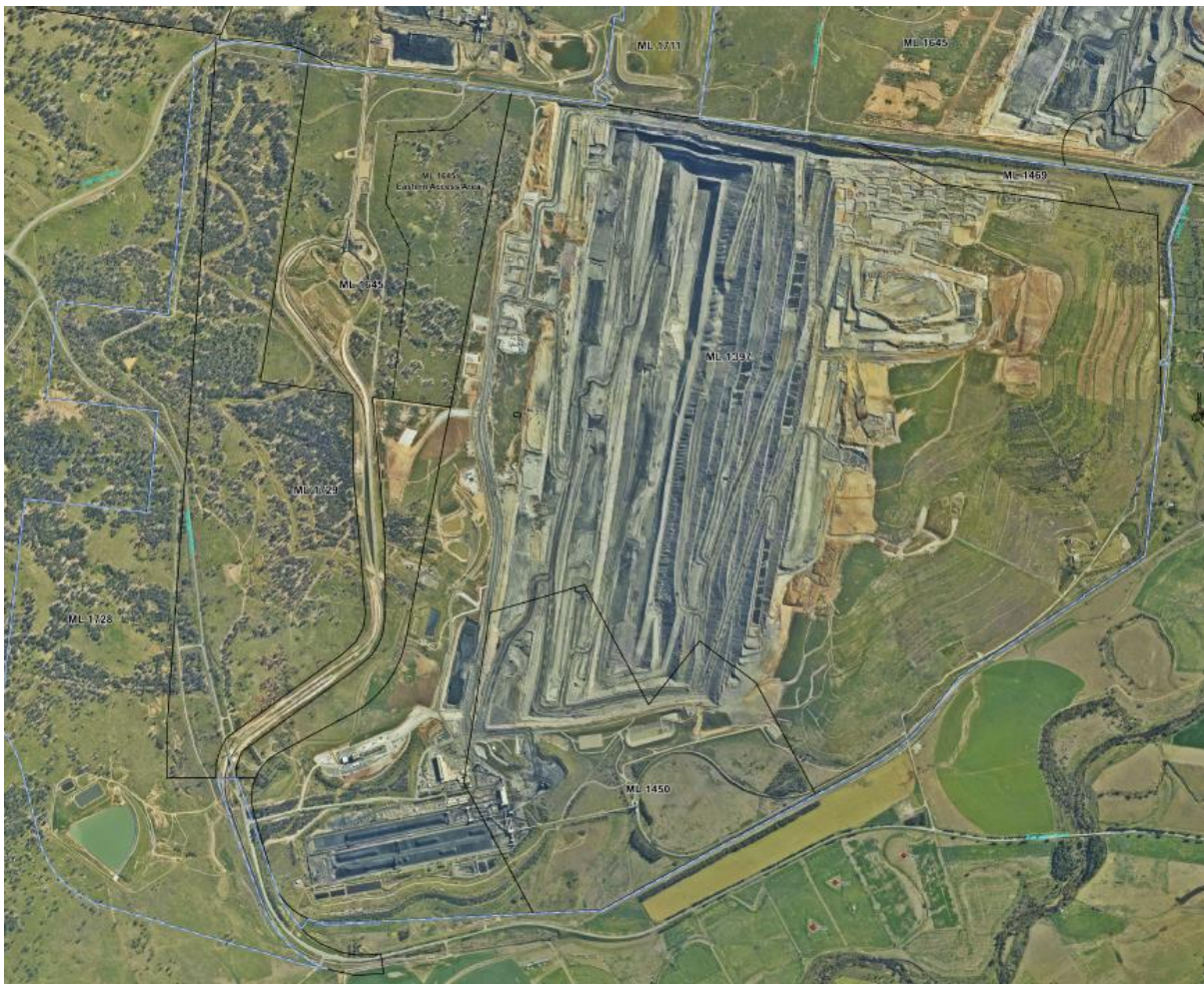


BENGALLA MINE

REHABILITATION STRATEGY

DRAFT SSD-5170



SUMMARY TABLE

Rehabilitation Strategy Commencement Date	
Rehabilitation Strategy Revisions	
Version	Date
1.0	19 January 2024
2.0	27 May 2024
Mining Tenements	
Lease No.	Expiry Date
EL9431	04/07/2028
ML1397	27/06/2038
ML1450	09/06/2043
ML1469	04/06/2042
ML 1711	17/12/2031
ML1796	16/12/2031
ML1728	10/02/2037
ML1729	10/02/2037
Date of Submission	
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1. INTRODUCTION

1.1 BACKGROUND

Bengalla Mining Company Pty Limited (BMC) operates the Bengalla Mine (Bengalla) which is located approximately 4 km west of Muswellbrook in the Upper Hunter Valley, New South Wales (NSW) (see **Figure 1**).

BMC was granted Development Consent for State Significant Development (SSD) 5170 on 3 March 2015 by the Secretary of the Department of Planning and Environment (DPE) for the Continuation of Bengalla. BMC commenced under SSD-5170 on 1 October 2015.

This Rehabilitation Management Strategy has been developed in accordance with the requirements of Schedule 3, Condition 47 of SSD-5170 (as modified).

1.2 HISTORY OF OPERATIONS

1.2.1 Introduction

BMC was originally granted development consent Development Application (DA) 211/93 in 1996 to construct and operate an open cut coal mine and associated activities. Mining operations at Bengalla commenced in 1998. DA 211/93 was surrendered on 22 December 2016.

SSD-5170 (as modified) is now the applicable development consent for Bengalla.

1.2.2 State Significant Development 5170

In September 2013, BMC sought a new development consent under Division 4.1 of Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to enable continued mining operations at Bengalla. The application was supported by the '*Continuation of Bengalla Mine Environmental Impact Statement*' (Bengalla EIS) (Hansen Bailey, 2013) as modified by the '*Continuation of Bengalla Mine Response to Submissions*' (RTS) (Hansen Bailey, 2014).

SSD-5170 provides approval for development including but not limited to the following:

- Open cut mining towards the west at a rate of up to 15 Million tonnes per annual (Mtpa) Run of Mine (ROM) coal for 24 years to a total of 316 Mt;
- Continued use of the existing dragline, truck fleet and excavator fleet (with progressive replacement or substitution with equivalent);
- An out of pit Overburden Emplacement Area (OEA) to the west of Dry Creek which may be utilised for excess spoil material until it is intercepted by mining;
- Continued use, extension or relocation to existing and new infrastructure, including administration and parking facilities, in-mining area facilities (including dragline shut down and erection pad), helipad, tyre laydown area, explosives and reload storage facility, core shed workshop, roads, reject bin, ROM hopper, stockpiles, conveyors, water management infrastructure, bioremediation area, supporting power infrastructure, rail and rail loading infrastructure and ancillary infrastructure;
- Construction and use of various items of new infrastructure (including radio tower, extensions to the Mine Infrastructure Area (MIA), additional raw coal stockpile and upgrade to the ROM coal stockpile (along with associated conveyor network) generally as shown on the infrastructure plans and construction of the Mount Pleasant Staged Discharge Dam and associated water reticulation infrastructure;
- Processing, handling and transportation of coal via the (upgraded) Coal Handling and Preparation Plant (CHPP) and rail loop for export and domestic sale;

- Continued rejects and tailings co-disposal in the Main OEA and in the temporary in-mining area reject emplacement;
- Relocation of a 6 km section of Bengalla Link Road at approximately Year 15 near the existing mine access road to facilitate coal extraction;
- The diversion of Dry Creek via dams and pipe work with a later permanent alignment of Dry Creek through rehabilitation areas when emplacement areas are suitably advanced;
- Relocation of water storage infrastructure as mining progresses through existing dams (including the Staged Discharge Dam (SDD) and raw water dam); and
- A workforce of up to 900 full time equivalent personnel (plus contractors) at peak production.

1.2.3 SSD-5170 Modification 1

SSD-5170 was modified on 16 December 2015 (MOD1) by the Executive Director – Resource Assessments and Compliance for the DPE as delegate of the Minister for Planning for the activities described in the *'Bengalla Mine Development Consent Modification Statement of Environmental Effects'* (Hansen Bailey, 2015a) (MOD1 SEE) including the *'Bengalla Mine Development Consent Modification Response to Submissions'* (Hansen Bailey, 2015b).

The MOD1 provides approval for the following:

- Alterations to various water management infrastructure components including:
- Utilisation of the Satellite Pit as a temporary dirty water catchment dam;
- Relocation of the Staged Discharge Dam and the Hunter River Salinity Trading Scheme (HRSTS) staged discharge release point;
- Construction of clean water diversion levees in locations other than those already approved;
- Revised locations for the proposed relocation of the Hunter River and Washery Dams;
- Additional locations for the siting of the Explosives Storage Facility; and
- The placement of fill from the excavation of the Clean Water Dam1 (CW1) adjacent to it.

1.2.4 SSD-5170 Modification 2

SSD-5170 was modified on 1 July 2016 by the Director – Resource Assessments for the DPE (as delegate of the Minister for Planning) for the activities largely described in the *'Bengalla Mine Development Consent Modification 2 Statement of Environmental Effects'* (Hansen Bailey, 2016a) (MOD 2 SEE). The MOD 2 SEE provides approval for the following:

- Alterations to the approved height of the Main OEA to improve visual amenity from primary viewing locations in and surrounding the township of Muswellbrook and Denman Road, in two selected locations (Visual Relief Areas):
- The Northern Relief Area constructed to a maximum height of Reduced Level (RL) 300;
- The Southern Relief Area constructed to a maximum height of RL 290; and
- Establishment of a new gravel access road from Wybong Road to the Dry Creek Diversion Project Construction Site Office being a former homestead (Homestead Access).

1.2.5 SSD-5170 Modification 3

SSD-5170 was modified on 23 December 2016 (MOD 3) by the Director – Resource Assessments for the DPE as delegate of the Minister for Planning for the activities largely described in the *'Bengalla Mine Development Consent Modification 3 Statement of Environmental Effects'* (Hansen Bailey, 2016b) (MOD 3 SEE).

The MOD 3 SEE provides approval for the repositioning of the following approved activities:

- The construction and operation of an explosives facility and reload facility, which may be relocated to another location(s) within the Approved Disturbance Boundary at a later time;
- The alignment of the Hunter River pipeline; and
- The emplacement and use of temporary topsoil stockpiles during the mining process.

1.2.6 SSD-5170 Modification 4

SSD-5170 was modified on 19 December 2018 (MOD 4) by the Director – Resource Assessments as delegate of the Minister for Planning for the activities described in the '*Bengalla Mine Development Consent Modification 4 Statement of Environmental Effects*' (Hansen Bailey, 2017) dated December 2017 and prepared by Hansen Bailey including the Response to Submissions document dated May 2018 and additional information provided in July 2018 and August 2018 (MOD 4 SEE). The MOD 4 SEE provides approval for the following:

- Changes to the approved water management system to reflect operations at Bengalla including proposed enlargement of the approved SDD (ED1), and construction and use of the Dry Creek East Dam;
- Temporary storage of approximately 2,500 m³ of excess materials from the construction of ED1;
- Increase in the capacity and additional locations of ROM coal stockpiles;
- Additional storage locations for temporary emplacement of coal processing reject material, prior to permanent emplacement; and
- Temporary clay emplacement within the Main OEA or to the west of this for later use in the reinstatement of Dry Creek.

1.2.7 SSD-5170 Modification 5

SSD-5170 was modified by DPE as the delegate for the Minister for Planning for the activities in accordance with activities described in the '*Bengalla Mine Development Consent SSD-5170 Modification 5 Modification Report*' (James Bailey & Associates, 2021), Submissions Response and '*Response to Request For Additional Information*' (James Bailey Associates, 2022) (MOD5 Report). The MOD 5 Report provides approval for the following:

- Operation of a mobile rock crushing facility and ancillary equipment, and the use of that crushed rock at Bengalla;
- Geotechnical investigations in connection with any activities approved under SSD-5170 from time to time;
- Prospecting operations (including exploration drilling) in accordance with BMC's mining leases issued under the *Mining Act 1992* (Mining Act);
- Realignment of the Western Diversion Levee within the approved Disturbance Boundary;
- Enlargement of the ROM coal stockpile located adjacent to the ROM dump hopper from 40 kt to 150 kt approximate maximum capacity;
- Upgrade/widening of an existing haul road (Southern Endwall Road) adjacent to the Southern visual bund, which may require removal of part of the visual bund (to be replaced by an equivalent measure);
- Disposal of tyres in pit; and
- Minor administrative changes to conditions of SSD-5170.

