



**NSW  
Resources  
Regulator**

FWP0001149

# **BENGALLA MINE FORWARD PROGRAM**

Sunday 1 January 2023 to Wednesday 31 December 2025



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## Summary

### DETAIL

Mine	Bengalla Mine
Reference	FWP0001149
Forward program commencement date	Sunday 1 January 2023
Forward program end date	Wednesday 31 December 2025
Forward program revision (if applicable)	
Contact	Craig White
Mining leases	ML 1469 (1992), ML 1397 (1992), ML 1729 (1992), ML 1450 (1992), ML 1711 (1992), ML 1728 (1992), ML 1796 (1992)
Project location	Bengalla Mining Company Pty Limited
Date of submission	Friday 31 March 2023

## Important

The department may make the information in your program and any supporting information available for inspection by members of the public, including by publication on its website or by displaying the information at any of its offices. If you consider any part of your program to be confidential, please communicate this to the department via the message function on this submission within the NSW Resources Regulator Portal.

# Three-year forecast – surface disturbance activities

## Project description

Bengalla Mine (Bengalla) is located approximately 4 km west of Muswellbrook and is operated by Bengalla Mining Company Pty Limited (BMC) on behalf of the Bengalla Joint Venture (New Hope Bengalla Pty Limited (80%) and Taipower Bengalla Pty Limited (20%)).

Bengalla operates in accordance with development consent State Significant Development 5170 (SSD 5170) which was granted on 3 March 2015 and has been modified on five occasions at the date of this Forward Program. SSD 5170 (as modified) provides approval for open cut multi-seam coal mining operations until 28 February 2039. Mining advances towards the west, extracting up to 15 Mtpa of ROM coal utilising dragline and truck and shovel mining methods. Progressive rehabilitation of the Overburden Emplacement Area (OEA) is undertaken as the final landform is achieved. ROM coal is processed at the Bengalla CHPP to produce a thermal coal product which is then loaded onto trains at the rail loading facility for transport.

## Description of surface disturbance activities

### Exploration activities

Exploration activities at Bengalla are ancillary to and a necessary pre-requisite to the mining activities that have been environmentally assessed, approved under SSD 5170 and specifically described in 'Bengalla Coal Mine Modification 5 to SSD-5170 Modification Report' (JBA, 2021) for completeness. Exploration activities within BMC's Mining Leases (ML) is undertaken in accordance with the Mining Act 1992 and relevant ML conditions.

Exploration is conducted around two years ahead of mining and generally involves drilling open and cored holes to provide a broad understanding of the lithology, quality, gas and other properties as mining progresses. Drilling also occurs (for prospecting and other purposes) including to target anomalies, structures such as faults, or to obtain geotechnical information for the safe management of mine design. Other types of prospecting may also be carried out as required. The geology is logged in each borehole and geophysical properties are also obtained. All collars are surveyed and coal quality is sampled to provide a level of confidence in the definition and delineation of the resource.

BMC is planning to undertake an exploration program within EL9431. These activities will be subject to a separate 'Assessable Prospecting Operation (APO) application to undertake exploration activities and approval from the Minister.

**Construction activities**

Relocation of in-pit infrastructure will continue as required to facilitate the mining process. This may include but is not limited to:

- Inpit maintenance hardstands;
- Access & haul roads;
- Inpit crib amenities & park up facilities;
- Inpit fuel farm;
- Water management facilities;
- Bioremediation farm;
- Power line relocation/installation/decommissioning;
- North & south dragline substations;
- Hot tyre park ups;
- Explosive storage facilities;
- Stockpiles including ROM coal, topsoil, clay and crushed rock;
- Rock crusher facility; and
- Temporary Reject Cells.

Access tracks may be constructed and used from time to time within BMC's mining leases. Construction activities will be undertaken in accordance with SSD 5170 (or construction activities that may be carried out without development consent or as exempt or complying development) and may include but not limited to:

- Additional HME (excavators, trucks & ancillary equipment);
- Additional administration buildings & parking facilities;
- Upgrades to maintenance facilities & workshop;
- Upgrades to & additional CHPP infrastructure (ROM hopper, surge capacity, stockpiles, processing modules, processing rates, stacking & reclaim systems, reject systems, train load out);
- Upgrades & new construction of water management facilities; and
- Upgrades or construction of new infrastructure in conjunction with Bengalla's mining operations.

## Mining schedule

Mining development method and sequencing and general mine features.

