



**NSW
Resources
Regulator**

ARR0001348

APPIN COLLIERY ANNUAL REHABILITATION REPORT

Saturday 1 July 2023 to Sunday 30 June 2024

Summary table

DETAIL	
Mine	Appin Colliery
Reference	ARR0001348
Annual report period commencement date	Saturday 1 July 2023
Annual report period end date	Sunday 30 June 2024
Forward program	FWP0001243
Mining leases	ML 1382 (1992), MPL 200 (1973), ML 1847 (1992), CCL 724 (1973), ML 1832 (1992), ML 1698 (1992), CCL 767 (1973), ML 1473 (1992), ML 1574 (1992), ML 1433 (1992), MPL 201 (1973), CL 381 (1973), CL 388 (1973), ML 1678 (1992)
Lease holder(s)	Illawarra Coal Holdings Pty Ltd, Endeavour Coal Pty Ltd
Contact	James Page
Date of submission	Thursday 26 September 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

Appin Mine consists of the merged Appin, Tower, and West Cliff collieries. Appin Mine is owned and operated by Endeavour Coal Pty Ltd, a subsidiary company of Illawarra Coal Holdings Pty Ltd (ICHPL), which was 100% owned by South32 Limited (South32) during the reporting period. Key areas associated with the current operations include Appin North, West and East Pit Tops, Appin East Ventilation Shaft 1/2 and 3 sites, Appin West Ventilation Shaft 6 and Ventilation Shaft 7/8 sites (under construction), Douglas North Substation site, West Cliff Coal Preparation Plant, Coal Wash Emplacement Area and North Cliff Mine site. On 29 February 2024 South32 announced that they had entered into a binding agreement for the sale of ICHPL to Gear M Illawarra Met Coal Pty Ltd, trading as GM3, an entity owned by Golden Energy and Resources Pte Ltd (GEAR) and M Resources Pty Ltd. The transaction was completed on 29 August 2024.

Life of mine

17 years

Current development consents, leases and licences

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

PA08/0150
PA08/0150
PA08/0150
PA08/0150
PA08/0150
PA08/0150
PA08/0150
PA08/0150
PA08/0150
PA08/0150

Authorisations covering the mining area granted under the *Mining Act 1992*

ML 1382 (1992), MPL 200 (1973), ML 1847 (1992), CCL 724 (1973), ML 1832 (1992), ML 1698 (1992), CCL 767 (1973), ML 1473 (1992), ML 1574 (1992), ML 1433 (1992), MPL 201 (1973), CL 381 (1973), CL 388 (1973), ML 1678 (1992)

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

Appin Area 7 Longwalls 707 - 710 SMP Approval
Appin Longwalls 709-711 and 905 Extraction Plan
Environment Protection Licence – 2504
Appin Area 9 Longwalls 901-904 Extraction Plan

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

EPL 2504 was varied during the reporting period. The changes were primarily focused on water related conditions, including the addition of a license discharge point at North Cliff.

Changes to land ownership and land use

No changes to land ownership or land use 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

The redundant Appin East bulk solcenic bund was converted into a chemical bund during the reporting period. No rehabilitation of buildings associated with the sites was undertaken during the reporting period. Progressive rehabilitation of the Coal Wash Emplacement Area (CWEA) has been undertaken during the reporting period in accordance with the approved CWEA Management Plan. During the reporting period there was additional landform establishment of ~1.45 ha. No seeding occurred during FY24 with seeding planned for early spring FY25. Progress of rehabilitation in the CWEA is detailed in the Annual CWEA Monitoring Report as published in the FY24 Annual Review. Monitoring of revegetation at the BioBanking and offset sites was undertaken during the reporting period. Minor earthworks were undertaken at the Appin Mine Ventilation and Access Project (AMVA Project) site for electrical installation, high voltage switchyard installation and service borehole construction. Spoil from the No. 8 and No. 7 shaft pre-sink was re-utilised or stockpiled on site. At the cessation of drilling, exploration site rehabilitation takes place progressively. All FY24 exploration boreholes have been rehabilitated except for two of the 16 reported boreholes. Refer to the FY24 Annual Review on the GM3 website: <https://gm-3.com.au/>

Rehabilitation planning activities that were conducted, including any specialist studies