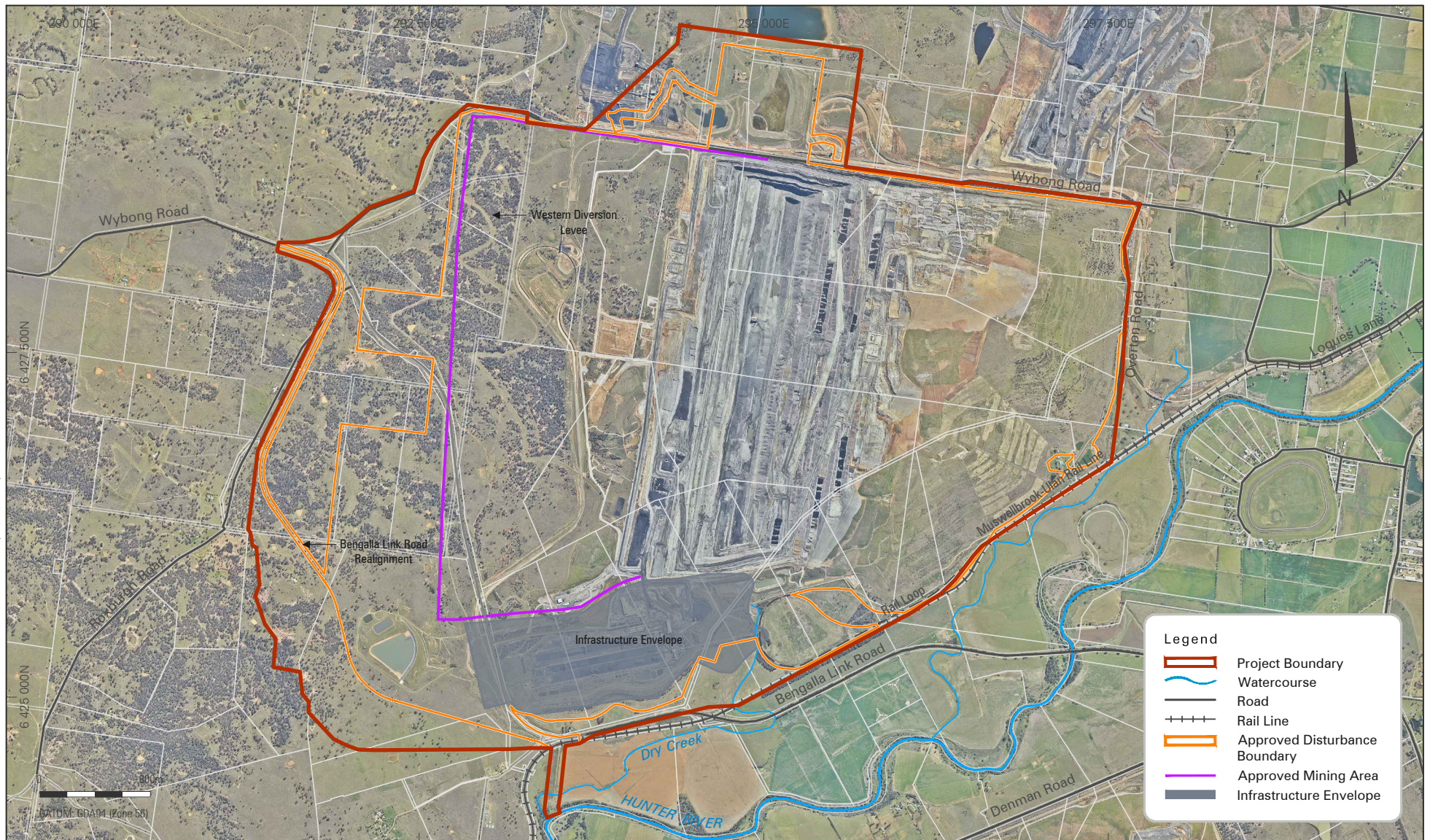
The conceptual development layout is presented in **Figure 2**.



BENGALLA MINE

Regional Locality

FIGURE 1



BENGALLA MINE

Approved Development Layout

FIGURE 2

1.3 DOCUMENT PURPOSE

This Rehabilitation Strategy has been prepared to meet the requirements of Schedule 3, Condition 47 of SSD-5170 (as modified) and aligns with rehabilitation and mine closure objectives of the '*Strategic Framework for Mine Closure*' (ANZMEC and MCA, 2000), commitments made in the Bengalla EIS and the Bengalla '*Rehabilitation Management Plan*' (RMP) (BMC,2024) developed in accordance with the relevant provisions under the Mining Act.

The intent of the Rehabilitation Strategy is to:

- Provide high-level, overarching strategic direction for the rehabilitation of Bengalla;
- Succinctly describe the site rehabilitation objectives and intended rehabilitation outcomes for Bengalla;
- Document specific strategies and action to identify, mitigate and manage rehabilitation risks across all aspects and phases of mine rehabilitation; and
- Prepare a clear definition of roles and responsibilities for the management of rehabilitation related activities that apply to all Bengalla employees, contractors and subcontractors.

This strategy applies to all land disturbed by the development. The Rehabilitation Strategy is prepared for Bengalla stakeholders including consent authorities, environmental regulators, affected landholders, local community and site personnel.

1.4 DOCUMENT STRUCTURE

The Rehabilitation Strategy is structured as follows:

Section 1: provides background information on Bengalla, history of operations and outlines the objectives of this Rehabilitation Strategy;

Section 2: describes the regulatory requirements relevant to rehabilitation, outlines the development consent conditions and where these are addressed in the plan;

Section 3: describes the Rehabilitation Objectives and Rehabilitation Completion Criteria;

Section 4: describes the final landform;

Section 5: outlines mine closure planning and premature mine closure options;

Section 6: provides a Stakeholder Engagement Plan;

Section 7: provides a summary of BMC responsibilities relevant to this Rehabilitation Strategy;

Section 8: describes reviewing and improvement of the Rehabilitation Strategy; and

Section 9: provides a list of references.

1.5 ALIGNMENT WITH OTHER PLANS

The Rehabilitation Strategy is a high-level overarching document which provides direction for the rehabilitation of land disturbed by Bengalla during all phases of the mine life. As a result, it aligns with several other approved BMC management plans detailed in the conditions of SSD-5170 including the Bengalla:

- Water Management Plan (WMP);
- Biodiversity Management Strategy (BMP); and
- RMP.

A number of future plans are referenced throughout the Rehabilitation Strategy. As at the date of writing, the trigger for the development of these plans have not yet been met. These plans are the:

- Dry Creek Reinstatement Management Plan; and
- Final Void and Mine Closure Plan.

These plans will be prepared in consultation with relevant regulators and industry guidelines to ensure effective management measures are employed during construction. Aspects of each of these plans and how they are relevant to the Rehabilitation Strategy are referenced throughout the associated parts of the document. These management plans are publicly available on the Bengalla website as per Schedule 5, Condition 11 of SSD-5170. This website can be accessed via:

<https://newhopedgroup.com.au/environmental-management-plans/>

1.6 STATUTORY REQUIREMENTS

The Rehabilitation Strategy was prepared to meet the requirements of Schedule 3, Condition 47 of SSD-5170 (as modified). The relevant requirements of SSD-5170 and where they have been addressed within this document are outlined in **Table 1**.

Table 1 Statutory Requirements

Condition Reference	Condition	Section Addressed
Schedule 3, Condition 47	The Applicant must prepare a Rehabilitation Strategy for all land disturbed by the development to the satisfaction of the Planning Secretary. This plan must:	This Document
	• be prepared in consultation with DPE Water, BCD, Council and the CCC;	Section 1.7
	• be submitted to the Planning Secretary within 12 months of the approval of Mod 5;	Section 8.6
	• build upon the Rehabilitation Objectives in Table 15, describe the overall rehabilitation outcomes for the site, and address all aspects of rehabilitation including mine closure, final landform (including final voids and reinstatement of Dry Creek), postmining land use/s and water management;	Section 3
	• align with strategic rehabilitation and mine closure objectives and address the principles of the Strategic Framework for Mine Closure (ANZMEC and MCA, 2000);	Section 2.5
	• describe how rehabilitation will be integrated with the mine planning process, including a plan to address premature mine closure;	Section 5.2 and Section 5.3
	• investigate opportunities to refine and improve the final landform and final void outcomes over time;	Section 8
	• include a stakeholder engagement plan to guide rehabilitation and mine closure planning processes and outcomes; and	Section 6
	• include a program to periodically review and update this strategy at least every three years.	Section 8.6

1.7 STAKEHOLDER CONSULTATION REQUIRED BY SSD 5170

Schedule 3, Condition 47 of SSD-5170 required this Rehabilitation Strategy to be prepared in consultation with Department of Planning and Environment (DPE) Water, BCD, Council and the Community Consultative Committee (CCC).

As of 1 January 2024, the former Department of Planning has been split into two separate departments. As a result, the Rehabilitation Strategy will be circulated with the NSW Department of Climate Change, Energy, the Environment and Water (DCEEW NSW), the Department of Planning, Housing and Infrastructure (DPHI), Muswellbrook Shire Council (MSC) and the CCC. A summary of the consultation undertaken can be found in **Appendix A**.

2. REGULATORY FRAMEWORK

2.1 CURRENT DEVELOPMENT CONSENTS, LEASES AND LICENCES

The principal approval for Bengalla is SSD-5170 (as modified) which was granted under the then Division 4.1 of Part 4 of the EP&A Act on 3 March 2015 and has since been modified from time to time.

In addition, BMC operates under several other approvals including:

- Approval issued by the Commonwealth Minister for the Environment under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act);
- Authorisations under the Mining Act issued by the NSW Minister for Mining, Exploration and Geoscience (MEG);
- Environment Protection Licence (EPL) issued by the Environment Protection Authority (EPA);
- Dangerous goods licences issued by SafeWork NSW; and
- Water licences and approvals issued by Water NSW.

Table 2 lists the various development consents, Mining Act authorisations and other approvals, licences and authorities relevant to mining operations and rehabilitation at Bengalla.

Table 2 Current Development Consents, Leases and Licences

Approval	Tenement / Licence (Description)	Authority	Issue – Expiry Dates
State Significant Development Consent	SSD-5170 (as modified)	DPE	Issued: 03/03/2015 Expiry: 28/02/2039
Development Consent – Explosives Facility	DA 273/2006	MSC	06/09/2006 – Perpetuity
Mining Lease	ML 1397	MEG	27/06/2017 – 27/06/2038
Mining Lease [^]	ML 1450	MEG	11/06/1999 – 11/06/2020
Mining Lease [^]	ML 1469	MEG	05/06/2000 – 05/06/2021
Mining Lease	ML 1711	MEG	29/09/2015 - 17/12/2031
Mining Lease	ML 1728	MEG	10/02/2016 – 10/02/2037
Mining Lease	ML 1729	MEG	10/02/2016 – 10/02/2037
Mining Lease	ML 1796	MEG	30/03/2021 – 16/12/2031
Exploration Licence (EL)	EL 9431	MEG	04/07/2022 – 04/07/2028
EPL	6538	EPA	Anniversary Date 11 September
EPBC Approval	2012/6378	DCCEEW	27/05/2015 – 31/12/2050
Water Access Licence (Hunter River)*	WAL 1106	Water NSW	Tenure Continuing
Water Access Licence (Groundwater) **	WAL 41547	Water NSW	Tenure Continuing
Hunter River Pump	20PE001354	Water NSW	01/05/1997 – Annual
Licence to Store Explosives	XSTR200130	SafeWork NSW	Expiry Date: 19/05/2026

Approval	Tenement / Licence (Description)	Authority	Issue – Expiry Dates
Radiation Management Licence	5061036	EPA	Expiry Date: 08/08/2024

[^] Renewal sought.

* Primary WAL for the Hunter Regulated River with 1,449 units (high security). BJV/BMC holds various other WALs for the Hunter Regulated River and other water sources.

** WAL with 365 units (category aquifer) for the Sydney Basin-North Coast Groundwater Source (extraction of groundwater from the pit). BJV/BMC holds various other WALs for groundwater sources. BMC management plans, system documents & procedures listed in this RMP may be updated from time to time.

2.2 EIS REHABILITATION REQUIREMENTS

As outlined in the Bengalla EIS, the main objective of rehabilitation at Bengalla is to develop an undulating, free-draining landform with an optimum land capability which supports the original agricultural land use for predominantly cattle grazing. Rehabilitation is undertaken progressively at Bengalla as an integral component of operations.

The proposed EIS mitigation and management measures for rehabilitation and visual screening include:

- Throughout the life of the Project, the progressive rehabilitation of the Main OEA will decrease the visual contrast of the operation to the existing landscape in addition to rehabilitation strategies that emulate patterns, shapes, line and colour of the existing landscape;
- The final design for the rehabilitation of the final landform will be developed in consultation with relevant visual specialists and included in the RMP;
- The preparation of detailed landscape plans to achieve outcomes that emulate the grassland open woodland/ scattered tree landscapes of surrounding hills. The landscape plans are generally described in Section 8.21 of the Bengalla EIS to achieve a minimum of 10% tree cover with higher density coverage on the eastern face of the OEA (or as otherwise agreed with MSC);
- As part of the above, complete landscape design for the realigned Dry Creek along with the OEAs, incorporating the ecological mitigation strategies for the Project to achieve a more natural riparian setting;
- Early, progressive establishment and rehabilitation of the outer faces of the Main OEA, particularly the southern slopes adjacent to the Main Northern Rail Line and CHPP. This will minimise the pre-rehabilitation areas to external sensitive view locations;
- Maintenance of existing tree planting areas and development of new areas (or equivalent mitigation measures) (as shown on Figure 14 and 18 of the Bengalla EIS). The preparation of landscape designs for planting areas to achieve the best visual outcome to critical eastern and southern views inclusive of planting patterns consistent with the limited, woodland and grassland of the existing landscape not subjected to coal mining;
- Temporarily seeding the Western OEA to establish grass cover as soon as practicable, commencing from the western and northern sides to reduce visibility;
- Re-establishment of rehabilitation areas for agricultural use consistent with successful tree establishment upon completion of mining;
- Design drop down drainage structure alignments to vary with the topographic form of the Main OEA and avoid extensive straight line drop downs;
- Utilisation of tree areas to assist in breaking up views to drainage structures;
- Finished new fixed infrastructure developments in forest tones such as olive green or grey as far as practicable to reduce visual contrast with the surrounding landscape, consistent with regulatory and safety requirements;

- Completion of topographic and tree planting design around the explosive storage facility and reload facility to reduce its visibility in the landscape; and
- The current practice of pre-stripping of topsoil from areas to be disturbed will continue as outlined in Section 3.4 of the Bengalla EIS. The topsoil cover will then be utilized as part of the final rehabilitation to limit the risk of dispersion and erosion of potentially sodic overburden.

2.2.1 Dry Creek Reinstatement

The Bengalla EIS states that after Year 15 and prior to Year 24 of mining, a permanent realignment of Dry Creek will be constructed using best practice initiatives to ensure its successful stabilisation.

In accordance with the Bengalla EIS, a Dry Creek Reinstatement Management Plan will be developed within five years of the proposed construction. The plan will be developed in consultation with relevant regulators and consider relevant studies, literature and research to ensure effective management measures are employed during construction. BMC is conducting ongoing investigations and detailed design work to optimise the EIS design in consideration of the current status of mining operations. Further details of this ongoing work will be presented in future revisions to this Rehabilitation Strategy when the timing for the development of the Dry Creek Reinstatement Management Plan is triggered.

In accordance with the Bengalla EIS, the revegetation of Dry Creeks riparian zone will be undertaken to create a vegetation corridor to assist in fauna movement between areas of forest and woodland habitat to broader areas of Derived Native Grassland north of Wybong Road. Native grasses, reeds and shrub species that are characteristic of the Hunter Floodplain Red Gum Woodland community will be planted in the reconstructed bed and riparian areas of the realigned Dry Creek.

