monitoring reports;</li> <li>Annual rehabilitation report (ARR) and Forward Plan;</li> <li>Reports maintain by E&amp;C Department</li> </ul>	<ul style="list-style-type: none"> <li>As required by the Annual Review (at the end of each reporting year, following an incident or independent environmental audit or a modification to Development Consent (SSD-6764).</li> <li>As required by ARRFP</li> </ul>	<ul style="list-style-type: none"> <li>Environment and Community Manager</li> </ul>

## 8.0 Part 8 – Rehabilitation Monitoring Program

WCPL's Biodiversity Monitoring Program within the BMP, includes annual monitoring of flora and fauna, and a range of landscape function indicators. This monitoring program will be used to evaluate ecosystem function and performance and the success of specific management actions implemented across the various Management Domains.

The strategic objective of the monitoring is to obtain assurance that WCPL's biodiversity management program is ensuring the Mine's rehabilitation is progressing towards its Completion Criteria.

WCPL's monitoring program includes recognised methods to assess native vegetation and habitat complexity (BioMetric), landscape stability (LFA), and faunal diversity. Using both Biometric and LFA assessment methods will enable assessment of overall rehabilitation success in terms of sustainable ecosystems in addition to self-sustaining stable landforms.

WCPL will also develop an annual works program based on the results of the annual monitoring which will be detailed in the Annual Review.

### Vegetation Monitoring (Biometric)

The BioMetric assessment method has been adopted for the purposes of measuring and comparing native vegetation and habitat complexity against the quantitative, performance and completion established. The BioMetric methodology is a standardised, repeatable and recognised approach to biodiversity assessment in NSW.

The BioMetric monitoring will be implemented across Local BVT Reference Sites and on Rehabilitated areas to define vegetation community assemblages and development.

WCPL have implemented a BioMetric assessment process and have undertaken a rapid assessment process to determine the most likely and suitable monitoring locations which will incorporate Local Benchmark sites upon approval from BCD (refer to the BMP). Monitoring locations have been selected based on their representativeness as either reference or treatment sites. Treatment sites, being those selected from the various management domains across the Mine. A number of these treatment sites will be located in the riparian zones of Wilpinjong and Cumbo Creeks. As required, WCPL will refine the monitoring sites of BioMetric monitoring, which include:

- BioMetric plots, comprising a 20m x 20m flora plot nested within a larger 20m x 50m (1000m<sup>2</sup>) habitat complexity plot will be established at each monitoring site. The long axis of the transect will be positioned perpendicular to the slope for compatibility with other monitoring methods (i.e. LFA). Each end of the 50m transect will be permanently identified for repeatability. A photograph will be taken at 1.5m intervals down the central 50m transect.
- Flora plots (20m x 20m) will be used to systematically collect floristic data. Only Native Plant Species Richness (NSR) data is collected in each flora plot. The flora plot is to coincide with the origin of the central 50m transect with measurements occurring along the 0-20 section and 10 metres either side of the central transect. NSR data will be collected along the transect, in accordance with the methodology described in Gibbons et al 2009.
- Habitat complexity plots (1000m<sup>2</sup>), consistent with those used to assess vegetation condition and habitat under the NSW BioBanking Scheme, will be used to sample all vegetation structure and habitat features including Exotic Plant Cover (EC). Data will be collected for all site attributes in the habitat complexity plot, with the exception of NSR (which will be collected in the flora plots), in accordance with the methodology described in Gibbons et al 2009.

### Landscape Stability

Landscape Function Analysis (LFA) will be adopted as the primary monitoring methodology to assess the landscape stability of regeneration and rehabilitation areas across the Mine. WCPL have undertaken a rapid assessment process to determine the most likely and suitable LFA monitoring locations.



Data relating to the eleven LFA SSCIs will be collected along the 50m transect established within the BioMetric plots to ensure consistency and repeatability of monitoring data. LFA monitoring will be undertaken in accordance with the methodology described in Tongway & Hindley 2004.

WCPL currently utilise LFA as the methodology to assess the landscape stability of regeneration and rehabilitation areas across the Mine. WCPL are considering an alternative method in conjunction with LFA monitoring, to assess germination and landform stability following site preparation.

This alternate method includes a combination of remote sensing and field-based assessments. Remote sensing to determine landform stability, slope, erosion and germination success using drone and/or LIDAR. This data will then be used to identify target areas for field assessment which will involve the following methods:

- 50 m x 20 m BioMetric Plot: abundance, distribution and species (where identifiable) of native overstorey and midstorey germinants. Percent covers of litter, bare soil, rock, cryptogam and vegetation; and
- 50 m erosion transect to record slope, erosion – type, width, depth, position (distance from start) and rate along the transect using the following categories:
  - 1 – no erosion
  - 2 – sheet erosion
  - 3 – rill erosion < 0.3 m deep
  - 4 – gully erosion > 0.3 m, < 1 m deep
  - 5 – gully

Photographs will be taken along the transect from the start location with the end location visible and from the end location with the start location visible. WCPL plan to trial this method with the monitoring outcomes provided in the Annual Review in conjunction with the annual results from the existing rehabilitation monitoring.

### **Fauna Monitoring**

Fauna monitoring will be used to qualitatively validate BioMetric and LFA monitoring results (i.e. self-sustaining stable landforms and vegetation structure have been successfully recreated or reintroduced and are being inhabited or frequented by local fauna).

Terrestrial fauna surveys will be conducted to sample fauna species diversity and abundance in each Management Domain. Systematic surveys will monitor amphibians, reptiles, birds and mammals (including bats) at a selection of representative sites already established for Biometric monitoring.

Corresponding survey sites will also be established in areas of equivalent habitat type adjacent to the Management Domains to provide reference sites. Reference sites will provide comparative data so that the long-term progress of the Management Domains can be determined.

- Each fauna monitoring site will be surveyed on three occasions for the presence of bird species. Observers will spend 10 minutes recording all birds seen and heard within a 50 m radius (0.8 ha) of a central point, followed by a further 10 minutes searching the balance of a 2 ha plot. The total numbers of birds observed (heard and seen) will be recorded during a 20 minute sampling period. Birds observed outside of the formal survey time, or off the 2 ha sampling plot, will also be recorded as present however these observations will not be used in subsequent analyses.
- Pitfall traps will be established at selected Biometric monitoring sites to measure reptile, amphibian and small mammal populations. A pitfall trap line will consist of a permanently installed 30 metre drift fence and five 20 litre buckets spaced five metres apart (dug into the ground so the lip is at ground level). The buckets will be inspected twice daily (morning and evening). Results will be recorded as species observed and total count. Buckets will be sealed with lids during non-monitoring periods to prevent incidental fauna capture.

- Bat monitoring will be undertaken at selected Biometric monitoring sites using Anabat Bat Detectors. Monitors will be established at each site for one night to record any bat calls. Bat calls will be analysed by a suitably qualified and experienced ecologist.

### **Ground fauna (amphibians, mammals and reptiles)**

WCPL will undertake monitoring for amphibians, mammals and reptiles across Local BVT Reference Sites and Rehabilitation areas. Ground fauna monitoring will utilise a number of survey techniques in an attempt to capture various fauna species (such as amphibians, mammals and reptiles). Survey mechanisms will be selected to target potentially occurring species based on the presence of potential habitat and nearby records. WCPL proposes to only commence monitoring in the Rehabilitation Areas after 5 years from rehabilitation establishment.

### **Bats**

Through previous monitoring programs, WCPL maintains a representative data set of bat assemblages of the local area. WCPL proposes to conduct Bat monitoring within the Rehabilitation areas as the rehabilitation matures, commencing 5-10 years after landform establishment. Monitoring for Bats prior to Rehabilitation maturity and function will only provide presence absence data of bats utilising the areas as foraging grounds and not indicative of habitation.

Bat monitoring will be undertaken at selected BioMetric monitoring sites (**Section 9.5**) using Anabat Detectors. Monitors will be established at each site for one night to record any bat calls. Bat calls will be analysed by a suitably qualified and experienced ecologist.

In addition to the BioMetric monitoring sites, video monitoring at the entrance of the adit to record if bats leave the adit as a result of blasting will be conducted in accordance with WCPL's Blast Management Plan. The use of video recording will continue for such time as there is no evidence to suggest that blasting causes a measurable disruption to the bats using the adit as a roosting site.

Management measures for the Eastern Bentwing-bat are detailed in **Section 7.5**.

### **Monitoring of Unexplained Vegetation Dieback**

WCPL will undertake monitoring of any areas of unexplained vegetation dieback within the ECAs, Rehabilitation Areas and Regeneration Areas as part of the annual monitoring of these areas (**Section 9**) to identify whether *Phytophthora cinnamomi* caused the dieback to occur.

