



**NSW  
Resources  
Regulator**

**ARR0001117**

# **MAXWELL UNDERGROUND COAL MINE ANNUAL REHABILITATION REPORT**

Thursday 3 February 2022 to Thursday 2 February 2023

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## Summary table

DETAIL	
<b>Mine</b>	Maxwell Underground Coal Mine
<b>Reference</b>	ARR0001117
<b>Annual report period commencement date</b>	Thursday 3 February 2022
<b>Annual report period end date</b>	Thursday 2 February 2023
<b>Forward program</b>	
<b>Mining leases</b>	ML 1531 (1992), CL 229 (1973), ML 1822 (1992), CL 395 (1973), ML 1820 (1992)
<b>Lease holder(s)</b>	MAXWELL VENTURES (MANAGEMENT) PTY LTD
<b>Contact</b>	Donna McLaughlin
<b>Date of submission</b>	Wednesday 30 August 2023

## Important

The department may make the information in your report 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 report to be confidential, please communicate this to the department via the message function on this submission within the NSW Resources Regulator Portal.

## Mine details

### Project description

Maxwell Ventures (Management) Pty Ltd (Maxwell), a wholly owned subsidiary of Malabar Resources Limited (Malabar) owns and operates the Maxwell Underground Mine (the site). The site is located in the Upper Hunter Valley of New South Wales (NSW), east-southeast of Denman and south-southwest of Muswellbrook. The site is approved to extract a maximum of 8 million tonnes of run-of-mine coal per year over a period of 26 years. The site consists of an underground area (comprising the proposed area of underground mining operations and the mine entry area to support underground mining and coal handling activities and provide for personnel and materials access), Maxwell Infrastructure, formerly Drayton mine (comprising previous open cut mining areas, existing coal handling and preparation plant (CHPP), train load-out facilities and rail loop, Antiene rail spur and other infrastructure and services) and a transport and services corridor (between the underground area and Maxwell Infrastructure).

### Life of mine

24 years

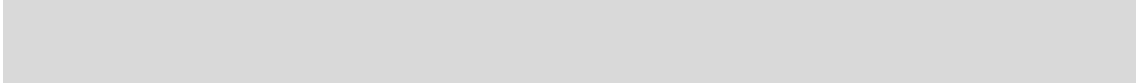
### Current development consents, leases and licences

Development consents granted under the *Environmental Planning and Assessment Act 1979*

- SSD9526
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**Any other approvals, licences, or authorities issued by government agencies that are relevant to the progress of mining operation and rehabilitation activities**



**Summary of the scope and/or purpose of the new applications or modifications to existing approvals (if applicable)**

The SSD 9526 was further modified (MOD2) on 19 October 2022 to allow for the following:

- Re-orientation of the longwall panels in the Woodlands Hill, Arrowfield and Bowfield Seams resulting in a minor increase in the approved underground mining extent;
- Reduction in the width of some of the longwall panels in the Woodlands Hill Seam;
- Repositioning of the upcast ventilation shaft site and associated infrastructure; and
- Other minor works and ancillary infrastructure components (e.g. access road and ancillary water management infrastructure for the repositioned ventilation shaft site).

The development formerly authorised under the Maxwell Infrastructure Project Approval (PA) 06\_0202 was surrendered in July 2022.

## Changes to land ownership and land use

There has been no change to land ownership and land use related to the land, that has occurred during the annual reporting period.

# Surface disturbance and rehabilitation activities during the reporting period

## Surface disturbance and rehabilitation activities that were conducted and an analysis of the progress against the rehabilitation schedule

Construction commenced in May 2022. Initial construction works included installation of sediment controls and a clean water diversion drain, clearing and construction for the temporary access road within ML 1820 and ML 1822, upgrades to the existing road within CL229 and stockpiling of topsoil. Once the temporary access road was installed, construction works commenced at the MEA and included construction of the following:

- Light and heavy vehicle parking areas.
- Temporary offices, mobile crib rooms and temporary bathhouse facilities.
- Equipment laydown areas and temporary workshop facilities for maintenance.
- Water tanks and pipelines to the MEA.
- Three new dams inclusive of the mine water dam, MEA dam and MEA sedimentation dam.
- Hardstand areas, dam embankments and road construction using mine establishment rock removed during construction as construction fill.
- Commencement of excavation for the Whynot and Woodlands Hill portals.

These works are in line with the activities identified in the Forward Program. Recommissioning works commenced at the CHPP and involved inspection of all electrical sub stations, motors, and circuits for re-energisation of CHPP assets. Structural repairs were undertaken to the ROM materials handling system and minor repairs were undertaken on conveyor and lighting systems and will continue through to the next reporting period.