When Dry Creek is reinstated the characteristics will be similar to the Hunter Valley River Red Gum / River Oak riparian woodland wetland community. Species in the ground to upper stratum may be selected from the below:

- Upper stratum species:
 - *Eucalyptus camaldulensis*;
 - *Casuarina cunninghamiana* subsp. *Cunninghamiana* (River oak);
 - *Angophora floribunda* (Rough-barked Apple); and
 - *Eucalyptus melliodora* (Yellow Box).
- Middle stratum species:
 - Nil.
- Ground Stratum species:
 - *Austradanthonia* spp. (A Wallaby grass);
 - *Austrostipa verticillate* (Slender Bamboo grass);
 - *Cynodon dactylon* (Common Couch);
 - *Elymus scaber* var. *scaber* (Common Wheatgrass);
 - *Einadia trigonos* subsp. *Trigonos*;
 - *Alternanthera* sp. A;
 - *Alternanthera denticulata* (Lesser Joyweed);
 - *Urtica incisa* (stinging nettle); and
 - Pasture rehabilitation species included in Table 10 of the RMP.

The Bengalla EIS states mine-owned riparian areas of Dry Creek nearby the Hunter River and a retained area (adjacent the CHPP) within the project boundary that were not affected by mine disturbance will also be rehabilitated. It was proposed within the EIS that this indicative rehabilitation area does not extend beyond the Project Boundary in this location to minimise impacting on existing farm practices associated with the highly productive Hunter River Floodplain.

2.3 MUSWELLBROOK LEP

The land within the Project Boundary is zoned as either RU1 Primary Production or E3 Environmental Management. The land use table in the *Muswellbrook Local Environmental Plan 2009* (Muswellbrook LEP) states that open cut mining is permissible with consent in zone RU1.

The Muswellbrook LEP does not list open cut mining as permissible development within zone E3. However, Clause 7 of the Mining SEPP states that mining can be carried out on any land where agriculture or industry is permissible (with or without consent). The Muswellbrook LEP permits 'extensive agriculture' within zone E3. Therefore, mining is also permissible within zone E3 by virtue of Clause 7 of the Mining SEPP.

2.4 HUNTER REGIONAL PLAN 2041

The Hunter Regional Plan 2041 is a 20-year land use plan prepared by the DPE under the EP&A Act. It applies to the local government areas (LGAs) of Cessnock, Dungog, Lake Macquarie, Maitland, Mid Coast, Muswellbrook, Newcastle, Port Stephens, Singleton and Upper Hunter.

Section 3 of the Hunter Regional Plan 2041 notes that a number of mines in the Upper Hunter district will likely cease mining and commence closure within this period, while others may expand. Both scenarios could enable alternative post-mining employment and economic diversification uses.

Potential post-mining land use opportunities under the Hunter Regional Plan 2041 for Bengalla includes industrial, manufacturing and intensive agriculture.

2.5 STRATEGIC FRAMEWORK FOR MINE CLOSURE

The Minerals Council of Australia (MCA) and the Australian and New Zealand Minerals and Energy Council (ANZMEC) jointly published the Strategic Framework for Mine Closure (ANZMEC, 2000).

The Strategic Framework for Mine Closure is structured around a set of objectives and principles categorized under six key areas (stakeholder involvement, planning, financial provision, implementation, standards and relinquishment).

Each objective is outlined in Table 3 with the relevant sections of this document where they are addressed.

Table 3 Strategic Framework for Mine Closure Objectives

Principle	Objective	Document Reference
Stakeholder involvement	To enable all stakeholders to have their interests considered during the mine closure process	Section 6
Planning	To ensure the process of closure occurs in an orderly, cost-effective and timely manner	Section 5.2
Financial Provision	To ensure that the cost of closure is adequately represented in company accounts and that the community is not left with a liability	Section 5.4
Implementation	To ensure there is clear accountability and adequate resources for the implementation of the closure plan	Section 7
Standards	To establish a set of indicators which will demonstrate the successful completion of the closure process	Section 3.3

Principle	Objective	Document Reference
Relinquishment	To reach a point where the company has met agreed completion criteria to the satisfaction of the responsible authority	Section 3.3

2.6 KEY FEATURES

The key features of Bengalla relevant to the Rehabilitation Strategy are outlined in **Table 4**. For a detailed description of the existing approved operations refer to:

- Section 3 of the Bengalla EIS (Hansen Bailey 2013);
- Section 2 of the MOD1 SEE (Hansen Bailey, 2015);
- Section 2 of the MOD2 SEE (Hansen Bailey, 2016);
- Section 2 of the MOD3 SEE (Hansen Bailey, 2016);
- Sections 1 and 2 of the MOD 4 SEE (Hansen Bailey, 2017); and
- Section 1 of the MOD5 Report (James Bailey & Associates, 2021).

Table 4 Bengalla Mine Key Features

Key Feature	Approved Operations
Mine Life	Until 28/02/2039
Limits on Extraction	Rate of up to 15 Mtpa ROM coal production
Mining Methods	Open cut mining towards the west with the use of a dragline, excavators and loaders, a truck fleet and other ancillary equipment for the purpose of uncovering and extracting the coal resource
Tailings facilities	Rejects and tailings co-disposal in the Main OEA and temporary in-pit reject emplacement
Bengalla CHPP and other infrastructure	Processing, handling and transportation of coal via a CHPP and rail loop for domestic and export sale Relocation of a 6 km section of Bengalla Link Road at approximately Year 15 near the existing mine access road to facilitate coal extraction

3. REHABILITATION OBJECTIVES

Rehabilitation Objectives and Rehabilitation Completion Criteria have been developed for the final land use domains described in **Section 3.2** in accordance with the '*Guideline: Rehabilitation Objectives and Rehabilitation Completion Criteria*' (NSW Resources Regulator, 2023).

The Rehabilitation Objective Statement was submitted to the NSW Resources Regulator via the Regulator Portal for assessment on 1 August 2022. The Statement was subsequently revised and resubmitted based on regulator feedback and was approved on 22 December 2023.

3.1 POST MINING LAND USE OPTIONS

BMC is required under Schedule 2, Condition 2 of SSD-5170 (as modified) to carry out the development generally in accordance with the EIS. As outlined further in the RMP, the EIS describes the final land use as a mixture of native bushland and cattle grazing excluding the eastern face of the OEA, which will be revegetated with high density woody vegetation.

A number of post-mining land use options were considered during the development of the EIS including in consultation with regulators, near neighbours and the local community. Investigations were undertaken to determine feasible land uses on rehabilitated land having regard for land slope, class, water requirements and soil types. The potential land uses identified in the review were then evaluated based on a number of selection criteria, including:

- community and stakeholder acceptance;
- health and safety considerations;
- potential environmental impacts;
- regulatory requirements and legal liability; and
- contribution to the local economy and employment.

After consideration of the above selection criteria and extensive feedback from community consultation, a mixture of native bushland and cattle grazing were identified to be the most suitable post-mining land uses for the majority of land at Bengalla with the exception of the eastern face of the OEA. The eastern face of the OEA is required to be revegetated to contain higher density natural woodland similar to that presently found within undisturbed areas of land within the SSD-5170 (as modified) project boundary. This combination of agricultural (cattle grazing) and native ecosystem land use are the preferred land uses following mine closure.

As a consequence of the need for a transition from a carbon reliant energy system to a non-carbon renewable energy system, Bengalla is continually investigating the feasibility of creating its own renewable energy projects on its landholdings. It is possible that in the future some of Bengalla's mine rehabilitated areas could form part of such a project. If feasibility studies support such an investment, approvals would be sought to vary the final land use to accommodate such an initiative in relevant areas.

3.2 FINAL LAND USE AND MINING DOMAINS

The classification of domains matches the codes listed in the '*Guideline: Mine Rehabilitation Portal*' (NSW Resources Regulator, 2023) (Portal Guideline). **Table 5** identifies the new mining and final land use domain codes relevant to Bengalla. The conceptual final landform design and land use domains are described in further detail in Section 5 of the Bengalla RMP.

Table 5 Rehabilitation Reform Guideline Domains and Spatial References (Code)

Mining Domains		Final Land Use Domains	
Code	Domain	Code	Domain
1	Infrastructure Area	A	Native Ecosystem
3	Water Management Area	B	Agriculture – Grazing
4	Overburden Emplacement Area	F	Water Management Areas
5	Active Mining Area (Open Cut Void)	G	Water Storage (Excluding Final Void)
7	Beneficiation Facility	H	Heritage Area
		I	Infrastructure
		J	Final Void

The domains for Bengalla were determined having regard for the local environment. Final land use domains are land management units characterised by a similar post mining land use objective. Mining domains are land management units within the mine site during operational phases, usually with unique operational and functional purpose.

The final land use domains for Bengalla are presented in **Table 6**. The final land use domains are illustrated in the Final Landform and Rehabilitation Plan shown in **Figure 3**. The Final Landform and Rehabilitation Plan has been prepared generally in accordance with the Conceptual Final Landform included in Appendix 9 of SSD-5170 shown in **Figure 4**.

Table 6 Final Land Use Domains

Code	Final Land Use Domain	Description
A	Native Ecosystem (HDWV)	This domain relates to the eastern and southern faces of the OEA which are exposed to Muswellbrook and Denman and will consist of HDWV with pasture as required by the final land use approved under SSD-5170 (as modified). This design will allow for both visual amenity of the landform from external viewing locations and a native vegetation corridor over part of the OEA.
B	Agriculture – Grazing	Class III Pasture Class III Pasture is a small domain on the top of the eastern face of the OEA. This domain has minimal slopes and was created from soils recovered from the Southern Overburden Emplacement Area as approved in Modification 4 of former development consent DA211/93 for Bengalla and is approved under SSD-5170 (as modified). Class IV and V Pasture Class IV and V Pasture areas will cover the majority of the post-mining landform. Pasture areas will be reconstructed from the pasture species list found in Section 6.2.5 of the RMP. Native vegetation (selected from the HDWV Domain) will be included in the Pasture areas to create biodiversity connectivity through native vegetation corridors.
F	Water Management Areas	This domain refers to the reinstatement of Dry Creek. This work will reinstate Dry Creek through the OEA in a design similar to the original Dry Creek (described in Section 6.2.3.5 of the RMP) and establish River Red Gums along the original stretches of Dry Creek (where conditions allow). When Dry Creek is reinstated the characteristics will be similar to the Hunter Valley River Red Gum / River Oak riparian woodland wetland community. Species in the ground to upper stratum may be selected from the below:

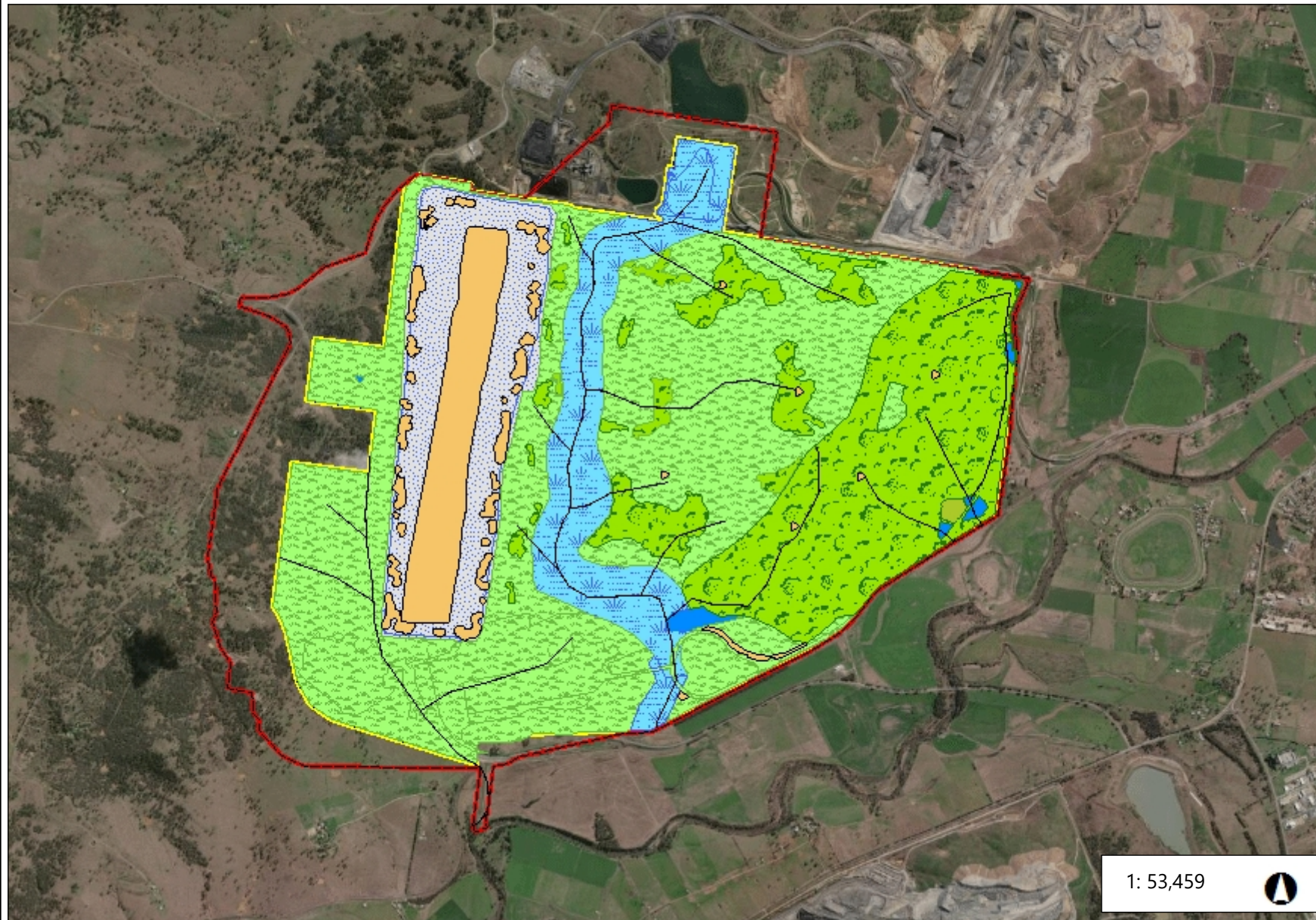
Code	Final Land Use Domain	Description
		- Species upper stratum: <i>Eucalyptus camaldulensis</i>; <i>Casuarina cunninghamiana</i> subsp. <i>Cunninghamiana</i> (River oak); <i>Angophora floribunda</i> (Rough-barked Apple); and <i>Eucalyptus melliodora</i> (Yellow Box); - Species middle stratum: - Nil; - Species ground stratum: <i>Austrostipa verticillate</i> (Slender Bamboo grass); <i>Austradanthonia</i> spp. (A Wallaby grass); <i>Cynodon dactylon</i> (Common Couch); <i>Einadia trigonos</i> subsp. <i>Trigonos</i>; <i>Elymus scaber</i> var. <i>scaber</i> (Common Wheatgrass); <i>Alternanthera</i> sp. <i>A</i>; <i>Alternanthera denticulata</i> (Lesser Joyweed); <i>Urtica incisa</i> (stinging nettle); and - Pasture rehabilitation species as listed in Table 10 of the RMP.
G	Water Storage (Excluding Final Void)	A number of mine dams will remain following mine closure and be incorporated in the final landform for use as ongoing fresh water storage to support the proposed final land use. Dams will also be installed within rehabilitation areas as required.
H	Heritage Area	One area of European heritage significance within the mining lease areas is the Bengalla homestead (c1877). This area has been included within the Heritage Area domain for the final land use. Heritage items identified in the Historic Heritage Management Plan will be managed according to that plan.
I	Infrastructure	Infrastructure, if any, to remain post mine closure will be identified as part of the mine closure plan. Decommissioning of infrastructure will be undertaken in accordance with relevant industry guidelines.
J	Final Void	The final void is the open pit left at mine closure. Defined by a single void, its modelled long term water level is 70 RL at 1,000 years. It will have sufficient freeboard and as such will not require a spillway as it is not free draining. The final void is scheduled to be created in 2039 being the end of approved mining operations under SSD-5170 (as modified). The void will be aligned generally north-south and will have a strike length of approximately 3.0 km. The Final Void domain includes all aspects of the final void landform including crest, slopes and its floor. The currently approved location of the final void under SSD-5170 (as modified) is at the limit of approved open cut mining and has no alternate location. However, coal reserves have been identified to the west of currently approved mining operations at Bengalla. If BMC determines to apply for and is granted approval to continue mining to uncover these reserves, the location of the final void will change subject to any future approval. All slopes will be battered back to ensure long term geotechnical stability of the final void. Surface water drainage will be minimised through the construction of drainage control structures to divert as much of the catchment as reasonable and feasible away from the final void and back into the surface water system. Further detail is provided in Section 6.2.3.4 of the RMP.

