

ANNUAL REHABILITATION REPORT & FORWARD PROGRAM

Clarence Colliery

Prepared for:
CENTENNIAL CLARENCE
Clarence NSW 2790

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SLR 

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BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Centennial Clarence (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.


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DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
630.30520.00500-R01-v0.1	10 March 2023	Drew Williams	Alanna Ryan	Stephen Shoesmith

CENTENNIAL INTERNAL REVIEW AND APPROVAL

Date	Approved By	Position	Signature
31 st March 2023	Russell Hart	Group Manager Projects and Rehabilitation	

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- Appendix B: Rehabilitation Cost Estimate

SUMMARY TABLE		
Name of mine	Clarence Colliery	
Name of operator	Clarence Colliery Pty Ltd	
Development consent / Project approval #	DA 504-00 (MOD 9) IRM.GE.76 (MOD 2) 174/93	
Reporting period	1 January 2022 – 31 December 2022	
Report revisions	March 2023	Revision March 2023
Forward program commencement date	1 January 2023	
Forward program revisions	March 2023	Revision March 2023
Mining Authorisations	Lease/Licence No	Expiry
	ML 1353	21 July 2036
	ML 1354	21 July 2036
	ML 1583	9 July 2027
	ML 1721	7 December 2036
	CCL 705	20 December 2026
	AUTH 307	24 August 2019
	AUTH 416	24 August 2025
	AUTH 451	24 August 2019
Lease holder	Varied - Coalex Pty Ltd, Clarence Coal Investments Pty Limited	
Date of submission	30 March 2023	

1 Part 1 – Annual Rehabilitation Report

This Annual Rehabilitation Report (ARP) relates to operations at the Clarence Colliery (Clarence). The ARP details the rehabilitation activities for the previous reporting period for Clarence and provides a summary of planned rehabilitation activities over the next three years. The ARP was prepared in accordance with the Mining Exploration and Geoscience – Resources Regulator’s (RR) *Form and Way: Annual Rehabilitation Report and Forward Program for Large Mines* (RR, 2021).

This report was submitted using the online form at <https://nswresourcesregulator.service-now.com/regulator>.

Requirements of the *Form and Way: Annual Rehabilitation Report and Forward Program for Large Mines* (RR, 2021) are listed in **Table 1** with reference to where sections have been addressed within this ARP.

Table 1 Requirements of the Annual Rehabilitation Report and Forward Program for Large Mines

Annual Rehabilitation Report and Forward Program – Compliance with Form and Way	
Requirement	Section Addressed
Part 1 – Annual Rehabilitation Report	1
Complaints register	1.1
Current development consents, leases and licences	1.2
Land ownership and land use	1.3
Stakeholder consultation	1.4
Surface disturbance and rehabilitation activities during the annual reporting period	1.5
Plan 1 – Status of mining and rehabilitation at completion of annual reporting period	1.6
Submission of Plan 1 spatial data to mine rehabilitation	1.6.1
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Disturbance and rehabilitation statistics	1.7
Current disturbance and rehabilitation progression	1.7.1
Rehabilitation key performance indicators (KPIs)	1.7.2
Progressive achievement of established rehabilitation	1.7.3
Variation to the rehabilitation schedule	1.7.4
Rehabilitation monitoring and research findings	1.8
Rehabilitation monitoring	1.8.1
Status of performance against rehabilitation objectives and rehabilitation completion criteria	1.8.2
Outcomes of rehabilitation research and trials	1.8.3
Part 2 – Forward program	2
Three-year forecast – surface disturbance activities	2.1
Project description	2.1.1
Description of surface disturbance activities	2.1.2
Three-year rehabilitation forecast	2.2
Rehabilitation planning schedule	2.2.1

Annual Rehabilitation Report and Forward Program – Compliance with Form and Way	
Rehabilitation research and trials	2.2.2
Rehabilitation maintenance and corrective actions	2.2.3
Rehabilitation schedule	2.2.4
Subsidence remediation for underground operations	2.2.5
Plan 2 – Mining and rehabilitation three-year forecast	2.3
Submission of Plan 2 spatial data to the mine rehabilitation portal	2.3.1
Submission of Plan 2 electronic copy (PDF)	2.3.2
Progressive mining and rehabilitation statistics	2.4
Three-yearly forecast cumulative disturbance and rehabilitation progression	2.4.1
Rehabilitation key performance indicators (KPIs)	2.4.2

1.1 Complaints Register

No complaints relating to rehabilitation practices were received during the reporting period, refer to **Table 2**.

Table 2 Complaints Register

Rehabilitation Complaints			
Description	Date & Time Received	Response / Resolution (If Applicable)	Date & Time Resolved (If Applicable)
-	-	-	-

1.2 Current Development Consents, Leases and Licences

The relevant consents, leases and licenses associated with the site are provided in **Table 3**.

Table 3 Relevant Development Consents, Leases and Licences

Consent/Lease/Licence	Licence Number	Date of Issue	Expiry	Relevant Authority
Development Consent	DA 504-00 (MOD 9)	October 2021	31 December 2026*	Department of Planning and Environment (DPE)
	IRM.GE.76 (MOD 2)	6 May 2019	Perpetuity	Lithgow City Council (LCC)
	174/93	8 February 2018	Perpetuity	LCC
Mining Lease (ML)	ML 1353	21 July 2015	21 July 2036	Mining, Exploration and Geoscience within the Department of Regional NSW (MEG)
	ML 1354	21 July 2015	21 July 2036	MEG

Consent/Lease/Licence	Licence Number	Date of Issue	Expiry	Relevant Authority
	ML 1583	9 July 2006	9 July 2027	MEG
	ML 1721	7 December 2015	7 December 2036	MEG
Consolidated Coal Lease (CCL)	CCL 705	20 December 2005	20 December 2026	MEG
Exploration Authorisations	AUTH 307	21 May 2015	24 August 2019	MEG
	AUTH 416	21 May 2015	24 August 2025	MEG
	AUTH 451	27 March 2015	24 August 2019	MEG
Environmental Protection Licence (EPL)	EPL 726	28 November 2018	-	Environmental Protection Authority (EPA)
Water Access Licence (WAL)	WAL36479	23 October 2014	Perpetuity	Department of Primary Industry Water (DPI Water)
	10AL122285	1 July 2018	Perpetuity	DPI Water
	WAL41882	11 May 2018	Perpetuity	DPI Water
	10WA10715	1 July 2011	18 May 2026	DPI Water
	10WA118758	1 July 2013	11 December 2027	DPI Water
	10WA118714	1 Aug 2013	30 June 2024	DPI Water
	10WA103852	1 July 2011	29 September 2027	DPI Water
	10UA103853	1 July 2011	29 September 2027	DPI Water
	10SA001409	1 July 2011	29 September 2017*	DPI Water
	10BL156676	12 May 1995	Perpetuity	DPI Water
	10BL161964	13 August 2003	Perpetuity	DPI Water
	10BL161965	13 August 2003	Perpetuity	DPI Water
	10BL161962	13 August 2003	Perpetuity	DPI Water
	10BL161963	13 August 2003	Perpetuity	DPI Water
	10BL602211	10 December 2007	Perpetuity	DPI Water
	10BL602212	10 December 2007	Perpetuity	DPI Water
	10BL602213	10 December 2007	Perpetuity	DPI Water
	10BL602819	9 March 2009	Perpetuity	DPI Water
	10BL602820	9 March 2009	Perpetuity	DPI Water
	10BL603337	7 September 2009	Perpetuity	DPI Water
	10BL604063	7 June 2010	Perpetuity	DPI Water
	10BL604098	5 July 2010	Perpetuity	DPI Water
	10BL604099	5 July 2010	Perpetuity	DPI Water
10BL605316	30 January 2013	Perpetuity	DPI Water	
10BL605494	12 December 2013	Perpetuity	DPI Water	

Consent/Lease/Licence	Licence Number	Date of Issue	Expiry	Relevant Authority
Dangerous Goods Licence	NDG020999	12 December 2013	Perpetuity	WorkCover Authority NSW
Radiation Management Licence	RML 5078394	8 February 2017	8 February 2022	EPA

*Centennial will renew the consent to ensure the expiry aligns with planned rehabilitation activities until 2030.

1.2.1 Changes to Approvals during the Reporting Period

There was a modification to DA504-00 (MOD9) during the reporting period for a temporary increase in trucking coal to Mount Piper Power Station from the Clarence Colliery until 31 December 2023. This modification was determined on 17 November 2022.

