



REHABILITATION MANAGEMENT PLAN FOR LARGE MINES

Mandalong Mine

1 July 2024

SUMMARY TABLE

Summary Table		
Name of Mine	Mandalong Mine	
Rehabilitation Management Plan Commencement Date	1 August 2022	
Rehabilitation Management Plan Revision Dates and Version Numbers	1.1	
Mining Leases (Lease number(s) and expiry date(s))	<div> <div>ML 1443</div> <div>Expiry 1 Mar 2043</div> </div> <div> <div>ML 1543</div> <div>Expiry 25 Nov 2024</div> </div> <div> <div>ML 1553</div> <div>Expiry 6 Sep 2025</div> </div> <div> <div>ML 1722</div> <div>Expiry 17 Dec 2036</div> </div> <div> <div>ML 1744</div> <div>Expiry 6 Oct 2037</div> </div> <div> <div>ML 1793</div> <div>Expiry 16 Jul 2040</div> </div> <div> <div>CCL 746 (sublease)</div> <div>Expiry 31 Dec 2028</div> </div> <div> <div>CCL 762</div> <div>Expiry 13 Oct 2043</div> </div> <div> <div>MPL 191</div> <div>Expiry 24 Feb 2044</div> </div> <div> <div>ML 1852</div> <div>Expiry 25 May 2044</div> </div>	
Name of Lease Holder(s)	Centennial Mandalong Pty Limited	
Date of Submission	1 July 2024	

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APPENDIX C	Approved Rehabilitation Objectives Statement

1 PART 1 - INTRODUCTION TO MINING PROJECT

Mandalong Mine (Mandalong) is an existing underground coal mine operation located in the Lake Macquarie Local Government Area (LGA) approximately 130 kilometres (km) north of Sydney and 35 km south-west of Newcastle near Morisset in New South Wales (NSW) (refer **Figure 1**). Mandalong supplies coal both to the domestic and export markets. Mandalong utilise a combination of longwall and continuous mining methods to extract coal from the West Wallarah Seam.

Mandalong is owned and operated by Centennial Mandalong Pty Ltd (Centennial Mandalong), a subsidiary of Centennial Coal Company Limited (Centennial). Centennial was purchased by Banpu Public Company Limited (Banpu) in October 2010.

This *Rehabilitation Management Plan* (RMP) has been prepared in accordance with the Mining Exploration and Geoscience – Resources Regulator’s (RR) Form and Way: Rehabilitation Management Plan for Large Mines (RR, 2021) and associated guidelines (refer **Section 1.3**). The Plan has also been prepared to satisfy Schedule 3, Condition 33A of SSD 5144 which requires Mandalong to prepare and implement a Rehabilitation Management Plan in accordance with the conditions imposed on mining leases associated with the mine under the NSW *Mining Act 1992*.

This RMP relates to operations at Mandalong (refer **Figure 2**) which includes the Mandalong Mine Access Site (MMAS) (SSD-5144), Mandalong South Surface Site (MSSS) (SSD-5144), Cooranbong Entry Site (CES) (SSD-5145) and Delta Entry Site (DES) (DA 35-2-2004).

1.1 History of Operations

Mandalong, which is an extension of the old Cooranbong Colliery, was originally granted Development Consent DA 97/800 by the then Minister for Urban Affairs and Planning on 14 October 1998 under Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) following the submission of the Cooranbong Colliery Life Extension Project Environmental Impact Statement (Umwelt (Australia) 1997) and a Commission of Inquiry. Development Consent DA 97/800 and its subsequent modifications permitted the construction and operation of an underground coal mine to extract up to 6 million tonnes per annum (Mtpa) of run of mine (ROM) coal, along with an overland conveyor system and a coal preparation plant (CPP). The CES, also approved under DA 97/800 as part of the Mandalong, encompassed a coal delivery system and surface infrastructure (coal handling and processing) near Dora Creek. DA 97/800 was modified on ten separate occasions, with the final modification (MOD 10) being approved on 26 November 2014.

Development Consent DA 35-2-2004, granted in July 2004 by the former Department of Planning and Infrastructure (now Department of Planning and Environment (DPE)), approved the construction and operation of the coal handling and clearance system at the DES. Construction of the Delta Coal Clearance System was completed in 2006.

On 12 October 2015, Development Consent SSD-5144 for the Mandalong Southern Extension Project was approved by the Planning Assessment Commission (PAC) of NSW (under delegation from the Minister for Planning) pursuant to Part 4 of the EP&A Act. Development Consent SSD-5144 allows for the continued underground mining operations using a combination of longwall and continuous mining methods until 31 December 2040. Mandalong will undertake underground mining operations in the existing northern lease areas and the extension of underground mining operations into the area covered by Mining Lease (ML) 1722 and ML 1744 (refer **Figure 2**). As per Condition 13 of Schedule 2 of SSD-5144 and agreed with the Secretary of the Department of Planning & Environment (DPE), on 16 September 2016 in accordance with Section 104A of the *Environmental Planning and Assessment Act 1979* (EP&A Act), Centennial Mandalong shall surrender DA97/800 by 30 September 2022.

A Notice of Consent Surrender was submitted by Centennial Mandalong to the DPE (via the major project portal) on 10 August 2022. The Department notified Centennial Mandalong on 29 August 2023 that DA97/800 had been voluntarily surrendered pursuant to section 4.63 of the *Environmental Planning and Assessment Act 1979* and section 68 of the *Environmental Planning and Assessment Regulation 2021*.

Continued operations at the CES were approved as part of the Northern Coal Logistics Project (SSD-5145) on 29 September 2015 by the Minister for Planning. The Northern Coal Logistics Project is largely a continuation of existing surface activities associated with the approved Newstan Colliery and Cooranbong Entry Site operations. These activities are integral to the on-going handling, processing and transportation of coal from the underground workings of Newstan Colliery and Mandalong.

Following the approval of the SSD-5145 the CES and Cooranbong Haul Road were transferred from Mandalong to Northern Coal Logistics; however, since operations at the CES continue to be managed by

Centennial Mandalong they have been included in this RMP. The Cooranbong Haul Road is included in the Newstan Complex RMP.



CENTENNIAL REHABILITATION
MANAGEMENT PLAN

MANDALONG

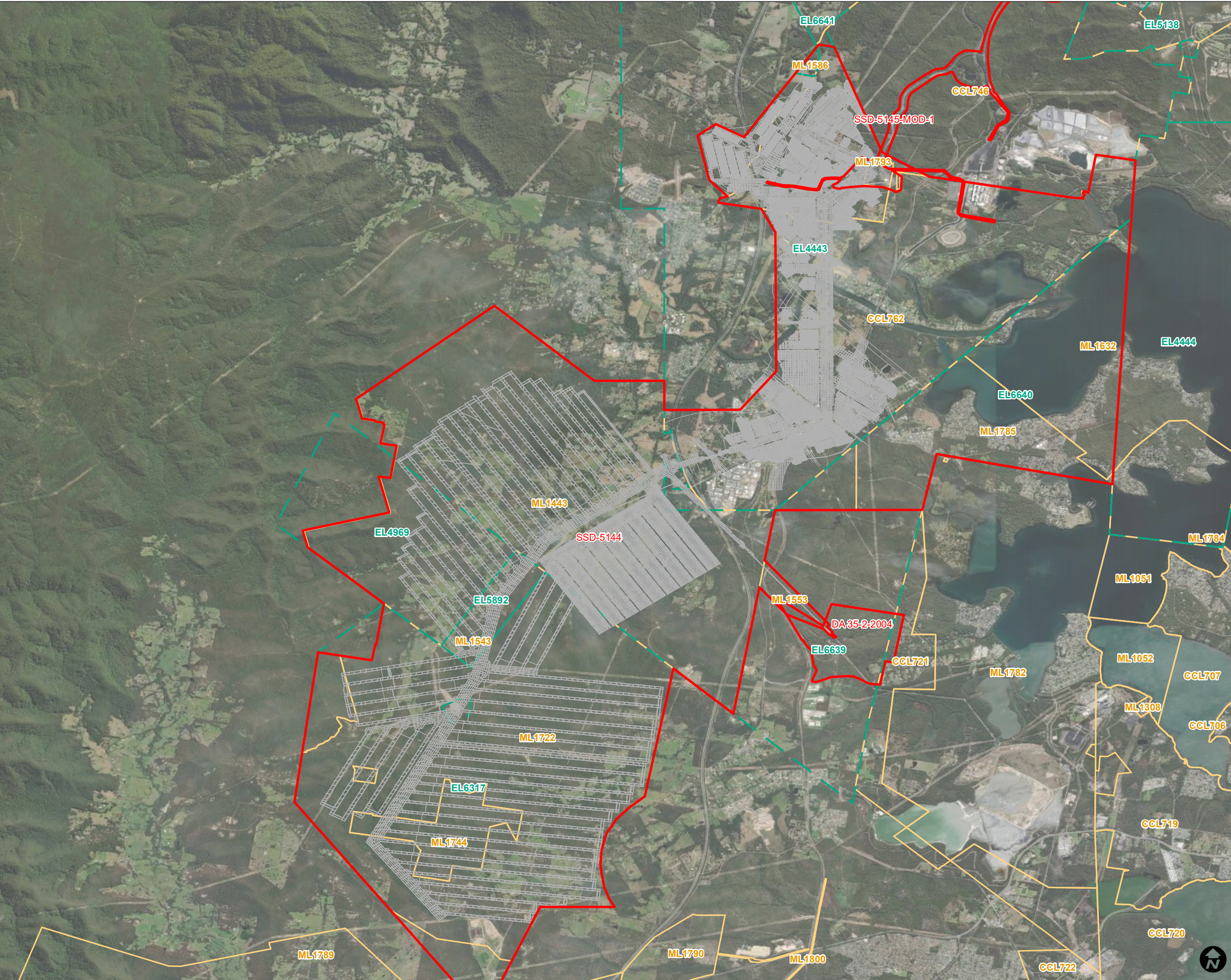
FIGURE 2
SITE LAYOUT

LEGEND

- Existing Workings
- Project Approval Boundary
- Exploration Licence
- Mining Lease

0 1 2
Kilometres

Coordinate System: GDA2020
Scale: 1:75,000 at A3
Project Number: 630.30294
Date: 28-Jul-2022
Drawn by: AS



1.2 Current Development Consents, Leases and Licences

1.2.1 Development Consents

Table 1-1 below shows the Development Consents held by Mandalong.

Table 1-1: Development Consents

Issuing/ Responsible Authority	Development Consent	Details	Date of Issue	Expiry
DPE	SSD-5144	Mandalong South Extension Project	12 October 2015	31 December 2040 ¹
	SSD-5144 (MOD1)	MOD 1 – relocation of transmission line TL24	14 June 2016	
	SSD-5144 (MOD2)	MOD 2 – approval for the extension of first workings in Longwalls 22 and 23	22 September 2016	
	SSD-5144 (MOD3)	MOD 3 – approval for an increase to the annual production limit from 6 million tonnes per annum to 6.5 million tonnes per annum in addition to correcting administrative errors currently attached to the SSD-5144 development consent	16 November 2016	
	SSD-5144 (MOD4)	MOD 4 – approval for an extension of existing longwall panels 22 and 23 within the current SSD-5144 consent boundary.	28 March 2017	
	SSD-5144 (MOD5)	MOD 5 – approval for an extension of an existing longwall panel (LW 24) and the addition of a new longwall panel (LW 24A) within the current SSD-5144 consent boundary.	1 August 2017	
	SSD-5144 (MOD6)	MOD 6 – approval for the temporary controlled release of stored water from the MSSS Sediment Dam following significant rainfall events and the ability to transport the sediment and material collected at the MSSS to the CES	15 April 2019	
	SSD-5144 (MOD7)	MOD 7 – approval for the construction of a new 7.7 km 33-kV overland powerline from the MMAS to the MSSS	25 July 2019	
	SSD-5144 (MOD8)	MOD 8 – approval to increase personnel from 470 to 815 fulltime equivalent (FTE) employees, upgrade existing electrical substation and expansion of car park at the MMAS	17 January 2020	
	SSD-5144 (MOD9)	MOD 9 – deletion of longwalls 30, 31, 36 and 37. Reorientating and renaming longwalls 32 to 35 to longwalls 30 to 33	1 April 2021	
	SSD-5144 (MOD10)	MOD 10 – additional longwall	11 March 2022	
DPE	DA 97/800	Development consent for the extension to underground mining activities for Cooranbong Colliery, establishment of Mine Access Site, modification to Coal Preparation and Transportation System and establishment of a Coarse Reject Area	14 October 1998	30 October 2020
		MOD 1 - minor changes to the conditions of consent relating to the preparation of subsidence management plans and notification of landholder requirements, as described in the modification application, dated 29 March 2001	29 August 2001	
		MOD 2 - installation of methane drainage plant and the transport of 1,000 tonnes of mined coal by road, as described in	16 February 2005	

Issuing/ Responsible Authority	Development Consent	Details	Date of Issue	Expiry
		<i>Mandalong Mine Methane Drainage Plant and Coal Haulage, Statement of Environmental Effects</i> , dated 28 October 2004		
		MOD 3 - installation and operation of enclosed methane gas flare units for high purity methane drainage gas. This was undertaken in response to condition 60a(iii) imposed as part of MOD 2, which required Centennial Mandalong to submit a report on the progress towards implementing greenhouse gas abatement measures. This modification is as described in the <i>Statement of Environmental Effects for the Installation and Operation of Enclosed Methane Gas Flare Units</i> , dated February 2006	27 May 2006	
		MOD 4 - installation and operation of gas engines (yet to be constructed) to produce up to 12 megawatts of electricity using high purity methane drainage gas, increase the coal production rate from 4 Mtpa to 6 Mtpa, relocate a ballast borehole and update subsidence conditions. This modification is as described in the Environmental Assessment entitled <i>Mandalong Mine Modification to Development Consent Environmental Assessment</i> , dated September 2008	21 July 2009	
		MOD 5 - coal from Mandalong Mine (Cooranbong Entry Site) permitted to be washed at Newstan Colliery and a temporary increase in the volume of coal transported by conveyor from the Cooranbong Entry Site to the Eraring Power Station stockpiles for subsequent road haulage to Newstan Colliery (until construction of the Cooranbong Private Haul Road was complete). This modification is as described in the Statement of Environmental Effects entitled <i>Washing of Mandalong Coal at Newstan Section 96(A) Application Statement of Environmental Effects</i> , dated October 2009	27 November 2009	
		MOD 6 - changes to the locations and heights of approved coal handling infrastructure at the Cooranbong Entry Site. This modification is as described in the Statement of Environmental Effects entitled <i>Relocation of Infrastructure within the Mandalong Services Site Section 96(1A) Application Statement of Environmental Effects</i> , dated November 2009	30 November 2009	
		MOD 7 - installation and operation of a new technology known as a ventilation air methane regenerative after burner (VAM-RAB) as a trial unit to demonstrate the ability of the technology to capture and abate ventilation air methane from the underground mine. This modification is as described in the <i>Environmental Assessment: Ventilation Air Methane Abatement Demonstration Project, Mandalong Mine – Section 75W Modification</i> , dated June 2011 and additional information provided in the document entitled <i>Mandalong Mine Ventilation Air Methane Abatement Demonstration Project – Response to Submissions</i> dated September 2011	11 November 2011	

Issuing/ Responsible Authority	Development Consent	Details	Date of Issue	Expiry
		MOD 8 - increase in the volume of coal permitted to be transported from the Cooranbong Entry Site to both Newstan Colliery and Eraring Power Station from 2 Mtpa to up to 4 Mtpa and back haulage of middlings (middle quality coal product) from Newstan Colliery to Cooranbong Entry Site for subsequent supply to the Eraring Power Station. This modification is as described in the <i>Environmental Assessment: Mandalong Mine – Cooranbong Entry Site – Cooranbong Distribution Project – Section 75W Modification to Development Consent DA 97/800</i> , dated May 2012 and additional Noise Mitigation Assessment, dated 31 May 2012	23 August 2012	
		MOD 9 - administrative amendment to conditions 1A(c) and (d) to allow the coal delivery limits approved as part of MOD 8 (i.e. up to 4 Mtpa from Cooranbong Entry Site to both Newstan Colliery and Eraring Power Station)	14 February 2013	
		MOD 10 – Modification to allow for an additional 100,000 tpa of ROM coal to be handled and transported from the Cooranbong Entry Site above the approved 4 Mtpa for the calendar year of 2014 only	26 November 2014	
DPE	SSD-5145	Northern Coal Logistics Project ²	29 September 2015	31 December 2045
	SSD-5145 (MOD1)	MOD1 – Modification to increase the number of employees based at the CES and make administrative changes to the operational noise and air quality criteria.	25 January 2018	
DPE	DA 35-2-2004	Development consent for the transportation of coal to the Delta Entry Site via the underground Mandalong Coal Delivery System	04 July 2004	04 July 2021
	DA 35-2-2004 (MOD1)	MOD 1 – modification to increase the life of the Mandalong Coal Delivery System until 31 December 2040.	17 October 2017	31 December 2040

¹It is noted that whilst SSD-5144 approves mining until 31 December 2040, ML 1722 only approves mining until 17 December 2036 and ML 1744 approves mining until 6 October 2037.

²Whilst operations associated with the CES have been included in this RMP, other components of the Northern Coal Logistics Project, located within the Mandalong Mine Project Application Area including the Cooranbong Haul Road have been excluded.

1.2.2 EPBC Approval

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is administered by the Commonwealth Department of Agriculture, Water and the Environment (DAWE) and provides a legal framework to protect and manage nationally and internationally significant flora, fauna, ecological communities and heritage places defined as ‘matters of national environmental significance’. Approval under Part 9 of the EPBC Act for the Northern Coal Logistics Project (referral 2013/6906) was granted on 2 March 2016 and expires on 31 December 2055. A Green and Golden Bell Frog Research Program has been developed and is underway to ensure compliance with the conditions of the EPBC Act approval. The program is to ensure that the operations of Cooranbong Entry Site and NCSS (as part of Northern Coal Services) do not contribute to a decline in the extent, quality or availability of Green and Golden Bell Frog (*Litoria aurea*) habitat downstream of mine water discharge locations.

1.2.3 Authorisations

Mandalong currently holds numerous authorisations including Mining Leases (ML), Mining Purposes Leases (MPL), Consolidated Coal Leases (CCL) Exploration Licences (EL) and Authorisations (AUTH). These authorisations are outlined in **Table 1-2**.

Table 1-2: Mining Authorisations

Issuing / Responsible Authority	Licence	Grant Date	Expiry Date	Status
Mining Leases				
RR	ML 1443	01/03/1999	01/03/2043	Current
RR	ML 1543	25/11/2003	24/11/2024	Renewal Sought
RR	ML 1553	07/09/2004	06/09/2025	Current
RR	ML 1722	17/12/2015	17/12/2036	Current
RR	ML 1744	6/10/2016	6/10/2037	Current
RR	ML 1793	16/07/2019	16/07/2040	Current
RR	ML 1852	25/05/2023	25/05/2044	Current
Mining Purposes Leases				
RR	MPL 191	25/02/1981	24/02/2044	Current
Consolidated Coal Leases				
RR	CCL 762	16/09/1991	13/10/2043	Current
RR	CCL 746 (sublease)	16/05/1990	31/12/2028	Current
Exploration Licences				
RR	EL 4443	23/10/1992	23/10/2025	Current
RR	EL 4969	25/03/1996	25/03/2026	Current
RR	EL 5892	15/03/2002	31/07/2017	Renewal Application Withdrawn, EL to be Relinquished
RR	EL 6317	17/03/2005	17/03/2026	Current
Authorisations				
RR	AUTH 404	18/03/1988	31/07/2017	Renewal Application Withdrawn, EL to be Relinquished

1.2.4 Other Approvals

A summary of all licences held by Mandalong for the mining operations are included in **Table 1-3**.

Table 1-3: Licences

Issuing / Responsible Authority	Licence	Licence Type	Grant Date	Expiry date
Environmental Protection Licence				
Environment Protection Authority (EPA)	EPL 365	Environment Protection Licence	30/05/2000	Anniversary date 1 January
Water Licences				
WaterNSW	20BL166760	Monitoring bores	01/08/1997	Perpetuity
	20BL166761		01/06/1997	Perpetuity
	20BL166765		01/06/1997	Perpetuity
	20BL166766		01/06/1997	Perpetuity
	20BL166767		01/06/1997	Perpetuity
	20BL166762		01/06/1997	Perpetuity
	20BL166768		01/06/1997	Perpetuity
	20BL166769		01/06/1997	Perpetuity
	20BL166770		01/12/2006	Perpetuity
	20BL172480		14/04/2010	Perpetuity
	20BL166764		01/06/1997	Perpetuity
	20BL172479		14/04/2010	Perpetuity
	20BL166771		01/06/1997	Perpetuity
	20BL166772		01/06/1997	Perpetuity
	20BL166773		01/12/1997	Perpetuity
	20BL166774		01/07/1997	Perpetuity
	20BL166740		01/06/1997	Perpetuity
	20BL169546		20/04/2005	Perpetuity
	20BL169547		20/04/2005	Perpetuity
	20BL169548		20/04/2005	Perpetuity
	20BL169549		20/04/2005	Perpetuity
	20BL172481		14/04/2010	Perpetuity
	20BL172477		14/04/2010	Perpetuity
	20BL172873		20/06/2011	Perpetuity
	20BL172872		20/06/2011	Perpetuity
WaterNSW	WAL 39767	Water Access Licence (WAL)	13/09/2016	Renewed annually
DPE	Extraction Plan Longwalls 22 and 23	Conditional approval to extract longwalls ¹	4/4/2017	No expiry date
DPE	Extraction Plan Longwalls 24 and 24A	Approval to extract longwalls	6/2/2017	No expiry date
DPE	Extraction Plan Longwalls 25 to 31	Approval to extract longwalls	15/1/2019	No expiry date

Issuing / Responsible Authority	Licence	Licence Type	Grant Date	Expiry date
DPE	Extraction Plan Longwalls 30 and 31	Approval to extract longwalls	20/07/2021	No expiry date
DPE	Extraction Plan Longwall 32	Approval to extract longwalls	30/06/2022	No expiry date
DPE	Extraction Plan Longwall 34	Approval to extract longwalls	26/10/2022	No expiry date
DPE	Extraction Plan Longwall 57-60	Approval to extract longwalls	05/07/2023	No expiry date
NSW EPA	5064217	Radiation Licence	26/6/2013	26/6/2025

Note 1 – On 4 April 2017, DPE granted approval for secondary extraction to commence within Longwalls 22 and 23 under the Extraction Plan as drafted. This Conditional Approval was granted to avoid delays to the commencement of secondary extraction; however, DPE identified a number of minor issues to be addressed in various parts of the Extraction Plan prior to granting of final approval.

1.3 Applicable Guidelines

In addition to the regulatory requirements identified above, this RMP has been prepared with consideration given to the following guidelines, standards and policies:

- *Form and way: Rehabilitation Management Plan (large mines);*
- *Form and way: Rehabilitation objectives, rehabilitation completion criteria and final landform and rehabilitation plan for large mines;*
- *Guideline: Rehabilitation risk assessment;*
- *Guideline: Rehabilitation objectives and rehabilitation completion criteria;*
- *Planning for Integrated Mine Closure Toolkit (ICMM, 2008);*
- *Mining Amendment (Standard Condition of Mining Leases – Rehabilitation) Regulation 2021;*
- *Strategic Framework for Mine Closure (ANZMEC 2000);*
- *Leading Practice Sustainable Development Program for the Mining Industry – Mine Closure and Completion, Mine Rehabilitation (Commonwealth Department of Industry, Tourism and Resources);*
- *Best Practice Environmental Management in the Mining Industry Series;*
- *Enduring Value (Mineral Council of Australia 2015); and*
- *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 (Mining SEPP).*

1.4 Land Ownership and Land Use

Mandalong is within the Parish of Mandalong and the County of Northumberland. The area is also within the City of Lake Macquarie Local Government Area (LGA) and the Land District of Newcastle. The RMP is associated with land covered by both the West Lake Mine Subsidence District (MSD) and the Mandalong MSD. The majority of the mining area is covered by the Mandalong MSD.

The topography ranges from the broad flat floodplain of Stockton Creek, Moran's Creek and Tobins Creek to the foothills of the Watagan Mountain range. The land affected by longwall mining is mainly natural bushland of the Watagan Ranges together with cleared areas of the floodplain.

1.4.1 Land Ownership

Land ownership within the bounds of the Mandalong is shown on **Figure 3** with a schedule of lands provided in Appendix A. The colliery holding comprises both privately-owned freehold land (including residential and commercial areas) and land owned by the NSW State Government, as listed below:

1. Centennial Fassifern Pty Limited (subsidiary company of Centennial Coal);
2. The Crown, including:

- a) Olney State Forest, under the care and control of the Forestry Corporation of NSW (FCNSW);
 - b) M1 Pacific Motorway corridor, under the care and control of the NSW Roads and Maritime Service (RMS); and
 - c) Great Northern Railway Line corridor, under the care and control of the Rail Corporation of NSW (RailCorp).
3. Lake Macquarie City Council (LMCC), including various public road reserves;
 4. Central Coast Council, including various public road reserves and the Buttonderry Waste Management Facility; and
 5. Origin Energy.

The remaining properties are privately-owned freehold land.

1.4.2 Historic, Current and Proposed Land Use

1.4.2.1 Mandalong Historical Overview

Historic land use at Mandalong is described in the Northern Region Historic Heritage Management Plan (2016) and is summarised below.

The earliest European occupants around Lake Macquarie were most likely timber cutters targeting the cedar of the Watagan Mountains to the west and the stands of timber around the lake foreshore.

Mandalong, part of the original 2,000 acre grant of John Simpson, was settled as a result of Simpsons Track. The Track followed the main valley which later intersected Stockton Creek, which drained the hill country west of Cooranbong. The earliest settlement in the Mandalong area is documented with the purchase of blocks by Henry Osborne and Thomas Walker sometime between 1838 and 1840. In the 1840s a new route for the Old Maitland Road was surveyed through the district but, with a severe economic depression, the project was shelved.

In 1852 Carl F. Solling purchased the first block in Mandalong but he had probably occupied the area from an earlier date. It would appear there were few permanent residents with Osborne, Walkers and Capes referred to as running cattle in the area, but not as residents. From 1861 onward, farmers were moving to the area with family names of Bonnell, Kelly, Frost, Moran, Booth, Tobin, Durrington, Carroll and Kennedy recorded. The main industries appeared to be timber extraction, dairying, raising horses and cattle.

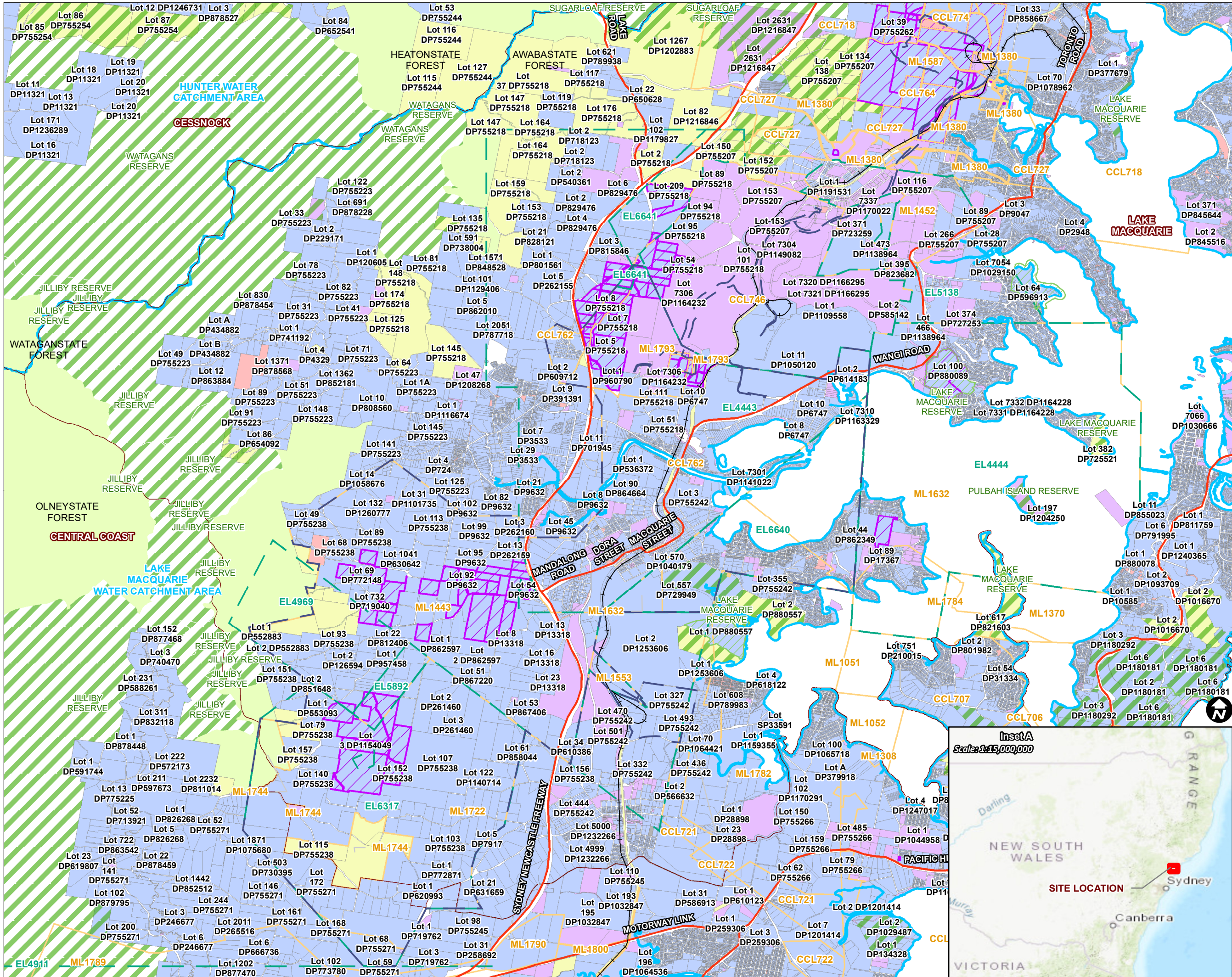
The local population was mainly Roman Catholic with the first church built in 1876 also serving as a private school. In 1878 'Mandalong' Provisional School was first opened. Mandalong's prosperity depended on the timber trade, as the availability and need for timber dwindled so did the village. By 1953 the school and church had permanently closed. With poor soil quality and a decline in the timber industry, Mandalong remained a quiet rural area for much of the twentieth century.

1.4.2.2 Current Land Use

The predominate land uses within the colliery holding include residential and rural-residential, industrial and commercial, utility easements, underground mining and surface operations associated with the Mandalong, power generation, cattle grazing and production, poultry production, transport corridors and recreational use, including holiday accommodation.

As shown on **Figure 4**, parts of the Olney State Forest are located within the colliery holding. The Olney State Forest is popular for recreational activities, including hiking, camping and four-wheel driving. FCNSW advises that the forests in this area have been harvested for timber for many decades and today comprise regrowth forests. Additional notable land uses are the Buttonderry Waste Management Facility, owned and operated by Central Coast Council / Wyong Shire Council and several major service infrastructure lines, including TransGrid's 330 kilovolt power lines. Vegetation mapping has been illustrated on **Figure 5**.

The proposed post mining land use for the area is described in **Section 4.1** and is intended to be commensurate with the surrounding area.



CENTENNIAL REHABILITATION
MANAGEMENT PLAN

MANDALONG

FIGURE 3
LAND OWNERSHIP

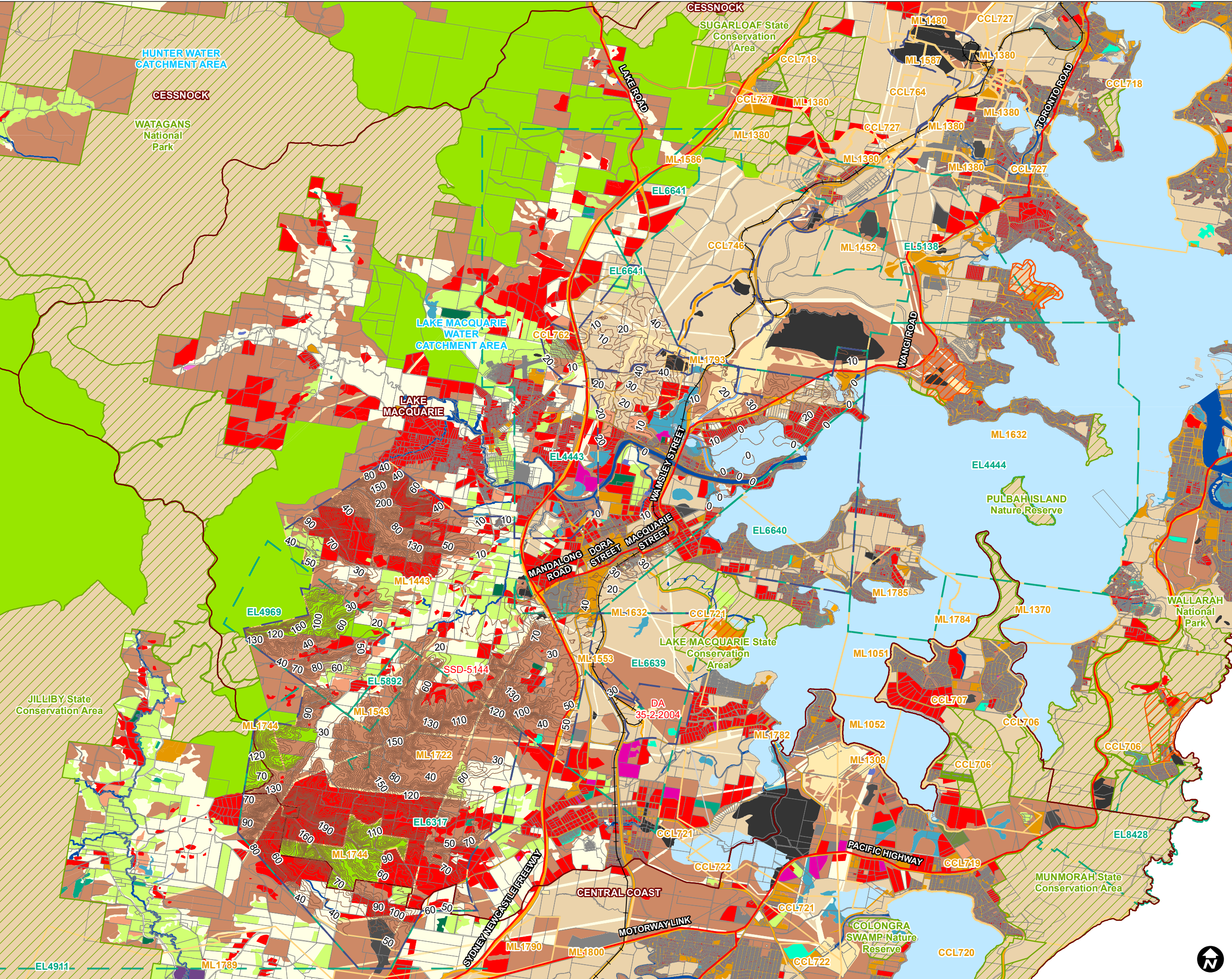
- LEGEND
- Railway
 - Major Road
 - Project Approval
 - Exploration Licence
 - Mining Lease
 - Local Government
 - State Heritage Register Curtilage
 - Reserve
 - State Forest
 - Water Catchment
 - Centennial Owned Land
- Land Ownership
- Crown
 - Freehold
 - Local Government
 - NSW Government
 - Unknown

Data Sources:
NSW Spatial Information Exchange
DoR NSW Exploration and Mining Leases
NSW LPI Land Status Cadastre & Ownership

0 1 2
Kilometres

Coordinate System: GDA2020
Scale: 1:100,000 at A3
Project Number: 630.30294
Date: 28-Jul-2022
Drawn by: AS
Annual Reporting Period: 2021





CENTENNIAL REHABILITATION
MANAGEMENT PLAN

MANDALONG

FIGURE 4
LAND USE AND CONTOURS

LEGEND

- +— Railway
 - Major Road
 - Current Landform Contour
 - Project Approval
 - Exploration Licence
 - Mining Lease
 - Local Government
 - State Heritage Register Curtilage
 - NPWS Reserve
 - Property Boundaries
- Land Use
- 1.1.0 Nature conservation
 - 1.2.0 Managed resource protection
 - 1.3.0 Other minimal use
 - 2.1.0 Grazing native vegetation
 - 2.2.0 Production native forestry
 - 3.1.0 Plantation forests
 - 3.2.0 Grazing modified pastures
 - 3.3.0 Cropping
 - 3.4.0 Perennial horticulture
 - 3.6.0 Land in transition
 - 4.2.0 Grazing irrigated modified pastures
 - 4.5.0 Irrigated seasonal horticulture
 - 5.1.0 Intensive horticulture
 - 5.2.0 Intensive animal production
 - 5.3.0 Manufacturing and industrial
 - 5.4.0 Residential and farm infrastructure
 - 5.5.0 Services
 - 5.6.0 Utilities
 - 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
 - 6.4.0 Channel/aqueduct
 - 6.5.0 Marsh/wetland

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

0 1 2 Kilometres

Coordinate System: GDA2020

Scale: 1:100,000 at A3

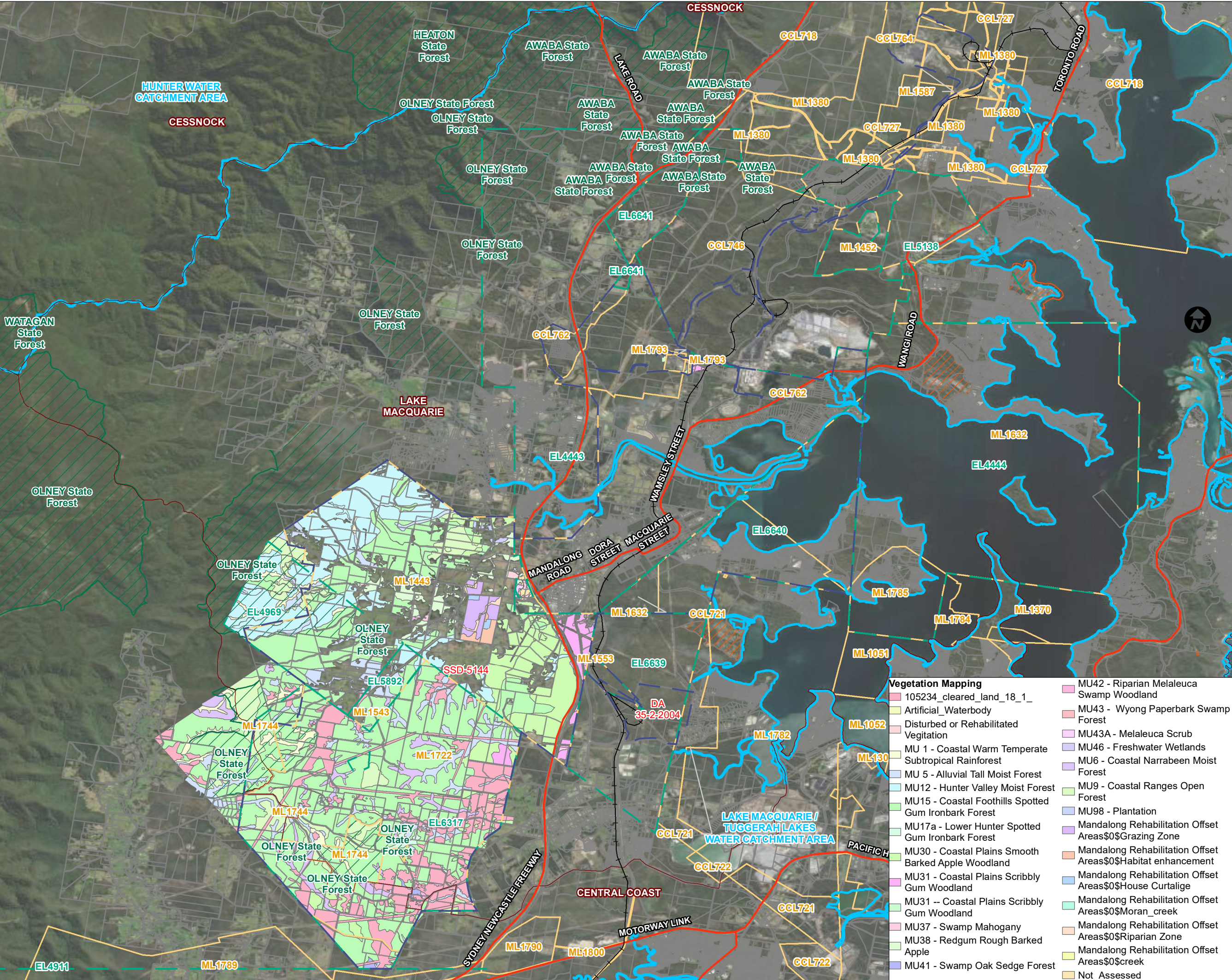
Project Number: 630.30294

Date: 29-Jul-2022

Drawn by: AS

Annual Reporting Period: 2021





CENTENNIAL REHABILITATION
MANAGEMENT PLAN

MANDALONG

FIGURE 5
VEGETATION COMMUNITIES

LEGEND

- Railway
- Major
- Project Approval
- Exploration
- Mining
- Local Government
- State Heritage Register
- Property
- Water Catchment

- Vegetation Mapping**
- 105234_cleared_land_18_1_
 - Artificial_Waterbody
 - Disturbed or Rehabilitated Vegetation
 - MU 1 - Coastal Warm Temperate Subtropical Rainforest
 - MU 5 - Alluvial Tall Moist Forest
 - MU12 - Hunter Valley Moist Forest
 - MU15 - Coastal Foothills Spotted Gum Ironbark Forest
 - MU17a - Lower Hunter Spotted Gum Ironbark Forest
 - MU30 - Coastal Plains Smooth Barked Apple Woodland
 - MU31 - Coastal Plains Scribbly Gum Woodland
 - MU31 -- Coastal Plains Scribbly Gum Woodland
 - MU37 - Swamp Mahogany
 - MU38 - Redgum Rough Barked Apple
 - MU41 - Swamp Oak Sedge Forest
 - MU42 - Riparian Melaleuca Swamp Woodland
 - MU43 - Wyong Paperbark Swamp Forest
 - MU43A - Melaleuca Scrub
 - MU46 - Freshwater Wetlands
 - MU6 - Coastal Narrabeen Moist Forest
 - MU9 - Coastal Ranges Open Forest
 - MU98 - Plantation
 - Mandalong Rehabilitation Offset Areas\$0\$Grazing Zone
 - Mandalong Rehabilitation Offset Areas\$0\$Habitat enhancement
 - Mandalong Rehabilitation Offset Areas\$0\$House Curtalige
 - Mandalong Rehabilitation Offset Areas\$0\$Moran_creek
 - Mandalong Rehabilitation Offset Areas\$0\$Riparian Zone
 - Mandalong Rehabilitation Offset Areas\$0\$creek
 - Not_Assessed

Data Sources:
NSW Spatial Information Exchange
DoR NSW Exploration and Mining Leases
NSW LPI Land Status Cadastre & Ownership
Vegetation mapping by Centennial

0 1 2
Kilometres

Coordinate System: GDA2020

Scale: 1:100,000 at A3

Project Number: 630.30294

Date: 27-Jul-2022

Drawn by: AS

Annual Reporting Period: 2021



1.4.2.3 Future Land Use

The proposed post mining land use for the area is intended to be commensurate with the surrounding area.

It is intended to re-develop the MMAS and CES for an industrial based land use(s). The option of leaving this infrastructure in the final landform will be discussed in consultation with RR and after discussions with potential buyers have been held.

The intended post-mining land use for the MSSS is native bushland commensurate with the pre-mining conditions.

Post-mining land use for the DES will be addressed in consultation with Delta Electricity with the intended post-mining land use being native bushland commensurate with the pre-mining conditions.

2 PART 2 - FINAL LAND USE

2.1 Regulatory Requirements for Rehabilitation

The regulatory requirements specific to post mining land-use and rehabilitation outcomes at Mandalong are summarised in **Table 2-1**.