The mining domains for Bengalla are presented in **Table 7**. The mining domains are illustrated in **Figure 5**.

Table 7 Bengalla Mining Domains

Code	Mining Domain	Description
1	Infrastructure Area	Infrastructure areas within this domain include those listed below: a. Fixed and temporary in-pit infrastructure including but not limited to crib and park up amenities, fuel farm, explosives storage, bioremediation farm, hot tyre park up, dragline substations, rock crusher, laydown areas and maintenance pads/hardstands, temporary reject cells, ROM coal stockpiles, topsoil stockpiles, clay stockpiles, rock stockpiles for different rock sizes, waste rock stockpiles rail ballast stockpiles, stock bunds, roads network for providing access to and from the mining areas or infrastructure areas or rehabilitation areas, water management structures and any other infrastructure required to effectively support activities at Bengalla. b. Remnant structures remaining after removal of the Mount Pleasant rail from south of Wybong Road that may include but are not limited to water infrastructure (for example, pipes, dams, drains and other earthworks and former rail cuttings that may convey surface water), rail ballast including stockpiles, cabling, concrete footings, culverts; and bridge and associated infrastructure. c. Administration buildings, bathhouses, electrical infrastructure, access roads and parking facilities, core shed, helipad and ancillary infrastructure. d. Topsoil and clay stockpiles and areas of temporary stabilisation. e. Maintenance infrastructure including but not limited to maintenance workshop, wash bays, chemical storage, electrical infrastructure, radio tower, fuel lubricant facility and other infrastructure required for maintenance activities. f. Areas where exploration or geotechnical studies are carried out within mining leases, including in advance of mining.
3	Water Management Area	Water Management areas include sewage treatment facilities, sediment water dams, mine water dams, clean water dams, diversion drains, levees, pumps, pipelines and associated infrastructure required to effectively support activities at Bengalla. These facilities are used to manage sewerage and clean, sediment laden and mine water.
4	Overburden Emplacement Area	The OEA stores the waste rock and reject material (placed into cells and capped) created during the mining process to uncover coal. The OEA extends in a westerly direction filling the void created by mining. Once the OEA has reached the designed final landform height and there is no longer a need for the space operationally, the rehabilitation process can commence.
5	Active Mining Area (Open Cut Void)	The main active void is defined by the active highwall/extraction area where mining occurs, is aligned generally north-south, has a strike length of approximately 3.0 km and moves westward as mining progresses. The active void includes mining equipment including but not limited to dragline, excavators, loader, dozers, drills, haul trucks, auxiliary equipment, lighting sets, pumps, pipes, bunds, ROM coal stockpiles, rock stockpiles, rail ballast stockpiles and other infrastructure, for example, rock crusher, required to operate the mine from time to time.
7	Beneficiation Facility	This domain includes the CHPP and associated infrastructure including but not limited to rail loop and train load out facility, conveyors, stacker and reclaimer system, transfer stations and gantries, stockpile areas, ROM hopper and surge bins, thickener, reject bin, sewage plant and other infrastructure required to operate the CHPP from time to time.

Figure 3 Final Landform Rehabilitation Plan



Legend

- Final Landform Features
- Final Landuse**
 - Agricultural – Cropping
 - Agricultural – Grazing
 - Rehabilitation Biodiversity Offset Ar
 - Final Void
 - Heritage Area
 - Industrial
 - Infrastructure
 - Native Ecosystem
 - Water Management Areas
 - Water Storage (Excluding Final Voi
 - Other
- Project Approval Boundary
- Mine Operations Area
- World Imagery**
 - Low Resolution 15m Imagery
 - High Resolution 60cm Imagery
 - High Resolution 30cm Imagery
 - Citations

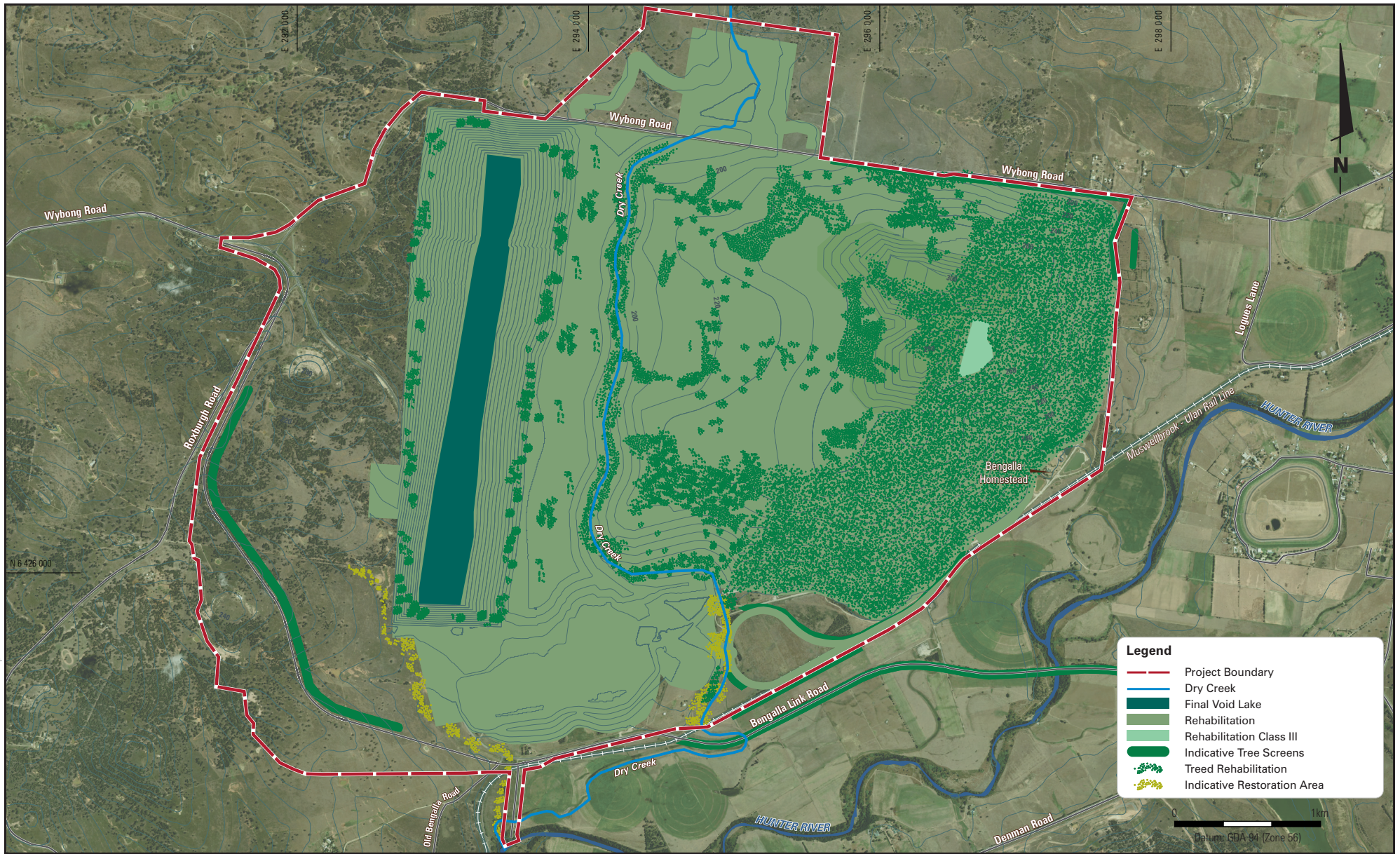
Notes

2,715.7 0 1,357.86 2,715.7 Meters

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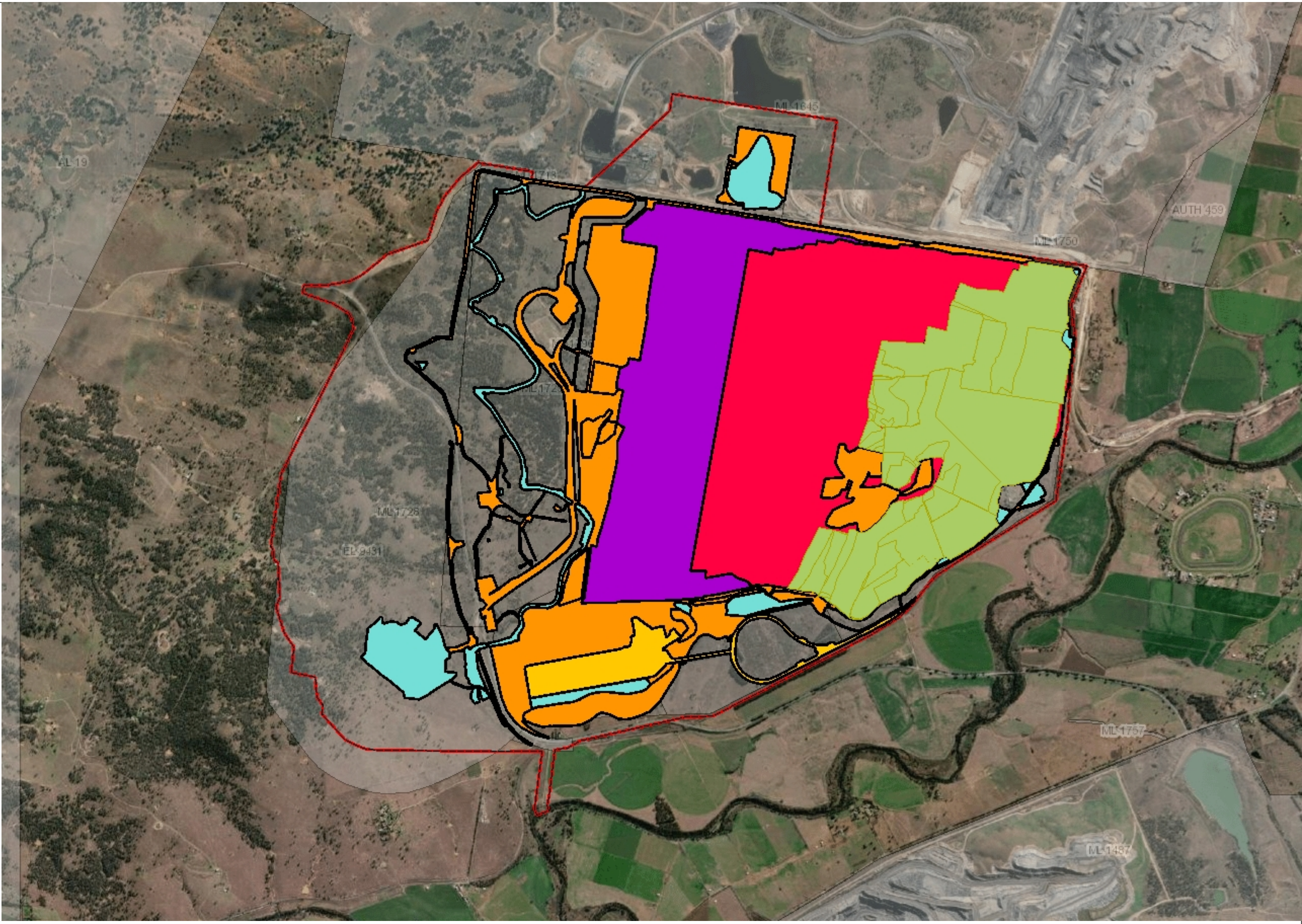


BENGALLA MINE

Revised Conceptual Year 24 Mine Plan

FIGURE 4

Figure 5 Bengalla Mining Domains



- Legend**
- Rehabilitation**
- Decommissioning
 - Landform Establishment
 - Growth Media Development
 - Ecosystem and Land Use Establishment
 - Ecosystem and Land Use Development
 - Relinquishment (Rehabilitated)
 - Rehabilitation Completion
- Disturbance**
- Beneficiation Facility
 - Infrastructure Area
 - Other
 - Overburden Emplacement Area
 - Tailings Storage Facility
 - Underground Mining Area (SMP)
 - Active Mining Area (Open cut void)
 - Water Management Area
- Project Approval Boundary**
- COAL - CURRENT TITLES**
- World Imagery**
- Low Resolution 15m Imagery
 - High Resolution 60cm Imagery
 - High Resolution 30cm Imagery
 - Citations

Notes

Mine Name: Bengalla Mine
Annual Reporting Period: 27/6/22 - 31/12/22
Date of Creation: 30/03/2023
Submission ID 4324 and 4325.