1.3 Land Ownership and Land Use

Project Description

Clarence Colliery (Clarence) is an underground coal mining operation located within the New South Wales (NSW) Western Coalfields, approximately 10 kilometres east of Lithgow. Coal is extracted from the Katoomba Seam using the bord and pillar partial extraction method, supplying coal to both domestic and export markets.

The Centennial Coal Company Limited is a wholly owned subsidiary of Banpu Public Company Limited. Centennial Coal Company Limited owns Clarence Colliery Pty Ltd, which has been appointed as the management entity for the Clarence Joint Venture. Centennial Coal Company Limited has an 85% share in the Clarence Joint Venture, comprised wholly owned subsidiaries being Coalex Pty Ltd (51% share), Clarence Coal Investments Pty Ltd (29% share), SK Networks Resources Australia Pty Ltd (15% share) and Centennial Clarence Pty Ltd (5% share).

Clarence is approved under DA 504-00 to extract up to 3 million tonnes per annum (Mpta) of run of mine (ROM) coal until 31 December 2026.

Land Ownership

The Clarence Colliery holding lies within the Parishes of Clwydd, Cook and Rock Hill within the County of Cook. The area is encompassed by the Lithgow City Council Local Government Area (LGA). The majority of land within the Clarence Colliery holding is associated with the former Newnes State Forest, which was owned and managed by the Forestry Corporation of NSW. The former Newnes State Forest has now been designated as the Gardens of Stone State Conservation Area. The Pit Top and adjacent land is located on Crown Land, with the exception of some Centennial owned land and private freehold (including the Hanson Quarry to the north-west). Land adjacent to the Clarence Colliery holding includes: the Blue Mountains National Park to the east of the Pit Top, the Gardens of Stone State Conservation Area to the north and west of the holding.

Historic Land Use

Historic land uses in the vicinity of the Clarence Colliery holding include residential uses, underground coal mining, transport infrastructure, sand quarrying, conservation and commercial forestry.

The former Newnes State Forest comprised approximately 25,000 ha of pine plantation and native hardwood forest that was selectively logged under the FCNSW tenure and management. In addition to the timber industry, the Newnes State Forest supported a number of recreational land uses. Public access was permitted in the

former Newnes State Forest with common recreation activities consisting of motorcycle riding, four wheel driving, bushwalking, camping, mountain bike riding, canyoning, photography, bird watching and other recreational and adventure activities.

Lithgow is the closest retail and commercial centre, located approximately 10 km west of the Pit Top.

Current Land Use

Land use within the Clarence Colliery holding predominantly consists of historical and existing mining operations, sand quarrying, residential and Gardens of Stone State Conservation Area which will be used to protect heritage values, ecology and to promote eco-tourism.

Surrounding land uses include former coal mines including the Blue Mountains Colliery to the south-west of the Pit Top, an approved but yet to commence sand quarry to the east of the Pit Top (the Kaolin Sands project) and conservation to the east (in the Blue Mountains National Park).

1.3.1 Changes to Land Ownership and Land Use during Reporting Period

There have been changes to landownership during the reporting period. Land ownership changes are associated with the transfer of Newnes State Forest, Wolgan State Forest and parts of Ben Bullen State Forest, near Lithgow into the Gardens of Stone Reserves managed by the National Parks and Wildlife Service (NPWS).

1.4 Stakeholder Consultation

Stakeholder consultation regarding rehabilitation activities at the site are detailed in **Table 4**.

Table 4 Stakeholder Consultation

Stakeholder	Date/s	Form of Consultation	Issues or Matters Raised - Rehabilitation	Actions
Community Consultative Committee	15 February 2022	CCC meeting	No rehabilitation matters raised.	N/A
	20 September 2022	CCC meeting	Reject Emplacement Area (REA) 4 rehabilitation progress update.	N/A
DPE and Various Stakeholders	31 March 2022	Submission	The 2022 Annual Review provided a description of rehabilitation activities undertaken in 2021	N/A

1.5 Surface Disturbance and Rehabilitation Activities during the Annual Reporting Period

Surface disturbance and rehabilitation activities undertaken during the reporting period are described below.

1.5.1 Mining Operations

Underground mining operations continued at the site during the reporting period, consistent with activities approved by DA 504-00 (MOD9).

Material Production Schedule

Mining operations during the reporting period included:

- Development of the 804, 805 and 915 panels;
- Extraction of the 821 and 822 panels; and
- Development and Extraction of the 906 and 915 panels.

Coal processed at Clarence was transported via rail and private haul road to domestic and export customers.

Material Production Schedule

The material production schedule for the reporting period is provided in **Table 5**.

Table 5 Material Production during the Previous Annual Reporting Period

Material	Unit	Quantity
Stripped topsoil	T	N/A
Rock/overburden	MT	N/A
Ore or ROM coal extracted	MT	1.58
Reject material ¹	MT	0.22
Product	MT	1.36

1.5.2 Project Surface Disturbance

Surface Extraction Areas

There were no surface extraction areas in operation at the site during the reporting period.

Construction

There were no construction activities at the site during the reporting period.

Reject Placement Areas

During the reporting period, coarse coal reject was placed in REA 3, REA 5 and REA 6.

Rehabilitation Planning Activities

There were no rehabilitation planning activities were completed during the reporting period.

Subsidence Repair and Remediation

There were no subsidence repair and remediation activities at the site during the reporting period.

Exploration

There were exploration activities undertaken at the site during the reporting period. These works included two exploration boreholes completed on the Newnes Plateau.

Rehabilitation Management and Maintenance Activities

Rehabilitation management and maintenance activities undertaken during the reporting period include:

- Ongoing monitoring, site inspections identifying weeds, erosion and sediment control, pest species; and
- Weed control was undertaken.

Regulatory Requirements from Letters, Notices or Directions

No regulatory Letter, Notice or Direction associated with rehabilitation was received at the site during the reporting period. The site provided final actions progress update to resources regulator in September 2022 in relation to LETT0006578 (relating to Section 240 notice NTCE0005421) issued by the Resources Regulator in Oct 2021. Regulatory requirements from letters, notices or directions are provided **Table 6**.

Table 6 Regulatory Requirements from Letters, Notices or Directions

Requirement	Actions Completed	Status
LETT0006578, 5 Oct 2021 Headings of requirements listed below:	Letter to Mr Greg Kininmonth issued on 5th September 2022 "RE: ASMT0018662/LETT0006578" Key summary from letter listed below:	Complete
Updates to the Reject Emplacement Management Strategy	Further studies and works related to REA rehabilitation have been detailed within this RMP. The program of rehabilitation activities including three yearly forecasts has been included in Section 1.8.	Complete
REA3 AMD Study	Recommendation from the report titled "Clarence REA 3 Rehab (AMD) Acid Mine Drainage Study" are consistent with existing REA 3 Rehabilitation design. Long-term site water management plans such as the Clarence Pipeline Project are being developed to enable post closure water treatment/management by Lithgow City Council. Practicability of downstream passive water management measures including oxic or anoxic wetlands is being investigated.	Ongoing
REA 4 Capping rehabilitation trials	Rehabilitation risk assessment has been completed to assess risks associated with deep rooted vegetation including capping stability, fire/SponCom. Erosion monitoring program of the rehabilitation trial has been reviewed.	Ongoing
Use of Landform Evolution Models for Final Landform Design of REA3	Erosion Modelling based on RUSLE method has been adopted to quantify the risk of erosion for the final landform design of REA 3. It is expected that additional Landform Evolution Modelling (LEM) such as SIBERIA and CEASAR-Lisflood would not provide added value to the assessment.	Complete

Final Land Use

There were no applications made for rehabilitation completion (achievement of final land use) during the reporting period.

1.6 Plan 1 – Status of Mining and Rehabilitation at Completion of Annual Reporting Period

1.6.1 Submission

Prior to the submission of *Plan 1 – Status of mining and rehabilitation at completion of annual reporting period*, spatial data was submitted to mine rehabilitation portal. The spatial data provided includes Rehabilitation, Disturbance, Consent Boundary and Current Landform Contours. The spatial data thematic applied in Plan 1 is provided in **Appendix A**.

The current status of mining rehabilitation is shown on **Figure 1** and the current landform contours is provided in **Figure 2**.

