



# STRATFORD MINING COMPLEX Rehabilitation Management Plan

**Rehabilitation Management Plan Summary Table**

<b>STRATFORD MINING COMPLEX REHABILITATION MANAGEMENT PLAN SUMMARY TABLE</b>			
<b>Name of Mine:</b>	Stratford Mining Complex		
<b>Name of Lease Holder(s):</b>	Stratford Coal Pty Ltd, Gloucester Coal Ltd, CIM Stratford Pty Ltd		
<b>Name of Mine Operator:</b>	Stratford Coal Pty Ltd		
<b>Rehabilitation Management Plan Commencement Date:</b>	1 August 2022		
<b>Rehabilitation Management Plan Revision Dates and Version Numbers:</b>	Version 1 – Original 01144642	August 2022	
	Version 2 – Updated to reflect consultation with key stakeholders and amended FLRP. 01171528	January 2023	
	Version 3 – Updated to reflect approval of the ROBJ and FLRP. 01191070-003	October 2023	
<b>Mining Lease(s) / Lease Numbers / Expiry Dates:</b>	ML 1360	Granted: 21/12/1994	Duration: 21 years from renewal on 21/12/2015.
	ML 1409	Granted: 07/01/1997	Duration: 21 years from renewal on 07/01/2018.
	ML 1447	Granted: 01/04/1999	Duration: 21 years. Renewal Pending.
	ML 1521	Granted: 24/09/2002	Duration: 21 years.
	ML 1528	Granted: 20/01/2003	Duration: 21 years.
	ML 1538	Granted: 25/06/2003	Duration: 21 years.
	ML 1577	Granted: 01/03/2006	Duration: 21 years.
	ML 1733	Granted: 08/04/2016	Duration: 21 years.
	ML 1787	Granted: 05/06/2019	Duration: 21 years.
<b>Date of Submission:</b>	31 July 2022		

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# 1 INTRODUCTION TO MINING PROJECT

## 1.1 HISTORY OF OPERATIONS

### 1.1.1 Mine Operator and Proprietors

Stratford Coal Pty Ltd (SCPL), a wholly owned subsidiary of Yancoal Australia Limited (Yancoal), owns and operates the Stratford Mining Complex (SMC), which is located approximately 100 kilometres (km) north of Newcastle, New South Wales (NSW) (Figure 1). Yancoal also owns the Duralie Coal Mine (DCM), which is located approximately 20 km south of the SMC (Figure 1). Run-of-mine (ROM) coal from the DCM is transported by rail to the SMC for processing and export.

Development of the SMC is approved under Development Consent (SSD-4966) and occurs within Mining Leases (MLs) 1577, ML 1528, ML 1360, ML1409, ML 1447, ML 1538, ML 1521, ML 1733 and ML 1787. Other key approvals, licences and permits for the SMC are described in Section 1.2.

This Rehabilitation Management Plan (RMP) has been prepared by SCPL in accordance with the requirements of the SMC ML conditions, Development Consent (SSD-4966) conditions and the new standard rehabilitation conditions on mining leases imposed through an amendment to the Regulation under the *Mining Act 1992*. This RMP has been prepared in accordance with the rehabilitation requirements prescribed in the conditions of ML 1577, ML 1528, ML 1360, ML1409, ML 1447, ML 1538, ML 1521, ML 1733 and ML 1787, and addresses the requirements for the SMC RMP provided within Condition 55, Schedule 3 of the Development Consent (SSD-4966).

This RMP describes the proposed rehabilitation activities for the SMC and the assessments and activities that have been implemented as part of the SMC Mine Closure Plan and Schedule. The outcomes of completed components of the SMC Mine Closure Plan and Schedule have informed or been considered in the preparation of this RMP. This RMP replaces the SMC Mining Operations Plan (MOP)/RMP (1 January 2021 to 31 December 2023).

### 1.1.2 Significant Surface Disturbing Activities – Mining Operations, Ancillary Mining Activities and Exploration

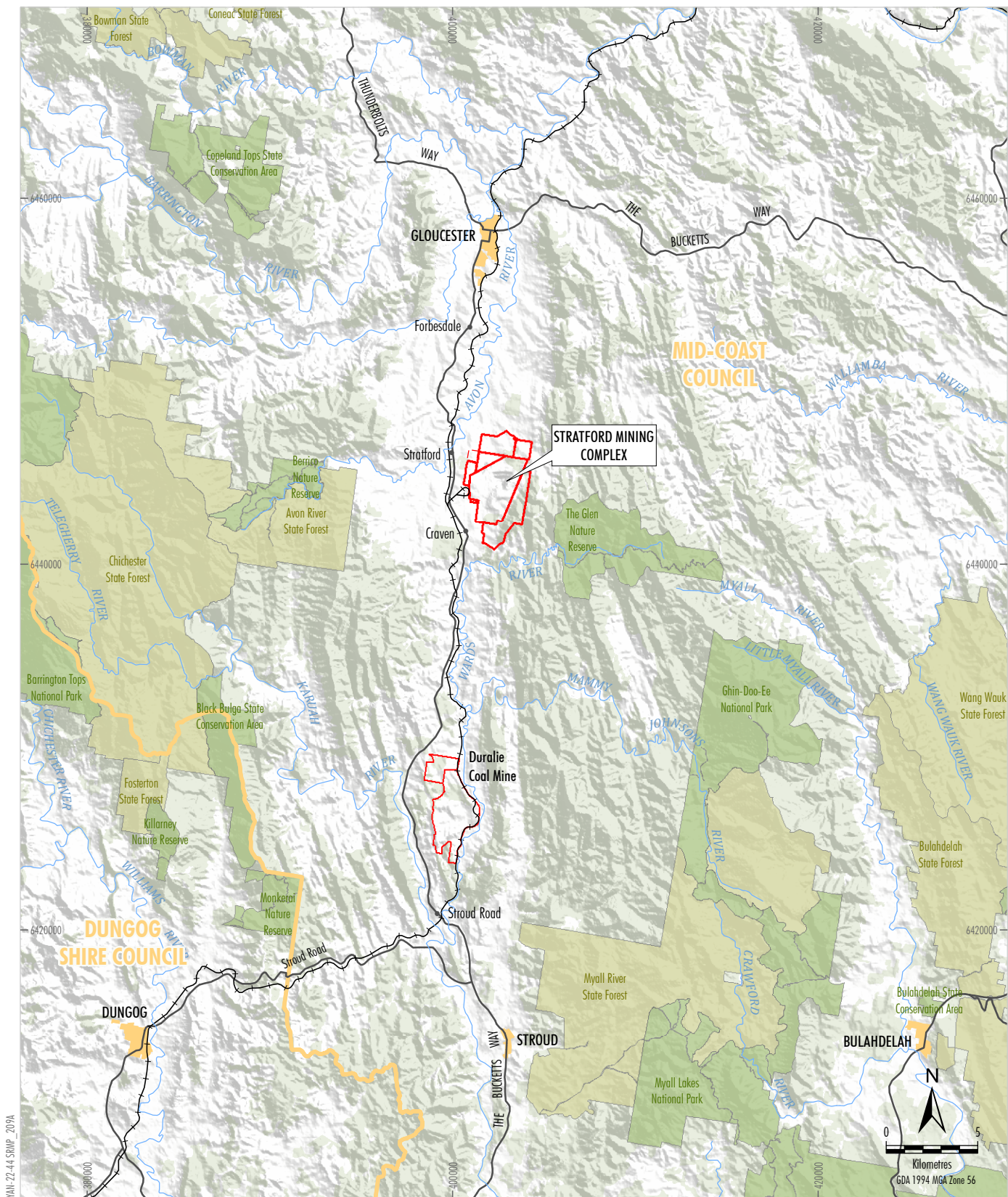
Production commenced at the SMC in June 1995 with the first coal railed in July 1995, following a six-month construction program. Run-of-mine (ROM) coal at the SMC has been sourced from a number of open cut mining areas.