## Rehabilitation planning activities that were conducted, including any specialist studies

Inspection of 2013 Native Grassland Establishment Trial on Great North Tip - Evidence of native grass species were observed during the July 2022 inspection, such as Lobed Bluegrass (*Bothriochla biloba*), Queensland Bluegrass (*Dichanthium sericeum*), Purple Wiregrass (*Aristida ramosa*) and Common Couch (*Cynodon dactylon*). Ongoing monitoring to continue. Buildings and infrastructure at the Orica plant were removed from site in March 2022.

## Overview of subsidence repair and/or remediation works undertaken

No subsidence repair or remediation works undertaken during the annual reporting period.

## Overview of rehabilitation management and maintenance activities

Two tree planting programs were undertaken during the reporting period. The programs targeted a total of 22 hectares of existing mine rehabilitation within the conceptual woodland corridor. Ground preparation works for optimal tree propagation were undertaken and

included slashing, single deep rip lines (minimum 500 mm deep) and spraying of rip lines with glyphosate. Tree and shrub species consistent with the Spotted Gum Ironbark Woodland, Red Gum Woodland and Yellow Box Woodland vegetation communities were planted. A total of 18,000 plants were installed using a growth promoting compound and a browsing deterrent applied directly to the plants to reduce impact of herbivores on plant success. Follow up watering was undertaken. The predominate pest species observed at site were kangaroos, they were noted to be over grazing rehabilitation areas and creating nesting beds under established trees and shrubs. During the reporting period a kangaroo cull was undertaken. During the reporting period a total of nineteen pigs were trapped and shot on site. Weed management activities were undertaken during the reporting period. Twenty nest boxes (for parrots, gliders and treecreepers) were installed via the Habisure method in August 2022.

#### **Details of any rehabilitation actions taken as required by any letters, notices or directions issued by government agencies, including the NSW Resources Regulator**

In March 2022, Maxwell received a commencement of investigation letter from the Resources Regulator identifying the alleged breaches of the Directions issued under Notice NTCE0008542 and providing an opportunity to respond. Maxwell provided a response in April 2022. On 16 June 2022 a site inspection was undertaken by the Resources Regulator. In November 2022, the Resources Regulator determined that no breach had occurred in response to the commencement of investigation letter. In July 2022, Maxwell sent an email to the Resources Regulator providing information on the proposed next steps for further assessments and remedial work required to address issues identified in the assessment undertaken in response to the original notice NTCE0008542. In December 2022, Maxwell was issued with a notice under Section 240 of the Mining Act 1992 to engage a suitably qualified expert to undertake an assessment that sets out the design of modifications to the rehabilitated landform and surface water management structures on the rehabilitated landform to address the instability and erosion risks. The notice also included further directions to conduct a risk assessment, prepare a rehabilitation management plan, forward program and rehabilitation report. These items will be addressed in the next reporting period.

#### **Details of any rehabilitation areas that have achieved the final land use**

None.



**Key production milestones**

MATERIAL	UNIT	YEAR 1	THIS REPORT
<b>Stripped topsoil</b> (if applicable)	(m <sup>3</sup> )	0	88,618
<b>Rock/overburden</b>	(m <sup>3</sup> )	0	563,232
<b>Ore</b>	(Mt)	0	0.01
<b>Reject material<sup>1</sup></b>	(Mt)	0	0
<b>Product</b>	(Mt)	0	0

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

## Disturbance and rehabilitation statistics

### Current disturbance and rehabilitation progression

ELEMENT	UNIT	THIS REPORT
A Total surface disturbance footprint	(ha)	
B Total active disturbance	(ha)	
C Land prepared for rehabilitation	(ha)	
D Ecosystem and land use establishment	(ha)	
E Ecosystem and land use development	(ha)	
F Rehabilitation completion	(ha)	

### Rehabilitation key performance indicators (KPIs)

ELEMENT	UNIT	THIS REPORT
G Total new active disturbance area	(ha)	NA - this value will display after 2nd year ARR submission as calculation relies on comparison between sequential yearly ARR data
H New rehabilitation commenced during annual reporting period	(ha)	NA - this value will display after 2nd year ARR submission as calculation relies on comparison between sequential yearly ARR data
I Established rehabilitation	(ha)	
J Annual rehabilitation to disturbance ratio	%	NA - this value will display after 2nd year ARR submission as calculation relies on comparison between sequential yearly ARR data
K Rehabilitated land to total mine footprint	%	