Mining at Bengalla progresses from east to west, away from Muswellbrook. The limit of oxidation line for the Edderton seam defined the eastern limit of mining. The main OEA was developed to the east of initial mining and is advancing to the west as mining advances. The limit of mining is currently defined by SSD-5170 (as modified) and mining leases for coal ML 1397, ML 1450, ML 1469, ML 1729 and ML 1796. Some mining related infrastructure for Bengalla is located north of Wybong Road within ML 1711 and west of Bengalla Link Road in ML 1728.

Bengalla is a dragline strip mine with pre-strip undertaken by excavator and truck fleets. The strip length is around 3 km and runs in a north-south direction, which is parallel to the sub crop and perpendicular to the dip. The seam dip provides an acceptable slope for mining and relatively level floors for each strip in the north-south direction. The cross slope on the floor from east to west ensures the spoils remain free draining and assists pit water management.

The mining sequence begins with topsoil removal and stockpiling, then drill and blasting of the overburden/interburden and moving the overburden to the OEA to uncover the coal seam. Coal is mined and transported to the temporary ROM coal stockpile and/or ROM Hopper. This process continues until the lower dragline sequence is reached. Overburden is then used to backfill the mining void. Bulk shaped OEAs are then rehabilitated.

Areas identified for emplacements, the sequencing of emplacements, construction, and management.

Overburden and interburden is hauled by truck or placed directly by the dragline into the OEA east of the active pit. As each dragline strip finishes trucks dump behind the dragline and develop the ~7 m lifts. Each lift allows for an initial 1-2 m of reject and followed by 5-6 m of overburden for encapsulation. As the dragline starts each new strip it fills the void from the previous strip. Reject material (coarse and fine) generated from the processing of coal at the CHPP is conveyed to the reject bin, where haul trucks are loaded for co-disposal with overburden. Reject material is either placed directly within cells developed in the existing OEA or is stored in temporary reject cells prior to final emplacement within the OEA.

The potential Acid Rock Drainage (ARD) material associated with the Archerfield sandstone (Wynn interburden) is mostly mined by the dragline and is subsequently covered with neutralising overburden from the dragline as well as material hauled by truck. ARD materials mined by excavator and truck are placed as low in the OEA as reasonable and feasible. Carbonaceous material is emplaced at least 5 m below the final landform to minimise the possibility of spontaneous combustion.

The main OEA will continue to be used over this Forward Program. Suitable rock is salvaged for reuse.

## Processing infrastructure activities and the location of tailings facilities and schedule for emplacement

Coal is transported via haul trucks from the mine to the temporary ROM coal stockpiles and/or the ROM hopper. The first stage of coal processing involves crushing ROM coal to less than 250 mm in size. The crushed coal is then transported along a conveyor to a secondary crushing station where it is reduced to less than 50 mm. After crushing, coal can be bypassed to product, direct fed into the Coal Handling and Preparation Plant (CHPP) or transported and stockpiled on the raw coal stockpile via conveyors.

The CHPP is a two-stage plant that can change from single stage to two stage washing when required. A combination of dense medium cyclones and single stage spirals are utilised to process coal. After processing, the product coal is centrifuged for the purpose of moisture reduction and then stacked onto product coal stockpiles.

Since Bengalla does not have a tailings dam, the fine reject material is thickened and dewatered and then combined with the coarse reject streams generated from the processing and conveyed to a rejects bin, where haul trucks are loaded and are taken to the existing OEA for co-disposal with overburden within the OEA, or to a temporary storage area where it is then rehandled and taken to the OEA at a later stage.

## Waste disposal and materials handling operations.

BMC produces non-mineral waste such as scrap steel, oil and general waste as a result of its activities. Non-mineral waste that cannot be recycled and is considered non-hazardous is disposed of at appropriate landfill facilities. Hazardous non-mineral waste that cannot be reused or recycled is collected and sent off site for treatment and specialised disposal. Off Road Tyres are disposed on pit floor or in the OEA.

BMC operates a non-mineral waste management system for 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.

Land contamination may occur as a result of hydrocarbon or other chemical spills. BMC minimises risk to the environment from contaminated land with control measures including:

- A chemical approval process;
- Focus on waste management & recycling;
- Prompt spill response & remediation;
- Bunding & containment;
- Site contaminated land register;
- Use of external contaminated land consultants as required; and

- Operation of a bioremediation facility to remediate hydrocarbon contaminated soils.