The Development Consent (SSD-4966) for the Stratford Extension Project (SEP) was granted on 29 May 2015 under Part 4 of the *Environmental Planning and Assessment Act, 1979* (EP&A Act) and involves the extension and continuation of mine operations at the SMC<sup>1</sup>, including (among other things):

- mining of up to 2.6 million tonnes of ROM coal per annum;
- continuation of mining in the Bowens Road North Open Cut (BRNOC), the recommencement of mining in the Roseville West Open Cut Pit; and the extension of mining into three new open cut mining areas:
  - Roseville West Pit Extension;
  - Avon North Open Cut; and
  - Stratford East Open Cut.

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<sup>1</sup> A copy of Development Consent (SSD-4966) (and other statutory State and Federal licenses and approvals) is available on the Stratford Coal website ([www.stratfordcoal.com.au](http://www.stratfordcoal.com.au)).



- LEGEND**
- Mining Lease Boundary
  - Mining Lease Application Boundary \*
  - NSW State Forest
  - National Park, Nature Reserve or State Conservation Area
  - Local Government Area Boundary

\*MLA1 is a proposed future Mining Lease Application (MLA) area and has not yet been lodged.

Source: Geoscience Australia (2006); Yancoal (2019);  
NSW Department of Planning & Environment (2017)



**STRATFORD EXTENSION PROJECT**  
Regional Location

**Figure 1**



- progressive backfilling of mine voids with waste rock behind the advancing open cut mining operations;
- continued and expanded placement of waste rock in the Stratford Waste Emplacement and Northern Waste Emplacement;
- coal processing at the existing Coal Handling and Preparation Plant (CHPP);
- stockpiling and loading of product coal to trains for transport on the North Coast Railway to Newcastle;
- disposal of CHPP rejects via pipeline to the existing co-disposal area in the Stratford Main Pit and, later in the mine life, the Avon North Open Cut void;
- continued use of existing water storages/dams and progressive development of additional sediment dams, pumps, pipelines, irrigation infrastructure and other water management equipment and structures;
- other associated minor infrastructure, plant, equipment and activities and minor modifications to existing structure, plant and equipment and activities; and
- rehabilitation of the site.

The general arrangement of the approved SMC is provided in Figure 2.

### ***Current Status of SMC***

Mining activities approved under the SEP Development Consent (SSD-4966) commenced on 4 April 2018. Current mining operations at the SMC are associated with:

- completion of mining in the Roseville West Open Cut Pit followed by progressive partial backfilling with waste rock material;
- completion of mining in the BRNOC followed by progressive backfilling with waste rock material;
- continued development and mining of the Stratford East Open Cut; and
- continued development and mining of the Avon North Open Cut.

Condition 5, Schedule 2 of the SMC's Development Consent (SSD-4966) authorises mining operations to be carried at the SMC until 31 December 2025. As the SMC progresses towards the end of its approved mine life, operations and activities at the SMC over the next four years will progressively change to reflect this and will generally involve the following:

- **Reduction of open cut pit mining and total mobile plant fleet:** Open cut mining operations of the SMC's remaining operational pits (Avon North Open Cut and Stratford East Open Cut) will reduce sequentially over the next three years. Consequently, total mobile plant fleet operating at the SMC will also reduce.
- **Progressive open cut pit backfilling activities:** As mining of the open cut pits is progressively completed, backfilling of some of the pits with waste rock material, including Stratford East Open Cut and BRNOC, will also occur either concurrently with ROM coal extraction or after the completion of ROM coal extraction.
- **Progressive rehabilitation of completed areas:** Rehabilitation of backfilled open cut pits, completed areas of the waste emplacements and other disturbed areas will continue to be progressed in accordance with this RMP.





Figure 2



- **Reduction and then cessation of vegetation clearance activities:** The proposed extent of development of the remaining open cut pits and ancillary mining activities will be reached over the next three years, and subsequently after this time, no new disturbance areas (within the approved surface disturbance areas) are proposed.
- **Closure Planning:** SCPL will continue to implement the SMC Mine Closure Plan and Schedule (Appendix 1) which includes technical assessments and works that will be undertaken and implemented as the SMC progresses towards the mine closure phase. As these assessments and works are completed, the SMC's environmental management plans will be reviewed and revised as required to reflect the progression of the SMC towards mine closure, in consultation with relevant regulatory agencies.

Following the cessation of mining operations on 31 December 2025, SCPL will undertake bulk rehabilitation earthworks, infrastructure decommissioning, and revegetation of the final landform in accordance with this RMP. Once bulk rehabilitation earthworks are complete, all major fleet will be removed from site and the mine's workforce limited to that required to support post-closure activities.

### **1.1.3 Rehabilitation Undertaken Since Mine Commencement – Decommissioning/Demolition of Infrastructure**

Rehabilitation of disturbed areas has been undertaken progressively throughout mining operations in accordance with previous MOP/RMPs and will continue into the mine closure phase. SCPL has successfully undertaken rehabilitation activities at the SMC over approximately 264 hectares (ha) of land (i.e. shaped, covered with topsoil and revegetated). Sections of the following landforms are currently under rehabilitation or have been completed:

- Stratford Waste Emplacement;
- BRNOC Northern and Southern Waste Emplacements;
- Roseville Pit;
- Roseville Extension Pit; and
- Western Co-disposal Area.

Rehabilitation works of the waste emplacements at the SMC have been progressively completed. Areas of native endemic woodland shrubs and trees have been successfully established across slopes and batters of the waste emplacements, with pasture established on the Stratford waste emplacement and Western Co-disposal Area. Plates 1 to 10 provide examples of the progression of rehabilitation phases and successful rehabilitation undertaken at the SMC.

SMC rehabilitation progression has been undertaken generally in accordance with the planned activities described in previously approved MOP/RMPs.

## **1.2 CURRENT DEVELOPMENT CONSENTS, LEASES AND LICENCES**

Details of the date of grant and duration of the Project Approval, authorisations and licenses issued by the relevant government agencies for the SMC are provided in Table 1.