1.6.2 Submission of Plan 1 Electronic Copy

Figure 1 Current Status of Mining Rehabilitation














Inset A
Scale: 1:20,000

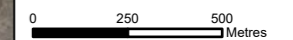
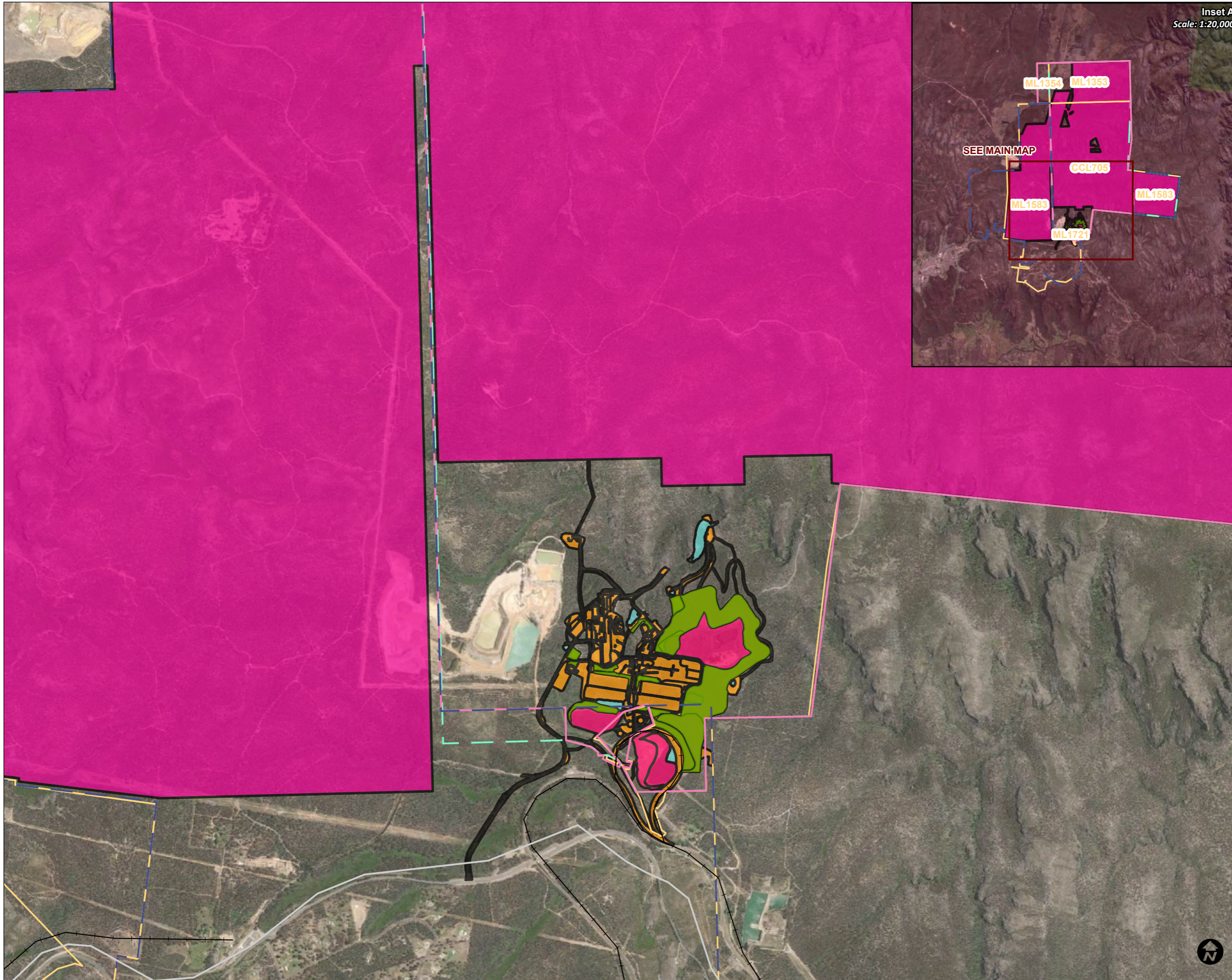
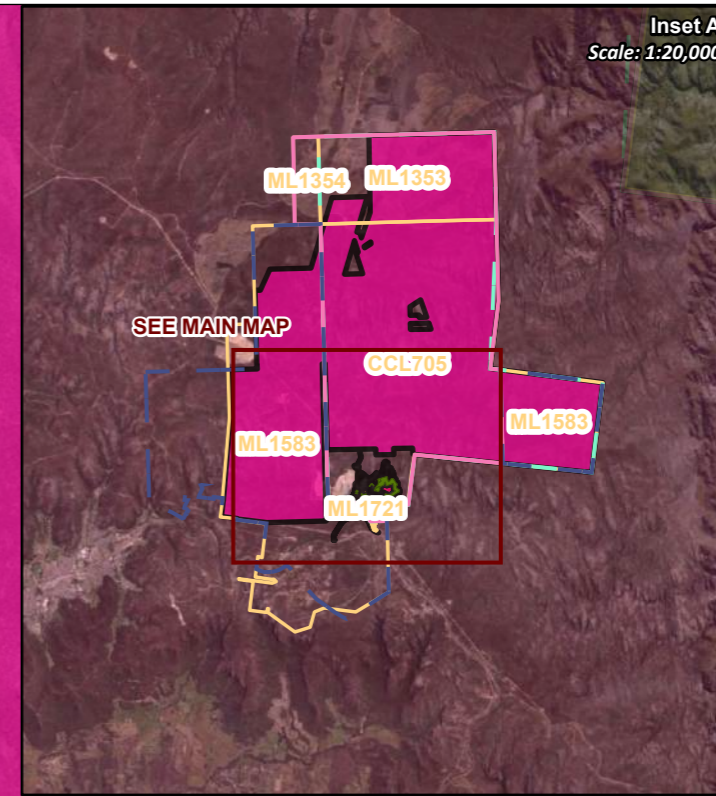
CENTENNIAL REHABILITATION MANAGEMENT PLAN

CLARENCE

DISTURBANCE AND REHABILITATION DECEMBER 2022

LEGEND

-  Railway
-  Major Road
-  Mining Lease
- Project Approval Number**
-  IRM GE 76
-  DA174-93
-  DA504-00
- Mining Domain Type**
-  Infrastructure Area
-  Tailings Storage Facility
-  Underground Mining Area (SMP)
-  Water Management Area
- Rehabilitation Phase**
-  Ecosystem and Land Use Development



Coordinate System: GDA2020 MGA Zone 56
 Scale: 1:20,000 at A3
 Project Number: N/A
 Date: 28/03/2023
 Drawn by: N.Lloyd

Submission ID's:
 2390 - Rehabilitation
 2381 - Disturbance
 2384 - Project Approval Boundary



