



**NSW
Resources
Regulator**

ARR0001227

MAXWELL UNDERGROUND COAL MINE ANNUAL REHABILITATION REPORT

Friday 3 February 2023 to Friday 2 February 2024

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Summary table

DETAIL	
Mine	Maxwell Underground Coal Mine
Reference	ARR0001227
Annual report period commencement date	Friday 3 February 2023
Annual report period end date	Friday 2 February 2024
Forward program	FWP0001190
Mining leases	ML 1531 (1992), CL 229 (1973), ML 1822 (1992), CL 395 (1973), ML 1820 (1992)
Lease holder(s)	MAXWELL VENTURES (MANAGEMENT) PTY LTD
Contact	Donna McLaughlin
Date of submission	Tuesday 26 March 2024

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 underground mining operations and the mine entry area (MEA) 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, coal handling and preparation plant, train load-out facilities and rail loop, Antiene rail spur and other infrastructure and services); and
- Transport and services corridor (between the MEA and Maxwell Infrastructure).

Life of mine

23 years

Current development consents, leases and licences

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

SSD9526
SSD9526

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

EPBC 2018/8287
DA 106-04-00
EPL1323

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

Development Consent DA 106 04 00 for the existing rail loop and Antiene Rail Spur was granted on 2 November 2000 under Section 76(A)9 and 80 of the EP&A Act and is still current. DA 106-04-00 was modified on 18 September 2023 (Antiene MOD1) to align with the approved operating life of the Maxwell Underground Project (i.e. until 2047).

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 of the Maxwell UG Mine continued during the reporting period including the following activities:

- Construction of the Whynot and Woodlands Hill portal entries.
- Maintenance of the temporary access road including an interim seal.
- Construction of the permanent access road.
- Earthworks for the conveyor trace.
- Installation of dams, temporary buildings and services to the MEA.
- Installation of the Whynot entry conveyor and portal fan.
- Insitu waste rock was removed as part of construction works at the MEA and along the transport corridor.

No new rehabilitation was undertaken during the reporting period. A total of approximately 29 hectares of land was disturbed for construction activities (this included 15 hectares of rehabilitation), primarily for the construction of the permanent access road and conveyor trace earthworks. Topsoil and overburden moved during the reporting period was primarily related to the construction of the permanent access road and conveyor trace earthworks. First workings commenced in the Whynot Seam in March 2023 and first coal was produced from the bord and pillar operation at the end of March 2023. These works were generally in accordance with the activities identified in the Forward Program FWP0001190.

Rehabilitation planning activities that were conducted, including any specialist studies

Planning was undertaken for two tree planting programs during the reporting period. The programs targeted a total of 26.5 hectares of existing mine rehabilitation within the Southern Offset Area and Woodland Corridor. An inspection of 2013 Native Grassland Establishment Trial was undertaken during the reporting period. The results showed a decline in native grass species from previous monitoring however several native species were persisting, including Lobed Bluegrass, Queensland Bluegrass, Purple Wiregrass and Common Couch. High volumes of rainfall during February and March 2023 are likely to have contributed to an increase in cover of exotic species. An Assessment Report to address Direction 1 of the NTCE0011420 was submitted to the Resource Regulators in May 2023. This report verified previous studies into the rehabilitated landform and surface water structures, measured the erosion rates throughout the rehabilitated landform, provided further detail into capacity of existing rock structures and investigated options for erosion points identified during the Resource Regulator inspection. An implementation schedule was prepared as part of the report and can be found in the RMP and Forward Program. Malabar is investigating the land and soil capability of the rehabilitation for woodland and pasture domains. Initial correspondence with specialists was undertaken to improve the understanding of how the composition of the soil relates to the development of vegetation.

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

Ground preparation works for the tree planting program included slashing, single deep rip lines (minimum 400 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 27,500 plants were installed using a growth promoting compound and a browsing deterrent. Follow up watering was undertaken. Fallen timber was spread throughout the Woodland Corridor area to assist in fauna distribution and refuge within the rehabilitation area. A total of four feral animal control events and two 1080 baiting events were undertaken during the reporting period. The pest species targeted included pig, wild dog, fox, rabbit/hare, cat and eastern grey kangaroo. The eastern grey kangaroo was observed to be over grazing rehabilitation areas and creating nesting beds under established trees and shrubs. Ongoing weed management activities were undertaken throughout the rehabilitation area, predominantly targeting roadside annual and perennial woody weeds, pampas grass, prickly pear and tree tobacco. In addition to this, golden wreath wattle was thinning within the woodland corridor and mulched within pasture areas. Follow-up control of these areas is continuing.