Plate 1: Stratford Waste Emplacement Looking West



Plate 2: Stratford Waste Emplacement - Rehabilitated Agricultural Areas

YAN-22-44 SRMP\_001A



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STRATFORD EXTENSION PROJECT

Stratford Waste Emplacement





Plate 3: Pasture on Stratford Waste Emplacement Area



Plate 4: Pasture on Stratford Waste Emplacement Area overlooking Eastern Emplacement Area

YAN-22-44 SRMP\_002A





Plate 5: Woodland Rehabilitation on Stratford Waste Emplacement



Plate 6: Woodland Rehabilitation on Stratford Waste Emplacement

YAN-22-44 SRMP\_003A



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Stratford Waste Emplacement





Plate 7: BRNOC Southern Emplacement Rehabilitation



Plate 8: BRNOC Northern Emplacement Rehabilitation

YAN-22-44 SRMP\_004A



STRATFORD EXTENSION PROJECT

BRNOC Waste Emplacement  
Rehabilitation

PLATES 7 and 8





Plate 9: Rehabilitation (Pasture) East of BRNOC



Plate 10: Woodland Rehabilitation on BRNOC Northern Emplacement Area

YAN-22-44 SRMP\_005A



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STRATFORD EXTENSION PROJECT

BRNOC Waste Emplacement  
Rehabilitation

PLATES 9 and 10

**Table 1:  
Overview of Current Development Consents, Leases and Licences**

Relevant Authority	Instrument	Approval Licence	Date of Grant	Duration of Approval
DPE	Development Consent	Development Consent SSD-4966 (as modified)	29/05/2015	The applicant may carry out mining operations on the site until 31 December 2025.
NSW Resources Regulator	ML	ML 1360	Granted: 21/12/1994	Duration: 21 years from renewal on 21/12/2015.
		ML 1409	Granted: 07/01/1997	Duration 21 years from renewal on 07/01/2018.
		ML 1447	Granted: 01/04/1999	Duration: 21 years. Renewal Pending.
		ML 1521	Granted: 24/09/2002	Duration: 21 years.
		ML 1528	Granted: 20/01/2003	Duration: 21 years.
		ML 1538	Granted: 25/06/2003	Duration: 21 years.
		ML 1577	Granted: 01/03/2006	Duration: 21 years.
		ML 1733	Granted: 08/04/2016	Duration: 21 years.
		ML 1787	Granted: 05/06/2019	Duration: 21 years.
	Exploration Authorisation	AUTH 311	14/10/2013	28 November 2017. Renewal lodged 27/11/2017 and is currently pending.
		AUTH 315	14/10/2013	28 November 2017. Renewal lodged 27/11/2017 and is currently pending.
EPA	Environment Protection Licence (EPL)	EPL 5161 (as modified)	09/01/2001	Until licence is surrendered, suspended or revoked. The licence is subject to review every three years.
Commonwealth Department of Agriculture, Water and Environment (DAWE)	Commonwealth Approval	EPBC 2011/6176	29/01/2016	30 November 2030.
DPE-Water	Monitoring and test bore licences	Various	Various	Various.
	Water Approval Licence	WAL 41534	18/04/2018	Perpetuity.
		WAL 41535	14/12/2017	Perpetuity.
		WAL 41536	14/12/2017	Perpetuity.
		WAL 41537	22/01/2018	Perpetuity.
		WAL 41538	20/01/2018	Perpetuity.

Note: DPE = NSW Department of Planning and Environment; MEG = Mining, Exploration and Geoscience; EPA = NSW Environment Protection Authority.

### 1.3 LAND OWNERSHIP AND LAND USE

The SMC is owned and operated by SCPL. With the exception of existing road reserves, the existing MLs exist wholly within land owned by Yancoal (i.e. freehold land) (Table 2). Dwellings within the MLs are not occupied.

**Table 2:**  
**Overview of the Land Ownership and Land Use in the**  
**Land Adjacent to and Surrounding the Mine**

Lot/Deposited Plan	Land Tenure	Land Ownership	Occupancy (Residential)	Leases over the ML Area (License)
59/979859	Freehold	SCPL	No	Rural License – restricted area, non-exclusive use.
1/241780	Freehold	SCPL	No	Rural License incl restricted area, non-exclusive use.
74/979859	Freehold	SCPL	No	Rural License – restricted area, non-exclusive use.
2/241780	Freehold	SCPL	No	Rural License – restricted area, non-exclusive use.
1/997092	Freehold	SCPL	No	Part Rural License – restricted area, non-exclusive use.
1/531023 outside ML now 55/1249380	Freehold	SCPL	No	Rural License – non-exclusive use.
20/1164626 outside ML	Freehold	SCPL	No	Part Rural License – non-exclusive use.
71/979859	Freehold	SCPL	No	Part Rural License – restricted area, non-exclusive use.
58/979859	Freehold	SCPL	No	Part Rural License – restricted area, non-exclusive use.
56A/979859	Freehold	SCPL	No	No.
56B/979859	Freehold	SCPL	No	No.
56C/979859	Freehold	SCPL	No	No.
56D/979859	Freehold	SCPL	No	No.
56E/979859	Freehold	SCPL	No	No.
1/861278	Freehold	SCPL	No	Part Rural License – restricted area, non-exclusive use.
57/979859	Freehold	SCPL	No	No.
72/979859	Freehold	SCPL	No	Part Rural License – restricted area, non-exclusive use.

**Table 2 (Continued):  
Overview of the Land Ownership and Land Use in the  
Land Adjacent to and Surrounding the Mine**

<b>Lot/Deposited Plan</b>	<b>Land Tenure</b>	<b>Land Ownership</b>	<b>Occupancy (Residential)</b>	<b>Leases over the ML Area (License)</b>
54/979859	Freehold	SCPL	No	Part Rural License – non-exclusive use.
B/116316	Freehold	SCPL	No	Part Rural License – non-exclusive use.
75/979859	Freehold	SCPL	No	Part Rural License – restricted area, non-exclusive use.
3/1062249	Freehold	SCPL	No	No.
73/979859	Freehold	SCPL	No	No.
1/194827	Freehold	SCPL	No	Part Rural License – non-exclusive use.
52/979859	Freehold	SCPL	No	Part Rural License – non-exclusive use.
70/979859	Freehold	SCPL	No	Part Rural License – restricted area, non-exclusive use.
293/137520 now 5/1247220	Freehold		No	Rural License – non-exclusive use.
69/979859	Freehold	SCPL	No	Rural License – restricted area, non-exclusive use.
11/1139127 now 3/1247220	Freehold	SCPL	No	No.
12/1139127 now 4/1247220	Freehold	SCPL	No	Part Rural License – restricted area, non-exclusive use.
1/194827	Freehold	SCPL	No	Part Rural License – restricted area, non-exclusive use.
4/1062249	Freehold	SCPL	No	Part Rural License – non-exclusive use.
A/116326	Freehold	SCPL	No	Part Rural License – restricted area, non-exclusive use.
66/1008585	Freehold	SCPL	No	Part Rural License – restricted area, non-exclusive use.
1/116325	Freehold	SCPL	No	Part Rural License – restricted area, non-exclusive use.
79/979859	Freehold	SCPL	No	Rural License – non-exclusive use.