Figure 2 Current Landform Contours

**CENTENNIAL REHABILITATION
MANAGEMENT PLAN**

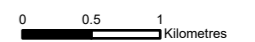
CLARENCE

**CURRENT LAND USE AND
LANDFORM CONTOURS**

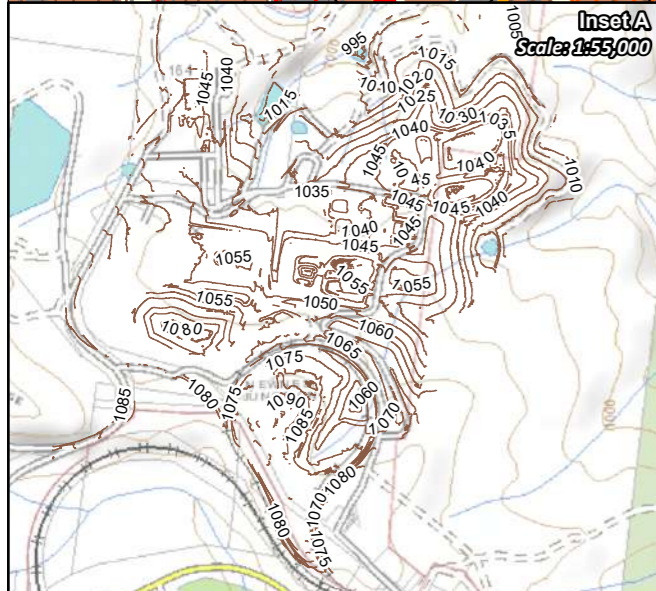
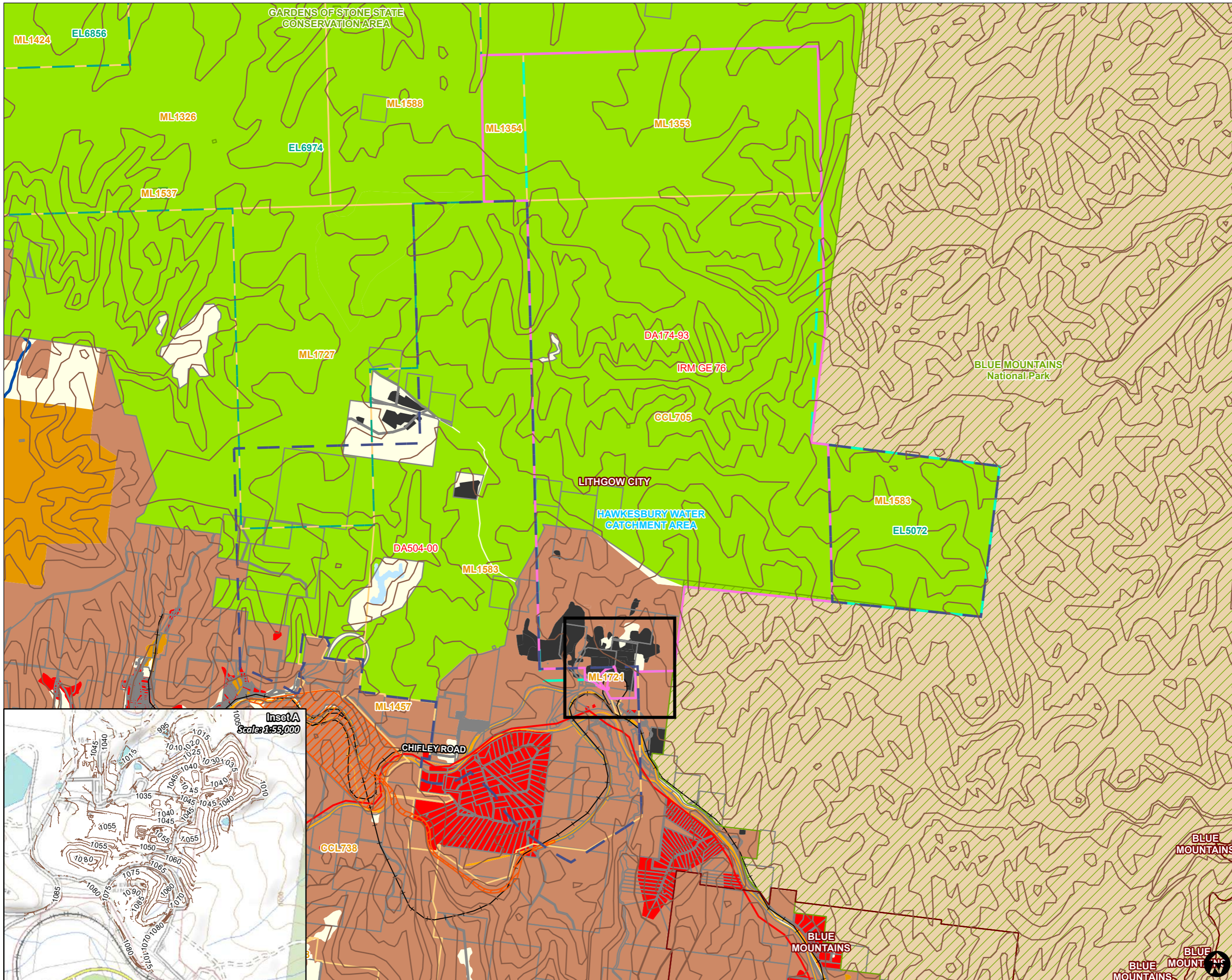
LEGEND

- Contours (50m)
- Railway
- Major Road
- Project Approval Number**
- IRM GE 76
- DA174-93
- DA504-00
- Exploration Licence
- Mining Lease
- Local Government Area
- State Heritage Register Curtilage
- NPWS Reserve
- Property Boundaries
- Land Use**
- 1.1.0 Nature conservation
- 1.3.0 Other minimal use
- 2.1.0 Grazing native vegetation
- 2.2.0 Production native forestry
- 3.1.0 Plantation forests
- 5.1.0 Intensive horticulture
- 5.3.0 Manufacturing and industrial
- 5.4.0 Residential and farm infrastructure
- 5.5.0 Services
- 5.7.0 Transport and communication
- 5.8.0 Mining
- 5.9.0 Waste treatment and disposal
- 6.1.0 Lake
- 6.2.0 Reservoir/dam
- 6.3.0 River

Data Sources:
 NSW Spatial Information Exchange
 DoR NSW Exploration and Mining Leases
 ESRI Basemap world imagery 2022
 NSW LPI Land Status Cadastre & Ownership
 NSW DPE Landuse 2017



Coordinate System:	GDA2020 MGA Zone 56
Scale:	1:55,000 at A3
Project Number:	N/A
Date:	28/03/2023
Drawn by:	N.Lloyd
Annual Reporting Period:	2022
Submission ID's:	4354 - Current Landform Contours 2384 - Project Approval Boundary



T:\MineRehab\Clarence\Figures\GIS Base Figures\Clarence - Current Land Use and Landform Contours December 2022.aprx

1.7 Disturbance and Rehabilitation Progression

1.7.1 Current Disturbance and Rehabilitation Progression

A summary of the current disturbance and rehabilitation status at the end of the annual reporting period is provided in **Table 7**. The reporting categories for the current disturbance and rehabilitation status is provided in **Table 8**.

Table 7 Status of Disturbance and Rehabilitation at End of Reporting Period

Annual reporting period	1 January 2022 to 31 December 2022
Total disturbance footprint – surface Disturbance (hectares) (A1)*	101.72
Underground mining area (hectares) (A2)*	5741.79
Total active disturbance (hectares) (B)*	76.76
Rehabilitation – land preparation (hectares) (C)*	0
Ecosystem and land use establishment (hectares) (D)*	0
Ecosystem and land use development (hectares) (E)*	24.96
Rehabilitation completion (hectares) (F)*	0

*Note: Definitions for each disturbance and rehabilitation reporting category are provided in **Table 8**.

Table 8 Disturbance and Rehabilitation Reporting Categories (A1 – F)

No.	Category	Description
A1	Total disturbance footprint – surface disturbance	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. 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). Underground mining operations should not include the footprint of underground mining areas/subsidence management areas in the total disturbance footprint.
A2	Underground mining area	Underground mining operations areas/subsidence management areas.
B	Total active disturbance	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).
C	Rehabilitation – land preparation	Includes the sum of all disturbed land within a mining lease that has commenced any, or all, of the following phases of rehabilitation –

No.	Category	Description
		decommissioning, landform establishment and growth medium development. Refer to the glossary for the definition of these phases of rehabilitation.
D	Ecosystem and land use establishment	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. 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.
E	Ecosystem and land use development	Rehabilitation has matured to a level where target revegetation outcomes are on a trajectory towards meeting the approved rehabilitation objectives and rehabilitation completion criteria (as verified by monitoring). This phase includes infrastructure areas that are to be retained for an approved final land use, following completion of all necessary measures to render the infrastructure fit for this purpose (for example structural integrity).
F	Rehabilitation completion	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 the relevant application by the lease holder.

1.7.2 Rehabilitation Key Performance Indicators (KPIs)

The rehabilitation key performance indicators (KPIs) at the end of the reporting period are provided in **Table 9**. An explanation of the KPIs is provided in

Table 10.

Table 9 Rehabilitation Key Performance Indicators (KPIs) at End of Annual Reporting Period

Annual Reporting Period	1 January 2022 to 31 December 2022
New active disturbance area (hectares) (G)*	0
New rehabilitation commenced during annual reporting period (hectares) (H)*	0
Established rehabilitation (hectares) (I)*	0
Annual rehabilitation to disturbance ratio (J)*	24.96
% rehabilitated land to total mine footprint (K)*	24.54

Table 10 Disturbance and Rehabilitation Reporting Categories (G – N)

No.	Category	Description
G	New active disturbance area	The area of any new active disturbance that has been created during the annual reporting period (definition A1 in Table 8).
H	New rehabilitation commenced during annual reporting period	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 and land use establishment phase (definitions C and D in Table 8).
I	Established rehabilitation (hectares)	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 and F in Table 8).
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 and F in Table 8) that has 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 and F in Table 8) that has 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 and F in Table 8) that has been returned to other/ non-vegetated final land use.

1.7.3 Progressive Achievement of Established Rehabilitation

Based on the existing mining and rehabilitation statistics, **Table 11** details the proportion of the land that has progressed to the reporting category ‘established rehabilitation’ for agricultural, native ecosystem or other final land use(s) at the end of the reporting period. An explanation of the KPIs is provided in

Table 10.

Table 11 Proportion of Established Rehabilitation for Final Land Use Classifications at the End of the Reporting Period

Annual Reporting Period	1 January 2022 to 31 December 2022
Established rehabilitation for agricultural final land uses (percent) (L)	0
Established rehabilitation for native ecosystem final land uses (percent) (M)	99.99
Established rehabilitation for other/non-vegetated final land uses (percent) (N)	0

1.7.4 Variation to the Rehabilitation Schedule

Variations to the rehabilitation scheduled re shown in **Table 12**.