Table 2-1: Regulatory Requirements

Condition	Requirement	Domain	Timing	Section Addressed														
Mandalong Southern Extension Project																		
SSD-5144 Schedule 3 Condition 31	Rehabilitation Objectives The Applicant must rehabilitate the site in accordance with the conditions imposed on the mining lease(s) associated with the development under the <i>Mining Act 1992</i> . This rehabilitation must be generally consistent with the proposed rehabilitation strategy described in the EIS and comply with the objectives in Table 5. Table 5: Rehabilitation Objectives	All domains within consent boundary	Ongoing	Section 4.1														
	<table><tr><th>Feature</th><th>Objective</th></tr><tr><td>Mine Site (as a whole)</td><td><ul style="list-style-type: none">Safe, stable and non-polluting.</td></tr><tr><td>Surface infrastructure</td><td><ul style="list-style-type: none">To be decommissioned and removed, unless RR agrees otherwise.MMAS and MSSS sites to be made safe, and hydraulically and geotechnically stable.MMAS site to be appropriately prepared for industrial land-use where SP1 zoning applies, while ecological values to be maintained and enhanced where E2 zoning applies.MSSS site to be revegetated with suitable local native plant species, and to a landform consistent with the surrounding environment.</td></tr><tr><td>Revegetated final landforms</td><td><ul style="list-style-type: none">Stable and sustain the intended land use.Consistent with surrounding topography to minimise visual impacts.Incorporate relief patterns and design principles consistent with natural drainage</td></tr><tr><td>Native flora and fauna</td><td><ul style="list-style-type: none">Flora species used in rehabilitation selected to re-establish and complement local and regional biodiversity.Rehabilitated areas contribute to achieving self-sustaining biodiversity habitats.</td></tr><tr><td>All watercourses subject to mine-water discharges and/or subsidence impacts</td><td><ul style="list-style-type: none">Hydraulically and geomorphologically stable, with aquatic ecology and riparian vegetation that is the same, or better than, prior to mining.</td></tr><tr><td>Steel slopes</td><td><ul style="list-style-type: none">No additional risk to public</td></tr></table>			Feature	Objective	Mine Site (as a whole)	<ul style="list-style-type: none">Safe, stable and non-polluting.	Surface infrastructure	<ul style="list-style-type: none">To be decommissioned and removed, unless RR agrees otherwise.MMAS and MSSS sites to be made safe, and hydraulically and geotechnically stable.MMAS site to be appropriately prepared for industrial land-use where SP1 zoning applies, while ecological values to be maintained and enhanced where E2 zoning applies.MSSS site to be revegetated with suitable local native plant species, and to a landform consistent with the surrounding environment.	Revegetated final landforms	<ul style="list-style-type: none">Stable and sustain the intended land use.Consistent with surrounding topography to minimise visual impacts.Incorporate relief patterns and design principles consistent with natural drainage	Native flora and fauna	<ul style="list-style-type: none">Flora species used in rehabilitation selected to re-establish and complement local and regional biodiversity.Rehabilitated areas contribute to achieving self-sustaining biodiversity habitats.	All watercourses subject to mine-water discharges and/or subsidence impacts	<ul style="list-style-type: none">Hydraulically and geomorphologically stable, with aquatic ecology and riparian vegetation that is the same, or better than, prior to mining.	Steel slopes	<ul style="list-style-type: none">No additional risk to public	Section 6
	Feature			Objective														
	Mine Site (as a whole)			<ul style="list-style-type: none">Safe, stable and non-polluting.														
	Surface infrastructure			<ul style="list-style-type: none">To be decommissioned and removed, unless RR agrees otherwise.MMAS and MSSS sites to be made safe, and hydraulically and geotechnically stable.MMAS site to be appropriately prepared for industrial land-use where SP1 zoning applies, while ecological values to be maintained and enhanced where E2 zoning applies.MSSS site to be revegetated with suitable local native plant species, and to a landform consistent with the surrounding environment.														
	Revegetated final landforms			<ul style="list-style-type: none">Stable and sustain the intended land use.Consistent with surrounding topography to minimise visual impacts.Incorporate relief patterns and design principles consistent with natural drainage														
	Native flora and fauna			<ul style="list-style-type: none">Flora species used in rehabilitation selected to re-establish and complement local and regional biodiversity.Rehabilitated areas contribute to achieving self-sustaining biodiversity habitats.														
	All watercourses subject to mine-water discharges and/or subsidence impacts			<ul style="list-style-type: none">Hydraulically and geomorphologically stable, with aquatic ecology and riparian vegetation that is the same, or better than, prior to mining.														
	Steel slopes			<ul style="list-style-type: none">No additional risk to public														
	Section 6.2.2																	
	Section 6																	
	Section 6																	
	Section 6 / Extraction Plans																	
	Section 6 / Extraction Plans																	
	Extraction Plans																	

Condition	Requirement	Domain	Timing	Section Addressed
	<div> <div></div> <div>safety compared to prior to mining</div> </div> <div> Built features damaged by mining operations <ul style="list-style-type: none"> Repair to pre-mining condition or equivalent unless: <ul style="list-style-type: none"> owner agrees otherwise; or damage is fully restored, repaired or compensated under the <i>Mine Subsidence Compensation Act 1961</i>. </div> <div> Community <ul style="list-style-type: none"> Ensure public safety. Minimise the adverse socio-economic effects associated with mine closure. </div>			Section 4.2 Mine Closure Plan
SSD-5144 Schedule 3 Condition 32	Progressive Rehabilitation The Applicant shall rehabilitate the site progressively, that is, as soon as practicable following disturbance.	All domains within consent boundary	Ongoing	Section 6
SSD-5144 Schedule 3 Condition 33A	The Applicant must prepare a Rehabilitation Management Plan for the development, in accordance with the conditions imposed on the mining lease(s) associated with the Mandalong Mine under the <i>Mining Act 1992</i> . The Applicant must implement the Rehabilitation Management Plan.	All domains within consent boundary	Ongoing	This RMP
Mandalong Southern Extension Project EIS Statement of Commitments (SSD-5144 Appendix 8)	Post Mining Closure and Rehabilitation Within five years of mine closure, Centennial Mandalong will prepare a detailed Mine Closure Management Plan with the aim of creating a land use capability compatible with the pre-mining land use (unless other beneficial uses are pre-determined and agreed). In addition to addressing the removal of surface infrastructure, the Plan will include: <ul style="list-style-type: none"> Rehabilitation of disturbed areas including spreading of stockpiled topsoil in accordance with commitments in this EIS, revegetation using locally occurring native plant species, and rehabilitation of disturbed land to a condition that is self-sustaining or where maintenance requirements are consistent with an agreed post-mining land use; and Final rehabilitation success criteria. 	All domains within consent boundary	Five years prior to closure	Mine Closure Plan
Mandalong Southern Extension Project EIS Page 313	“The Environmental Assessment (GSSE 2011) for MOD 7 committed to the rehabilitation of degraded areas of the EEC within areas mapped as ‘disturbed/rehabilitated vegetation’. A further commitment was made to tailor the density of rehabilitation to suit the requirements of an APZ.”	Rehabilitation Biodiversity Offset	Ongoing	Section 9
Mandalong Southern Extension Project EIS Page 332	Domain 1: Infrastructure Areas “Domain 1 comprises the Mandalong Mine Access Site (MMAS), which is intended to be re-developed for an industrial-based land use(s), and the Mandalong South Surface Site, which is intended to be decommissioned and rehabilitated to native bushland commensurate with the surrounding environment.”	All domains within consent boundary	Ongoing	Sections 2.4 and 4.1
Mandalong Southern	Domain 3: Other Lands “the post mining land use will be generally consistent with pre-mining	All domains within	Ongoing	Sections 2.4 and 4.1

Condition	Requirement	Domain	Timing	Section Addressed
Extension Project EIS Page 332	conditions and will primarily comprise a mix of grazing and native forest, with small areas of residential and special uses land."	consent boundary		
Mandalong Southern Extension Project EIS Page 335	Topsoil Management – "The topsoils are generally suitable to facilitate germination and appropriate management of this soil through amelioration (such as treatment with gypsum or lime) will provide an acceptable and stable media for revegetation."	All domains within consent boundary	Ongoing	Section 6.2.4
Mandalong Southern Extension Project Decommissioning and Rehabilitation Strategy – Page 28	<p>Equipment and Buildings</p> <p>All demountable/transportable buildings will be removed from the surface facility sites. All remaining permanent buildings, including the administration buildings and workshops will then be demolished, with the component materials being recycled or re-sold.</p> <p>Any materials not recycled or re-sold will be disposed of in a suitable location either on-site or off-site at a licenced waste management facility. Opportunities for the sale and/or re-use of assets and recycling of scrap steel will be maximised where possible. Material assessed as "not hazardous or contaminated" by a suitably qualified person can be crushed and disposed of within the main Mandalong Mine portal entry or placed as fill into the shafts.</p> <p>Concrete footings and pads will be broken up and removed. Options for the re-use of this material (for example, crushed and used for road and track stabilisation) will be investigated as the mine approaches closure. If re-use or recycling opportunities are not available or viable, all "non-contaminated" waste material will be disposed of in a suitable location on-site (for example, filling the drift) or off-site at an approved waste management facility.</p>	All domains within consent boundary	Ongoing	Section 6
Mandalong Southern Extension Project Decommissioning and Rehabilitation Strategy – Page 28	<p>Domain 1A Mandalong Mine Access Site</p> <p>As the Mandalong Mine Access Site is proposed to be re-developed for an industrial land use following the cessation of mining, the car parks and access roads are likely to remain on-site. Any roads, car parks and hard stand areas not required for an industrial land use will be removed as outlined below for the Mandalong South Surface Site.</p>	All domains within consent boundary	Ongoing	Section 6
Mandalong Southern Extension Project Decommissioning and Rehabilitation Strategy – Pages 28 and 29	<p>Domain 1B Proposed Mandalong South Surface Site Roadways and/or tracks may be required to remain to provide on-going access for rehabilitation monitoring and maintenance activities. Alternatively, roads and/or tracks may remain on-site if agreed in writing by the landowner.</p> <p>Access roads, tracks, car parks and hard stand areas that are not required will be scalped to remove stabilised and compacted material. The inert waste will be disposed of in a suitable location on-site or off-site at an approved waste management facility. Material assessed as "not hazardous or contaminated" by a suitably qualified person can be crushed and disposed of within the main Mandalong Mine portal entry or placed as fill into the shafts.</p>	All domains within consent boundary	Ongoing	Section 6.2.2

Condition	Requirement	Domain	Timing	Section Addressed
	Minor reshaping work may be undertaken to ensure surface level consistency with the surrounding areas and rehabilitated. Any creek crossings (such as culverts) will be removed and the pre-existing drainage line re-instated.			
Mandalong Southern Extension Project Decommissioning and Rehabilitation Strategy – Page 31	Water Management Infrastructure All water management infrastructure will be removed unless it is required for on-going water management, for example to prevent erosion and to ensure runoff does not enter the mine or cause groundwater contamination. Generally all underground water management infrastructure will be made safe and left buried in-situ. The location of water management infrastructure that is to remain in-situ will be recorded in an abandoned services register and signs will be erected where appropriate. Pipelines located in critical locations, for example infrastructure crossings of environmentally sensitive areas and/or riparian zones, will be filled with inert a material (such as concrete) to avoid additional disturbance of the environment.	All domains within consent boundary	Ongoing	Section 6.2.2
Mandalong Southern Extension Project Decommissioning and Rehabilitation Strategy – Page 34	Species to be Used for Revegetation Species selection for areas to be rehabilitated to native bushland will focus on those species that will successfully establish on the available growth medium, bind the soil and will result in a variety of structure and food/habitat resources. Whilst every attempt will be made to use species that existed prior to the commencement of mining, some additional species may be required to ensure suitable initial groundcover for site stabilisation. This may include the use of short-lived annual exotic non-invasive grass species. A combination of native and introduced pasture species may be used on the disturbance areas to ensure the quick establishment of a continuous groundcover, thereby reducing the risk of erosion. Legumes may also be selected to assist in the supply of bio-available nitrogen to the soil.	All domains within consent boundary	Ongoing	Section 6.2.5
Statement of Commitments DA97/800	Approximately 1.25 ha of degraded areas within the project site will be rehabilitated. 0.9 ha of MU38 Redgum – Roughbark Apple Swamp Forest EEC will be established in the areas currently mapped as 'disturbed/rehabilitated vegetation'; in the project site, and 0.3ha of MU 37 Swamp Mahogany – Paperbark Forest EEC will be established in the area currently mapped as MU46 on the eastern side of the approved gas engines and flares. The species to be established as part of the remediation will be sourced from local provenance to avoid genetic conflicts between local and imported species. Redgums will be Eucalyptus amplifolia grown from seed collected from trees in the Mandalong floodplain. Weed management activities will also be undertaken in the rehabilitated areas to ensure improved remediation outcomes.	Rehabilitation Biodiversity Offset	Complete	Section 2.4.1
Mandalong Mine	Following the construction of the relocated	All domains	Ongoing	Section 6

Condition	Requirement	Domain	Timing	Section Addressed
Transmission Line TL24 Relocation Project SEE (Mod 1) Page vii	TL24 transmission line and demolition of the redundant section, disturbance around the new and redundant tower sites will be rehabilitated. Any temporary access tracks established to the redundant tower sites will be rehabilitated in consultation with relevant stakeholders. The new towers, easement and access tracks will remain in place to allow TransGrid to operate and maintain the transmission line.	within consent boundary		
Mandalong Mine Transmission Line TL24 Relocation Project SEE (Mod 1) Page 48	Demolition The 12 steel lattice towers that need to be removed consist of five tension (approximately 20 metres tall) and seven suspension (approximately 25 to 36 metres tall) structures. As part of the demolition work, it is proposed to excavate around each leg to at least 1.0 metres below ground and remove the remaining steel to that depth and back filling with the same soil and additional fill material to achieve flat ground. The redundant material will be removed from site and recycled where possible or disposed of to landfill by a licenced waste contractor. The decommissioned tower sites will be rehabilitated in accordance with TransGrid's rehabilitation objectives and in consultation with landholders. TransGrid will be responsible for extinguishing the redundant easement in consultation with relevant stakeholders.	All domains within consent boundary	Ongoing	Section 6
Mandalong Mine Transmission Line TL24 Relocation Project SEE (Mod 1) Page 130	Decommissioning and Rehabilitation Following the construction of the relocated TL24 transmission line and demolition of the redundant section, disturbance around the new and redundant tower sites will be rehabilitated. Any temporary access tracks established to the redundant tower sites will be rehabilitated in consultation with relevant stakeholders. The new towers, easement and access tracks will remain in place to allow TransGrid to operate and maintain the transmission line. The section of redundant easement within Centennial Fassifern's landholding will be rehabilitated to be commensurate with surrounding vegetation.	All domains within consent boundary	Ongoing	Noted
Mandalong 33 KV Powerline SEE (Mod 7) Page 26	Project Life There is no proposed change to the life of Development Consent SSD 5144. The planned start date for the works covered in this assessment is Q3 2019 and is expected to take approximately nine months to complete. The 33 kV power line will be owned and operated by Ausgrid who will be responsible for its ongoing maintenance in addition to final decommissioning and rehabilitation, which will be after mine closure in 2040 unless otherwise determined by Ausgrid.	All domains within consent boundary	Ongoing	Noted
Mandalong 33 KV Powerline SEE (Mod 7) Page 37	Construction Rehabilitation All temporary construction areas will be rehabilitated in consultation with Ausgrid and directly affected landholders, leaving pads where required for ongoing maintenance.	All domains within consent boundary	Ongoing	Noted
Northern Coal Services Project				

Condition	Requirement	Domain	Timing	Section Addressed																		
SSD-5145 Schedule 3 Condition 27	Rehabilitation Objectives The Applicant must rehabilitate the site to the satisfaction of DRG. This rehabilitation must be generally consistent with the proposed rehabilitation strategy described in the EIS and comply with the objectives in Table 6. <i>Table 6: Rehabilitation Objectives</i>	All domains within consent boundary	Ongoing	Section 4.1																		
	<table><tr><th>Feature</th><th>Objective</th></tr><tr><td>Mine Site (as a whole)</td><td><ul style="list-style-type: none">Safe, stable and non-polluting.</td></tr><tr><td>Surface infrastructure</td><td><ul style="list-style-type: none">To be decommissioned and removed, unless the DRG agrees otherwise.NCSS, CES, Hawkmount Quarry and Reject Emplacement Areas to be made safe and hydraulically and geotechnically stable.NCSS and CES to be rehabilitated for use as light industrial areas; or revegetated with suitable local native plant species to a landform consistent with the surrounding local environment.</td></tr><tr><td>Rehabilitation materials</td><td><ul style="list-style-type: none">Materials from areas disturbed under this consent (including topsoils, substrates and seeds) are to be recovered, managed and used as rehabilitation resources.</td></tr><tr><td>Reject Emplacement Areas</td><td><ul style="list-style-type: none">Hawkmount Quarry and Reject Emplacement Area sites to be revegetated with suitable local native plant species, and to a landform consistent with the surrounding environment.Capped materials (including depth of application) to be approved by DRG prior to capping.</td></tr><tr><td>Revegetated final landforms</td><td><ul style="list-style-type: none">Stable and sustain the intended land use.Consistent with surrounding topography to minimise visual impacts.Incorporate relief patterns and design principles consistent with natural drainage</td></tr><tr><td>Native flora and fauna</td><td><ul style="list-style-type: none">Flora species used in rehabilitation selected to re-establish and complement local and regional biodiversity.Rehabilitated areas contribute to achieving self-sustaining biodiversity habitats.</td></tr><tr><td>All watercourses subject to mine-water discharges</td><td><ul style="list-style-type: none">Hydraulically and geomorphologically stable, with aquatic ecology and riparian vegetation that is the same, or better than, prior to mining.</td></tr><tr><td>Water quality</td><td><ul style="list-style-type: none">Water retained on site is fit for the intended post mining</td></tr></table>			Feature	Objective	Mine Site (as a whole)	<ul style="list-style-type: none">Safe, stable and non-polluting.	Surface infrastructure	<ul style="list-style-type: none">To be decommissioned and removed, unless the DRG agrees otherwise.NCSS, CES, Hawkmount Quarry and Reject Emplacement Areas to be made safe and hydraulically and geotechnically stable.NCSS and CES to be rehabilitated for use as light industrial areas; or revegetated with suitable local native plant species to a landform consistent with the surrounding local environment.	Rehabilitation materials	<ul style="list-style-type: none">Materials from areas disturbed under this consent (including topsoils, substrates and seeds) are to be recovered, managed and used as rehabilitation resources.	Reject Emplacement Areas	<ul style="list-style-type: none">Hawkmount Quarry and Reject Emplacement Area sites to be revegetated with suitable local native plant species, and to a landform consistent with the surrounding environment.Capped materials (including depth of application) to be approved by DRG prior to capping.	Revegetated final landforms	<ul style="list-style-type: none">Stable and sustain the intended land use.Consistent with surrounding topography to minimise visual impacts.Incorporate relief patterns and design principles consistent with natural drainage	Native flora and fauna	<ul style="list-style-type: none">Flora species used in rehabilitation selected to re-establish and complement local and regional biodiversity.Rehabilitated areas contribute to achieving self-sustaining biodiversity habitats.	All watercourses subject to mine-water discharges	<ul style="list-style-type: none">Hydraulically and geomorphologically stable, with aquatic ecology and riparian vegetation that is the same, or better than, prior to mining.	Water quality	<ul style="list-style-type: none">Water retained on site is fit for the intended post mining	Section 6.2.3
	Feature			Objective																		
	Mine Site (as a whole)			<ul style="list-style-type: none">Safe, stable and non-polluting.																		
	Surface infrastructure			<ul style="list-style-type: none">To be decommissioned and removed, unless the DRG agrees otherwise.NCSS, CES, Hawkmount Quarry and Reject Emplacement Areas to be made safe and hydraulically and geotechnically stable.NCSS and CES to be rehabilitated for use as light industrial areas; or revegetated with suitable local native plant species to a landform consistent with the surrounding local environment.																		
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	Reject Emplacement Areas			<ul style="list-style-type: none">Hawkmount Quarry and Reject Emplacement Area sites to be revegetated with suitable local native plant species, and to a landform consistent with the surrounding environment.Capped materials (including depth of application) to be approved by DRG prior to capping.																		
	Revegetated final landforms			<ul style="list-style-type: none">Stable and sustain the intended land use.Consistent with surrounding topography to minimise visual impacts.Incorporate relief patterns and design principles consistent with natural drainage																		
	Native flora and fauna			<ul style="list-style-type: none">Flora species used in rehabilitation selected to re-establish and complement local and regional biodiversity.Rehabilitated areas contribute to achieving self-sustaining biodiversity habitats.																		
	All watercourses subject to mine-water discharges			<ul style="list-style-type: none">Hydraulically and geomorphologically stable, with aquatic ecology and riparian vegetation that is the same, or better than, prior to mining.																		
Water quality	<ul style="list-style-type: none">Water retained on site is fit for the intended post mining																					
	Section 6.2.2 Newstan RMP for NCSS, Hawkmount Quarry and Reject Emplacement Areas																					
	Section 6.2																					
	Newstan RMP for Hawkmount Quarry and Reject Emplacement Areas																					
	Section 6.2																					
	Section 6.2																					
	Sections 4.2 and 6.2																					
	Sections 4.2 and 6.2																					
	Sections 4.2 and 6.2																					

Condition	Requirement		Domain	Timing	Section Addressed
		land use(s). <ul style="list-style-type: none"> Water management is consistent with the regional catchment management strategy. 			Mine Closure Plan
	Community	<ul style="list-style-type: none"> Ensure public safety. Minimise the adverse socio-economic effects associated with mine closure. 			
Northern Coal Logistics EIS Statement of Commitments (SSD-5145 Appendix 6)	Post Mining Closure and Rehabilitation Within five years of Project completion, Northern Coal Services will prepare a detailed Closure Management Plan with the aim of rehabilitating the Project Application Area to create a land use capability compatible with the surrounding land use and/or the pre-determined and agreed beneficial land use(s). In addition to addressing the removal of surface infrastructure, the Closure Management Plan will include: <ul style="list-style-type: none"> Rehabilitation of disturbed areas to a condition that is self-sustaining or where maintenance requirements are consistent with an agreed post-mining land use; and Final rehabilitation success criteria. 		All domains within consent boundary	Five years prior to closure	Mine Closure Plan
Northern Coal Logistics EIS – Decommissioning and Rehabilitation Strategy Page 35	Domain 1: Mining Infrastructure It is intended that the Newstan Colliery Surface Site and Cooranbong Entry Site within Domain 1 will be retained for some future post-mining industrial land use. The key attributes of the domain, including location, proximity to the Main Northern Railway Line (and rail loop at Newstan Colliery Surface Site), large hard stand areas, water management infrastructure, available services and connection to the NewstanEraring Private Haul Road, all support this option. It is acknowledged that there are some elements at both sites that are specifically related to underground coal mining and coal handling/processing and these will need to be decommissioned and removed from the site before it could be used for some other beneficial land use. To address this requirement, a decommissioning and demolition strategy will form an integral part of the detailed closure planning to be undertaken as the Project approaches five years from the planned closure. This will include engaging structural engineers and appropriate technical experts with experience in demolition and the application of relevant Australian Standards and guidelines. A detailed investigation of all structures will be completed at this stage to determine the appropriate techniques, equipment required, and the sequence for decommissioning and removal required to execute the demolition activities safely. Prior to commencement of demolition, an asset register will be distributed to all other Centennial sites to ascertain whether any of the key assets can be reused within the Centennial business.		All domains within consent boundary	Ongoing	Section 2.4
Northern Coal	Site Preparation		All domains	Ongoing	Section 4.2

Condition	Requirement	Domain	Timing	Section Addressed
Logistics EIS – Decommissioning and Rehabilitation Strategy Page 36	<p>Prior to the commencement of any demolition activities the following tasks will be undertaken:</p> <ul style="list-style-type: none"> All sumps will be dewatered; All items will be decommissioned, de-oiled, depressurised and isolated; and <p>All hazardous materials will be removed and transported to appropriately licensed disposal facilities.</p>	within consent boundary		
Northern Coal Logistics EIS – Decommissioning and Rehabilitation Strategy Page 36	<p>Contamination</p> <p>Further to this, Centennial will undertake additional contamination assessments and, if needed, remediation activities, at the Newstan Colliery Surface Site and Cooranbong Entry Site well in advance of final closure.</p> <p>Where possible all identified sources of contamination will be remediated during the operational phase of the Project. In some cases, however, this may not be possible (for example, under existing slabs, and workshops) and in these circumstances the remediation will be undertaken following closure and during decommissioning.</p>	All domains within consent boundary	Ongoing	Sections 4.2 and 6.2
Northern Coal Logistics EIS – Decommissioning and Rehabilitation Strategy Page 37	<p>Hazardous Materials</p> <p>Prior to the demolition of any structures, a hazardous materials assessment will be undertaken to determine whether there are any hazardous materials present, including asbestos. Where hazardous materials are identified, they will be assessed and quantified to enable appropriate safety measures to be implemented during removal by a licensed contractor. All hazardous material removed will be recorded and disposed of at an approved waste management facility.</p>	All domains within consent boundary	Ongoing	Sections 4.2 and 6.2
Northern Coal Logistics EIS – Decommissioning and Rehabilitation Strategy Page 37	<p>Site Services</p> <p>All services, including power, water, data and telephone, that are not required for some other commercial post disturbance land use will be safely isolated, disconnected and terminated. Generally all underground services will be made safe and left buried in-situ. Overhead power lines will be removed and the materials, including poles and wire, recovered for potential re-sale or recycling where practicable. Where they are retained the site services plans will be updated to ensure all services are adequately recorded.</p> <p>Where also practicable, pipelines and cables will be capped and remain in-situ. This is due to the risk of disturbing the re-established vegetation by excavation and removal. The location of pipelines that are to remain in-situ and that are not required for some other land use will be recorded in an abandoned services register and signs will be erected where appropriate.</p>	All domains within consent boundary	Ongoing	Section 6.2
Northern Coal Logistics EIS – Decommissioning and Rehabilitation Strategy Page 37	<p>Equipment and Buildings</p> <p>All demountable/transportable buildings not required for some other commercial post disturbance land use will be removed from the surface facility sites. All remaining permanent buildings, including the CHP, CPP and</p>	All domains within consent boundary	Ongoing	Section 6.2

Condition	Requirement	Domain	Timing	Section Addressed
	<p>associated coal chain infrastructure will then be demolished, with the component materials being recycled or re-sold where practicable.</p> <p>Any materials not recycled or re-sold will be disposed of in a suitable location either on-site or off-site at a licensed waste management facility. Opportunities for the sale and/or re-use of assets and recycling of scrap steel will be maximised where possible. Material assessed as “not hazardous or contaminated” by a suitably qualified person will be crushed and disposed of within associated portal entries or placed as fill into shafts.</p> <p>Concrete footings and pads will be broken up and removed. Options for the re-use of this material (for example, crushed and used for road and track stabilisation) will be investigated as the Project approaches closure. If re-use or recycling opportunities are not available or viable, all non-contaminated waste material will be disposed of in a suitable location on-site, filling nearby drifts, or off-site at an approved waste management facility.</p> <p>All sumps will be de-watered and de-silted prior to the commencement of demolition. In addition, all items of equipment will be de-oiled, degassed, depressurised and isolated, and all hazardous materials will be removed from the Project Application Area. All recoverable scrap steel will be sold and/or recycled. Prior to disposal, all wastes will be assessed and classified in accordance with the relevant regulatory requirements.</p> <p>Where structures are removed, the associated concrete slabs will also be removed, with all areas will then be reshaped, deep ripped, topsoiled and seeded. Where suitable quantities of topsoil material is not available at the site, the use of other organics such as bio-solids and/or compost will be assessed as an appropriate addition to enable the establishment of an appropriate vegetation cover.</p>			
Northern Coal Logistics EIS – Decommissioning and Rehabilitation Strategy Page 38	<p>Reclaim Tunnels</p> <p>Where practicable the material overlaying the reclaim tunnels will be removed to expose the roof of the tunnels. Once the roof is exposed the concrete will be broken up and placed back into the tunnel or disposed of in a suitable location on-site, filling nearby drifts/shafts or off-site at an approved waste management facility. These works will aim to leave minimal cavities prior to backfilling the tunnel. Once the reclaim tunnels are backfilled, a geotechnical assessment will be undertaken to determine whether the areas can be built over or whether they should be quarantined from future development.</p>	All domains within consent boundary	Ongoing	Section 6.2
Northern Coal Logistics EIS – Decommissioning and Rehabilitation Strategy Page 38	<p>Bitumen Roads, Tracks and Hardstand Areas</p> <p>Roadways and/or tracks may be required to remain to provide access to some other post disturbance land use as well as being required for the on-going access for monitoring and</p>	All domains within consent boundary	Ongoing	Section 6.2

Condition	Requirement	Domain	Timing	Section Addressed
	<p>maintenance activities. Alternatively, roads and/or tracks may remain on-site if agreed in writing by the landowner.</p> <p>Access roads, tracks, car parks and hard stand areas that are not required will be scalped to remove stabilised and compacted material. The inert waste will be disposed of in a suitable location on-site or offsite at an approved waste management facility. Material assessed as “not hazardous or contaminated” by a suitably qualified person can be crushed and disposed of within associated portal entries or placed as fill into the shafts.</p> <p>Minor reshaping work may be undertaken to ensure surface level consistency with the surrounding areas and rehabilitated. Any creek crossings (such as culverts) will be removed and the pre-existing drainage line re-instated.</p>			
Northern Coal Logistics EIS – Decommissioning and Rehabilitation Strategy Page 38	<p>Fuel Farms and Chemical Storage Areas</p> <p>Prior to closure any remaining fuel and/or chemicals will be recycled or disposed of at an appropriately licensed facility. All items of equipment will be de-oiled, degassed, depressurised and isolated, and all hazardous materials removed from the site. All infrastructure associated with fuel farms and chemical storage areas will be demolished and disposed of off-site at a licensed waste management facility. Opportunities for the sale and/or re-use of assets and recycling of scrap steel will be maximised where possible.</p> <p>Concrete footings and pads will be broken up and removed. Options for the re-use of this material (for example, crushed and used for road and track stabilisation) will be investigated as the operation approaches closure. If re-use or recycling opportunities are not available or viable, all non-contaminated waste material will be disposed of in a suitable location on-site or off-site at an approved waste management facility. Material assessed as “not hazardous or contaminated” by a suitably qualified person can be crushed and disposed of within the associated portal entries or placed as fill into shafts</p>	All domains within consent boundary	Ongoing	Sections 4.2 and 6.2
Northern Coal Logistics EIS – Decommissioning and Rehabilitation Strategy Page 38	<p>Conveyors</p> <p>All conveyors will be dismantled and removed from site. Opportunities for the sale and/or re-use of assets and recycling of materials will be maximised to the extent practicable. Over-head conveyors will be dismantled and lowered to the ground before being cut up. On ground conveyors will be cut up in-situ. All gearboxes and other vessels will be drained of oil and depressurised to remove any potential for contamination prior to demolition.</p> <p>The carbonaceous material below and in the vicinity of the surface conveyors will be stripped. Where possible the material will be considered for reprocessing. If this is not possible, it will be pushed up and stockpiled to be used to backfill portals or shafts, or to be placed against the cuttings and highwalls as a buttress</p>	All domains within consent boundary	Ongoing	Sections 4.2 and 6.2

Condition	Requirement	Domain	Timing	Section Addressed
Northern Coal Logistics EIS – Decommissioning and Rehabilitation Strategy Page 38	Stockpile Areas The carbonaceous material will be stripped and where possible the material will be considered for reprocessing. If this is not possible, it will be pushed up and stockpiled to be used to backfill portals or shafts, or to be placed against the earthworks cuttings and highwalls as a buttress. All areas should then be reshaped, deep ripped, topsoiled and seeded.	All domains within consent boundary	Ongoing	Sections 4.2 and 6.2
Northern Coal Logistics EIS – Decommissioning and Rehabilitation Strategy Page 41	Water Management Facilities <i>Water Management Dams</i> All water management infrastructure will be removed unless it is required for on-going water management, (for example to prevent erosion and to ensure runoff does not cause off-site contamination). Generally, a water management infrastructure will be made safe and left buried in-situ. The location of water management infrastructure that is to remain in-situ will be recorded in an abandoned services register and signs will be erected where appropriate. Pipelines located in critical locations, for example infrastructure crossings of environmentally sensitive areas and/or riparian zones, will be filled with inert a material (such as concrete) to avoid additional disturbance of the environment. <i>Surface Water Infrastructure</i> Where practicable, contour banks, berms and other structures installed as part of the surface water management system will be re-contoured to be aligned with the surrounding environment. Concrete structures will be broken and removed.	All domains within consent boundary	Ongoing	Sections 4.2 and 6.2
Northern Coal Logistics EIS – Decommissioning and Rehabilitation Strategy Page 41	Mining Infrastructure It is intended that Domain 1 will generally be retained for some future post-mining industrial land use, and on this basis the need for significant landform establishment is expected to be limited. For the areas where the mine-related infrastructure is to be decommissioned, there will be a requirement to undertake some re-profiling including establishing final landform drainage features. This will also include hazardous material encapsulation and earthworks to achieve safe and stable slopes with the desired gradients and landscape characteristics	All domains within consent boundary	Ongoing	Sections 2.4, 4.2 and 6.2
Northern Coal Logistics EIS – Decommissioning and Rehabilitation Strategy Page 43	Progressive Rehabilitation Due to the nature of operations proposed as part of the Northern Coal Logistics Project, including the minor areas of surface disturbance, the ability to undertake progressive rehabilitation, particularly revegetation, will be relatively limited compared to extractive mining operations. However, Northern Coal Services will adopt a progressive approach to rehabilitation (as needed) in accordance with a series of approved management plans, including on-going maintenance of all previously rehabilitated areas within the Project	All domains within consent boundary	Ongoing	Section 6

Condition	Requirement	Domain	Timing	Section Addressed
	Application Area.			
Northern Coal Logistics EIS – Decommissioning and Rehabilitation Strategy Page 45	<p>Soil Re-Spreading and Seedbed Preparation</p> <p>Soil should be re-spread directly onto stripped areas where practical. As recommended by SLR (2014), topsoil should be spread, treated with fertiliser and seeded in one consecutive operation, where possible, to reduce the potential for topsoil loss to wind and water erosion. Soil should be re-spread to the approximate depth from which it was stripped.</p> <p>Thorough seedbed preparation should be undertaken to ensure optimum establishment and growth of vegetation. All topsoiled areas should be lightly contour ripped (after topsoil spreading) and, where possible, ripped when the soil is moist and immediately prior to sowing. If required, the re-spread topsoil surface should be scarified prior to, or during seeding, to reduce run-off and increase infiltration.</p>	All domains within consent boundary	Ongoing	Section 6.2.4
Northern Coal Logistics EIS – Decommissioning and Rehabilitation Strategy Page 45	<p>A revegetation strategy will be developed for the Project and documented in the MOP to meet the post-mining land-use objectives and maintain effective erosion and weed controls.</p> <p>Revegetation activities will be scheduled to occur promptly following the completion of topsoil spreading and drainage works. Where possible, the timing of seeding will coincide with the preferred native grass and tree seasonal sowing periods in autumn or spring.</p> <p>On prepared surfaces, selected tree, shrub and pasture species will be sown using seed stock and/or planted depending on the species, slope gradients and area to be revegetated. Tree and shrub species will be established at a density and richness consistent with the nominated post-mine ecosystem</p>	All domains within consent boundary	Ongoing	Section 6.2
Northern Coal Logistics EIS – Decommissioning and Rehabilitation Strategy Page 45	<p>Species to be used for Revegetation</p> <p>Species selection for areas to be rehabilitated to native bushland and mixed grasses will focus on those species that will successfully establish on the available growth medium, bind the soil and result in a variety of structure and food/habitat resources. Whilst every attempt will be made to use species that existed prior to the commencement of mining, some additional species may be required to ensure suitable initial groundcover for site stabilisation.</p> <p>Deep rooting native trees will generally not be used on the REAs, instead they will be revegetated with native shrubs and native grasses. A combination of native trees and grasses will be used for all other areas with a native bushland proposed post-mining land use.</p> <p>A combination of native and introduced pasture species may be used on the disturbance areas to ensure the quick establishment of a continuous groundcover, thereby reducing the risk of erosion. Legumes may also be selected to assist in the supply of bio-available nitrogen to the soil.</p>	All domains within consent boundary	Ongoing	Section 6.2

Condition	Requirement	Domain	Timing	Section Addressed
Northern Coal Logistics EIS – Decommissioning and Rehabilitation Strategy Page 46	Rehabilitation Monitoring and Maintenance Areas being rehabilitated will be regularly inspected and assessed against the long and short-term rehabilitation objectives. A dedicated monitoring system will be established in order to assess effectiveness of implementation of the rehabilitation measures as well as to identify the need for corrective action as soon as required. The monitoring program will be developed for each closure domain, incorporating the most appropriate indicators and methods that: <ul style="list-style-type: none"> • Provide a measure of completion criteria to be assessed in accordance with the defined rehabilitation objectives; • Are reproducible; • Utilise scientific recognised techniques; and • Are cost-effective. 	All domains within consent boundary	Ongoing	Sections 6.2 and 10
Delta Entry Site				
Delta Link Project SEE Page 2.7	All stockpile areas that will not be permanent hardstand areas for the Delta Link Project will be rehabilitated once they are no longer needed for the construction phase.	All domains within approval boundary	Ongoing	Sections 2.4 and 4.2
Delta Link Project SEE Page 2.8	DECOMMISSIONING At the end of the projected life of the Delta Link Project, if no other use for the proposed coal handling infrastructure and underground tunnel is identified, the portal will be backfilled and sealed, all infrastructure and hardstand areas will be removed, compacted areas will be ripped and the landform will be rehabilitated with native vegetation. It is envisaged that the sedimentation dams will be left to provide runoff control for the rehabilitated land form and habitat for native fauna. Decommissioning of the proposed additional infrastructure at the Wyee Rail Unloader will form part of the proposed modification to that site.	All domains within approval boundary	Ongoing	Sections 2.4 and 4.2
Delta Link Project SEE Page 4.5	VISUAL AMENITY Analysis indicates that the proposed Delta Link Project will not have a significant visual impact on the surrounding area. As shown in Appendix 6, the proposed development is screened by topography and vegetation from surrounding view points. The proposal to remove approximately 3.7 hectares of woodland vegetation will be offset by the rehabilitation of an existing disturbed area on the southern side of the Settling Ponds once the construction phase has been completed. The woodland areas to be removed will not be visible from surrounding view points and will not impact on the visual amenity of the surrounding area which forms part of the Cobra Creek and Morisset Landscape Setting Units.	All domains within approval boundary	Ongoing	Sections 2.4 and 4.2
Delta Link Project SEE Page 4.5	The Mining Operation Plan (MOP) has to be prepared prior to commencement of operations and has to be lodged with the Director-General of Minerals. The MOP has to address the following: a) area(s) proposed to be disturbed under the Plan; b) mining and rehabilitation	All domains within approval boundary	Ongoing	Sections 2.4, 4.2 and 6

Condition	Requirement	Domain	Timing	Section Addressed
	method(s) to be used and their sequence; c) areas to be used for disposal of tailings/waste; d) existing and proposed surface infrastructure; e) progressive rehabilitation schedules; f) areas of particular environmental sensitivity; g) water management systems (including erosion and sediment controls); h) proposed resource recovery; and i) where the mine will cease extraction during the term of the Plan, a closure plan including final rehabilitation objectives/methods and post mining land use/vegetation.			
MINING LEASE CONDITIONS (Refer to Table 1-2 for Lease list and Appendix B for full list of lease conditions)				
Standard Conditions	See Mining Regulation 2016, Schedule 8A, Part 2 NOTE TO HOLDERS: The prescribed standard conditions in the Mining Regulation 2016, Schedule 8A, Part 2 apply in addition to the conditions in this Schedule 2 (but have not been replicated in this mining lease). The conditions imposed by the Mining Regulation 2016 prevail to the extent of any inconsistency with the conditions in this Schedule 2	All domains within approval boundary	Ongoing	This document Sections 4.1 and 6 Specific sections of Schedule 8A Part 2 referring to rehabilitation are addressed below within this table.
OTHER RELEVANT LEGISLATION				
Mining Amendment (Standard Conditions of Mining Leases – Rehabilitation) Regulation 2021 – Part 2 (refer to Appendix B for a full list of conditions)				
Division 1 (4)	Must prevent or minimise harm to environment	All domains	Ongoing	Sections 3, 8 and 10
Division 1 (5)	Rehabilitation to occur as soon as reasonably practicable after disturbance	All domains	Ongoing	Section 6.2.5
Division 1 (6)	Rehabilitation must achieve final land use	All Final Land Use Domains	Ongoing	Section 2.3
Division 2 (7)	Rehabilitation risk assessment	All domains	Complete	Section 3

2.2 Final Land Use Options Assessment

This section is not applicable to the Mandalong RMP as the final land use is defined within the development consents (refer **Section 2.1**).

2.3 Final Land Use Statement

The conceptual long term mine rehabilitation objective is to provide a low maintenance, geotechnically stable and safe landform. Specific conceptual long-term objectives include:

- Prevent public access to former underground workings;
- Re-establishing land disturbed by the operations of Centennial Mandalong to an appropriate final land use;
- Provide habitat for fauna and corridors for fauna movement within the final landform;
- Monitor rehabilitation success in terms of physical and biological parameters;
- Relinquishment of the surface leases as rehabilitation objectives are achieved; and
- Compliance with appropriate company and regulatory policies and guidelines.

Post-mining land use options for Mandalong (MMAS and MSSS) were assessed in the Mandalong Southern Extension Project Decommissioning and Rehabilitation Strategy (GSSE, 2013b) which was prepared for the Mandalong Southern Extension Project EIS. Post-mining land use options for the CES were assessed in the Northern Coal Logistics Project Decommissioning and Rehabilitation (SLR, 2014) which was prepared for the Northern Coal Logistics Project EIS.

It is intended to re-develop the MMAS and CES for an industrial based land use(s). The option of leaving this infrastructure in the final landform will be discussed in consultation with RR and after discussions with potential buyers have been held. This is consistent with the relevant consents in **Section 2.1**.

The intended post-mining land use for the MSSS is native bushland and pasture commensurate with the pre-mining conditions.

Post-mining land use for the DES will be addressed in consultation with Delta Electricity with the intended post-mining land use being native bushland commensurate with adjacent vegetation.

As Mandalong is an underground mine, the majority of the colliery holding will not be disturbed. The exception to this might be areas impacted by subsidence which will be addressed and managed on an ongoing basis in accordance with an approved SMP or Extraction Plan.

A conceptual final landform rehabilitation plan which details the proposed post-mining land use(s) is provided in **Section 5**.

2.4 Final Land Use and Mining Domains

2.4.1 Final Land Use Domains

Final land use domains are defined as land management units characterised by similar final land use objectives. Each final land use domain will require specific rehabilitation methods.

The final land use domains for this RMP are presented in **Table 2-2** and shown on the Final Landform and Rehabilitation Plan (refer **Section 5**).

Table 2-2: Final Land Use Domains

Code	Final Land Use Domain	Description
A	Native Ecosystem	Domain is associated with some infrastructure, stockpile and water management areas surrounding MMAS will be rehabilitated to woodland. The MSSS and access road are intended to be rehabilitated to woodland. The Delta Entry Site will be rehabilitated to woodland (subject to consultation with Delta Electricity). The domain also includes areas potentially impacted by subsidence and associated with existing remnant vegetation and/or woodland rehabilitation.
B	Agricultural – grazing	This domain is associated with some infrastructure areas (i.e. Mandalong South access road and laydown area) will be rehabilitated using suitable pasture species. The domain also includes areas potentially impacted by subsidence and associated with existing agricultural land and/or pasture rehabilitation.
C	Agricultural – Cropping	Not applicable.
D	Rehabilitation Biodiversity Offset Area	The rehabilitation associated with the VAM-RAB disturbance including 1.25 ha of land adjacent to and outside the proposed asset protection zone of the approved gas engines and flares to Redgum – Roughbarked Apple Swamp Forest EEC and Swamp Mahogany Paperbark Forest EEC.
E	Industrial	Not applicable.
F	Water Management Area	Not applicable
G	Water Storage	Comprises the footprint of the water management structures retained in the final land use for on-going water management (i.e. erosion and sediment control). This includes the ROM Stockpile Dam, Sediment Dams, 5 ML Dam and Construction Dam at CES and the Sediment Dam at MMAS.
H	Heritage Area	Not applicable.
I	Infrastructure	Includes infrastructure that can be retained for beneficial post-mining industrial land use. It is intended to redevelop the MMAS and CES for an industrial based land use(s). With the exception of the Sediment Dam, the water management structures at MMAS will not be retained in the final landform and will be rehabilitated to be suitable for industrial based land use.
J	Final Void	Not applicable.
K	Other	Not applicable

2.4.2 Mining Domains

Mining domains identify the footprint of areas disturbed for mining related activities. For the purpose of this RMP, mining domains have been defined as the set of discrete areas that have a particular operational or functional purpose, therefore having similar geophysical and geochemical characteristics that will have similar rehabilitation requirements.

Mining domains are presented in **Table 2-3**.

Code	Mining Domain	Description
1	Infrastructure Area	The infrastructure in this domain includes the existing mining infrastructure at the MMAS, CES, DES and the Mandalong South Surface Site. This area includes the current stockpiles at the CES.
2	Tailings Storage Facility	Not applicable
3	Water Management Area	Includes the network of dams and associated water management infrastructure at the Mandalong Mine Access Site, Cooranbong Entry Site and the Mandalong South Surface Site.
4	Overburden Emplacement Area	Not applicable.
5	Active Mining Area (Open cut void)	Not applicable.
6	Underground Mining Area (SMP)	The underground mining area in Domain 6 includes land above underground mining areas associated with secondary extraction within the Mandalong Mining Lease area. These areas are to be managed for potential subsidence related impacts.
7	Beneficiation Facility	Not applicable.
8	Other Ancillary Infrastructure Areas	Not applicable.

Table 2-3: Mining Domains

3 PART 3 - REHABILITATION RISK ASSESSMENT

3.1 Summary of Risk Assessments

Multiple risk assessments have been completed historically for the rehabilitation works associated with Mandalong. **Table 3-1** summarises the completed rehabilitation risk assessments.