**Table 2 (Continued):  
Overview of the Land Ownership and Land Use in the  
Land Adjacent to and Surrounding the Mine**

<b>Lot/Deposited Plan</b>	<b>Land Tenure</b>	<b>Land Ownership</b>	<b>Occupancy (Residential)</b>	<b>Leases over the ML Area (License)</b>
772/826955 now 2/1247220	Freehold	SCPL	No	Part Rural License – including part restricted area, non-exclusive use.
1/778861	Freehold	SCPL	No	Part Rural License – restricted area, non-exclusive use.
2/778861	Freehold	SCPL	No	Part Rural License – restricted area, non-exclusive use.
64/979859	Freehold	SCPL	No	Rural License – restricted area, non-exclusive use.
Part of 45/979859	Freehold	SCPL	No	No.
Part of 8/ 1139127	Freehold	SCPL	No	Part Rural License – non-exclusive use.
Part of 9/1139127	Freehold	SCPL	No	Part Rural License – non-exclusive use.
Part of 10/1139127	Freehold	SCPL	No	Part Rural License – non-exclusive use.
Part of 63/1093998	Freehold	SCPL	No	Rural License – restricted area, non-exclusive use.
Part of 62/1093998	Freehold	SCPL	No	Rural License – restricted area, non-exclusive use.

The SMC is located within the MidCoast Local Government Area on land zoned under the *Great Lakes Local Environmental Plan* (2014) as Zone RU1 (Primary Production), Zone IN3 (Heavy Industrial) and Zone E3 (Environmental Management).

Historic and current land use in the vicinity of the SMC is dominated by agricultural production (primarily grazing for beef production), mining and remnant vegetation generally located along ridgelines and watercourses, and in isolated patches within the cleared landscape.

A number of reserved areas are located in the general vicinity of the SMC including the Glen Nature Reserve (located approximately 2 km to the south-east), Barrington Tops National Park located to the west and south-west, and the Avon River State Forest located to the west and south-west.

Settlements located in the vicinity of the SMC site include the villages of Stratford and Craven.



## **Long Term Biodiversity Security**

### *Biodiversity Offset Areas*

In accordance with Condition 36, Schedule 3 of Development Consent (SSD-4966), SCPL has made suitable arrangements to protect the Biodiversity Offset Areas in perpetuity to the satisfaction of the Secretary.

Public Positive Covenants and Restrictions on the Use of Land for the Biodiversity Offsets were registered on title with NSW *Land and Property Information* in October 2019. Copies of the executed Positive Covenants and notice of registration of the instruments was included in the 2019 SMC Annual Biodiversity Report which can be found on the SMC's website.

In accordance with Condition 34, Schedule 3 of the Development Consent (SSD-4966), should SCPL acquire Property 44, the property, exclusive of the residence and its immediate surrounds, shall be added to the Biodiversity Offset Strategy and managed in accordance with the requirements applicable to this Strategy. Should SCPL not acquire Property 44, SCPL shall use its best endeavours to enter into an agreement with the owner that conserves, enhances and provides long-term security for native vegetation on the property.

### *Biodiversity Enhancement Areas*

The Biodiversity Enhancement Areas is a proposal for land management during the life of the SMC (SCPL, 2012). The final tenure of the Biodiversity Enhancement Areas will be subject to future consultation (SCPL, 2012).

## **Biodiversity Conservation Bond**

In accordance with Condition 40, Schedule 3 of Development Consent (SSD-4966), SCPL has lodged a Conservation Bond<sup>2</sup> with the DPE to ensure that the Biodiversity Offset Strategy (Biodiversity Offset Areas and Biodiversity Enhancement Areas) is implemented in accordance with the performance and completion criteria within Section 6 of the Biodiversity Management Plan (BMP).

The sum of the bond was determined by:

- (a) calculating the full cost of implementing the Biodiversity Offset Strategy (other than land acquisition costs); and
- (b) employing a suitably qualified quantity surveyor to verify the calculated costs.

The Conservation Bond calculation was prepared by Kleinfelder and a verification of the costs was undertaken by Rider Levett Bucknall. The Conservation Bond calculation was submitted in January 2019 and subsequently approved by DPE on 15 January 2019.

The Conservation Bond in the form of a bank guarantee was executed and lodged with DPE on 8 February 2019.

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<sup>2</sup> Alternative funding arrangements for long-term management of the biodiversity offset strategy, such as provision of capital and management funding as agreed by Biodiversity Conservation Division within the DPE as part of a Biobanking Agreement or transfer to conservation reserve estate can be used to reduce the liability of the conservation and biodiversity bond. The sum of the bond may be reviewed in conjunction with any revision to the biodiversity offset strategy.

Condition 40, Schedule 3 of Development Consent (SSD-4966) states that if the Biodiversity Offset Strategy is completed generally in accordance with the completion criteria in the BMP to the satisfaction of the Secretary, the Secretary will release the Conservation Bond. If the Biodiversity Offset Strategy is not completed generally in accordance with the completion criteria in Section 6 of the BMP, the Secretary will call in all, or part of, the Conservation Bond, and arrange for the satisfactory completion of the relevant works.

### **1.3.1 Land Ownership and Land Use Figure**

The SMC regional location is shown in Figure 1. The general arrangement of the SMC, including MLs granted under the NSW *Mining Act 1992*, main roads, railways and public infrastructure is provided in Figure 2.

#### ***Land Ownership***

Table 2 identifies the schedule of land ownership surrounding the SMC. This is depicted graphically on Figure 3.

#### ***Land Use***

The current land uses are depicted graphically on Figure 4. As described in Section 1.1.2, mining operations at the SMC are authorised until 31 December 2025 in accordance with Condition 5, Schedule 2 of the SMC's Development Consent (SSD-4966). Accordingly, land uses within the SMC MLs have been categorised as both active mining and active rehabilitation (Figure 4). Other land uses within MLs 1360, 1409, 1447, 1521, 1528, 1538, 1577, 1733, and 1787 at the SMC have been retained as cattle grazing sites and habitat for native flora and fauna (Figure 4).