The monitoring of unexplained dieback will focus on identifying the known signs of *Phytophthora cinnamomi* infection, including (DotE, 2014):

- Plants become visibly diseased;
- Signs of water-stress (roots are a primary site of infection and therefore uptake of water is one of the first functions affected);
- Crown decline symptoms;
- Leaf yellowing and death of primary leaf-bearing branches;
- Epicormic branches with smaller leaves; and
- Areas of necrosis, bark at the base of trees just above or below the soil.

Should the above symptoms be identified in areas of unexplained dieback, WCPL will consult with local experts to confirm whether *Phytophthora cinnamomi* is present. If *Phytophthora cinnamomi* is confirmed the actions outlined in **Section 10.1** will be implemented



## 8.1 Analogue Site Baseline Monitoring

Local BVT Reference Sites specific to the BVTs are listed in Table 12 and Table 18 of the BMP, they were established in 2020 and endorsed by BCD in January 2021. Preference for Local BVT Reference Sites compared to the adoption and use of BCD's BVT Benchmark sites is preferred as local sites more accurately reflect local conditions and local specific targets.

These Local BVT Reference Sites will be used to compare the performance and progression of mining rehabilitation to local benchmark status.

The strategic objective of the monitoring is to obtain assurance that WCPL's biodiversity management program is ensuring the Mine's rehabilitation is progressing towards its Completion Criteria.

## 8.2 Rehabilitation Establishment Monitoring

Monitoring results will be collated after each monitoring round and compared against the Completion Criteria and Performance Targets. If monitoring results show that targets are not being met, the Trigger Action Response Plans (TARPs) in **Section 10** will be implemented. The results from the monitoring program will be reported as outlined in **Section 11.3**.

All monitoring results are managed by the ECM and/or Environmental Representative within the document control system and maintained at the Mine for at least four years after the monitoring or event to which they relate took place. All records are kept in a legible form, or in a form that can readily be reduced to a legible form.

## 8.3 Measuring Performance Against Rehabilitation Objectives and Rehabilitation Completion Criteria

A summary of WCPL's Biodiversity Monitoring Program is provided in the BMP. Annual monitoring of established biometric monitoring plots will be completed during Autumn and Spring. Annual monitoring of established LFA monitoring sites will be completed in Spring. WCPL will monitor the performance of rehabilitation by conducting the following monitoring as outlined:

- Year 1 to 10 Landform Function Analysis (LFA) and drone/aerial surveillance for any material areas of vegetation establishment failure;
- Years 3-4 Single FBA plot in each BVT (randomly selected); and
- Years 5-9 FBA plots required in accordance with vegetation zone size.

This approach is to provide for the early detection of any material areas of rehabilitation failure, track progress against the Performance and Completion Criteria and allow for the implementation of corrective measures (**Section 10**).

### Rehabilitation BioMetric Performance Criteria

Performance Criteria applies to rehabilitation domains which have been established and rehabilitated 10 years post landform establishment. Performance Criteria is to show that progress is being made towards the Completion Criteria and has been developed on the basis of approximately 50% of a minimum Completion Criteria or up to two times a maximum Completion Criteria.

The BMP presents the approved Performance Criteria for mine rehabilitation at 10 years after landform establishment. With respect to the Regent Honeyeater habitat the relevant criteria is suitable progress against the Native Over-Storey Performance Criteria.

The site attribute values for each FBA plot will be averaged in order to determine the site value if a vegetation zone and the average Overall Site Value Score should be equal to or greater than **7** based on *Generating biodiversity credits for ecological rehabilitation of previously mined land* (OEH, 2015)

### Rehabilitation Biometric Completion Criteria

Achieving Benchmark and Local Benchmark conditions for the specific rehabilitation BVTs across the mine represents the ultimate management target. However, such completion criteria is considered unrealistic for the management period as the timeframe is insufficient for the development of habitat features such as tree hollows (which require 120 years or more) in the absence of nesting boxes.

A lesser target that demonstrates capacity for passive improvement towards benchmark condition is considered a more suitable and feasible context for establishing performance targets and completion criteria in degraded landscapes. The approved Completion Criteria has been set in accordance with Section 12.2 of the FBA (OEH, 2014a) and in consultation with OEH, DAWE and DPE.

The BMP presents the approved Completion Criteria for mine rehabilitation at 10 years after the completion of mining. With respect to the establishment of Regent Honeyeater habitat BVTs, the relevant criteria for 10 years after completion of mining is suitable progress against the Native Over-Storey and Regeneration Criteria.

Site attribute values for each FBA plot will be averaged in order to determine the site value of a vegetation zone and the Overall Site Value Score should be equal to or greater than **17** based on *Generating biodiversity credits for ecological rehabilitation of previously mined land* (OEH, 2015).



## 9.0 Part 9 – Rehabilitation Research, Modelling and Trials

### 9.1 Current Rehabilitation Research, Modelling and Trials

#### a) *Ozothamnus tessellatus*

Three populations of *Ozothamnus tessellatus* (equating to a direct count of 1,090 plants) were found within the Project open cut extension and infrastructure areas during the Hunter Eco (2015) surveys of the WEP.

Seeds of the threatened *Ozothamnus tessellatus* will be collected and propagated for use in the rehabilitation and Regeneration Areas. Seeds from *Ozothamnus tessellatus* will be collected during November (or other relevant times that seed is available) from the known populations within the open cut extension and infrastructure areas and throughout the BOAs (where the species is also known to occur).

Propagation will be undertaken by WCPL in germination trays with various soils and treatments. As this species produces thistle-type seeds, tube stock is anticipated to be the most appropriate method for propagation. WCPL may contact suitable third-party nursery providers to assist with the propagation trials. The three-year management targets for the propagation of *Ozothamnus tessellatus* is detailed in the BMP.

#### b) *Drone Seeding Trial*

WCPL is undertaking a trial to establish its required native vegetation community through aerial application of native seed using unmanned aerial vehicles (UAV) (drones). The trial will investigate the benefits of using up to date technology in drones to direct seed a site set aside and prepared for revegetation and the benefits that surround this.

The aim of this trial is to prove the ability of this emerging technology to provide a quality product in the way of native seeding while limiting waste in seed use and costs. At the same time the trial will assess if improvements in revegetation through the ability to overfly and apply targeted ameliorants and supplementary seeding where required without the need for large equipment.

This will also provide safety improvements through limiting manual or mechanical site traversals on areas where the terrain is too steep, or sculpted through micro-relief practices, for machinery or people to safely access the site.

The trial outcomes will also speak to the ability to scale up or down the size of rehabilitation areas where necessary. This gives the flexibility to take advantage of windows of opportunity through climate and mine planning, rather than have to wait for the cost benefits to be justified of using larger scale broadacre methods. This can therefore provide a more rapid solution around the issues of weed intrusion, erosion and dust production that comes with land prepared and waiting for works to be undertaken.

### 9.2 Future Rehabilitation Research, Modelling and Trials

#### a) *Regent Honey Eater Habitat Trial*

In accordance with Schedule 3, Condition 36 of the Development Consent, WCPL will create Regent Honeyeater habitat within existing mine rehabilitation areas where rehabilitation previously had focussed on the establishment of a mix of open woodland and pasture areas for grazing, as required by the former PA05-0021.

In these areas, WCPL will commence control of non-native species and re-seeding to a combination of suitable native plant species as a rehabilitation priority. Local benchmark sites (as opposed to regional benchmark data) will be used to satisfy Schedule 3, Condition 37 of the Development Consent.

These pasture areas are already at final landform levels, are typically gently sloping, have been topsoiled and are still accessible to mobile equipment or farm machinery without new clearing. Subject to climatic conditions, this may offer an opportunity to prioritise the staged trial establishment of Regent

Honeyeater habitat associated with the Mine. In parallel, WCPL will conduct re-evaluation of the previous woodland revegetation areas against contemporary BVT classifications. The results of the re-evaluation will assist WCPL in identifying any remedial actions that would need to be implemented in order to establish Regent Honeyeater habitat within these areas.

**b) *Ozothamnus tessellatus***

Three populations of *Ozothamnus tessellatus* (equating to a direct count of 1,090 plants) were found within the Project open cut extension and infrastructure areas during the Hunter Eco (2015) surveys of the WEP.

Seeds of the threatened *Ozothamnus tessellatus* will be collected and propagated for use in the rehabilitation and Regeneration Areas. Seeds from *Ozothamnus tessellatus* will be collected during November (or other relevant times that seed is available) from the known populations within the open cut extension and infrastructure areas and throughout the biodiversity offset areas (BOAs) (where the species is also known to occur).