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

An Assessment Report to address Direction 1 of the Section 240 Notice (NTCE0011420) was submitted to the Resource Regulators in May 2023. The rehabilitation risk assessment was reviewed and the RMP and Forward Program were updated during the reporting period to capture the findings of the Assessment Report. An implementation schedule (identifying remedial actions) was prepared as part of the Assessment Report and Maxwell commenced work on the remedial actions. The following works were undertaken during the reporting period:

- Widening of rock structures ID7, ID8 and ID9;
- Diversion of water away from erosion point on Northern Void highwall;
- Redirection of contour banks and filling of erosion point at East Void;
- Removal of redundant contour banks in Southern Void catchment;
- Erosion quantification of the entire rehabilitation area;
- Ongoing assessment of rock weathering within rock structures; and
- Ongoing field inspections of remediation works to identify any areas of concern and the general performance of the rehabilitation.

In July 2023, Maxwell was notified of the commencement of an investigation into an alleged contravention (i.e. that the titleholder failed to incorporate the schedule of measures set out in the Assessment Report in a new Forward Program as required by Direction 4a of the Section 240 Notice). Maxwell provided a

response and further investigations determined that the allegations were un-sustained and no further action was taken.

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

None.

Key production milestones

MATERIAL	UNIT	FWP0001190 YEAR 1	THIS REPORT
Stripped topsoil <small>(if applicable)</small>	(m ³)	38,230	37,629
Rock/overburden	(m ³)	225,000	575,047
Ore	(Mt)	1.17	0.12
Reject material¹	(Mt)	0.28	0.05
Product	(Mt)	0.89	0.03

¹ 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)	1,650.2
B Total active disturbance	(ha)	812.31
C Land prepared for rehabilitation	(ha)	0
D Ecosystem and land use establishment	(ha)	837.89
E Ecosystem and land use development	(ha)	0
F Rehabilitation completion	(ha)	0

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)	0
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	%	0

Progressive achievement of established rehabilitation

ELEMENT	UNIT	THIS REPORT
L Established rehabilitation - agricultural final land uses	%	0
M Established rehabilitation - native ecosystem final land uses	%	0
N Established rehabilitation - other/non-vegetated final land uses	%	0

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 and competition from exotic grass species 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

Field surveys for the Ecological Monitoring Program were undertaken from 6th November to 6th December 2023. Results indicate that the woodland reference sites had an Integrity score from between 42 and 54. These are low values for a reference site, likely to be the result of drought conditions in the lead up to the field surveys. No direct impact from mining activities was observed during the field surveys. As with the drought impact to the reference sites, the rehabilitated woodland and pasture sites showed significantly lower values to previous years, with no direct impact as a result of mining activities observed. Integrity values from the woodland sites ranged from 4 to 31, with the older sites providing a higher value due to a developing canopy and litter cover. Pasture rehabilitation sites are progressing well towards closure criteria. Fauna monitoring occurred at three sites (two reference sites and one rehabilitation site) to measure the occurrence of terrestrial vertebrate animals, including bird, mammal, reptile and amphibian species. A total of 48 fauna species were recorded during the 2023 monitoring program, including 29 bird species, 15 mammal species, two reptile species and two amphibian species. Comparison of the average number of fauna species data showed a decline in fauna species abundance in 2023, with no direct impact as a result of mining activities observed.

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 towards the rehabilitation objectives. The woodland establishment is progressing slowly however the pasture rehabilitation is establishing well with good results of weight gains following the grazing trial. Single species dominance within the pasture area should reduce with continued grazing. Trees and shrubs within the woodland corridor provide moderate cover however growth rates are slow. All sites monitored in 2023, except 12b, provided evidence of high threat exotic species and require further weed control. Sites 7b, 8b and 10d exceeded the TARP criteria target of <20% Significant Weed Cover and therefore need to be specifically targeted for weed control. Target species includes Galenia (*Galenia pubescens*), Golden Wreath Wattle (*Acacia saligna*), Rhodes Grass (*Chloris gayana*), and Guinea Grass (*Megathyrsus maximus*).