3.3 REHABILITATION OBJECTIVES AND COMPLETION CRITERIA

Rehabilitation Objectives and Rehabilitation Completion Criteria have been developed for the final land use domains in accordance with the 'Guideline: Rehabilitation Objectives and Rehabilitation Completion Criteria' (NSW Resources Regulator, 2023).

In accordance with Schedule 3, Condition 44 of SSD-5170 (as modified), BMC will rehabilitate the site in accordance with the provisions under the Mining Act and comply with the rehabilitation objectives provided in Table 15 of SSD-5170 and reproduced in **Table 8**.

Table 8 Rehabilitation Objectives (SSD-5170 Schedule 3, Condition 44, Table 15)

Feature	Objective
Mine site (as a whole)	• Safe, stable and non-polluting • Final landforms designed to incorporate natural micro-relief and natural drainage lines, which, where reasonable and feasible, further avoid straight run drainage drop structures, to integrate with surrounding landforms
Overburden Emplacement Area –exposed to Muswellbrook and Denman	• Rehabilitate the entire face with high density woody vegetation comprising of species commensurate with the surrounding native vegetation communities as soon as practicable following the completion of mining operations
Final void	• Designed as a long term groundwater sink and to maximise groundwater flows across back-filled pits to the final void • Minimise to the greatest extent practicable: – The size and depth of the final void – The drainage catchment of the final void – Any high wall instability risk – Risk of flood interaction (flows in and out of the void) • Maximise to the greatest extent practicable the final void landform to be in keeping with the natural terrain features of the surrounding landscape
Agricultural land	• Restore or maintain land capability generally as described in the EIS and shown conceptually in Appendix 9
Revegetation areas	• Restore a minimum 10% treed coverage at the mine site • Higher density planting along the riparian zone of the Dry Creek reinstatement, and around the final void
Dry Creek reinstatement	• No net loss of creek length • Restore, maintain and/or improve hydrological and ecological function, quality and geomorphic stability • Incorporate erosion control measures based on vegetation and engineering revetments • Revegetate with suitable native species
Surface Infrastructure	• To be decommissioned and removed, unless the Resources Regulator agrees otherwise
Community	• Ensure public safety • Minimise the adverse socio-economic effects associated with mine closure

The final rehabilitation completion criteria for mine closure will be developed and agreed in consultation with the relevant government authorities and community and incorporated in the Final Void and Mine Closure Plan (developed as part of the RMP). The Final Void and Mine Closure Plan is further discussed in **Section 5.2** of this Rehabilitation Management Strategy.

4. FINAL LANDFORM

Rehabilitation of land within the mining leases that is disturbed by activities under the mining leases is completed as soon as reasonably practicable after the disturbance occurs. SSD-5170 requires Bengalla to rehabilitate land to high density woody vegetation or 10% treed coverage, including natural micro-relief and drainage lines.

Although some demolition of built infrastructure was undertaken during initial mining operations in the late 1990s, rehabilitation activities have primarily focussed on areas no longer required for ongoing mining operations. Progressive rehabilitation of the OEA is undertaken as described in associated Bengalla Annual Reviews.

A rehabilitation program is being undertaken to retrofit previous rehabilitation areas on the eastern and southern slopes of the OEA exposed to Muswellbrook and Denman with HDWV. This retrofit rehabilitation has focussed on the use of species commensurate with the surrounding native vegetation communities. The species planting list is detailed in Part 6.2.5 of the Bengalla RMP.

Rehabilitation processes are further discussed in the Bengalla RMP.

4.1 FINAL LANDFORM FEATURES

The final landform and rehabilitation plan defines the proposed final land use and final landform at the completion of rehabilitation, as approved under SSD-5170. The original final landform has been modified and the current approved conceptual final landform is contained in Appendix 9 of SSD-5170 (as modified). Schedule 3, Condition 44 of SSD-5170 requires rehabilitation of the site to be consistent with this conceptual final landform.

Figure 3 presents the proposed Final Landform and Rehabilitation Plan and **Figure 6** illustrates the conceptual Final Landform Contours. It has been prepared using theme data submitted to the mine rehabilitation portal in accordance with Section 5.1 of the *'Form and Way: Rehabilitation management plan for large mines'* (NSW Resources Regulator, 2021b) and the *'Guideline: Mine Rehabilitation Portal'* (NSW Resources Regulator, 2023). The Final Landform and Rehabilitation Plan was approved by the RR on 22 December 2023.

4.1.1 Final Voids, Highwalls and Low Walls

The final void is the open pit left at mine closure. Defined by a single void, its modelled long term water level is 70 RL at 1,000 years. It will have sufficient freeboard and as such, will not require a spillway as it is not free draining. The final void is scheduled to be created in 2039, being the end of approved mining operations under SSD-5170. The void will be aligned generally north-south and will have a strike length of approximately 3 km. The Final Void domain (see **Figure 5**) includes all aspects of the final void landform to its spill point including all inward draining slopes, crest and its floor. Water management structures will be designed to direct rainfall runoff away from the final void where practical to do so.

The currently approved location of the final void under SSD-5170 is at the limit of approved open cut mining and has no alternate location. If the approved extraction limit is amended by future approvals, the location of the final void may be subject to change.

All slopes will be battered back to ensure long term geotechnical stability of the final void. Surface water drainage will be minimised through the construction of drainage control structures to divert as much of the catchment as reasonable and feasible away from the final void and back into the surface water system.

As described in the Bengalla EIS, the 'blast and doze' method will be used in combination with backfilling to shape the slopes of the final void. This will involve blasting and dozing of highwalls and endwalls and dozing material from the low wall to achieve the required slope angles. Waste will be backfilled into the void to raise the final base of the void. Erosion on the low wall would be controlled by limiting the length of the slope through the use of contour and graded drains and by establishment of suitable vegetation.

In the event that approvals are not granted for the extension of mining operations beyond the currently approved coal extraction limit, BMC will treat the final void as described within the Bengalla EIS. BMC will continue to conduct ongoing investigations in relation to the optimisation of the final void landform to ensure it can address the rehabilitation objectives for this domain at the completion of approved mining operations.

4.1.2 Dry Creek

Bengalla proposes to reinstate 4.5 km of Dry Creek as shown in **Figure 4** as approved under SSD-5170. As described in **Section 2.2.1**, the Bengalla EIS states BMC-owned riparian areas of Dry Creek nearby the Hunter River and a retained area (adjacent the CHPP) within the SSD-5170 Project Boundary that were not affected by mine disturbance will also be rehabilitated. It is proposed within the Bengalla EIS that this indicative rehabilitation area does not extend beyond the SSD-5170 Project Boundary in this location to minimise impacting on existing farm practices associated with the highly productive Hunter River Floodplain.

A preliminary design was completed as part of the Bengalla EIS and generally includes:

- A 2 m thick clay layer for the length of the alignment;
- Stabilisation of the top 300 mm of clay fill with 2% gypsum;
- A two-stage flow channel capable of conveying events up to the two-year Annual Recurrence Interval (ARI) event and up to the 100-year ARI event, consistent with good practice flood management guidelines;
- Development of a channel cross section and roughness that allows opportunity for environmental rehabilitation and enhancement;
- Provision of a channel with a horizontal and vertical alignment that minimises flow velocities and erosion potential and allows opportunities for environmental enhancement;
- Provision of a stable channel that would resist erosion and scour under flood events up to and including the 50 year ARI flood event; and
- The reinstated Dry Creek to be topsoiled, seeded and hydro mulched to the extents of the select clay fill.

A Dry Creek Reinstatement Management Plan is required to be developed within five years of its proposed construction. This will be prepared in consultation with relevant regulators and industry guidelines to ensure effective management measures are employed during construction.

4.2 WATER MANAGEMENT

The Bengalla water management system is described as four water types consistent with the Bengalla WMP which includes the following:

- **Clean Water** - Water pumped from the Hunter River into the Hunter River Raw Water Dam or run-off from a catchment that is undisturbed by mining and associated activities. Runoff from fully rehabilitated mined out areas where the rehabilitation area has been relinquished;
- **Sediment Water** - Runoff from areas disturbed by mining and associated activities that has not come into contact with coal or carbonaceous material. Includes water from non-relinquished rehabilitation areas;
- **Mine Water** - Water that accumulates within, or drains from, active mining and infrastructure areas and any other areas where run-off may have come into contact with coal or carbonaceous material (synonymous with 'dirty water'); and
- **Contaminated Water** - Associated with water used by the vehicle wash bay and bathhouse that is captured and processed to enable its transfer and reuse in the mine water system.

The water balance and licencing requirements of the site during the different operational phases of mining is detailed in Section 5 of the WMP.

The proposed Final Landuse and Rehabilitation Plan shown in **Figure 3** conceptually illustrates the retention of certain water management infrastructure within the final landform. Retained infrastructure will be modified as required to ensure it is suitable for the purposes of the final land use. Section 6.2 of the RMP details the phases of rehabilitation and general management methodologies relating to the final landform to avoid or minimise land degradation and contamination.

The effectiveness of water management infrastructure throughout the operational phase of the project is monitored as part of the water monitoring program detailed in the WMP. A water balance review and an annual groundwater report is completed as part of the Annual Review and is available on the Bengalla website. If corrective actions relating to the operational phases of the mine are required, then the Surface and Groundwater Response Plan detailed in Section 7 of the approved WMP will be enacted. If corrective actions relating to the rehabilitation phases of the mine are required, then the TARP will be enacted as per Section 10 of the RMP.

Final design and location of surface drainage features will be designed as per the Dry Creek Reinstatement Management Plan and the Final Void and Mine Closure Plan. These plans have not yet been triggered by current phase of mining. These plans will be prepared in consultation with relevant regulators and industry guidelines to ensure effective management measures are employed during construction.

The rehabilitation objectives of water management areas and the final void are described in **Section 3** of this document.

Figure 6 FLRP Plan 2: Final Landform Contours



- Legend**
- Final Landform Contours
 - Project Approval Boundary
 - MINERALS - CURRENT TITLES
 - COAL - CURRENT TITLES
 - PETROLEUM-CSG - CURRENT TITL
 - World Imagery
 - Low Resolution 15m Imagery
 - High Resolution 60cm Imagery
 - High Resolution 30cm Imagery
 - Citations

Notes

Bengalla Mine FLRP Plan 1: Final Landform Contours
Submission Date 24 November 2022
Submission ID 3684

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5. MINE PLANNING

5.1 ACTIVE MINING

The mining schedule is generally discussed in Section 4.3 of the Bengalla EIS. Year 1 of the Project (as approved under SSD-5170 (as modified)) commenced in 2015. Mining operations may be carried out on site until 28 February 2039. SSD-5170 (MOD2) allowed changes to the height of the landfill, providing for improved visual amenity from primary viewing locations. Figure 8, Figure 9 and Figure 10 of the RMP illustrate the proposed mine layout and sequence of progressive rehabilitation, including the approved landfill modification, at Years 8, 15 and 24 of the Project respectively.

The following assumptions and principles are relied on for the development of the Bengalla life of mine rehabilitation schedule to ensure that rehabilitation is undertaken progressively as soon as reasonably practical:

- The Rehabilitation program during active mining is focused on the OEAs which have been designed in accordance with the approved Final Landform;
- A High Density Rehabilitation program is also being undertaken to establish high density woody vegetation comprising of species commensurate with the surrounding native vegetation communities on the face of the OEA exposed to Muswellbrook and Denman;
- Temporary rehabilitation of disturbed areas is undertaken where practicable for example around infrastructure areas and long-term water management structures;
- A final void will remain as part of the final landform. It is predicted that the final void will partially fill with water and behave as a long-term hydraulic sinks; and
- An additional coal resource is known to occur beyond the Approved Disturbance Boundary. An Exploration Licence (EL9431) was granted on 4 July 2023 to determine the nature and quality of this resource.

5.1.1 Soils and Materials

A Soils and Land Capability Impact Assessment was completed as part of the Bengalla EIS. That assessment confirmed that there will not be a soil and/or materials deficit for life of mine rehabilitation. Tree hollows and other vegetation and suitable rock habitat and rock for drainage works is also collected for reuse in the mine rehabilitation process. Further to this, a suitable clay material has been stored on site for use in the construction of the dry creek reinstatement process.

5.1.2 Topsoil Stripping

Topsoil stripping at Bengalla occurs ahead of the active mining area or where infrastructure is to be constructed. Topsoil stripping is undertaken by a bulldozer and available topsoil is removed by truck and loader for rehabilitation purposes. Whenever practical, topsoil stripping is undertaken under slightly moist conditions to maintain soil structure and minimise dust. If it is too wet compaction can occur, and if it is too dry then dust can be produced.

5.1.3 Topsoil Stockpiles

Topsoil stockpiling will continue to be necessary at Bengalla to ensure adequate topsoil for rehabilitation, and the success of the final land use. BMC aims to minimise topsoil stockpiling through progressive rehabilitation of the final shaped landform as it becomes available. Topsoil stockpile requirements are described in Section 6.2 of the RMP.

5.1.4 Clay Stockpiles

Dry Creek will be reinstated towards the end of mine life being 2039. Approximately 450,000 m³ of clay will be borrowed from the existing Dry Creek area ahead of mining and stockpiled for later use in the reinstatement of Dry Creek. The clay stockpiles required for the reinstatement of Dry Creek will be

established and managed for the duration of the stockpiling period in accordance with the management measures described in Section 6.2 of the RMP.