A Rehabilitation Options and Feasibility Analysis was submitted to WaterNSW and the Resources Regulator in June 2024 for the Bulli No. 1, 2 and 3 shafts. The shafts have been previously sealed to the standard of the day. Discussions will be held with WaterNSW and Resources Regulator in FY25 to confirm rehabilitation requirements. The North Cliff Rehabilitation Execution Plan (NCREP) was finalised in FY24. The NCREP was distributed to external stakeholders, including the Appin Mine Community Consultative Committee, Tharawal Local Aboriginal Land Council (TLALC) and regulatory agencies for review. Site inspections were held with the regulatory agencies and TLALC, and feedback from the site inspections and on the NCREP was incorporated into the documents and planning process. An application for sealing the shafts was prepared in FY24. The application will be submitted to the Resources Regulator in FY25 for approval. Discussions have also occurred with the NPWS regarding the removal of redundant powerlines between North Cliff and Appin North in the Dharawal National Park. A REF was submitted in FY24. Approval has not yet been received. A review of the CWEA Stage 3 design was undertaken. A decision was made by the company to avoid direct impacts to Aboriginal sites within the approved footprint. Potential long term stability issues were also addressed. The revised design was incorporated in the CWEA MP that is with relevant government agencies for review and approval.

Overview of subsidence repair and/or remediation works undertaken

The rehabilitation program commenced on a section of the Georges River in the reporting period. This followed the finalisation of land access agreements and onboarding a contractor to be able to undertake the works. The rehabilitation involves drilling a series of boreholes in a line across the river's rockbar, then injecting the holes with polyurethane resin (PUR). Once injected, the resin expands to fill subsidence fractures in the rock. Filling these fractures creates a grout 'curtain' which essentially acts as a dam beneath the surface, where diverted flow backs up and ultimately returns water to the surface, filling pools and returning flow across rockbars. Initial rehabilitation activities are complete at Pool 54, Rockbar 54 and Rockbar 56 and nearing completion at Rockbar 40 to reinstate pre-mining water levels to this section of river. Rehabilitation activities will continue in FY25. Rehabilitation success is still to be determined.

Overview of rehabilitation management and maintenance activities

Construction activities continued at the AMVA Project site in FY24. Erosion and sediment control measures implemented at the site during these construction activities included the establishment and use of clean water diversion drains, catch drains for dirty water, hydromulching of batters and exposed areas and use of a sediment pond. Temporary controls included sediment fences, coir logs and geofabrics. The potential for erosion at the CWEA is managed in accordance with the CWEA Management Plan. The following activities are undertaken to minimise the likelihood of erosion within the CWEA: compaction of emplaced material, profiling of finished areas to designed gradients, placement of boulders and logs; and revegetation of the CWEA (once material is emplaced to meet design criteria). Sediment is controlled by a series of sediment ponds at Appin North. Approximately 1.45 ha of landform establishment and topsoiling in preparation for seeding was completed at the CWEA. Weed control was undertaken at Appin East, Appin West and Appin North Pit top sites. Spot spraying and hand pulling of weeds occurred at the North Cliff site over FY24. Targeted weed control occurred within the CWEA including slashing of perennial grasses and weed spraying. Further details can be found within the FY24 Annual Review, located on the GM3 website: <https://gm-3.com.au/>

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

On 29 May 2024, the Resources Regulator conducted a Targeted Assessment Program (TAP) on Revegetation at the Appin Colliery. One of the primary aims of the TAP is to assist industry with continual improvement in rehabilitation outcomes. While it was noted that rehabilitation on the CWEA was to a high standard, a range of recommendations were identified to improve the RMP, including but not limited to a review of the rehabilitation risk assessment. The

recommendations will be progressed in FY25. The NSW Resources Regulator and WaterNSW conducted an inspection of the Bulli No.2 and No.3 Shaft sites on 29 June 2022 and the Bulli No.1 Shaft site on 9 March 2023. A Rehabilitation Options and Feasibility Analysis was submitted to WaterNSW and the Resources Regulator in June 2024 for the Bulli No. 1, 2 and 3 shafts.

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

No rehabilitation areas achieved final land use during the annual reporting period. An ESF2 Form was submitted to the Resources Regulator on 15 May 2024 for Stage 1 and 2 of the CWEA. Feedback has not yet been received.