Propagation will be undertaken by WCPL in germination trays with various soils and treatments. As this species produces thistle-type seeds, tube stock is anticipated to be the most appropriate method for propagation. WCPL may contact suitable third-party nursery providers to assist with the propagation trials. The three-year management targets for the propagation of *Ozothamnus tessellatus* is detailed in the BMP.

**c) *Drone Seeding Trial***

WCPL is undertaking a trial to establish its required native vegetation community through aerial application of native seed using unmanned aerial vehicles (UAV) (drones). The trial will investigate the benefits of using up to date technology in drones to direct seed a site set aside and prepared for revegetation and the benefits that surround this.

The aim of this trial is to prove the ability of this emerging technology to provide a quality product in the way of native seeding while limiting waste in seed use and costs. At the same time the trial will assess if improvements in revegetation through the ability to overfly and apply targeted ameliorants and supplementary seeding where required without the need for large equipment.

This will also provide safety improvements through limiting manual or mechanical site traversals on areas where the terrain is too steep, or sculpted through micro-relief practices, for machinery or people to safely access the site.

The trial outcomes will also speak to the ability to scale up or down the size of rehabilitation areas where necessary. This gives the flexibility to take advantage of windows of opportunity through climate and mine planning, rather than have to wait for the cost benefits to be justified of using larger scale broadacre methods. This can therefore provide a more rapid solution around the issues of weed intrusion, erosion and dust production that comes with land prepared and waiting for works to be undertaken.

**d) *Topsoil Amelioration Trial***

The use of organic soil ameliorants such as vermicast, organic liquid fertilisers and composts are being trialled at WCPL to promote microbial activity within the site's placed topsoil and topsoil stockpiles. Various application methods and rates are to be trialled to determine efficiencies and also enhance soil stability and aggregation via microbial and plant exudates. With the addition of various organic soil ameliorants, this allows the inclusion of major and minor nutrients and compounds to the soil organism rather than typical synthetic fertilisers which typically provide large ratios of Nitrogen, Phosphate and Potassium (NPK).



## 10.0 Part 10 – Intervention and Adaptive Management

The rehabilitation monitoring program provided in **Section 8** will be used to evaluate ecosystem function and performance and the success of specific management actions implemented across the various Management Domains. The strategic objective of the monitoring is to obtain assurance that WCPL's biodiversity management program is ensuring the Mine's rehabilitation is progressing towards its Completion Criteria.

WCPL have prepared a Trigger Action Response Plan (TARP) (**Table 12**) for rehabilitation to identify appropriate response measures in the event the following key rehabilitation outcomes are not achieved.

**Table 12 Rehabilitation Trigger Action Response Plan**

Rehabilitation Category	Key Element	Trigger/Response	1 <sup>st</sup> Level Trigger	2 <sup>nd</sup> Level Trigger
Landform stability	Landform design	Trigger	Inspections and survey of backfilled rehabilitation landforms under construction indicate landforms at risk of not integrating with surrounding natural landforms.	Inspections and survey of backfilled rehabilitation landforms under construction are not integrating with surrounding natural landforms.
		Response	Seek advice from landform design consultant and implement recommendations to ensure backfilled rehabilitation landforms under construction integrate with surrounding natural landforms.	Undertake a complete review of the landform design with landform design consultant and undertake all necessary remediation activities to ensure backfilled rehabilitation landforms integrate with surrounding natural landforms.
	Slope gradient	Trigger	Backfilled rehabilitation landform gradients approaching 10 <sup>o</sup> or 17%.	Backfilled rehabilitation landform gradients exceeding 10 <sup>o</sup> or 17%.
		Response	Continue to monitor and ensure backfilled rehabilitation landforms under construction have gradients <10 <sup>o</sup> or 17%*. Implement recommendations from landform design consultant as required.  Notes:* Landforms that is designed to be greater than 17% in consultation with the relevant government department.	Undertake a complete review of the landform design with landform design consultant and undertake all necessary remediation activities to ensure backfilled rehabilitation landforms have gradients <10 <sup>o</sup> or 17%.  If backfilled rehabilitation landforms cannot achieve gradients <10 <sup>o</sup> or 17%, commence consultation with the Secretary in accordance with SSD-6764.

Rehabilitation Category	Key Element	Trigger/ Response	1 <sup>st</sup> Level Trigger	2 <sup>nd</sup> Level Trigger
Landform stability	Drainage	Trigger	Not all drainage lines within the final landform have been generally constructed in accordance with the approved final landform design and restored in accordance with the principles, concepts and techniques described in this RMP for rehabilitating streams.	Drainage lines within the final landform have not been constructed generally in accordance with the approved final landform design and restored in accordance with the principles, concepts and techniques described.
		Response	Seek advice from hydrological and ecological specialists and implement recommendations to rectify those drainage lines not satisfying the principles, concepts and techniques described in this RMP for rehabilitating streams.	Undertake a complete review of the drainage design with hydrological and ecological specialists and undertake all necessary remediation activities to ensure the principles, concepts and techniques described in this RMP for rehabilitating streams are achieved.
	Erosion	Trigger	Ground vegetation is approaching 70%. Erosion riling is approaching <0.3m (w). Minor gully erosion identified.	Ground vegetation significantly <70%. Erosion riling is >0.3m (w). Gully erosion identified.
		Response	Continue to monitor and if necessary, implement remediation activities to increase ground cover and reduce erosion impacts.	Undertake a complete review of the drainage design and undertake all necessary remediation activities to repair erosion and establish appropriate groundcover as soon as practicable.
	LFA	Trigger	Approaching 5% annual improvement in LFA score from previous monitoring round.	<5% annual improvement or significant decline in LFA score from previous monitoring round.
		Response	<p>Check and validate the data to ensure correct/accurate.</p> <p>Review individual SSCI and LFA Index results to determine which SSCI or index result is contributing to the lower than expected score.</p> <p>Review management actions undertaken during previous 12 months to determine if actions have contributed to the lower than expected score.</p> <p>Review previous monitoring scores and climatic conditions to establish whether external factors could be contributing to the lower than expected score.</p>	<p>Develop remedial actions to address stagnant or declining landscape stability, if stagnant or declining score not caused by external factors.</p> <p>Maintain monitoring of affected site until first LFA score ≥ 50 (i.e. stable landform).</p> <p>Review monitoring program and consider expanding to include additional treatment and reference sites.</p>



Rehabilitation Category	Key Element	Trigger/Response	1 <sup>st</sup> Level Trigger	2 <sup>nd</sup> Level Trigger
Water quality	Water quality monitoring	Trigger	Runoff water quality from drainage lines constructed through final landform rehabilitated areas are approaching performance criteria limits for either pH, EC, turbidity, sulphate and selected metals (Pb, Se, As and Mo) as provided in the SWMP.	Runoff water quality from drainage lines constructed through final landform rehabilitated areas have exceeded one or more of the performance criteria limits for either pH, EC, turbidity, sulphate and selected metals (Pb, Se, As and Mo) as provided in the SWMP.
		Response	<p>Continue to monitor runoff water quality and undertake preliminary investigations in consultation with surface water specialist.</p> <p>Implement any necessary remedial measures where required.</p>	<p>Report exceedances of the water quality performance criteria in accordance with statutory reporting requirements, including PIRMP and SSD-6764.</p> <p>Continue to monitor runoff water quality and undertake detailed investigations in consultation with surface water specialist to determine causation.</p> <p>Implement any necessary remedial measures where required as soon as practicable</p>
Spontaneous combustion	Spontaneous combustion outbreaks	Trigger	Signs of minor spontaneous combustion outbreaks identified within rehabilitated landform areas.	Signs of significant spontaneous combustion outbreaks identified within rehabilitated areas considered final landform.
		Response	<p>Implement corrective actions to either cap or remove affected material from the final landform.</p> <p>Inert material will be placed over the affected area, compacted and shaped consistent with the surrounding landforms and drainage requirements.</p> <p>Maintain monitoring until no signs of spontaneous combustion are detected.</p>	<p>Report in accordance with statutory reporting requirements, including PIRMP and SSD-6764 if significant spontaneous combustion outbreaks have the potential to cause or pose a threat to the environment.</p> <p>Implement corrective actions to either cap or remove affected material from the final landform. Inert material will be placed over the affected area, compacted and shaped consistent with the surrounding landforms and drainage requirements.</p> <p>Review procedure for material handling. Increase inspections and use of thermal imagery to ensure outbreak has been containment and removed</p>