## Key production milestones

MATERIAL	UNIT	YEAR 1	YEAR 2	YEAR 3
<b>Stripped topsoil</b> (if applicable)	(m <sup>3</sup> )	303,407	0	0
<b>Rock/overburden</b>	(m <sup>3</sup> )	59,017,062	60,024,038	62,406,871
<b>Ore</b>	(Mt)	13.7	12.8	14.5
<b>Reject material<sup>1</sup></b>	(Mt)	3.2	3.3	3.3
<b>Product</b>	(Mt)	11.2	10.1	10.9

<sup>1</sup> This includes coarse rejects, tailings and any other wastes resulting from beneficiation.



# Three-year rehabilitation forecast

## Rehabilitation planning schedule

### Rehabilitation planning schedule

Rehabilitation planning and forecasting is part of the mine planning process at Bengalla and is planned as required during the following stages:

- Three-yearly plans (Forward Program and Rehabilitation Management Plan);
- Annual Plans (as part of the annual budget planning process);
- 22-week Plans;
- Monthly Plans; and
- Weekly Plans.

In accordance with clause 7 of Schedule 8A of the Mining Regulation 2016, BMC completed a rehabilitation risk assessment (Risk Assessment) in March 2022 to:

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

The Risk Assessment identified a number of controls which are proposed to be implemented to manage rehabilitation risks during each rehabilitation phase. The controls identified during the Risk Assessment have been incorporated into the RMP where appropriate.

### Stakeholder consultation

BMC has conducted effective stakeholder engagement programs since its initial exploration licence was granted in 1991. BMC aims to build enduring relationships with its neighbours and communities of interest based on mutual respect, active partnership and long-term commitment. Bengalla has a CCC that provides a forum for community discussion. Community representatives act as the point of contact to provide feedback between the mine and the community.

Bengalla has a 24-hour environmental hotline for community concerns relating to its operations. A system has been established to ensure an appropriate BMC representative responds to complaints.

Schedule 3 Condition 46 of SSD-5170 (as modified) requires BMC to prepare a Rehabilitation Management Plan for the development in accordance with the provisions under the Mining

Act 1992. Schedule 3, Condition 47 of SSD-5170 (as modified) requires BMC to prepare a Rehabilitation Management Strategy in consultation with DPE Water (Water Group within the Department), Biodiversity & Conservation Division, MSC and the CCC. BMC will submit the strategy by 24 February 2024 following consultation with relevant stakeholders.

The RMP describes the stakeholder consultation undertaken as relevant to the proposed Rehabilitation Objectives and proposed Rehabilitation Completion Criteria. Further consultation will be undertaken following approval of the Rehabilitation Objectives and Rehabilitation Completion Criteria.

### Rehabilitation studies, risk assessments and/or design work

#### Tailings to Topsoil

Research into the effectiveness of blending tailings and soils has commenced with germination and ex-situ plant growth trials conducted at the University of Newcastle. To assess in-situ conditions, a plant growth trial is occurring at Bengalla Tailings are a source of carbon and so have potential to improve soil quality by increasing carbon content. The research project is investigating the potential to improve soil quality through direct tailings emplacement.

#### Landscape Evolution Modelling

BMC is investigating Landscape Evolution Modelling (LEM) or similar methods to demonstrate that the final landform is long term “safe and stable” and address any long term erosion and stability risks. Unless the Resources Regulator directs or agrees otherwise:

- a) LEM or similar methods will be used to evaluate the long-term erosion rates by modelling erosion and deposition over time; and
- b) A monitoring program (excluding surface variations not related to erosion) will be formulated to inform modelling output.

Rehabilitation research and trials

RRT NUMBER	PROJECT/TRIAL NAME	OBJECTIVE OF TRIAL/PROJECT	METHODOLOGY	EXPECTED DATE OF COMPLETION	STATUS
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## Rehabilitation maintenance and corrective actions

As described at the RMP, BMC conducts annual rehabilitation monitoring to review rehabilitation performance across the site. Any areas of concern are identified and addressed as appropriate using the management actions described in the RMP.

Maintenance and corrective actions will also be considered where required to address any rehabilitation performance issues and/or knowledge gaps identified in the Annual Rehabilitation Report.

Maintenance and corrective action activities for the Forward Program will focus on:

- Weed control on rehabilitation areas, particularly prior to the HDWV establishment works and on areas of historical rehabilitation;
- Remediation of any identified areas of erosion requiring repairs including Geofluff and other water management structures; and
- Continued installation of HDWV to enable a relatively even distribution of HDWV throughout the planting areas.