Table 3-1: Summary of Risk Assessments

Date	Risk Assessment	Details
14 December 2015	MOP Risk Assessment	A risk assessment was undertaken for this MOP which addressed all risks to rehabilitation at Mandalong. This included key operational and rehabilitation risks for Centennial Mandalong.
23 February 2022	RMP Risk Assessment	A risk assessment was conducted to identify the key issues that presented a risk to achieving satisfactory rehabilitation at Sunnyside and inform the preparation of the RMP. This risk assessment was conducted in accordance with Resources Regulator's Guideline: Rehabilitation Risk Assessment to satisfy the standard rehabilitation conditions introduced on Mining Leases in July 2021.

3.2 Rehabilitation Risk Assessment

Conditions of a mining lease granted under the NSW *Mining Act 1992* require the lease holder to conduct a rehabilitation risk assessment and implement measures to eliminate, minimise or mitigate the risks in accordance with the Resources Regulator's *Guideline: Rehabilitation risk assessment*.

A risk assessment workshop was undertaken on 23 February 2022. The workshop was used to identify the key issues that presented a risk to achieving satisfactory rehabilitation at Mandalong.

The risk assessment included key Centennial Mandalong and SLR personnel and was undertaken in accordance with AS/NZS ISO 31000:2018 Risk Management – Guidelines and the Risk Management Handbook for the Mining Industry (MDG1010). Centennial's Risk Matrix was used to calculate the consequence and likelihood of an event and to evaluate the subsequent risk level (risk rank).

The risk assessment has been used to inform the preparation of this Plan. The objectives of the risk assessment were to:

- Identify the risks associated with rehabilitation and closure of Mandalong to achieve the approved post mining land uses;
- Identify knowledge gaps in Centennial's current understanding of the risks to rehabilitation;
- Identify the investigations/controls/action plans necessary to effectively mitigate risks and/or realise opportunities and to close any identified knowledge gaps;
- Inform the development of this RMP, to provide a basis to determine additional investigations and/or project works to be undertaken; and
- Provide the framework to satisfy relevant internal and government guidelines, requiring implementation of a risk-based approach to closure.

The risk workshop assessed a total of 65 key rehabilitation risks, which are summarised as:

- 14 risks were ranked as not applicable;
- 24 risks were ranked as low;
- 21 risks were ranked as moderate;
- 6 risks were ranked as significant;
- 0 risks were ranked as high; and
- 0 risks were ranked as extreme.

Rehabilitation risks, controls and proposed controls will regularly be reviewed and revised (as required).

3.2.1 Specific Risks relating to Rehabilitation

The key risks (including significant, high and extreme risks) to successful rehabilitation and associated risk controls identified within the February 2022 workshop have been summarised in **Table 3-2**. The outcomes of the risk assessment workshop have been used to inform the preparation of this RMP.

Table 3-2: Key Rehabilitation Risks and Identified Controls

Risk Rating	Key Risk	Key Controls	Section Addressed
Significant	Social Impacts.	Existing approvals	Section 1.2
		Known coal reserve	Geological model
Significant	Access delayed for execution of rehabilitation works	LOM infrastructure	Section 6.1
		Centennial GIS database	Centennial GIS
		Eraring Power Station easement understood, with rehabilitation required post-removal of conveyors	Site records
Significant	Changes in the existing riparian community generated by discharge of mine water into ephemeral drainage line (e.g. Cooranbong LDP001)	Ecological survey EPBC approval for discharge to Muddy Lake	Section 1.2 Environmental monitoring programs
		Green and Golden Bell Frog Research Plan	Environmental monitoring programs
		Monitoring programs	Environmental monitoring programs
		Environmental Inspection Program	Inspections
		Aquatic ecology monitoring program	Environmental monitoring programs
		Hydrological assessments	Groundwater assessments
Significant	Retained infrastructure poses a hazard to personnel and the public prior to or following final closure	Signage	Section 6
		Security	Section 6
		Fencing Locked	Section 6
		Controlled access	Section 6
		Monitoring and inspections	Environmental monitoring programs Inspections
		Existing approvals process in place	Section 1.2
		Approved light industrial land use for Mandalong Pit Top	Section 2.1
		LOM infrastructure	Section 6.1
Significant	Failure to achieve the rehabilitation outcome prescribed in the RMP/objectives/criteria	Environmental monitoring	Environmental monitoring programs
		Environmental Management System	Environmental Management System
		Water Management Plan Mandalong >165 m DOC	Environmental Management System

Risk Rating	Key Risk	Key Controls	Section Addressed
			Local geology
		Cooranbong water currently being pumped	Water Management System
		Hydrogeological models	Groundwater models
Significant	High rainfall events or inadequate drainage or inadequate storage	Vegetation establishment (remnant and available areas rehabilitated) Inspections	Section 6 Inspections
		Landforms stable and not resulting in changes to drainage paths or increased flow intensity.	Section 6
		Contamination assessments	Section 6
		Water Management Plan and TARP's	Water Management Plan
		Erosion and Sediment control dams in place	Section 6
		RCE provision review process	RCE

3.2.2 Further Studies / Action Plan

A number of proposed controls and further studies were identified during the risk assessment workshop. **Table 3-3** presents an action plan for implementation of the additional risk controls (including significant risks).

Table 3-3: Further Studies / Action Plan

Risk Rating	Key Risk	Proposed Control / Study	Timeframe
Significant	Social Impacts.	Finalise the Centennial Closure Standard	2025
Significant	Access delayed for execution of rehabilitation works	Cooranbong pump line and 330kv powerline easement and ownership/management requirements for rehabilitation need to be understood.	2025
Significant	Changes in the existing riparian community generated by discharge of mine water into ephemeral drainage line (e.g. Cooranbong LDP001)	Consider opportunities for translocation or other mitigation measures for Green and Golden Bell Frog. Noting cessation of discharge at mine closure will likely have impact upon local population.	2027
		Investigate the potential to understand pre-mining population and discharge reliance. Can natural flows sustain population post-mining.	2027
		Water discharged from Awaba to be considered.	2027
Significant	Retained infrastructure poses a hazard to personnel and the public prior to or following final closure	Cooranbong pump line and 330kv powerline easement and ownership/management requirements for rehabilitation need to be understood.	2027
		Review and understand infrastructure that may need to be retained in final land use and consistency with approvals.	2027
		Review legal considerations associated with decommissioning requirements for Cooranbong water supply line (ownership/management etc.).	2027
Significant	Failure to achieve the rehabilitation outcome prescribed in the RMP/objectives/criteria	Investigate if hydrogeological model considers potential for fill and spill of Cooranbong Mine following closure (cessation of active management)	2025

Risk Rating	Key Risk	Proposed Control / Study	Timeframe
Significant	High rainfall events or inadequate drainage or inadequate storage	Investigate the potential need to look at surface water requirements for sites during rehabilitation and closure.	2025
		Investigate and consider need for geotechnical inspections of dams at site for future monitoring/management.	2025

4 PART 4 - REHABILITATION OBJECTIVES AND REHABILITATION COMPLETION CRITERIA

4.1 Rehabilitation Objectives and Rehabilitation Completion Criteria

4.1.1 SSD 5144 Requirements

In accordance with Schedule 3, Condition 31 of SSD-5144 (as modified) Mandalong will:

- a. *rehabilitate the site in accordance with the conditions imposed on the mining lease(s) associated with the development under the Mining Act 1992; and*
- b. *this rehabilitation must be generally consistent with the proposed rehabilitation strategy described in the EIS and comply with the objectives in Table 5 of SSD-5144.*

Table 5 of SSD-5145 is replicated below in **Table 4-1**.

Table 4-1: SSD 5144 Rehabilitation Objectives

Feature	Objective
Mine Site (as a whole)	<ul style="list-style-type: none"> Safe, stable and non- polluting.
Surface infrastructure	<ul style="list-style-type: none"> To be decommissioned and removed, unless the RR agrees otherwise. MMAS and MSSS sites to be made safe, and hydraulically and geotechnically stable. MMAS site to be appropriately prepared for industrial land-use where SP1 zoning applies, while ecological values to be maintained and enhanced where E2 zoning applies. MSSS site to be revegetated with suitable local native plant species, and to a landform consistent with the surrounding environment.
Revegetated final landforms	<ul style="list-style-type: none"> Stable and sustain the intended land use. Consistent with surrounding topography to minimise visual impacts. Incorporate relief patterns and design principles consistent with natural drainage
Native flora and fauna	<ul style="list-style-type: none"> Flora species used in rehabilitation selected to re-establish and complement local and regional biodiversity. Rehabilitated areas contribute to achieving self-sustaining biodiversity habitats.
All watercourses subject to mine-water discharges and/or subsidence impacts	<ul style="list-style-type: none"> Hydraulically and geomorphologically stable, with aquatic ecology and riparian vegetation that is the same, or better than, prior to mining.
Steep slopes	<ul style="list-style-type: none"> No additional risk to public safety compared to prior to mining
Built features damaged by mining operations	<ul style="list-style-type: none"> Repair to pre- mining condition or equivalent unless: owner agrees otherwise; or - damage is fully restored, repaired or compensated under the <i>Mine Subsidence Compensation Act 1961</i>.
Community	<ul style="list-style-type: none"> Ensure public safety. Minimise the adverse socio- economic effects associated with mine closure.

Note: These rehabilitation objectives apply to all subsidence impacts and environmental consequences caused by all underground mining of the development and to all surface infrastructure components of the development.

Note: Subsidence is management in accordance with an approved SMP or Extraction Plan.

4.1.2 SSD 5145 Requirements

In accordance with Schedule 3, Condition 27 of SSD-5145 (as modified) Mandalong will ensure the following for CES:

- a. *rehabilitate the site to the satisfaction of RR; and*
- b. *this rehabilitation must be generally consistent with the proposed rehabilitation strategy described in the EIS, and comply with the objectives in Table 6 of SSD-5145.*

Relevant components to CES of Table 6 of SSD-5145 is replicated below in **Table 4-2**. Other objectives have been addressed in the Newstan Complex RMP.

Table 4-2: Rehabilitation Objectives (as Applicable to CES)

Feature	Objective
Mine Site (as a whole)	<ul style="list-style-type: none"> • Safe, stable and non- polluting.
Surface infrastructure	<ul style="list-style-type: none"> • To be decommissioned and removed, unless the RR agrees otherwise. • CES to be made safe and hydraulically and geotechnically stable. • CES to be rehabilitated for use as light industrial areas; or revegetated with suitable local native plant species to a landform consistent with the surrounding local environment.
Rehabilitation materials	<ul style="list-style-type: none"> • Materials from areas disturbed under this consent (including topsoils, substrates and seeds) are to be recovered, managed and used as rehabilitation resources.
Revegetated final landforms	<ul style="list-style-type: none"> • Stable and sustain the intended land use. • Consistent with surrounding topography to minimise visual impacts. • Incorporate relief patterns and design principles consistent with natural drainage
Native flora and fauna	<ul style="list-style-type: none"> • Flora species used in rehabilitation selected to re-establish and complement local and regional biodiversity. • Rehabilitated areas contribute to achieving self-sustaining biodiversity habitats.
All watercourses subject to mine-water discharges	<ul style="list-style-type: none"> • Hydraulically and geomorphologically stable, with aquatic ecology and riparian vegetation that is the same, or better than, prior to mining.
Water quality	<ul style="list-style-type: none"> • Water retained on site is fit for the intended post mining land use(s). • Water management is consistent with the regional catchment management strategy.
Community	<ul style="list-style-type: none"> • Ensure public safety. • Minimise the adverse socio- economic effects associated with mine closure.

4.1.3 Domain Rehabilitation Objectives

In order to achieve the broad rehabilitation objectives presented in SSD-5144 and SSD-5145, Mandalong have developed specific domain rehabilitation objectives.

Mandalong's current Rehabilitation Objectives Statement (ROBJ0001370) was approved by the Resources Regulator on 5 June 2024. The objectives statement for each of the domains are outlined in Appendix C.

4.1.4 Rehabilitation Completion Criteria

Completion criteria are objective target levels or values assigned to a variety of indicators (e.g. slope, species diversity, percent groundcover), which can be measured to demonstrate progress and ultimate success of rehabilitation. As such, they provide a defined end point, at which point in time rehabilitation can be deemed successful and the lease relinquishment process can proceed. The **draft** rehabilitation completion criteria for Mandalong are listed in **Table 4-3**.

These completion criteria will be utilised to demonstrate achievement of rehabilitation objectives. It is noted that the completion criteria may be subject to refinement as rehabilitation progresses, including as a result of ongoing consultation with the relevant stakeholders, studies yet to be completed and continuous improvement process informed by rehabilitation monitoring results. The achievement (or otherwise) of the completion criteria will be monitored and reported as required.

Closure criteria have been informed by the following information:

- Relevant conditions of development consents;
- The Department of Regional NSW – Mining, Exploration & Geosciences (DRNSW – MEG) rehabilitation guideline documents including:
 - Form and way: Rehabilitation objectives, rehabilitation completion criteria and final landform and rehabilitation plan for large mines;
 - Guideline: Rehabilitation objectives and rehabilitation completion criteria;
- Completion criteria from the previously approved Mandalong MOP;
- Similar rehabilitation projects; and
- Specific information collected to date during detailed planning investigations.

It is noted that whilst the Rehabilitation Objectives Statement ROBJ0001370 has been approved (Appendix C), the Rehabilitation Completion Criteria for Mandalong Complex will remain in draft until approved by the Resources Regulator.

Table 4-3: Draft Rehabilitation Completion Criteria

FINAL LAND USE DOMAIN	MINING DOMAIN	REHABILITATION OBJECTIVES (desired features and/or characteristics of the final land use domain)	INDICATOR (specific attribute associated with the objective)	REHABILITATION COMPLETION CRITERIA (benchmark for the indicator, based on analogue data where appropriate)	JUSTIFICATION/ VALIDATION (evidence that the benchmark has been achieved)
Native Ecosystem Agricultural - Grazing Water Storage Water Management Area	Infrastructure Area Water Management Area	All infrastructure that is not to be used as part of the final land use is removed to ensure the site is safe and free of hazardous materials.	Removal of all services (power, water, communications) that have been connected on the site as part of the operation.	All utility infrastructure removed.	Demolition records. Before and after site photographs. Utility service disconnection record/notification.
			Heritage obligations (e.g. development consent under the Environmental Planning and Assessment Act 1979, approvals under the Heritage Act 1977, etc.) have been met (e.g. archival recording, building retention or building demolition with footings preserved). Permits and approval documents issued. All archival reports required are complete and submitted. Copy of any relevant approval documentation and archival reports/records.	Permits and approval documents issued. All archival reports required are complete and submitted.	Copy of any relevant approval documentation and archival reports/records.
			Removal of all former mine related plant, equipment and associated infrastructure.	Infrastructure removed.	Demolition records Before and after site photographs
			Removal of all footings.	Where not retained, all concrete footings, foundation pads and pavements have been broken up and either removed, beneficially reused across the site or sold for some other beneficial reuse.	Aerial photography (including historical imagery as relevant)
			Surveying and sealing of all drill holes and boreholes in accordance with departmental guidelines and relevant standards.	Sealing completed and verified.	Engineering report/statement Plug and abandonment log Before and after site

FINAL LAND USE DOMAIN	MINING DOMAIN	REHABILITATION OBJECTIVES (desired features and/or characteristics of the final land use domain)	INDICATOR (specific attribute associated with the objective)	REHABILITATION COMPLETION CRITERIA (benchmark for the indicator, based on analogue data where appropriate)	JUSTIFICATION/ VALIDATION (evidence that the benchmark has been achieved)
			Surveying and sealing of all underground mine entries and shafts, adits, and drifts in accordance with departmental guidelines and relevant standards.	Sealing completed and verified by suitably qualified engineer.	photographs As constructed drawings Records of fill materials and concrete plugs, filling methods etc.
			Monitoring equipment (e.g. piezometers, survey pegs) removed if not required.	All subsidence pegs will be appropriately removed in consultation with RR.	Records of consultation with relevant government agency Before and after site photographs
Infrastructure	Infrastructure Area	Retention of infrastructure: All infrastructure that is to remain as part of the final land use is safe and does not pose any hazard to the community.	Potential hazards (e.g. electrical, mechanical) have been effectively isolated and secured.	Hazards isolated and secured.	Statement provided by suitably qualified engineer.
			Damage to access tracks and haul roads have been repaired and stabilised.	Repairs complete. Minimal erosion that would require moderate to significant ongoing management and maintenance.	Visual inspections Before and after site photographs
			Where applicable, necessary approvals are in place (e.g. development consent under the Environmental Planning and Assessment Act 1979) where buildings and infrastructure are to be retained as part of final land use.	Permits and approval documents issued.	Copy of any relevant approvals.
			Heritage obligations as required under the Environmental Planning and Assessment Act 1979, Heritage Act 1977, etc. have been met (e.g. archival recording, building retention and restoration).	Permits and approval documents issued; archival reports (where required) complete and submitted.	Copy of any relevant approvals.

FINAL LAND USE DOMAIN	MINING DOMAIN	REHABILITATION OBJECTIVES (desired features and/or characteristics of the final land use domain)	INDICATOR (specific attribute associated with the objective)	REHABILITATION COMPLETION CRITERIA (benchmark for the indicator, based on analogue data where appropriate)	JUSTIFICATION/ VALIDATION (evidence that the benchmark has been achieved)
			The structural integrity of the infrastructure is suitable and safe for use as part of the intended final land use.	The structural integrity of the infrastructure has been inspected by a suitably qualified engineer and determined to be suitable and safe as part of the intended final land use.	Engineering report/statement Before and after site photographs Risk assessment verifying modes of failure are adequately addressed to minimise risks to public safety or the environment.
			Infrastructure is in a condition (e.g. structural, electrical, other hazards) that is suitable for the intended final land use.	Formal acceptance from the subsequent landowner that infrastructure is in a condition that is suitable for the intended final land use in accordance with formal agreement.	Formal acceptance from landowner.
			If any underground pipelines or other infrastructure are to remain in situ, they do not pose a hazard for the intended final land use.	The location of the infrastructure has been marked on a plan and registered with the relevant local authority (e.g. local Council) and Dial Before You Dig.	Surveyed and marked on the as-constructed final landform plan. Copy of notification to local Council and Dial Before You Dig
			Ownership and responsibility for retained access tracks and haul roads is identified	All retained infrastructure under clear ownership for appropriate post mining land use.	Correspondence from landowner regarding agreement of final land use
Infrastructure Native Ecosystem Agricultural - Grazing	All Mining Domains	Land Contamination: There is no residual soil contamination on site that is incompatible with the final land use or that poses a threat of environmental harm.	No waste material and/or visible contamination areas on site surface.	There are no visible signs of contamination following the removal of plant, equipment and materials. All rubbish/waste materials removed from site. All carbonaceous material has been removed (where practical) and transported to an REA or a void for burial, or will be appropriately contained/encapsulated.	Site inspections Before and after site photographs Contamination Assessment Reports Groundwater/surface water monitoring reports

FINAL LAND USE DOMAIN	MINING DOMAIN	REHABILITATION OBJECTIVES (desired features and/or characteristics of the final land use domain)	INDICATOR (specific attribute associated with the objective)	REHABILITATION COMPLETION CRITERIA (benchmark for the indicator, based on analogue data where appropriate)	JUSTIFICATION/ VALIDATION (evidence that the benchmark has been achieved)
			Soil testing for contaminants of concern as listed by Health Investigation Level of the National Environment Protection (Assessment of Site Contamination) Measure (1999) applicable to land use type	Contamination will be appropriately removed, remediated or managed so that appropriate guidelines for land use are met	Contamination Assessment Reports Groundwater/surface water monitoring reports
All Final Land Use Domains	Infrastructure Area	Residual waste materials (e.g. carbonaceous material and other wastes) will be appropriately removed or contained/encapsulated so it does not pose any hazards or constraints for intended land use.	Waste material on site surface	All rubbish/waste materials have been removed from site	Statement provided and before/after photos. Waste disposal records
All Final Land Use Domains	All Mining Domains	The final landform is stable for the long-term and does not present a risk of environmental harm downstream/downslope of the site or a safety risk to the public/stock/native fauna.	Indicators of erosion and land instability.	Minimal erosion that would require moderate to significant ongoing management and maintenance. No visual signs of land instability such as mass movement.	LIDAR survey of final landform Aerial photography Before and after photographs. Site inspections Rehabilitation Monitoring Report
Native Ecosystem Agricultural - Grazing	Infrastructure Area Water Management Area	Landform that is commensurate with surrounding natural landform.	Survey of rehabilitated landform to verify final landform construction in accordance with Final Landform and Rehabilitation Plan.	Survey verifies final landform complies with final landform construction in accordance with Final Landform and Rehabilitation Plan.	LIDAR survey of final landform Aerial photography Before and after photographs. Site inspections Rehabilitation Monitoring Report
			Measured - survey of rehabilitated landform to specifically monitor settlement and/or material loss via erosion.	Survey verifies that settlement and/or material loss is within predicted limits and will not compromise final landform drainage via differential settlement.	LIDAR survey of final landform Aerial photography Before and after photographs. Site inspections

FINAL LAND USE DOMAIN	MINING DOMAIN	REHABILITATION OBJECTIVES (desired features and/or characteristics of the final land use domain)	INDICATOR (specific attribute associated with the objective)	REHABILITATION COMPLETION CRITERIA (benchmark for the indicator, based on analogue data where appropriate)	JUSTIFICATION/ VALIDATION (evidence that the benchmark has been achieved)
All Final Land Use Domains	Underground Mining Area				Rehabilitation Monitoring Report
				Significant surface water management structures (e.g. spillways, drop structures, major drains and creek diversions) have been constructed in accordance with hydrological design.	An engineering assessment undertaken by a suitably qualified person concludes that significant surface water management structures (e.g. spillways, drop structures, major drains and creek diversions) have been constructed in accordance with hydrological design.
				High risk landforms (such as steep slopes, high walls) have been constructed in accordance with geotechnical design.	An engineering assessment undertaken by a suitably qualified person concludes that high risk landforms (such as steep slopes, high walls) have been constructed in accordance with geotechnical design.
All Final Land Use Domains	Underground Mining Area		Absence of subsidence cracking or sinkholes.	No visual subsidence surface cracks or potholes remaining (attributable to former mining operations) that present a risk to the environment, safety, or the final land use objectives (excludes areas managed under an approved Subsidence Management Plan / Extraction Plan / Offset Strategy).	Before and after photographs Subsidence monitoring reports.
Water Storage	Water Management Areas	Water Approvals Structures that take or divert water such as final voids, dams, levees etc. are appropriately licensed (e.g. under the Water Management Act 2000) where required. As required ensure sufficient licence shares are held in the water source(s) to account	Final landform considers advice from relevant Government Agency whether sufficient licence shares are available in the water source to account for water stored in voids and dams in the proposed final landform.	Water approvals / licences are granted by relevant NSW Government Agency.	Copies of approvals, where relevant.
			Indicators specified by Rapid Appraisal of Riparian Condition	Assessment of stream health in accordance with RARC.	Stream health monitoring reports.

FINAL LAND USE DOMAIN	MINING DOMAIN	REHABILITATION OBJECTIVES (desired features and/or characteristics of the final land use domain)	INDICATOR (specific attribute associated with the objective)	REHABILITATION COMPLETION CRITERIA (benchmark for the indicator, based on analogue data where appropriate)	JUSTIFICATION/ VALIDATION (evidence that the benchmark has been achieved)
		for water take.	(RARC) (Jansen et al 2005).		
		Where required by sampling, mine water dams and sediment dams are dewatered and desilted prior to being converted to clean water dams.	Water quality sampling Mine water dams and sediment dams non-polluting	Where required based on sampling, sediment accumulated in mine water and sediment dams is appropriately removed, remediated or managed so that appropriate guidelines for land use are met, supported by records. Monitoring of water quality against guidelines for the final land use (e.g. agricultural, industrial, recreational).	Statement provided and before/after photos. Rehabilitation records Water quality testing results
All Final Land Use Domains	Infrastructure Area Water Management area	Drainage structures will be designed and constructed where required in accordance with Blue Book requirements.	Suitable surface water controls installed and operating effectively	Monitoring of water discharged from the Mine complies with EPL limits.	Water quality testing as per the approved <i>Site Water Management Plan</i> Photographs Rehabilitation monitoring reports
All Final Land Use Domains	Infrastructure Area Water Management Area	Bushfire: The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as part of rehabilitation.	Appropriate bushfire hazard controls (where required) have been implemented. Ownership and responsibility for ongoing bushfire management is identified	Bushfire controls implemented.	Statement provided Before and after photographs Bushfire management plan in place.
Water Storage Water Management Area	Water Management Area	Surface Water: Runoff and discharge water quality from mine site is similar to, or better than the pre- disturbance runoff water quality.	Water quality parameters in accordance with EPL.	Water quality discharged from rehabilitated mining operation meet specifications in EPL.	EPL has been relinquished by EPA. Contamination investigations.
Native Ecosystem Rehabilitation Biodiversity Offset Area	Infrastructure Area Water Management Area	Ecological rehabilitation objective 1: The vegetation composition of the rehabilitation is comparable to adjacent vegetation for Native Ecosystem; or relevant PCTs for	Native plant species recorded from 0.04 ha fixed monitoring plots are characteristic of adjacent vegetation. All native vascular plant species are identified to species level from	Native plant species recorded within rehabilitation areas are characteristic of the reference (or target) vegetation. The rehabilitated vegetation contains at least 1 tree, 2 shrub and 6 groundcover species that are characteristic of the	Before and after photos BAM plot data Rehabilitation monitoring reports

FINAL LAND USE DOMAIN	MINING DOMAIN	REHABILITATION OBJECTIVES (desired features and/or characteristics of the final land use domain)	INDICATOR (specific attribute associated with the objective)	REHABILITATION COMPLETION CRITERIA (benchmark for the indicator, based on analogue data where appropriate)	JUSTIFICATION/ VALIDATION (evidence that the benchmark has been achieved)
		Rehabilitation Biodiversity Offset Area.	fixed 0.04 ha monitoring plots in accordance with the BAM. Monitoring should include appropriate reference (analogue) sites outside the mine disturbance area	target vegetation type.	
		Ecological rehabilitation objective 2: The vegetation structure of the rehabilitation is comparable to (based on ongoing monitoring data) the adjacent vegetation for Native Ecosystem; or relevant PCTs for Rehabilitation Biodiversity Offset Area.	Cover and abundance of plant growth forms recorded from 0.04 ha fixed monitoring plots are characteristic of the adjacent vegetation, or an ongoing trend toward becoming characteristic is evident from the monitoring data	Cover, abundance and height range of native plant growth forms are characteristic of, or trending towards, the adjacent vegetation when compared to analogue sites. The total cover and abundance scores for each growth form group is greater than or equal to that of the adjacent vegetation or has improved since baseline monitoring (where annual data is available).	Before and after photos BAM plot data Rehabilitation monitoring reports
		Ecological rehabilitation objective 3: Levels of ecosystem function have been established that demonstrate the rehabilitation is self- sustainable.	Indicators of nutrient cycling are suitable for sustaining the target vegetation community	For large areas of rehabilitation (that justifies the use of multiple analogue sites) litter cover is within 10 th -90 th percentile variation range of analogue sites. For small areas of rehabilitation a cover of leaf litter is present..	BAM plot data Rehabilitation monitoring reports
			Evidence of plant regeneration from 0.04 ha fixed monitoring plots or a walk over of the ecological rehabilitation area	For large areas of rehabilitation that justifies the use of at least three analogue sites, the number of second generation individuals of trees are within the 10th-90th percentile variation range of analogue sites. For small areas of rehabilitation, evidence of second regeneration is present.	BAM plot data (stem classes) Rehabilitation monitoring reports
			Cover of exotic species within 0.04 ha fixed monitoring plots is low	For large areas of rehabilitation that justifies the use of at least three analogue sites the foliage cover of 'high threat exotic' (HTE) weeds is within	BAM plot data Rehabilitation monitoring reports

FINAL LAND USE DOMAIN	MINING DOMAIN	REHABILITATION OBJECTIVES (desired features and/or characteristics of the final land use domain)	INDICATOR (specific attribute associated with the objective)	REHABILITATION COMPLETION CRITERIA (benchmark for the indicator, based on analogue data where appropriate)	JUSTIFICATION/ VALIDATION (evidence that the benchmark has been achieved)
				10th-90th percentile variation range of analogue sites. For small areas of rehabilitation, cover of exotic species is less than or equal to the cover of exotic species at the analogue sites.	
			Soil health is suitable to sustain the desired vegetation types.	Soil nutrient profile is suitable to sustain plant growth; Total organic carbon is within 10th-90th percentile variation range of reference sites; Soil analytes ECe (salinity) and ESP (sodicity) at rehabilitation sites are similar to reference sites	Soil chemistry reports (inc. lab results)
				Decomposer microbial populations in the soils are similar to those of reference sites, using a metric that distinguishes soils at different stages of and in different types of mine rehabilitation. The specific parameters of the metric are: 1) the actinomycete: bacteria ratio (lower values are associated with increased soil disturbance), 2) the proportion of copiotrophic bacteria (higher values are associated with increased labile soil organic carbon), and 3) the presence of the fungus <i>Trichoderma</i> (an indicator of significant amounts of plant cellulosic substrates in soils).	Soil microbial lab results Soil microbial soil assessment report
		Native fauna are utilising rehabilitation areas	Quantitative assessment of other features (e.g. leaf litter cover, bare ground, wood debris) sampled from fixed 0.04 ha monitoring plots in accordance with the BAM	Litter cover within 10 th -90 th percentile variation range of local reference site values.	Litter scores from BAM plot data

FINAL LAND USE DOMAIN	MINING DOMAIN	REHABILITATION OBJECTIVES (desired features and/or characteristics of the final land use domain)	INDICATOR (specific attribute associated with the objective)	REHABILITATION COMPLETION CRITERIA (benchmark for the indicator, based on analogue data where appropriate)	JUSTIFICATION/ VALIDATION (evidence that the benchmark has been achieved)
Native Ecosystem Agricultural – Grazing Rehabilitation Biodiversity Offset Area.	Infrastructure Area Water Management Area	Rehabilitation areas are sustainable and comparable with surrounding vegetation for Native Ecosystem/Agricultural – Grazing; or relevant PCTs for Rehabilitation Biodiversity Offset Area.	Resilience demonstrated by the effects of drought and fire on composition, structure and other function attributes.	Where rehabilitation has been subjected to fire and drought, data shows composition, structure and function scores returning to pre-disturbance conditions, indicating resilience.	Observations during monitoring inspections; Comparison of pre- and post-fire BAM data; Comparison of pre- and post-fire climatic data (weather records over the monitoring period); Rehabilitation monitoring report
		Pest animal species are appropriately controlled and do not present a risk to rehabilitation.	Threats to rehabilitation.	Vertebrate pest species presence and damage is recorded and controlled.	Observations during monitoring inspections (ie direct and indirect evidence of pest species) Passive fauna monitoring data (eg footage from motion activated infra-red cameras) Records of pest animal control activities
Native Ecosystem	Underground Mining Area	Post mining land use to be self-sustaining natural ecosystem comprising native trees and shrubs generally representative of vegetation in comparable analogue communities.	Presence of representative species and cover.	Successful establishment of representative species, comparable to adjacent vegetation. A cover of leaf litter is present.	Before and after photographs
Agricultural - Grazing	Infrastructure Area	Agricultural Revegetation: Revegetation is sustainable for the long-term and only requires maintenance that is consistent with the intended final land use. Land use capability is capable of supporting the target agricultural land use.	Land and Soil Capability of at least Class 6 in proposed Agricultural areas	Land and Soil Capability classification or Agricultural Land Classification criteria met.	Rehabilitation monitoring reports Independent agronomist report
			The re-established growth medium substrate (e.g. topsoil / subsoil) is capable of supporting the targeted pasture regime on a sustained basis.	Rehabilitation areas comprise representative pasture species from the seed mix and suitable for cattle grazing (where grazing is final land use).	Rehabilitation monitoring reports Independent agronomist report
			Pasture composition assessed, including pasture weeds.	Pasture establishment is consistent with the range of species utilised within the	

FINAL LAND USE DOMAIN	MINING DOMAIN	REHABILITATION OBJECTIVES (desired features and/or characteristics of the final land use domain)	INDICATOR (specific attribute associated with the objective)	REHABILITATION COMPLETION CRITERIA (benchmark for the indicator, based on analogue data where appropriate)	JUSTIFICATION/ VALIDATION (evidence that the benchmark has been achieved)
				region.	Observations during monitoring inspections; Rehabilitation monitoring report
			Demonstration of persistence over time for palatable species.	Pasture establishment is in good health and provides adequate cover.	
			Resilience demonstrated by the effects of drought and fire on composition, structure and other function attributes of pasture	Where rehabilitation has been subjected to fire and drought, data shows composition, structure and function scores returning to pre-disturbance conditions, indicating resilience.	
Agricultural - Grazing	Underground Mining Area	Post mining land use to be self-sustaining grassland ecosystem comprising grasses and legumes generally representative of vegetation in comparable analogue communities.	Presence of representative species and cover.	Successful establishment of representative species, comparable to adjacent vegetation.	Before and after photographs

4.2 Rehabilitation Objectives and Rehabilitation Completion Criteria – Stakeholder Consultation

4.2.1 Stakeholder Engagement Strategy

Mandalong conducts communication and consultation processes which will continue for the duration of mining activities. The Stakeholder Engagement Strategy (SES) has been developed to provide a consistent management framework to identify, inform, consult and involve landowners with an interest in the activities associated with the Mandalong.

The SES includes details of communication and consultation with all landowners and in particular those located in mining and exploration areas proposed over the life of the mine, in accordance with the requirements of the Development Consents and mining authority conditions.

The objectives of the SES are to:

- Understand the characteristics of the local community and the impact of its operations (current and proposed);
- Set a process for consultation and engagement with stakeholders of interest;
- To openly communicate with stakeholders about Mandalong Mine regarding current and potential future activities; and
- To provide a means of ongoing reporting and monitoring of activities.

Established communication and consultation methods utilised by Centennial Mandalong include:

- Participation on the Mandalong Community Consultative Committee (CCC);
- Notifications and meetings with individual landowners;
- Notifications and meetings with individual stakeholders including community infrastructure providers and utilities;
- “Mandalong Mailbox” community newsletters;
- Publications in the local newspaper (the “Lakes Mail”);
- Community information sheets dealing with specific Mine development issues;
- Community Open Days and Mine visits (surface and underground);
- Mandalong Community Information and Complaints Line (1800 730 919); and
- Centennial Coal website – Mandalong community information page.

4.2.1.1 Relevant Statutory Authorities

Centennial has consulted with and will continue to consult with the following regulatory bodies in relation to the Mandalong operations and rehabilitation:

- RR;
- Heritage NSW;
- DPI - Water;
- DPE;
- EPA;
- Roads and Maritime Services (RMS);
- Subsidence Advisory NSW;
- Biodiversity Conservation Division;
- Natural Resources Access Regulator (NRAR);
- Mining Exploration and Geoscience (MEG);
- Crown Lands;
- Forestry Corporation of NSW;
- Lake Macquarie City Council (LMCC);
- Central Coast Council (and previously Wyong Shire Council); and
- NSW Rural Fire Service.

4.2.1.2 Other Key Stakeholders

Centennial Mandalong has consulted with and will continue to consult with a number of community groups and landholders in relation to the Mandalong operations and rehabilitation, including:

- Aboriginal stakeholder groups;
- Local community and affected landowners;
- Community groups;
- Staff, contractors and unions; and
- Mandalong Community Association.

4.2.1.3 Community Consultative Committee

In accordance with the requirements of Schedule 6, Condition 9 of SSD-5144, a Community Consultation Committee (CCC) has been established to provide a forum whereby the community can communicate with the Centennial Mandalong and be kept up to date with the progress of the mine. The CCC has representatives from the Mandalong Community Association, LMCC, and community representatives from Mandalong, Morisset and Dora Creek. The CCC is operated in accordance with the Community Consultative Committee (CCC) Guidelines for State Significant Projects (Department of Planning, 2016), or its latest version, and typically meets three times per year.

4.2.2 Summary of Stakeholder Engagement Completed to Date

Centennial routinely engages with stakeholders regarding rehabilitation and mine closure.

Previous Mining Operations Plans, including the most recent (Mining Operations Plan Mandalong Mine December 2016 to November 2023 (Amendment D)) included engagement with the local communities and stakeholder groups regarding final land use options and rehabilitation expectations.

Key issues associated with final land use and rehabilitation addressed in the Mandalong Mine Project EIS consultation process included:

- Creek rehabilitation strategies and mitigation measures for predicted creek impacts from subsidence;
- Revegetation of plant species with local provenance during rehabilitation; and
- Maintenance and enhancement of Environmental Conservation (E2) land.

All issues raised in the consultation process for the Project EIS were comprehensively addressed in the approval process and are reflected in the commitments in the Project EIS Statement of Commitments and development consent conditions.

Table 4-4 presents a high-level summary of the additional key consultation undertaken for the project to date.

Table 4-4: Consultation Summary to Date

Stakeholder	Date	Issues Raised
RR, OEH, DPI Water, LMCC, CCC	6 June 2016	To satisfy the requirements of Schedule 3, Condition 33 of SSD-5144 and Schedule 3, Condition 29 of SSD-5145 the Mining Operations Plan was submitted for consultation with the RR, OEH, DPI Water, LMCC and the CCC on 6 June 2016. Feedback received from stakeholders has been appropriately considered prior to submitting a copy of the final MOP/Rehabilitation Management Plan for approval. As agreed with the DPE the document was re-submitted to the RR and the Secretary of the DPE for approval prior to 30 June 2016 to satisfy the requirements of a Rehabilitation Management Plan. This RMP is generally consistent with the commitments from the approved MOP (noting content changes under Form and Way).
RR	28 February 2020	During the preparation of the Longwall 24 and 24A Extraction Plan, Centennial received feedback from RR with regard to additional information to be included in MOP Amendment B. This has been addressed in the MOP/RMP. This RMP is generally consistent with the commitments from the approved MOP. This RMP is generally consistent with the commitments from the approved MOP (noting content changes under Form and Way).

4.2.3 Proposed Future Consultation

Consultation will continue with stakeholders during the life of mine, in accordance with the SES. **Table 4-5** presents a summary of the proposed future consultation activities key stakeholders.

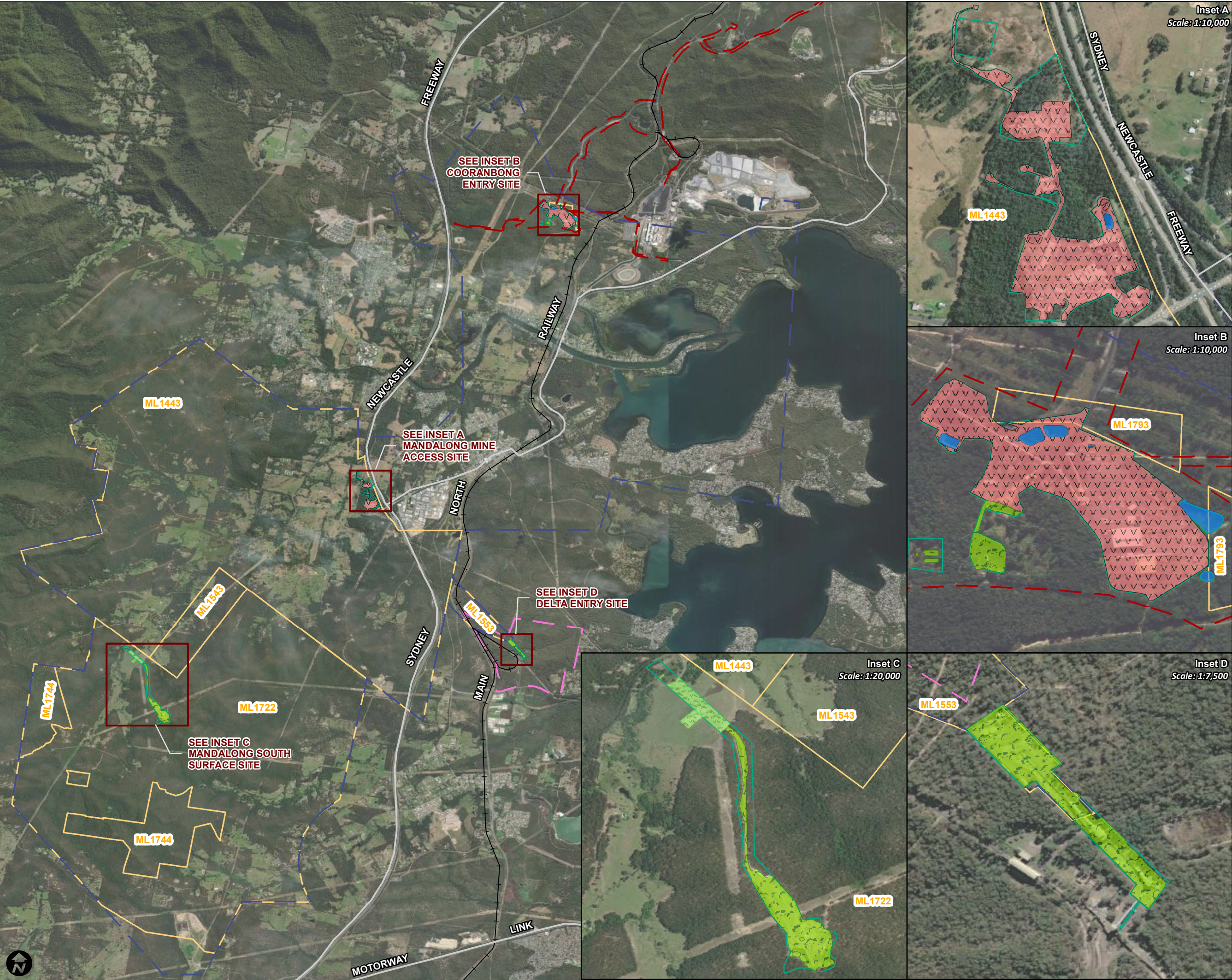
Table 4-5: Summary of Proposed Future Stakeholder Engagement Activities

Stakeholder	Activities
RR	Ongoing revisions of the RMP Submission of the Annual Reviews Submission of the Annual Rehabilitation Report
DPE	Submission of the Annual Reviews Submission of the Annual Rehabilitation Report
CCC	Submission of the Annual Reviews Submission of the Annual Rehabilitation Report CCC Meetings
Agencies	Submission of the Annual Reviews Submission of the Annual Rehabilitation Report

5 PART 5 - FINAL LANDFORM AND REHBABILTION PLAN

5.1 Final Landform and Rehabilitation Plan

In accordance with the requirements of the *Form and Way: Rehabilitation Management Plan for Large Mines* (RR, 2021a) a *Final Landform and Rehabilitation Plan* has been prepared to show the final land use and final landform for Mandalong (refer **Figure 6**). The current Final Landform and Rehabilitation Plan (FLRP0001264) was approved by the Resources Regulator on 5 June 2024.



CENTENNIAL REHABILITATION
MANAGEMENT PLAN

MANDALONG

FIGURE 6: FINAL LANDFORM
AND REHABILITATION

LEGEND

- Railway
- Major Road
- Mining Lease
- Project Disturbance Area

Project Approval
Number

- DA 35-2-2004
- SSD-5144
- SSD-5145-MOD-1

Final Landuse Domain

- Agricultural – Grazing
- Infrastructure
- Native Ecosystem
- Water Storage (Excluding Final Void)

0 1 2 km

Coordinate System: GDA2020

Scale: 1:80,000 at A3

Project Number: 630.30294

Date: 27-Jul-2022

Drawn by: LC



6 PART 6 - REHABILITATION IMPLEMENTATION

6.1 Life of Mine Rehabilitation Schedule

The rehabilitation schedule over the life of mine (LOM), from the commencement of the rehabilitation management plan until expected lease relinquishment is described in the following sections.

A current snapshot of disturbance and rehabilitation from 31 December 2023 has been included as **Figure 7**. The LOM rehabilitation schedule has been presented in **Figures 8 to 10**. Future rehabilitation will be undertaken following cessation of operations to achieve the landform in **Figure 6**.