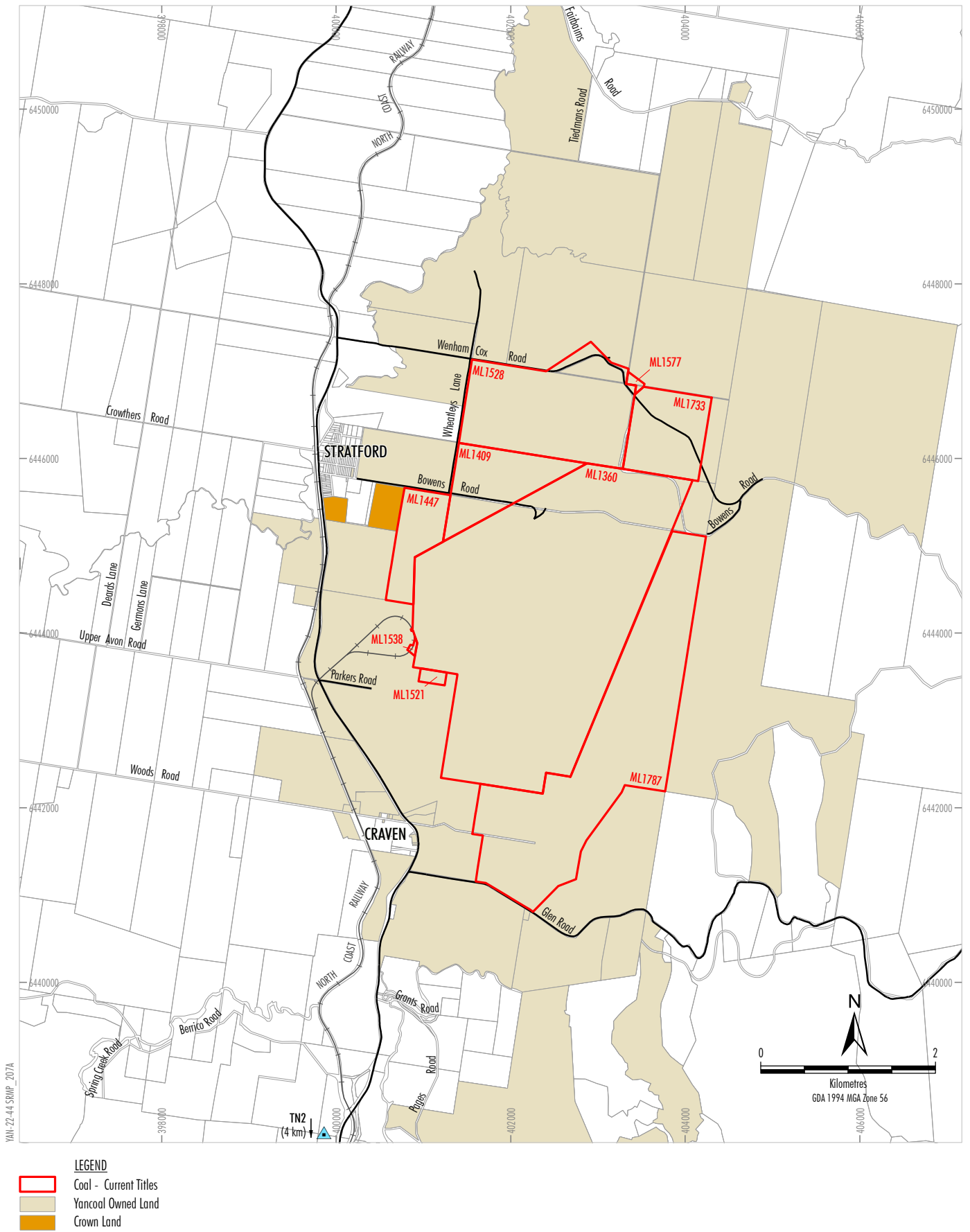
#### ***Vegetation Communities***

The vegetation communities within and surrounding the SMC are depicted in Figure 5 and is based on the vegetation mapping for the SMC environmental assessments. SCPL (1994) and Dowling (2001) conducted flora surveys of the locality prior to the development of the existing SMC. More recently, flora surveys were undertaken in 2007, 2008 and 2010 by Ecobiological (2011a) and 2010 and 2011 by FloraSearch (2012). Australian Museum Business Services (AMBS) (2011a) also conducted surveys in the Biodiversity Offset Area. Recent fauna surveys include those by Ecobiological (2011a, 2011b, 2011c), AMBS (2011b, 2012), Kerle (2011) and Biosphere Environmental Consultants (2011).

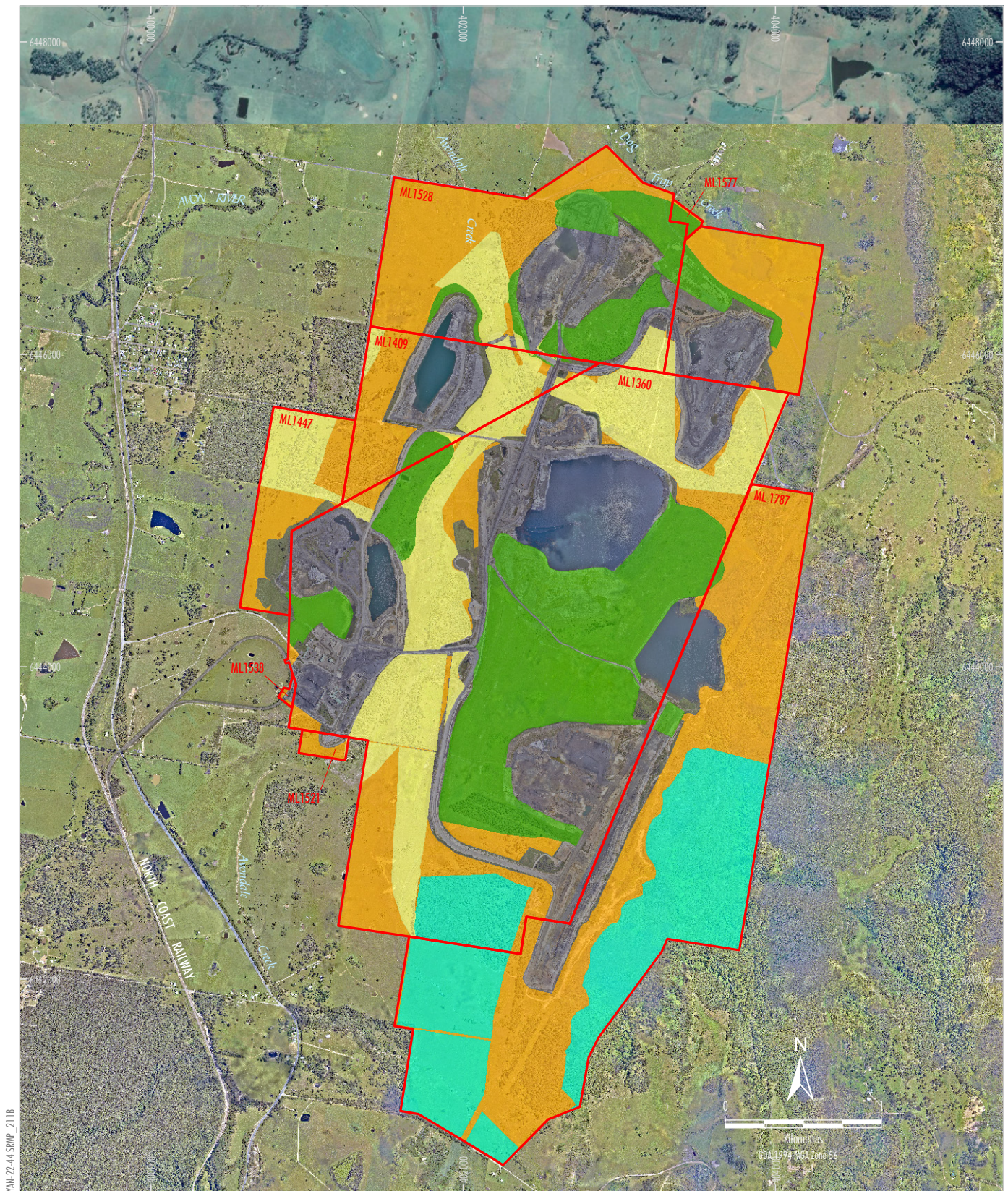
Vegetation mapping is also shown for the SMC Offset Areas (Figure 5). The Biodiversity Offset Area contains a range of vegetation community types including rainforest, riparian forest, wet sclerophyll forest, grassy woodlands, dry sclerophyll forest, aquatic habitats (including artificial wetlands), acacia regeneration, derived grassland/shrub re-growth, plantings and introduced pasture with scattered trees.