Table 12 Variation to Rehabilitation Schedule

Variation on previous forward program (Delay or advance)	Reason for delay or advance	Actions for next forward program
*	*	*

* Reforms commenced 1 August 2022, KPI reporting to commence for 2023 reporting period

1.8 Rehabilitation Monitoring and Research Findings

1.8.1 Rehabilitation Monitoring

Rehabilitation monitoring is undertaken at Clarence to measure and assess rehabilitation performance against rehabilitation completion criteria. The monitoring results are also used to identify the need for corrective actions for rehabilitation performance. The rehabilitation monitoring conducted during the reporting period is provided in **Table 13**.

Table 13 Rehabilitation Monitoring

ID	Location	Type of Monitoring	Frequency	By Whom	monitoring completed	Summary of findings
Rehabilitation Sites		Flora Fauna Landscape Habitat	Annual	Unknown	Spring	
RHB 1	E 224291 N 6294105					
RHB 2	E 244563 N 6293796					
RHB 3a	E 244665 N 6294303					
RHB 3b	E 244752 N 6294210					

ID	Location	Type of Monitoring	Frequency	By Whom	monitoring completed	Summary of findings
RHB 4b	E 244299 N 6293670					Generally: indicators were observed that that rehabilitation is progressing towards reference sites with notable variability between sites.
RHB 6a	E 243889 N 6293733					
Analogue Sites						
ANA 1	E 244632 N 6293686					
Ana 2	E 244659 N 6294391					
ANA 3	E 244521 N 6294450					

1.8.2 Status of Performance against Rehabilitation Objectives and Rehabilitation Completion Criteria

Generally, monitoring indicates that rehabilitation is progressing towards reference sites with notable variability between sites. Recommendations include Weed control, establishment and promotion of native undergrowth and some minor erosion remediation.

1.8.3 Outcomes of Rehabilitation Research and Trials

Clarence Colliery is currently undertaking a rehabilitation trial on the former REA 4 area. The objectives of the rehabilitation trial are:

- To measure and compare the success of different rehabilitation treatments (growth medium, erosion control, planting method) across seven trial sites, using Ecosystem Function Analysis and Profile Metre Monitoring Methods;
- To identify suitable methods for the rehabilitation of REA 3 that are cost effective and will satisfy rehabilitation objectives of the MOP (Centennial Coal 2019); and
- To fulfil requirements of the 'High Risk Activity Notification' process.

The Ecosystem Function Analysis data has returned results that show a strong improvement from the 2020 results, however, most of the components are below the values required to meet MOP completion criteria.

The trial is planned to be continued during the forward program.

1.8.4 Future Rehabilitation Research and Trials

There are no additional proposed rehabilitation research, modelling or trials to be undertaken.

2 Part 2 – Forward Program

Part 2 of this Annual Rehabilitation Report and Forward Program, details the following 3 years of projected rehabilitation activities at Clarence Complex.

2.1 Three-Year Forecast – Surface Disturbance Activities

2.1.1 Project Description

2.1.1.1 Clarence

Clarence Colliery (Clarence) is an underground coal mining operation located within the New South Wales (NSW) Western Coalfields, approximately 10 kilometres east of Lithgow. Coal is extracted from the Katoomba Seam using the bord and pillar partial extraction method, supplying coal to both domestic and export markets.

The Centennial Coal Company Limited is a wholly owned subsidiary of Banpu Public Company Limited. Centennial Coal Company Limited owns Clarence Colliery Pty Ltd, which has been appointed as the management entity for the Clarence Joint Venture. Centennial Coal Company Limited has an 85% share in the Clarence Joint Venture, comprised of a number of wholly owned subsidiaries being Coalex Pty Ltd (51% share), Clarence Coal Investments Pty Ltd (29% share), SK Networks Resources Australia Pty Ltd (15% share) and Centennial Clarence Pty Ltd (5% share).

Clarence is approved under DA 504-00 to extract up to 3 million tonnes per annum (Mtpa) of run of mine (ROM) coal until 31 December 2026.

2.1.2 Description of Surface Disturbance Activities

2.1.2.1 Exploration Activities

There are exploration activities planned to be undertaken during the forward program. There are minor exploration activities planned to support ongoing mining operations.

2.1.2.2 Construction Activities

Construction activities planned to be undertaken during the forward program focus on rehabilitation of the REAs and include:

- Continuation of capping and fine coal reclamation activities at REA 3; and
- Construction of REA 5 Stage 2.

2.1.2.3 Mining Schedule

Mining activities planned for the forward program under DA 504-00 include:

- Continued underground mining up until 2026;
- Processing and transport up to 3 million tonnes per annum (Mtpa) of coal using existing infrastructure to export markets; and
- Continued use of ancillary infrastructure.

Reject Emplacement Areas (Tailings)

During the forward program, tailings emplacement is planned for REA 3, REA 5 and REA 6.

During the forward program coarse coal reject may be transported from Clarence Colliery to Charbon via rail for rehabilitation purposes.

Processing Infrastructure

The Coal Handling and Preparation Plant at Clarence will continue to be used during the forward program, resulting in of coal reject that will be deposited into Clarence’s REAs or transported to Charbon for use in rehabilitation.

Waste Disposal

Non mining wastes are stored in designated areas and managed in accordance with the site waste Management Plan. Licensed contractors are engaged to transport waste to designated licensed waste facilities.

The material production schedule for the next three years is provided in **Table 14**.

Table 14 Material Production Schedule during the Next Three Years

Material	Unit	Year 1	Year 2	Year 3
Stripped topsoil (if applicable)	m ³	N/A	N/A	N/A
Rock/overburden (waste rock)	t	N/A	N/A	N/A
ROM	t	1,890,000	2,260,000	2,290,000
Reject material ⁴ (Tailings – solids)	t	180,000	220,000	220,000
Coal Product	t	1,710,000	2,040,000	2,070,000

2.2 Three-Year Rehabilitation Forecast

2.2.1 Rehabilitation Planning Schedule

The following rehabilitation planning activities will be carried out over the next three years, to address potential knowledge gaps and to ensure that rehabilitation is undertaken as soon as reasonably practicable.

Stakeholder Engagement

Consultation with stakeholders over the next three years will focus on submission of the Annual Review and Annual Rehabilitation Report to agencies, the community and special interest groups. Consultation will also be undertaken with the Clarence Community Consultative Committee.

2.2.2 Rehabilitation Planning Activities

Rehabilitation Planning activities undertaken over the next three years will focus on the key proposed controls and further studies identified during the Rehabilitation Management Plan risk assessment and include:

- Revise management plans and compliance database to ensure consistency with closure/rehabilitation requirements, (2024);
- Finalise the Centennial Closure Standard, (2025);
- Investigate recommendations from contamination assessments, (2024);
- Understand if current structures being retained in final landform, (2024);
- Develop a detailed landform design for Clarence Pit Top, including surface water management, (2024);
- Understand if current structures being retained in final landform, (2024);
- Material balance considering change of excavation depths in REA 5, (2023);
- Consider pit top rehabilitation material balance, (2023);
- Complete and implement erosion monitoring of REA 4 trial areas to inform future rehabilitation design. Note: wording of this updated by AW as sediment basin was not suitable given catchment issues, (2024); and
- Undertake RUSLE assessment for REA 3 landform to understand potential risk associated with landform design. If required, investigate alternative modelling options and supporting mitigation, (2024).

2.2.3 Rehabilitation Maintenance and Corrective Actions

Rehabilitation maintenance and corrective actions were identified in the Annual Rehabilitation Monitoring Report and include:

- Weed control;
- Establishment and promotion of native undergrowth; and
- Minor erosion remediation.

2.2.4 Rehabilitation Schedule

Disturbance or rehabilitation activities associated with surface infrastructure planned over the next three years will focus on activities associated with the REAs. The rehabilitation schedule is as follows:

- Continued annual rehabilitation monitoring across REAs 1, 2, 3 and 4; and
- Continued progressive rehabilitation of Reject Emplacement Area REA 3

2.2.5 Subsidence Remediation for Underground Operations

Subsidence remediation works are not expected over the forward program. In the event subsidence associated with previous extraction is identified, remediation will be undertaken in consultation with the Resources Regulator.

2.3 Plan 2 – Mining and Rehabilitation Three-Year Forecast

2.3.1 Submission of Plan 2 Spatial Data to the Mine Rehabilitation Portal

Spatial theme data listed in **Table 15** below was submitted to the Mine rehabilitation portal prior to submission of the ARP and Forward Program.