Rehabilitation Category	Key Element	Trigger/ Response	1 <sup>st</sup> Level Trigger	2 <sup>nd</sup> Level Trigger
Rehabilitation resources	Topsoil volume	Trigger	Topsoil balance indicates a potential deficiency in topsoil available for rehabilitation over the LOM.	Topsoil balance confirms a deficiency in topsoil available for rehabilitation over the LOM.
		Response	<p>Check and validate the volumes of topsoil stockpiled to ensure correct and accurate. Check and validate forecast strip volumes to determine if current topsoils deficiencies will be corrected.</p> <p>Review the procedures for topsoil removal and salvage.</p> <p>Review the requirements within the GDP regarding nominated correct spoil stripping depths.</p>	<p>Increase topsoil stripping depths to nominated depths upon further soil assessments</p> <p>Review potential to remove subsoils upon confirmation of soil assessments to increase soil balance volumes</p> <p>If LOM topsoil volumes cannot be achieved, commence investigations to introduce topsoil substitutes from off site sources and include additional costs in budget forecasting.</p>
	Topsoil quality	Trigger	<p>Results from representative sampling of topsoil for material characterisation are potentially outside one or more of the following parameters:</p> <ul style="list-style-type: none"> <li>• ECe &lt;4dS/m,</li> <li>• pH 5.0 to 8.9,</li> <li>• CEC 3 to 5meq/100g; and</li> <li>• ESP &lt;6%</li> </ul>	<p>Results from representative sampling of topsoil for material characterisation are outside one or more of the following parameters:</p> <ul style="list-style-type: none"> <li>• ECe &lt;4dS/m,</li> <li>• pH 5.0 to 8.9,</li> <li>• CEC 3 to 5meq/100g; and</li> <li>• ESP &lt;6%</li> </ul>
		Response	<ul style="list-style-type: none"> <li>• Seek advice from WCPL rehabilitation specialist</li> <li>• If required, application of appropriate soil ameliorants at rates per hectare as specified by laboratory results and WCPL rehabilitation specialist</li> <li>• Undertake further investigations and testing to determine potential contributing factors.</li> </ul>	<ul style="list-style-type: none"> <li>• Undertake Level 1 Responses;</li> <li>• If the application of ameliorants and further testing reveals results from representative sampling of topsoil for material characterisation remain outside of the optimal parameters, remove unsuitable topsoil material and replace with suitable topsoil material within optimal chemical range.</li> </ul>



Rehabilitation Category	Key Element	Trigger/ Response	1 <sup>st</sup> Level Trigger	2 <sup>nd</sup> Level Trigger
Native vegetation	Vegetation monitoring	Trigger	Interim Performance Criteria Target site value scores <7 for vegetation <10 years of age	Completion Criteria Target site value scores <17 for vegetation >10 years of age
		Response	<p>Check and validate the data to ensure correct/accurate.</p> <p>Review site attribute scores to determine which attributes are contributing to the lower than expected score.</p> <p>Review management actions undertaken during previous 12 months (applicable to 'Establishment and Interim Period) to determine if actions have contributed to the lower than expected score.</p> <p>Review previous monitoring scores and climatic conditions to establish whether external factors could be contributing to the lower than expected score</p> <p>Treat surface as if in the 'establishment period' and 'interim period'. Use management actions to improve condition. Refer to LFA results to determine if there are other causal factors.</p> <p>Increase management effort to address identified lagging site attribute score.</p> <p>Expand monitoring program to include additional treatment and reference sites.</p> <p>Site value score declines from expected performance target range to a preceding range:</p> <p>Analyse data for potential reasons for decline.</p>	<p>Check and validate the data to ensure correct/accurate.</p> <p>Review site attribute scores to determine which attributes are contributing to the lower than expected score.</p> <p>Review management actions undertaken during previous 12 months (applicable to 'Establishment and Interim Period) to determine if actions have contributed to the lower than expected score.</p> <p>Review previous monitoring scores and climatic conditions to establish whether external factors could be contributing to the lower than expected score</p> <p>Review monitoring data against management actions applicable to the 'Performance Period'. Increase management effort to address identified lagging site attribute score and to ensure Site Value Score is tracking towards Performance and/or Completion Criteria Target</p> <p>Maintain monitoring until first site value score &gt;16.</p>
			<p>Develop remedial actions to address declining biodiversity values.</p> <p>Review LFA monitoring to examine for potential casual factors or start LFA monitoring if landform instability is detected.</p> <p>Expand monitoring program to include additional treatment and reference sites</p>	

## 11.0 Part 11 – Review, Revision and Implementation

### 11.1 Review and Revision

Reviews of the RMP will be undertaken by Environment and Community Manager, Mine Manager and Technical Services Manager as required, to assess the effectiveness of the procedures against the objectives of RMP.

The RMP may also be reviewed, and if necessary amended, for example, to incorporate future modifications of Development Consent (SSD-6764) and any proposed activities that are not in accordance with the RMP.

In addition, this RMP will be reviewed within three months of the submission of:

- a) the Annual Review;
- b) a related incident report;
- c) an Independent Environmental Audit; and
- d) any modification to the Development Consent relating to this RMP;
- e) or at the direction of the Secretary.

Where amendments to this RMP are made as a result of the review process as described above, WCPL will submit the revised RMP to the DPE for approval within four weeks, unless otherwise agreed with the Secretary.

The RMP may also be reviewed and revised due to changes in environmental requirements, risk assessments, monitoring results, completion criteria, technologies, legislation and short and long term rehabilitation schedules.

As required by the amendment to *Mining Amendment Regulation 2021* Clause 11, Schedule 8A, the holder of a mining lease must amend the rehabilitation management plan for the mining lease as follows:

- (a) to substitute the proposed version of a rehabilitation outcome document with the version approved by the Secretary—within 30 days after the document is approved,
- (b) as a consequence of an amendment made under clause 14 to a rehabilitation outcome document—within 30 days after the amendment is made,
- (c) to reflect any changes to the risk control measures in the prepared plan that are identified in a rehabilitation risk assessment—as soon as practicable after the rehabilitation risk assessment is conducted,
- (d) whenever given a written direction to do so by the Secretary—in accordance with the direction.

Any proposed amendment to the RMP would be completed in accordance with the RMP Guidelines and in consultation with the DPE-RR and other relevant stakeholders.

The General Manager and the Mine Manager will ensure appropriate resources are provided to implement the RMP. The implementation of this RMP will be the responsibility of the Environment and Community Manager and Technical Services Manager.



## 11.2 Implementation

**Table 13** identifies the applicable WCPL personnel who are responsible for the monitoring, review and implementation of this RMP.

**Table 13 Management Plan Roles and Responsibilities**

Responsibility	Task
<b>General Manager (GM)</b>	Authorise this RMP
	Ensure that adequate financial resources are available to effectively implement requirements of this RMP
<b>Mine Manager (MM)</b>	As required, undertake reviews of the RMP to assess the effectiveness of the procedures against the objectives of RMP.
<b>Technical Services Manager (TSM)</b>	As required, undertake reviews of the RMP to assess the effectiveness of the procedures against the objectives of RMP. Provide appropriate skilled and trained personnel, resources and support to implement the RMP. Implement the procedures referenced in this RMP. Develop mine plans to allow for progressive rehabilitation of mined land in accordance with the Rehabilitation Strategy.
<b>Environment and Community Manager (ECM)</b>	Ensure that all regulatory reporting is undertaken in relation to this RMP.
	Coordinate relevant reviews of this RMP in accordance with Part 11 of this RMP.
	Implement intervention and adaption management as required with Part 10 of this RMP.
	Ensure monitoring is undertaken in accordance Part 8 of this RMP.
	Review the performance of the monitoring program and effectiveness of this RMP.
	Ensure all relevant employees and contractors receive adequate training and awareness in the implementation of this RMP.
	Receive and respond to community complaints
	Prepare all statutory reports relating to this RMP as outlined in Part 11.
	Conduct regular inspections of the site to monitor compliance with this RMP.
	Implement the rehabilitation activities as outlined by this RMP.
	Support and assist Environmental Department in the implementation of this Management Plan
Provide feedback on the adequacy and effectiveness of this plan	
<b>Senior Leadership Team and Supervisors</b>	Report any incidents or complaints immediately to the Environmental Department
	Ensure the implementation of this RMP with respect to their specific work practices and skills.
	Act in accordance with the management procedures or protocols outlined in this EMP
<b>Employees and contractors</b>	Ensure any potential or actual issues, including environmental incidents, are reported to their immediate supervisor

## 11.3 Reporting

At the end of March each year, WCPL will review the environmental performance of the Mine and submit an Annual Review<sup>12</sup> report to the DPE and other relevant government agencies. This report will:

- a) describe the development (including any rehabilitation) that was carried out in the past year, and the development that is proposed to be carried out over the next year;
- b) include a comprehensive review of the monitoring results and complaints records of the project over the past year, which includes a comparison of these results against the:
  - Relevant statutory requirements, limits or performance measures/criteria;

<sup>12</sup> The Rehabilitation Report will be contained in the Annual Review formally known as the Annual Environmental Management Report. The Rehabilitation Report will be prepared in accordance with [www.resourcesandenergy.nsw.gov.au/miners-andexplorers/rules-and-forms/pgf/environmental-guidelines](http://www.resourcesandenergy.nsw.gov.au/miners-andexplorers/rules-and-forms/pgf/environmental-guidelines)

- 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.