MANDALONG MINE

Legend

- ### Project Approval Boundary

 SSD-5145

SSD-5144

Rehabilitation

Rehabilitation Phase

- ☐ Landform Establishment

- ## Ecosystem and Land Use

- ## Ecosystem and Land Use

- Relinquishment (Rehabilitated)


-
- Rehabilitation Completion

Disturbance

Mining Domain Type

- Infrastructure Area

- Other

-  Overburden Emplacement Area

- Tailings Storage Facility

-  Underground Mining Area (SMP)

- Active Mining Area (Open cut



Scale:	1:75,000
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Plan ID:	Plan 1A
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Chart Date:	20/03/2024
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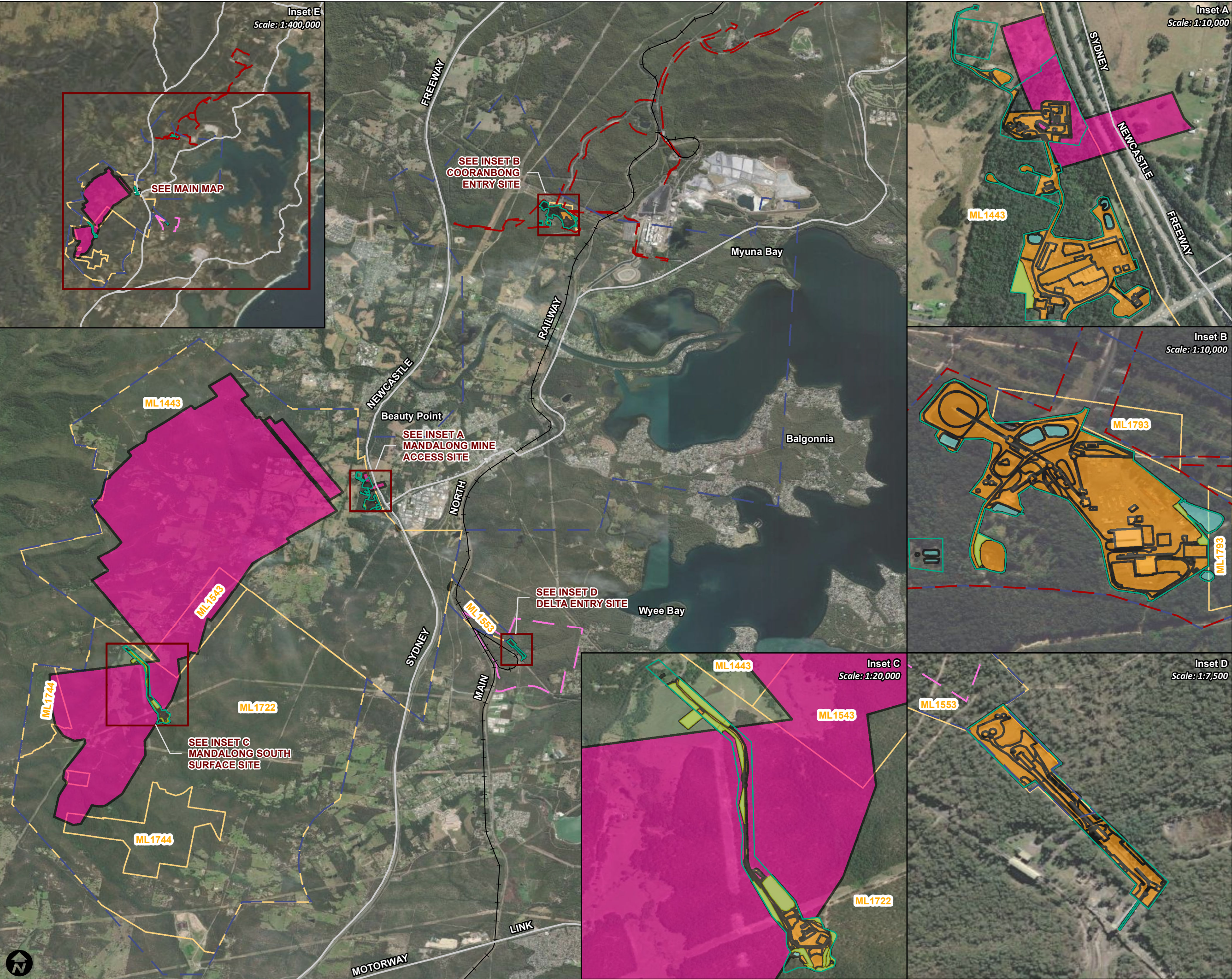
Charter:	Dean MacBain
----------	--------------

Charter:	Dean MacBain
Annual Reporting Period:	2023

Annual Reporting Period:	2025
	Rehabilitation - 7428

Submission ID's:	Disturbance - 7434 Project Approval Boundary - 7431
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CENTENNIAL REHABILITATION
MANAGEMENT PLAN

MANDALONG

FIGURE 8: LIFE OF MINE
PLAN 1 - YEAR 2024

LEGEND

- Railway
- Major Road
- Mining Lease
- Project Disturbance Area

Project Approval
Number

- DA 35-2-2004
- SSD-5144
- SSD-5145-MOD-1

2024 Disturbance - Mining
Domain Type

- Infrastructure Area
- Underground Mining Area (SMP)
- Water Management Area

2024 Rehabilitation -
Rehabilitation Phase

- Ecosystem and Land Use Establishment

0 1 2 km

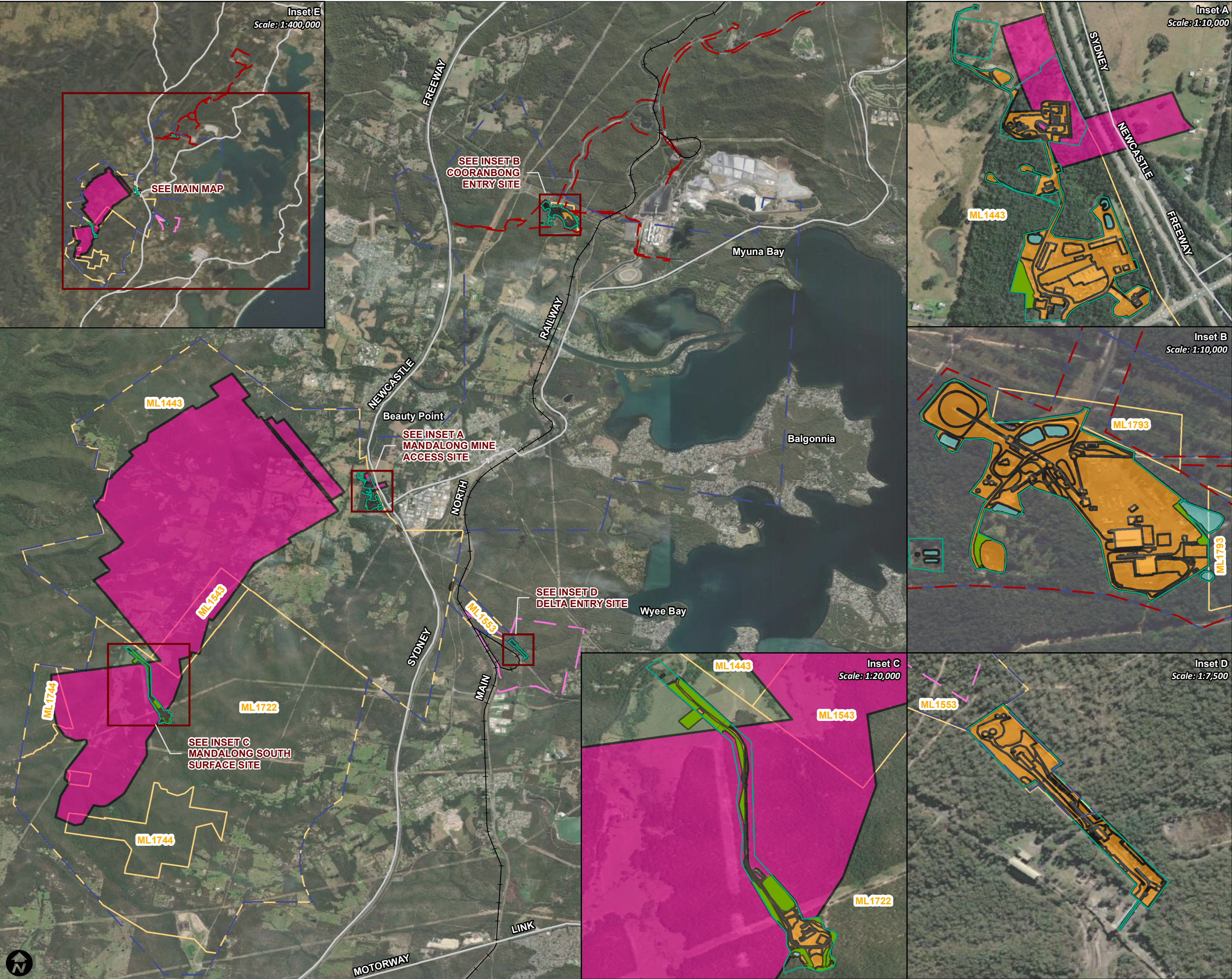
Coordinate System: GDA2020

Scale: 1:80,000 at A3

Project Number: 630.30294

Date: 27-Jul-2022

Drawn by: LC



CENTENNIAL REHABILITATION
MANAGEMENT PLAN

MANDALONG

FIGURE 9: LIFE OF MINE
PLAN 2 - YEAR 2029

LEGEND

- Railway
- Major Road
- Mining Lease
- Project Disturbance Area

Project Approval
Number

- DA 35-2-2004
- SSD-5144
- SSD-5145-MOD-1

2029 Disturbance - Mining
Domain Type

- Infrastructure Area
- Underground Mining Area (SMP)
- Water Management Area

2029 Rehabilitation -
Rehabilitation Phase

- Ecosystem and Land Use Development

0 1 2 km

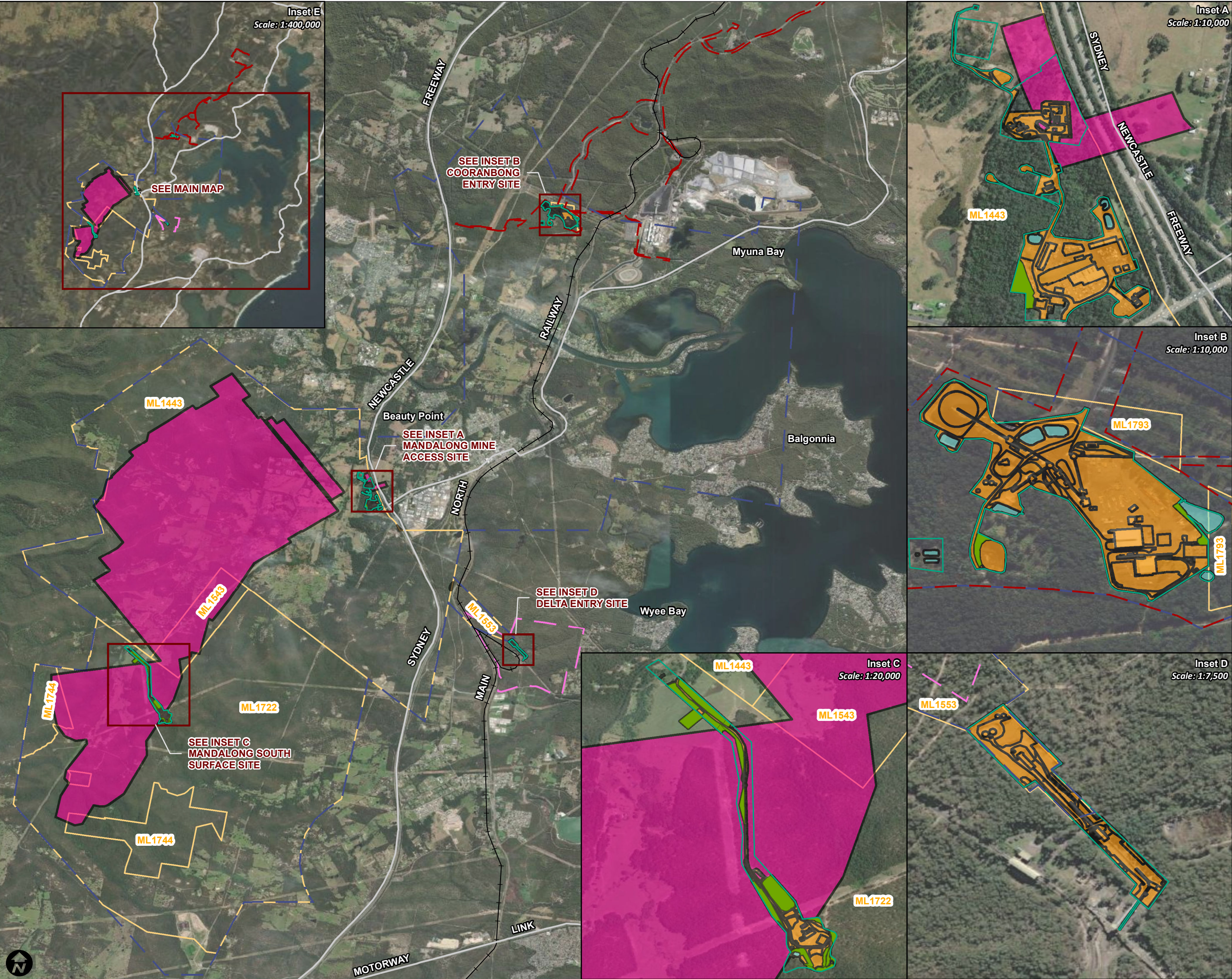
Coordinate System: GDA2020

Scale: 1:80,000 at A3

Project Number: 630.30294

Date: 28-Jul-2022

Drawn by: LC



CENTENNIAL REHABILITATION
MANAGEMENT PLAN

MANDALONG

FIGURE 10: LIFE OF MINE
PLAN 3 - YEAR 2034

LEGEND

- Railway
- Major Road
- Mining Lease
- Project Disturbance Area

Project Approval
Number

- DA 35-2-2004
- SSD-5144
- SSD-5145-MOD-1

2034 Disturbance - Mining
Domain Type

- Infrastructure Area
- Underground Mining Area (SMP)
- Water Management Area

2034 Rehabilitation -
Rehabilitation Phase

- Ecosystem and Land Use Development

0 1 2 km

Coordinate System: GDA2020

Scale: 1:80,000 at A3

Project Number: 630.30294

Date: 28-Jul-2022

Drawn by: LC

6.1.1 Infrastructure

Mandalong will undertake a construction program covering the two separate construction sites as approved under SSD-5144; namely, surface facility upgrades at the existing MMAS and new surface facilities at the MSSS.

Service bores will be drilled to allow for the delivery of bulk materials, including stone dust, concrete and ballast, to the underground mine workings as well as to deliver essential services including electricity, water and compressed air.

There are no further key infrastructure construction or decommissioning activities currently planned during the LOM.

6.1.2 Mining Activities

6.1.2.1 Mandalong Mine

The primary components approved under SSD-5144 (as modified) are:

- Continuation of the currently approved operations at the Mandalong, with the exception of the infrastructure and operations at the surface of the CES now approved under SSD-5145 (however, the surface infrastructure and operations at the CES continue to be managed by Centennial Mandalong and are included in this RMP);
- Extend the Mandalong's underground mining operations into the area covered by ML 1772 and ML 1744 (Southern Extension Area) using a combination of continuous miner and longwall mining methods;
- Extract up to 6.5 Mtpa of ROM coal from the West Wallarah and Wallarah-Great Northern Seams within the current mining lease areas and the area covered by ML 1772 and ML 1744;
- Deliver ROM coal from the underground workings to the CES at a rate of up to 6 Mtpa and to the DES at a rate of up to 6 Mtpa;
- Continue to utilise the existing surface infrastructure of the MMAS;
- Install and operate surface infrastructure at the MSSS to service the extended underground mining operation;
- Increased manning to 420 full-time employees and up to 50 contractors during longwall relocations;
- Undertake on-going exploration drilling and/or groundwater monitoring activities within the bounds of Centennial Mandalong's exploration licences;
- Increase the life of mine to 25 years from the granting of ML 1722¹; and
- Continue to operate 24 hours per day, seven days per week.

SSD-5144 has been modified on ten occasions, which includes:

- Transmission line TL24 relocation project (MOD 1);
- Longwall 22/23 first workings (MOD 2);
- Increase to the annual production limit from 6 Mtpa to 6.5 Mtpa (MOD 3);
- Extraction of extended longwalls 22 and 23 (MOD 4);
- Extended development of Maingate 24 and extended extraction of longwall panel 24 in addition to the development of Maingate 24A and extraction of longwall panel 24A (MOD 5);
- The temporary controlled release of stored water from the MSSS Sediment Dam following significant rainfall events and the ability to transport the sediment and material collected at the MSSS to the CES (MOD 6)
- The construction of a new 7.7 km 33-kV overland powerline from the MMAS to the MSSS (MOD 7); and
- Increase personnel from 470 to 815 full-time equivalent (FTE) employees, upgrade existing electrical substation and expansion of car park at the MMAS (MOD 8);
- Deletion of Longwalls 30,31 36 and 37, reorientation of approved Longwalls 32 to 35 and renaming longwalls 32 to 35 to longwalls 30 to 33 MOD 9; and
- Addition of Longwall 34 to maximise resource recovery within the consent boundary (Mod 10).

¹ It is noted that whilst SSD-5144 approves mining until 17 December 2040, ML 1722 only approves mining until 17 December 2036.

6.1.2.2 Cooranbong Entry Site

The CES is approved under the Northern Coal Logistics Project Development Consent (SSD-5145) which approves the continued operation of the existing surface infrastructure at Newstan Colliery and CES, along with existing private haul roads and rail loading infrastructure. These facilities are integral to the on-going handling, processing and transport of coal from the underground workings of Newstan Colliery and Mandalong into domestic and export markets. The operations associated with the CES which are pertinent to this RMP are:

- Continued use of the existing coal handling infrastructure at the CES to enable the receipt, handling and processing of up to 6 Mtpa of ROM coal from Mandalong;
- Increase the volume of coal transported from the CES to the Newstan Colliery Surface Site, via truck using existing private haul roads, from 4 Mtpa to 6 Mtpa;
- Increase the volume of coal transported from the CES to Eraring Power Station, using the existing dedicated overland conveyor from 4 Mtpa to 6 Mtpa;
- Continued transport of up to 0.5 Mtpa of middlings by truck from the Newstan Colliery Surface Site to the CES for subsequent supply to the Eraring Power Station via a dedicated overland conveyor;
- Increase the volume of water discharged via licenced discharge points (LDPs) at the CES;
- Approval to operate until 31 December 2045; and
- Continue to operate 24 hours per day, seven days per week.

The CES is the only component of the Northern Coal Logistics Project Development Consent which is included within this RMP. Operations at the Newstan Colliery and the Cooranbong Haul Road are included in the Newstan Complex RMP.

SSD-5145 has been modified once (MOD 1) to increase the number of FTE employees at the CES from 14 to 60 to make use of the available office space and to amend the noise criteria in the vicinity of the CES.

6.1.2.3 Delta Entry Site and Wyee Rail Unloader

The ROM coal delivered from the Mandalong underground workings to the surface at the Delta Entry Site is handled by two separate (but related) components of the Delta Link Project, comprising:

- The transportation of coal to the Delta Entry Site via the underground Mandalong Coal Delivery System approved by Development Consent DA 35-2-2004 (held by Centennial Mandalong) and described in the Delta Link Project – Statement of Environmental Effects (Umwelt, 2004); and DA 35-2-2004 MOD1, described in the Mandalong Coal Delivery System, Development Consent DA 35-2-2004 Proposed 75W Modification – Environmental Assessment (SLR, 2017); and
- The receipt and handling of coal at the Wyee Coal Handling Plant at the Delta Entry Site approved by Development Consent DA-2501/2004 (held by Delta Electricity and therefore not captured within this RMP) and described in the Delta Link Project – Statement of Environmental Effects (Umwelt, 2004) and revised information letter dated 27 April 2004.

In short, these development consents permit the construction and use of the Mandalong Coal Delivery System, which links the Mandalong to the Wyee coal unloader by an underground tunnel, and construction and use of infrastructure at the Wyee coal unloader to enable it to receive and size coal from the Mandalong before transporting it to the Vales Point Power Station by the Delta Electricity overland conveyor.

In addition, development consent for the Wyee Rail Unloader was granted to Elcom (now Delta Electricity) by the (then) Lake Macquarie Municipal Council on 25 November 1979. In summary, this consent allowed:

- A 3 kilometre rail balloon loop;
- A rail facility capable of handling trains up to 3,200 tonnes, with associated infrastructure and water management system; and
- An overland conveyor for 6 kilometres from the Wyee Rail Unloader to Vales Point Power Station.

On 25 September 2017, LMCC approved DA/110/1974/A, as a modification to the original Wyee Rail Unloader Consent, permitting the construction and operation of a screening plant and associated site buildings and infrastructure at the Wyee Coal Handling Plant at the Delta Entry Site. This is described in the Delta Screening Project – Statement of Environmental Effects (Umwelt, 2017).

The operations at the Delta Entry Site have been captured within this RMP; however the components of the Wyee Coal Handling Plant approved by Development Consent DA-2501/2004 and Wyee Rail Unloader (including the recently approved Delta Screening Project approved by DA/110/1974/A) have been excluded

from this RMP as these operations are under the care and control of Delta Electricity and separate to the operations of Mandalong.

6.1.3 Mine Operations

6.1.3.1 Mandalong Mine

Mining is currently approved at Mandalong up until 17 December 2036 (current lease approval) and incorporates the following key activities:

- Continued underground mining operations to extract up to 6.5 Mtpa of ROM coal using a combination of longwall and continuous mining methods from the West Wallarah and Wallarah-Great Northern Seams within the current mining lease areas and the area covered by ML 1772 and ML 1744; and
- Surface exploration activities, predominately borehole drilling to refine the geological model, will continue to be undertaken to obtain specific geological information to assist with detailed mine planning in accordance with the *Exploration Activities Management Plan* (EAMP). The exploration programme also allows the installation of piezometers in the aquifers of interest for ongoing groundwater monitoring.

All secondary extraction is undertaken in accordance with an approved SMP or Extraction Plan.

6.1.3.2 Cooranbong Entry Site

Coal from the underground operation is sized underground by a 4,000 tonnes per hour (tph) sizer and fed to an underground surge bin. Coal from the bin is delivered to either the Cooranbong or Delta coal clearance systems. The Cooranbong clearance system transfers coal underground by 1,200 mm conveyor belts to a 2,000 t capacity ROM bin on the surface. The Coal Handling Plant (CHP) processes up to 700 tph.

Coal from the ROM bin enters the CHP and is then discharged via a syntron feeder onto a conveyor belt where a magnet removes metal prior to being discharged into a rotary breaker at the CHP to reduce the size of coal to less than 200 mm. Large pieces of stone are separated in the breaker and discharged into a separate stone bin with a 50 t capacity. The coal is then conveyed into an intermediate 400 t capacity storage bin where it is fed via syntron feeders through a crushing and screening plant to reduce the size of the coal to less than 31 mm.

Final product is then conveyed to a 2,000 t product bin, from where it is drawn off by Eraring Power Station as required. Transfer to Eraring Power Station is via the Eraring Energy Overland Conveyor which is owned and operated by Eraring Energy (and has been excluded from this RMP).

The CHP upgrades completed in 2010 utilise a changeover gate and chute arrangement to supply either the existing ROM bin or 2,000 tph aerial conveyor. This conveyor transfers coal to either 100,000 t ROM stockpile or dual truck loading bin. ROM coal transferred into the truck loading bin is loaded onto haulage trucks at the base of the bin by a telescopic chute fitted with automated loading and override safety controls. When coal levels in the truck loading bin are near to full, coal is directed by the changeover gate arrangement onto a 2,000 tph aerial conveyor, which discharges coal onto the 100,000 t coal stockpile.

Coal is loaded from the 100,000 t stockpile by front end loader onto coal haulage trucks. The loaded trucks use the truck weighbridge on the haul road to determine the load weight and then transport coal via the haulage road to Newstan Colliery for washing and export. Management of the Cooranbong Haul Road is excluded from this RMP and captured within the Newstan Complex RMP.

A small amount of coal reject is generated from the processing of coal at the CES CHP. This coal reject is periodically transported to the Newstan Colliery Reject Emplacement Area (REA). Management of the REA is addressed in the Newstan Colliery RMP.

Residue coal material cleaned out from surface drains, washdown bays, gross pollutant traps and the settlement ponds is transferred to the 100,000 t ROM stockpile and entrained into product coal.

6.1.3.3 Delta Entry Site and Wyee Rail Unloader

Coal supply to Vales Point Power Station commenced in April 2006 following commissioning of the Delta coal clearance system. The Delta coal clearance system is designed to transport up to 1,600 tph of coal by the Delta underground conveyor where it exits to the surface through the decline tunnel at the Wyee Rail Unloader. The Delta conveyor then feeds coal to the transfer tower which, is directed via a conveyor to the secondary coal sizing units. The two secondary sizing units crush coal to less than 50 mm diameter. A conveyor feeds coal to the existing truck haulage bin at Wyee Coal Unloader. Coal is then transferred onto the Delta operated overland conveyor to Vales Point Power Station.

6.1.4 Mine Production and Rehabilitation Schedules

As an underground coal mine, infrastructure at Mandalong is required LOM. Subsequently, land associated with key surface infrastructure will not become available for rehabilitation until the cessation of mining operations. Minor rehabilitation works associated with approved construction and/or exploration may be required and will be reported in the Annual Rehabilitation Report and Forward Program.

The LOM rehabilitation schedule has been illustrated in **Figures 7 to 10**. Changes to the LOM rehabilitation schedule will be reflected in the Annual Rehabilitation Report and Forward Program.

6.2 Phases of Rehabilitation and General Methodologies

Achievement of a physically and chemically stable mine landform that is adequately drained and integrates with the adjoining topography will be demonstrated through the implementation of a series of conceptual rehabilitation phases. As defined by the *Form and way: Rehabilitation Management Plan (large mines)* the rehabilitation phases are presented in **Table 6-1**.

Table 6-1: Rehabilitation Phases

Rehabilitation Phase	Description
Phase 1: Active Mining	This phase is associated with active mining operations across the domains.
Phase 2: Decommissioning	This phase of rehabilitation includes activities associated with the removal of mining infrastructure, unless agreed to be retained, and the removal, remediation, or management of contaminated and hazardous materials.
Phase 3: Landform Establishment	This phase of rehabilitation consists of the processes and activities required to construct the approved final landform. 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 (that is, rock raking or ameliorating sodic materials).
Phase 4: 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; and - 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.
Phase 5: Ecosystem and Land Use Establishment	This phase of rehabilitation consists of the processes to establish the final land use following construction of the final landform. For vegetated land uses this rehabilitation phase includes establishing the desired vegetation community and implementing land management activities such as weed control.
Phase 6: 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; - rehabilitation completion criteria; and - 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, and increasing habitat complexity, and 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.
Phase 7: Rehabilitation Completion (sign-off)	The final phase of rehabilitation when a rehabilitation area has achieved the final land use for the mining area: <ul style="list-style-type: none"> - as stated in the approved rehabilitation objectives and the approved rehabilitation completion criteria; and - as spatially depicted in the approved final landform and rehabilitation plan. Rehabilitation areas may be classified as complete when the RR has determined in writing that rehabilitation has achieved the final land use following submission of the relevant application by the lease holder.

6.2.1 Active Mining

Appropriate measures and strategies are implemented during the active phase of mining to enhance rehabilitation outcomes. Works in this phase are summarised below.

6.2.1.1 Soils and Materials

Management protocols for soils and subsoils are implemented to minimise risks and enable soil resources within disturbance areas to be characterised, stripped, stockpiled and re-used appropriately. The management protocols also enable consideration of the main soil types observed within the project disturbance boundary and any specific constraints or management measures to be adopted for each soil type.

Soil Resources

Soil characterisation undertaken in Soil and Land Capability Assessment (GSSE, 2013a) for the Mandalong Southern Extension Project EIS. Seven soil landscape units were identified within the Mandalong project area, these being:

- Mandalong;
- Gorokan;
- Woodbury's Bridge;
- Watagan;
- Wyong;
- Yarramalong; and
- Doyalson.

The soils associated with the Southern Extension Area are largely consistent texture contrast soils with high acidity and often sodic characteristics in the subsoil (GSSE, 2013a). These soils are stripped prior to any significant surface disturbance, the soils will later be re-spread in focussed rehabilitation efforts.

The topsoils are generally suitable to facilitate germination and appropriate management of this soil through amelioration (such as treatment with gypsum or lime) will provide an acceptable and stable medium for revegetation (GSSE, 2013a). Whilst topsoil structure is generally poor, the material may be stripped and reused in rehabilitation provided appropriate erosion and sediment controls are in place.

Soil Resource Balance

Topsoil and soil for rehabilitation at the Mandalong is a limited resource and generally of poor quality, therefore, topsoil and soil is treated as a valuable resource for the rehabilitation process. Material stockpiles are available at the MSSS and CES.

Soil resources for exploration boreholes/ groundwater monitoring boreholes rehabilitation are stored in windrows adject to the drill site infrastructure following stripping. During rehabilitation the soil is pushed onto the rehabilitation areas progressively. Based upon the method of rehabilitation outlined topsoil volumes for these areas of rehabilitation will be sufficient.

The available soil resources in the MSSS for larger rehabilitation areas has been re-assessed in 2021. Approximately 200 m³ of topsoil and 78,000 m³ of subsoil is available for rehabilitation activities. This will continue to be recorded in future along with future demand.

There is limited available topsoil or soil for rehabilitation purposes at Mandalong. Suitable and alternative topsoil substitute (for example bio-solids, organics, etc.) will be used to make up any short-fall in the topsoil required for rehabilitation.

Management

Where soil stripping and transportation is required, the following management techniques will be adopted to prevent excessive soil deterioration:

- Where possible, topsoil will be maintained in a slightly moist condition during stripping, and material will not be stripped in either an excessively dry or wet condition;
- Stripping will be timed to take place in unison with any vegetation clearing activity. If planning to mix groundcover/grass with the soil (i.e. not removing groundcover prior to soil stripping), a weed assessment will be undertaken prior to stripping;

- Where possible, grading or pushing soil into windrows for later collection will be undertaken as a preferential less aggressive soil handling system;
- The surface of soil stockpiles will be left coarsely structured (as much as possible) to promote infiltration and minimise erosion until vegetation is established, and to prevent anaerobic zones forming;
- Topsoil stockpiles will be no higher than 3 m;
- If long-term stockpiling is planned (i.e. greater than three months), the stockpiles will be seeded and fertilised as soon as possible. An annual cover crop species that produces sterile florets or seeds will be sown. A rapid growing and healthy annual pasture sward will provide sufficient competition to minimise the emergence of undesirable weed species. The annual pasture species will not persist in the rehabilitation areas, however will provide sufficient competition for emerging weed species and enhance the desirable micro-organism activity in the soil;
- Erosion control structures have been installed prior to soil spreading; and
- Prior to re-spreading stockpiled topsoil, an assessment of weed infestation on stockpiles will be undertaken to determine if individual stockpiles require herbicide application and / or 'scalping' of weed species prior to topsoil spreading; and
- An inventory of available soil will be maintained to keep track of topsoil materials available for planned rehabilitation activities.

6.2.1.2 Flora

Management

Existing vegetation communities at Mandalong are shown on **Figure 5**. Flora at Mandalong is managed in accordance with the *Northern Operations Regional Biodiversity Management Plan* (GHD, 2019) which has been prepared to:

- Provide an overarching document for Centennial personnel to consult on biodiversity management and information at a regional scale;
- Ensure that biodiversity is managed consistently at all Centennial sites within the northern region;
- Recognise the cumulative interactions of Centennial sites within a regional context;
- Satisfy statutory requirements relevant to aquatic and terrestrial biodiversity; and
- Streamline biodiversity management at a regional scale for an improved environmental outcome.

Resources

Native seed is procured from suitably experienced contractors, with collection of provenance seed from sites close to any proposed rehabilitation used where supply exists. Other sources of suitable seed may be used where required. Native seed is also retained in topsoil stockpiles within the seed bank.

6.2.1.3 Fauna

Fauna at Mandalong is managed in accordance with the *Northern Operations Regional Biodiversity Management Plan* (GHD, 2019) which has been prepared to:

- Provide an overarching document for Centennial personnel to consult on biodiversity management and information at a regional scale;
- Ensure that biodiversity is managed consistently at all Centennial sites within the northern region;
- Recognise the cumulative interactions of Centennial sites within a regional context;
- Satisfy statutory requirements relevant to aquatic and terrestrial biodiversity; and
- Streamline biodiversity management at a regional scale for an improved environmental outcome.

As part of current operations at the Cooranbong Entry Site, underground mine water is pumped from the existing Mandalong underground workings at an average rate of 0.6 to 2.5 ML/day and is discharged into an unnamed creek from Licensed Discharge Point 001 (LDP001) at the Cooranbong Entry Site. The unnamed creek flows into Muddy Lake which is also connected to Lake Macquarie via Lake Eraring.

Salinity levels have been shown to influence the viability and prevalence of Chytrid. For example, experimentally increasing salinity levels of natural water bodies has resulted in reduced prevalence of Chytrid in Green and Golden Bell Frogs (Stockwell et al 2008; Stockwell et al. 2015). This may suggest that the high salinity levels within Muddy Lake may be reducing infection loads of the pathogen, which in the past has significantly contributed to the decline of the species.

To manage this risk, Centennial have undertaken an ongoing research and monitoring program for the Green and Golden Bell Frog in accordance with EPBC approval (2013/6906) (Northern Coal Logistics Project) since 2016. The findings from this program will be implemented to ensure the Green and Golden Bell Frog population at the site is not impacted following the cease of discharge mine water into the ephemeral drainage line.

The risk to rehabilitation relating to flora was ranked as a significant in the risk assessment due to the risk of changes to the existing riparian vegetation community at Muddy Lake caused by the cessation of pumping/dewatering activities from the Cooranbong workings resulting in environmental impacts.

Prior to mine closure, Mandalong will investigate the potential impacts of ceasing water discharges from the Cooranbong workings into Muddy Lake.

Resources

Prior to clearing, habitat features (stag trees, fallen logs and large flat rocks) suitable for salvage will be identified managed and recorded in accordance with the Surface Disturbance Procedure. The salvaged habitat features would be used throughout rehabilitation to create habitat to achieve the specific fauna outcomes that are outlined in the approved rehabilitation objectives and rehabilitation completion criteria in **Section 4**.

As described in the RMP Risk Assessment in **Section 3.2**, Centennial will develop an understanding of material inventory including habitat structures.

6.2.1.4 Rock/overburden emplacement

Since Mandalong is an underground mine, there is no overburden generated at the site. There is some excavated material stockpiled from the construction of the MSSS. In accordance with the Statement of Commitments contained in Appendix 8 of Development Consent SSD-5144, Mandalong have prepared a CEMP. The CEMP includes measures for the management of excavated material.

Overburden characterisation is a low risk to rehabilitation for Mandalong.

6.2.1.5 Waste Management

Management systems are in place for the various non-production waste streams generated by the Mandalong. In summary:

General Waste and Routine Maintenance Consumables

All general wastes and routine maintenance consumables from the daily servicing of equipment are collected on a regular basis by a licensed contractor for off-site disposal within a waste facility approved to accept such waste. Recyclable material is also collected by a licensed contractor for recycling on an as-needs basis.

Waste Oil and Grease

The generation of waste oils and grease is limited to the routine maintenance of plant and equipment. Waste oils and greases stored at Mandalong, along with parts and packaging (for example, cartridges, filters and waste oil drums), are collected by a licensed waste contractor on a regular basis for recycling and/or off-site disposal within a waste facility approved to accept such waste.

Oily water from the workshops, equipment storage and washdown bay areas is drained to the existing on-site oil-water separators. Licensed contractors regularly service and maintain these separators and remove all waste hydrocarbons for recycling.

Sewage

Sewage generated by on-site staff amenities at the MMAS is serviced by the site's existing connection to Hunter Water Corporation's reticulated sewer system. Sewage generated by on-site staff amenities at the CES is collected (pump-out systems) on a regular basis by a licensed contractor for off-site disposal. There is no sewage disposal in the Centennial Mandalong leased area from the DES; this is managed by Delta for their operations.

Sewage effluent generated by on-site staff amenities (associated with the small administrative office) at the MSSS will be collected (pump-out systems) on a regular basis by a licensed contractor for off-site disposal. There will be no bathhouse facilities at this surface site.

6.2.1.6 Geology and Geochemistry

Geologically Mandalong is located in the south-west of the Newcastle Coalfield, a geological subdivision of the north-eastern Sydney Basin. The coal deposits of this area are contained within sedimentary rocks of the Late Permian Age Newcastle Coal Measures, which are characterised by complex patterns of splitting and coalescence of the various coal seams.

The significant coal seams within Mandalong are the Wallarah, West Wallarah, Great Northern and Fassifern Seams. The term “West Wallarah Coal Seam” was introduced by Centennial Mandalong and has been used at Mandalong to define the coal seam formed by the westerly convergence of the Wallarah and Great Northern Seams.

Other significant units, which lie within the stratigraphic section, are the Awaba Tuff Formation, which lies between the West Wallarah and Fassifern Seams, and the Munmorah Conglomerate, which sits within the Triassic Age Narrabeen Group sediments between 80 m to 110 m above the West Wallarah Seam and Wallarah-Great Northern Seams. This conglomerate beam has a significant impact on the subsidence profile for the Mandalong due to its spanning potential.

Soils including material hostile to rehabilitation growth are well understood at Mandalong. Mandalong undertake ongoing soil mapping which captures dispersive materials and Acid Sulfate Soils.

6.2.1.7 Material Prone to Spontaneous Combustion

The West Wallarah Seam has a low inherent spontaneous combustibility and there have been no spontaneous heating incidents since operations commenced in the early 1980's. The risk of spontaneous combustion at Mandalong is low considering the nature of the coal seam and mine layout which was designed to reduce the potential of spontaneous combustion.

Any residual risk of spontaneous combustion at Mandalong is managed by the Spontaneous Combustion Management Plan and the Cooranbong Stockpile Management Plan which addresses potential spontaneous combustion on the coal stockpile areas at CES.

6.2.1.8 Material Prone to Generating Acid Mine Drainage

There have been no acid mine drainage issues identified at Mandalong since the commencement of operations. The Mandalong Southern Extension EIS assessed the likelihood of acid sulfate soils occurring within the Study Area as being very low due to the Study Area's position away from the coast and potential acid sulfate landform type (GSSE 2013b). This is supported by the Wyong LGA and Lake Macquarie LGA acid sulfate soil mapping.

The Wyong Soil Landscape Unit, which covers just over 6 percent of the Study Area, is the only soil landscape unit within the Study Area that has acid sulfate soil potential. The Wyong Soil Landscape Unit (Soil Type 1) is significantly removed from the MSSS which is the only area with ongoing construction activities, based on the current LOM. Soil mapping is included within the Ground Disturbance Permit process used for all future disturbance activities.

6.2.1.9 Ore Beneficiation Waste Management (reject and tailings disposal)

The small amount of coal reject produced from the processing of coal at the CES is periodically transported by truck, via the private haul roads, to Newstan Colliery for use in rehabilitation or emplacement within the Newstan Colliery REA.

6.2.1.10 Erosion and Sediment Control

Erosion and sedimentation at Mandalong will be managed in accordance with the approved Erosion and Sediment Control Plan which is incorporated in the Northern Region Regional Water Management Plan (2017).

The risk to rehabilitation from erosion and sediment control was ranked moderate due to the potential for erosion and sedimentation on pit top areas during construction and/or demolition of infrastructure caused by less than adequate management system design or naturally dispersive soils.

The main operational erosion and sediment controls used in rehabilitation areas include:

- Clean water diversion drains and banks;
- Temporary drains;
- Sediment fences and other temporary controls;
- Sediment dams; and
- Inspections and monitoring.

Triggers for erosion and sediment control management in rehabilitation are outlined in the TARP (refer **Section 10**).

6.2.1.11 Ongoing Management of Biological Resources for use in Rehabilitation

Biological resources are managed during the active mining phase in accordance with Centennial's Ground Disturbance Permit.

Salvaging habitat materials including vegetation (particularly hollow trunks) and large rocks is outlined further in **Section 6.2.1.3**.

6.2.1.12 Mine Subsidence

Subsidence will be managed in accordance with the approved SMP or Extraction Plans prepared for Mandalong.

6.2.1.13 Management of Potential Cultural and Heritage Issues

The *Northern Region Aboriginal Cultural Heritage Management Plan* (2019) was developed for Centennial's Northern Holdings to provide a consistent approach to consultation between Centennial and the Aboriginal community as well as identify standard Aboriginal cultural heritage monitoring and management requirements.

The *Northern Region Aboriginal Cultural Heritage Management Plan* (2019) is used by Centennial personnel to ensure that the appropriate protocols are adopted for the identification, monitoring and management of Aboriginal material culture. The structure of this report has been designed as an over-arching document which must be followed in conjunction with specific development consent requirements for each operation within the Northern Holdings.

A *Northern Region Historic Heritage Management Plan* (2016) to cover Mandalong was developed in July 2016 to identify European cultural heritage monitoring and management requirements.

6.2.1.14 Exploration Activities

Exploration activities will be undertaken in accordance with the requirements of the EAMP. Disturbance from previous exploration activities will be rehabilitated prior to mine closure. All exploration drill holes will be sealed in accordance with relevant RR guidelines at the time.

6.2.2 Decommissioning

The decommissioning phase encompasses all works required to prepare land for rehabilitation including removal of any unnecessary built infrastructure, foundation and hardstand materials, services, equipment, and materials including wastes and contamination.

Decommissioning, demolition, and removal of infrastructure from the mine site will generally be undertaken during the mine closure phase. Any infrastructure including dams, roads and buildings which is beneficial for future use by post mining landowners may be left in place subject to relevant landowner agreements and regulatory approvals.

Decommissioning and demolition activities will be appropriately planned and documented to ensure that appropriate approvals are in place for the works.

Further detail regarding demolition activities will be determined as the operation approaches closure. Detail in this regard will be reported in the Annual Rehabilitation Report and Forward Program.

6.2.2.1 Site Security

Appropriate site security measures (e.g. adequate fencing) will be implemented (where required) prior to commencing decommissioning and demolition works to prevent access by members of the public and secure rehabilitation areas, including any heritage places or objects and any retained infrastructure items. Site security measures include:

- Controlled access;
- Security contractors will conduct regular patrols;
- Maintenance of existing security fences and signage; and
- Monitoring and inspections.

6.2.2.2 Infrastructure to be removed or Demolished

Site features, services and structures to be decommissioned and demolished to achieve the final land use are described in **Table 6-2**.

Table 6-2: Infrastructure to be Decommissioned

Major Assets	Use	Demolition / Rehabilitation Activities	Approvals Required
Domain 1 – Infrastructure			
Mandalong Mine Access Site			
Decline tunnel	Materials and personnel access to underground workings – currently utilised	Disconnect services; backfill and seal decline tunnel with non-contaminated materials against an engineered bulk head; install appropriate drainage infrastructure.	RR approval for sealing
Ventilation Shaft Facilities	Mine air ventilation – currently utilised	Remove ventilation fans and equipment; backfill and seal shafts; construct engineered plug; disconnect services; demolish and remove infrastructure; and remove concrete pads.	RR approval for sealing
Gas management system including: - Methane gas drainage plant; - VAM-RAB demonstration plant; - Gas engines; and - Flares.	Mine gas management – currently utilised	Remove gas drainage plant and equipment; disconnect services; demolish and remove infrastructure; seal and remove concrete pads.	RR approval for sealing
Administration buildings, bathhouse and portable offices	Administration and staff facilities – currently utilised	Disconnect services; demolish and remove infrastructure; and remove concrete pads.	None
Car parking areas	Car parking facilities for existing mine personnel and visitors – currently utilised.	Demolish and remove infrastructure; and remove concrete pads.	None
Mechanical workshop, store and sheds.	Workshops, service buildings and storage of materials/equipment – currently utilised	Disconnect services; demolish and remove small buildings; remove concrete pads; remove potentially contaminated material; on site remediation of contaminated soil.	None
Hardstand/Laydown Areas	Storage of equipment – currently utilised.	Remove plant and material; and remove concrete pads.	None
Services including connections to Hunter Water Corporation's reticulated potable water and sewage systems, Energy Australia's reticulated electricity and natural gas network and Telstra telecommunications	Water, electricity and gas supply and services – currently utilised	Disconnect services.	None
Cooranbong Entry Site			
Coal handling plant including:			

Major Assets	Use	Demolition / Rehabilitation Activities	Approvals Required
- Aerial conveyor systems	Transporting coal – currently utilised	Demolish and remove conveyors and gantries.	None
- Rotary breaker and sizer	Coal processing and sizing – currently utilised	Disconnect and terminate all services; demolish and remove plant; remove carbonaceous material.	None
- Crushing plant	Crushing of coal – currently utilised	Disconnect and terminate all services; demolish and remove coal crushing plant; remove carbonaceous material.	None
- Coal bins	Storage, transfer and loading of product coal -- currently utilised	Disconnect and terminate all services; demolish and remove coal bins; remove carbonaceous material.	None
- Southern drift conveyor	Transport of coal from the underground workings to the surface – currently utilised	Demolish and remove conveyors and gantries and seal portal.	RR approval for sealing
Ventilation Shaft Facilities	Mine air ventilation – currently utilised	Remove ventilation fans and equipment; backfill and seal shafts; construct engineered plug; disconnect services; demolish and remove infrastructure; and remove concrete pads.	RR approval for sealing
Administration buildings, bathhouse and portable offices	Administration and staff facilities/workshops – currently utilised	Disconnect services; demolish and remove infrastructure; and remove concrete pads.	None
Car parking areas	Car parking facilities for existing mine personnel and visitors – currently utilised.	Demolish and remove infrastructure; and remove concrete pads.	None
Hardstand/Laydown Areas	Storage of equipment – currently utilised.	Remove plant and material; and remove concrete pads.	None
Mechanical workshop, store and service buildings	Workshop and storage of materials/equipment for day to day maintenance– currently utilised	Disconnect services; demolish and remove infrastructure and small buildings; remove concrete pads; remove potentially contaminated material; on site remediation of contaminated soil.	None
ROM Stockpile	Storage of ROM coal -- currently utilised	Remove carbonaceous material.	None
Product coal stockpile	Storage of ROM coal -- currently utilised	Remove carbonaceous material.	None
1500 t emergency stockpile	Storage of ROM coal -- currently utilised	Remove carbonaceous material.	None
Delta Entry Site			
Coal clearance system including transfer tower, conveyor and crusher building	Coal transfer and crushing – currently utilised	Disconnect and terminate all services; demolish and remove plant; remove carbonaceous material.	None

Major Assets	Use	Demolition / Rehabilitation Activities	Approvals Required
Decline tunnel	Materials and personnel access to underground workings – currently utilised	Disconnect services; backfill and seal decline tunnel with non-contaminated materials against an engineered bulk head; install appropriate drainage infrastructure.	RR approval for sealing
Fire-fighting tanks	Water storage for fire-fighting – currently utilised	Remove plant and material; and remove concrete pads	None
Hardstand/Laydown Areas	Storage of equipment – currently utilised.	Remove plant and material; and remove concrete pads.	None
Mandalong South Surface Site			
Construction site - buildings, portable offices and laydown areas	Administration, construction and staff facilities, storage of equipment – currently utilised	Disconnect services; remove infrastructure; and remove stabilised material.	None
Access road	MSSS access – currently utilised	Demolish and remove infrastructure; and remove seal.	None
Ventilation Shaft Facilities	Mine air ventilation – currently utilised	Remove ventilation fans and equipment; backfill and seal shafts; construct engineered plug; disconnect services; demolish and remove infrastructure; and remove concrete pads.	RR approval for sealing
Service borehole	Delivery of bulk materials, including stone dust, concrete and ballast, to the underground mine workings – currently utilised	Remove equipment; backfill and seal boreholes; construct engineered plug; demolish and remove infrastructure; and remove concrete pads.	RR approval for sealing
Domain 3 – Water Management Area			
Mandalong Mine Access Site			
Dams including the Clean Water Dam, and Sediment Dam	Water storage, treatment and management – currently utilised	Where required by sampling, drain and remove contaminated sediments from the floor of the dams to enable it to be converted into a clean water structure.	None
Cooranbong Entry Site			
Dams including the 5ML Dam, Sediment Dam 1 & 2, CHP settlement dam, construction dam, ROM Stockpile Dam and Borehole Dam	Water storage, treatment and management – currently utilised	Where required by sampling, drain and remove contaminated sediments from the floor of the dams to enable it to be converted into a clean water structure.	None
Mandalong South Surface Site			

Major Assets	Use	Demolition / Rehabilitation Activities	Approvals Required
Dams including the Sediment Dam, Stockpile Dam and Gross Pollutant Trap Sump	Water storage, treatment and management – currently utilised	Where required by sampling, drain and remove contaminated sediments from the floor of the dams to enable it to be converted into a clean water structure.	None

As required by the consents listed in **Section 1.2**, all demolition work on site is carried out in accordance with Australian Standard AS 2601-2001: *The Demolition of Structures*, or its latest version.