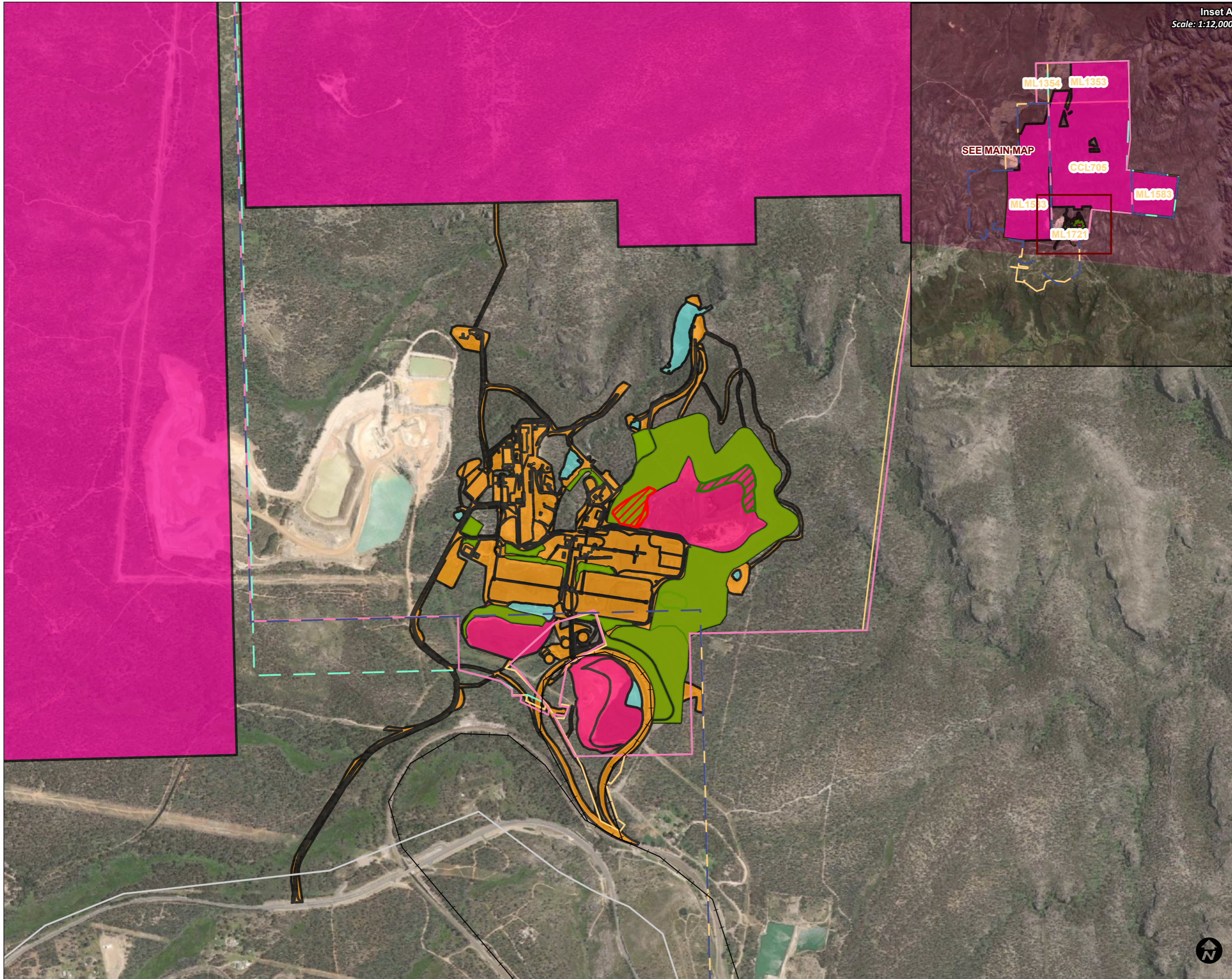
Table 15 Spatial Data Themes to be Submitted to Support Plan 2

Mine Rehabilitation Special Data Themes	
Forecast Data – Year 1	File Name: Forecast Data 2023
Forecast Data – Year 2	File Name: Forecast Data 2024
Forecast Data – Year 3	File Name: Forecast Data 2025

2.3.2 Submission of Plan 2 Electronic Copy (PDF)

The Forward Program (Plan 2) detailed surface disturbance activities for the next three years was submitted to the mine rehabilitation portal. The rehabilitation in year 1 is provided in **Figure 3**, the rehabilitation in year 2 is provided in **Figure 4** and the rehabilitation in year 3 is provided in **Figure 5**.

Figure 3 Rehabilitation Year 1
















Inset A
Scale: 1:12,000

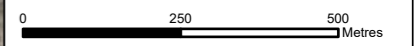
CENTENNIAL COAL FORWARD PROGRAM

CLARENCE

**FORECAST DATA YEAR 1
PLAN 2A YEAR 2023**

LEGEND

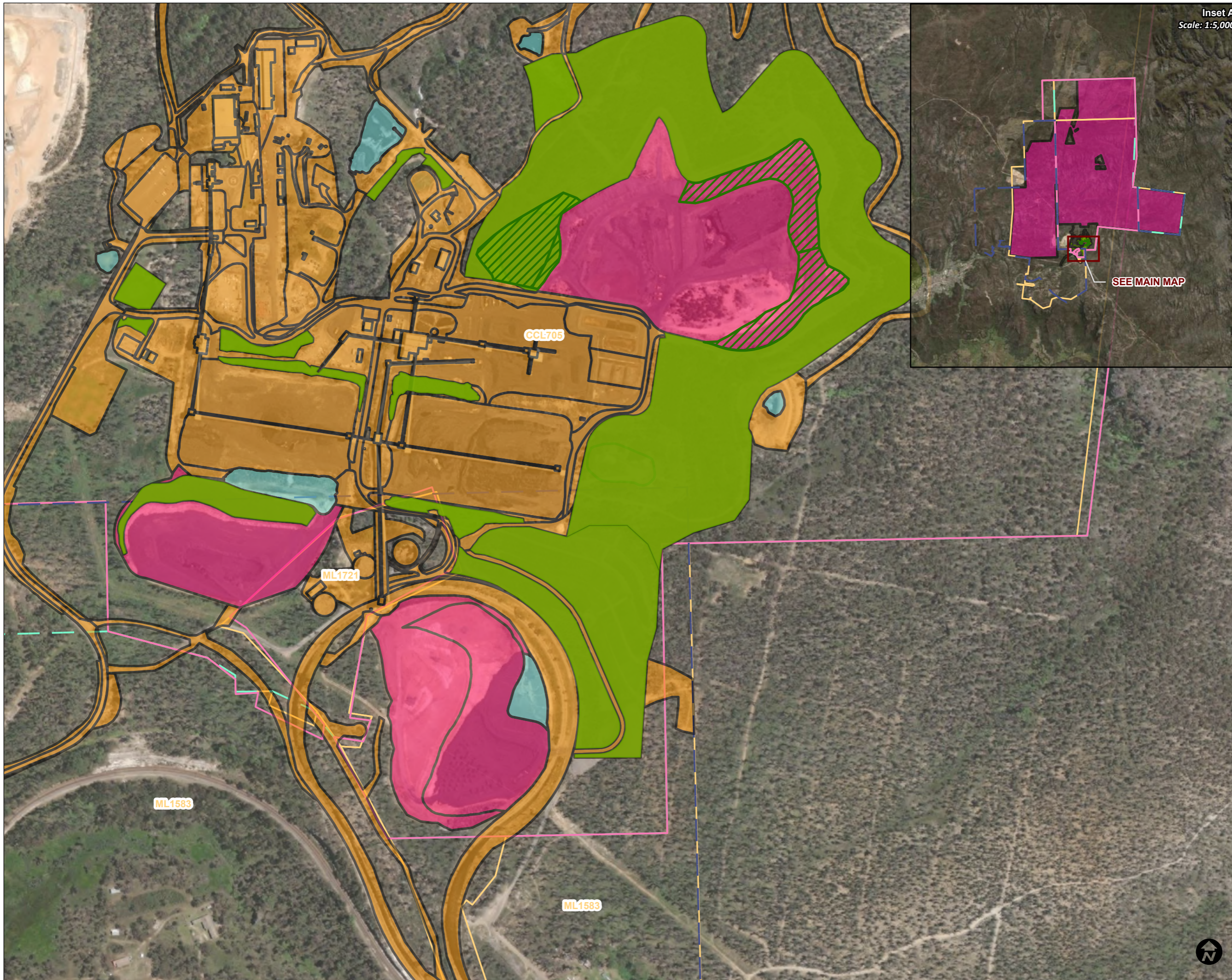
-  Railway
-  Major Road
-  Mining Lease
- Project Approval Number**
-  IRM GE 76
-  DA174-93
-  DA504-00
- Mining Domain Type**
-  Infrastructure Area
-  Tailings Storage Facility
-  Underground Mining Area (SMP)
-  Water Management Area
- Rehabilitation Phase**
-  Ecosystem and Land Use Development
- 2023 Forecast Activity**
-  Ecosystem and Land Use Establishment
-  Forecast Disturbance