## Progressive achievement of established rehabilitation

ELEMENT	UNIT	THIS REPORT
L Established rehabilitation - agricultural final land uses	%	
M Established rehabilitation - native ecosystem final land uses	%	
N Established rehabilitation - other/non-vegetated final land uses	%	

## Variation to the rehabilitation schedule

Identify the components of the most recent forward program that were not achieved

N/A

Key factors that delayed progressive rehabilitation

N/A

Outline actions that will be included in the forward program and carried out to minimise disturbance and undertake progressive rehabilitation as far as reasonably practical

N/A

# Rehabilitation monitoring and research findings

## Rehabilitation monitoring

### The rehabilitation monitoring carried out in the annual reporting period

The removal of livestock from one area resulted in an increase cover of single species, however grassland diversity should improve when grazing continues. The rehabilitation within Biodiversity Offset Domain is progressing slowly, with approximately 25 percent of the rehabilitation area providing good development of target flora species. Soil assessments have been undertaken and do not indicate any clear justification for poor plant growth, resulting in the conclusion that poor environmental conditions, competition from exotic grass species and impact from kangaroos and potentially hares as the reasons for the poor success of the tree planting. Increased watering, target control of kangaroos and hares and herbicide spraying around tree plantings has been implemented. Future monitoring will determine if these management measures are assisting in the development of the target vegetation communities. The barriers to woodland establishment in the east-west corridor is similar to the rehabilitation in the Biodiversity Offset Domain and therefore the same management measures have been implemented, including increased watering, target control of kangaroos and hares and herbicide spraying around tree plantings.

## Status of performance against rehabilitation objectives and rehabilitation completion criteria

### The monitoring program that has been implemented

Biometric vegetation sampling compares the results of the monitoring program to the standard vegetation classification. The methodology was developed in accordance with the Biometric Methodology (DECCW 2011). This was undertaken at each of the 15 flora monitoring sites and involved measuring:

- native plant species richness
- native over-storey
- native mid-storey cover
- native ground cover
- exotic plant cover
- No. of trees with hollows
- Total length of fallen logs
- Regeneration

The BAM Vegetation Sampling method compares the results of the monitoring program to the current vegetation assessment methodology (OEH 2018a). The BAM allows a direct comparison of survey results to the BioNet Vegetation Information System (VIS) database. Fauna monitoring is targeted at determining the occurrence of terrestrial vertebrate animals, including bird, mammal, reptile and amphibian species. Methods undertaken include:

- Diurnal Bird Survey
- Herpetological Survey
- Nocturnal Survey
- Remote Camera Survey
- Micro-bat Echolocation Recording
- Pest Animal Monitoring

Walkover assessments were undertaken at each of the 15 flora rehabilitation sites. This includes a review of recent aerial photography and an on-ground assessment covering approximately two hectares. The assessment included general health of the vegetation, establishment of target species, weed

cover, erosion and sediment control, visible spontaneous combustion and spontaneous combustion impacts on vegetation.

**Are all rehabilitation areas in Landform Establishment phase or higher represented in the monitoring program to assess performance against the rehabilitation objectives and approved or, if not yet approved rehabilitation completion criteria and final landform and rehabilitation plan?**

Yes

**Year rehabilitation areas will be included as part of the monitoring program**

**An appraisal of whether rehabilitation is moving towards achieving the proposed rehabilitation objectives, approved or, if not yet approved, rehabilitation completion criteria and final landform and rehabilitation plan as soon as reasonably practicable.**

The woodland rehabilitation is generally progressing slowly at sites monitored in 2022, however significant improvements were noted at site 6a with an increase in target canopy and shrub species and site 9a with the removal of exotic canopy and shrub species. The Southern Offset rehabilitation area provided low success of plantings, impact to seedlings from kangaroos and dominance of exotic grass species. The recommended strategy to progress the Southern Offset Area towards the target vegetation community is to continue with tree planting/maintenance, weed control and pest control. The tree planting should target canopy and tall shrub species to assist in suppressing the cover of exotic grass species. This will provide a niche for lower shrub and groundcover species to persist. The grassland rehabilitation areas are progressing well towards a sustainable agricultural area. Removal of livestock from the East Tip rehabilitation is resulting in a dominance of single species in some areas however this is likely to reduce once grazing re-commences. The 2022 monitoring program identified that the Wildlife Refuge, Northern Offset area and Southern Offset remnant vegetation adjacent Saddlers Creek are being well managed and have a notable reduction of weed and pest animal species since the previous monitoring event. No impact as a result of mining activities was observed at any reference sites.

#### **Appraisal description**

Rehabilitation is moving towards achieving the final land use as soon as reasonably practicable.