5.1.5 Flora and Fauna

BMC manages flora and fauna consistent with the BMP approved under SSD-5170. The BMP describes the process for clearing at Bengalla, which includes:

- Minimising impacts to threatened species and communities;
- Minimising human disturbance to native flora and fauna;
- Controlling threats to remnant native vegetation at Bengalla;
- Seed collection and harvest in accordance with EPBC 2012/6378 Condition 2(c) to enable the use of native, locally sourced seed for propagation on rehabilitation areas;
- Managing the impacts of feral animals and weeds;
- Vegetation disturbance / clearing including a description of the clearance procedure;
- Salvage of habitat features if possible, such as suitable hollow-bearing trees, hollow-bearing logs and rocks are available for reuse in rehabilitation areas; and
- Monitoring and adaptive management.

5.1.6 Rock/Overburden Emplacement

Reject material is either placed directly within cells developed in the existing OEA or is stored in temporary reject cells and then rehandled to final emplacement within the existing OEA. As the OEA is filled to final design it is progressively shaped and rehabilitated.

The EIS contains a modelled production schedule detailing, total overburden, ROM coal and product coal at certain years. BMC does not anticipate that there will be a materials deficit for life of mine rehabilitation.

5.1.7 Waste Management

BMC operates a non-mineral waste management system. This includes the day-to-day management of waste streams. Waste at Bengalla is handled, stored, segregated, recycled and reused.

BMC has a sewage treatment plant where sewage is passed through a series of aeration dams into a settling dam to allow settlement of solids. The liquid is then passed through a weir and into a contact chamber as it is dosed with Sodium Hypochlorite to disinfect the water. This water is then released into the Facilities Dam. Water testing is undertaken prior to and after the release of this water into the water management system.

Land contamination may occur as a result of hydrocarbon or other chemical spills. BMC minimises risk to the environment from contaminated land with the implementation of procedures. The control measures described in Section 6.2.1.4 of the RMP will be implemented by BMC to minimise the risk of hydrocarbon or other chemical spills.

5.1.8 Ore Beneficiation Waste Management (Reject and Tailings Disposal)

Rejects at Bengalla are co-disposed in the OEA. The disposal of rejects is undertaken in accordance with BMC procedures, with some procedures listed below:

- PRO-0217 Waste Dump Design and Construction;
- SYS-0019 PHMP – Ground or Strata Failure; and
- PRO-0219 Management of Dump Designs to Achieve Final Rehabilitation Surfaces.

BMC have implemented these procedures with the overall purpose to ensure:

- The prevention, detection and control of ground or strata failure by ensuring the appropriate processes and systems are in place to minimise risk;
- That the rehabilitation surfaces comply with BMC's regulatory commitments; and
- Waste dump designs are designed and constructed according to plan.

5.1.9 Active Mining Records

During active mining operations, BMC will maintain active records as to mining activities and processes that may impact upon the rehabilitation and closure of Bengalla. Maintaining these records will allow for developing rehabilitation strategies and interpretation of later rehabilitation monitoring outcomes.

5.2 MINE CLOSURE PLANNING

BMC will prepare a Mine Closure Plan within five years of the end of mining. Should approval be sought for the extension of mining operations beyond the currently approved coal extraction limit, then mine closure planning and the final landform and associated void design would be revisited at that time.

The Mine Closure Plan will consider opportunities for re-use of facilities, infrastructure and services on the site in consideration of any alternative post mining land uses identified at the time. A number of post mining land use options have been investigated for Bengalla following consultation with Regulators, near neighbours and the local community as part of the EIS. As part of closure planning, BMC will continue to investigate potential post mining beneficial land uses for the site.

5.3 PREMATURE MINE CLOSURE

Premature closure would result in the approved landforms not being able to be achieved. Premature closure could potentially occur through:

- A care and maintenance phase lasting for up to two years which could be due to coal price/market demand or weather issues for example, but have a foreseeable resolution date;
- A longer-term care and maintenance phase lasting more than one to two years, which could be triggered by large scale technical failures or market failure, although there is a foreseeable solution enabling future operations; and
- Unplanned early closure, where future operations are not foreseeable under any plausible circumstances.

The three scenarios above could theoretically occur at various times throughout the operation of Bengalla. For this reason, it is impractical to have a detailed plan for all possible scenarios. However, the following sections provide examples of preliminary frameworks that could be utilised for contingency plans for care and maintenance and unplanned early closure scenarios.

5.3.1 Care and Maintenance Scenarios

The following is an example of a preliminary framework that could be utilised for a care and maintenance scenario:

- Open cut:
 - BMC to establish monitoring requirements and resources required for care and maintenance; and
 - Closure of unnecessary ramps and shaping of benches for drainage control.
- Infrastructure:
 - BMC to undertake isolating and tagging out equipment;

- Remove any contaminated wastes from site;
- Secure all chemical storages;
- Review the blasting agents compound stocks and send to other sites or return to suppliers, as required; and
- Secure any infrastructure that will not be active through the care and maintenance period.

5.3.2 Unplanned Early Closure

The following is an example of a preliminary framework that could be utilised for a unplanned early closure contingency plan:

- Open cut:
 - BMC to establish monitoring requirements and resources;
 - Use the 'blast and doze' method in combination with backfilling to shape the slopes of the final void;
 - Final rehabilitation completed as per approved final landform; and
 - Reinstate 4.5 km of Dry Creek.
- Infrastructure:
 - Decommissioning and the removal of infrastructure, services and equipment (excluding those required post-mining i.e. dams to remain for agricultural land use, etc); and
 - Radiation sources disposed of in accordance with relevant legislation.
- BMC Workforce:
 - Workforce and suppliers to be consulted with over cessation of work.
- Licensing, Plans and Approvals:
 - Relinquish Licensing and approvals in accordance with relevant legislation; and
 - Update and/ or relinquish relevant Bengalla plans and strategies.

5.4 FINANCIAL PROVISIONS

Section 10 of the Bengalla RMP details the Trigger Action Response Plan (TARP) which describes the adaptive management procedures undertaken by BMC to ensure that appropriate financial provisions are in place to account for the required actions for the RMP.

The Rehabilitation Cost estimate (RCE) has been submitted with the Resources Regulator to ensure that the full cost of closure is adequately represented in company accounts and that the community is not left with a liability in the unlikely event that BMC are unable to fulfil the required actions detailed in the RMP.

BMC has submitted a security deposit on 29 July 2022 for the approved operations as part of the obligations under the Mining Act via the RCE process. The RCE was calculated as per the '*Guideline: Rehabilitation Cost Estimate*' (Resources Regulator, 2021) and the '*Rehabilitation Cost Estimate Tool Handbook*' (Resources Regulator, 2017).

The framework of the RCE Tool has been developed in accordance with a tiered, risk based approach to calculating rehabilitation costs whereby the outcome of the estimation will be based on the nature, size, scale and complexity of the operation. The calculated rates are based on third party costs as it is assumed that if the security deposit is to be required then a contractor will be engaged by the Government to carry out the required rehabilitation works.

6. STAKEHOLDER ENGAGEMENT PLAN

One of the key focus areas for ongoing consultation with stakeholders will in relation to mine closure and rehabilitation planning and implementation. In accordance with Schedule 3, Condition 47 of SSD-5170 consultation regarding the Rehabilitation Strategy will occur with DPE Water, MSC and CCC.

Schedule 3, Condition 47(g) of SSD-5170 requires this Rehabilitation Strategy to include a Stakeholder Engagement Plan to guide rehabilitation and mine closure planning processes and outcomes. Future stakeholder engagement is described in **Table 9**.

Table 9 Stakeholder Engagement Plan

Stakeholder	Consultation
Department of Planning Housing and Infrastructure (DPHI) including Department of Planning (formerly DPE)	• Annual Reviews • Annual Rehabilitation Report • Major Projects Planning Portal
DCCEEWS NSW including: • Water Division (formerly DPE Water) • Environment and Heritage (formerly BCD)	Major Projects Planning Portal
Resource Regulator	• Resource Regulator Portal • Mine Rehabilitation Portal • Annual Rehabilitation Reports • Forward Works Program • Major Project Planning Portal
Muswellbrook Shire Council	• Major Projects Planning Portal • CCC Meetings
CCC	• CCC Meetings
Near neighbours	• Bengalla CCC • BMC Newsletters • BMC Website

Under Schedule 5, Condition 11 (a) of SSD-5170, the Annual Review will be published on the Bengalla website. Section 8.2 of the describes detail from the Annual Review which is relevant to rehabilitation activities. Any stakeholder can download and view the Annual Review via the link below:

<https://newhopegroup.com.au/annual-review/>

7. ACCOUNTABILITIES AND IMPLEMENTATION OF THE STRATEGY

Appropriate resources and specific responsibilities for this Rehabilitation Strategy are outlined in **Table 10**.

Table 10 BMC Resources and Responsibilities

Title	Responsibility
Executive General Manager or delegate	• Ensure that financial provisions are in place to execute the Rehabilitation Strategy • Ensure that the full cost of rehabilitation is reflected in company accounts
Technical Services Manager or delegate	• Provide resources and support to implement rehabilitation • Ensure mining and rehabilitation activities are undertaken and completed in accordance with this Rehabilitation Strategy
Environment Superintendent or delegate	• Implement, monitor and review the programmes and processes linked to this Rehabilitation Strategy • Ensure sufficient time and resources are available to allow for the implementation of the Rehabilitation Strategy • Allocate sufficient resources and time for the implementation of the rehabilitation monitoring program • Provide measures for continual improvement to this RMP and processes • Provide training as required • Consult with regulatory authorities as required • Report outcomes as required in regulatory reports

8. REVIEW AND IMPROVEMENT

Environmental performance at Bengalla in relation to rehabilitation is evaluated through processes described in detail in the RMP:

- Review and investigation of any TARP exceedances;
- Annual Review reporting;
- Rehabilitation monitoring program results;
- Independent Environmental Audits (IEA); and
- Feedback from stakeholder consultation.

This Rehabilitation Strategy will be reviewed within 3 months of the submission of:

1. An annual review under Schedule 5, Condition 4 of SSD-5170;
2. An incident report under Schedule 5, Condition 7 of SSD-5170;
3. An IEA report under Schedule 5, Condition 9 of SSD-5170; or
4. Any modification to the conditions of consent (unless the conditions require otherwise),

Where this review leads to revisions of the Rehabilitation Strategy, then within 4 weeks of the review, unless the Secretary agrees otherwise, the revised document will be submitted to the Secretary for approval.

This Rehabilitation Strategy will be made publicly available on the BMC website, in accordance with Schedule 5, Condition 11 of SSD-5170.

8.1 INVESTIGATION OF TARP EXCEEDANCES

In accordance with Clause 7 of Schedule 8A of the Mining Regulation, Bengalla completed a Rehabilitation Risk Assessment (Risk Assessment) in March 2022 to:

- Identify, assess and evaluate the rehabilitation related risks to the Rehabilitation Objectives, Rehabilitation Completion Criteria and Final Land Use; and
- Identify the measures to be implemented to eliminate, minimise or mitigate those risks.

This Risk Assessment is detailed in Section 3 of the RMP. Controls identified during the Risk Assessment have been incorporated into the TARP shown in Section 10 of the RMP.

The TARP identifies proposed actions in the event of unexpected variations or impacts to rehabilitation such as a failure to meet a nominated completion criterion. Specific actions in the TARP will be triggered as appropriate when rehabilitation monitoring indicates that there are emerging threats to rehabilitation or rehabilitation is not progressing towards achieving the final land use.

As conditions at Bengalla change, new hazards that present a risk to rehabilitation may be identified. Further, as the results of relevant rehabilitation research and trials identify improvements to the rehabilitation practices at Bengalla these will be incorporated into rehabilitation practices. In the event of a new hazard or improvement to rehabilitation practices is identified, BMC will review the Risk Assessment and update the TARP as required.

The rehabilitation monitoring program described in Section 8 of the RMP will be the primary means of monitoring the effectiveness of the mitigation measures for each proposed response action in the TARP, allowing any adjustments to those mitigation measures to be made as necessary.

8.2 REHABILITATION MONITORING AND REPORTING PROGRAM

BMC undertakes an annual rehabilitation monitoring program to evaluate the progress of rehabilitation towards fulfilling the Rehabilitation Objectives and Rehabilitation Completion Criteria defined in Section 4 of the RMP.

The purpose of the rehabilitation monitoring program includes:

- Early identification of actual or emerging issues that have the potential to delay revegetation establishment;
- Confirm if any triggers have been met (refer Section 10 of RMP) and recommend appropriate response control measures; and
- Provide data that may inform continuous improvement of rehabilitation methods.

The annual rehabilitation monitoring program is undertaken through the implementation of both transect-based monitoring and a rehabilitation review/audit:

- The transect-based monitoring was first implemented in 2009 and has been undertaken annually since 2011; and
- The rehabilitation audit consists of a reconnaissance level walkthrough assessment, including opportunistic observations of rehabilitation performance. The rehabilitation audit report provides recommendations for remedial works.

Further detail on the methodologies and approaches adopted for the rehabilitation monitoring program are provided in the RMP.

Rehabilitation monitoring reports are prepared annually to document the rehabilitation performance observed in the monitoring program. The reporting includes an assessment of rehabilitation performance against the Rehabilitation Completion Criteria described in Section 4 of the RMP and identifies any thresholds that may trigger intervention or management actions detailed in the TARP.

A report summarising issues identified throughout the annual transect-based monitoring and rehabilitation review is produced for internal review following which actions are identified to address recognised issues. Trends in the rehabilitation monitoring data will also be monitored to identify developing risks that have the potential to cause a failure to achieve final land use. In general, issues are addressed using the management actions described in Section 10 of the RMP.

Pictorial and GIS based data accumulated during the rehabilitation monitoring program (e.g. photo monitoring data, geographical locations of identified issues and of monitoring points, etc.) are also centralised and maintained. Over time, the pictorial/GIS data can be used to record the evolution of rehabilitation condition, particularly following the implementation of remedial works.

Bengalla's rehabilitation monitoring results are reported in the Annual Reviews and the RMP Annual Rehabilitation Report. Any rehabilitation related non-compliances, incidents and/or complaints are also reported in these documents annually.

8.3 INDEPENDENT ENVIRONMENTAL AUDITS

Schedule 5, Condition 9 of SSD-5170 requires BMC to commission and pay the full cost of an IEA of Bengalla within one year of the commencement of development under SSD-5170 (i.e. by 1 October 2016) and every three years thereafter, unless the Secretary directs otherwise.

In accordance with Schedule 5, Condition 10 of SSD-5170, BMC will submit the IEA report and its response to the Secretary within 6 weeks of completion of the IEA (unless the Secretary agrees otherwise).