The Detailed Mine Closure Planning process conducted over the life of mine will further identify key actions, assessments, studies, detailed designs, and regulatory approvals required to decommission and/or demolish built infrastructure.

6.2.2.3 Buildings, Structures and Fixed Plant to be Retained

Site features, services and structures to be retained for future use as part of the final land use are described in Table 6-3.

Table 6-3: Infrastructure to be Retained

Code	Mining Domain	Description
1	Infrastructure Area	It is intended to re-develop the MMAS and CES for an industrial based land use(s). The option of leaving this infrastructure in the final landform will be discussed in consultation with RR and after discussions with potential buyers have been held.
3	Water Management Area	Water management structures will be retained in the final land use for on-going water management (i.e. erosion and sediment control). This includes the ROM Stockpile Dam, Sediment Dams, 5 ML Dam and Construction Dam at CES and the Sediment Dam at MMAS. Some groundwater monitoring wells will be retained for monitoring purposes.

The Detailed Mine Closure Planning process conducted over the life of mine will further identify key actions, assessments, studies, detailed designs, and regulatory approvals required to retain built infrastructure.

6.2.2.4 Management of Carbonaceous/Contaminated Material

Carbonaceous Material

During decommissioning, detailed inspections or audits will be undertaken within the footprint of surface infrastructure including stockpiles, access roads and haul roads to identify remaining sources of carbonaceous material.

Following the inspections or audits carbonaceous material will be removed (where practical) and reprocessed for sale, or used to backfill portals/shafts, disposed within the REA (Newstan RMP) or within disused underground workings.

Contaminated Material

A Phase 1 desktop contaminated land assessment for Mandalong, including the MMAS, CES and DES was undertaken in December 2010 and identified potential contamination at the three sites generally associated with fuel storage and handling and equipment storage and maintenance. The risk associated with potential contamination at the MMAS and CES was considered to be moderate, with the risk associated with potential contamination at the DES considered to be low given the limited stored volumes of oil and fuel and the controls in place.

In February 2012, as an outcome of the Phase 1 assessment, Centennial Mandalong submitted Contamination Notifications to the EPA in accordance with Section 60 of the NSW *Contaminated Land Management Act 1997*. In accordance with commitments made to the EPA in the Notifications, Centennial Mandalong completed Phase 2 assessments for the MMAS and CES in 2017. Following the completion of the Phase 2 assessments, remediation plans were developed and implemented in consultation with the EPA and an accredited contaminated land auditor to address any contamination issues identified. In a letter dated 6 July 2012, the EPA confirmed acceptance of the approach proposed by Centennial Mandalong.

Centennial Mandalong will continue to implement best management practices for hydrocarbons, along with the approved EMS and workplace health and safety management systems, at the MSSS to ensure the potential for contamination and associated issues remains low.

6.2.2.5 Hazardous Materials Management

During decommissioning, hazardous materials (hydrocarbons and chemicals) will be managed and stored in accordance with the site Waste Management Plan. Removal of hazardous materials will be undertaken by a licensed waste disposal contractor and disposed / recycled at a licensed waste facility.

Hazardous Materials Surveys and Registers were developed in 2012 for the MMAS, CES and DES. The Hazardous Materials Surveys and Registers are available to all personnel on each site. The majority of hazardous materials (such as asbestos) are located within the CES Administration Building.

6.2.2.6 Underground Infrastructure

Any underground built infrastructure including exploration boreholes and monitoring equipment will be removed, and access to underground infrastructure such mine openings, boreholes, shafts, portals and declines will be backfilled, sealed and rehabilitated in accordance with the relevant RR guidelines at the time.

The length of services to be dismantled will be determined by the regulatory requirements at the time of decommissioning, as per the Mandalong Southern Extension Project Decommissioning and Rehabilitation Strategy (GSSE, 2013b).

Security measures will be implemented for public safety purposes whilst sealing and decommissioning works are undertaken on surface entries, shafts and drifts. These will include exclusion zones demarcated by fencing and signage.

The risk to rehabilitation for Mandalong related to interactions between groundwater and surface water was ranked as a significant risk as a result of connectivity between groundwater and surface or potential flooding of underground workings. To manage this risk Centennial will investigate if hydrogeological model considers potential for fill and spill of Cooranbong Mine following closure (cessation of active management).

Subsidence monitoring pegs will be removed following cessation of monitoring and in consultation with RR.

6.2.3 Landform Establishment

Landform establishment is the process of shaping the final landform to a safe, stable and non-polluting landform that is appropriate for the desired final land use and consistent with the surrounding landscape. Additional detail has been included in **Sections 6.2.3.1 – 6.2.3.5**.

6.2.3.1 Water Management Infrastructure

Water management infrastructure will be rehabilitated to achieve final landforms that are safe, stable, non-polluting and free-draining.

Sediment dams and water storage structures identified for retention in the final landform will be decontaminated (where required by sampling) and preserved as clean water dams for future use.

All dams, diversion drains and banks not required in the final landform will be demolished and accumulated sediment removed and disposed of in appropriately.

Final landform drainage will integrate with surrounding catchments and will achieve long term geomorphic stability and minimise erosion.

Any mining related disturbance in creeks will be rehabilitated with appropriate riparian vegetation.

Water management structures that will remain following mine closure are presented in **Figure 6**.

6.2.3.2 Final Landform Construction: General Requirements

Prior to the commencement of rehabilitation, the landform will be established. Rehabilitated slopes will be shaped to generally less than 10 degrees unless otherwise agreed with the RR (or contemporary equivalent). The primary objective of landform establishment within infrastructure areas will be the stabilisation of batters, road verges, drains, banks, and cleared areas. Disturbed areas will be re-profiled to establish geotechnically stable and self-draining areas.

All areas will be trimmed, shaped, and the proposed rehabilitation works will ensure that the final landforms at the sites are stable and non-polluting and incorporate relief patterns and design principles consistent with natural drainage.

6.2.3.3 Final Landform Construction: Reject Emplacement Areas and Tailings Dams

Mandalong is an underground coal mine which does not produce tailings. Mandalong transports all its rejects to the Newstan Colliery for emplacement within an REA, subsequently construction of reject emplacement areas and tailings dams within the final landform is not relevant.

6.2.3.4 Final Landform Construction: Final Voids, Highwalls and Low Walls

Mandalong is an underground coal mine, subsequently construction of final voids, highwalls and low walls within the final landform is not relevant.

6.2.3.5 Construction of Creek/River Diversion Works

Mandalong final landform does not include creek or river diversion works. Subsequently, construction of creek/river diversion works is not applicable to this Mandalong RMP.

6.2.4 Growth Medium Development

In the context of this RMP, growth medium development encompasses activities to reinstate soils with the initial physical, chemical, and biological characteristics required to establish the desired vegetation community.

Characterisation

Sampling will determine if the topsoil and/or subsoil is suitable for rehabilitation use or if it requires amelioration or selective handling and placement. Where topsoil resources allow, topsoil or subsoil will be spread to a nominal minimum depth range of 100 mm on all areas to be rehabilitated. Where adequate topsoil is not available, suitable alternatives may be used. If the growth medium cannot be effectively ameliorated, unsuitable subsoil and spoil, will be buried and capped.

Topsoil Management

Where soil stripping and transportation is required, Mandalong will undertake the operations in accordance with the methodologies outlined within the *Mandalong Mine Southern Extension Project Soils and Land Capability Assessment* (GSSE, 2013a). This assessment identifies the recommended soil stripping depths based upon the identified soil types that will be disturbed during construction works.

Prior to re-spreading stockpiled topsoil, an assessment of weed infestation on stockpiles should be undertaken to determine if individual stockpiles require herbicide application and / or “scalping” of weed species prior to topsoil spreading.

If long-term stockpiling is planned (i.e. greater than 3 months), seed and fertilise stockpiles as soon as possible. An annual cover crop species that produces sterile florets or seeds should be sown. A rapid growing and healthy annual pasture sward will provide sufficient competition to minimise the emergence of undesirable weed species. The annual pasture species will not persist in the rehabilitation areas but will provide sufficient competition for emerging weed species and enhance the desirable micro-organism activity in the soil.

Soil Amelioration

Prior to resspreading soils or subsoils at construction sites, sampling will be undertaken (either from the proposed source material, stockpiles, or in-situ soils) to determine appropriate ameliorant application. Ameliorants will be added to soils in accordance with recommendations from a soil specialist and will be minimised or avoided where possible.

Surface Preparation

Soil should be re-spread directly onto stripped areas where practical. Topsoil/subsoil or a suitable alternative (where resources are not available) will be spread to a depth of 100 mm, treated with fertiliser and seeded in one consecutive operation, to reduce the potential for topsoil loss to wind and water erosion. Thorough seedbed preparation will be undertaken to ensure optimum establishment and growth of vegetation. All topsoiled areas will be lightly contour ripped (after topsoil spreading) to create a “key” between the soil and the spoil. Ripping to 300 mm will be undertaken on the contour. Best results will be obtained by ripping when soil is moist and when undertaken immediately prior to sowing. If required, the re-spread topsoil surface will be scarified prior to, or during seeding, to reduce run-off and increase infiltration. This can be undertaken by contour tilling with a fine-tynd plough or disc harrow.

6.2.5 Ecosystem and Land Use Establishment

In the context of this RMP, ecosystem establishment includes activities to establish the desired floristic composition (species diversity and density) and habitat features. The phase incorporates management actions such as weed and feral pest control to achieve species establishment and growth to juvenile communities, and habitat augmentation.

Revegetation activities will be planned to occur after the completion of reshaping, topdressing with growth media and construction of drainage structures.

Revegetation

Appropriate revegetation steps and selection criteria for the species mix will be undertaken to ensure a high success revegetation rate, and will comprise, but not be limited to:

- Appropriate species selection;
- Optimal sowing rates and species proportions;
- Seed pre-treatment; and
- Soil amelioration and fertiliser application, where required.

Species selection for areas to be rehabilitated to native woodland will focus on those species that will successfully establish on the available growth medium, bind the soil and will result in a variety of structure and food/habitat resources. Whilst every attempt will be made to use species that existed prior to the commencement of mining, some additional species may be required to ensure suitable initial groundcover for site stabilisation. This may include the use of short-lived annual exotic non-invasive grass species.

A combination of native and introduced pasture species may be used on the disturbance areas to ensure the quick establishment of a continuous groundcover, thereby reducing the risk of erosion. Legumes may also be selected to assist in the supply of bio-available nitrogen to the soil.

Fertiliser will be applied with seed mixes to increase the likelihood of initial revegetation success. All revegetation activities will be undertaken immediately after the landform establishment stage.

Mandalong will develop seed mixes specific to the desired final land use domains outlined in **Section 2.4.1**.

Weed management

Invasive weed species within revegetation areas will be managed in accordance with the *Northern Operations Regional Biodiversity Management Plan* (2019).

Centennial will implement weed removal programs outlined in the site-specific Biodiversity Management Plan (BMP) for Mandalong (appended to the *Northern Operations Regional Biodiversity Management Plan* (2019)) to manage weed outbreaks. The removal of all weeds is the desired outcome, however there are limitations regarding the extent to which this can be achieved. A realistic approach involves controlling and suppressing weed species, thus providing a better opportunity for native flora to germinate, grow and establish dominance. Priority will be given to weed species listed as 'priority weeds' under the NSW *Biosecurity Act 2015*. Specific treatment and timing requirements are addressed in the site-specific BMP.

Herbicide is considered appropriate for larger weed species and areas of large infestation containing few natives. The application of herbicides for weeding purposes will only be applied by qualified personnel, and will be kept to a minimum. Particular caution will be used when applying herbicides around waterways and environmentally sensitive areas, particularly aquatic environments to ensure chemicals do not contaminate waterways or sensitive habitats. Where chemical usage is unavoidable, environmentally friendly herbicides will be utilised.

In sensitive environments such as heavily forested areas, threatened ecological communities and in sparse weed infestations manual removal of herbaceous weeds, regrowth and seedlings is the preferred method of weed management. If intensive weeding is required, the soil as far as practical will be stabilised or planted out with native seedlings by the end of each working day.

Disposal of removed weed matter is particularly important and offsite disposal or destruction at a suitable facility is essential. The Contractor or Environment and Community Coordinator is responsible for ensuring that removed vegetation is appropriately managed and disposed of. An offsite disposal location will be

nominated by the Contractor or Environment and Community Coordinator prior to commencement of weeding on site.

Weed removal works will be undertaken outside the seeding period of the target weeds, particularly weeds which produce large quantities of seed e.g. Paspalum and Pampas Grass.

Generally, the most effective time for undertaking weed management activities is during spring when majority of weed species are undertaking new growth and flowering. Seeding times for weeds of interest at a site scale are detailed in the site-specific BMPs. Where weeding must be undertaken within seeding periods, seed will be collected, bagged, and destroyed offsite, ensuring that no seed remains on site.

Follow up weed removal must be undertaken at regular intervals to reduce recolonization of weeds from the seed bank.

Ongoing monitoring for each site will include capturing details regarding the extent and location of weed infestations, types of weed species present and weed abundance. This information will inform the management actions required to manage weed outbreaks and protect threatened flora and ecological communities.

Pest Management

Introduced pest species within revegetation areas will be managed in accordance with the *Northern Operations Regional Biodiversity Management Plan* (2019).

To control feral species, several management techniques must be employed over an extended period of time.

Typical management actions that will be implemented for pest species at Mandalong may include, but are not limited to:

- Inspections by Centennial personnel or a qualified ecologist to detect pest species diversity and abundance on site;
- Sightings of pest species to be notified to the site's Environment and Community Coordinator;
- 1080 baiting for rabbits, cats and foxes;
- Destruction of rabbit warrens;
- Trapping and removal program for feral cats;
- Maintaining a clean, rubbish free environment as to not attract feral species scavenging;
- Restriction of domestic species on Centennial sites; and
- Site-specific management measures for feral and pest species control as detailed in site specific BMPs appended to the *Northern Operations Regional Biodiversity Management Plan* (2019).

Ongoing monitoring for each site will include recording the extent and location of pest species occurrence, the type of species found and their approximate density. This information will inform the actions required to manage pests and protect threatened flora and ecological communities.

6.2.6 Ecosystem and Land Use Development

For the purposes of this RMP, the ecosystem and land use development phase represents those activities required to develop sustainable ecosystems that have characteristics comparable to similar undisturbed vegetation in the area.

Activities associated with the ecosystem and land use development phase of rehabilitation are generally ongoing maintenance, land management activities and rehabilitation monitoring. Maintenance at rehabilitated areas will include, but not be limited to:

- Ongoing environmental management to minimise risks to rehabilitation;
- Comparing specific ecosystem characteristics such as soil profile development, floristic composition and structure, faunal diversity and abundance with the characteristics of appropriate analogue sites; and
- Undertaking adaptive management and remedial works where characteristics of the rehabilitation are not trending toward desired outcomes.

Rehabilitation Maintenance

Where rehabilitation monitoring confirms that the rehabilitation is not successful or is limited, maintenance works will be undertaken. This may include:

- Re-seeding and, where necessary, re-topsoiling and/or the application of specialised treatments such as composted mulch or bio-solids to areas with poor vegetation establishment;
- Installation of tree guards around planted seedlings or construction of temporary fencing suitable for excluding native and feral fauna species should grazing by animals be excessive;
- Replacement of drainage controls if they are found to be inadequate for their intended purpose, or compromised by vegetation or wildlife;
- De-silting or repair of sediment control structures; and
- Where monitoring indicates the presence of excessive weeds or the potential for noxious weed infestation, necessary precautions to prevent the development of weeds within the rehabilitated areas will be undertaken.

Monitoring results, any required maintenance activities and any refinements of rehabilitation techniques will be reported in the sites Annual Review/Annual Rehabilitation Report.

Rehabilitation Completion (Sign-Off)

Rehabilitated areas will be progressively signed-off by the RR as they meet the rehabilitation criteria outlined in **Section 4**, in accordance with the *Guideline: Achieving Rehabilitation Completion (Sign-off)*.

6.3 Rehabilitation of Areas Affected by Subsidence

Should subsidence impacts occur to surface features, remediation and rehabilitation will be undertaken in accordance with an approved SMP or Extraction Plan. Subsidence remediation and rehabilitation will be on-going throughout the LOM.

7 PART 7 – REHABILITATION QUALITY ASSURANCE PROCESS

Rehabilitation activities at Mandalong will be undertaken in accordance with a Rehabilitation Quality Assurance Process (RQAP), as illustrated in **Figure 11**. This process outlines the actions to be implemented throughout the lifecycle of rehabilitation, which includes the verification of execution of procedures as well as the recording of key data at each rehabilitation phase, including details of inspections, monitoring and record keeping which will be required to ensure that:

- Rehabilitation is being implemented in accordance with the nominated methodologies; and
- Identified risks to rehabilitation are being adequately addressed at each phase of rehabilitation.

Centennial will implement the RQAP through every phase of rehabilitation to confirm that the rehabilitation strategies outlined in this RMP have been completed in accordance with the nominated methodologies. The RQAP will also include inspections and documentation to verify that each phase of demolition and rehabilitation has been completed and has met the completion criteria detailed in **Section 4.1**. Documentation to be maintained would include (but not limited to):

Phase 1 – Active Mining

- Documentation of pre-clearance surveys and GDPs;
- Resource salvage records (soil, rocks, habitat trees);
- Surveys; and
- Detailed Landform designs

Phase 2 – Decommissioning

- Documentation of mine, shaft and boreholes sealing and sign off by RR;
- Inspection and demolition reports to confirm all infrastructure to be demolished has been removed;
- Documentation to identify the future landowner responsible for the ongoing upkeep and management of retained infrastructure; and
- Validation testing to ensure any contamination has been appropriately remediated and/or removed.

Phase 3 – Landform Establishment

- Survey and preparation of as constructed drawings of final constructed slopes, landforms and water drainage structures.

Phase 4 – Growth Medium Development

- Maintenance of a topsoil inventory to document stripped, stockpiled and re-spread resources;
- Site records of re-spread topsoil, ameliorants, fertiliser etc.; and
- Soil testing results to confirm appropriate soil geochemical parameters for plant establishment.

Phase 5 – Ecosystem and Land Use Establishment

- Documentation of reseeding or planting activities undertaken, such as date of planting, weather conditions, seeding rates and/or planting rates; and
- Site inspections and monitoring of rehabilitated areas to allow early identification of any emerging threats to rehabilitation.

Phase 6 – Ecosystem and Land Use Development

- Inspections of temporary and permanent erosion and sediment controls;
- Inspections to identify potential weed infestations;
- Documentation of rehabilitation monitoring; and
- Documentation of weed and feral animal management and eradication programs and follow-up inspections.

A Rehabilitation Quality Checklist will be developed to be signed off after each phase of rehabilitation prior to proceeding to the next phase to confirm that RQAP objectives have been met for the relevant remediation activities.

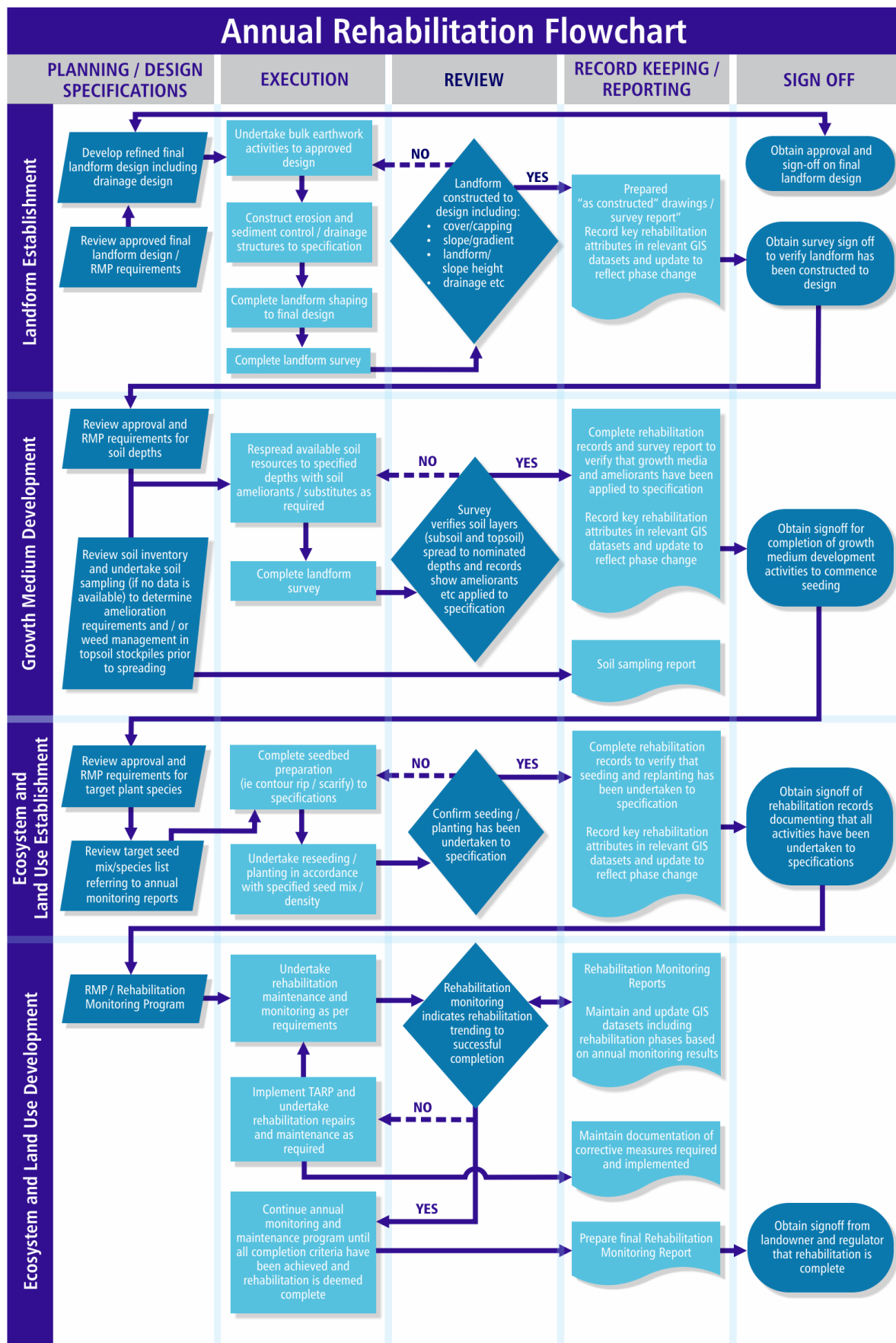


Figure 11: Rehabilitation Quality Assurance Process

8 PART 8 – REHABILITATION MONITORING PROGRAM

Mandalong implements a monitoring program that assesses the condition, performance and progress of rehabilitated areas across the site. The monitoring results are also used to identify the need for corrective actions for rehabilitation performance. The monitoring program incorporates the most appropriate indicators and methods that:

- Provide a measure of completion criteria to be assessed in accordance with the defined rehabilitation objectives;
- Adequately track changes to rehabilitation phases;
- Are reproducible;
- Utilise scientific recognised techniques; and
- Are cost-effective.

Monitoring is conducted by a suitably skilled and qualified person(s) at locations representative of the range of conditions on the rehabilitating areas and appropriate analogue sites. Monitoring results will inform refinements of rehabilitation methodology as required. Rehabilitation monitoring will be continued until it can be demonstrated that rehabilitation has satisfied all rehabilitation and closure criteria.

8.1 Analogue Site Baseline Monitoring

8.1.1 Site Selection and Establishment

Local reference (analogue) sites are integral to the rehabilitation monitoring program and are required to form the baseline against which rehabilitation results are compared over the course of the program. The number and location of reference sites will be chosen according to the following criteria:

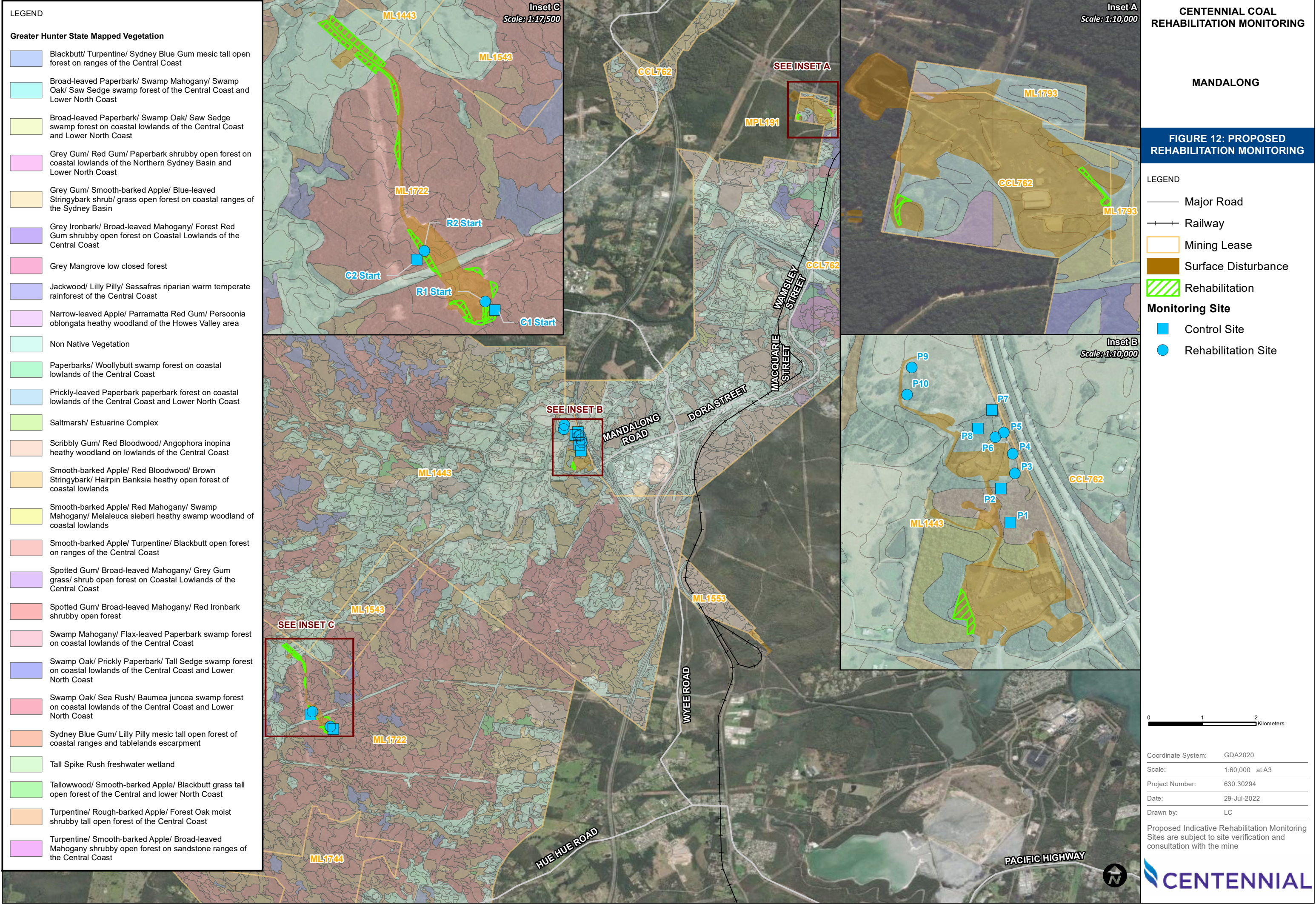
- Located in native vegetation representative of the target vegetation or adjacent pasture (for agricultural rehabilitation objectives) for the respective rehabilitation area;
- Vegetation is in moderate to good condition and not subject to substantial threatening processes, such as physical damage, weed infestation, grazing, bushfire damage or dieback;
- Located in native vegetation or pasture (open grassland) that is secure from future mine related activities and disturbance; and
- Plots should not be located in or near ecotones, vehicle tracks and their edges, or other disturbed areas that are readily distinguishable from the broad condition state of the vegetation zone.

Where separate areas of land are mapped into a single vegetation zone, the plots should be located across the separate areas, while being representative of the zone.

8.1.2 Reference/Analogue Sites

Annual rehabilitation monitoring has been undertaken at Mandalong since 2020, tracking rehabilitation success against previous completion criteria and informing any maintenance requirements. Centennial have undertaken a Rehabilitation Review (SLR, 2022) to establish a site-specific monitoring program to support the ongoing refinement of rehabilitation objectives and completion criteria assessment, and alignment with associated guidelines (refer **Section 1.3**). This includes transitioning Centennial operations to the NSW Biodiversity Assessment Method ('BAM', OEH 2020) to align with new rehabilitation objectives and completion criteria assessment (refer **Section 4**).

New reference (analogue) sites will be established in accordance with **Section 8.1.1** (if required) to increase statistical strength and allow comparison of rehabilitation scores to reference site scores (within percentile ranges) for certain variables. The location of analogue sites have been presented in **Figure 12**.



8.2 Rehabilitation Establishment Monitoring

The data yielded from the monitoring program allows an adaptive management approach by providing information to inform the type and implementation of management activities and determining the status of rehabilitation performance in relation to completion criteria. This facilitates the continual improvement and refinement of rehabilitation techniques.

Where rehabilitation performance is not trending to the nominated completion criteria this may indicate that there is a threat to long term rehabilitation success. Threats to rehabilitation may include events such as periods of drought, bushfire events, or pressures from weeds and feral animals.

The rehabilitation monitoring program will report against relevant components of the Trigger Action Response Plan (TARP) in **Section 10**. Where rehabilitation monitoring indicates that there is a potential threat to rehabilitation, the adaptive management actions will be undertaken in accordance with the TARP.

8.2.1 Rehabilitation Monitoring

Rehabilitation monitoring will be undertaken by suitably qualified practitioners (ecologist, ecological consultant, and/or botanist) annually. Monitoring in spring is preferable for detection and identification of flowering plants in the rehabilitation areas and in reference (analogue) sites. Survey timing should generally be conducted in the same month each year to allow consistent data comparison over time. Sampling should be completed during 'typical' climatic conditions, and timed to avoid extreme weather events (e.g. intense or high rainfall, flooding, or during or after bushfire). Details of the monitoring methodology are included in **Section 8.3** and monitoring sites have been shown on **Figure 12**.

8.2.2 Rehabilitation Inspections

Annual rehabilitation monitoring will be complimented by regular environmental inspections. These inspections will be used to identify any potentially emerging issues following rehabilitation activities and prior to adequate groundcover or species establishment.

8.3 Measuring Performance Against Rehabilitation Objectives and Rehabilitation Completion Criteria

The proposed monitoring method for Centennial Coal rehabilitation sites is summarised below and is consistent the objectives and criteria in **Section 4**. The key elements of the approach are:

- Survey design - stratification of the rehabilitation areas and reference vegetation areas – identifying locations and number of monitoring plots within rehabilitation areas and control sites (target vegetation areas); establishment of permanent monitoring stations (marked on ground, recorded and mapped)
- Photographic monitoring (or 'photo monitoring');
- Collection of vegetation and habitat data via BAM plots (with subsequent analysis and statistics);
- Collection and analysis of soil chemical analytes (as an indicator of available nutrients for plant growth in the soil medium);
- Collection and analysis of soil microbes (as an indicator of soil health for plant growth); and
- Vertebrate pest species, domesticated stock - presence and damage is recorded and photographed where present.

Note: Opportunities may exist to compare previous data collected under different methods on a site-by-site basis (refer *Centennial Rehabilitation Review* (SLR, 2022)).

8.3.1 Photographic Monitoring

Photo-monitoring is to be conducted as part of the sampling of permanent vegetation (BAM) plots according to the following procedure:

- One photo (landscape view) is taken by the recorder with a GPS camera standing at the start of the 50 m transect (which bisects the BAM plot); this is taken to be the uphill end of the 50 m transect; and
- One photo (landscape view) is taken by the recorder with a GPS camera standing at the end of the 50 m transect; this is taken to be the downhill end of the 50 m transect.

8.3.2 Vegetation Composition, Function and Structure (BAM Data)

All vegetation monitoring plots are to be surveyed following the methodology detailed in Section 4.3.4 of the BAM (OEH 2020). This involves a 20 x 20 m floristic plot to assess species diversity and ground cover, a 20 x 50 m structural attribute plot to collect tree stem size, large woody debris (LWD) and hollow-bearing tree data and five 1 m x 1 m plots to assess litter cover percentage (as well as bare ground, cryptogam and rock).

8.3.3 Soil Chemistry Analysis

Soil samples are collected from each of the established monitoring plots. Soil is sampled using an Arborline push tube soil corer to collect 0 - 10 cm of soil at approximately 5 m intervals along the centreline of the plot. These samples are then consolidated into a single sample for all rehabilitation sites for analysis.

Laboratory analysis of the samples involves examining the following soil chemistry parameters:

- pH
- Electrical conductivity (salinity)
- Chloride and sulfate
- Exchangeable Ca/Mg/K/Na
- Cation exchange capacity
- Particle size analysis
- R1 dispersion index
- Available water capacity, 15 bar and field capacity
- Organic carbon
- Total nitrate and nitrogen
- Total and extractable phosphorus
- Copper, manganese and zinc

Soil test results are rated according to the “traffic light” system to reflect suitability of analyte levels for optimal native vegetation growth.

8.3.4 Soil Microbial Analysis

The major goal of rehabilitating land subject to mining is the re-establishment of a self-sustaining vegetative cover. A successful vegetation cover will then provide source material for nutrient cycling. As decomposers, soil microbial communities mediate critical ecosystem processes, and microorganisms are an important element for successful reclamation because of their role in nutrient cycling, plant establishment, geochemical transformations and soil formation. A soil's microbiological status may be utilised as a primary indicator of its biological properties and of the overall soil quality development over time.

Soil cores are collected from three points along the 50 m centreline within monitoring plots. Soil is sampled using an Arborline push tube soil corer to collect 0 - 10 cm of soil. These samples were then consolidated into a single sample and stored in a cool place to be analysed later for microbial content.

Generally a specialist soil scientist/consultant is required to conduct the microbial analysis. The microbial analysis should comprise the following methods:

- Moisture contents are determined after drying several grams of the soil sample for three hours at 100°C. The soil moisture contents are used to adjust all microbial number counts to a standard count per gram dry weight of soil. Water activity measurements are determined using a Decagon Devices Pawkit Water Activity Meter (Graintec Pty Ltd, Qld). It is generally accepted that the water requirements of microorganisms should be defined in terms of the water activity (A_w), rather than the water content of their growth substrate. A_w is a thermodynamic parameter defined in relation to the chemical potential of water and represents the availability of water for reaction in the growth substrate. The reduction of A_w has a marked effect on microbial growth;

- Standardised sample treatments and isolation media are utilised to distinguish the numbers of different populations of mesophilic and mesotolerant bacteria, actinomycetes and fungi. These microorganisms grow typically between 15 and 40°C. The dilution plating method is utilised as it is simple and rapid, gives repeatable results and yields excellent comparable data. Although plate counts represent only a small portion of the total microorganisms in the sample, they provide a relative measure of cultivable microbial numbers between samples;
- Viable bacterial and fungal populations are determined by plating the inoculum onto selective bacterial and fungal isolation media followed by incubation at 25°C. The microorganisms were grouped into broad ecological and taxonomic categories for analysis. The categories examined include copiotrophic (rapidly growing) and oligotrophic (resource-limited adapted) bacteria and actinomycetes (filamentous bacteria that are important for the decomposition of complex substrates), filamentous fungi and yeasts; and
- All data analyses are undertaken using suitable statistical package.

8.3.5 General Observations

In addition to the plot and soil based surveys, the following features are also recorded:

- Evidence of erosion across the sites, documenting type and severity;
- Presence of threatened or other significant species;
- Opportunistic occurrence and abundance of weeds, specifically priority weed species, as listed under the NSW *Biosecurity Act 2015*;
- Opportunistic evidence of native fauna using the site (outside of monitoring stations); and
- Signs of disturbance, either by stock, feral animals, vehicles or humans.

8.3.6 Reporting

Outcomes of monitoring results as described in **Sections 8.3.1 to 8.3.5** are reported in the Annual Rehabilitation Report / Annual Review. The Annual Rehabilitation Report / Annual Review provides additional specific detail, maps and statistics regarding planned rehabilitation activities and schedules for previous reporting period and the next three year period.

9 PART 9 – REHABILITATION RESEARCH, MODELLING AND TRIALS

9.1 Current Rehabilitation Research, Modelling and Trials

9.1.1 Mandalong Mine and VAM-RAB Offset Area

Water drainage from the car park and demountable buildings has been connected into the existing surface water drains. The surface water structures at Mandalong have previously been rehabilitated to prevent erosion and are stable.

Centennial Mandalong received approval in 2011 (DA97/800 Modification 8) for the trial installation of a ventilation air methane regenerative afterburner unit (VAM-RAB) that would remove and breakdown the exhaust methane.

Installation of the VAM-RAB unit and associated gas engines necessitated clearing of some native vegetation. Two endangered ecological communities (EEC) listed in Schedule 3 of the former NSW *Threatened Species Conservation Act 1995* were included in the areas to be cleared. These were: Swamp Sclerophyll Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions; and River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions

Development consent condition 76A included a requirement for a 1.25 hectare rehabilitation offset area to be established on cleared land adjoining the VAM-RAB construction site. These EEC's were represented by communities described in the regional vegetation mapping and classification (NPWS 2000) as MU37 Swamp Mahogany Paperbark Forest and MU38 Redgum – Rough-barked Apple Swamp Forest.

An ecology survey (Hunter Eco, 2011) prepared for the VAM-RAB project application described the proposed rehabilitation area to be mostly dominated by weeds. This being the case, active regeneration was required and this was commenced in January 2012. Further to the requirement to rehabilitate, the consent condition 76A also requires that the progress of the rehabilitation be monitored annually for five years. This monitoring was first conducted by Hunter Eco in October and November of 2012 and continues on an annual basis.

As reported in the 2015 Annual Review (Centennial Mandalong, 2016), Hunter Eco have found that rehabilitation areas remain substantially different to that in the reference areas. However, as time goes by the cover contribution of the planted species will increase and should contribute to improved similarity. Hunter Eco have recommended that *Kunzea ambigua* and Blackberry regrowth are controlled and that the annual planting program is maintained, particularly replacing any losses. This will ensure canopy density is maintained and will result in a spread of age classes.

Overall Hunter Eco have concluded that the results to date are encouraging suggesting that the measures taken should result in successful rehabilitation, although over a longer period than the required five year monitoring program.

9.2 Future Rehabilitation Research, Modelling and Trials

No rehabilitation trials are currently proposed at Mandalong.

10 PART 10 - INTERVENTION AND ADAPTIVE MANAGEMENT

Where rehabilitation performance is not trending toward the nominated completion criteria this may indicate that there is a potential threat to long term rehabilitation success. Threats to rehabilitation may include events such as extended periods of drought, bushfire events, or pressures from weeds and feral/pest animals.

A Rehabilitation Trigger Action Response Plan (TARP) has been developed to provide a framework to manage potential key risks to rehabilitation. The Rehabilitation TARP includes:

- Identification of the principal contributing factors and impacts for each major risk to rehabilitation;
- Identification of upper limits (trigger values) for causes and impacts that are considered to represent an unacceptable level of risk; and
- Identification of appropriate responses to mitigate or remediate the causes and impacts, including a notification protocol.

The Rehabilitation TARP provides management responses for lower (first tier) and upper (second tier) trigger values. First tier trigger values identify opportunities for closer monitoring or early intervention that may mitigate potential impacts before notable impact to rehabilitation occurs. Second tier trigger values identify when indicators have reached a threshold that requires more substantive or widespread remedial actions to remediate or mitigate rehabilitation failure.

Should any trigger conditions be met resulting in the requirement for intervention or adaptive management, actions will be reported in the Annual Rehabilitation Report. Mandalong will notify the RR and other relevant stakeholders of any incident (such as bushfire or disease) that results in major impacts to rehabilitation that are likely to significantly impact the potential to achieve rehabilitation success.

The Rehabilitation TARP is provided in **Table 10-1** and will be revised as conditions at Mandalong change or new risks to rehabilitation are identified.

Table 10-1: Rehabilitation Trigger Action Response Plan

Aspect/ Category	Key Element	Element Number	Trigger Response	Condition Green	Condition Amber	Condition Red
Landform stability	Slope gradient	1	Trigger	Rehabilitated areas have slopes that are generally $<10^{\circ}$.	Rehabilitated areas have slopes $>10^{\circ}$, but $<14^{\circ}$ unless otherwise agreed with the RR (or contemporary equivalent).	Rehabilitated areas have slopes $>15^{\circ}$, unless otherwise agreed with the RR (or contemporary equivalent)
			Response	No response required. Continue monitoring program.	Undertake regrading and revegetation of the area.	Undertake a review of the landform design, including survey if required. Undertake regrading and revegetation of the area.
	Erosion control	2	Trigger	No gully or tunnel erosion. No rilling present.	Minor gully or tunnel erosion present and/or rilling <200 mm deep.	Significant gully or tunnel erosion present and/or rilling >200 mm deep.
			Response	No response required. Continue monitoring program.	A suitably trained person to inspect the site. Investigate opportunities to install water management infrastructure to address erosion. Remediate as appropriate.	Undertake a review of the drainage of the area and provide recommendations to appropriately remediate the erosion. Remediate as soon as practicable.
	Free draining landforms	3	Trigger	No ponding or drainage issues present in landform	Landforms exhibiting minor ponding	Landforms exhibiting significant drainage issues, threatening or causing rehabilitation failure.
			Response	No response required. Continue monitoring program.	An inspection of the site will be undertaken by a suitably trained person. Investigate opportunities to address issues. Remediate as appropriate or as required by the landowner.	Undertake a review of the drainage design and provide recommendations to appropriately remediate the area. Remediate as soon as practicable or as required by the landowner. Liaison with RR regarding landform.

Aspect/ Category	Key Element	Element Number	Trigger Response	Condition Green	Condition Amber	Condition Red
	Water management structures	4	Trigger	Water management structures have been designed and constructed in accordance with Blue Book requirements and maintained in good condition with no erosion and/or scouring.	Water management structures (sediment dams, channels, contour banks) display minor erosion and/or scouring	Water management structures fail or display significant scouring / erosion
			Response	No response required. Continue monitoring program.	An inspection of the site will be undertaken by a suitably trained person. Identify remedial actions such as amelioration, re-vegetation or alternative scour protection	Engage suitable person to develop a site specific remediation plan and review water management structure design criteria
Water Quality	Monitoring parameters	5	Trigger	Surface water quality of runoff from rehabilitation areas is within EPL criteria and rehabilitation performance criteria established within this document.	Water quality exceeds EPL or performance criteria but does <u>not</u> indicate a long-term rehabilitation issue. Monitoring does not illustrate impact to rehabilitation.	Water quality exceeds criteria, indicating a long term rehabilitation liability. Monitoring illustrates impact to rehabilitation.
			Response	No response required. Continue monitoring program.	Review and investigation of water quality monitoring and management where appropriate. Implement relevant remedial measures where required.	Reporting as per statutory reporting requirements. Implement relevant responses and undertake immediate review to determine source of issues and implement remediation measures identified as soon as practicable. Liaison with relevant regulatory authorities.
Soil quality	Monitoring parameters	6	Trigger	Properties of soil are within 20 % from relevant analogue site after 5 years of rehabilitation.	Properties of soil are > 20 % from results at relevant analogue site after 5 years of rehabilitation; however area is able to sustain selected vegetation species.	Properties of soil are > 20 % from results at relevant analogue site after 5 years; the area is <u>not</u> able to sustain selected vegetation species.
			Response	No response required. Continue monitoring program.	Investigate application of additional soil, and/or use of appropriate soil ameliorants or management options to address soil quality if deemed necessary.	Consultant to be engaged to assist with recommendations to appropriately remediate soil quality and depth. Remediate as soon as practicable.