Appraisal description

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

Rehabilitation monitoring program findings

The monitoring program includes topsoil analysis, land and soil capability assessment, feed sample analysis, landform stability monitoring, post rainfall inspections, spontaneous combustion inspections, walkover inspections and flora and fauna monitoring. Flora monitoring is undertaken at 25 sites including representative rehabilitation sites (located in both pasture and woodland rehabilitation) and reference sites established in remnant woodland vegetation (i.e. not disturbed by mining). BAM vegetation sampling is used, which allows for direct comparison of results to the Bionet Vegetation Information System database. BAM determines scores based on entering data for each site on Compositional, Structural and Functional attributes values into the BAM Calculator. The calculator references the data against the target Plant Community Type (PCT). An Integrity Score is generated which indicates the difference between the sites attribute scores with those of the target PCT. A score of 100 for an Integrity Score indicates that a site has achieved the benchmark conditions determined for the target PCT. Fauna monitoring is undertaken at five reference sites and any woodland rehabilitation sites that have vegetation structure suitable to support fauna. Currently, fauna monitoring is undertaken at rehabilitation site 10d. 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

An annual rapid walkover inspection will be undertaken at each flora monitoring site. For each site, a review of recent aerial photography will be undertaken to determine target areas for the on-ground walkover inspection. The aerial photography review targets vegetation cover, erosion and sediment control and any potential impacts to the rehabilitation. The on-ground assessment targets general health of the vegetation, establishment of target species, weed cover, impacts from pest animals and erosion and sediment control. Landform stability monitoring will be undertaken on areas of mine rehabilitation at least every five years. Monitoring will look to identify any significant areas of active erosion and will include a review of aerial photography and an inspection of rehabilitated areas across the site. Along with regular inspections conducted as part of the general site activities, formal monthly spontaneous combustion inspections are undertaken. A thermal imaging camera is utilised to assist the identification of areas where ground surface temperatures are above background levels. In addition, an annual aerial survey using a fixed wing aircraft fitted with infrared detection is used to identify the presence of hot spots on a site-wide basis.

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 potential 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.

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>A1 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>A2 Underground Mining Area</p>	<p>Underground mining operations areas/subsidence management areas.</p>
<p>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>C 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>D 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>E 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>F 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>G 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>H 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 & land use establishment phase (definitions C and D in Table 5).</p>
<p>I 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 & F in Table 5).</p>

REPORTING CATEGORY		DEFINITION
J	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.
K	% 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.
L	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.
M	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.
N	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
Active	In the context of rehabilitation, land associated with mining domains is considered ‘active’ for the period following disturbance until the commencement of rehabilitation.
Active mining phase of rehabilitation	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.
Analogue site	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.
Annual rehabilitation report and forward program	As described in the Mining Regulation 2016.
Annual reporting period	As defined in the Mining Regulation 2016.
Closure	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).
Decommissioning	The process of removing mining infrastructure and removing contaminants and hazardous materials.
Decommissioning Phase of Rehabilitation	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
Department	The Department of Regional NSW.
Disturbance	See Surface Disturbance.
Disturbance area	<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>
Domain	<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>
Ecosystem and Land Use Development	<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>
Ecosystem and Land Use Establishment	<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>
Exploration	Has the same meaning as that term under the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

WORD	DEFINITION
Final landform and rehabilitation plan	As defined in the Mining Regulation 2016.
Final land use	As defined in the Mining Regulation 2016.
Form and way	Means the form and way approved by the Secretary. Approved form and way documents are available on the Department’s website.
Growth Medium Development	<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>
Habitat	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).
Indicator	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.
Land	As defined in the <i>Mining Act 1992</i> .
Landform Establishment	<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>
Large mine	As defined in the Mining Regulation 2016.
Lease holder	The holder of a mining lease.

WORD	DEFINITION
Life of mine	The timeframe of how long a mine is approved to mine, from commencement to closure.
Mine rehabilitation portal	<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"> ■ upload rehabilitation geographical information system (GIS) spatial data ■ develop rehabilitation GIS spatial data (using online tracing functions) ■ generate rehabilitation plans and rehabilitation statistics using the map viewer and Rehabilitation Key Performance Indicator functionalities. <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>
Mining area	As defined in the <i>Mining Act 1992</i> .
Mining domain	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).
Mining land	As defined in the <i>Mining Act 1992</i> .
Native vegetation	Has the same meaning as that term under section 60B of the <i>Local Land Services Act 2013</i> .
Overburden	Material overlying coal or a mineral deposit.
Performance indicator	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
Phases of rehabilitation	<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"> ■ active mining ■ decommissioning ■ landform Establishment ■ growth medium development ■ ecosystem and land use establishment ■ ecosystem and land use development.
Progressive rehabilitation	<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>
Rehabilitation Completion	<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>
Rehabilitation Completion criteria	<p>As defined in the Mining Regulation 2016.</p>
Rehabilitation cost estimate	<p>As defined in the Mining Regulation 2016.</p>
Rehabilitation management plan	<p>As defined in the Mining Regulation 2016.</p>
Rehabilitation objectives	<p>As defined in the Mining Regulation 2016.</p>
Rehabilitation risk assessment	<p>As defined in the Mining Regulation 2016.</p>
Rehabilitation schedule	<p>The defined timeframes for progressive rehabilitation set out in the forward program.</p>