8.4 COMMUNITY COMPLAINTS PROCEDURE

BMC has a procedure which details how to receive, respond to, record and address community complaints. BMC will continue to maintain a record of community complaints and subsequent actions. The following details will be recorded:

- Complainant details (where provided);
- The nature of the complaint;
- Actions (if appropriate);
- How the complaint was made; and
- Consultation undertaken.

Complaints regarding any environmental matters are directed to the 24 hour environmental hotline: 1800 178 984. A complaints summary will be published monthly on BMC's website in accordance with Schedule 5, Condition 11(a) of SSD-5170 (as modified).

8.5 INCIDENT NOTIFICATION PROCEDURE

In accordance with Schedule 5, Conditions 7 and 7A of SSD-5170, BMC are required to report any incidents¹ or non-compliances².

After becoming aware of an incident, the Bengalla Environment Superintendent or delegate immediately reports to DPE and any other relevant agencies.

Within seven days of becoming aware of a non-compliance the Environment Superintendent or delegate provides a written report to DPE and any other relevant government agencies via the Major Projects Portal or an otherwise agreed avenue. The reports include the following details:

- The development application number and name;
- The condition of this consent that the development is non-compliant with;
- The non-compliance details (date, time and nature of the non-compliance)
- The likely cause of the non-compliance (if known); and
- Description of actions that have been or are proposed to be implemented to address the non-compliance.

Note: A Non-compliance which has been notified as an incident does not need to also be notified as a Non-compliance.

Where circumstances arise which indicate a possible (but not proven) non-compliance or incident then BMC promptly investigate the circumstances to establish whether there is a non-compliance or incident. When such investigations are complete so that a determination of whether there is/has been a non-compliance or incident can be made and that determination is in the affirmative then the notification will occur within the required 7 days after the determination.

¹ Incident defined as an occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance

² Non-compliance defined as an occurrence, set of circumstances or development that is a breach of SSD-5170

8.6 REHABILITATION STRATEGY REVISION

In accordance with Schedule 5, Condition 5 of SSD-5170 (as modified) this Rehabilitation Strategy will be reviewed, and if necessary revised (to the satisfaction of the Secretary of the DPE), within three months of the submission of:

- An annual review under Schedule 5, Condition 4;
- An incident report under Schedule 5, Condition 7;
- An audit report under Schedule 5, Condition 9; or
- Any modification to the conditions of the consent (unless the conditions require otherwise).

Additionally, in accordance with Schedule 3, Condition 47 this Rehabilitation Strategy will be reviewed and updated at least every three years.

9. REFERENCES

- ANZMEC (2000). *Strategic Framework for Mine Closure*
- Bengalla Mine (2023). *Bengalla Mine Rehabilitation Management Plan*
- Bengalla Mine (2017). *Bengalla Mine Biodiversity Management Plan*
- Department of Planning and Infrastructure (2013). *Upper Hunter Strategic Assessment*. Department of Planning and Infrastructure, On-line source:
<https://www.dcccew.gov.au/environment/epbc/approvals/strategic-assessments/nsw-upper-hunter> (accessed 08/01/2024)
- Hansen Bailey (2013). *Continuation of Bengalla Mine Environmental Impact Statement*
- Hansen Bailey (2014). *Continuation of Bengalla Mine Response to Submissions*
- Hansen Bailey (2015a). *Bengalla Mine Development Consent Modification Statement of Environmental Effects*
- Hansen Bailey (2015b). *Bengalla Mine Development Consent Modification Response to Submissions*
- Hansen Bailey (2016a). *Bengalla Mine Development Consent Modification 2 Statement of Environmental Effects*
- Hansen Bailey (2016b). *Bengalla Mine Development Consent Modification 3 Statement of Environmental Effects*
- Hansen Bailey (2017). *Bengalla Mine Development Consent Modification 4 Statement of Environmental Effects*
- James Bailey & Associates (2022). *Bengalla Mine Development SSD-5170 Modification 5 Modification Report*
- NSW Resources Regulator (2023). *Guideline: Rehabilitation Objectives and Rehabilitation Completion Criteria*
- NSW Resources Regulator (2021b). *Form and Way: Rehabilitation management plan for large mines*
- NSW Resources Regulator (2023). *Guideline: Mine Rehabilitation Portal*
- NSW Resources Regulator (2021). *Guideline: Rehabilitation Cost Estimate*
- NSW Resources Regulator (2017). *Rehabilitation Cost Estimate Tool Handbook*

APPENDIX A

STAKEHOLDER CONSULTATION

Ref	Department Comment	Bengalla Response	Section Addressed
DPE Water			
1	The department would appreciate the opportunity to review the Dry Creek Reinstatement Management Plan and the Final Void and Mine Closure Plan once prepared	Wording in Section 1.5 has been updated to state that the Dry Creek Reinstatement Management Plan and the Final Void and Mine Closure Plan will be prepared in consultation with relevant regulators and industry guidelines to ensure effective management measures are employed during construction	Section 1.5 updated
2	Sharing of water must protect the water source, its dependent ecosystems and basic landholder rights	Water balance and licencing of water at the site is detailed in Section 5 of the WMP.	Section 4.2 updated
3	Water sources, floodplains and dependent ecosystems are protected and restored.	A water balance review and an annual groundwater report is completed as part of the Annual Review and is available on the Bengalla website. If corrective actions relating to the operational phases of the mine are required, then the Surface and Groundwater Response Plan detailed in Section 7 of the approved WMP will be enacted. If corrective actions relating to the rehabilitation phases of the mine are required, then the TARP will be enacted as per Section 10 of the RMP.	Section 4.2 updated
4	Activities within a water source should avoid or minimise land degradation, including soil erosion, compaction, geomorphic instability, contamination, and where possible land should be rehabilitated	Section 6.2 of the RMP details the phases of rehabilitation and general management methodologies relating to the final landform to avoid or minimise land degradation and contamination.	Section 4.2 updated
5	The final Rehabilitation Management Plan is made electronically available on a public accessible website	Section 1.5 details that management plans are made publicly available on the Bengalla website as per Schedule 5, Condition 11 of SSD-5170	Noted, no change to document
6	A conceptual model/diagram clearly presents how the groundwater and surface water systems interact with the final landform. This is to be informed by recent environmental assessments/modelling reviews	The final landform was designed as part of EIS for the original application. As described in Section 1, Modification 2 updated the height of the OEA to improve visual amenity. These designs were informed by relevant environmental assessments. The Final Landform Rehabilitation Plan is shown in Figure 3 and details elements relating to the water system.	Noted, no change to document

Ref	Department Comment	Bengalla Response	Section Addressed
7	The final design and location of surface drainage features achieves a stable landform and maintains or improves riparian corridor functioning. This is to be completed with reference to industry guidelines such as: " <i>Rehabilitation Manual for Australian Streams</i> (LWRRDC 2000)", " <i>Guideline: Works that interfere with water in a watercourse for a resource activity</i> (DNRME 2019)" and " <i>Guidelines for Controlled Activities on Waterfront Land</i> (2012)" or their latest versions	Final design and location of surface drainage features will be finalised as per the Dry Creek Reinstatement Management Plan and the Final Void and Mine Closure Plan. These plans have not yet been triggered by current phase of mining. These plans will be prepared in consultation with relevant regulators and industry guidelines to ensure effective management measures are employed during construction. The approved Rehabilitation Completion Statement provides details relevant completion criteria for surface drainage features in water management areas in the 'F', 'G' and 'J' final land use domains.	Section 4.1.2 and 4.2 updated.
8	Dirty runoff catchment areas are rehabilitated and the conveyance of clean surface runoff downstream is maximised	Section 4.1.1 states surface water drainage will be minimised through the construction of drainage control structures to divert as much of the catchment as reasonable and feasible away from the final void and back into the surface water system	Noted, no change to document
9	Decommissioning of groundwater boreholes is in accordance with the " <i>Minimum Construction Requirements for Water Bores in Australia</i> (2020)".	Table 6 updated to state that decommissioning of infrastructure will be undertaken in accordance with relevant industry guidelines.	Table 6 updated
10	Ongoing water take by the final landform via interception, storage or diversion is quantified and complies with relevant approvals and licences under the Water Management Act 2000 or a relevant exemption. Please note exemptions from the requirement to hold approvals under s.90 and 91 of the Water Management Act 2000 for approved SSD/SSI projects will not apply once the project approval ceases. Therefore, any relevant water management works that are to be retained will need to obtain an approval prior to the development consent lapsing.	The approved Rehabilitation Objectives Statement describes that structures that take or divert water such as final voids, dams, levees etc. are appropriately licensed (e.g. under the Water Management Act 2000) and where required ensure sufficient licence shares are held in the water source(s) to account for water take	Noted, no change to document

Ref	Department Comment	Bengalla Response	Section Addressed
11	Aquifer interference activities are designed to minimise ongoing water take and water quality impacts and meet the requirements of the NSW Aquifer Interference Policy	A water balance review and an annual groundwater report is completed as part of the Annual Review and is available on the Bengalla website. If corrective actions relating to the operational phases of the mine are required, then the Surface and Groundwater Response Plan detailed in Section 7 of the approved WMP will be enacted. If corrective actions relating to the rehabilitation phases of the mine are required, then the TARP will be enacted as per Section 10 of the RMP.	Section 4.2 updated
12	Final voids do not present a risk to important groundwater ecosystems and assets (groundwater dependent ecosystems, alluvial aquifers and landholder bores)	The J5 final void objective states impact to groundwater regime are within range as per the development consent(s) / premining environmental assessment. Rehabilitation Objectives are included in the RMP.	Noted, no change to document
13	Final voids are designed to be sinks or to flow through the local groundwater system and need to be confirmed by a post mining groundwater model	Table 8 describes the objective of the final void is designed as a long-term groundwater sink.	Noted, no change to document
14	Residual risks to water sources is clearly understood and minimised. This is to include relevant assessment documentation and updated risk assessment to meet the requirements of the NSW Aquifer Interference Policy. Further details can be found in Fact Sheet 5 in Appendix C of the Guidelines for Groundwater Documentation for SSD/SSI Projects. Technical Guideline (DPE 2022)	As per Clause 7 of Schedule 8A of the Mining Regulation 2016, a risk assessment was completed on March 2022 to assess and minimise risks relating to rehabilitation. This Risk Assessment is detailed in Section 3 of the RMP. Controls identified during the Risk Assessment have been incorporated into the TARP shown in Section 10 of the RMP If corrective actions relating to the operational phases of the mine are required, then the Surface and Groundwater Response Plan detailed in Section 7 of the approved WMP will be enacted. If corrective actions relating to the rehabilitation phases of the mine are required, then the TARP will be enacted as per Section 10 of the RMP. Monitoring impacts to water sources during the operational phase is undertaken as per the WMP and monitoring impacts to water during the rehabilitation phases is undertaken as per the Rehabilitation Monitoring Plan detailed in Section 8.2.	Noted, no change to document

Ref	Department Comment	Bengalla Response	Section Addressed
15	A monitoring and review program is included to ensure that the rehabilitation outcomes are met.	The rehabilitation monitoring program is detailed in Section 8.2 . The review program detailed in Section 8 are undertaken to ensure rehabilitation objectives are met	Noted, no change to document
BCD Comments			
1	The Bengalla Mine Rehabilitation Strategy should clearly and consistently identify the area/s of the development footprint intended for native vegetation rehabilitation. It should clearly state what vegetation community/ies are to be rehabilitated and what their target condition is. Methodologies for achieving these targets should be detailed and follow the SMART principles. NSW Department of Climate Change, Energy, Environment and Water (NSW DCCEEW) should be provided with annual progress reports, and this should be identified in Table 9 of the Rehabilitation Strategy.	As described in Section 1.5 the Rehabilitation Strategy is a high-level overarching document providing strategic direction for the rehabilitation of Bengalla. This Strategy aligns with several other approved BMC management plans detailed in the conditions of SSD-5170. The Bengalla RMP includes: • Section 2.4.1 which describes the final land use domains, including 'Native Ecosystem' for Bengalla Mine. Detail is provided in Table 6 and illustrated in the final landform and rehabilitation plan at Part 5; • Section 6.2 describes the phases of rehabilitation and general methodologies throughout the mine life; and • Part 10 a detailed TARP which identifies proposed actions in the event of unexpected variations or impacts to rehabilitation such as a failure to meet a nominated completion criterion. Specific actions in the TARP will be triggered as appropriate when rehabilitation monitoring indicates that there are emerging threats to rehabilitation or rehabilitation is not progressing towards achieving the final land use. Section 8.2 of the Strategy confirms Bengalla's rehabilitation monitoring results are reported in the Annual Reviews and the RMP Annual Rehabilitation Report. Any rehabilitation related non-compliances, incidents and/or complaints are also reported in these documents annually. Table 9 has been updated to reflect that the Annual Review is available to the public and able to be downloaded from the Bengalla website.	Table 9 updated.