Aspect/ Category	Key Element	Element Number	Trigger Response	Condition Green	Condition Amber	Condition Red
Vegetation	Ground cover	7	Trigger	Five years following rehabilitation to woodland, $\geq 70\%$ total ground cover (vegetation, leaf litter, mulch) is present within rehabilitated areas.	Five years following rehabilitation to woodland, total ground cover (vegetation, leaf litter, mulch) of between 55 – 70 % in rehabilitated areas.	Five years following rehabilitation to woodland, total ground cover (vegetation, leaf litter, mulch) is $< 55\%$ within rehabilitated areas.
			Response	No response required. Continue monitoring program.	Review procedures where required to increase vegetation cover.	A suitably trained person to inspect the site. Investigate use of appropriate management options to remediate. Remediate as appropriate.
	Weed presence	8	Trigger	Twelve months following rehabilitation, no significant weed infestations present.	Twelve months following rehabilitation, $>10\%$ but $<25\%$ cover of undesirable species present.	Twelve months following rehabilitation, $>25\%$ cover of undesirable species present.
			Response	No response required. Continue monitoring program.	Engage weed management contractor to remove introduced species from the site.	Engage weed management contractor to remove introduced species from the site as soon as practicable. Investigate management measures to assist native plant establishment including use of ameliorants and implement as appropriate.
	Pest animal species presence	9	Trigger	No significant pest animal species present.	Significant pest animal species present but do <u>not</u> threaten to cause rehabilitation failure.	Significant numbers of pest animals causing widespread damage to rehabilitation.

Aspect/ Category	Key Element	Element Number	Trigger Response	Condition Green	Condition Amber	Condition Red
			Response	No response required. Continue monitoring program.	Consult with relevant authorities regarding appropriate pest animal control campaign.	Consult with relevant authorities regarding appropriate pest animal control campaign. Engage a suitably qualified specialist to prepare a site management plan and implement recommendations such as augmenting pest animal exclusion fencing and re-vegetation.
	Species composition	10	Trigger	Five years following rehabilitation species composition comprises a mixture of native trees, shrubs and/or grasses representative of vegetation in comparable analogue sites.	Five years following rehabilitation vegetation composition comprises <75% species consistent with analogue site.	Five years following vegetation composition comprises <60% species consistent with analogue site.
			Response	No response required. Continue monitoring program.	Review native seed mix and amend accordingly. Consider remedial actions such as tubestock planting or re-seeding to achieve required species composition.	An inspection of the site will be undertaken by a suitably trained person. Investigate remedial options to achieve required species composition and implement recommendations.
Bushfire	Fuel load	11	Trigger	Asset Protection Zones (APZs) are maintained around assets and residential areas. Fuel loads are assessed and managed as required (including maintaining fire-breaks) and there is firefighting access across rehabilitation areas and water resources available for fighting fires.	Monitoring indicates APZ is not maintained, fuel loads have not been managed and fire breaks have not been maintained. In the event of a fire, this would result in firefighters not being able to access the site or water resources.	A fire on site damages rehabilitated areas.

Aspect/ Category	Key Element	Element Number	Trigger Response	Condition Green	Condition Amber	Condition Red
			Response	No response required. Continue monitoring program.	Reduce fuel loads and ensure access tracks are cleared by slashing and undertaking bushfire reduction burns if required in accordance with <i>Bushfire Management Plan</i> . Inspect water sources are and ensure sufficient water is available.	Review and update (if required) the <i>Bushfire Management Plan</i> to ensure monitoring and maintenance is completed for fuel loads, access tracks, and water bodies.
Subsidence	Sensitive biodiversity features: EEC / GDE Threatened Species, populations and their habitats Aquatic Biodiversity	12	Trigger	Mining induced impacts to creeks and alluvial groundwater not identified by environmental monitoring (including surface flow gauging, water quality, related groundwater levels) and/or routine monitoring (as per Extraction Plan). Monitoring indicates all parameters are within design criteria/Level Green trigger levels.	Subsidence monitoring program identifies potential for impact at surface in the vicinity of sensitive vegetation/habitat areas; however Mining induced impacts to creeks and alluvial groundwater is not identified / not confirmed by routine environmental monitoring (including surface flow gauging, water quality, related groundwater levels) and/or routine monitoring (as per Extraction Plan). And/or Amber Level triggers for surface water/groundwater (including alluvium) are triggered (potential for riparian vegetation impact requiring further investigation/assessment.	Mining induced impacts (beyond negligible approved levels compared to baseline) identified by: Environmental monitoring (including flow gauging, water quality and biodiversity); and/or Monitoring as per Extraction Plan; and/or By investigations and actions arising from Condition Amber Subsidence monitoring program identifies potential for impact at surface in the vicinity Red Level triggers for surface water/groundwater (including alluvium and biodiversity) are triggered.
			Response	No response required. Continue subsidence monitoring program Continue biodiversity monitoring program	Review and confirm monitoring data, cross check Biodiversity monitoring data against other related environmental data (eg control sites and benchmark data) and subsidence monitoring upon identification of the potential trigger Notify NPWS/BCD and relevant stakeholders of current findings and proposed approach for investigation upon identification of the potential trigger Where review of subsidence monitoring data	Implement Adaptive Management process as detailed within the Extraction Plan and in accordance with Condition 8 Schedule 6 of SSD-5144 immediately Take all necessary steps to ensure that the exceedance ceases and does not recur Targeted field investigation by a qualified ecologist and the Mandalong Environment and

Aspect/ Category	Key Element	Element Number	Trigger Response	Condition Green	Condition Amber	Condition Red
					<p>indicates <i>potential for mining-induced impact</i>, or there is insufficient data to quantify the above, undertake targeted monitoring inspection over the relevant surface area to confirm and quantify the scale/extent/nature of potential surface impacts.</p> <p>Undertake further investigations as appropriate to confirm the potential issue and analyse data with the aim of determining whether the exceedance is likely to be mining related.</p> <p>Assess need for any increase in monitoring frequency or additional monitoring where relevant</p> <p>Continue monitoring programs.</p>	<p>Community Coordinator with invitation to relevant stakeholders as soon as practicable after the trigger is confirmed to be mining induced</p> <p>Monitor impact for affected species/ecological communities using relevant methods outlined in baseline dataset</p> <p>Investigate exceedance of subsidence prediction model</p> <p>Notify DPE and BCD as per Condition 2 of Schedule 4 of SSD-5144 and consult with the relevant stakeholders as per Consent / related approvals</p> <p>Explore all remediation options and submit a report to DPE and BCD outlining them.</p> <p>Implement remediation measures to the satisfaction of the Secretary.</p> <p>Review of mining design/ predictions against mine design criteria.</p> <p>Written reporting as per Consent/relevant approvals.</p> <p>Implement agreed ponding remediation in consultation with the landowner, using the most applicable options and best practice at the time (such as installing drains, subsurface drains etc)</p>

Aspect/ Category	Key Element	Element Number	Trigger Response	Condition Green	Condition Amber	Condition Red
	Creeks and Watercourses	13	Trigger	<p>Development of subsidence and impact as predicted.</p> <p>Negligible change to creek line gradients, with maximum grade change in the order of 4% and not affecting flows.</p> <p>Negligible change to channel alignment.</p> <p>Negligible change to existing ponding within creek channel.</p>	<p>Development of subsidence exceeding prediction.</p> <p>Vertical subsidence results are greater than predicted.</p> <p>Change in creekline grades in excess of 4% from pre-mining grades.</p> <p>Increase or decrease in ponding within predicted or approved impact.</p> <p>One or more areas of instabilities in watercourses.</p>	<p>Development of subsidence and impact greater than expected.</p> <p>Vertical subsidence results are greater than two times predicted or collapse of conglomerate beam.</p> <p>Change in creekline grades resulting in;</p> <p>Observable change in channel alignment.</p> <p>Observable erosion along creekline.</p> <p>Observable cracking on stream bed or banks.</p> <p>Increase or decrease in ponding above predicted or approved impact.</p> <p>One or more areas of instabilities in watercourses causing sediment loads to migrate and impact riparian vegetation.</p> <p>Trend in declining biodiversity from mining related impacts.</p>

Aspect/ Category	Key Element	Element Number	Trigger Response	Condition Green	Condition Amber	Condition Red
			Response	<p>Centennial to conduct post mining inspection and subsidence monitoring and provide results to the Landowner and RR.</p> <p>Centennial to assess subsidence impact against Flood Modelling Assessment LW24-24A.</p> <p>Centennial to continue to monitor as per Water Management Plan LW24-24A.</p>	<p>Centennial to conduct post mining inspection and subsidence monitoring and provide results to the Landowner and RR.</p> <p>Centennial to monitor and investigate as per Water Management Plan LW24-24A.</p> <p>Centennial to assess subsidence impact against Flood Modelling Assessment LW24-24A.</p> <p>Centennial to investigate and assess if remediation measures are necessary in consultation with geomorphic specialist and Landowner.</p> <p>Report investigations, monitoring and any remediation measures in Annual Review.</p>	<p>Centennial to conduct post mining inspection and subsidence monitoring and provide results to the Landowner and RR.</p> <p>Centennial to monitor and investigate as per Water Management Plan LW24-24A and Extraction Plan.</p> <p>Centennial to investigate and assess possible remediation measures in consultation with geomorphic specialist, DPI- Water and Landowner.</p> <p>Centennial to undertake remediation where it is determined the appropriate option in consultation with Landowner and DPI-Water.</p> <p>Centennial to notify DPE as per S4 Condition 2 SSD-5144.</p> <p>Centennial to notify external stakeholders including government agencies in accordance with Incident Reporting S6 Condition 10</p> <p>Centennial to report investigations, monitoring and any remediation measures in Annual Review.</p> <p>Centennial to review results and predictions as per Extraction Plan.</p>

Aspect/ Category	Key Element	Element Number	Trigger Response	Condition Green	Condition Amber	Condition Red
	Farm Dams	14	<p>Trigger</p> <p>Operation within prediction and approved impact Development of subsidence and impact as predicted. Tensile Strain < 4mm/m Not likely to impact dam seal. Drainage paths may need to be regraded. Possible minor reduction in dam capacity from tilting.</p>	<p>Condition Green</p> <p>Operation within prediction and approved impact Development of subsidence and impact as predicted. Tensile Strain < 4mm/m Not likely to impact dam seal. Drainage paths may need to be regraded. Possible minor reduction in dam capacity from tilting.</p>	<p>Condition Amber</p> <p>Development of subsidence greater than predicted, but impact as predicted. Tensile Strain 4 mm/m to 10 mm/m. Possible minor leakage to dam structure, requiring resealing of dam. Reduction of storage capacity from tilting requiring reshaping of dam to restore capacity; and / or drainage paths to be regraded.</p>	<p>Condition Red</p> <p>Development of subsidence or impact greater than predicted Tensile Strain >10 mm/m Loss of freeboard or cracking causing dam failure.</p>
			<p>Response</p> <p>Centennial to conduct subsidence monitoring on dam and provide results to the Landowner, RR and SA NSW. Centennial to assist landowner with any claim for damage to property. SA NSW to conduct post mining inspections and arrange any necessary repairs to dam and drainage paths in consultation with Landowner.</p>	<p>Condition Green</p> <p>Centennial to conduct subsidence monitoring on dam and provide results to the Landowner, RR and SA NSW. Centennial to assist landowner with any SA NSW claim for damage to property. SA NSW to conduct post mining inspections and arrange any necessary repairs to dam and drainage paths in consultation with the Landowner. Centennial to provide alternate water supply if required. Centennial to arrange structural inspection by structural / civil engineer to provide assessment of the dam's integrity and safety if the size or the location of the dam causes a risk to the occupants, public or property.</p>	<p>Condition Amber</p> <p>Centennial to conduct subsidence monitoring on dam and provide results to the Landowner, RR and SA NSW. Centennial to assist landowner with any SA NSW claim for damage to property. SA NSW to conduct post mining inspections and arrange any necessary repairs to dam and drainage paths in consultation with the Landowner. Centennial to provide alternate water supply if required. Centennial to arrange structural inspection by structural / civil engineer to provide assessment of the dam's integrity and safety if the size or the location of the dam causes a risk to the occupants, public or property.</p>	<p>Condition Red</p> <p>Centennial to conduct subsidence monitoring on dam and provide results to the Landowner, RR and SA NSW. Centennial to arrange structural inspection by structural / civil engineer to provide assessment of the dam's integrity and safety if the size or the location of the dam causes a risk to the occupants, public or property. SA NSW to conduct post mining inspections and arrange any necessary repairs to dam and drainage paths in consultation with the Landowner. Centennial to notify external stakeholders including government agencies in accordance with Incident Reporting S6 Condition 10. Centennial to provide alternate water supply. Centennial to review results and predictions as per Extraction Plan.</p>

Aspect/ Category	Key Element	Element Number	Trigger Response	Condition Green	Condition Amber	Condition Red
	Steep Slopes	15	Trigger	<p>Development of subsidence and impact as predicted</p> <p>Vertical subsidence within predicted range</p> <p>Tilts and strains within predicted range</p> <p>Negligible visible impact on gravel access roads</p> <p>Negligible impact to steep slopes</p> <p>Negligible indications downslope</p> <p>rock or boulder movements</p> <p>Negligible rock mass instability</p> <p>Negligible opening of rock joints that does not cause dislodgement of rocks</p>	<p>Development of subsidence exceeding prediction.</p> <p>Vertical subsidence greater than predicted.</p> <p>Tilts and Strains greater than predicted.</p> <p>Cracking to gravel access roads, but remain within SSR.</p> <p>Cracking to surface not requiring repairs or posing further risk to public safety.</p> <p>Opening of rock joints that may cause dislodgement of rocks.</p>	<p>Development of subsidence and impact greater than predicted.</p> <p>Vertical subsidence greater than predicted.</p> <p>Tilts and Strains greater than predicted.</p> <p>Tensile cracks and/or compression humps develop on access roads that need repairing to ensure public safety.</p> <p>Surface cracking visible that may be dangerous to the public.</p> <p>Repairs required, reshaping road and restore drainage.</p> <p>Opening of rock joints that may cause dislodgement of rocks.</p>

Aspect/ Category	Key Element	Element Number	Trigger Response	Condition Green	Condition Amber	Condition Red
			Response	<p>Centennial to conduct weekly visual inspections of land within steep slope zones</p> <p>Centennial to conduct post mining inspection and subsidence monitoring and provide results to the RR and Landowner.</p>	<p>Centennial to conduct post mining inspection and subsidence monitoring and provide results to the RR and Landowner.</p> <p>Centennial to inspect and erect warnings signs or barricades as per Public Safety Management Plan.</p> <p>Centennial to notify Landowner</p> <p>Centennial to arrange repairs to access roads or areas of rock instability in consultation with landowner.</p> <p>Centennial to notify Principal Subsidence Engineer of higher than expected subsidence and impact.</p> <p>Centennial to arrange a Geotechnical Engineer to inspect any areas of suspected rock mass instability in consultation with Landowner.</p> <p>Centennial to review results and predictions as per Extraction Plan.</p>	<p>Centennial to conduct post mining inspection and subsidence monitoring and provide results to the RR and Landowner.</p> <p>Centennial to inspect and erect warnings signs or barricades as per Public Safety Management Plan.</p> <p>Centennial to notify Landowner.</p> <p>Centennial to notify Principal Subsidence Engineer of higher than expected subsidence and impact.</p> <p>Centennial to notify DPE as per S4 Condition 2 SSD-5144.</p> <p>Centennial to arrange immediate repairs to dangerous surface cracking (eg backfilling) any necessary repairs in consultation with the Landowner and RR.</p> <p>Centennial to arrange a Geotechnical Engineer to inspect any areas of suspected rock mass instability.</p> <p>Centennial to notify external stakeholders including government agencies in accordance with Incident Reporting S6 Condition 10.</p> <p>Centennial to review results and predictions as per Extraction Plan.</p>

Aspect/ Category	Key Element	Element Number	Trigger Response	Condition Green	Condition Amber	Condition Red
	Land Use Impacts	16	Trigger	<p>Development of subsidence and impact as predicted.</p> <p>Vertical subsidence within predicted range.</p> <p>Negligible change to flood free agricultural land for stock storage or stock access.</p> <p>Negligible impact to agricultural productivity or use of the land or an enterprise.</p> <p>Negligible change to remnant ponding.</p> <p>Negligible change to buildings or improvements.</p> <p>Negligible increase in soil or tunnel erosion.</p>	<p>Development of subsidence exceeding prediction.</p>	<p>Development of subsidence and impact greater than predicted.</p> <p>Impact and change to property functionality or agricultural productivity greater than predicted or approved.</p> <p>Change to flood free land for stock storage or stock access greater than predicted or approved.</p>

Aspect/ Category	Key Element	Element Number	Trigger Response	Condition Green	Condition Amber	Condition Red
			Response	<p>Centennial to conduct post mining inspection and subsidence monitoring and provide results to the Landowner, RR and SA NSW. Review subsidence results and observed impacts against Land and Agricultural Resource Assessment and Land Management Plan.</p> <p>Centennial to assist landowner with any claim for damage to property.</p> <p>SA NSW to conduct post mining inspections and arrange any necessary repairs in consultation with Landowner.</p>	<p>Centennial to conduct post mining inspection and subsidence monitoring and provide results to the Landowner, RR and SA NSW. Review subsidence results and observed impacts against Land and Agricultural Resource Assessment and Land Management Plan.</p> <p>Centennial to assist landowner with any claim for damage to property.</p> <p>SA NSW to conduct post mining inspections and arrange any necessary repairs in consultation with Landowner.</p> <p>Centennial to ensure adequate water supply is available.</p>	<p>Centennial to conduct post mining inspection and subsidence monitoring to determine the subsided floor level and provide results to the Landowner, RR and SA NSW.</p> <p>Review subsidence results and observed impacts against pre-mining agricultural assessment and Land Management Plan.</p> <p>Centennial to commence negotiations with Landowner as per the Land Acquisition process (S5-Condition 3 & 4). Centennial to notify DPE as per S4 Condition 2 SSD-5144.</p> <p>Centennial to notify external stakeholders including government agencies in accordance with Incident Reporting S6 Condition 10</p> <p>Centennial to review results and predictions as per Extraction Plan.</p>

11 PART 11 - REVIEW, REVISION AND IMPLEMENTATION

11.1 Review

This Plan will be reviewed and if required revised in the event of the following:

- An amendment to the rehabilitation objectives, completion criteria or proposed final land use;
- Changes to risks, risk control measures or rehabilitation strategies being identified during the completion of rehabilitation risk assessment or additional investigations; and
- When directed to by the RR Secretary.

11.2 Implementation

The process for ensuring that mining and rehabilitation are conducted in accordance with the RMP is the preparation and implementation of an Annual Rehabilitation Plan. The Annual Rehabilitation Plan is prepared and managed by the Environment and Community Manager and approved by the Mine Manager.

12 REFERENCES

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Appendix A – Land Ownership Schedule

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
	0	FCNSW	MLA457
	0	FCNSW	EL6317
1	1014	FREEHOLD	PAA
2	1014	FREEHOLD	PAA
3	1014	FREEHOLD	PAA
4	1014	FREEHOLD	PAA
5	1014	FREEHOLD	PAA
6	1014	FREEHOLD	PAA
7	1014	FREEHOLD	PAA
8	1014	FREEHOLD	PAA
9	1014	FREEHOLD	PAA
10	1014	FREEHOLD	PAA
11	1014	FREEHOLD	PAA
12	1014	FREEHOLD	PAA
13	1014	FREEHOLD	PAA
14	1014	FREEHOLD	PAA
15	1014	FREEHOLD	PAA
16	1014	FREEHOLD	PAA
17	1014	FREEHOLD	PAA
18	1014	FREEHOLD	PAA
1	1021	FREEHOLD	PAA
2	1021	FREEHOLD	PAA
3	1021	FREEHOLD	PAA
4	1021	FREEHOLD	PAA
5	1021	FREEHOLD	PAA
6	1021	FREEHOLD	PAA
7	1021	FREEHOLD	PAA
8	1021	FREEHOLD	PAA
9	1021	FREEHOLD	PAA
10	1021	FREEHOLD	PAA
11	1021	FREEHOLD	PAA
12	1021	FREEHOLD	PAA
13	1021	FREEHOLD	PAA
14	1021	FREEHOLD	PAA
15	1021	FREEHOLD	PAA
16	1021	FREEHOLD	PAA
17	1021	FREEHOLD	PAA
18	1021	FREEHOLD	PAA
19	1021	FREEHOLD	PAA
20	1021	FREEHOLD	PAA
21	1021	FREEHOLD	PAA

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
22	1021	FREEHOLD	PAA
23	1021	FREEHOLD	PAA
24	1021	FREEHOLD	PAA
25	1021	FREEHOLD	PAA
26	1021	FREEHOLD	PAA
27	1021	FREEHOLD	PAA
28	1021	FREEHOLD	PAA
29	1021	FREEHOLD	PAA
30	1021	FREEHOLD	PAA
1	2799	FREEHOLD	PAA, CL762
2	2799	FREEHOLD	PAA, CL762
3	2799	FREEHOLD	PAA, CL762
4	2799	FREEHOLD	PAA, CL762
5	2799	FREEHOLD	PAA, CL762
6	2799	FREEHOLD	PAA, CL762
7	2799	FREEHOLD	PAA, CL762
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9	2799	FREEHOLD	PAA, CL762
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11	2799	FREEHOLD	PAA, CL762
12	2799	FREEHOLD	PAA, CL762
13	2799	FREEHOLD	PAA, CL762
14	2799	FREEHOLD	PAA, CL762
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16	2799	FREEHOLD	PAA, CL762
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28	2799	FREEHOLD	PAA, CL762
29	2799	FREEHOLD	PAA, CL762
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31	2799	FREEHOLD	PAA, CL762
32	2799	FREEHOLD	PAA, CL762
33	2799	FREEHOLD	PAA, CL762
34	2799	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
35	2799	FREEHOLD	PAA, CL762
36	2799	FREEHOLD	PAA, CL762
3	3039	FREEHOLD	PAA, ML1443
4	3533	FREEHOLD	PAA
2	4800	FREEHOLD	PAA, CL762
3	4800	FREEHOLD	PAA, CL762
4	4800	FREEHOLD	PAA, CL762
5	4800	FREEHOLD	PAA, CL762
23	4800	FREEHOLD	PAA, CL762
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85	4800	FREEHOLD	PAA, CL762
88	4800	FREEHOLD	PAA, CL762
89	4800	FREEHOLD	PAA, CL762
90	4800	FREEHOLD	PAA, CL762
91	4800	FREEHOLD	PAA, CL762
92	4800	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
1	6325	FREEHOLD	PAA, CL762
2	6325	FREEHOLD	PAA, CL762
3	6325	FREEHOLD	PAA, CL762
4	6325	FREEHOLD	PAA, CL762
5	6325	FREEHOLD	PAA, CL762
6	6325	FREEHOLD	PAA, CL762
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23	6325	FREEHOLD	PAA, CL762
24	6325	FREEHOLD	PAA, CL762
25	6325	FREEHOLD	PAA, CL762
26	6325	FREEHOLD	PAA, CL762
1	6747	CROWN	PAA, CL762
2	6747	CROWN	PAA, CL762
2	6747	FREEHOLD	PAA, CL762
3	6747	CROWN	PAA
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12	6747	FREEHOLD	PAA, CL762
13	6747	FREEHOLD	PAA, CL762
14	6747	FREEHOLD	PAA, CL762
15	6747	FREEHOLD	PAA, CL762
16	6747	FREEHOLD	PAA, CL762
17	6747	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
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19	6747	FREEHOLD	PAA, CL762
20	6747	FREEHOLD	PAA, CL762
21	6747	FREEHOLD	PAA, CL762
22	6747	FREEHOLD	PAA, CL762
23	6747	FREEHOLD	PAA, CL762
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28	6747	FREEHOLD	PAA, CL762
29	6747	FREEHOLD	PAA, CL762
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39	6961	FREEHOLD	PAA, CL762
40	6961	FREEHOLD	PAA, CL762
1	7744	FREEHOLD	PAA, CL762
2	7744	FREEHOLD	PAA, CL762
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52	7744	FREEHOLD	PAA, CL762
53	7744	FREEHOLD	PAA, CL762
1	7917	FREEHOLD	PAA, ML1722
2	7917	FREEHOLD	PAA, ML1722, EL6317
3	7917	FREEHOLD	PAA, ML1722, EL6317
4	7917	FREEHOLD	PAA, ML1722, EL6317

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
5	7917	FREEHOLD	PAA, ML1722, EL6317
8	7917	FREEHOLD	PAA, ML1722, EL6317
1	8009	FREEHOLD	PAA, CL762, EL6317
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3	8009	FREEHOLD	PAA, CL762
4	8009	FREEHOLD	PAA, CL762
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13	8009	FREEHOLD	PAA, CL762
14	8009	FREEHOLD	PAA, CL762
15	8009	FREEHOLD	PAA, CL762
16	8009	FREEHOLD	PAA, CL762
17	8009	FREEHOLD	PAA, CL762
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19	8009	FREEHOLD	PAA, CL762
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30	8009	FREEHOLD	PAA, CL762
31	8009	FREEHOLD	PAA, CL762
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5	8926	FREEHOLD	PAA, ML1722, EL6317
6	8926	FREEHOLD	PAA, ML1722, EL6317
7	8926	FREEHOLD	PAA, ML1722, EL6317
8	8926	FREEHOLD	PAA, ML1722,

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
			EL6317
27	9149	FREEHOLD	PAA, CL762, EL6317
28	9149	FREEHOLD	PAA, CL762
36	9149	FREEHOLD	PAA, CL762
37	9149	FREEHOLD	PAA, CL762
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43	9149	FREEHOLD	PAA, CL762
44	9149	FREEHOLD	PAA, CL762
45	9149	FREEHOLD	PAA, CL762
46	9149	FREEHOLD	PAA, CL762
47	9149	FREEHOLD	PAA, CL762
48	9149	FREEHOLD	PAA, CL762
49	9149	FREEHOLD	PAA, CL762
50	9149	FREEHOLD	PAA, CL762
51	9149	FREEHOLD	PAA, CL762
52	9149	FREEHOLD	PAA, CL762
53	9149	FREEHOLD	PAA, CL762
54	9149	FREEHOLD	PAA, CL762
55	9149	FREEHOLD	PAA, CL762
56	9149	FREEHOLD	PAA, CL762
57	9149	FREEHOLD	PAA, CL762
58	9149	FREEHOLD	PAA, CL762
59	9149	FREEHOLD	PAA, CL762
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61	9149	FREEHOLD	PAA, CL762
62	9149	FREEHOLD	PAA, CL762
63	9149	FREEHOLD	PAA, CL762
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69	9149	FREEHOLD	PAA, CL762
70	9149	FREEHOLD	PAA, CL762
71	9149	FREEHOLD	PAA, CL762
72	9149	FREEHOLD	PAA, CL762
73	9149	FREEHOLD	PAA, CL762
74	9149	FREEHOLD	PAA, CL762
75	9149	FREEHOLD	PAA, CL762
76	9149	FREEHOLD	PAA, CL762
77	9149	FREEHOLD	PAA, CL762
82	9149	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
83	9149	FREEHOLD	PAA, CL762
84	9149	FREEHOLD	PAA, CL762
85	9149	FREEHOLD	PAA, CL762
86	9149	FREEHOLD	PAA, CL762
87	9149	FREEHOLD	PAA, CL762
88	9149	FREEHOLD	PAA, CL762
89	9149	FREEHOLD	PAA, CL762
90	9149	FREEHOLD	PAA, CL762
91	9149	FREEHOLD	PAA, CL762
92	9149	FREEHOLD	PAA, CL762
93	9149	FREEHOLD	PAA, CL762
94	9149	FREEHOLD	PAA, CL762
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47	9632	FREEHOLD	PAA, CL762
48	9632	FREEHOLD	PAA, CL762
54	9632	FREEHOLD	PAA, ML1443, CL762
55	9632	FREEHOLD	PAA, ML1443

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
60	9632	FREEHOLD	PAA, ML1443
61	9632	FREEHOLD	PAA, ML1443
62	9632	FREEHOLD	PAA, ML1443
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84	9632	FREEHOLD	PAA, ML1443
92	9632	FREEHOLD	PAA, ML1443
93	9632	FREEHOLD	PAA, ML1443
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100	9632	FREEHOLD	PAA, ML1443
101	9632	FREEHOLD	PAA, ML1443
102	9632	FREEHOLD	PAA, ML1443
1	10720	FREEHOLD	PAA, CL762
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1	11249	FREEHOLD	PAA, CL762
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22	11249	FREEHOLD	PAA, CL762
23	11249	FREEHOLD	PAA, CL762
24	11249	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
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Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
40	12993	FREEHOLD	PAA, CL762
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76	12993	FREEHOLD	PAA, CL762
77	12993	FREEHOLD	PAA, CL762
3	13318	FREEHOLD	PAA, ML1443
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10	13318	FREEHOLD	PAA, ML1443
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19	13318	FREEHOLD	PAA, ML1443
20	13318	FREEHOLD	PAA, ML1443
22	13318	FREEHOLD	PAA, ML1443

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
23	13318	FREEHOLD	PAA, ML1443
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139	15150	FREEHOLD	PAA, CL762
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141	15150	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
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143	15150	FREEHOLD	PAA, CL762
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170	15150	FREEHOLD	PAA, CL762
171	15150	FREEHOLD	PAA, CL762
4	16770	FREEHOLD	PAA, CL762
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23	16770	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
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5	17737	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
6	17737	FREEHOLD	PAA, CL762
7	17737	FREEHOLD	PAA, CL762
61	19828	FREEHOLD	PAA, CL762
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87	19828	FREEHOLD	PAA, CL762
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90	19828	FREEHOLD	PAA, CL762
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92	19828	FREEHOLD	PAA, CL762
93	19828	FREEHOLD	PAA, CL762
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96	19828	FREEHOLD	PAA, CL762
97	19828	FREEHOLD	PAA, CL762
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101	19828	FREEHOLD	PAA, CL762
102	19828	FREEHOLD	PAA, CL762
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Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
5	21063	FREEHOLD	PAA, CL762
6	21063	FREEHOLD	PAA, CL762
7	21063	FREEHOLD	PAA, CL762
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1	21373	FREEHOLD	PAA, CL762
2	21373	FREEHOLD	PAA, CL762
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1	21403	FREEHOLD	PAA, CL762
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35	21403	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
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37	21403	FREEHOLD	PAA, CL762
38	21403	FREEHOLD	PAA, CL762
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B	21403	FREEHOLD	PAA, CL762
E	21403	FREEHOLD	PAA, CL762
F	21403	FREEHOLD	PAA, CL762
1	22034	FREEHOLD	PAA, CL762
2	22034	FREEHOLD	PAA, CL762
3	22034	FREEHOLD	PAA, CL762
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7	22034	FREEHOLD	PAA, CL762
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9	22944	FREEHOLD	PAA, CL762
51	25812	FREEHOLD	PAA, CL762
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1	31746	FREEHOLD	PAA, CL762
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13	31746	FREEHOLD	PAA, CL762
14	31746	FREEHOLD	PAA, CL762
15	31746	FREEHOLD	PAA, CL762
16	31746	FREEHOLD	PAA, CL762
17	31746	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
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19	31746	FREEHOLD	PAA, CL762
20	31746	FREEHOLD	PAA, CL762
21	31746	FREEHOLD	PAA, CL762
23	31746	FREEHOLD	PAA, CL762
518	41966	FREEHOLD	PAA, CL762
520	43409	CROWN	PAA, CL762
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1	46770	FREEHOLD	PAA, CL762
2	46770	FREEHOLD	PAA, CL762
3	46770	FREEHOLD	PAA, CL762
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12	46770	FREEHOLD	PAA, CL762
13	46770	FREEHOLD	PAA, CL762
	66365	FREEHOLD	PAA, CL762
	66682	FREEHOLD	PAA, CL762
	68221	FREEHOLD	PAA, CL762
	68621	FREEHOLD	PAA, CL762
	69494	FREEHOLD	PAA, CL762
	70240	FREEHOLD	PAA, CL762
	70725	FREEHOLD	PAA, CL762
	70849	FREEHOLD	PAA, CL762
	71661	FREEHOLD	PAA, CL762
	73052	FREEHOLD	PAA, CL762
	73547	FREEHOLD	PAA, CL762
	75116	FREEHOLD	PAA, CL762
	76102	FREEHOLD	PAA, CL762
	76251	FREEHOLD	PAA, CL762
	76401	FREEHOLD	PAA, CL762
	76485	FREEHOLD	PAA, CL762
	77448	FREEHOLD	PAA, CL762
	77602	FREEHOLD	PAA, CL762
	79427	FREEHOLD	PAA, CL762
	79692	FREEHOLD	PAA, CL762
	80923	FREEHOLD	PAA, CL762
	81078	FREEHOLD	PAA, CL762
	81288	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
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	81673	FREEHOLD	PAA, CL762
	82036	FREEHOLD	PAA, CL762
	83865	FREEHOLD	PAA, CL762
	89368	FREEHOLD	PAA, CL762
	89451	FREEHOLD	PAA, CL762
	90676	FREEHOLD	PAA, CL762
	91363	FREEHOLD	PAA, CL762
7018	93179	CROWN	PAA
7032	93586	CROWN	PAA, CL762
7033	93586	CROWN	PAA, CL762
7039	93587	CROWN	PAA, CL762
7042	93588	CROWN	PAA, CL762
7051	93589	CROWN	PAA, CL762
7034	93590	CROWN	PAA, CL762
7035	93590	CROWN	PAA, CL762
7036	93590	CROWN	PAA, CL762
7040	93591	CROWN	PAA, CL762
7041	93591	CROWN	PAA, CL762
7045	93593	CROWN	PAA, CL762
7047	93594	CROWN	PAA, CL762
7050	93595	CROWN	PAA, CL762
7030	93597	CROWN	PAA, CL762
7031	93597	CROWN	PAA, CL762
7043	93598	CROWN	PAA, CL762
7044	93598	CROWN	PAA, CL762
7048	93599	CROWN	PAA, CL762
7001	93610	CROWN	PAA, ML1443
A	103242	FREEHOLD	PAA, CL762
B	103242	FREEHOLD	PAA, CL762
A	103559	FREEHOLD	PAA, CL762
B	103559	FREEHOLD	PAA, CL762
C	103559	FREEHOLD	PAA, CL762
A	103687	FREEHOLD	PAA, CL762
B	103687	FREEHOLD	PAA, CL762
A	110119	FREEHOLD	PAA, ML1443
1	111906	FREEHOLD	PAA, ML1443
2	111906	FREEHOLD	PAA, ML1443
3	111906	LOCAL GOVT AUTHORITY	PAA, ML1443
4	111906	FREEHOLD	PAA, ML1443
5	111906	LOCAL GOVT AUTHORITY	PAA, ML1443
6	111906	FREEHOLD	PAA, ML1443
8	111906	FREEHOLD	PAA, ML1722, EL6317

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
11	111906	FREEHOLD	PAA, ML1443
12	111906	FREEHOLD	PAA, ML1722, EL6317
1	120999	FREEHOLD	PAA, CL762
1	121285	FREEHOLD	PAA, CL762
1	125136	FREEHOLD	PAA, ML1443
1	126320	FREEHOLD	PAA, CL762
2	126594	FREEHOLD	PAA, ML1443
1	126595	FREEHOLD	PAA, ML1443
1	126678	FREEHOLD	PAA, CL762
20	129122	FREEHOLD	PAA
21	129122	FREEHOLD	PAA
22	129122	FREEHOLD	PAA
23	129122	FREEHOLD	PAA
24	129122	FREEHOLD	PAA
25	129122	FREEHOLD	PAA
15	129157	FREEHOLD	PAA
11	131034	FREEHOLD	PAA, CL762
3	168774	FREEHOLD	PAA, ML1443, ML1543
4	168774	FREEHOLD	PAA, ML1443, ML1543
1	172621	FREEHOLD	PAA, CL762
1	178951	FREEHOLD	PAA, CL762
1	188470	FREEHOLD	PAA
1	207226	FREEHOLD	PAA, ML1443
1	208441	FREEHOLD	PAA, CL762
2	208441	FREEHOLD	PAA, CL762
3	208441	FREEHOLD	PAA, CL762
4	208441	FREEHOLD	PAA, CL762
1	215590	FREEHOLD	PAA, CL762
2	215590	FREEHOLD	PAA, CL762
3	215590	FREEHOLD	PAA, CL762
4	215590	FREEHOLD	PAA, CL762
5	215590	FREEHOLD	PAA, CL762
6	215590	FREEHOLD	PAA, CL762
9	215590	FREEHOLD	PAA, CL762
3	220921	FREEHOLD	PAA, CL762
4	220921	FREEHOLD	PAA, CL762
5	220921	FREEHOLD	PAA, CL762
6	220921	FREEHOLD	PAA, CL762
1	235035	FREEHOLD	PAA, CL762
2	235035	FREEHOLD	PAA, CL762
3	235035	FREEHOLD	PAA, CL762
4	235035	FREEHOLD	PAA, CL762
1	236664	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
2	236664	FREEHOLD	PAA, CL762
3	236664	FREEHOLD	PAA, CL762
4	236664	FREEHOLD	PAA, CL762
5	236664	FREEHOLD	PAA, CL762
6	236664	FREEHOLD	PAA, CL762
7	236664	FREEHOLD	PAA, CL762
8	236664	FREEHOLD	PAA, CL762
9	236664	FREEHOLD	PAA, CL762
11	236664	FREEHOLD	PAA, CL762
12	236664	FREEHOLD	PAA, CL762
13	236664	FREEHOLD	PAA, CL762
14	236664	FREEHOLD	PAA, CL762
15	236664	FREEHOLD	PAA, CL762
16	236664	FREEHOLD	PAA, CL762
17	236664	FREEHOLD	PAA, CL762
18	236664	FREEHOLD	PAA, CL762
19	236664	FREEHOLD	PAA, CL762
20	236664	FREEHOLD	PAA, CL762
216	239175	FREEHOLD	PAA
217	239175	FREEHOLD	PAA
1	243785	FREEHOLD	PAA, CL762
1	246326	FREEHOLD	PAA, CL762
2	246326	FREEHOLD	PAA, CL762
3	246326	FREEHOLD	PAA, CL762
4	246326	FREEHOLD	PAA, CL762
3	247539	FREEHOLD	PAA, ML1722, EL6317
4	247539	FREEHOLD	PAA, ML1722, EL6317
5	247539	FREEHOLD	PAA, ML1722, EL6317
7	247539	FREEHOLD	PAA, ML1722, EL6317
14	248498	FREEHOLD	PAA, ML1722, EL6317
15	248498	FREEHOLD	PAA, ML1722, EL6317, MLA457,
16	248498	FREEHOLD	PAA, ML1722, EL6317
17	248498	FREEHOLD	PAA, ML1722, EL6317
18	248498	FREEHOLD	PAA, ML1722, EL6317
19	248498	FREEHOLD	PAA, ML1722, EL6317
21	248498	FREEHOLD	PAA, ML1722, EL6317
1	248590	FREEHOLD	PAA, ML1443
2	248590	FREEHOLD	PAA, ML1443
3	248590	FREEHOLD	PAA, ML1443