Key production milestones

MATERIAL	UNIT	FWP0001243 YEAR 1	THIS REPORT
Stripped topsoil <small>(if applicable)</small>	(m ³)	21,000	8,647
Rock/overburden	(m ³)	0	0
Ore	(Mt)	3.89	3.7
Reject material¹	(Mt)	0.63	0.66
Product	(Mt)	3.26	3.1

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)	293.31
B Total active disturbance	(ha)	212.02
C Land prepared for rehabilitation	(ha)	11.97
D Ecosystem and land use establishment	(ha)	3.19
E Ecosystem and land use development	(ha)	54.33
F Rehabilitation completion	(ha)	11.79

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)	66.12
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	%	22.54

Progressive achievement of established rehabilitation

ELEMENT	UNIT	THIS REPORT
L Established rehabilitation - agricultural final land uses	%	1.67
M Established rehabilitation - native ecosystem final land uses	%	96.5
N Established rehabilitation - other/non-vegetated final land uses	%	0.01

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 2024 CWEA Annual Report concluded that rehabilitation areas were within or above the local benchmarks for majority of the Stage 2 and 3 biometric attributes. Stage 2 and 3 are continuing to trend towards benchmark values whereas, Stage 1 continues to stay below benchmark in native plant species richness. Weed incursion remains the key threat to the rehabilitation of the CWEA. Two threatened plant species, *Pultenaea aristata* and *Persoonia hirsuta*, were detected in 2016, 2017 and 2018 within the CWEA and both species were detected in the FY24 monitoring. In previous years, six additional *P. hirsuta* and four *A. bynoeana* were found just outside the CWEA of Stage 4. The *Persoonia hirsuta* individuals are considered a significant observation, contributing to the understanding of the species' capacity for regeneration within the rehabilitation areas and will continue to be considered during future monitoring. The habitat features within the rehabilitation are being occupied by native mammals, key pollinators, reptiles and birds. As the rehabilitation matures, it is expected that native fauna abundance will increase further.

Status of performance against rehabilitation objectives and rehabilitation completion criteria

The monitoring program that has been implemented

Rehabilitation monitoring is undertaken in accordance with the Rehabilitation Management Plan (RMP) and the approved Rehabilitation Objectives. Rehabilitation progression within the CWEA is monitored in accordance with the CWEAMP. The RMP and CWEAMP can be found on the GM3 Website: <https://gm-3.com.au/> Rehabilitation completion criteria have not yet been submitted to the Resources Regulator pending specific feedback from the Resources Regulator on the ESF2 Form submitted for Stages 1 and 2 of the CWEA and general feedback to industry. Georges River Rehabilitation Program (GRRP): GRRP activities commenced in FY24 with the first area completed and post-rehabilitation monitoring commenced. The monitoring compares logged water level data at various sites, before after rehabilitation, as well as control sites. This approach assesses the water holding-capacity of pools following rehabilitation activities in order to determine the success of the program. Monitoring will continue for at least 12 months to capture a range of rainfall and catchment inflow conditions. This approach will be applied at all monitoring sites where stream features allow equipment to be installed. Other monitoring used where stream features permit includes spot flow gaugings and time lapse cameras to compare surface flow before and after rehabilitation.

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.

Rehabilitation is managed and progressing in accordance with the approved Rehabilitation Management Plan. Rehabilitation within the CWEA is progressing as per the CWEAMP. Rehabilitation along the Georges River is progressing as per the GRRP. Due to the anticipated long life of the mine, and the requirement of most surface facilities for operational function, detailed rehabilitation and monitoring programs for surface facilities will be developed closer to the time of closure. Rehabilitation plans will be formed to align with the proposed final landform and land-use. Rehabilitation completion criteria have not yet been submitted to the Resources Regulator pending specific feedback from the Resources Regulator on the ESF2 Form submitted for Stages 1 and 2 of the CWEA and general feedback to industry.

Appraisal description

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

Rehabilitation monitoring program findings

Monitoring of the CWEA was conducted in accordance with the CWEAMP available on the GM3 website. Additionally, remote sensing was incorporated further into the CWEA rehabilitation monitoring over FY24, with quarterly photo points being set up as automated waypoints within a drone to enable consistent and replicable imagery capture. Additional monitoring was included in FY24 to assess the use of recently installed nest boxes, Broad-Headed snake habitat and Bee hotels. Vegetation monitoring in the reporting period also included both BioBanking and the Biodiversity Assessment Method (BAM) vegetation monitoring methodologies with the intention of switching to the BAM methodology for future monitoring. During FY24, rehabilitation activities were completed at Georges River Pool 54 to 57 rehabilitation area. Post-rehabilitation monitoring is currently ongoing at the site. At the end of FY24 rehabilitation activities were ongoing at GR_Rockbar 40. Details of the rehabilitation program available on the GM3 website: <https://gm-3.com.au/> Monitoring of revegetation and invasive flora management at Biobanking sites BA 215, BA 382 and BA 345 occurred in FY24 in accordance with the appropriate biobanking Agreements. Particularly, monitoring of tube stock survival at Nepean (BA 382) and Appin West (BA 215) Biobanking