Specifically, the Annual Review will include a summary report on the Biodiversity Offset requirements and progress against the 3-year Management Schedule.

The Annual Review containing a summary of the performance of the MOP will be made publicly available on the WCPL website (<https://www.peabodyenergy.com/Operations/Australia-Mining/New-South-Wales-Mining/Wilpinjong-Mine>) as required by Condition 9, Schedule 5 of Development Consent SSD-6764.

**Table 14** provides a summary of the reporting mechanisms applicable to the WCPL, including which stakeholders will receive copies of each report and distribution.

**Table 14 Reporting Framework**

Report	Frequency	Distribution	Responsibility for Report Preparation
<b>Incident Report</b>	Provide detailed report within 7 days of notification	<ul style="list-style-type: none"> <li>• DPE (Manager, Mining Projects)</li> <li>• DPE-RR (Resource Regulator)</li> <li>• EPA (General Contact)</li> </ul>	Environment and Community Manager
<b>Annual Review (AR)</b>	Annually (end of March each year)	<ul style="list-style-type: none"> <li>• DPE (Manager, Mining Projects)</li> <li>• DPE-RR (Resource Regulator)</li> <li>• EPA (General Contact)</li> <li>• BCD (General Contact)</li> <li>• NRAR (General Contact)</li> <li>• Mid-Western Regional Council (General Manager)</li> <li>• CCC Members</li> </ul>	Environment and Community Manager



## 11.4 References

Development Consent (SSD-6764)

Mining Operations Plan (MOP) 2021-2022

Wilpinjong Extension Project (WEP) – Environment Impact Assessment (2016)

Wilpinjong Coal Pty Limited (Version 7.1) Biodiversity Management Plan (BMP)

Wilpinjong Coal Pty Limited (Version 6.1) Noise Management Plan (NMP)

Wilpinjong Coal Pty Limited (Version 8.1) Blast Management Plan (BMgtP)

Wilpinjong Coal Pty Limited (Version 7.1) Air Quality Management Plan (AQMP)

Wilpinjong Coal Pty Limited (Version 6) Water Management Plan (WMP)

Wilpinjong Coal Pty Limited (Version 4) Surface Water Management Plan (SWMP)

Wilpinjong Coal Pty Limited (Version 4) Site Water Balance (SWB)

Wilpinjong Coal Pty Limited (Version 4) Groundwater Management Plan (GWMP)

Wilpinjong Coal Pty Limited (Version 8.1) Aboriginal Cultural Heritage Management Plan (ACHMP)

*Mining Act 1992 NSW Mining Regulation 2021 Amendment (Standard Conditions of Mining Leases – Rehabilitation)*

NSW Resources Regulator *Rehabilitation Management Plan for Large Mines (2021) Form and Way, and associated Guidelines and Factsheets*

*Review of Soil Parameters for Post Mining Rehabilitation Criteria (June 2022), Minesoils Land & Rehabilitation Specialist*

## 11.5 Abbreviations

<b>AEMR</b>	Annual Environmental Management Report (now Annual Review)
<b>AR</b>	Annual Review
<b>BMP</b>	Biodiversity Management Plan
<b>BCS</b>	Biodiversity Conservation and Science Division (formally OEH)
<b>CCC</b>	Community Consultative Committee
<b>CCL</b>	Consolidated Coal Lease
<b>CHPP</b>	Coal Handling and Preparation Plant
<b>CL</b>	Coal Lease
<b>DPE</b>	NSW Department of Planning and Environment
<b>DPIE</b>	NSW Department of Planning, Infrastructure and Environment (now DPE)
<b>DPE-RR</b>	NSW DPE-Resource Regulator (formally DPI, DRG and DRE)
<b>DPE - Water</b>	NSW DPE-Water (formally DPI-Water)
<b>DRE</b>	NSW Division of Resources & Energy (formerly DPI)
<b>DRG</b>	NSW Division of Resources and Geoscience (DRG)
<b>DSC</b>	NSW Dams Safety Committee
<b>EEC</b>	Endangered ecological community
<b>Project EIS</b>	Wilpinjong Coal Project Environmental Impact Statement 2005
<b>EPA</b>	NSW Environment Protection Authority
<b>EP&amp;A Act</b>	<i>NSW Environmental Planning and Assessment Act, 1979</i>
<b>EPL</b>	Environment Protection Licence
<b>MOP</b>	Mining Operations Plan
<b>NOW</b>	NSW Office of Water (now DPI Water)
<b>NRAR</b>	Natural Resources Access Regulator
<b>TARP</b>	Trigger Action Response Plan
<b>VCP</b>	Vegetation Clearance Protocol
<b>WCPL</b>	Wilpinjong Coal Pty Limited
<b>WEP</b>	Wilpinjong Extension Project
<b>WEP-EIS</b>	Wilpinjong Extension Project Environmental Impact Statement (2016)

## **APPENDIX A**

### **Land Ownership and Land Use**



**Table A-1 Schedule of Land Ownership**

Tenure Type	Lot Number	Deposited Plan Number
Freehold	49	DP755454
Freehold	9	DP755454
Freehold	5	DP755454
Freehold	109	DP755454
Freehold	72	DP755454
Freehold	48	DP755454
Freehold	184	DP755425
Freehold	68	DP755454
Freehold	5	DP703225
Freehold	6	DP755454
Freehold	2	DP720305
Freehold	17	DP755454
Freehold	1	DP653565
Freehold	114	DP42127
Freehold	11	DP703223
Freehold	31	DP755454
Freehold	26	DP755454
Freehold	123	DP755425
Freehold	10	DP755454
Freehold	6	DP703225
Freehold	47	DP755454
Freehold	19	DP755454
Freehold	37	DP755454
Freehold	1	DP703224
Freehold	183	DP755425
Freehold	12	DP703223
Freehold	182	DP755425
Freehold	23	DP755454
Freehold	18	DP755454
Freehold	45	DP755454
Freehold	87	DP755425
Freehold	27	DP755454
Freehold	13	DP703223
Freehold	15	DP755454
Freehold	196	DP755425
Freehold	13	DP755454
Freehold	95	DP755425
Freehold	46	DP755454
Freehold	12	DP755454
Freehold	88	DP755425
Crown	91	DP755425
Freehold	1	DP112124
Freehold	90	DP755425
Freehold	122	DP755425
Freehold	24	DP755454
Freehold	124	DP755425
Freehold	3	DP755454

Tenure Type	Lot Number	Deposited Plan Number
Freehold	14	DP755454
Freehold	156	DP755425
Freehold	22	DP755454
Freehold	104	DP755454
Freehold	1	DP727117
Freehold	10	DP703223
Freehold	94	DP755425
Freehold	1	DP728756
Freehold	195	DP755425
Freehold	1	DP724617
Freehold	93	DP755425
Freehold	11	DP755454
Freehold	69	DP755454
Freehold	43	DP683255
Freehold	35	DP755454
Freehold	122	DP724655
Freehold	44	DP683255
Freehold	42	DP683255
Freehold	59	DP755454
Freehold	100	DP755454
Freehold	50	DP755454
Freehold	30	DP755454
Freehold	41	DP683255
Crown	123	DP724655
Freehold	92	DP755425
Crown	7302	DP1138926
Crown	115	DP42127
Freehold	3	DP683254
Freehold	71	DP755425
Freehold	55	DP755425
Freehold	56	DP755425
Freehold	4	DP122991
Freehold	6	DP250053
Freehold	58	DP755425
Freehold	125	DP755425
Freehold	139	DP755425
Freehold	34	DP755425
Freehold	187	DP755425
Freehold	57	DP755425
Freehold	146	DP755455
Freehold	141	DP755425
Freehold	7	DP122991
Freehold	116	DP755425
Freehold	54	DP755425
Freehold	11	DP122991
Freehold	5	DP122991
Freehold	149	DP755425