## Rehabilitation schedule

All rehabilitation activities during the Forward Program will occur on the main OEA as areas become available. The HDWV program will continue into year 1 to retrofit this onto previously rehabilitated southern and eastern slopes of the main OEA.

The proposed rehabilitation activities for the Forward Program are:

Year 1 (January 2023 to December 2023):

- Development of approximately 96.7 ha of retrofitted HDWV rehabilitation on the eastern face of the OEA; and
- Reshaping of approximately 20 ha of land of overburden for rehabilitation.

Year 2 (January 2024 to December 2024):

- Reshaping of approximately 9.4 ha of overburden for rehabilitation.

Year 3 (January 2025 to December 2025):

- No rehabilitation activities are proposed during this Forward Program Year 3 at this stage. Current detailed mine closure planning in consideration of the Final Landform Design is being undertaken to inform future progressive rehabilitation areas as they become available.

## Subsidence remediation for underground operations

Bengalla lies within a Mine Subsidence District, however the operation conducts open cut mining only, and no subsidence issues have been detected throughout the life of mining. Accordingly, no subsidence remediation is expected to be required at Bengalla.

## Progressive mining and rehabilitation statistics

### Three-yearly forecast cumulative disturbance and rehabilitation progression

FORECAST	UNIT	YEAR 1	YEAR 2	YEAR 3
A Total surface disturbance footprint	(ha)	1,651.44	1,651.44	1,651.44
B Total active disturbance	(ha)	1,038.62	1,029.22	1,029.22
C Land prepared for rehabilitation	(ha)	116.55	125.96	125.96
D Ecosystem and land use establishment	(ha)	0	0	0

### Rehabilitation key performance indicators (KPIs)

FORECAST	UNIT	YEAR 1	YEAR 2	YEAR 3
O Total new active disturbance area	(ha)	275.52		
P Area proposed for active rehabilitation	(ha)	116.55	9.41	
Q Annual rehabilitation to disturbance ratio		0.42		

## Attachment 1 – Reporting Definitions

REPORTING CATEGORY	DEFINITION
<b>A</b> Total disturbance footprint – surface disturbance	<p>All areas within a mining lease that either have at some point in time or continue to pose a rehabilitation liability due to surface disturbance activities.</p> <p>The total disturbance footprint is the sum of the total active disturbance, decommissioning, landform establishment, growth medium development, ecosystem and land use establishment, ecosystem and land use development and rehabilitation completion (see definitions below).</p> <p>Underground mining operations should not include the footprint of underground mining areas/subsidence management areas in the total disturbance footprint.</p>
<b>B</b> Total active disturbance	<p>Includes on-lease exploration areas, stripped areas ahead of mining, infrastructure areas, water management infrastructure, sewage treatment facilities, topsoil stockpile areas, access tracks and haul roads, active mining areas, waste rock emplacements (active/unshaped/in or out-of-pit), tailings dams (active/unshaped/uncapped) and temporary stabilised areas (e.g. areas sown with temporary cover crops for dust mitigation and temporary rehabilitation).</p>
<b>C</b> Rehabilitation – land preparation	<p>Includes the sum of all disturbed land within a mining lease that have commenced any, or all, of the following phases of rehabilitation– decommissioning, landform establishment and growth medium development.</p> <p>Refer to the glossary of terms in this document for the definition of these phases of rehabilitation.</p>
<b>D</b> Ecosystem and land use establishment	<p>Includes the area which has been seeded/planted with the target vegetation species for the intended final land use. However, vegetation has not matured to a stage where it can be demonstrated that it will be sustainable for the long term and or require only a maintenance regime consistent with target reference/analogue sites.</p> <p>Typically, rehabilitation areas would be in this phase for at least two years (and usually more) before rehabilitation can be classified as being in the ecosystem and land use development phase. This phase does not apply to infrastructure areas that are being retained as part of final land use for the site.</p>

REPORTING CATEGORY	DEFINITION
<b>O</b>	The area of any new active disturbance that will be created during the next three years, as defined under definition A1 (definition A1 Table 5).
<b>P</b>	The sum of any new rehabilitation to be commenced in the next three years. These areas may be in the phases “Rehabilitation - Land Preparation” or the “Ecosystem & Land Use Establishment” (definitions C & D in Table 5).
<b>Q</b>	The rehabilitation to disturbance ratio (S / R) indicates how many hectares of new rehabilitation are undertaken for each hectare of land disturbed during the three years. A ratio of 1/1 indicates that the area of new rehabilitation and disturbance in that period are the same.