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
4	248590	FREEHOLD	PAA, ML1443
5	248590	FREEHOLD	PAA, ML1443
1	253901	FREEHOLD	PAA, ML1722, EL6317
2	253901	FREEHOLD	PAA, ML1722, EL6317
3	253901	FREEHOLD	PAA, ML1722, EL6317
4	253901	FREEHOLD	PAA, ML1722, EL6317
5	253901	FREEHOLD	PAA, ML1722, EL6317
6	253901	FREEHOLD	PAA, ML1722, EL6317
14	259424	FREEHOLD	PAA, CL762
1	261460	FREEHOLD	PAA, ML1722, EL6317
2	261460	FREEHOLD	PAA, ML1722, EL6317
3	261460	FREEHOLD	PAA, ML1443, ML1722, EL6317,
6	261460	FREEHOLD	PAA, ML1443, ML 1543, ML1722, EL6317
12	261890	FREEHOLD	PAA, ML1443, CL762
10	261891	FREEHOLD	PAA, ML1443
11	261891	FREEHOLD	PAA, ML1443
1	262159	FREEHOLD	PAA, CL762
2	262159	FREEHOLD	PAA, CL762
3	262159	FREEHOLD	PAA, CL762
4	262159	FREEHOLD	PAA, CL762
5	262159	FREEHOLD	PAA, ML1443, CL762
6	262159	FREEHOLD	PAA, ML1443, CL762
7	262159	FREEHOLD	PAA, CL762
8	262159	FREEHOLD	PAA, ML1443
9	262159	FREEHOLD	PAA, CL762
10	262159	FREEHOLD	PAA, ML1443, CL762
11	262159	FREEHOLD	PAA, CL762
13	262159	FREEHOLD	PAA, ML1443, CL762
14	262159	FREEHOLD	PAA, ML1443, CL762
15	262159	CROWN	PAA, CL762
1	262160	FREEHOLD	PAA, CL762, ML1443
2	262160	CROWN	PAA, CL762
3	262160	FREEHOLD	PAA, ML1443
5	262160	FREEHOLD	PAA, ML1443
10	262205	FREEHOLD	PAA, CL762
11	262205	FREEHOLD	PAA, CL762
12	262205	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
4	262501	FREEHOLD	PAA, CL762
6	262501	FREEHOLD	PAA, CL762
7	262501	FREEHOLD	PAA, CL762
8	262501	FREEHOLD	PAA, CL762
9	262501	FREEHOLD	PAA, CL762
10	262501	FREEHOLD	PAA, CL762
11	262501	FREEHOLD	PAA, CL762
12	262501	FREEHOLD	PAA, CL762
13	262501	FREEHOLD	PAA, CL762
14	262501	FREEHOLD	PAA, CL762
15	262501	FREEHOLD	PAA, CL762
16	262501	FREEHOLD	PAA, CL762
19	262501	FREEHOLD	PAA, CL762
22	262501	FREEHOLD	PAA, CL762
23	262501	FREEHOLD	PAA, CL762
24	262501	FREEHOLD	PAA, CL762
25	262501	FREEHOLD	PAA, CL762
26	262501	FREEHOLD	PAA, CL762
27	262501	FREEHOLD	PAA, CL762
31	262501	FREEHOLD	PAA, CL762
9	262720	FREEHOLD	PAA, ML1722, EL6317
4	264501	FREEHOLD	PAA
23	264502	FREEHOLD	PAA
24	264502	FREEHOLD	PAA
10	264503	FREEHOLD	PAA
11	264503	FREEHOLD	PAA
12	264503	FREEHOLD	PAA
13	264503	FREEHOLD	PAA
15	264503	FREEHOLD	PAA
21	264503	FREEHOLD	PAA
1	264590	FREEHOLD	PAA, CL762
2	264590	FREEHOLD	PAA, CL762
3	264590	FREEHOLD	PAA, CL762
4	264590	FREEHOLD	PAA, CL762
5	264590	FREEHOLD	PAA, CL762
6	264590	FREEHOLD	PAA, CL762
7	264590	FREEHOLD	CL762
7	264590	FREEHOLD	PAA
8	264590	FREEHOLD	PAA, CL762
9	264590	FREEHOLD	PAA, CL762
10	264590	FREEHOLD	PAA, CL762
1	285639	FREEHOLD	PAA, CL762
2	285639	FREEHOLD	PAA, CL762
3	285639	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
4	285639	FREEHOLD	PAA, CL762
5	285639	FREEHOLD	PAA, CL762
1	303221	FREEHOLD	PAA, CL762
2	307645	FREEHOLD	PAA, CL762
1	309399	FREEHOLD	PAA, CL762
1	310026	FREEHOLD	PAA, CL762
1	312843	FREEHOLD	PAA, CL762
1	317437	FREEHOLD	PAA, CL762
A	319453	FREEHOLD	PAA, CL762
B	319453	FREEHOLD	PAA, CL762
A	319704	FREEHOLD	PAA, CL762
B	319704	FREEHOLD	PAA, CL762
1	324031	FREEHOLD	PAA, ML1443
4	324031	FREEHOLD	PAA, ML1443
5	324031	FREEHOLD	PAA, ML1443
B	328561	FREEHOLD	PAA, CL762
A	347689	FREEHOLD	PAA, CL762
B	347689	FREEHOLD	PAA, CL762
C	347689	FREEHOLD	PAA, CL762
1	349570	FREEHOLD	PAA, CL762
2	349570	FREEHOLD	PAA, CL762
1	354959	FREEHOLD	PAA, CL762
A	356550	FREEHOLD	PAA, CL762
1	357347	FREEHOLD	PAA, ML1443
B	358934	FREEHOLD	PAA, CL762
A	359502	FREEHOLD	PAA, CL762
1	360488	FREEHOLD	PAA, CL762
A	363123	FREEHOLD	PAA, CL762
1	365231	FREEHOLD	PAA, CL762
2	365231	FREEHOLD	PAA, CL762
A	369364	FREEHOLD	PAA, CL762
B	369364	FREEHOLD	PAA, CL762
C	369364	FREEHOLD	PAA, CL762
D1	378159	FREEHOLD	PAA, CL762
A	378498	FREEHOLD	PAA, CL762
B	378498	FREEHOLD	PAA, CL762
1	382470	FREEHOLD	PAA, ML1443
A	385142	FREEHOLD	PAA, CL762
C	385142	FREEHOLD	PAA, CL762
A	389823	FREEHOLD	PAA, ML1722, EL6317
A	390945	FREEHOLD	PAA, CL762
B	390945	FREEHOLD	PAA, CL762
1	392111	FREEHOLD	PAA, ML1722, EL6317
2	393644	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
A	396531	FREEHOLD	PAA, CL762
B	396531	FREEHOLD	PAA, CL762
B	397233	FREEHOLD	PAA, CL762
A	402238	FREEHOLD	PAA, CL762
B	402238	FREEHOLD	PAA, CL762
C	402238	FREEHOLD	PAA, CL762
B	411272	FREEHOLD	PAA, CL762
C	411272	FREEHOLD	PAA, CL762
A	413734	FREEHOLD	PAA, CL762
A	415044	FREEHOLD	PAA, CL762
B	415044	FREEHOLD	PAA, CL762
B	432124	FREEHOLD	PAA, CL762
1	441992	FREEHOLD	PAA, CL762
B	443445	FREEHOLD	PAA, CL762
C	443445	FREEHOLD	PAA, CL762
A	445041	FREEHOLD	PAA, CL762
A	447420	FREEHOLD	PAA, CL762
5	449314	FREEHOLD	PAA, CL762
1	450211	FREEHOLD	PAA, CL762
26	456275	FREEHOLD	PAA, CL762
27	456275	FREEHOLD	PAA, CL762
1	501458	FREEHOLD	PAA, CL762
2	501458	FREEHOLD	PAA, CL762
1	502247	FREEHOLD	PAA, CL762
1	502914	FREEHOLD	PAA, CL762
2	502914	FREEHOLD	PAA, CL762
3	503197	FREEHOLD	PAA, CL762
1	503611	FREEHOLD	PAA, CL762
2	503611	FREEHOLD	PAA, CL762
2	504749	FREEHOLD	PAA, ML1443
1	505054	FREEHOLD	PAA, CL762
2	505054	FREEHOLD	PAA, CL762
2	505715	FREEHOLD	PAA, CL762
24	508705	FREEHOLD	PAA, CL762
25	508705	FREEHOLD	PAA, CL762
26	508705	FREEHOLD	PAA, CL762
27	508705	FREEHOLD	PAA, CL762
28	508705	FREEHOLD	PAA, CL762
2	508750	FREEHOLD	PAA, CL762
1	509850	FREEHOLD	PAA, CL762
2	509850	FREEHOLD	PAA, CL762
1	510965	FREEHOLD	PAA, CL762
1	511786	FREEHOLD	PAA, CL762
2	511786	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
441	517403	FREEHOLD	PAA, CL762
442	517403	FREEHOLD	PAA, CL762
1	518081	FREEHOLD	PAA, ML1722, EL6317
411	520793	FREEHOLD	PAA, CL762
412	520793	FREEHOLD	PAA, CL762
117	521713	FREEHOLD	PAA, CL762
118	521713	FREEHOLD	PAA, CL762
1	524013	FREEHOLD	PAA, CL762
2	524013	FREEHOLD	PAA, CL762
3	524013	FREEHOLD	PAA, CL762
1	524410	FREEHOLD	PAA, CL762
2	524410	FREEHOLD	PAA, CL762
2	524687	FREEHOLD	PAA, CL762
37	528601	FREEHOLD	PAA, CL762
38	528601	FREEHOLD	PAA, CL762
11	529466	FREEHOLD	PAA, CL762
12	529466	FREEHOLD	PAA, CL762
2	529914	FREEHOLD	PAA, CL762
11	533825	FREEHOLD	PAA, CL762
71	533892	FREEHOLD	PAA, CL762
72	533892	FREEHOLD	PAA, CL762
1	536372	FREEHOLD	PAA, CL762
2	536372	FREEHOLD	PAA, CL762
1	537355	FREEHOLD	PAA, CL762
2	537355	FREEHOLD	PAA, CL762
1	537744	FREEHOLD	PAA, CL762
2	537744	FREEHOLD	PAA, CL762
1	538275	FREEHOLD	PAA, CL762
2	538275	FREEHOLD	PAA, CL762
3	538275	FREEHOLD	PAA, CL762
902	541065	FREEHOLD	PAA, ML1443
901	542306	FREEHOLD	PAA, ML1443
902	542306	FREEHOLD	PAA, ML1443
903	542306	FREEHOLD	PAA, ML1443
210	545241	FREEHOLD	PAA, CL762
211	545241	FREEHOLD	PAA, CL762
21	548495	FREEHOLD	PAA, CL762
22	548495	FREEHOLD	PAA, CL762
2	549382	FREEHOLD	PAA, CL762
2	549437	FREEHOLD	PAA, CL762
2	550601	FREEHOLD	PAA, CL762
1	552101	FREEHOLD	PAA, ML1722, EL6317
2	552101	FREEHOLD	PAA, ML1722, EL6317

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
3	552101	FREEHOLD	PAA, ML1722, EL6317
1	552883	FCNSW	PAA, ML1443
2	552883	FREEHOLD	PAA, ML1443
1	553093	FREEHOLD	PAA, ML1722, EL6317
2	553093	FREEHOLD	PAA, ML1722, EL6317
211	553196	FREEHOLD	PAA, ML1443
212	553196	FREEHOLD	PAA, ML1443
761	553373	FREEHOLD	PAA, CL762
762	553373	FREEHOLD	PAA, CL762
31	553798	FREEHOLD	PAA, CL762
32	553798	FREEHOLD	PAA, CL762
231	554009	FREEHOLD	PAA, CL762
232	554009	FREEHOLD	PAA, CL762
351	554283	FREEHOLD	PAA, CL762
352	554283	FREEHOLD	PAA, CL762
1	555211	FREEHOLD	PAA, CL762
1	555883	FREEHOLD	PAA, CL762
2	555883	FREEHOLD	PAA, CL762
1	555891	FREEHOLD	PAA, ML1443
4	555891	FREEHOLD	PAA, ML1443
1	555953	FREEHOLD	PAA, CL762
2	555953	FREEHOLD	PAA, CL762
420	556602	FREEHOLD	PAA, CL762
421	556602	FREEHOLD	PAA, CL762
391	556611	FREEHOLD	PAA, CL762
392	556611	FREEHOLD	PAA, CL762
1	557230	FREEHOLD	PAA, ML1443
2	557230	FREEHOLD	PAA, ML1443
3	557230	FREEHOLD	PAA, ML1443
21	557595	FREEHOLD	PAA, CL762
22	557595	FREEHOLD	PAA, CL762
201	563005	FREEHOLD	PAA, CL762
202	563005	FREEHOLD	PAA, CL762
31	563340	FREEHOLD	PAA, CL762
32	563340	FREEHOLD	PAA, CL762
301	563457	FREEHOLD	PAA, CL762
302	563457	FREEHOLD	PAA, CL762
751	563578	FREEHOLD	PAA, CL762
752	563578	FREEHOLD	PAA, CL762
281	563610	FREEHOLD	PAA, CL762
282	563610	FREEHOLD	PAA, CL762
283	563610	FREEHOLD	PAA, CL762
1	564573	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
2	564573	FREEHOLD	PAA, CL762
102	564680	FREEHOLD	PAA, CL762
771	566928	FREEHOLD	PAA, CL762
772	566928	FREEHOLD	PAA, CL762
4	568228	FREEHOLD	, EL6317
5	568228	FREEHOLD	PAA, ML1722, EL6317
100	570320	FREEHOLD	PAA, CL762
101	570320	FREEHOLD	PAA, CL762
10	571835	FREEHOLD	PAA, CL762
11	571835	FREEHOLD	PAA, CL762
1	573133	FREEHOLD	PAA, CL762
2	573133	FREEHOLD	PAA, CL762
41	575937	FREEHOLD	PAA, CL762
42	575937	FREEHOLD	PAA, CL762
11	582283	FREEHOLD	PAA, ML1443
12	582283	FREEHOLD	PAA, ML1443
5002	585398	FREEHOLD	PAA, CL762
2	585399	FREEHOLD	PAA, CL762
3	585399	FREEHOLD	PAA, CL762
4	585399	FREEHOLD	PAA, CL762
5	585400	FREEHOLD	PAA, CL762
6	585400	FREEHOLD	PAA, CL762
7	585400	FREEHOLD	PAA, CL762
8	585401	FREEHOLD	PAA, CL762
9	585401	FREEHOLD	PAA, CL762
10	585401	FREEHOLD	PAA, CL762
11	585401	FREEHOLD	PAA, CL762
12	585402	FREEHOLD	PAA, CL762
13	585402	FREEHOLD	PAA, CL762
14	585402	FREEHOLD	PAA, CL762
15	585403	FREEHOLD	PAA, CL762
16	585403	FREEHOLD	PAA, CL762
17	585403	FREEHOLD	PAA, CL762
18	585403	FREEHOLD	PAA, CL762
19	585404	FREEHOLD	PAA, CL762
20	585404	FREEHOLD	PAA, CL762
21	585404	FREEHOLD	PAA, CL762
22	585404	FREEHOLD	PAA, CL762
23	585405	FREEHOLD	PAA, CL762
24	585405	FREEHOLD	PAA, CL762
25	585405	FREEHOLD	PAA, CL762
26	585405	FREEHOLD	PAA, CL762
27	585406	FREEHOLD	PAA, CL762
28	585406	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
29	585406	FREEHOLD	PAA, CL762
30	585406	FREEHOLD	PAA, CL762
31	585407	FREEHOLD	PAA, CL762
32	585407	FREEHOLD	PAA, CL762
33	585407	FREEHOLD	PAA, CL762
34	585407	FREEHOLD	PAA, CL762
1612	587100	FREEHOLD	PAA, CL762
117	587386	FREEHOLD	PAA, CL762
118	587386	FREEHOLD	PAA, CL762
501	589634	FREEHOLD	PAA, CL762
502	589634	FREEHOLD	PAA, CL762
1	590896	CROWN	PAA, CL762
2	590896	CROWN	PAA, CL762
1	592090	FREEHOLD	PAA, CL762
2	592090	FREEHOLD	PAA, CL762
191	592808	FREEHOLD	PAA, CL762
192	592808	FREEHOLD	PAA, CL762
1	593089	FREEHOLD	PAA, CL762
12	594056	FREEHOLD	PAA, CL762
13	594056	FREEHOLD	PAA, CL762
14	594056	FREEHOLD	PAA, CL762
1	595576	FREEHOLD	PAA, CL762
431	604046	FREEHOLD	PAA, CL762
432	604046	FREEHOLD	PAA, CL762
1	608315	FREEHOLD	PAA, CL762
2	608315	FREEHOLD	PAA, CL762
121	609010	FREEHOLD	PAA, CL762
122	609010	FREEHOLD	PAA, CL762
1	609712	FREEHOLD	PAA
2	609712	FREEHOLD	PAA
33	610386	FREEHOLD	PAA, ML1443
34	610386	FREEHOLD	PAA, ML1443
41	612282	FREEHOLD	PAA, CL762
42	612282	FREEHOLD	PAA, CL762
7	613014	FREEHOLD	PAA, CL762
2	614183	FREEHOLD	PAA, CL762
361	614968	FREEHOLD	PAA, CL762
362	614968	FREEHOLD	PAA, CL762
51	615359	FREEHOLD	PAA, CL762
52	615359	FREEHOLD	PAA, CL762
61	617128	FREEHOLD	PAA, CL762
62	617128	FREEHOLD	PAA, CL762
1	617884	FREEHOLD	PAA, CL762
2	617884	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
201	619145	FREEHOLD	PAA, CL762
202	619145	FREEHOLD	PAA, CL762
491	619394	FREEHOLD	PAA, CL762
3	620092	CROWN	PAA, CL762
1	620993	FREEHOLD	PAA, ML1722, EL6317
2	620993	FREEHOLD	PAA, ML1722, EL6317
1	621697	FREEHOLD	PAA, CL762
2	621697	FREEHOLD	PAA, CL762
3	621697	FREEHOLD	PAA, CL762
231	622307	FREEHOLD	PAA, CL762
232	622307	FREEHOLD	PAA, CL762
1	623517	FREEHOLD	PAA, ML1443
100	624192	FREEHOLD	PAA, CL762
101	624192	FREEHOLD	PAA, CL762
1	624849	FREEHOLD	PAA, CL762
2	624849	FREEHOLD	PAA, CL762
311	625394	FREEHOLD	PAA, ML1443
71	625580	FREEHOLD	PAA, CL762
1	626309	FREEHOLD	PAA, CL762
151	626867	FREEHOLD	PAA, CL762
152	626867	FREEHOLD	PAA, CL762
21	628036	FREEHOLD	PAA, CL762
22	628036	FREEHOLD	PAA, CL762
411	628252	FREEHOLD	PAA, CL762
412	628252	FREEHOLD	PAA, CL762
61	629128	FREEHOLD	PAA, ML1443
1	629227	FREEHOLD	PAA, CL762
2	629227	FREEHOLD	PAA, CL762
1041	630642	FREEHOLD	PAA, ML1443
1042	630642	FREEHOLD	PAA, ML1443
21	631659	FREEHOLD	PAA, ML1722, EL6317
1	632805	FREEHOLD	PAA, CL762
90	650040	FREEHOLD	PAA, CL762
10	650915	FREEHOLD	PAA, ML1443
1	651468	FREEHOLD	PAA, CL762
15	653823	FREEHOLD	PAA, CL762
1	654586	FREEHOLD	PAA, CL762
17	654841	FREEHOLD	PAA
29	656680	FREEHOLD	PAA, CL762
105	658253	FREEHOLD	PAA, ML1443
86	658254	FREEHOLD	PAA, CL762
89	658755	FREEHOLD	PAA, CL762
70	658756	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
116	659006	FREEHOLD	PAA, CL762
92	661018	FREEHOLD	PAA, ML1722, EL6317
14	661114	FREEHOLD	PAA, ML1443
1	661791	FREEHOLD	PAA, CL762
106	662079	FREEHOLD	PAA, CL762
50	663624	FREEHOLD	PAA, CL762
9	663685	FREEHOLD	PAA, CL762
30	664329	FREEHOLD	PAA, CL762
7	665945	FREEHOLD	PAA, ML1443
95	665946	FREEHOLD	PAA, CL762
11	701945	FREEHOLD	PAA, CL762
51	701946	FREEHOLD	PAA, CL762
210	702166	FREEHOLD	PAA
211	702166	FREEHOLD	PAA
220	702167	NSW GOVT	PAA
221	702167	FREEHOLD	PAA
201	702506	FREEHOLD	PAA, CL762
202	702506	FREEHOLD	PAA, CL762
30	702647	FREEHOLD	PAA, ML1443
11	703269	FREEHOLD	PAA, CL762
12	703269	FREEHOLD	PAA, CL762
721	703855	FREEHOLD	PAA, CL762
532	704447	FREEHOLD	PAA, CL762
530	704462	FREEHOLD	PAA, CL762
100	705921	FREEHOLD	PAA, CL762
121	706627	FREEHOLD	PAA, CL762
122	706627	FREEHOLD	PAA, CL762
123	706627	FREEHOLD	PAA, CL762
124	706627	FREEHOLD	PAA, CL762
141	706893	FREEHOLD	PAA, CL762
142	706893	FREEHOLD	PAA, CL762
122	709158	FREEHOLD	PAA
621	711394	FREEHOLD	PAA, ML1443
623	711394	FREEHOLD	PAA, ML1443
2	711459	FREEHOLD	PAA, ML1443
3	711459	FREEHOLD	PAA, ML1443
121	712787	FREEHOLD	PAA, CL762
122	712787	FREEHOLD	PAA, CL762
1	712811	FREEHOLD	PAA, CL762
2	712811	FREEHOLD	PAA, CL762
3	712811	FREEHOLD	PAA, CL762
4	712811	FREEHOLD	PAA, CL762
51	714494	FREEHOLD	PAA, ML1443
100	715718	FREEHOLD	PAA, ML1443

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
731	719040	FREEHOLD	PAA, ML1443
732	719040	FREEHOLD	PAA, ML1443
2	719762	FREEHOLD	PAA, ML1722, EL6317
533	720684	FREEHOLD	PAA, CL762
16	722264	CROWN	PAA, CL762
1	723285	FREEHOLD	PAA, CL762
198	727714	FREEHOLD	PAA, ML1443
1	727748	FREEHOLD	PAA, CL762
543	727762	FREEHOLD	PAA, CL762
544	727762	FREEHOLD	PAA, CL762
545	727762	CROWN	PAA, CL762
556	729949	FREEHOLD	PAA, ML1553, CL762
501	730395	FREEHOLD	PAA, ML1722, EL6317
502	730395	FREEHOLD	PAA, ML1722, EL6317
503	730395	FREEHOLD	PAA, ML1722, EL6317
504	730395	FREEHOLD	PAA, ML1722, EL6317
1	730938	FREEHOLD	PAA, CL762
2	730938	FREEHOLD	PAA, CL762
580	733227	FREEHOLD	PAA, ML1443
1	734844	FREEHOLD	PAA, CL762
2	734844	FREEHOLD	PAA, CL762
3	734844	FREEHOLD	PAA, CL762
4	734844	FREEHOLD	PAA, CL762
91	736661	FREEHOLD	PAA, CL762
92	736661	FREEHOLD	PAA, CL762
1	740760	FREEHOLD	PAA, ML1722, EL6317
2	740760	FREEHOLD	PAA, ML1722, EL6317
5	748323	FREEHOLD	PAA, ML1443
5	755218	FREEHOLD	PAA
6	755218	FREEHOLD	PAA
7	755218	FREEHOLD	PAA
8	755218	FREEHOLD	PAA
9	755218	FREEHOLD	PAA
10	755218	FREEHOLD	PAA
14	755218	FREEHOLD	PAA
15	755218	FREEHOLD	PAA
48	755218	FREEHOLD	PAA
51	755218	FREEHOLD	PAA, CL762
53	755218	FREEHOLD	PAA
97	755218	CROWN	PAA
108	755218	FREEHOLD	PAA

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
109	755218	FREEHOLD	PAA, CL762
110	755218	FREEHOLD	PAA
111	755218	FREEHOLD	PAA, CL762
112	755218	FREEHOLD	PAA, CL762
113	755218	CROWN	PAA, CL762
114	755218	CROWN	PAA, CL762
116	755218	CROWN	PAA
143	755218	FREEHOLD	PAA
150	755218	CROWN	PAA, CL762
151	755218	FREEHOLD	PAA
152	755218	FREEHOLD	PAA, CL762
156	755218	FREEHOLD	PAA, CL762
169	755218	FREEHOLD	PAA, CL762
170	755218	FREEHOLD	PAA
171	755218	CROWN	PAA
173	755218	FREEHOLD	PAA
179	755218	FREEHOLD	PAA, CL762
184	755218	CROWN	PAA
186	755218	FREEHOLD	PAA, CL762
187	755218	FREEHOLD	PAA
208	755218	FREEHOLD	PAA
210	755218	FREEHOLD	PAA
95	755223	FREEHOLD	PAA, ML1443
100	755223	FREEHOLD	PAA, ML1443
134	755223	FREEHOLD	PAA, ML1443
2	755238	FREEHOLD	PAA, ML1443
4	755238	FREEHOLD	PAA, ML1443
5	755238	FREEHOLD	PAA, ML1722, EL6317, MLA457,
6	755238	FREEHOLD	PAA, ML1443, ML1543
8	755238	FREEHOLD	PAA, ML1443
16	755238	FREEHOLD	PAA, ML1443
17	755238	FREEHOLD	PAA, ML1443, ML1543
18	755238	FREEHOLD	PAA, ML1443
24	755238	FREEHOLD	PAA, ML1443
25	755238	FREEHOLD	PAA, ML1443
28	755238	FREEHOLD	PAA, ML1443
29	755238	FREEHOLD	PAA, ML1443
33	755238	FREEHOLD	PAA, ML1443
36	755238	FREEHOLD	PAA, ML1722, EL6317
38	755238	NSW GOVT	PAA, ML1443
39	755238	FCNSW	PAA, ML1443
41	755238	FREEHOLD	PAA, ML1443, ML1543

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
43	755238	CROWN	PAA, ML1443
44	755238	FREEHOLD	PAA, ML1443, EL6317, ML543, ML1722
46	755238	FREEHOLD	PAA, ML1443
47	755238	FREEHOLD	PAA, ML1443
49	755238	FREEHOLD	PAA, ML1443
52	755238	FREEHOLD	PAA, ML1443, EL6317, ML 1543, ML1722
53	755238	FREEHOLD	PAA, ML1722, EL6317
54	755238	FREEHOLD	PAA, ML1443, ML1543
56	755238	FREEHOLD	PAA, ML 1543
59	755238	FREEHOLD	PAA, ML1722, EL6317
61	755238	FREEHOLD	PAA, ML1443, ML1543
62	755238	FREEHOLD	PAA, ML1722, EL6317
63	755238	FREEHOLD	PAA, ML1722, EL6317
67	755238	FREEHOLD	PAA, ML1443
68	755238	FREEHOLD	PAA, ML1443
72	755238	FREEHOLD	PAA, ML1722, EL6317
76	755238	FREEHOLD	PAA, ML1443
78	755238	NSW GOVT	PAA, ML1722, EL6317, MLA457,
79	755238	FCNSW	PAA, ML1722, EL6317
81	755238	FREEHOLD	PAA, ML1443
82	755238	FREEHOLD	PAA, ML1722, EL6317
88	755238	FREEHOLD	PAA, ML1443
89	755238	FREEHOLD	PAA, ML1443
90	755238	FCNSW	PAA, ML1443
91	755238	FREEHOLD	PAA, ML1722, EL6317
93	755238	FREEHOLD	PAA, ML1443
94	755238	FCNSW	PAA, ML1443
95	755238	FCNSW	PAA, ML1443
96	755238	FREEHOLD	PAA, ML1443
101	755238	FREEHOLD	PAA, ML1722, EL6317, MLA457,
103	755238	FREEHOLD	PAA, ML1722, EL6317
107	755238	FREEHOLD	PAA, ML1722, EL6317
108	755238	NSW GOVT	PAA, ML1722, EL6317, MLA457,
113	755238	FREEHOLD	PAA, ML1443

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
114	755238	FREEHOLD	PAA, ML1722, EL6317, MLA457,
115	755238	NSW GOVT	PAA, ML1722, EL6317, MLA457,
116	755238	FREEHOLD	PAA, ML 1543, ML1722, EL6317,
117	755238	FREEHOLD	PAA, ML1443
118	755238	FREEHOLD	PAA, ML1722, EL6317
122	755238	NSW GOVT	PAA, ML1722, EL6317, MLA457,
131	755238	FREEHOLD	MLA457, EL6317, MLA457
131	755238	FREEHOLD	PAA, ML1722
132	755238	FREEHOLD	PAA, ML 1543, ML1722, EL6317,
135	755238	FREEHOLD	PAA, ML1722, EL6317
140	755238	FREEHOLD	PAA, ML1722, EL6317
141	755238	FREEHOLD	PAA, ML1443
142	755238	FCNSW	PAA, ML1443
144	755238	FREEHOLD	PAA, ML1722, EL6317
144	755238	FREEHOLD	Surface Lease
145	755238	FREEHOLD	PAA, ML1722, EL6317, MLA457,
146	755238	FREEHOLD	, EL6317
147	755238	FCNSW	PAA, ML1722, EL6317
148	755238	FREEHOLD	PAA, ML1722, EL6317
150	755238	NSW GOVT	
150	755238	FCNSW	PAA, ML1722, EL6317
151	755238	FREEHOLD	PAA, ML1443
152	755238	FREEHOLD	PAA, ML1722, EL6317
153	755238	FREEHOLD	PAA, ML 1543, ML1722, EL6317,
154	755238	FREEHOLD	PAA, ML1443
157	755238	FCNSW	PAA, ML1722, EL6317, MLA457,
177	755238	NSW GOVT	PAA, ML1722, EL6317, MLA457,
179	755238	FREEHOLD	PAA, ML1443, EL6317, ML 1543, ML1722
180	755238	FREEHOLD	PAA, ML1722, EL6317
180	755238	FREEHOLD	Surface Lease
190	755238	NSW GOVT	PAA, ML1722, MLA457, EL6317
191	755238	NSW GOVT	PAA, ML1722,

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
			EL6317, MLA457
192	755238	FREEHOLD	PAA, ML1722, EL6317
193	755238	FREEHOLD	PAA, ML1722, EL6317
194	755238	FREEHOLD	PAA, ML1722, EL6317, MLA457
195	755238	NSW GOVT	PAA, ML1722, EL6317, MLA457
196	755238	FREEHOLD	PAA, CL762
3	755242	FREEHOLD	PAA, CL762
53	755242	FREEHOLD	PAA, CL762
54	755242	FREEHOLD	PAA, CL762
57	755242	FREEHOLD	PAA, CL762
58	755242	FREEHOLD	PAA, CL762
60	755242	FREEHOLD	PAA, CL762
61	755242	FREEHOLD	PAA, CL762
68	755242	FREEHOLD	PAA, CL762
69	755242	FREEHOLD	PAA, CL762
72	755242	FREEHOLD	PAA, CL762
75	755242	FREEHOLD	PAA, CL762
76	755242	FREEHOLD	PAA, CL762
77	755242	FREEHOLD	PAA, CL762
78	755242	FREEHOLD	PAA, CL762
82	755242	FREEHOLD	PAA, CL762
83	755242	FREEHOLD	PAA, CL762
84	755242	FREEHOLD	PAA, CL762
85	755242	FREEHOLD	PAA, CL762
86	755242	FREEHOLD	PAA, CL762
87	755242	FREEHOLD	PAA, CL762
91	755242	FREEHOLD	PAA, CL762
92	755242	FREEHOLD	PAA, CL762
97	755242	FREEHOLD	PAA, CL762
115	755242	FREEHOLD	PAA, CL762
117	755242	FREEHOLD	PAA, CL762
120	755242	FREEHOLD	PAA, CL762
123	755242	FREEHOLD	PAA, CL762
124	755242	FREEHOLD	PAA, CL762
125	755242	FREEHOLD	PAA, CL762
126	755242	FREEHOLD	PAA, CL762
127	755242	CROWN	PAA, CL762
128	755242	FREEHOLD	PAA, CL762
129	755242	FREEHOLD	PAA, CL762
130	755242	FREEHOLD	PAA, CL762
131	755242	FREEHOLD	PAA, CL762
132	755242	FREEHOLD	PAA, CL762
133	755242	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
138	755242	FREEHOLD	PAA, CL762
139	755242	FREEHOLD	PAA, CL762
140	755242	FREEHOLD	PAA, CL762
141	755242	FREEHOLD	PAA, CL762
142	755242	FREEHOLD	PAA, CL762
143	755242	FREEHOLD	PAA, CL762
144	755242	FREEHOLD	PAA, CL762
145	755242	FREEHOLD	PAA, CL762
146	755242	FREEHOLD	PAA, CL762
147	755242	FREEHOLD	PAA, CL762
148	755242	FREEHOLD	PAA, CL762
149	755242	FREEHOLD	PAA, CL762
150	755242	FREEHOLD	PAA, CL762
151	755242	CROWN	PAA, CL762
152	755242	CROWN	PAA, CL762
153	755242	CROWN	PAA, CL762
160	755242	CROWN	PAA, CL762
161	755242	CROWN	PAA, CL762
162	755242	CROWN	PAA, CL762
163	755242	FREEHOLD	PAA, CL762
164	755242	FREEHOLD	PAA, CL762
171	755242	FREEHOLD	PAA, CL762
174	755242	FREEHOLD	PAA, CL762
327	755242	FREEHOLD	PAA, ML1553
408	755242	FREEHOLD	PAA, CL762
447	755242	CROWN	PAA, CL762
469	755242	CROWN	PAA, CL762
478	755242	FREEHOLD	PAA, CL762
488	755242	FREEHOLD	PAA, CL762
489	755242	CROWN	PAA, CL762
558	755242	CROWN	PAA, ML1443, CL762
43	755245	FREEHOLD	PAA, ML1722, EL6317
49	755245	FREEHOLD	PAA, ML1722, EL6317
59	755271	FREEHOLD	EL6317
68	755271	FREEHOLD	EL6317, EL6317
153	755271	FREEHOLD	PAA, ML1722, EL6317
158	755271	FREEHOLD	EL6317
158	755271	FREEHOLD	PAA, ML1722
168	755271	FREEHOLD	PAA, ML1722, EL6317
169	755271	CROWN	EL6317
172	755271	FREEHOLD	PAA, ML1722, EL6317
175	755271	CROWN	PAA, ML1722, EL6317,

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
			MLA457,
186	755271	FREEHOLD	PAA, ML1722, EL6317
226	755271	FREEHOLD	PAA, ML1722, EL6317
1	758707	CROWN	PAA, CL762
1	758707	FREEHOLD	PAA, CL762
2	758707	FREEHOLD	PAA, CL762
3	758707	FREEHOLD	PAA, CL762
4	758707	FREEHOLD	PAA, CL762
5	758707	CROWN	PAA, CL762
5	758707	FREEHOLD	PAA, CL762
6	758707	CROWN	PAA, CL762
6	758707	FREEHOLD	PAA, CL762
7	758707	CROWN	PAA, CL762
7	758707	FREEHOLD	PAA, CL762
8	758707	CROWN	PAA, CL762
8	758707	FREEHOLD	PAA, CL762
9	758707	CROWN	PAA, CL762
9	758707	FREEHOLD	PAA, CL762
10	758707	CROWN	PAA, CL762
10	758707	FREEHOLD	PAA, CL762
11	758707	CROWN	PAA, CL762
11	758707	FREEHOLD	PAA, CL762
12	758707	CROWN	PAA, CL762
12	758707	FREEHOLD	PAA, CL762
13	758707	CROWN	PAA, CL762
13	758707	FREEHOLD	PAA, CL762
14	758707	CROWN	PAA, CL762
14	758707	FREEHOLD	PAA, CL762
15	758707	CROWN	PAA, CL762
15	758707	FREEHOLD	PAA, CL762
16	758707	CROWN	PAA, CL762
16	758707	FREEHOLD	PAA, CL762
17	758707	CROWN	PAA, CL762
17	758707	FREEHOLD	PAA, CL762
18	758707	CROWN	PAA, CL762
18	758707	FREEHOLD	PAA, CL762
19	758707	CROWN	PAA, CL762
19	758707	FREEHOLD	PAA, CL762
20	758707	FREEHOLD	PAA, CL762
21	758707	FREEHOLD	PAA, CL762
22	758707	FREEHOLD	PAA, CL762
524	771299	FREEHOLD	PAA, ML1553
1	771319	FREEHOLD	PAA, CL762
69	772148	FREEHOLD	PAA, ML1443

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
6	772171	FREEHOLD	EL6317
1	772871	FREEHOLD	PAA, ML1722, EL6317
5	775655	FREEHOLD	PAA, CL762
6	775655	CROWN	PAA, CL762
7	775655	CROWN	PAA, CL762
8	775655	CROWN	PAA, CL762
10	775655	FREEHOLD	PAA, CL762
1	776368	FREEHOLD	PAA, CL762
2	776368	FREEHOLD	PAA, CL762
11	777034	FREEHOLD	PAA, CL762
12	777034	FREEHOLD	PAA, CL762
2	777422	FREEHOLD	PAA, CL762
411	777642	FREEHOLD	PAA, CL762
412	777642	FREEHOLD	PAA, CL762
77	778375	FREEHOLD	PAA, CL762
78	778375	FREEHOLD	PAA, CL762
79	778375	FREEHOLD	PAA, CL762
1	781856	FREEHOLD	PAA, CL762
2	781856	FREEHOLD	PAA, CL762
3	785604	FREEHOLD	PAA
15	788481	FREEHOLD	PAA, ML1722, EL6317
16	788481	FREEHOLD	PAA, ML1722, EL6317
31	790154	FREEHOLD	PAA, CL762
32	790154	FREEHOLD	PAA, CL762
33	790154	FREEHOLD	PAA, CL762
34	790154	FREEHOLD	PAA, CL762
35	790154	FREEHOLD	PAA, CL762
930	790219	FREEHOLD	PAA, CL762
931	790219	FREEHOLD	PAA, CL762
871	792373	FREEHOLD	PAA, CL762
872	792373	FREEHOLD	PAA, CL762
874	792373	FREEHOLD	PAA, CL762
11	792921	FREEHOLD	PAA, CL762
12	792921	FREEHOLD	PAA, CL762
11	793589	FREEHOLD	PAA, CL762
12	793589	FREEHOLD	PAA, CL762
13	793589	FREEHOLD	PAA, CL762
15	793589	FREEHOLD	PAA, CL762
16	793589	FREEHOLD	PAA, CL762
70	794193	FREEHOLD	PAA, CL762
71	794193	FREEHOLD	PAA, CL762
72	794193	FREEHOLD	PAA, CL762
1	796812	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
6	800491	FREEHOLD	PAA, ML1443
7	800491	FREEHOLD	PAA, ML1443
9	800491	FREEHOLD	PAA, ML1443
10	800491	FREEHOLD	PAA, ML1443
1	800964	FREEHOLD	PAA, CL762
2	800964	FREEHOLD	PAA, CL762
3	800964	FREEHOLD	PAA, CL762
131	801632	FREEHOLD	PAA, CL762
132	801632	FREEHOLD	PAA, CL762
100	803620	FREEHOLD	PAA, CL762
11	803750	FREEHOLD	PAA, CL762
12	803750	FREEHOLD	PAA, CL762
13	803750	FREEHOLD	PAA, CL762
14	803750	FREEHOLD	PAA, CL762
24	803877	FREEHOLD	PAA, CL762
26	803877	FREEHOLD	PAA, CL762
1	804316	FREEHOLD	PAA, CL762
2	804316	FREEHOLD	PAA, CL762
3	804316	FREEHOLD	PAA, CL762
1	805044	FREEHOLD	PAA, ML1722, EL6317
2	805044	FREEHOLD	PAA, ML1722, EL6317
3	805044	FREEHOLD	PAA, ML1722, EL6317, MLA457,
4	805044	FREEHOLD	PAA, ML1722, MLA457, EL6317,
301	806475	FREEHOLD	PAA, CL762
302	806475	FREEHOLD	PAA, CL762
1	807685	FREEHOLD	PAA, CL762
2	807685	FREEHOLD	PAA, CL762
1	809113	FREEHOLD	PAA, CL762
2	809113	FREEHOLD	PAA, CL762
31	809617	FREEHOLD	PAA, CL762
32	809617	FREEHOLD	PAA, CL762
33	809617	FREEHOLD	PAA, CL762
20	812406	FREEHOLD	PAA, ML1443
21	812406	FREEHOLD	PAA, ML1443
22	812406	FREEHOLD	PAA, ML1443
24	812406	FREEHOLD	PAA, ML1443
11	813385	FREEHOLD	PAA, ML1443
12	813385	FREEHOLD	PAA, ML1443
13	813385	FREEHOLD	PAA, ML1443
14	813385	FREEHOLD	PAA, ML1443
15	813385	FREEHOLD	PAA, ML1443
16	813385	FREEHOLD	PAA, ML1443