WORD	DEFINITION
Relevant stakeholders	<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"> ■ the relevant development consent authority ■ the local council ■ the relevant landholder(s) ■ community consultative committee (if required under the development consent) or equivalent consultative group ■ affected land holder(s) ■ government agencies relevant to the final land use ■ affected infrastructure authorities (electricity, telecommunications, water, pipeline, road, rail authorities) ■ local Aboriginal communities, and ■ any other person or body determined by the Minister to be a relevant stakeholder in relation to a mining lease.
Risk	The effect of uncertainty on objectives. It is measured in terms of consequences and likelihood (AS/NZS ISO 31000:2009).
Secretary	The Secretary of the Department.
Security deposit	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).
Surface disturbance	Includes activities that disturb the surface of the mining area, including mining operations, ancillary mining activities and exploration.
Tailings	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 ² .
Waste	Has the same meaning as that term under the <i>Protection of the Environment Operations Act 1997</i> .

² 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
20 Feb 2023	Resources Regulator	Consultation on the preparation of the Maxwell UG Mine Rehabilitation Strategy.	A letter dated 20th February 2023 was provided to Maxwell with feedback on the draft Rehabilitation Strategy. A copy of the feedback can be found in Appendix 3 of the Rehabilitation Strategy.	The draft Rehabilitation Strategy was updated based on the feedback received.
14 Mar 2023	Resources Regulator	Feedback on Rehabilitation Objectives Statement and Final Landform and Rehabilitation Plan.	Feedback on Rehabilitation Objectives Statement and Final Landform and Rehabilitation Plan.	Rehabilitation Objectives Statement were updated and submitted in April 2023. GIS data was updated in the Rehabilitation Portal.
22 Dec 2022	Resources Regulator	Section 240 Notice - NTCE0011420	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.	An Assessment Report to address Direction 1 of the Section 240 Notice was submitted to the Resource Regulators in May 2023. The rehabilitation risk assessment was reviewed and the RMP and Forward Program were updated, and a rehabilitation report was prepared (to address Directions 2, 3, 4 and 5 respectively). Remedial works were undertaken to erosion scours and rock structures.
17 Feb 2023	DPIE Water	Consultation on the preparation of the Maxwell UG Mine Rehabilitation Strategy.	A letter dated 17th February 2023 was provided to Maxwell with feedback on the draft Rehabilitation Strategy. A copy of the feedback can be found in Appendix 3 of the Rehabilitation Strategy.	The draft Rehabilitation Strategy was updated based on the feedback received.
4 Aug 2023	Department of Planning, Housing and Infrastructure	Meeting and site visit.	Update on construction, access road and rehabilitation and land management activities.	No actions identified.

MAXWELL UNDERGROUND COAL MINE ANNUAL REHABILITATION REPORT

ARR0001227 | Friday 3 February 2023 to Friday 2 February 2024

DATE	STAKEHOLDER	CONSULTATION ACTIVITIES AND FORMS	MATTERS SUBJECT TO CONSULTATION	ACTIONS TAKEN
13 Mar 2023	Muswellbrook Shire Council	Consultation on the preparation of the Maxwell UG Mine Rehabilitation Strategy.	A letter dated 13th March 2023 was provided to Maxwell with feedback on the draft Rehabilitation Strategy. A copy of the feedback can be found in Appendix 3 of the Rehabilitation Strategy.	The letter was included in Appendix 3 of the Rehabilitation Strategy and changes will be addressed in subsequent versions.
6 Sep 2023	Department of Planning, Housing and Infrastructure	Meeting and site visit.	Update on construction, access road and rehabilitation and land management activities.	No actions identified.
15 Mar 2023	Maxwell CCC	Quarterly CCC meetings.	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, feral animal management, Section 240 Notice (NTCE0011420) and associated work and updates to relevant management plans. All meeting minutes (and presentations) are available on the Malabar Resources website.	No actions identified.

Attachment 5 – Plans

Maxwell Underground Coal Mine Plan 1A.pdf

Maxwell Underground Coal Mine Plan B.zip

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