Coordinate System: GDA2020 MGA Zone 56
 Scale: 1:12,000 at A3
 Project Number: N/A
 Date: 29/03/2023
 Drawn by: N.Lloyd
 Annual Reporting Period: 2022
 Submission ID's: 2390 - Rehabilitation
 2381 - Disturbance
 2384 - Project Approval Boundary
 4351 - Forecast Data Year1



Figure 4 Rehabilitation Year 2



Inset A
Scale: 1:5,000

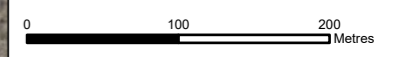
CENTENNIAL COAL FORWARD PROGRAM

CLARENCE

**FORECAST DATA YEAR 2
PLAN 2B YEAR 2024**

LEGEND

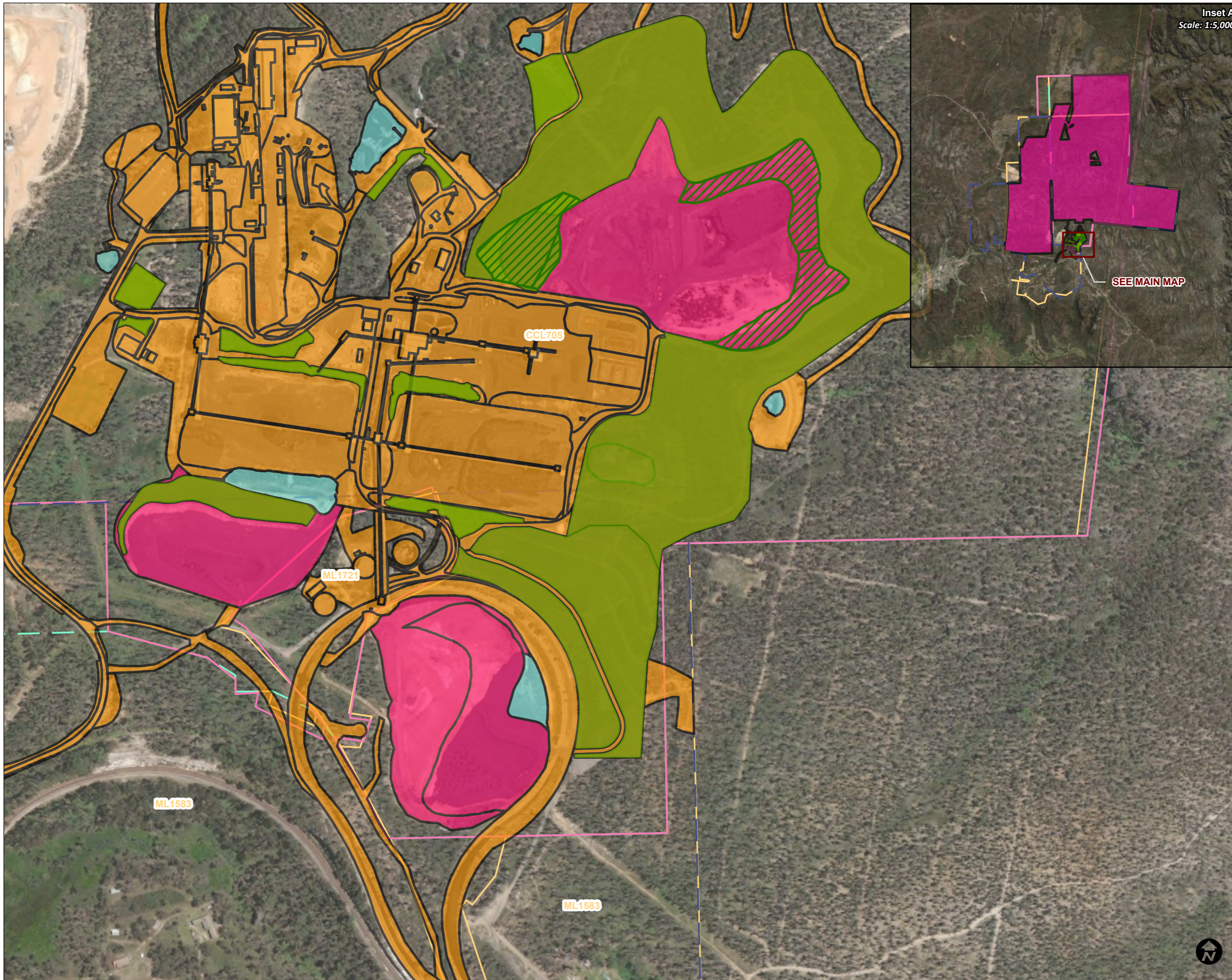
- Mining Lease
- Project Approval Number**
- IRM GE 76
- DA174-93
- DA504-00
- Mining Domain Type**
- Infrastructure Area
- Tailings Storage Facility
- Water Management Area
- Rehabilitation Phase**
- Ecosystem and Land Use Development
- 2024 Forecast Activity**
- Ecosystem and Land Use Establishment



Coordinate System: GDA2020 MGA Zone 56
 Scale: 1:5,000 at A3
 Project Number: N/A
 Date: 29/03/2023
 Drawn by: N.Lloyd
 Annual Reporting Period: 2022
 Submission ID's: 2390 - Rehabilitation
 2381 - Disturbance
 2384 - Project Approval Boundary
 4352 - Forecast Data Year2



Figure 5 Rehabilitation Year 3



Inset A
Scale: 1:5,000

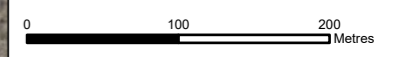
**CENTENNIAL COAL
FORWARD PROGRAM**

CLARENCE

**FORECAST DATA YEAR 3
PLAN 2C YEAR 2025**

LEGEND

- Mining Lease
- Project Approval Number**
- IRM GE 76
- DA174-93
- DA504-00
- Mining Domain Type**
- Infrastructure Area
- Tailings Storage Facility
- Water Management Area
- Rehabilitation Phase**
- Ecosystem and Land Use Development
- 2025 Forecast Activity**
- Ecosystem and Land Use Establishment



Coordinate System: GDA2020 MGA Zone 56
 Scale: 1:5,000 at A3
 Project Number: N/A
 Date: 28/03/2023
 Drawn by: N.Lloyd
 Annual Reporting Period: 2022
 Submission ID's: 2390 - Rehabilitation
 2381 - Disturbance
 2384 - Project Approval Boundary
 4353 - Forecast Data Year3



2.4 Progressive Mining and Rehabilitation Statistics

2.4.1 Three-Yearly Forecast Cumulative Disturbance and Rehabilitation Progression

The three yearly forecast for cumulative disturbance and rehabilitation progression is provided in **Table 16**.

Based on the proposed mining and rehabilitation schedules included in **Table 16**, this section identifies progressive rehabilitation key performance indicators in **Table 17**. The progressive rehabilitation categories explanation is provided in

Table 18.

Table 16 Predicted Cumulative Disturbance and Rehabilitation Progression during the Next Three-Year Term

Year	1	2	3
Total disturbance footprint – surface disturbance (hectares) (A1)*	102.76	102.76	102.76
Underground mining area (hectares) (A2)*	5741.79	5741.79	5741.79
Total active Disturbance (hectares) (B)*	76.73	73.75	70.76
Rehabilitation – land preparation (hectares) (C)*	0	0	0
Ecosystem and land use establishment (hectares) (D)*	1.07	4.05	7.04

*Note: Definitions for each key performance indicator are provided in Table 7

2.4.2 Rehabilitation Key Performance Indicators (KPIs)

Table 17 Progressive Rehabilitation Key Performance Indicators during the Next Three-Year Term

Year	1	2	3
Total new active disturbance area during reporting period (hectares) (O)*	1.04	1.04	0
Area of land proposed for active rehabilitation during reporting period (hectares) (P)*	1.07	2.99	2.99
Annual rehabilitation to disturbance ratio (Q)*	1.02	0	0

Table 18 Progressive Rehabilitation KPI Categories

Reporting Category	Definition
O	The area of any new active disturbance that will be created during the next three years, as defined under definition A1 (definition A1 Table 8).
P	The sum of any new rehabilitation to be commenced in the next three years. These areas may be in the phases “Rehabilitation - Land Preparation” or the “Ecosystem and Land Use Establishment” (definitions C and D in Table 8).
Q	The rehabilitation to disturbance ratio (S:R) indicates how many hectares of new rehabilitation are undertaken for each hectare of land disturbed during the three years. A ratio of 1:1 indicates that the area of new rehabilitation and disturbance in that period are the same.