#### **Rehabilitation monitoring program findings**

Monitoring was undertaken in accordance with the Rehabilitation Management Plan and included 15 flora sites (being four reference sites, seven woodland rehabilitation sites and four pasture rehabilitation sites), walkover inspections for each flora rehabilitation site, three fauna sites in remnant vegetation and soil sampling at each of the 15 flora sites. The sites are located throughout the rehabilitation and offset areas, as shown in the Annual Ecological Monitoring Report. Sites located in offset areas are used as a reference site to measure

remnant vegetation and fauna habitat in areas not likely to be impacted by mining. The flora methodology for pasture sites involved Biometric sampling and methodology at the woodland rehabilitation and reference sites included Biometric and BAM sampling. Site layout involved a 20m by 50m plot, with a nested 20m by 20m plot, and includes a 50m transect running through the plot. Field surveys for the Ecological Monitoring Program were undertaken over ten days from 20th October to 2nd December 2022. The weather during the monitoring period was mild (16 to 28 degrees Celsius) with light to moderate winds and mild to heavy rainfall.

### **Performance issues and their causes including identification of any knowledge gaps that must be addressed**

Performance issues in the rehabilitation are relate to the establishment of target vegetation within the Biodiversity Offset and Woodland Domains. These have been identified as poor environmental conditions, competition from exotic grass species and impact from kangaroos and hares. Increased watering, target control of kangaroos and hares and herbicide spraying around tree plantings has been implemented to mitigate these impacts. Future monitoring will determine if these management measures are assisting in the development of the target vegetation communities. In addition to Landscape Evolution Model and Surface Water Assessments reports prepared by SRK, further work will be undertaken to assess the design of modifications to the rehabilitated landform and surface water management structures on the rehabilitated landform to address any instability and erosion risks.

## Outcomes of rehabilitation research and trials

RRT NUMBER	PROJECT/TRIAL NAME	OBJECTIVE OF TRIAL/PROJECT	METHODOLOGY	EXPECTED DATE OF COMPLETION	STATUS	ON TRACK?
RRT0001049	Native Grass Trial	A native grassland establishment trial was undertaken at the Maxwell Infrastructure site during 2013. The trial involved seeding a small area with locally collected grassland species.	The trial was monitored throughout 2013 and determined to be unsuccessful due to poor germination. The area was re-inspected during 2018 and is now showing to be dominated by native grasses, particularly Lobed Bluegrass ( <i>Bothriochloa biloba</i> ) and Queensland Bluegrass. Given the success of the trial, Queensland Bluegrass was added into the existing pasture mix during 2018 and applied to a 24 hectare parcel of land that was rehabilitated.	1 Dec 2025	Ongoing	Yes
RRT0001050	Cattle Grazing Trial	In November 2018, Maxwell commenced a cattle grazing trial on a parcel of pasture mine rehabilitation.	The trial involved bringing 50 head of cattle onto site to graze an area of 141 hectares, of which approximately 53 hectares was mine site rehabilitation. The trial aims to demonstrate that Maxwell can create a post mining landscape that is compatible with the surrounding landscape and capable of sustaining a productive land use. The grazing area was expanded to include two additional rehabilitation paddocks in 2019. The trial will continue as Maxwell works towards relinquishment.	1 Dec 2025	Ongoing	Yes

### Outcomes of completed trials and research

N/A



## Attachment 1 – Reporting Definitions

REPORTING CATEGORY	DEFINITION
<p><b>A1</b> Total disturbance footprint – surface disturbance</p>	<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>
<p><b>A2</b> Underground Mining Area</p>	<p>Underground mining operations areas/subsidence management areas.</p>
<p><b>B</b> Total active disturbance</p>	<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>
<p><b>C</b> Rehabilitation – land preparation</p>	<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>

REPORTING CATEGORY	DEFINITION
<p><b>D</b> Ecosystem and land use establishment</p>	<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>
<p><b>E</b> Ecosystem and Land Use Development</p>	<p>Rehabilitation has matured to a level where target revegetation outcomes are on a trajectory towards meeting the final rehabilitation objectives and rehabilitation completion criteria (as verified by monitoring).</p> <p>This phase includes infrastructure areas that are to be retained for an approved post mining land use, following completion of all necessary measures to render the infrastructure fit for this purpose (for example structural integrity).</p>
<p><b>F</b> Rehabilitation Completion</p>	<p>The NSW Resources Regulator has determined in writing that the mining area has achieved the approved rehabilitation objectives and approved rehabilitation completion criteria and final landform and rehabilitation plan following the submission of <i>Form: ESF2 Rehabilitation completion and/or review of rehabilitation cost estimate and/or notification of mine or petroleum site closure</i>.</p>
<p><b>G</b> New active disturbance area</p>	<p>The area of any new active disturbance that has been created during the annual reporting period (definition A1 in Table 5).</p>
<p><b>H</b> New rehabilitation commenced during annual reporting period</p>	<p>The sum of any new rehabilitation commenced in the annual reporting period. These areas may be in the rehabilitation land preparation phase or the ecosystem &amp; land use establishment phase (definitions C and D in Table 5).</p>
<p><b>I</b> Established rehabilitation (hectares)</p>	<p>The total area of land that is verified to be within either the ecosystem and land use development phase or the rehabilitation completion phase (definitions E &amp; F in Table 5).</p>