Ref	Department Comment	Bengalla Response	Section Addressed
MSC Comments			
1	Whilst not strictly required as a condition of development consent, Staff request that future consultation include consultation with Registered Aboriginal Parties to ensure the inclusion of Indigenous perspectives and knowledge, particularly regarding the cultural significance of land and waterways.	Registered Aboriginal Parties (RAPs) groups have been consulted during the '<i>Continuation of Bengalla Mine Environmental Impact Statement</i>' (Bengalla EIS) (Hansen Bailey, 2013) , subsequent modifications and throughout the development of management plans and strategies in accordance with the conditions of SSD5170. As part of the development of this Strategy BMC have consulted with the Community Consultative Committee (CCC) and through this channel the Rehabilitation Strategy was provided to the CEO of the Wonnarua Aboriginal Land Council (WALC) for distribution and consolidation of comments. No comments regarding the strategy were received from WALC.	Noted, no change to document
2	Section 2.2.1 of the Rehabilitation Strategy states that 'When Dry Creek is reinstated the characteristics will be similar to the Hunter Valley River Red Gum / River Oak riparian woodland wetland community'. Staff require clarification as to why the River Oak riparian woodland is referenced in this section when the Bengalla Environmental Impact Statement (Hansen Bailey, 2013) (Bengalla EIS) states that Dry Creek will be revegetated with Hunter Floodplain Red Gum Woodland only.	On page 225 of the Bengalla EIS (main report) states '<i>This will include the planting of the regionally endangered population Eucalyptus Camaldulensis (River Red Gum)</i>'. The BMC Rehabilitation Management Plan and Rehabilitation Strategy both note that revegetation will reinstate the 'characteristics' of the Hunter Valley River Red Gum/River Oak riparian woodland wetland community. The reference to both Hunter Valley River Red Gum and River Oak riparian woodland wetland community have similar species that are characteristic of the River Red Gum community. It should also be noted that further detail will be presented in the Dry Creek Reinstatement Management Plan, which will be triggered within five years of (Year 15) of the Bengalla Operations.	Section 2.4.1 of the RMP describes Final Land Use Domains (F – water management areas) Section 2.2.1 of the Rehabilitation Strategy describes the requirements of the Dry Creek Reinstatement Management Plan which is not yet triggered.
3	Staff request that during development of the Dry Creek Reinstatement Management Plan, Bengalla Mining Company Pty Limited (BMC) liaise with the Botanic Gardens of Sydney who are undertaking research on the Hunter Floodplain Red Gum Woodland.	BMC will consider relevant studies, literature and research during the development of the Dry Creek Reinstatement Management Plan where relevant, reasonable and feasible.	Section 2.2.1 updated. Dry Creek Reinstatement Management Plan not yet triggered.

Ref	Department Comment	Bengalla Response	Section Addressed
4	Seed collection for the Hunter Floodplain Red Gum Woodland should consider genetic variability to ensure long-term resilience.	In accordance with Condition 2c of EPBC Approval 2012/6378, BMC make reasonable endeavours to use native, locally sourced seed for the propagation of rehabilitation activities. This has been described in the existing BMC management plans and procedures	Section 6.2.1.2 of the RMP and Section 4.2.5 of the Biodiversity Management Plan.
5	The Bengalla EIS states that beneficial ecological enhancement works will result from BMC maintaining and enhancing habitat along selected areas of Hunter River frontage on which BMC owns land (approximately 15 km). In the Bengalla EIS it was expressed that a Hunter River Frontage Rehabilitation Plan would be prepared as a component of the Biodiversity Management Plan (BMP) in consultation with the Hunter-Central Rivers Catchment Management Authority, (the then) OEH and Muswellbrook Shire Council (MSC). It is the understanding of Staff that this has not been completed i.e. there is no reference to this plan in the BMP and no Council records. Staff are particularly concerned about the riparian conditions of the Hunter River and welcome the EIS commitment that BMC maintain and enhance habitat along selected areas to complement Council managed areas upstream and other works undertaken by the Local Land Service (LLS). Given the dissolution of the Hunter-Central Rivers Catchment Management Authority, it is recommended that BMC consult with LLS, NSW Environment and Heritage, and MSC to develop this plan and maintain the intent of this commitment. Note that whilst it states in the EIS that 'enhancement and maintenance will be funded by the Trust associated with the development of the Upper Hunter Strategic Assessment', it is recommended that BMC explore other funding sources for this work due to the dissolution of the Trust.	As described in Section 1.5 the Rehabilitation Strategy is a high-level overarching document providing strategic direction for the rehabilitation of Bengalla Operations and is not considered to be the appropriate document to address this commitment. While this commitment has not been addressed in the currently approved Management Plans, ongoing maintenance activities have been undertaken along the Hunter River on BMC owned land. BMC will incorporate a Hunter River Frontage Enhancement Program in the next revision of the BMP. The program will determine appropriate ongoing maintenance activities and identify any areas where enhancement works are required.	This commitment will be incorporated into the next revision of the BMP.

Ref	Department Comment	Bengalla Response	Section Addressed
6	In 2005, flying-foxes established a camp at Muscle Creek and a section of the Hunter River on land owned by MSC and Australian Rail Track Corporation (ARTC). The camp is located close to residential areas and its proximity to a caravan park and public facilities including walk ways, recreational areas, sporting fields, clubs, hotels and the local hospital are the main areas of concern for the community. Historically, the camps have been occupied by the threatened Grey-Headed Flying-fox and in recent years, Little Red Flying-foxes. Disturbance to threatened flying foxes and their habitat is limited by legislative requirements. Flying-foxes predominantly roost in trees within the riparian zone surrounding Muscle Creek and the Hunter River. It would be ideal to establish suitable habitat in areas outside the current camp locations, as research suggest camps can be encouraged to move out of urban areas if there is suitable habitat nearby. BMC and its affiliates own multiple parcels of land adjacent to the Hunter River to the north of Denman Road which may be suitable for an alternate flying-fox camp. Staff would like to request BMC consider flying-fox habitat on some of these land parcels and welcome the opportunity to discuss further.	As described in Section 1.5 the Rehabilitation Strategy is a high-level overarching document providing strategic direction for the rehabilitation of Bengalla Operations and is not considered to be the appropriate document to address this commitment. During the next revision of the BMP, BMC will engage a suitably qualified technical specialist to assess this recommendation and identify if there are any suitable areas on BMC owned land where a flying fox camp habitat can be feasibly established.	Noted, no change to document
7	Figure 4 in the Rehabilitation Strategy shows 'Indicative Restoration Areas' along Dry Creek and to the west of the CHPP, with a brief overview provided in Section 2.2.1. Staff are interested in the planned activities within these areas and request that the Rehabilitation Strategy be updated to detail the scope of works accordingly.	As described in Section 1.5 the Rehabilitation Strategy is a high-level overarching document providing strategic direction for the rehabilitation of Bengalla. This level of detail will be provided during the development of the: • Dry Creek Reinstatement Management Plan; and • Final Void and Mine Closure Plan.	Noted, no change to document. Detail will be provided in the Mine Closure Plan yet to be triggered.

Ref	Department Comment	Bengalla Response	Section Addressed
8	Figure 4 in the Rehabilitation Strategy may need to be reviewed as it includes tree screens on Bengalla Link Road (including the realigned section), which may not be required in accordance with Conditions 40 – 41A of SSD 5170.	As described in the Modification Application, supporting '<i>Bengalla Coal Mine Modification 5 to SSD-5170 Modification Report</i>' (Modification Report) (James Bailey Associates, 2021) and subsequent response to submissions appropriate visual screening measures will need to be implemented as part of the Bengalla Link Road re-alignment. In accordance with SSD-5170 Schedule 4 Condition 41 '<i>At least two years prior to construction of the Bengalla Link Road realignment, the Applicant must plant tree screening, or provide some other visual screening measure (e.g. visual bunding), along the proposed Bengalla Link Road realignment. This screening (or alternative measure) must be undertaken in consultation with Council and maintained to the satisfaction of the Secretary.</i>' The Rehabilitation Strategy will continue to be updated in accordance with Section 8.6 and will incorporate any detailed visual screening designs once developed.	Not yet triggered.
9	Staff request that the final locations of tree screens in the public road corridor be determined in consultation with the relevant roads authority.	In accordance with SSD-5170 Schedule 4 Condition 40, any visual screening (or alternative measure) must be undertaken in consultation with Council (and where relevant TfNSW) and maintained to the satisfaction of the Secretary.	Noted, no change to document.
10	Of note, whilst Staff recognise that BMC are approved for a final void, Staff do not support voids in the landscape as they are not a naturally occurring element. Staff are concerned about the numerous uncertainties surrounding the long-term management of such voids, including potential significant health, safety, and environmental risks, as highlighted in the study by Vandenberg, McCullough, et al. (2017), which discusses key issues in mine closure planning for pit lakes.	The final landform and rehabilitation plan defines the proposed final land use and final landform at the completion of rehabilitation, as approved under SSD-5170. The original final landform has been modified and the current approved conceptual final landform is contained in Appendix 9 of SSD-5170 (as modified). Schedule 3, Condition 44 of SSD-5170 requires rehabilitation of the site to be consistent with this conceptual final landform.	Noted, no change to document.
11	The area shown by the red polygon in the image below shows improved rehabilitation techniques including micro and macro relief, a combination of convex and concave batters, and gentler slope gradients. Staff are interested in understanding	Schedule 3, Condition 44 of SSD5170 indicates BMC must rehabilitate the site in accordance with the provisions under the Mining Act 1992 as well as comply with the rehabilitation objectives as approved. BMC is committed to compliance with conditions within its approval. Further, The Rehabilitation Management Plan states ' <i>where reasonable and feasible, rehabilitation will no longer use contour banks and straight-line drop structures to manage water but will incorporate fluvial</i>	RMP Section 6.2.3.2

Ref	Department Comment	Bengalla Response	Section Addressed
	whether this type of rehabilitation will be undertaken on all future rehabilitation.	<i>geomorphology design influences</i> '. BMC is continuously reviewing its final landform to identify opportunities to create a more aesthetically pleasing and long-term stable landform within the bounds of the original EIS application.	
12	Of note, Staff are aware that proponents have obligations under the Mining Act 1992 to rehabilitate the site. However, these obligations can inhibit the future use of the site for other industry and utilisation of infrastructure that was constructed for the operation of the Mine and may still have an economic purpose. Whilst Staff acknowledge that in the first instance the site should be safe, stable, and non-polluting, there should be a move in the industry toward planning for a range of uses on sites dependent on capability, services and infrastructure and vehicle access. This may allow employment generating activities on part of the site, and similar equivalent employment numbers, rather than the simply returning all the site back to farmland and native ecosystems with minimal employment opportunities.	Section 5.2 of the Strategy confirms the Mine Closure Plan will consider opportunities for re-use of facilities, infrastructure and services on the site in consideration of any alternative post mining land uses identified at the time. As part of closure planning, BMC will continue to investigate potential post mining beneficial land uses for the site	Noted, no change to document
13	Staff request that the closure planning process (Section 5.2 of the Rehabilitation Strategy) include the following commitments: a. BMC will approach the Department of Planning, Housing and Infrastructure (DPHI) to commence a Place Strategy process for the site, as identified in the Hunter Regional Plan; and b. The final closure planning documents will include a review of the site against the Practical Guide – Post Mining Land Use Guideline (MEG, 2023).	Section 5.2 of the Strategy confirms the Mine Closure Plan will consider opportunities for re-use of facilities, infrastructure and services on the site in consideration of any alternative post mining land uses identified at the time. As part of closure planning, BMC will continue to investigate potential post mining beneficial land uses for the site. However, in accordance with Schedule 3, Condition 44 of SSD5170 BMC must rehabilitate the site in accordance with the provisions of the Mining Act 1992 and comply with the rehabilitation objectives and conceptual Final Landform provided in Appendix 9. As described in the Hunter Regional Plan, this process will need to consider ' <i>Other issues, such as regulatory settings, site constraints, landowner willingness, market demand and feasibility will all have an influence on what new uses may occur</i> '. These commitments can be better assessed during the development of the Bengalla Mine Closure Plan once triggered	No change to document

Ref	Department Comment	Bengalla Response	Section Addressed
		If the proposed commitments within the Hunter Regional Plan are inconsistent with the currently approved closure objectives, then modification to state planning approval may be required.	
14	Whilst not strictly required as a condition of development consent, Staff request that a working party with participants from Muswellbrook Shire Council, DPHI, Premiers and Cabinet, BMC, Muswellbrook Chamber of Commerce, traditional owners and local land council members and the Hunter JO Economic Transitions Committee should be established by the year 2034 to commence planning for the transition to a post-mining suite of uses for the site.	BMC notes this condition and is provided with consultation requirements in its State Significant Development Approval SSD5170 to govern this process. BMC will consult where reasonable and feasible during mine closure planning to manage transition of the mine from operation.	No change to document
15	Staff would like to see Rehabilitation Strategies for all mine sites in the shire include a commitment that within a given timeframe e.g. six months of either entering care and maintenance or unplanned closure, a Mine Closure Plan is prepared in accordance with the Strategic Framework for Mine Closure. This approach ensures that disused mines do not become sources of pollution, safety hazards, or a community blight.	As described in Section 5.3 , these scenarios could theoretically occur at various times throughout the operation of Bengalla. For this reason, it is impractical to have a detailed plan for all possible scenarios. It is for this reason, as described in Section 5.4 of the Rehabilitation Strategy, there is financial provisioning for the completion of closure works. BMC submitted a security deposit on 29 July 2022 for the approved operations as part of the obligations under the Mining Act via the RCE process. The RCE is reviewed annually to determine that the security is appropriate for the current state of operations.	Not yet triggered
16	Clarification is required as to why Figure 4 in the Rehabilitation Strategy showing the Conceptual Year 24 Mine Plan is not consistent with Figure 10 in the Rehabilitation Management Plan.	Figure 4 in the Rehabilitation Strategy is showing the final 'revised' conceptual mine plan in a rehabilitated state. Figure 10 in the Rehabilitation Management Plan is showing the pit progression, landform and infrastructure prior to the completed final rehabilitation.	No change to document
17	Section 4 of the Rehabilitation Strategy references 'retrofitting previous rehabilitation areas'. Could you please briefly describe why this retrofit has occurred and provide a high-level summary of works specifically noting whether any activities involved bulk shaping or pushing.	BMC was originally granted development consent Development Application (DA) 211/93 in 1996 to construct and operate an open cut coal mine and associated activities. Mining operations at Bengalla commenced in 1998. DA 211/93 was surrendered on 22 December 2016. SSD-5170 (as modified) is now the applicable development consent for Bengalla.	No change to document

Ref	Department Comment	Bengalla Response	Section Addressed
		In accordance with BMC's previous development consent (DA 211/93), areas of pre-2016 rehabilitation across the eastern OEA were revegetated with a mosaic of pasture and woodland rehabilitation. As part of the Bengalla EIS, BMC committed to retrofitting previously rehabilitated areas, exposed to Muswellbrook and Denman, with high density woody vegetation in accordance with Schedule 3, Condition 44 of SSD-5170. Depending on the existing condition, landform stability, growth material and revegetation strategies various techniques have been utilised across the historical rehabilitation areas including but not limited to: • Broadscale tubestock plantings of native trees and shrubs; • Surface ripping to 300- 400mm and direct seeding with a native woodland mix; • Direct seeding into in-situ topsoil; • Spreading topsoil prior to seeding; • Landform shaping and topsoil placement; • Arial seeding (using a helicopter); and • Gypsum placement and direct seeding over areas of deep ripping into overburden.	