2.5 Rehabilitation Cost Estimate

An updated Rehabilitation Cost Estimate has been prepared in accordance with Guideline: Rehabilitation Cost Estimate (Resources Regulator, August 2021). A copy of the updated Rehabilitation Cost Estimate was submitted to the Resources Regulator on 31st March 2023.

3 Glossary

Table 19 Glossary

Term	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 land clearing, 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	An area of land and/or water that is a 'reference site' that represents an example of the defining values and characteristics (such as vegetation composition and structure or agricultural productivity) of the final land use. An analogue site is a selected location surrounding or within a proposed/existing mine site. The location is usually an undisturbed area or a self-sustaining vegetation community that demonstrates the existing environment without any impact of disturbance (i.e. acts as a baseline for the surrounding undisturbed environment). Characteristics of analogue sites can be assessed to develop the rehabilitation objectives and rehabilitation completion criteria for final land use domains.
Annual rehabilitation report	As defined in the <i>Mining Regulation 2016</i> .
Annual reporting period	As defined in the <i>Mining Regulation 2016</i> .
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 (for large mines only) 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.
Department	Department of Regional NSW.
Disturbance	See Surface Disturbance.
Disturbance area	An area that has been disturbed and that requires rehabilitation. This may include areas such as 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 (e.g. managed to minimise dust generation and/or erosion).

Term	Definition
Domain	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.
Ecosystem and land use development	This phase of rehabilitation consists of the activities to manage maturing rehabilitation areas on a trajectory to achieving the approved or, if not yet approved, the proposed: <ul style="list-style-type: none"> ■ rehabilitation objectives, and ■ rehabilitation completion criteria, and ■ for large mines – final landform and rehabilitation plan. 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, increasing habitat complexity, and the development of a productive, self-sustaining soil profile. This phase of rehabilitation may include specific vegetation management strategies and maintenance such as tree thinning, supplementary plantings and weed management.
Ecosystem and land use establishment	This phase of rehabilitation consists of the processes to establish the approved final land use following construction of the final landform (as per the approved final landform and rehabilitation plan for large mines). 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.
Exploration	Has the same meaning as that term under the <i>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007</i> .
Final landform and rehabilitation plan	As defined in the <i>Mining Regulation 2016</i> .
Final land use	As defined in the <i>Mining Regulation 2016</i> .
Final land use domain	A land management unit with a final land use. A mining lease may have one final land use (e.g. returning the entire mining lease to native vegetation) or several final land use units (e.g. a mix of pasture areas and native ecosystems). Each final land use unit represents a separate final land use domain.
Form and way	Means the form and way approved by the Secretary. Approved form and way documents are available on the Department’s website.
Forward program	As defined in the <i>Mining Regulation 2016</i> .
Growth medium development	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) to ensure achievement of the approved or, if not yet approved, the proposed: <ul style="list-style-type: none"> ■ rehabilitation objectives ■ rehabilitation completion criteria ■ for large mines – final landform and rehabilitation plan. 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.
























Term	Definition
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 (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	This phase of rehabilitation consists of the processes and activities required to construct the approved final landform (as per the development consent and, for large mines, the approved final landform and rehabilitation plan). 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).
Large mine	As defined in the <i>Mining Regulation 2016</i> .
Lease holder	The holder of a mining lease.
Life of mine	The timeframe of how long a mine is approved to mine, from commencement to closure.
Mine rehabilitation portal	Means the NSW Resources Regulator's online portal that lease holders must use (via a registered account) to: <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. 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.
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 lease	As defined in the <i>Mining Act 1992</i> .
Native vegetation	Has the same meaning as that term under the <i>Local Land Services Act 2013</i> .
Overburden	Material overlying coal or a mineral deposit.
Performance indicator	An attribute of the biophysical environment (e.g. 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.
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

Term	Definition
	<ul style="list-style-type: none"> • decommissioning • landform establishment • growth medium development • ecosystem and land use establishment • ecosystem and land use development • rehabilitation completion (sign-off).
Progressive rehabilitation	<p>The progress of rehabilitation towards achieving the approved or, if not yet approved, the proposed:</p> <ul style="list-style-type: none"> • rehabilitation objectives • rehabilitation completion criteria • for large mines – final landform and rehabilitation plan. <p>This may be described in terms of domains, phases, performance indicators and rehabilitation completion criteria.</p>
Rehabilitation	As defined in the <i>Mining Act 1992</i> .
Rehabilitation completion	<p>The final phase of rehabilitation when a rehabilitation area has achieved the final land use for the mining area:</p> <ul style="list-style-type: none"> • as stated in the approved rehabilitation objectives and the approved rehabilitation completion criteria • for large mines – as spatially depicted in the approved final landform and rehabilitation plan. <p>Rehabilitation areas may be classified as complete when the NSW Resources Regulator has determined, in writing, that rehabilitation has achieved the final land use following submission of the relevant application by the lease holder.</p>
Rehabilitation completion criteria	Rehabilitation completion criteria set out the criteria the achievement of which will demonstrate the achievement of the rehabilitation objectives.
Rehabilitation cost estimate	As defined in the <i>Mining Regulation 2016</i> .
Rehabilitation management plan	As defined in the <i>Mining Regulation 2016</i> .
Rehabilitation objectives	Means the rehabilitation objectives required to achieve the final land use for the mining area.
Rehabilitation outcomes	Means the final land use for the mining area as stated in the approved rehabilitation objectives, the approved rehabilitation completion criteria and (for large mines) the approved final landform and rehabilitation plan.
Rehabilitation risk assessment	As defined in the <i>Mining Regulation 2016</i> .
Rehabilitation schedule	The defined timeframes for progressive rehabilitation set out in the forward program.
Relevant stakeholders	Means any persons or bodies who may be affected by the mining operations, including rehabilitation, carried out on the lease land, and includes:

Term	Definition
	<ul style="list-style-type: none"> a. the relevant development consent authority b. the local council c. the relevant landholder(s) d. community consultative committee (if required under the development consent) or equivalent consultative group e. affected landholder(s) f. government agencies relevant to the final land use g. affected infrastructure authorities (electricity, telecommunications, water, pipeline, road, rail authorities) h. local Aboriginal communities i. 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 31000:2018).
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 (typically silt-sized, in the range from 0.001 to 0.6 mm) solid materials remaining after the recoverable metals and minerals have been extracted from mined ore, together with the water used in the recovery process. ⁵
Waste	Has the same meaning as that term under the <i>Protection of the Environment Operations Act 1997</i> .

Appendix A:

Symbology Guidance

Mine Rehabilitation Portal Spatial Data Themes	Display Field (Unique values)	Symbology guidance
Rehabilitation	RehabPha (Rehabilitation Phase)	<ul style="list-style-type: none">  Decommissioning  Landform Establishment  Growth Media Development  Ecosystem and Land Use Establishment  Ecosystem and Land Use Development  Relinquishment (Rehabilitated)
Disturbance	MineDomT (Mining Domain Type)	<ul style="list-style-type: none">  Beneficiation Facility  Infrastructure Area  Other  Overburden Emplacement Area  Tailings Storage Facility  Underground Mining Area (SMP)  Active Mining Area (Open cut void)  Water Management Area
Current Landform Contours	N/A	<ul style="list-style-type: none">  Current Landform Contours
Forecast Data Yr 1, Yr 2 and Yr 3	ForcstA (Forecast Area)	<ul style="list-style-type: none">  Forecast Disturbance  Forecast Land Prepared for Rehabilitation  Ecosystem and Land Use Establishment
Final Landform Contours	N/A	<ul style="list-style-type: none">  Final Landform Contours
Project Approval Boundary	N/A	<ul style="list-style-type: none">  Project Approval Boundary
Current Authorisations	N/A	<ul style="list-style-type: none">  MINERALS - CURRENT TITLES  COAL - CURRENT TITLES  PETROLEUM-CSG - CURRENT TITLES

Appendix B:

Rehabilitation Cost Estimate

Note: Rehabilitation cost estimate issued to Resources Regulator 31st March 2023

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