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
17	813385	FREEHOLD	PAA, ML1443
18	813385	FREEHOLD	PAA, ML1443
49	815727	FREEHOLD	PAA, ML1443
1	816174	FREEHOLD	PAA, CL762
2	816174	FREEHOLD	PAA, CL762
3	816174	FREEHOLD	PAA, CL762
217	818749	FREEHOLD	PAA, CL762
1	819348	FREEHOLD	PAA, CL762
2	819348	FREEHOLD	PAA, CL762
14	819512	FREEHOLD	PAA, CL762
15	819512	FREEHOLD	PAA, CL762
1001	819530	FREEHOLD	PAA, ML1722, EL6317
1002	819530	FREEHOLD	PAA, ML1722, EL6317
555	821108	CROWN	PAA, CL762
1	822126	FREEHOLD	PAA, ML1722, EL6317
1	822176	FREEHOLD	PAA, CL762
1	823774	FREEHOLD	PAA, ML1722, EL6317
101	826748	FREEHOLD	PAA, CL762
102	826748	FREEHOLD	PAA, CL762
30	826779	FREEHOLD	PAA, ML1443
31	826779	FREEHOLD	PAA, ML1443, ML1543
11	828895	FREEHOLD	PAA, CL762
12	828895	FREEHOLD	PAA, CL762
812	829055	FREEHOLD	PAA, CL762
27	829792	FREEHOLD	PAA, ML1443
28	829792	FREEHOLD	PAA, ML1443
1	831211	FREEHOLD	PAA
2	831211	FREEHOLD	PAA
211	831749	FREEHOLD	PAA, CL762
212	831749	FREEHOLD	PAA, CL762
2	831930	FREEHOLD	PAA, CL762
1031	834199	FREEHOLD	PAA, CL762
1032	834199	FREEHOLD	PAA, CL762
102	834295	FREEHOLD	PAA, ML1722, EL6317
1	834388	FREEHOLD	PAA, ML1722, EL6317
2	834388	FREEHOLD	PAA, ML1722, EL6317
861	835160	FREEHOLD	PAA, ML1443
862	835160	FREEHOLD	PAA, ML1443
1	838687	FREEHOLD	PAA, CL762
12	838870	FREEHOLD	, EL6317
11	839702	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
101	840020	FREEHOLD	PAA, CL762
102	840020	FREEHOLD	PAA, CL762
1	840145	FREEHOLD	PAA, ML1443
2	840145	FREEHOLD	PAA, ML1443
118	840182	FREEHOLD	PAA, CL762
11	841261	FREEHOLD	PAA, CL762
12	841261	FREEHOLD	PAA, CL762
15	844164	FREEHOLD	PAA, CL762
150	844839	FREEHOLD	PAA, CL762
151	844839	FREEHOLD	PAA, CL762
11	847210	FREEHOLD	PAA, CL762
12	847210	FREEHOLD	PAA, CL762
51	851636	FREEHOLD	PAA, ML1443
52	851636	FREEHOLD	PAA, ML1443
1	851648	FREEHOLD	PAA, ML1443
2	851648	FREEHOLD	PAA, EL6317, ML1443, ML1722,
121	852340	FREEHOLD	PAA, CL762
122	852340	FREEHOLD	PAA, CL762
1	853595	FREEHOLD	PAA, CL762
2	853595	FREEHOLD	PAA, CL762
119	853723	FREEHOLD	PAA, CL762
120	853723	FREEHOLD	PAA, CL762
50	854475	FREEHOLD	PAA, ML1443
51	854475	FREEHOLD	PAA, ML1443
1	854723	FREEHOLD	PAA, CL762
200	855397	FREEHOLD	PAA, ML1722, EL6317
201	855397	FREEHOLD	PAA, ML1722, EL6317
731	857114	FREEHOLD	PAA, CL762
732	857114	FREEHOLD	PAA, CL762
733	857114	FREEHOLD	PAA, CL762
61	858044	FREEHOLD	PAA, ML1722, EL6317
63	858044	FREEHOLD	PAA, ML1443
10	859161	FREEHOLD	PAA, CL762
11	859161	FREEHOLD	PAA, CL762
12	859161	FREEHOLD	PAA, CL762
180	859434	FREEHOLD	PAA, ML1443
181	859434	FREEHOLD	PAA, ML1443
1	860244	FREEHOLD	PAA, CL762
1	860927	FREEHOLD	PAA, CL762
129	861903	FREEHOLD	PAA, CL762
10	862071	FREEHOLD	PAA, CL762
11	862071	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
1	862597	FREEHOLD	PAA, ML1443
2	862597	FREEHOLD	PAA, ML1443
100	862723	FREEHOLD	PAA, CL762
101	862723	FREEHOLD	PAA, CL762
90	864664	FREEHOLD	PAA, CL762
91	864664	FREEHOLD	PAA, CL762
721	864902	FREEHOLD	PAA, ML1443
722	864902	FREEHOLD	PAA, ML1443
723	864902	FREEHOLD	PAA, ML1443
724	864902	FREEHOLD	PAA, ML1443
725	864902	FREEHOLD	PAA, ML1443
341	865314	FREEHOLD	PAA, CL762
342	865314	FREEHOLD	PAA, CL762
343	865314	FREEHOLD	PAA, CL762
344	865314	FREEHOLD	PAA, CL762
1	865799	FREEHOLD	PAA, CL762
2	865799	FREEHOLD	PAA, CL762
3	865799	FREEHOLD	PAA, CL762
4	865799	FREEHOLD	PAA, CL762
5	865799	FREEHOLD	PAA, CL762
121	866321	FREEHOLD	PAA, CL762
122	866321	FREEHOLD	PAA, CL762
123	866321	FREEHOLD	PAA, CL762
108	866864	FREEHOLD	PAA, CL762
109	866864	FREEHOLD	PAA, CL762
51	867220	FREEHOLD	PAA, ML1443
52	867220	FREEHOLD	PAA, ML1443, ML 1543, ML1722, EL6317
51	867406	FREEHOLD	PAA, ML1443
52	867406	FREEHOLD	PAA, ML1443, ML1722, EL6317,
53	867406	FREEHOLD	PAA, ML1443, ML1722, EL6317,
54	867406	FREEHOLD	PAA, ML1443, ML1722, EL6317,
112	867567	FREEHOLD	PAA, CL762
113	867567	FREEHOLD	PAA, CL762
101	869330	FREEHOLD	PAA, CL762
102	869330	FREEHOLD	PAA, CL762
11	869483	FREEHOLD	PAA, ML1443, ML1543
12	869483	FREEHOLD	PAA, ML1443, ML1543
51	871090	FREEHOLD	PAA, CL762
52	871090	FREEHOLD	PAA, CL762
161	872445	FREEHOLD	PAA, CL762
162	872445	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
11	872456	FREEHOLD	PAA, ML1722, EL6317
161	872460	FREEHOLD	PAA, CL762
162	872460	FREEHOLD	PAA, CL762
163	872460	FREEHOLD	PAA, CL762
90	872723	FREEHOLD	PAA, CL762
91	872723	FREEHOLD	PAA, CL762
101	872891	FREEHOLD	PAA, CL762
102	872891	FREEHOLD	PAA, CL762
1	873022	FREEHOLD	PAA, ML1443
2	873022	FREEHOLD	PAA, ML1443
1172	876055	FREEHOLD	PAA, CL762
21	876359	FREEHOLD	PAA, CL762
22	876359	FREEHOLD	PAA, CL762
42	877350	FREEHOLD	PAA, CL762
660	878061	LOCAL GOVT AUTHORITY	PAA, ML1443
661	878061	FREEHOLD	PAA, ML1443
651	878062	LOCAL GOVT AUTHORITY	PAA, ML1443
652	878062	LOCAL GOVT AUTHORITY	PAA, ML1443
300	878333	FREEHOLD	PAA, EL6317, ML1443, ML1722,
301	878333	FREEHOLD	PAA, EL6317, ML1443, ML1722,
302	878333	FREEHOLD	PAA, ML1443, EL6317, ML1722,
1061	878387	FREEHOLD	PAA, ML1722, EL6317
1062	878387	FREEHOLD	PAA, ML1722, EL6317
1	878414	FREEHOLD	PAA, ML1443
2	878414	FREEHOLD	PAA, ML1443
3	878414	FREEHOLD	PAA, ML1443
4	878414	FREEHOLD	PAA, ML1443
801	878765	FREEHOLD	PAA, CL762
802	878765	FREEHOLD	PAA, CL762
121	881828	FREEHOLD	PAA, CL762
122	881828	FREEHOLD	PAA, CL762
12	882224	FREEHOLD	PAA, CL762
70	882407	FREEHOLD	PAA, ML1722, EL6317
105	882928	FREEHOLD	PAA, CL762
106	882928	FREEHOLD	PAA, CL762
107	882928	FREEHOLD	PAA, CL762
108	882928	FREEHOLD	PAA, CL762
109	882928	FREEHOLD	PAA, CL762
111	882928	FREEHOLD	PAA, CL762
112	882928	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
113	882928	FREEHOLD	PAA, CL762
114	882928	FREEHOLD	PAA, CL762
115	882928	FREEHOLD	PAA, CL762
117	882928	FREEHOLD	PAA, CL762
119	882928	FREEHOLD	PAA, CL762
120	882928	FREEHOLD	PAA, CL762
122	882928	FREEHOLD	PAA, CL762
123	882928	FREEHOLD	PAA, CL762
124	882928	FREEHOLD	PAA, CL762
125	882928	FREEHOLD	PAA, CL762
127	882928	FREEHOLD	PAA, CL762
128	882928	FREEHOLD	PAA, CL762
1	909016	CROWN	PAA, CL762
1	919600	FREEHOLD	PAA, ML1443
1	921300	FREEHOLD	PAA, CL762
1	921363	FREEHOLD	PAA, CL762
2	921363	FREEHOLD	PAA, CL762
1	921728	FREEHOLD	PAA, CL762
1	921780	FREEHOLD	PAA, CL762
1	923244	FREEHOLD	PAA, CL762
1	923530	FREEHOLD	PAA, CL762
3	929116	FREEHOLD	PAA, CL762
1	954487	FREEHOLD	PAA, CL762
A	954714	FREEHOLD	PAA, CL762
1	957458	FREEHOLD	PAA, ML1443, ML1543
3	957458	FREEHOLD	PAA, ML1443, ML1543
4	957458	FREEHOLD	PAA, ML1443, ML1543
1	958953	FREEHOLD	PAA, CL762
2	958953	FREEHOLD	PAA, CL762
3	958953	FREEHOLD	PAA, CL762
4	958953	FREEHOLD	PAA, CL762
5	958953	FREEHOLD	PAA, CL762
1	960790	FREEHOLD	PAA
1	965807	FREEHOLD	PAA, CL762
2	965807	FREEHOLD	PAA, CL762
1	1001669	FREEHOLD	PAA, ML1722, EL6317
2	1001669	FREEHOLD	PAA, ML1722, EL6317
401	1001919	FREEHOLD	PAA, CL762
403	1001919	FREEHOLD	PAA, CL762
404	1001919	FREEHOLD	PAA, CL762
405	1001919	FREEHOLD	PAA, CL762
1211	1001980	FREEHOLD	PAA, CL762
1212	1001980	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
1	1002965	FREEHOLD	PAA, CL762
2	1002965	FREEHOLD	PAA, CL762
3	1002965	FREEHOLD	PAA, CL762
111	1003323	FREEHOLD	PAA, CL762
22	1003511	FREEHOLD	PAA, ML1722, EL6317
1221	1006152	FREEHOLD	PAA, CL762
1222	1006152	FREEHOLD	PAA, CL762
271	1006208	FREEHOLD	PAA, CL762
272	1006208	FREEHOLD	PAA, CL762
961	1006265	FREEHOLD	PAA, CL762
962	1006265	FREEHOLD	PAA, CL762
85	1006474	CROWN	PAA, CL762
87	1006474	FREEHOLD	PAA, CL762
91	1006474	FREEHOLD	PAA, CL762
92	1006474	CROWN	PAA, CL762
306	1006483	FREEHOLD	PAA, CL762
307	1006483	FREEHOLD	PAA, CL762
308	1006483	FREEHOLD	PAA, CL762
309	1006483	FREEHOLD	PAA, CL762
310	1006483	FREEHOLD	PAA, CL762
312	1006483	FREEHOLD	PAA, CL762
313	1006483	FREEHOLD	PAA, CL762
314	1006483	FREEHOLD	PAA, CL762
315	1006483	FREEHOLD	PAA, CL762
316	1006483	FREEHOLD	PAA, CL762
322	1006483	FREEHOLD	PAA, CL762
323	1006483	FREEHOLD	PAA, CL762
324	1006483	FREEHOLD	PAA, CL762
60	1007162	FREEHOLD	PAA, ML1722, EL6317
201	1012916	FREEHOLD	PAA, CL762
202	1012916	FREEHOLD	PAA, CL762
203	1012916	FREEHOLD	PAA, CL762
206	1012916	FREEHOLD	PAA, CL762
207	1012916	FREEHOLD	PAA, CL762
208	1012916	FREEHOLD	PAA, CL762
209	1012916	FREEHOLD	PAA, CL762
210	1012916	FREEHOLD	PAA, CL762
212	1012916	FREEHOLD	PAA, CL762
214	1012916	FREEHOLD	PAA, CL762
215	1012916	FREEHOLD	PAA, CL762
216	1012916	FREEHOLD	PAA, CL762
218	1012916	FREEHOLD	PAA, CL762
219	1012916	FREEHOLD	PAA, CL762
220	1012916	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
221	1012916	FREEHOLD	PAA, CL762
222	1012916	FREEHOLD	PAA, CL762
223	1012916	FREEHOLD	PAA, CL762
131	1013712	FREEHOLD	PAA, CL762
1	1014877	FREEHOLD	PAA, CL762
3	1014877	FREEHOLD	PAA, CL762
4	1014877	FREEHOLD	PAA, CL762
6	1014877	FREEHOLD	PAA, CL762
7	1014877	FREEHOLD	PAA, CL762
8	1014877	FREEHOLD	PAA, CL762
1	1019085	FREEHOLD	PAA, ML1443
1581	1020097	FREEHOLD	PAA, ML1443
1582	1020097	FREEHOLD	PAA, ML1443
7003	1021488	CROWN	PAA, CL762
7037	1021489	CROWN	PAA, CL762
7038	1021489	CROWN	PAA, CL762
558	1025295	FREEHOLD	PAA, CL762
559	1025295	FREEHOLD	PAA, CL762
161	1028142	FREEHOLD	PAA, CL762
162	1028142	FREEHOLD	PAA, CL762
701	1030086	CROWN	PAA, CL762
7008	1030354	CROWN	PAA, CL762
7025	1030778	CROWN	PAA, ML1443, CL762
7027	1030779	CROWN	PAA, CL762
7005	1030795	CROWN	PAA, CL762
7006	1030795	CROWN	PAA, CL762
7003	1030927	CROWN	PAA, ML1443
251	1031184	FREEHOLD	PAA, CL762
252	1031184	FREEHOLD	PAA, CL762
16	1031463	FREEHOLD	PAA, CL762
17	1031463	FREEHOLD	PAA, CL762
1	1031558	FREEHOLD	PAA, CL762
2	1031558	FREEHOLD	PAA, CL762
32	1032041	FREEHOLD	PAA, CL762
7005	1032132	CROWN	PAA, CL762
31	1034933	FREEHOLD	PAA, CL762
32	1034933	FREEHOLD	PAA, CL762
33	1034933	FREEHOLD	PAA, CL762
11	1036804	FREEHOLD	PAA, CL762
12	1036804	FREEHOLD	PAA, CL762
41	1037312	FREEHOLD	PAA, ML1443
42	1037312	FREEHOLD	PAA, ML1443, ML1722, EL6317
562	1040179	FREEHOLD	PAA, CL762
563	1040179	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
564	1040179	FREEHOLD	PAA, CL762
565	1040179	FREEHOLD	PAA, CL762
566	1040179	FREEHOLD	PAA, CL762
567	1040179	FREEHOLD	PAA, CL762
568	1040179	FREEHOLD	PAA, CL762
569	1040179	FREEHOLD	PAA, CL762
570	1040179	FREEHOLD	, CL762
570	1040179	FREEHOLD	PAA
561	1040182	FREEHOLD	PAA, CL762
10	1042380	FREEHOLD	PAA, CL762
11	1042380	FREEHOLD	PAA, CL762
1	1043880	FREEHOLD	PAA, CL762
2	1043880	FREEHOLD	PAA, CL762
51	1044496	FREEHOLD	PAA, CL762
52	1044496	FREEHOLD	PAA, CL762
1	1045010	FREEHOLD	PAA, CL762
2	1045010	FREEHOLD	PAA, CL762
3	1045010	FREEHOLD	PAA, CL762
4	1045010	FREEHOLD	PAA, CL762
1	1047043	FREEHOLD	PAA, CL762
2	1047043	FREEHOLD	PAA, ML1443, CL762
1034	1049569	FREEHOLD	PAA, CL762
10	1050120	FREEHOLD	PAA, CL762
11	1050120	FREEHOLD	PAA, CL762
87	1051952	FREEHOLD	PAA, CL762
101	1053223	FREEHOLD	PAA, CL762
102	1053223	FREEHOLD	PAA, CL762
1	1053723	FREEHOLD	PAA, CL762
2	1053723	FREEHOLD	PAA, CL762
3	1053723	FREEHOLD	PAA, CL762
4	1053723	FREEHOLD	PAA, CL762
7052	1055701	CROWN	PAA, CL762
7053	1055701	CROWN	PAA, CL762
13	1058676	FREEHOLD	PAA, ML1443
14	1058676	FREEHOLD	PAA, ML1443
1	1061375	FREEHOLD	PAA, CL762
2	1061375	FREEHOLD	PAA, CL762
1	1063659	FREEHOLD	PAA, ML1443
2	1063659	FREEHOLD	PAA, ML1443
101	1064538	FREEHOLD	PAA, CL762
102	1064538	FREEHOLD	PAA, CL762
1	1064641	FREEHOLD	PAA, ML1553, CL762
11	1064820	FREEHOLD	PAA, CL762
12	1064820	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
15	1064820	FREEHOLD	PAA, CL762
17	1064820	FREEHOLD	PAA, CL762
19	1064820	FREEHOLD	PAA, CL762
20	1064820	FREEHOLD	PAA, CL762
21	1064820	FREEHOLD	PAA, CL762
22	1064820	FREEHOLD	PAA, CL762
24	1064820	FREEHOLD	PAA, CL762
26	1064820	FREEHOLD	PAA, CL762
28	1064820	FREEHOLD	PAA, CL762
30	1064820	LOCAL GOVT AUTHORITY	PAA, CL762
31	1064820	LOCAL GOVT AUTHORITY	PAA, CL762
7021	1066247	CROWN	PAA, CL762
7022	1066247	CROWN	PAA, CL762
1	1067643	FREEHOLD	PAA, CL762
2	1067643	FREEHOLD	PAA, CL762
7024	1068372	CROWN	PAA, ML1443
7022	1068373	CROWN	PAA, ML1443, ML1553
7023	1068373	CROWN	PAA, ML1443
251	1069932	FREEHOLD	PAA, CL762
252	1069932	FREEHOLD	PAA, CL762
21	1069976	FREEHOLD	PAA, CL762
22	1069976	FREEHOLD	PAA, CL762
7026	1070830	FREEHOLD	PAA, CL762
7016	1073303	CROWN	PAA, CL762
7079	1073310	CROWN	PAA, ML1443, CL762
1871	1075680	FREEHOLD	PAA, ML1722, EL6317
7001	1077055	CROWN	PAA, CL762
1	1077362	CROWN	PAA, CL762
261	1079256	FREEHOLD	PAA, CL762
262	1079256	FREEHOLD	PAA, CL762
1	1079690	FREEHOLD	PAA, CL762
2	1079690	FREEHOLD	PAA, CL762
1	1088606	FREEHOLD	PAA, CL762
2	1088606	FREEHOLD	PAA, CL762
3	1088606	FREEHOLD	PAA, CL762
4	1088606	FREEHOLD	PAA, CL762
5	1088606	FREEHOLD	PAA, CL762
6	1088606	FREEHOLD	PAA, CL762
7	1088606	FREEHOLD	PAA, CL762
8	1088606	FREEHOLD	PAA, CL762
9	1088606	FREEHOLD	PAA, CL762
10	1088606	FREEHOLD	PAA, CL762
11	1088606	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
12	1088606	FREEHOLD	PAA, CL762
13	1088606	FREEHOLD	PAA, CL762
1	1090233	FREEHOLD	PAA, ML1443
2	1090233	FREEHOLD	PAA, ML1443
3	1090233	FREEHOLD	PAA, ML1443
41	1094102	FREEHOLD	PAA, CL762
42	1094102	FREEHOLD	PAA, CL762
43	1094102	FREEHOLD	PAA, CL762
1	1094503	FREEHOLD	PAA, CL762
1	1095214	FREEHOLD	PAA, ML1722, EL6317
181	1097047	FREEHOLD	PAA, CL762
182	1097047	FREEHOLD	PAA, CL762
183	1097047	FREEHOLD	PAA, CL762
11	1098712	FREEHOLD	PAA, CL762
18	1099798	FREEHOLD	PAA, CL762
1	1099987	FREEHOLD	PAA, CL762
2	1099987	FREEHOLD	PAA, CL762
31	1101735	FREEHOLD	PAA, ML1443
3	1102901	FREEHOLD	PAA, CL762
11	1103785	FREEHOLD	PAA, CL762
12	1103785	FREEHOLD	PAA, CL762
1	1106669	FREEHOLD	PAA, CL762
72	1107394	FREEHOLD	PAA, CL762
73	1107394	FREEHOLD	PAA, CL762
70	1112050	FREEHOLD	PAA, CL762
71	1112050	FREEHOLD	PAA, CL762
111	1113510	FREEHOLD	PAA, ML1722, EL6317
112	1113510	FREEHOLD	PAA, ML1722, EL6317
113	1113510	FREEHOLD	PAA, ML1722, EL6317
11	1114114	FREEHOLD	PAA, CL762
7010	1115300	CROWN	PAA, CL762
661	1115844	FREEHOLD	PAA, CL762
100	1116960	FREEHOLD	PAA, CL762
7028	1120627	CROWN	PAA, CL762
7029	1121279	CROWN	PAA, CL762
7055	1124688	CROWN	PAA, CL762
1	1127461	FREEHOLD	PAA, CL762
151	1133983	FREEHOLD	PAA, CL762
152	1133983	FREEHOLD	PAA, CL762
345	1134469	FREEHOLD	PAA, CL762
7308	1138891	CROWN	PAA, CL762
121	1140714	FREEHOLD	PAA, ML1722, EL6317
122	1140714	FREEHOLD	PAA, ML1722,

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
			EL6317
7300	1141022	CROWN	PAA, CL762
7301	1141022	CROWN	PAA, CL762
7300	1141580	CROWN	PAA, CL762
7325	1141789	CROWN	PAA, CL762
7327	1141932	CROWN	PAA, CL762
1	1143022	CROWN	PAA, CL762
2	1143022	CROWN	PAA, CL762
7300	1145151	CROWN	, EL6317
7300	1145151	CROWN	PAA, ML1722, EL6317
7306	1145752	CROWN	PAA, CL762
621	1148233	FREEHOLD	PAA, CL762
622	1148233	FREEHOLD	PAA, CL762
411	1149105	FREEHOLD	PAA, CL762
412	1149105	FREEHOLD	PAA, CL762
100	1150513	FREEHOLD	PAA, CL762
1	1150621	FREEHOLD	PAA, CL762
131	1150713	FREEHOLD	PAA, CL762
134	1150713	FREEHOLD	PAA, CL762
135	1150713	FREEHOLD	PAA, CL762
136	1150713	FREEHOLD	PAA, CL762
5859	1151652	FREEHOLD	PAA, CL762
5860	1151652	FREEHOLD	PAA, CL762
1	1152746	FREEHOLD	PAA, CL762
2	1152746	LOCAL GOVT AUTHORITY	PAA, CL762
1	1154049	CROWN	PAA, ML1722, EL6317
2	1154049	CROWN	PAA, ML1722, EL6317
3	1154049	CROWN	PAA, ML1722, EL6317
4	1154049	CROWN	PAA, ML1722, EL6317
1	1159057	FREEHOLD	PAA, CL762
45	1159229	FREEHOLD	PAA, ML1443
1	1160370	NSW GOVT	PAA, CL762
156	1162774	FREEHOLD	PAA, CL762
1	1163044	FREEHOLD	PAA, CL762
7310	1163329	CROWN	PAA, CL762
7306	1164232	CROWN	PAA
1	1164463	FREEHOLD	PAA, CL762
2	1164463	FREEHOLD	PAA, CL762
3	1164463	FREEHOLD	PAA, CL762
160	1169663	FREEHOLD	PAA, CL762
161	1169663	FREEHOLD	PAA, CL762
162	1169663	FREEHOLD	PAA, CL762

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163	1169663	FREEHOLD	PAA, CL762
164	1169663	FREEHOLD	PAA, CL762
1	1180679	FREEHOLD	PAA, CL762
2	1180679	FREEHOLD	PAA, CL762
3	1180679	FREEHOLD	PAA, CL762
4	1180679	FREEHOLD	PAA, CL762
5	1180679	FREEHOLD	PAA, CL762
51	1181165	FREEHOLD	PAA, CL762
165	1182991	FREEHOLD	PAA, CL762
166	1182991	FREEHOLD	PAA, CL762
46	1183213	FREEHOLD	PAA, CL762
47	1183213	FREEHOLD	PAA, CL762
48	1183213	FREEHOLD	PAA, CL762
49	1183213	FREEHOLD	PAA, CL762
50	1183213	FREEHOLD	PAA, CL762
101	1183537	FREEHOLD	PAA, CL762
102	1183537	FREEHOLD	PAA, CL762
103	1183537	FREEHOLD	PAA, CL762
104	1183537	FREEHOLD	PAA, CL762
105	1183537	FREEHOLD	PAA, CL762
1	1183568	FREEHOLD	PAA, CL762
2	1183568	FREEHOLD	PAA, CL762
571	1184702	FREEHOLD	PAA, CL762
572	1184702	FREEHOLD	PAA, CL762
573	1184702	FREEHOLD	PAA, CL762
574	1184702	CROWN	PAA, CL762
575	1184702	CROWN	PAA, CL762
3	1191221	CROWN	PAA, CL762
4	1191261	NSW GOVT	PAA, CL762
5	1191327	NSW GOVT	PAA, CL762
6	1191327	NSW GOVT	PAA, CL762
7	1191327	NSW GOVT	PAA, CL762
8	1191332	NSW GOVT	PAA, CL762
9	1191335	NSW GOVT	PAA, CL762
10	1191340	NSW GOVT	PAA, CL762
206	1192775	FREEHOLD	PAA, CL762
207	1192775	FREEHOLD	PAA, CL762
208	1192775	FREEHOLD	PAA, CL762
209	1192775	FREEHOLD	PAA, CL762
131	1194754	FREEHOLD	PAA, CL762
132	1194754	FREEHOLD	PAA, CL762
30	1195002	FREEHOLD	PAA, CL762
31	1195002	FREEHOLD	PAA, CL762
32	1195002	FREEHOLD	PAA, CL762

Lot No	Deposited Plan No	Land Tenure	Mining Authorisation
33	1195002	FREEHOLD	PAA, CL762
34	1195002	FREEHOLD	PAA, CL762
35	1195002	FREEHOLD	PAA, CL762
36	1195002	FREEHOLD	PAA, CL762
37	1195002	FREEHOLD	PAA, CL762
39	1195002	FREEHOLD	PAA, CL762
40	1195002	FREEHOLD	PAA, CL762
41	1195002	FREEHOLD	PAA, CL762
42	1195002	FREEHOLD	PAA, CL762
43	1195002	FREEHOLD	PAA, CL762
44	1195002	FREEHOLD	PAA, CL762
45	1195002	LOCAL GOVT AUTHORITY	PAA, CL762
1	1195968	FREEHOLD	PAA, CL762
308	1197605	FREEHOLD	PAA, CL762
309	1197605	FREEHOLD	PAA, CL762
310	1197605	FREEHOLD	PAA, CL762
311	1197605	FREEHOLD	PAA, CL762
312	1197605	FREEHOLD	PAA, CL762
313	1197605	FREEHOLD	PAA, CL762
314	1197605	FREEHOLD	PAA, CL762
53	1201140	LOCAL GOVT AUTHORITY	PAA, ML1443
54	1201140	FREEHOLD	PAA, ML1443, CL762
1	1202811	CROWN	PAA, ML1443
1	1202946	CROWN	PAA, ML 1543, ML1722, EL6317,
1	1206512	FREEHOLD	PAA, CL762
2	1206512	FREEHOLD	PAA, CL762
3	1206512	FREEHOLD	PAA, CL762
4	1206512	FREEHOLD	PAA, CL762
5	1206512	FREEHOLD	PAA, CL762
6	1206512	FREEHOLD	PAA, CL762
7	1206512	FREEHOLD	PAA, CL762
8	1206512	FREEHOLD	PAA, CL762
9	1206512	FREEHOLD	PAA, CL762
10	1206512	FREEHOLD	PAA, CL762
11	1206512	FREEHOLD	PAA, CL762
12	1206512	FREEHOLD	PAA, CL762
23	1209003	FREEHOLD	PAA, ML1443
1331	1212858	FREEHOLD	PAA, CL762
1332	1212858	FREEHOLD	PAA, CL762

Appendix B – Standard Mining Lease Conditions

Condition	Requirement
Part 2 Standard Conditions Division 1 Condition 4	<p>Must prevent or minimise harm to environment</p> <p>(1) The holder of a mining lease must take all reasonable measures to prevent, or if that is not reasonably practicable, to minimise, harm to the environment caused by activities under the mining lease.</p> <p>(2) In this clause— harm to the environment has the same meaning as in the <i>Protection of the Environment Operations Act 1997</i>.</p>
Part 2 Standard Conditions Division 1 Condition 5	<p>Rehabilitation to occur as soon as reasonably practicable after disturbance</p> <p>The holder of a mining lease must rehabilitate land and water in the mining area that is disturbed by activities under the mining lease as soon as reasonably practicable after the disturbance occurs.</p>
Part 2 Standard Conditions Division 1 Condition 6	<p>Rehabilitation must achieve final land use</p> <p>(1) The holder of a mining lease must ensure that rehabilitation of the mining area achieves the final land use for the mining area.</p> <p>(2) The holder of the mining lease must ensure any planning approval has been obtained that is necessary to enable the holder to comply with subclause (1).</p> <p>(3) The holder of the mining lease must identify and record any reasonably foreseeable hazard that presents a risk to the holder's ability to comply with subclause (1).</p> <p>Note— Clause 7 requires a rehabilitation risk assessment to be conducted whenever a hazard is identified under this subclause.</p> <p>(4) In this clause—final land use for the mining area means the final landform and land uses to be achieved for the mining area—</p> <p>(a) as set out in the rehabilitation objectives statement and rehabilitation completion criteria statement</p> <p>(b) for a large mine—as spatially depicted in the final landform and rehabilitation plan</p> <p>(c) if the final land use for the mining area is required by a condition of development consent for activities under the mining lease—as stated in the condition.</p> <p>planning approval means—</p> <p>(a) a development consent within the meaning of the <i>Environmental Planning and Assessment Act 1979</i>, or</p> <p>(b) an approval under that Act, Division 5.1.</p>
Part 2 Standard Conditions Division 2 Condition 7	<p>(1) The holder of a mining lease must conduct a risk assessment (a rehabilitation risk assessment) that—</p> <p>(a) identifies, assesses and evaluates the risks that need to be addressed to achieve the following in relation to the mining lease—</p> <p>(i) the rehabilitation objectives,</p> <p>(ii) the rehabilitation completion criteria,</p> <p>(iii) for large mines—the final land use as spatially depicted in the final landform and rehabilitation plan, and</p> <p>(b) identifies the measures that need to be implemented to eliminate, minimise or mitigate the risks.</p> <p>(2) The holder of the mining lease must implement the measures identified.</p> <p>(3) The holder of a mining lease must conduct a rehabilitation risk assessment—</p> <p>(a) for a large mine—before preparing a rehabilitation management plan,</p> <p>(b) for a small mine—before preparing the rehabilitation outcome documents for the mine, and</p> <p>(c) whenever a hazard is identified under clause 6(3)—as soon as reasonably practicable after it is identified, and</p>

Condition	Requirement
	(d) whenever given a written direction to do so by the Secretary.
Part 2 Standard Conditions Division 3 Condition 8	<p>Application of Division This Division does not apply to a mining lease unless—</p> <p>(a) the security deposit required under the mining lease is greater than the minimum deposit prescribed under the Act, section 261BF in relation to that type of mining lease, or</p> <p>(b) the Secretary gives a written direction to the holder of the mining lease that this Division, or a provision of this Division, applies to the mining lease.</p>
Part 2 Standard Conditions Division 3 Condition 9	<p>General requirements for documents A document required to be prepared under this Division must—</p> <p>(a) be in a form approved by the Secretary, and Note— The approved forms are available on the Department's website.</p> <p>(b) include any matter required to be included by the form, and</p> <p>(c) if required to be given to the Secretary—be given in a way approved by the Secretary.</p>
Part 2 Standard Conditions Division 3 Condition 10	<p>Rehabilitation management plans for large mines (1) The holder of a mining lease relating to a large mine must prepare a plan (a rehabilitation management plan) for the mining lease that includes the following—</p> <p>(a) a description of how the holder proposes to manage all aspects of the rehabilitation of the mining area,</p> <p>(b) a description of the steps and actions the holder proposes to take to comply with the conditions of the mining lease that relate to rehabilitation,</p> <p>(c) a summary of rehabilitation risk assessments conducted by the holder,</p> <p>(d) the risk control measures identified in the rehabilitation risk assessments,</p> <p>(e) the rehabilitation outcome documents for the mining lease,</p> <p>(f) a statement of the performance outcomes for the matters addressed by the rehabilitation outcome documents and the ways in which those outcomes are to be measured and monitored.</p> <p>(2) If a rehabilitation outcome document has not been approved by the Secretary, the holder of the mining lease must include a proposed version of the document.</p> <p>(3) A rehabilitation management plan is not required to be given to the Secretary for approval.</p> <p>(4) The holder of the mining lease—</p> <p>(a) must implement the matters set out in the rehabilitation management Plan, and</p> <p>(b) if the forward program specifies timeframes for the implementation of the matters—must implement the matters within those timeframes.</p>
Part 2 Standard Conditions Division 3 Condition 11	<p>Amendment of rehabilitation management plans The holder of a mining lease must amend the rehabilitation management plan for the mining lease as follows—</p> <p>(a) to substitute the proposed version of a rehabilitation outcome document with the version approved by the Secretary—within 30 days after the document is approved,</p> <p>(b) as a consequence of an amendment made under clause 14 to a rehabilitation outcome document—within 30 days after the amendment is made,</p> <p>(c) to reflect any changes to the risk control measures in the prepared plan that are identified in a rehabilitation risk assessment—as soon as practicable after the rehabilitation risk assessment is conducted,</p> <p>(d) whenever given a written direction to do so by the Secretary—in accordance with the direction.</p>
Part 2 Standard Conditions Division 3 Condition 12	<p>Rehabilitation outcome documents (1) The holder of a mining lease must prepare the following documents (the rehabilitation outcome documents) for the mining lease and give them to the Secretary for approval—</p> <p>(a) the rehabilitation objectives statement, which sets out the rehabilitation objectives required to achieve the final land use for the mining area,</p>

Condition	Requirement
	<p>(b) the rehabilitation completion criteria statement, which sets out criteria, the completion of which will demonstrate the achievement of the rehabilitation objectives,</p> <p>(c) for a large mine, the final landform and rehabilitation plan, showing a spatial depiction of the final land use.</p> <p>(2) If the final land use for the mining area is required by a condition of development consent for activities under the mining lease, the holder of the mining lease must ensure the rehabilitation outcome documents are consistent with that condition.</p>
Part 2 Standard Conditions Division 3 Condition 13	<p>Forward program and annual rehabilitation report</p> <p>(1) The holder of a mining lease must prepare a program (a forward program) for the mining lease that includes the following—</p> <p>(a) a schedule of mining activities for the mining area for the next 3 years,</p> <p>(b) a summary of the spatial progression of rehabilitation through its various phases for the next 3 years,</p> <p>(c) a requirement that the rehabilitation of land and water disturbed by mining activities under the mining lease must occur as soon as reasonably practicable after the disturbance occurs.</p> <p>(2) The holder of a mining lease must prepare a report (an annual rehabilitation report) for the mining lease that includes—</p> <p>(a) a description of the rehabilitation undertaken over the annual reporting period,</p> <p>(b) a report demonstrating the progress made through the phases of rehabilitation provided for in the forward program applying to the reporting period,</p> <p>(c) a report demonstrating progress made towards the achievement of the following—</p> <p>(i) the objectives set out in the rehabilitation objectives statement,</p> <p>(ii) the criteria set out in the rehabilitation completion criteria statement,</p> <p>(iii) for large mines—the final land use as spatially depicted in the final landform and rehabilitation plan.</p> <p>(3) If a rehabilitation outcome document has not been approved by the Secretary, the holder of the mining lease must rely on a proposed version of the document.</p> <p>(4) The holder of the mining lease must give the forward program and annual rehabilitation report to the Secretary.</p> <p>(5) In this clause—annual reporting period means each period of 12 months commencing on—</p> <p>(a) the date on which the mining lease is granted, or</p> <p>(b) if the Secretary approves another date in relation to the mining lease—the other date.</p>
Part 2 Standard Conditions Division 3 Condition 14	<p>Amendment of rehabilitation outcome documents and forward program</p> <p>(1) This clause applies to—</p> <p>(a) a rehabilitation outcome document if it has been approved by the Secretary, and</p> <p>(b) a forward program if it has been given to the Secretary.</p> <p>(2) The holder of a mining lease must not amend a document to which this clause applies that relates to the mining lease unless</p> <p>(a) the Secretary gives the holder a written direction to do so, or</p> <p>(b) the Secretary, on written application by the holder, gives a written approval of the amendment.</p> <p>(3) The holder of the mining lease must amend the document in accordance with the Secretary's direction or approval.</p> <p>Nothing in this clause prevents the holder of a mining lease preparing a draft amendment for submission to the Secretary for approval.</p>

Appendix C – Approved Rehabilitation Objective Statement



**NSW
Resources
Regulator**

ROBJ0001370

APPROVED REHABILITATION OBJECTIVES STATEMENT

Mandalong Mine

WEDNESDAY 5 JUNE 2024

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Summary

DETAIL	APPROVAL
Reference	ROBJ0001370
Date of approval	Wednesday 5 June 2024
Mine	Mandalong Mine
Contact	Jeffrey Dunwoodie

Important note

The Regulator may make the information in your application and any supporting information (including this approval) 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 application to be confidential, please communicate this to the Regulator via the message function on this application within the Portal.

Rehabilitation Objectives

The following rehabilitation objectives have been approved.

FINAL LAND USE DOMAIN	MINING DOMAIN	SPECIFY OTHER DOMAIN	SPATIAL REF	REHABILITATION OBJECTIVE CATEGORY	REHABILITATION OBJECTIVES
Native Ecosystem	Infrastructure Area		A1	Bushfire	The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as part of rehabilitation.
Native Ecosystem	Infrastructure Area		A1	Groundwater	The likely volumes and quality of groundwater expected to outflow from the underground voids to the receiving surface water environment following groundwater level recovery is understood and groundwater outflows are managed to limit impacts to the surface water environment to an acceptable level of change from a reference condition.
Native Ecosystem	Infrastructure Area		A1	Land and water contamination	There is no residual soil contamination on site that is incompatible with the final land use or that poses a threat of environmental harm.
Native Ecosystem	Infrastructure Area		A1	Landform stability	Landform that is commensurate with surrounding natural landform.
Native Ecosystem	Infrastructure Area		A1	Landform stability	The final landform is stable for the long-term and does not present a risk of environmental harm downstream/downslope of the site or a safety risk to the public/stock/native fauna.
Native Ecosystem	Infrastructure Area		A1	Management of waste and process materials	Residual waste materials (e.g. carbonaceous material and other wastes) will be appropriately removed or contained/encapsulated so it does not pose any hazards or constraints for intended land use
Native Ecosystem	Infrastructure Area		A1	Native revegetation	The vegetation structure of the rehabilitation is comparable to (based on ongoing monitoring data) the adjacent vegetation for Native Ecosystem, including MU 47, 72, 101, 117, 118 and 131 found in the local area.

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FINAL LAND USE DOMAIN	MINING DOMAIN	SPECIFY OTHER DOMAIN	SPATIAL REF	REHABILITATION OBJECTIVE CATEGORY	REHABILITATION OBJECTIVES
Native Ecosystem	Infrastructure Area		A1	Native revegetation	Levels of ecosystem function have been established that demonstrate the rehabilitation is self-sustainable.
Native Ecosystem	Infrastructure Area		A1	Native revegetation	The vegetation composition of the rehabilitation is comparable to adjacent vegetation for Native Ecosystem, including MU 47, 72, 101, 117, 118 and 131 found in the local area.
Native Ecosystem	Infrastructure Area		A1	Removal of infrastructure	All infrastructure that is not to be used as part of the final land use is removed to ensure the site is safe and free of hazardous materials.
Native Ecosystem	Infrastructure Area		A1	Water quality	Runoff and discharge water quality from mine site is similar to, or better than the pre-disturbance runoff water quality.
Native Ecosystem	Water Management Area		A3	Bushfire	The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as part of rehabilitation.
Native Ecosystem	Water Management Area		A3	Groundwater	The likely volumes and quality of groundwater expected to outflow from the underground voids to the receiving surface water environment following groundwater level recovery is understood and groundwater outflows are managed to limit impacts to the surface water environment to an acceptable level of change from a reference condition.
Native Ecosystem	Water Management Area		A3	Land and water contamination	There is no residual soil contamination on site that is incompatible with the final land use or that poses a threat of environmental harm.
Native Ecosystem	Water Management Area		A3	Landform stability	The final landform is stable for the long-term and does not present a risk of environmental harm downstream/downslope of the site or a safety risk to the public/stock/native fauna.
Native Ecosystem	Water Management Area		A3	Landform stability	Landform that is commensurate with surrounding natural landform.
Native Ecosystem	Water Management Area		A3	Native revegetation	The vegetation composition of the rehabilitation is comparable to adjacent vegetation for Native Ecosystem, including MU 47, 72, 101, 117, 118 and 131 found in the local area.

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FINAL LAND USE DOMAIN	MINING DOMAIN	SPECIFY OTHER DOMAIN	SPATIAL REF	REHABILITATION OBJECTIVE CATEGORY	REHABILITATION OBJECTIVES
Native Ecosystem	Water Management Area		A3	Native revegetation	Levels of ecosystem function have been established that demonstrate the rehabilitation is self-sustainable.
Native Ecosystem	Water Management Area		A3	Native revegetation	The vegetation structure of the rehabilitation is comparable to (based on ongoing monitoring data) the adjacent vegetation for Native Ecosystem, including MU 47, 72, 101, 117, 118 and 131 found in the local area.
Native Ecosystem	Water Management Area		A3	Removal of infrastructure	All infrastructure that is not to be used as part of the final land use is removed to ensure the site is safe and free of hazardous materials.
Native Ecosystem	Water Management Area		A3	Water quality	Runoff and discharge water quality from mine site is similar to, or better than the pre-disturbance runoff water quality.
Native Ecosystem	Underground Mining Area (SMP)		A6	Groundwater	The likely volumes and quality of groundwater expected to outflow from the underground voids to the receiving surface water environment following groundwater level recovery is understood and groundwater outflows are managed to limit impacts to the surface water environment to an acceptable level of change from a reference condition.
Native Ecosystem	Underground Mining Area (SMP)		A6	Land and water contamination	There is no residual soil contamination on site that is incompatible with the final land use or that poses a threat of environmental harm.
Native Ecosystem	Underground Mining Area (SMP)		A6	Landform stability	The final landform is stable for the long-term and does not present a risk of environmental harm downstream/downslope of the site or a safety risk to the public/stock/native fauna.
Native Ecosystem	Underground Mining Area (SMP)		A6	Landform stability	Runoff and discharge water quality from mine site is similar to, or better than the pre-disturbance runoff water quality.
Native Ecosystem	Underground Mining Area (SMP)		A6	Landform stability	Landform that is commensurate with surrounding natural landform.

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FINAL LAND USE DOMAIN	MINING DOMAIN	SPECIFY OTHER DOMAIN	SPATIAL REF	REHABILITATION OBJECTIVE CATEGORY	REHABILITATION OBJECTIVES
Native Ecosystem	Underground Mining Area (SMP)		A6	Native revegetation	Post mining land use to be self-sustaining natural ecosystem comprising native trees and shrubs generally representative of vegetation in comparable analogue communities.
Agricultural – Grazing	Infrastructure Area		B1	Agricultural revegetation	Revegetation is sustainable for the long-term and only requires maintenance that is consistent with the intended final land use.
Agricultural – Grazing	Infrastructure Area		B1	Agricultural revegetation	Land use capability is capable of supporting the target agricultural land use.
Agricultural – Grazing	Infrastructure Area		B1	Bushfire	The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as part of rehabilitation.
Agricultural – Grazing	Infrastructure Area		B1	Groundwater	The likely volumes and quality of groundwater expected to outflow from the underground voids to the receiving surface water environment following groundwater level recovery is understood and groundwater outflows are managed to limit impacts to the surface water environment to an acceptable level of change from a reference condition.
Agricultural – Grazing	Infrastructure Area		B1	Land and water contamination	There is no residual soil contamination on site that is incompatible with the final land use or that poses a threat of environmental harm.
Agricultural – Grazing	Infrastructure Area		B1	Landform stability	The final landform is stable for the long-term and does not present a risk of environmental harm downstream/downslope of the site or a safety risk to the public/stock/native fauna.
Agricultural – Grazing	Infrastructure Area		B1	Landform stability	Landform that is commensurate with surrounding natural landform.
Agricultural – Grazing	Infrastructure Area		B1	Management of waste and process materials	Residual waste materials (e.g. carbonaceous material and other wastes) will be appropriately removed or contained/encapsulated so it does not pose any hazards or constraints for intended land use

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FINAL LAND USE DOMAIN	MINING DOMAIN	SPECIFY OTHER DOMAIN	SPATIAL REF	REHABILITATION OBJECTIVE CATEGORY	REHABILITATION OBJECTIVES
Agricultural – Grazing	Infrastructure Area		B1	Removal of infrastructure	All infrastructure that is not to be used as part of the final land use is removed to ensure the site is safe and free of hazardous materials.
Agricultural – Grazing	Infrastructure Area		B1	Water quality	Runoff and discharge water quality from mine site is similar to, or better than the pre-disturbance runoff water quality.
Agricultural – Grazing	Underground Mining Area (SMP)		B6	Agricultural revegetation	Post mining land use to be self-sustaining grassland ecosystem comprising grasses and legumes generally representative of vegetation in comparable analogue communities.
Agricultural – Grazing	Underground Mining Area (SMP)		B6	Groundwater	The likely volumes and quality of groundwater expected to outflow from the underground voids to the receiving surface water environment following groundwater level recovery is understood and groundwater outflows are managed to limit impacts to the surface water environment to an acceptable level of change from a reference condition.
Agricultural – Grazing	Underground Mining Area (SMP)		B6	Land and water contamination	There is no residual soil contamination on site that is incompatible with the final land use or that poses a threat of environmental harm.
Agricultural – Grazing	Underground Mining Area (SMP)		B6	Landform stability	Landform that is commensurate with surrounding natural landform.
Agricultural – Grazing	Underground Mining Area (SMP)		B6	Landform stability	The final landform is stable for the long-term and does not present a risk of environmental harm downstream/downslope of the site or a safety risk to the public/stock/native fauna.
Agricultural – Grazing	Underground Mining Area (SMP)		B6	Water quality	Runoff and discharge water quality from mine site is similar to, or better than the pre-disturbance runoff water quality.
Rehabilitation Biodiversity Offset Area	Underground Mining Area (SMP)		D6	Groundwater	The likely volumes and quality of groundwater expected to outflow from the underground voids to the receiving surface water environment following groundwater level recovery is understood and groundwater outflows are managed to limit impacts to the surface water environment to an acceptable level of change from a reference condition.

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FINAL LAND USE DOMAIN	MINING DOMAIN	SPECIFY OTHER DOMAIN	SPATIAL REF	REHABILITATION OBJECTIVE CATEGORY	REHABILITATION OBJECTIVES
Rehabilitation Biodiversity Offset Area	Underground Mining Area (SMP)		D6	Landform stability	The final landform is stable for the long-term and does not present a risk of environmental harm downstream/downslope of the site or a safety risk to the public/stock/native fauna.
Rehabilitation Biodiversity Offset Area	Underground Mining Area (SMP)		D6	Landform stability	Landform that is commensurate with surrounding natural landform.
Rehabilitation Biodiversity Offset Area	Underground Mining Area (SMP)		D6	Native revegetation	Post mining land use to be self-sustaining natural ecosystem comprising native trees and shrubs generally representative of Roughbarked Apple Swamp Forest and Swamp Mahogany Paperbark Forest endangered ecological communities.
Rehabilitation Biodiversity Offset Area	Underground Mining Area (SMP)		D6	Water quality	Runoff and discharge water quality from mine site is similar to, or better than the pre-disturbance runoff water quality.
Water Storage (Excluding Final Void)	Water Management Area		G3	Bushfire	The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as part of rehabilitation.
Water Storage (Excluding Final Void)	Water Management Area		G3	Land and water contamination	There is no residual soil contamination on site that is incompatible with the final land use or that poses a threat of environmental harm.
Water Storage (Excluding Final Void)	Water Management Area		G3	Landform stability	Landform that is commensurate with surrounding natural landform.

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FINAL LAND USE DOMAIN	MINING DOMAIN	SPECIFY OTHER DOMAIN	SPATIAL REF	REHABILITATION OBJECTIVE CATEGORY	REHABILITATION OBJECTIVES
Water Storage (Excluding Final Void)	Water Management Area		G3	Landform stability	The final landform is stable for the long-term and does not present a risk of environmental harm downstream/downslope of the site or a safety risk to the public/stock/native fauna.
Water Storage (Excluding Final Void)	Water Management Area		G3	Management of waste and process materials	Residual waste materials (e.g. carbonaceous material and other wastes) will be appropriately removed or contained/encapsulated so it does not pose any hazards or constraints for intended land use
Water Storage (Excluding Final Void)	Water Management Area		G3	Removal of infrastructure	All infrastructure that is not to be used as part of the final land use is removed to ensure the site is safe and free of hazardous materials.
Water Storage (Excluding Final Void)	Water Management Area		G3	Water approvals	Structures that take or divert water such as final voids, dams, levees etc. are appropriately licensed (e.g. under the Water Management Act 2000) where required. As required ensure sufficient licence shares are held in the water source(s) to account for water take.
Water Storage (Excluding Final Void)	Water Management Area		G3	Water quality	Runoff and discharge water quality from mine site is similar to, or better than the pre-disturbance runoff water quality.
Infrastructure	Infrastructure Area		I1	Bushfire	The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as part of rehabilitation.
Infrastructure	Infrastructure Area		I1	Groundwater	The likely volumes and quality of groundwater expected to outflow from the underground voids to the receiving surface water environment following groundwater level recovery is understood and groundwater outflows are managed to limit impacts to the surface water environment to an acceptable level of change from a reference condition.
Infrastructure	Infrastructure Area		I1	Land and water contamination	There is no residual soil contamination on site that is incompatible with the final land use or that poses a threat of environmental harm.

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FINAL LAND USE DOMAIN	MINING DOMAIN	SPECIFY OTHER DOMAIN	SPATIAL REF	REHABILITATION OBJECTIVE CATEGORY	REHABILITATION OBJECTIVES
Infrastructure	Infrastructure Area		I1	Landform stability	The final landform is stable for the long-term and does not present a risk of environmental harm downstream/downslope of the site or a safety risk to the public/stock/native fauna.
Infrastructure	Infrastructure Area		I1	Landform stability	Landform that is commensurate with surrounding natural landform.
Infrastructure	Infrastructure Area		I1	Management of waste and process materials	Residual waste materials (e.g. carbonaceous material and other wastes) will be appropriately removed or contained/encapsulated so it does not pose any hazards or constraints for intended land use
Infrastructure	Infrastructure Area		I1	Removal of infrastructure	All infrastructure that is to remain as part of the final land use is safe and does not pose any hazard to the community.
Infrastructure	Infrastructure Area		I1	Removal of infrastructure	All infrastructure that is not to be used as part of the final land use is removed to ensure the site is safe and free of hazardous materials.
Infrastructure	Infrastructure Area		I1	Retention of infrastructure	All infrastructure that is to remain as part of the final land use benefits from the relevant approvals (e.g. development consent and / or licence/lease/binding agreement, etc)
Infrastructure	Infrastructure Area		I1	Water quality	Runoff and discharge water quality from mine site is similar to, or better than the pre-disturbance runoff water quality.
Infrastructure	Water Management Area		I3	Bushfire	The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as part of rehabilitation.
Infrastructure	Water Management Area		I3	Groundwater	The likely volumes and quality of groundwater expected to outflow from the underground voids to the receiving surface water environment following groundwater level recovery is understood and groundwater outflows are managed to limit impacts to the surface water environment to an acceptable level of change from a reference condition.
Infrastructure	Water Management Area		I3	Land and water contamination	There is no residual soil contamination on site that is incompatible with the final land use or that poses a threat of environmental harm.

APPROVED REHABILITATION OBJECTIVES STATEMENT

ROBJ0001370 | Mandalong Mine

FINAL LAND USE DOMAIN	MINING DOMAIN	SPECIFY OTHER DOMAIN	SPATIAL REF	REHABILITATION OBJECTIVE CATEGORY	REHABILITATION OBJECTIVES
Infrastructure	Water Management Area		I3	Landform stability	The final landform is stable for the long-term and does not present a risk of environmental harm downstream/downslope of the site or a safety risk to the public/stock/native fauna.
Infrastructure	Water Management Area		I3	Landform stability	Landform that is commensurate with surrounding natural landform.
Infrastructure	Water Management Area		I3	Removal of infrastructure	All infrastructure that is not to be used as part of the final land use is removed to ensure the site is safe and free of hazardous materials.
Infrastructure	Water Management Area		I3	Retention of infrastructure	All infrastructure that is to remain as part of the final land use is safe and does not pose any hazard to the community.
Infrastructure	Water Management Area		I3	Retention of infrastructure	All infrastructure that is to remain as part of the final land use benefits from the relevant approvals (e.g. development consent and / or licence/lease/binding agreement, etc)
Infrastructure	Water Management Area		I3	Water quality	Runoff and discharge water quality from mine site is similar to, or better than the pre-disturbance runoff water quality.