## Attachment 2 – Definitions

WORD	DEFINITION
<b>Active</b>	In the context of rehabilitation, land associated with mining domains is considered 'active' for the period following disturbance until the commencement of rehabilitation.
<b>Active mining phase of rehabilitation</b>	In the context of rehabilitation, the active mining phase of rehabilitation constitutes the rehabilitation activities undertaken during mining operations such as salvaging and managing soil resources, salvaging habitat resources, and native seed collection. This phase also includes management actions taken during operations to manage risks to rehabilitation and enhance rehabilitation outcomes such as selective handling of waste rock and management of tailings emplacements.
<b>Analogue site</b>	In the context of rehabilitation, an analogue site is a 'reference site' that represents an example of the defining characteristics (such as vegetation composition and structure or agricultural productivity) of the final land use. Characteristics of analogue sites can be assessed to develop the rehabilitation objectives and completion criteria for final land use domains.
<b>Annual rehabilitation report and forward program</b>	As described in the Mining Regulation 2016.
<b>Annual reporting period</b>	As defined in the Mining Regulation 2016.
<b>Closure</b>	A whole-of-mine-life process, which typically culminates in the relinquishment of the mining lease. It includes decommissioning and rehabilitation to achieve the approved final land use(s).
<b>Decommissioning</b>	The process of removing mining infrastructure and removing contaminants and hazardous materials.
<b>Decommissioning Phase of Rehabilitation</b>	Activities associated with the removal of mining infrastructure and removal and/or remediation of contaminants and hazardous materials. In the context of the rehabilitation management plan this phase of rehabilitation may also include studies and assessments associated with decommissioning and demolition of infrastructure or works carried out to make safe or 'fit for purpose' built infrastructure to be retained for future use(s) following lease relinquishment.

WORD	DEFINITION
<b>Department</b>	The Department of Regional NSW.
<b>Disturbance</b>	See Surface Disturbance.
<b>Disturbance area</b>	<p>An area that has been disturbed and that requires rehabilitation.</p> <p>This may include areas such as on-licence exploration areas, stripped areas ahead of mining, infrastructure areas, water management infrastructure, sewage treatment facilities, topsoil stockpile areas, access tracks and haul roads, active mining areas, waste emplacements (active/unshaped/in or out-of-pit), tailings dams (active/unshaped/uncapped), and areas requiring rehabilitation that are temporarily stabilised (i.e. managed to minimise dust generation and/or erosion).</p>
<b>Domain</b>	<p>An area (or areas) of the land that has been disturbed by mining and has a specific operational use (mining domain) or specific final land use (final land use domain). Land within a domain typically has similar geochemical and/or geophysical characteristics and therefore requires specific rehabilitation activities to achieve the associated final land use.</p>
<b>Ecosystem and Land Use Development</b>	<p>This phase of rehabilitation consists of the activities to manage maturing rehabilitation areas on a trajectory to achieving the approved rehabilitation objectives and completion criteria.</p> <p>For vegetated land uses this phase may include processes to develop characteristics of functional self-sustaining ecosystems, such as nutrient recycling, vegetation flowering and reproduction, and increasing habitat complexity, and development of a productive, self-sustaining soil profile.</p> <p>This phase of rehabilitation may include specific vegetation management strategies and maintenance such as tree thinning, supplementary plantings and weed management.</p>
<b>Ecosystem and Land Use Establishment</b>	<p>This phase of rehabilitation consists of the processes to establish the approved final land use following construction of the final landform.</p> <p>For vegetated land uses this rehabilitation phase includes establishing the desired vegetation community and implementing land management activities such as weed control. This phase of rehabilitation may also include habitat augmentation such as installation of nest boxes.</p>
<b>Exploration</b>	Has the same meaning as that term under the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