Tenure Type	Lot Number	Deposited Plan Number
Freehold	83	DP755425
Freehold	188	DP755425
Freehold	161	DP755425
Freehold	78	DP755425
Freehold	107	DP755425
Freehold	105	DP755425
Freehold	18	DP755425
Freehold	5	DP260053
Freehold	2	DP122991
Freehold	85	DP755455
Freehold	26	DP755425
Freehold	6	DP122991
Freehold	152	DP755425
Freehold	9	DP122991
Freehold	132	DP755425
Crown	233	DP723412
Freehold	79	DP755425
Freehold	138	DP755455
Freehold	160	DP723767
Freehold	14	DP755425
Freehold	3	DP122991
Freehold	53	DP755425
Freehold	7	DP260053
Freehold	40	DP755425
Freehold	151	DP755425
Freehold	8	DP122991
Freehold	153	DP755425
Freehold	4	DP260053
Freehold	1	DP431744
Freehold	150	DP755425
Freehold	106	DP755425
Freehold	13	DP755425
Freehold	3	DP260053
Freehold	49	DP755425
Freehold	157	DP755425
Freehold	80	DP755425
Freehold	148	DP755425
Freehold	25	DP755425
Freehold	52	DP755425
Freehold	76	DP755425
Freehold	27	DP755425
Freehold	10	DP122991
Freehold	2	DP260053
Freehold	46	DP755425
Freehold	50	DP755425
Freehold	75	DP755425
Freehold	9	DP755425

Tenure Type	Lot Number	Deposited Plan Number
Freehold	59	DP755425
Freehold	144	DP755425
Freehold	73	DP755455
Freehold	35	DP755425
Freehold	1	DP250053
Freehold	136	DP755425
Freehold	134	DP755425
Freehold	135	DP755425
Freehold	142	DP755425
Freehold	145	DP755425
Freehold	140	DP755425
Freehold	137	DP755425
Freehold	86	DP755455
Freehold	51	DP755455
Freehold	160	DP755425
Freehold	186	DP755425
Freehold	44	DP755425
Freehold	110	DP755454
Freehold	1	DP883254
Freehold	37	DP755425
Freehold	3	DP755425
Freehold	128	DP755425
Freehold	45	DP755425
Freehold	1	DP1078866
Crown	161	DP723767
Crown	147	DP755425
Crown	77	DP755425
Freehold	12	DP755425
Crown	234	DP723412
Crown	97	DP755425
Freehold	66	DP654143
Freehold	1	DP122991
Crown	235	DP723412
Freehold	70	DP755425
Crown	1	DP1139913
Freehold	140	DP755455
Crown	7318	DP1141391
Freehold	146	DP755425
Crown	7008	DP1095457
Freehold	143	DP755425
Freehold	69	DP755455
Freehold	89	DP755455
Freehold	138	DP755425
Freehold	52	DP755455
Crown	159	DP721237
Freehold	96	DP755455
Freehold	11	DP250053

Tenure Type	Lot Number	Deposited Plan Number
Freehold	94	DP755455
Freehold	12	DP250053
Crown	151	DP755455
Freehold	97	DP755455
Freehold	12	DP122991
Freehold	95	DP755455
Freehold	3	DP430668
Freehold	13	DP122991
Freehold	78	DP755455
Freehold	1	DP430668
Freehold	50	DP755455
Freehold	2	DP1071177
Freehold	4	DP755455
Freehold	116	DP755455
Freehold	10	DP250053
Freehold	57	DP755455
Freehold	2	DP430668
Freehold	59	DP755455
Freehold	133	DP755425
Freehold	194	DP755425
Freehold	237	DP724588
Freehold	130	DP755425
Freehold	158	DP755425
Freehold	8	DP755455
Crown	236	DP724588

Tenure Type	Lot Number	Deposited Plan Number
Crown	63	DP755455
Freehold	99	DP755455
Freehold	9	DP250053
Freehold	131	DP755425
Freehold	8	DP250053
Freehold	1	DP755455
Freehold	155	DP755425
Crown	158	DP721237
Crown	7304	DP1141384
Freehold	108	DP755425
Freehold	42	DP755425
Freehold	109	DP755425
Freehold	60	DP755425
Freehold	67	DP755454
Crown	52	DP755454
State Rail Authority (Crown)	Railway lands located between or adjacent to the above parcels of land	
Mid-Western Regional Council or Department of Lands (Crown)	Other roads located between or adjacent to the above parcels of land	
Crown	Creeks or streams located between or adjacent to the above parcels of land	



## **APPENDIX B**

### **Regulatory Requirements for Rehabilitation**

Condition 64, Schedule 3 of Development Consent (SSD-6764) requires the development of a Rehabilitation Management Plan (RMP). **Table B-1** outlines the RMP conditions and other associated rehabilitation objectives and strategies as required by Development Consent (SSD-6764) and indicates where they addressed in the RMP.

**Table B-1 Development Consent (SSD-6764) Requirements**

Development Consent (SSD-6764) Rehabilitation Requirements		RMP Section
<b>Rehabilitation Objectives</b>		
60. The Applicant must rehabilitate the site to the satisfaction of the Secretary. This rehabilitation must be consistent with the proposed rehabilitation strategy described in the EIS (and shown conceptually in Appendix 8) and comply with the objectives in Table 11.		This RMP Section 1.0
Table 11: Rehabilitation Objectives		
Feature	Objective	
Mine site (as a whole)	<ul style="list-style-type: none"> <li>• Safe, stable and non-polluting</li> <li>• Final landforms designed to incorporate micro-relief and integrate with surrounding natural landforms and adjacent mine rehabilitation</li> <li>• Final landforms maximise geotechnical performance, stability and hydrological function</li> <li>• Constructed landforms maximise surface water drainage to the natural environment (excluding final void catchments)</li> <li>• Minimise long term groundwater seepage from the site to ensure negligible environmental consequences beyond those predicted for the development</li> <li>• Minimise visual impact of final landforms as far as is reasonable and feasible</li> </ul>	Section 2.2 Section 2.4.1 Section 4.1.1 Section 4.1.2 Section 6.2.3
Final Voids	<ul style="list-style-type: none"> <li>• Minimise to the greatest extent practicable:                             <ul style="list-style-type: none"> <li>○ the size and depth of final voids</li> <li>○ the drainage catchment of final voids</li> <li>○ any high wall and low wall instability risk</li> <li>○ risk of flood interaction for all flood events up to and including the PMF</li> </ul> </li> </ul>	Section 2.4.1 Section 4.1.1 Section 4.1.2 Section 6.1 Section 6.2.3 Section 4.1.1 Section 4.1.2
Surface infrastructure	<ul style="list-style-type: none"> <li>• To be decommissioned and removed, unless the Secretary agrees otherwise</li> </ul>	Section 4.1.2 Section 6.2.2
Rehabilitation	<ul style="list-style-type: none"> <li>• Rehabilitate at least 2,906 hectares of self-sustaining woodland ecosystem to the BVTs specified in Tables 8 and 9;</li> <li>• Establish self-sustaining ecosystem function in areas of:                             <ul style="list-style-type: none"> <li>○ aquatic habitat, within diverted and/or re-established drainage lines and retained water features, with consideration of hydro- geomorphological constraints;</li> <li>○ habitat for threatened flora and fauna species; and</li> <li>○ habitat for flora and fauna species known to occur in the region.</li> </ul> </li> </ul>	Section 4.1.1 Section 4.1.2 Section 2.2 Section 2.4.1 Section 2.5 Section 6.1
Cumbo Creek relocation	Restored in accordance with conditions 26 to 28 of this Schedule.	Section 4.1.1 Section 6.1.3
Other reinstated drainage lines	Drainage lines are restored in accordance with the principles, concepts and techniques described in “A rehabilitation manual for Australian streams (Rutherford, I; Jerie, K; Marsh, N 2000)	Section 4.1.1 Section 4.1.2
Community	<ul style="list-style-type: none"> <li>• Ensure public safety</li> <li>• Minimise the adverse socio-economic effects associated with mine closure</li> </ul>	Section 4.1.1 Section 4.1.2
<p><i>Note: To avoid any doubt, the final landform in Pit 8 must not include a final void and must be consistent with the landform proposed in the Applicant’s Response to the Planning Assessment Commission Review, dated February 2017, and shown conceptually in Appendix 8.</i></p>		