sites were recorded, as well as the vegetation success of rehabilitation at the illegal asbestos dumping area on the cataract (BA 345) Biobanking site. Outcomes of these monitoring events can be found within the Appendices of the Annual Review. Further details can be found within the FY24 Annual Review, located on the GM3 website: <https://gm-3.com.au/> ICHPL's targeted research on *P. hirsuta* has been outlined in the *P. hirsuta* Research Report, which was submitted to the Department of Agriculture, Water and the Environment in June 2021. ICHPL continued to monitor the success of *P. hirsuta* translocations with ongoing advice from Mount Annan Botanic Gardens during the reporting period. ICHPL are in discussions with Mount Annan Botanic Gardens to maintain ongoing *P. hirsuta* stocks in the nursery for supplemental planting in the future. A copy of the research report is available on the GM3 website: <https://gm-3.com.au/>

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

Nil

Outcomes of rehabilitation research and trials

RRT NUMBER	PROJECT/TRIAL NAME	OBJECTIVE OF TRIAL/PROJECT	METHODOLOGY	EXPECTED DATE OF COMPLETION	STATUS	ON TRACK?
RRT0001008	Population supplementation of the endangered <i>Persoonia hirsuta</i> to mine rehabilitation.	The overall objective of the program is to increase the population of <i>Persoonia hirsuta</i> plants within mine rehabilitation.	Propagative material was collected from source plants over three years (2017-2019) from a several wild populations throughout the natural plant distribution. <i>P. hirsuta</i> plant stock is grown within the nursery at the Australian Botanic Gardens Mt Annan (ABGMA). Plants are transported by vehicle from ABGMA to the recipient sites on the finalised planting dates. Translocations have been carried out over a number of staged plantings (2019, 2021 and 2022). Monitor the plants health overtime.	30 Jun 2025	Ongoing	Yes
RRT0001009	Impact of Fire on Rehabilitation	The overall objective is to test the resilience of the rehabilitation at the Coal Wash Emplacement Area (CWEA) and demonstrate that the rehabilitation can withstand a bushfire.	Complete a literature review. Fire Trial Design. Seek approval to carry out the burn. Subject to approval under the Rural Fires Act, carry out a test burn. Carry out post-burn monitoring of the rehabilitation.	30 Jun 2025	Complete	Yes

Outcomes of completed trials and research

The research has provided confidence that the current rehabilitation processes implemented on the CWEA will be effective in managing the risk of coal wash combustion from spontaneous combustion or bushfire events. The outcomes will be reflected in success criteria yet to be developed.

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
<p>J Annual rehabilitation to disturbance ratio</p>	<p>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.</p>
<p>K % Rehabilitated land to total mine footprint</p>	<p>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.</p>
<p>L Established rehabilitation for agricultural final land uses (hectares)</p>	<p>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.</p>
<p>M Established rehabilitation for native ecosystem final land uses (hectares)</p>	<p>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.</p>
<p>N Established rehabilitation for other/non-vegetated final land uses (hectares)</p>	<p>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.</p>

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	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"> ■ active mining ■ decommissioning ■ landform Establishment ■ growth medium development ■ ecosystem and land use establishment ■ ecosystem and land use development.
Progressive rehabilitation	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.
Rehabilitation Completion	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.
Rehabilitation Completion criteria	As defined in the Mining Regulation 2016.
Rehabilitation cost estimate	As defined in the Mining Regulation 2016.
Rehabilitation management plan	As defined in the Mining Regulation 2016.
Rehabilitation objectives	As defined in the Mining Regulation 2016.
Rehabilitation risk assessment	As defined in the Mining Regulation 2016.
Rehabilitation schedule	The defined timeframes for progressive rehabilitation set out in the forward program.

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)
29 Jul 2024	Resources Regulator	A complaint was received by regulatory agencies from the Environmental Defenders Office (EDO) regarding the status of rehabilitation at the North Cliff site.	A site visit with the relevant regulatory agencies occurred in response to the complaint.	Finalised	

Attachment 4 – Stakeholder consultation

DATE	STAKEHOLDER	CONSULTATION ACTIVITIES AND FORMS	MATTERS SUBJECT TO CONSULTATION	ACTIONS TAKEN
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Attachment 5 – Plans

Plan 1A.zip

Plan 1B.zip

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