REPORTING CATEGORY		DEFINITION
<b>J</b>	Annual rehabilitation to disturbance ratio	The rehabilitation to disturbance ratio (H/G) indicates how many hectares of new rehabilitation are undertaken for each hectare of land disturbed during the year. A ratio of 1/1 indicates that the area of new rehabilitation and disturbance in that year are the same.
<b>K</b>	% Rehabilitated land to total mine footprint	The proportion of the total mine footprint (area of land that has been disturbed by past or present surface disturbance activities) that has established rehabilitation ( $I/A1 \times 100$ ). For open cut mining, the proportion of the total mine footprint verified to be “established rehabilitation” should substantially increase as an operation progresses towards mine closure.
<b>L</b>	Established rehabilitation for agricultural final land uses (hectares)	The percentage of total area of land that is verified to be within either the ecosystem and land use development phase or the rehabilitation completion phase (definitions E & F in Table 5) that have been returned to an agricultural final land use.
<b>M</b>	Established rehabilitation for native ecosystem final land uses (hectares)	The percentage of total area of land that is verified to be within either the ecosystem and land use development phase or rehabilitation completion phase (definitions E & F in Table 5) that have been returned to native ecosystem final land use.
<b>N</b>	Established rehabilitation for other/non-vegetated final land uses (hectares)	The percentage of total area of land that is verified to be within either the ecosystem and land use development phase or the rehabilitation completion phase (definitions E & F in Table 5) that have been returned to other/non-vegetated final land use.

## 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>	The stages and sequences of actions required to rehabilitate disturbed land to achieve the final land use. The phases of rehabilitation are: <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>	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.
<b>Rehabilitation Completion</b>	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.
<b>Rehabilitation Completion criteria</b>	As defined in the Mining Regulation 2016.
<b>Rehabilitation cost estimate</b>	As defined in the Mining Regulation 2016.
<b>Rehabilitation management plan</b>	As defined in the Mining Regulation 2016.
<b>Rehabilitation objectives</b>	As defined in the Mining Regulation 2016.
<b>Rehabilitation risk assessment</b>	As defined in the Mining Regulation 2016.
<b>Rehabilitation schedule</b>	The defined timeframes for progressive rehabilitation set out in the forward program.



WORD	DEFINITION
<b>Relevant stakeholders</b>	<p>Means any persons or bodies who may be affected by the mining operations, including rehabilitation, carried out on the lease land, and includes:</p> <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 – Rehabilitation Complaints

DATE	COMPLAINANT	COMPLAINT DETAILS	RESPONSE DETAILS	STATUS OF RESPONSE	DATE RESPONSE COMPLETED (IF APPLICABLE)
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## Attachment 4 – Stakeholder consultation

DATE	STAKEHOLDER	CONSULTATION ACTIVITIES AND FORMS	MATTERS SUBJECT TO CONSULTATION	ACTIONS TAKEN
15 Jun 2022	Maxwell CCC	Quarterly CCC meetings held on 15 June 2022, 14 September 2022 and 7 December 2022.	Update on rehabilitation and land management activities undertaken on site provided to the Maxwell CCC on a quarterly basis. This includes tree planning within the woodland corridor, weed spraying and feral animal management.	No actions identified.
15 Feb 2022	Muswellbrook Shire Council (MSC)	Meeting with MSC.	Update on rehabilitation, grazing trial, nest box installation and land management activities.	No actions identified.
21 Jun 2022	Department of Planning and Environment (DPE)	Site visit with DPE.	Update on rehabilitation, grazing trial, nest box installation and land management activities. Site inspection undertaken.	No actions identified.
29 Jul 2022	Department of Planning and Environment (DPE)	Site visit with DPE.	Update on rehabilitation, grazing trial, nest box installation and land management activities. Site inspection undertaken.	No actions identified.

## Attachment 5 – Plans

Plan 1A attachment not provided.

Plan 1B attachment not provided.

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