Development Consent (SSD-6764) Rehabilitation Requirements	RMP Section
<p><b>Rehabilitation Strategy</b></p> <p>61. Within 6 months of the commencement of development under this consent, unless the Secretary agrees otherwise, the Applicant must prepare a Rehabilitation Strategy to the satisfaction of the Secretary. This strategy must:</p> <p>(a) In consultation with the proponent of the Moolarben Coal Mine, investigate options to integrate the final landform with the Moolarben Coal Mine, including options to integrate final voids and minimise the sterilisation of land post-mining;</p> <p>(b) Include an assessment of partially backfilling voids 2 and 6 above the groundwater equilibrium level having regard to the final void rehabilitation objectives in Table 11, including consideration of downstream water quality and the objectives in Table 6;</p> <p>(c) Include a revised final landform plan which builds on the rehabilitation objectives in Table 11, including incorporation of micro-relief, landform stability, hydrological and ecological function; and</p> <p>(d) Include detailed justification for proposed changes to the final landform, having regard to the approved post-mining land use.</p> <p><i>Note: The strategy should build on the proposed rehabilitation strategy shown in Appendix 8.</i></p>	<p>Section 2.2 Section 2.4.1</p> <p>Section 2.5</p> <p>Section 2.5 Section 4.1.2 Section 6.1 Section 2.2 Section 2.5 Section 2.5</p>
<p><b>Progressive Rehabilitation</b></p> <p>62. The Applicant must rehabilitate the site progressively as soon as reasonably practicable following disturbance. All reasonable and feasible measures must be taken to minimise the total area exposed for dust generation at any time. Interim rehabilitation strategies must be employed when areas prone to dust generation cannot be permanently rehabilitated.</p> <p><i>Note: It is accepted that some parts of the site that are progressively rehabilitated may be subject to further disturbance at some later stage of the development. It is also accepted that delays in rehabilitation due to extended wet or dry conditions may occur.</i></p> <p>63. The Applicant must commence the ecosystem and land use establishment phase of rehabilitation for areas within 50 metres of the Munghorn Gap Nature Reserve, within 2 years of ceasing mining operations in those areas.</p> <p><i>Note: It is accepted that some ancillary infrastructure would need to be retained for access and water management.</i></p>	<p>Section 2.5 Section 6.1</p> <p>Section 2.5 Section 6.1.1</p> <p>Section 6.1.1 Section 6.1.5</p>



**Table B-1 Development Consent (SSD-6764) Requirements cont.**

Development Consent (SSD-6764) Rehabilitation Requirements	RMP Section
<p><b>Rehabilitation Management Plan</b></p> <p>64. Prior to carrying out any development under this consent, unless the Secretary agrees otherwise, the Applicant must prepare a Rehabilitation Management Plan for the development to the satisfaction of the Secretary. This plan must:</p> <ul style="list-style-type: none"> <li>(a) be prepared in consultation with DPI Water, OEH, Council and the CCC;</li> <li>(b) be prepared in accordance with any relevant NSW Government mining rehabilitation guidelines;</li> <li>(c) describe how the rehabilitation of the site be integrated with the biodiversity offset strategy;</li> <li>(d) include a conceptual life of mine rehabilitation schedule, a detailed rehabilitation schedule covering a period of up to 3 years, and an annual program for reviewing and revising the schedule;</li> <li>(e) include detailed performance and completion criteria for evaluating the performance of the rehabilitation of the site and triggering remedial action (if necessary);</li> <li>(f) clearly identify the rehabilitation offset areas required under condition 36 of this Schedule including: areas required for the ecosystem and Regent Honeyeater species credits; areas generating different credits per hectare for Regent Honeyeater species credits; and BVT's proposed to generate the offset credits;</li> <li>(g) describe the measures that would be implemented to ensure compliance with the relevant conditions of this consent, and address all aspects of rehabilitation including mine closure, final landform (including final voids), biodiversity values and final land use;</li> <li>(h) describe the rehabilitation methodologies that will be implemented to achieve the rehabilitation performance measures;</li> <li>(i) describe a process for managing minor delays or changes to progressive rehabilitation forecasts;</li> <li>(j) include interim rehabilitation where necessary to minimise the area exposed for dust generation;</li> <li>(k) include a program to monitor, independently audit and report on the effectiveness of rehabilitation methodologies and progress against the detailed performance measures, trends and completion criteria; and</li> <li>(l) build to the maximum extent practicable on the other management plans required under this consent.</li> </ul> <p><i>The Mine Operations Plan (MOP) may be used to address the requirements of the Rehabilitation Management Plan required under this condition. However, the MOP must clearly document how the requirements of this condition have been met.</i></p> <p><i>It is accepted that the Rehabilitation Management Plan initially submitted in accordance with this condition would not include the agreed rehabilitation offsets performance and completion criteria required under condition 37 of this schedule or any rehabilitation changes resulting from the Rehabilitation Strategy required under condition 61 of this schedule.</i></p>	<p>This RMP</p> <p>Section 4.2</p> <p>Section 1.0</p> <p>Section 2.3</p> <p>Section 2.4.1</p> <p>Section 2.5.1</p> <p>Section 2.5.2</p> <p>Section 6.1.2</p> <p>Section 4.1.2</p> <p>Section 10</p> <p>Section 2.4.1</p> <p>Section 4.1</p> <p>Section 6.1</p> <p>Section 7</p> <p>Section 8</p> <p>Section 9</p> <p>Section 6.1</p> <p>Section 2.5.2</p> <p>Section 6.1.5</p> <p>Section 9.1</p> <p>Section 9.2</p> <p>Section 1.0</p> <p>This RMP</p>
<p>65. Within 3 months of approval of the performance and completion criteria for rehabilitation offsets required under condition 37 of this schedule, the Applicant must revise the Rehabilitation Management Plan to include the approved performance and completion criteria, including a protocol for assessing and reporting on rehabilitation offsets against the performance criteria, as the mine is progressively rehabilitated.</p>	<p>Section 4.1.2</p> <p>Section 11.3</p>

Condition 3, Schedule 5 of Development Consent (SSD-6764), outlines general management plan requirements that are applicable to the preparation of this MOP. **Table B-2** presents these requirements and indicates where they are addressed within this RMP.

**Table B-2 General Management Plan Requirements**

Development Consent (SSD-6764) Condition	RMP Section
<b>Management Plan Requirements</b>	
3. The Applicant must ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include:	
(a) detailed baseline data;	Section 8.1
(b) a description of:	
• the relevant statutory requirements (including any relevant approval, licence or lease conditions);	Section 1.2
• any relevant limits or performance measures/criteria;	Section 4.1.2
• the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	Section 4.1.2
(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	Section 6.0
(d) a program to monitor and report on the:	Section 8.0
• impacts and environmental performance of the development;	
• effectiveness of any management measures (see c above);	
(e) a contingency plan to manage any unpredicted impacts and their consequences;	Section 10
(f) a program to investigate and implement ways to improve the environmental performance of the development over time;	
(g) a protocol for managing and reporting any:	Section 11
• incidents	
• complaints	
• non-compliances with statutory requirements; and	
• exceedances of the criteria and/or performance criteria; and	
(h) a protocol for periodic review of the plan.	Section 11.1

**Mining Lease & Exploration Licences**

WCPL’s approved mining activities occur within ML1573, ML1779 and ML1795. **Table B-3** outlines the approval conditions within ML1573, ML1779 and ML1795 as they relate to rehabilitation and where they addressed in the RMP.