WORD	DEFINITION
<b>Final landform and rehabilitation plan</b>	As defined in the Mining Regulation 2016.
<b>Final land use</b>	As defined in the Mining Regulation 2016.
<b>Form and way</b>	Means the form and way approved by the Secretary. Approved form and way documents are available on the Department's website.
<b>Growth Medium Development</b>	<p>This phase of rehabilitation consists of activities required to establish the physical, chemical and biological components of the substrate required to establish the desired vegetation community (including short lived pioneer species).</p> <p>This phase may include spreading the prepared landform with topsoil and/or subsoil and/or soil substitutes, applying soil ameliorants to enhance the physical, chemical and biological characteristics of the growth media, and actions to minimise loss of growth media due to erosion.</p>
<b>Habitat</b>	Has the same meaning as that term under the <i>Biodiversity Conservation Act 2016</i> and the <i>Fisheries Management Act 1994</i> (as relevant).
<b>Indicator</b>	An attribute of the biophysical environment (e.g. pH, topsoil depth, biomass) that can be used to approximate the progression of a biophysical process. It can be measured and audited to demonstrate (and track) the progress of an aspect of rehabilitation towards a desired completion criterion (i.e. defined end point). It may be aligned to an established protocol and used to evaluate changes in a system.
<b>Land</b>	As defined in the <i>Mining Act 1992</i> .
<b>Landform Establishment</b>	<p>This phase of rehabilitation consists of the processes and activities required to construct the final landform.</p> <p>In addition to profiling the surface of rehabilitation areas to the approved final landform profile this phase may include works to construct surface water drainage features, encapsulate problematic materials such as tailings, and prepare a substrate with the desired physical and chemical characteristics (e.g. rock raking or ameliorating sodic materials).</p>
<b>Large mine</b>	As defined in the Mining Regulation 2016.
<b>Lease holder</b>	The holder of a mining lease.

WORD	DEFINITION
<b>Life of mine</b>	The timeframe of how long a mine is approved to mine, from commencement to closure.
<b>Mine rehabilitation portal</b>	<p>Means the NSW Resources Regulator's online portal that lease holders must use (via a registered account) to:</p> <ul style="list-style-type: none"> <li>■ upload rehabilitation geographical information system (GIS) spatial data</li> <li>■ develop rehabilitation GIS spatial data (using online tracing functions)</li> <li>■ generate rehabilitation plans and rehabilitation statistics using the map viewer and Rehabilitation Key Performance Indicator functionalities.</li> </ul> <p>Data submitted to the mine rehabilitation portal is collated in a centralised geodatabase for use by the NSW Resources Regulator to regulate rehabilitation performance of lease holders.</p>
<b>Mining area</b>	As defined in the <i>Mining Act 1992</i> .
<b>Mining domain</b>	A land management unit with a discrete operational function (e.g. overburden emplacement), and therefore similar geophysical characteristics, that will require specific rehabilitation treatments to achieve the final land use(s).
<b>Mining land</b>	As defined in the <i>Mining Act 1992</i> .
<b>Native vegetation</b>	Has the same meaning as that term under section 60B of the <i>Local Land Services Act 2013</i> .
<b>Overburden</b>	Material overlying coal or a mineral deposit.
<b>Performance indicator</b>	An attribute of the biophysical environment (for example pH, slope, topsoil depth, biomass) that can be used to demonstrate achievement of a rehabilitation objective. It can be measured and audited to demonstrate (and track) the progress of an aspect of rehabilitation towards a desired completion criterion, that is, a defined end point. It may be aligned to an established protocol and used to evaluate changes in a system.

WORD	DEFINITION
<b>Phases of rehabilitation</b>	<p>The stages and sequences of actions required to rehabilitate disturbed land to achieve the final land use. The phases of rehabilitation are:</p> <ul style="list-style-type: none"> <li>■ active mining</li> <li>■ decommissioning</li> <li>■ landform Establishment</li> <li>■ growth medium development</li> <li>■ ecosystem and land use establishment</li> <li>■ ecosystem and land use development.</li> </ul>
<b>Progressive rehabilitation</b>	<p>The progress of rehabilitation towards achieving the approved rehabilitation completion criteria. This may be described in terms of domains, phases, performance indicators and rehabilitation completion criteria.</p>
<b>Rehabilitation Completion</b>	<p>The final phase of rehabilitation when a rehabilitation area has achieved the approved rehabilitation objectives and rehabilitation completion criteria for the final land use. Rehabilitation areas may be classified as complete when the NSW Resources Regulator has determined in writing that the relevant rehabilitation obligations have been fulfilled following submission of <i>Form ESF2 Rehabilitation completion and/or review of rehabilitation cost estimate</i> application by the lease holder.</p>
<b>Rehabilitation Completion criteria</b>	<p>As defined in the Mining Regulation 2016.</p>
<b>Rehabilitation cost estimate</b>	<p>As defined in the Mining Regulation 2016.</p>
<b>Rehabilitation management plan</b>	<p>As defined in the Mining Regulation 2016.</p>
<b>Rehabilitation objectives</b>	<p>As defined in the Mining Regulation 2016.</p>
<b>Rehabilitation risk assessment</b>	<p>As defined in the Mining Regulation 2016.</p>
<b>Rehabilitation schedule</b>	<p>The defined timeframes for progressive rehabilitation set out in the forward program.</p>