#### ***Areas of Sensitivity***

Areas of sensitivity at the SMC including identified heritage sites and protected biodiversity areas are depicted in Figure 6. The SMC Heritage Management Plan (HMP) considers the impacts of the development of the SMC on Aboriginal and European cultural heritage sites. Aboriginal and European cultural heritage sites in the vicinity of the SMC are depicted on Figure 6.







- LEGEND**
- Coal - Current Titles
  - Active Rehabilitation
  - Agricultural and Rural Areas
  - Active Mine Disturbance
  - Biodiversity Enhancement Area
  - Biodiversity Offset Area

Source: Orthophoto - Yancoal (2021);  
LPI (2016); NSW Department of Planning & Environment (2017)

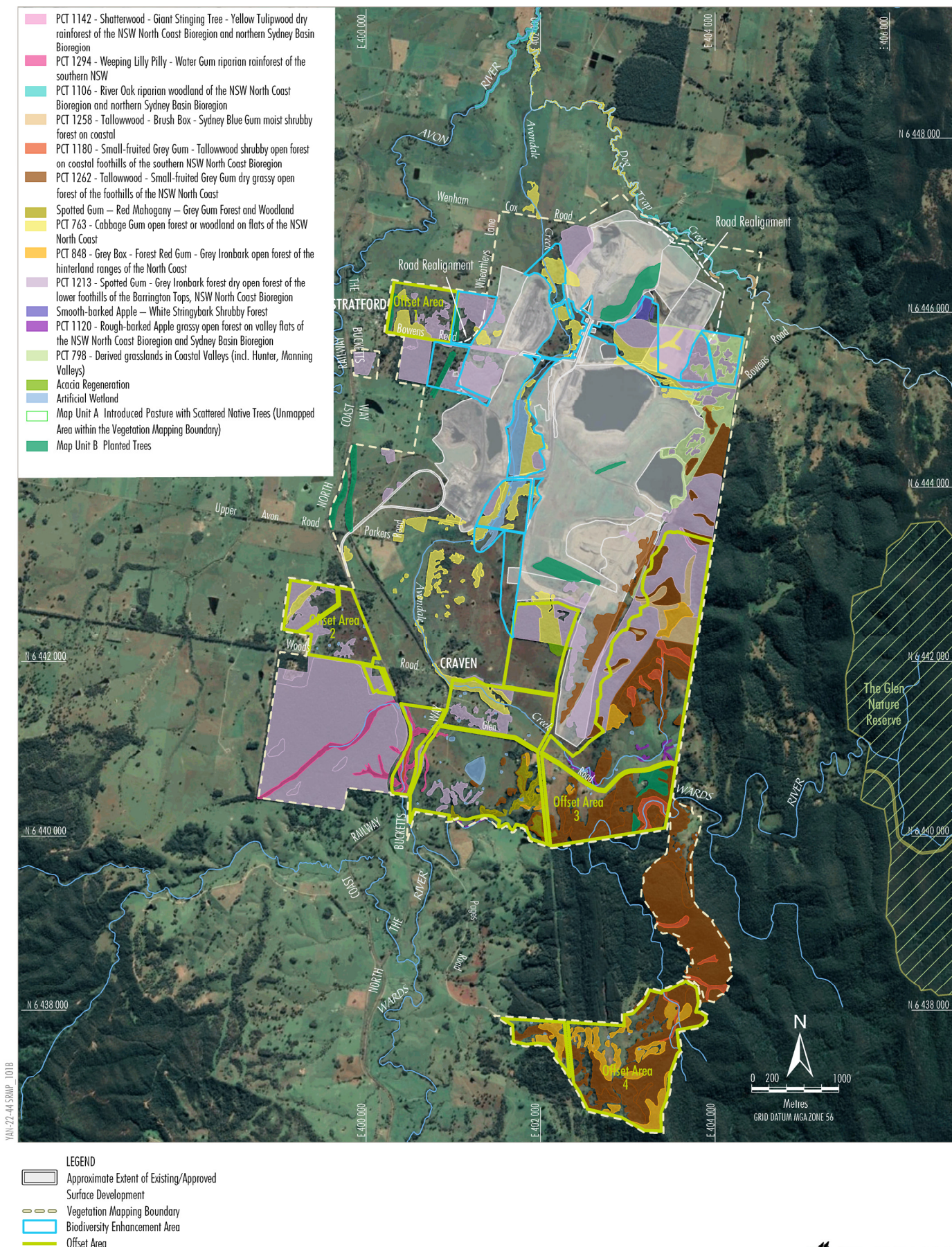


**STRATFORD COAL**  
Part of the Yancoal Australia Group

**STRATFORD EXTENSION PROJECT**  
Land Use

**Figure 4**





Source: Australian Museum Business Services (2011); FloraSearch (2011); SCPL (2012); DFS-LPI (2012); DPI C&L (2012) Orthophoto - GoogleEarth CNES/Airbus (2020)

Figure 5





Figure 6



## 2 FINAL LAND USE

### 2.1 REGULATORY REQUIREMENTS FOR REHABILITATION

Table 3 details the conditions of the Development Consent (SSD-4966) and MLs 1360, 1409, 1447, 1521, 1528, 1538, 1577, 1733, and 1787 relevant to rehabilitation at the SCM. Table 3 also lists the timing to meet each rehabilitation requirement and provides the section where each condition has been addressed in this RMP.