**Table B-3 Conditions from ML1573, ML1779 & ML1795**

ML Conditions as they relate to rehabilitation	RMP Section
<b>ML1573</b>	
<p>27.</p> <p>(a) Mining operations must not be carried out otherwise than in accordance with a Mining Operations Plan (MOP) which has been approved by the Director- General of the Department of Primary Industries- Mineral Resources.</p> <p>(b) The [MOP] must:</p> <ul style="list-style-type: none"> <li>• identify areas that will be disturbed by mining operations;</li> <li>• detail the staging of specific mining operations;</li> <li>• identify how the mine will be managed to allow mine closure;</li> <li>• identify how mining operations be carried out on site in order to prevent and or minimise harm to the environment;</li> <li>• reflect the conditions of approval under:                             <ul style="list-style-type: none"> <li>- the <i>Environmental Planning and Assessment Act 1979</i>;</li> <li>- the <i>Protection of the Environment Operations Act 1997</i>; and</li> <li>- and any other approvals relevant to the development including the conditions of this lease; and</li> </ul> </li> <li>• have regard to any relevant guidelines adopted by the Director-General.</li> </ul> <p>(c) The titleholder may apply to the DG to amend an approved MOP at any time.</p> <p>(d) It is not a breach of this condition if:</p> <ol style="list-style-type: none"> <li>i) the operations constituting the breach were necessary to comply with a lawful order or direction given under the <i>Mining Act 1992</i>, the <i>Environmental Planning and Assessment Act 1979</i>, <i>Protection of the Environment Operations Act 1997</i> or the <i>Occupational Health and Safety Act 2000</i>; and</li> <li>ii) the Director-General had been notified of the terms of the order or direction prior to the operations constituting the breach being carried out.</li> </ol> <p><i>Note: The Director-General is deemed to be notified of the terms of an order or direction if the order or Direction was issued by the Department or a copy of the order or direction has been faxed to 02 4931 6790.</i></p> <p>(e) A MOP ceases to have affect 7 years after date of approval or other such period as identified by the D-G. An approved amendment to the MOP under condition 29 does not constitute an approval for the purpose of this paragraph unless otherwise identified by the DG.</p>	<p>This RMP</p> <p>Section 2.5 Section 6.0 Section 2.5.2 Section 6.0 Section 8.0 Section 2.0</p> <p>Section 1.0</p>
<b>ML1779 &amp; ML1795</b>	
<p><b>2. Rehabilitation</b></p> <p>Any disturbance resulting from the activities carried out under this mining lease must be rehabilitated to the satisfaction of the Minister.</p> <p><b>3. Mining Operations Plan and Annual Rehabilitation Report</b></p> <p>(a) The lease holder must comply with an approved Mining Operations Plan (MOP) in carrying out any significant surface disturbing activities, including mining operations, mining purposes and prospecting. The lease holder must apply to the Minister for approval of a MOP. An approved MOP must be in place prior to commencing any significant surface disturbing activities, including mining operations, mining purposes and prospecting.</p> <p>(b) The MOP must identify the post mining land use and set out a detailed rehabilitation strategy which:</p> <ol style="list-style-type: none"> <li>(i) identifies areas that will be disturbed;</li> <li>(ii) details the staging of specific mining operations, mining purposes and prospecting;</li> <li>(iii) identifies how the mine will be managed and rehabilitated to achieve the post mining land use;</li> <li>(iv) identifies how mining operations, mining purposes and prospecting will be carried out in order to prevent and or minimise harm to the environment; and</li> <li>(v) reflects the conditions of approval under:                             <ul style="list-style-type: none"> <li>• the <i>Environmental Planning and Assessment Act 1979</i>;</li> <li>• the <i>Protection of the Environment Operations Act 1997</i>;</li> <li>• any other approvals relevant to the development including the conditions of this mining lease.</li> </ul> </li> </ol>	<p>Table B-1</p> <p>This RMP</p> <p>Section 2.0</p> <p>Section 6.0</p> <p>Section 1.2</p>



ML Conditions as they relate to rehabilitation	RMP Section
<p>(c) The MOP must be prepared in accordance with the <i>ESG3: Mining Operations Plan (MOP) Guidelines</i> September 2013 published on the Department's website at <a href="http://www.resourcesandenergy.nsw.gov.au/miners-and-explorers/rules-andforms/pgf/environmental-guidelines">www.resourcesandenergy.nsw.gov.au/miners-and-explorers/rules-andforms/pgf/environmental-guidelines</a></p> <p>(d) The lease holder may apply to the Minister to amend an approved MOP at any time.</p> <p>(e) It is not a breach of this condition if:</p> <ul style="list-style-type: none"> <li>(i) the operations which, but for this condition 3(e) would be a breach of condition 3(a), were necessary to comply with a lawful order or direction given under the <i>Environmental Planning and Assessment Act 1979</i>, the <i>Protection of the Environment Operations Act 1997</i>, the <i>Work Health and Safety (Mines and Petroleum Sites) Act 2013</i> and <i>Work Health and Safety (Mines and Petroleum Sites) Regulation 2014</i> or the <i>Work Health and Safety Act 2011</i>; and <i>Work Health and Safety Regulation 2011</i></li> <li>(ii) the Minister had been notified in writing of the terms of the order or direction prior to the operations constituting the breach being carried out.</li> </ul>	<p>Section 1.0</p>
<p>(f) The lease holder must prepare a Rehabilitation Report to the satisfaction of the Minister.</p> <p>The report must:</p> <ul style="list-style-type: none"> <li>(i) provide a detailed review of the progress of rehabilitation against the performance measures and criteria established in the approved MOP;</li> <li>(ii) be submitted annually on the grant anniversary date (or at such other times as agreed by the Minister); and</li> <li>(iii) be prepared in accordance with any relevant annual reporting guidelines published on the Department's website at <a href="http://www.resourcesandenergy.nsw.gov.au/miners-andexplorers/rules-and-forms/pgf/environmental-guidelines">www.resourcesandenergy.nsw.gov.au/miners-andexplorers/rules-and-forms/pgf/environmental-guidelines</a></li> </ul> <p>Note: The Rehabilitation Report replaces the Annual Environmental Management Report.</p>	<p>This RMP</p> <p>Section 11</p>

## **APPENDIX C**

### **Stakeholder Consultation**

Department of Planning and Environment



Our ref: SSD-6764-PA-57

Mr Ian Flood  
Manager Project Development and Approvals  
Wilpinjong Coal Pty Ltd

By email: [iflood@peabodyenergy.com](mailto:iflood@peabodyenergy.com)

06/12/2022

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**Subject: Wilpinjong Coal Rehabilitation Strategy (SSD-6764)**

Dear Mr Flood

I refer to the revised Rehabilitation Strategy submitted in accordance with condition 61 of Schedule 3 of the above development consent.

I understand that the strategy includes a revised conceptual final landform having regard to the rehabilitation objectives of the development consent. The revised landform incorporates principles of micro-relief and retains two amended final voids (ie Pit 2 and Pit 6) following an assessment that concluded that backfilling these voids above groundwater equilibrium levels is not a reasonable or feasible solution.

I also understand that Wilpinjong Coal Pty Ltd continues to consult with Moolarben Coal Operations Pty Ltd regarding opportunities to integrate the Pit 6 final void with the OC4 final void at the Moolarben Coal Complex. It is noted that decisions regarding this potential integration are not required until approximately 2028, pursuant to mine progression.

As the Rehabilitation Strategy included a groundwater review of the revised final landform, the Department sought advice from its Water Group (DPE Water) on the outputs of this assessment. DPE Water raised concern regarding risks of saline discharge into Wilpinjong Creek due to its proximity to Pit 6, and recommended an independent review of the groundwater model to advise if the model is sufficiently robust and commensurate with the risk.

The Department acknowledges advice from Wilpinjong Coal that the groundwater review was based on the 2015 groundwater model with adopted amendments following model updates undertaken in 2020. The Department also notes that Wilpinjong Coal is required to update the groundwater model every three years, and a new model is proposed for development during 2023.

Whilst the Department considers that the Rehabilitation Strategy has generally been prepared in accordance with the relevant conditions of consent, it is also considered that groundwater equilibrium levels and potential downstream risks should continue to be modelled and evaluated over the project life. On this basis, the Secretary has conditionally approved the Rehabilitation Strategy subject to:



- a) the development of an updated groundwater model, prepared in consultation with DPE Water and in accordance with the *Minimum Groundwater Modelling Requirements for SSD/SSI Projects Technical Guideline 2022*, within 18 months of the date of this letter; and
- b) lodgement of an updated Rehabilitation Strategy:
  - a. having regard to the findings of the updated groundwater model; and
  - b. including an update on mine progression and consultation with Moolarben Coal Operations Pty Ltd regarding an integrated final landform.

You are reminded that if there are any inconsistencies between the approved strategy and the conditions of consent, the conditions prevail.

Please ensure you make the document publicly available on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Gen Lucas on 9274 6489 or [gen.lucas@planning.nsw.gov.au](mailto:gen.lucas@planning.nsw.gov.au).

Yours sincerely



Stephen O'Donoghue  
Director  
Resource Assessments  
As nominee of the Planning Secretary



Planning,  
Industry &  
Environment

Mr Kieren Bennetts  
Manager, Environment and Community  
Wilpinjong Coal Pty Ltd  
1434 Ulan-Wollar Road  
Wilpinjong, NSW, 2850

07/04/2021

Dear Mr Bennetts,

**Wilpinjong Extension Project (SSD-6764)  
Rehabilitation Management Plan**

I refer to the Mining Operations Plan (Version 1.1, dated February 2021) which incorporates the Rehabilitation Management Plan required under Condition 64 of Schedule 3 of the consent for the Wilpinjong Extension Project (SSD-6764).

The Department has carefully reviewed the document and considers that the comments provided on the plan in January 2021 have been adequately addressed and the Mining Operations Plan (Version 1.1, dated February 2021) meets the requirements of the consent.

If you wish to discuss the matter further, please contact Callum Firth at [callum.firth@dpi.nsw.gov.au](mailto:callum.firth@dpi.nsw.gov.au).

Yours sincerely

A handwritten signature in black ink, appearing to be 'S O'Donoghue'.

Stephen O'Donoghue  
Director  
Resource Assessments