WORD	DEFINITION
<b>Relevant stakeholders</b>	Means any persons or bodies who may be affected by the mining operations, including rehabilitation, carried out on the lease land, and includes: <ul style="list-style-type: none"> <li>■ the relevant development consent authority</li> <li>■ the local council</li> <li>■ the relevant landholder(s)</li> <li>■ community consultative committee (if required under the development consent) or equivalent consultative group</li> <li>■ affected land holder(s)</li> <li>■ government agencies relevant to the final land use</li> <li>■ affected infrastructure authorities (electricity, telecommunications, water, pipeline, road, rail authorities)</li> <li>■ local Aboriginal communities, and</li> <li>■ any other person or body determined by the Minister to be a relevant stakeholder in relation to a mining lease.</li> </ul>
<b>Risk</b>	The effect of uncertainty on objectives. It is measured in terms of consequences and likelihood (AS/NZS ISO 31000:2009).
<b>Secretary</b>	The Secretary of the Department.
<b>Security deposit</b>	An amount that a mining lease holder is required to provide and maintain under a mining lease condition, to secure funding for the fulfilment of obligations under the lease (including obligations that may arise in the future).
<b>Surface disturbance</b>	Includes activities that disturb the surface of the mining area, including mining operations, ancillary mining activities and exploration.
<b>Tailings</b>	A combination of the fine-grained solid material remaining after the recoverable metals and minerals have been extracted from the mined ore, and any process water <sup>2</sup> .
<b>Waste</b>	Has the same meaning as that term under the <i>Protection of the Environment Operations Act 1997</i> .

<sup>2</sup> Commonwealth of Australia (DITR), 2007. *Tailings Management*.

## Attachment 3 – Plans

Plan 2A Mining and Rehabilitation – Year 1.pdf

Plan 2B Mining and Rehabilitation – Year 2.pdf

Plan 2C Mining and Rehabilitation – Year 3..pdf

Forward Program (LARGE MINE) v2.1



Plan 2A Mining and Rehabilitation – Year 1



- Legend
- Forecast Data Year1
- Forecast Disturbance
  - Forecast Land Prepared for Rehabilitation
  - Ecosystem and Land Use Establishment
- Project Approval Boundary
- COAL - CURRENT TITLES
- World Imagery
- Low Resolution 15m Imagery
- High Resolution 60cm Imagery
- High Resolution 30cm Imagery
- Citations



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**THIS MAP IS NOT TO BE USED FOR NAVIGATION**

Notes

Mine Name: Bengalla Mine  
Date of Creation: 30/03/2023  
Submission ID: 4326  
Year 1: 1 January 2023 to 31 December 2023



Plan 2B Mining and Rehabilitation – Year 2



- Legend
- Forecast Data Year2
- Forecast Disturbance
  - Forecast Land Prepared for Rehabilitation
  - Ecosystem and Land Use Establishment
- Project Approval Boundary
- COAL - CURRENT TITLES
- World Imagery
- Low Resolution 15m Imagery
- High Resolution 60cm Imagery
- High Resolution 30cm Imagery
- Citations



1,834.5 0 917.24 1,834.5 Meters

WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere

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THIS MAP IS NOT TO BE USED FOR NAVIGATION

Notes

Mine Name: Bengalla Mine

Date of Creation: 30/03/2023

Submission ID: 4327

Year 2: 1 January 2024 to 31 December 2024



Plan 2C Mining and Rehabilitation – Year 3.



- Legend
- Forecast Data Year3
- Forecast Disturbance
  - Forecast Land Prepared for Rehabilitation
  - Ecosystem and Land Use Establishment
- Project Approval Boundary
- COAL - CURRENT TITLES
- World Imagery
- Low Resolution 15m Imagery
- High Resolution 60cm Imagery
- High Resolution 30cm Imagery
- Citations



1,834.5 0 917.24 1,834.5 Meters

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