**Table 3:  
Regulatory Requirements Relating to Post-mining Land Use  
and Rehabilitation**

Condition	Requirements	Section Reference
Development Consent (SSD-4966)		
Condition 53, Schedule 3	The Applicant shall rehabilitate the site to the satisfaction of the Resources Regulator. This rehabilitation must be generally consistent with the proposed Rehabilitation Strategy described in the EIS (and depicted conceptually in Appendix 8) and comply with the objectives in Table 10.	
	Table 10: Rehabilitation objectives	
	Feature	Objective
	Mine site (as a whole)	Safe, stable and non-polluting Constructed landforms drain to the natural environment Minimise visual impact of final landforms as far as is reasonable and feasible and be sympathetic to the original Gloucester valley landform
	Final voids	Minimise the size and depth of final voids so far as is reasonable and feasible Minimise the drainage catchment of final voids so far as is reasonable and feasible Minimise high wall instability risk so far as is reasonable and feasible The size and depth of final voids must be designed having regard to their function as long-term groundwater sinks, to maximise groundwater flows across back-filled pits to the void and to not be a source of saline groundwater for aquifers and streams Designed and constructed to ensure adequate freeboard to ensure no spillage under any foreseeable conditions Minimise risk of flood interaction for all flood events up to and including the Probable Maximum Flood
Surface infrastructure	To be decommissioned and removed, unless the Deputy Secretary, Resources and Energy agrees otherwise	
		Section 4.1

**Table 3 (Continued):  
Regulatory Requirements Relating to Post-mining Land Use  
and Rehabilitation**

Condition	Requirements	Section Reference
Development Consent (SSD-4966) (Continued)		
Condition 53, Schedule 3 (Continued)	Table 10 (Continued): Rehabilitation objectives	
	Feature	Objective
	Agricultural land	Establish a minimum of 300 hectares of land with Class 4 agricultural suitability
	Other land	Restore ecosystem function, including maintaining or establishing self-sustaining ecosystems comprising: <ul style="list-style-type: none"><li>a wildlife corridor (shown as Biodiversity Enhancement Area in the figure in Appendix 8);</li><li>local native plant species; and</li><li>a landform consistent with the surrounding environment</li></ul>
	Stratford and Glen heritage railway corridors	Road and transmission alignments to avoid heritage railway corridors Rehabilitation activities to avoid or minimise impacts
	Community	Ensure public safety, with an emphasis on final voids Minimise the adverse socio-economic effects associated with mine closure
Condition 54, Schedule 3	<p>The Applicant shall progressively rehabilitate the site, including the Western Co-disposal Area, as soon as reasonably practicable following disturbance. All reasonable and feasible measures must be taken to minimise the total area exposed for dust generation at any time. Interim rehabilitation strategies must be employed where areas prone to dust generation are not subject to active mining operations but cannot yet be permanently rehabilitated.</p> <p>Note: It is accepted that parts of the site that are progressively rehabilitated may be subject to further disturbance in future.</p>	Section 6.1
Condition 55, Schedule 3	<p>The Applicant shall prepare and implement a Rehabilitation Management Plan to the satisfaction of the Resources Regulator. This plan must:</p> <p>(a) be prepared in consultation with the Department, DPIE Water, BCD, and GSC;</p> <p>(b) be submitted to the Resources Regulator for approval at least 3 months prior to the commencement of mining operations in the new mining areas; unless the Resources Regulator agrees otherwise;</p> <p>(c) be prepared in accordance with any relevant DRG guideline;</p> <p>(d) describe how the rehabilitation of the site would be integrated with the implementation of the biodiversity offset strategy;</p> <p>(e) include detailed performance and completion criteria for evaluating the performance of the rehabilitation of the site, and triggering remedial action (if necessary);</p>	This RMP



**Table 3 (Continued):  
Regulatory Requirements Relating to Post-mining Land Use  
and Rehabilitation**

Condition	Requirements	Section Reference
<b>Development Consent (SSD-4966) (Continued)</b>		
Condition 55, Schedule 3 (Continued)	<p>(f) describe the measures that would be implemented to ensure compliance with the relevant conditions of this consent, and address all aspects of rehabilitation including mine closure, final landform and final land use;</p> <p>(g) include interim rehabilitation where necessary to minimise the area exposed for dust generation;</p> <p>(h) include a program to monitor, independently audit and report on the effectiveness of the rehabilitation measures and progress against the detailed performance and completion criteria; and</p> <p>(i) build to the maximum extent practicable on the other management plans required under this consent.</p> <p><i>Note: The Biodiversity Management Plan and Rehabilitation Management Plan require substantial integration to achieve biodiversity objectives for the rehabilitated mine site.</i></p>	As above.
<b>ML1360, 1409, 1447, 1521, 1528, 1538, 1577, 1733, and 1787</b>		
Condition 4, Schedule 8A	<p><b>Must prevent or minimise harm to environment</b></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 –</p> <p><b>harm</b> to the environment has the same meaning as in the Protection of the Environment Operations Act 1997.</p>	This RMP
Condition 5, Schedule 8A	<p><b>Rehabilitation to occur as soon as reasonably practicable after disturbance</b></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>	Section 6.2
Condition 6, Schedule 8A	<p><b>Rehabilitation must achieve final land use</b></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><b>Note</b> – Clause 7 requires a rehabilitation risk assessment to be conducted whenever a hazard is identified under this subclause.</p>	<p>Section 4</p> <p>Section 2.1</p> <p>Section 3</p>

**Table 3 (Continued):  
Regulatory Requirements Relating to Post-mining Land Use  
and Rehabilitation**

Condition	Requirements	Section Reference
<b>ML1360, 1409, 1447, 1521, 1528, 1538, 1577, 1733, and 1787 (Continued)</b>		
Condition 6, Schedule 8A (Continued)	<p>(4) <i>In this clause –</i></p> <p><b>final land use</b> for the mining area means the final landform and land uses to be achieved for the mining area –</p> <p>(a) <i>as set out in the rehabilitation objectives statement and rehabilitation completion criteria statement, and</i></p> <p>(b) <i>for a large mine – as spatially depicted in the final landform and rehabilitation plan, and</i></p> <p>(c) <i>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.</i></p> <p><b>planning approval</b> means –</p> <p>(a) <i>a development consent within the meaning of the Environmental Planning and Assessment Act 1979, or</i></p> <p>(b) <i>an approval under that Act, Division 5.1.</i></p>	As above.
Condition 7, Schedule 8A	<p><b>Rehabilitation risk assessment</b></p> <p>(1) <i>The holder of a mining lease must conduct a risk assessment (a <b>rehabilitation risk assessment</b>) that –</i></p> <p>(a) <i>Identifies, assesses and evaluates the risks that need to be addressed to achieve the following in relation to the mining lease –</i></p> <p>(i) <i>the rehabilitation objectives,</i></p> <p>(ii) <i>the rehabilitation completion criteria,</i></p> <p>(iii) <i>for large mines – the final land use as spatially depicted in the final landform and rehabilitation plan, and</i></p> <p>(b) <i>identifies the measures that need to be implemented to eliminate, minimise or mitigate the risks.</i></p> <p>(2) <i>The holder of a mining lease must implement the measures identified.</i></p> <p>(3) <i>The holder of a mining lease must conduct a rehabilitation risk assessment –</i></p> <p>(a) <i>for a large mine – before preparing a rehabilitation plan, and</i></p> <p>(b) <i>for a small mine – before preparing the rehabilitation outcome documents for the mine, and</i></p> <p>(c) <i>whenever a hazard is identified under clause 6(3) – as soon as reasonably practicable after it is identified, and</i></p> <p>(d) <i>whenever given a written direction to do so by the Secretary.</i></p>	<p>Section 3</p> <p>Section 3</p> <p>Section 3</p>

**Table 3 (Continued):  
Regulatory Requirements Relating to Post-mining Land Use  
and Rehabilitation**

Condition	Requirements	Section Reference
<b>ML1360, 1409, 1447, 1521, 1528, 1538, 1577, 1733, and 1787 (Continued)</b>		
Condition 10, Schedule 8A	<p><b>Rehabilitation management plans for large mines</b></p> <p>(1) The holder of a mining lease relating to a large mine must prepare a plan (a <b>rehabilitation management plan</b>) 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>	<p>This RMP</p> <p>Section 6.2</p> <p>Section 5</p> <p>Section 3</p> <p>Section 3</p> <p>Sections 4 and 5</p> <p>Section 4</p> <p>Section 4</p> <p>Sections 4 and 5</p> <p>N/A</p>
Condition 12, Schedule 8A	<p><b>Rehabilitation outcome documents</b></p> <p>(1) The holder of a mining lease must prepare the following documents (the <b>rehabilitation outcome documents</b>) for the mining lease and give them to the Secretary for approval –</p> <p>(a) the <b>rehabilitation objectives statement</b>, which sets out the rehabilitation objectives required to achieve the final land use for the mining area,</p> <p>(b) the <b>rehabilitation completion criteria statement</b>, which sets out criteria, the completion of which will demonstrate the achievement of the rehabilitation objectives,</p> <p>(c) for a large mine, the <b>final landform and rehabilitation plan</b>, 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>	<p>Section 4</p> <p>Section 4</p> <p>Section 5</p>

Note: GSC = Gloucester Shire Council. BCD = Biodiversity Conservation Division,  
DPIE = NSW Department of Planning, Industry and Environment and DRG = Division of Resources and Geosciences.

## 2.2 FINAL LAND USE OPTIONS ASSESSMENT

The conceptual final land use for the SMC has been assessed and is detailed in the SMC's Environmental Impact Statement (EIS) (SCPL, 2012) and Condition 53, Schedule 3 of Development Consent (SSD-4966). Approved final landforms at the SCM include:

- agricultural - grazing;
- native ecosystem;
- final void; and
- water storage areas (excluding final voids).

## 2.3 FINAL LAND USE STATEMENT

The proposed final landform and final land uses are depicted spatially in Section 5 of this RMP. The final land uses are consistent with those described in Section 2.2 and the features outlined within Condition 53, Schedule 3 of Development Consent (SSD-4966). The proposed final landform has been refined from the conceptual final landform detailed in SMC's EIS (SCPL, 2012), however remains consistent with the objectives outlined within Condition 53, Schedule 3 of the Development Consent (SSD-4966).

Additional consultation regarding the proposed landform and approval requirements for the post-mining environment at the SMC may be undertaken with DPE and other departmental agencies. When revised, this RMP will be updated to reflect the outcomes of any consultation undertaken.

## 2.4 FINAL LAND USE AND MINING DOMAINS

### 2.4.1 Final Land Use Domains

Final land use domains are land management units characterised by a similar post-mining land use objective. Consistent with contemporary rehabilitation guidelines and rehabilitation planning best practice, final land use domains have been developed for the SMC. In accordance with the approved Final Landform and Rehabilitation Plan (FLRP) outlined in Section 5 of this RMP, the final land use domains at the SMC are:

- agricultural - grazing;
- native ecosystem;
- final void; and
- water storage areas (excluding final voids).

The codes associated with the SMC Final Land Use Domains are presented in Table .

**Table :**  
**SMC Mining and Final Land Use Domains**

Code	Mining Domain	Code	Final Land Use Domain
1	Infrastructure Area	A	Native Ecosystem
2	Tailings Storage Facility	B	Agriculture – Grazing
3	Water Management Area	G	Water Storage (Excluding Final Void)
4	Overburden Emplacement Area	J	Final Void
5	Active Mining Area (open cut void)		

### **2.4.2 Mining Domains**

Mining domains refer to the footprint of areas disturbed for discrete mining-related activities. As described in Section 1, mining operations at the SMC will cease on 31 December 2025. Mining domains at the SMC consist of:

- infrastructure areas (e.g. administration facilities, coal handling and processing infrastructure, rail infrastructure, maintenance facilities and access roads);
- water management areas (e.g. Return Water Dam and Stratford East Dam);
- waste emplacement (i.e. Northern Waste Emplacement, Stratford Waste Emplacement and Roseville Pit Waste Emplacement);
- CHPP reject material management areas (i.e. Western Co-disposal Area and Stratford Main Pit); and
- open cut pits (i.e. Avon North Open Cut, Bowens Road North Open Cut, Roseville West Pit and Stratford East Open Cut).

Mining domains at the SMC have been delineated based on operational or functional purpose and therefore are defined by their geophysical characteristics. The codes associated with the SMC Mining Domains are presented in Table .

### 3 REHABILITATION RISK ASSESSMENT

As stated in Section 1.1.3, SCPL has successfully undertaken rehabilitation activities at the SMC since 1996 with results of rehabilitation monitoring continuing to inform the effectiveness of rehabilitation methods and requirements for contingency measures.

The SMC EIS included an Environmental Risk Assessment (ERA) which identified environmental and rehabilitation risks relevant to the SEP (Safe Production Solutions Pty Ltd [SP Solutions], 2012). The ERA was prepared in accordance with the Australian Standard/New Zealand Standard (AS/NZS) ISO 31000:2009 *Risk Management – Principles and Guidelines*.

An ERA workshop was conducted on 19 January 2012 to identify key issues for the SEP. The following issues were assigned a risk greater than low:

- Potential groundwater related impacts (e.g. baseflow loss) on Dog Trap Creek, Avondale Creek and associated alluvium.
- Potential for intrusive noise and sleep disturbance impacts on some receivers including dwellings, schools, a church and recreational areas resulting from SEP operations.
- Noise amenity and sleep disturbance impacts on nearby receivers from SEP road and rail operations during daytime, evening and night-time.
- Increased emissions of particulate matter (PM)<sub>10</sub>/PM<sub>2.5</sub>/Total Suspended Particulates/dust deposition from the SEP resulting in the potential for an increase of predicted impact (health and amenity) at residential receivers.

The relevant mitigation and management measures for these impacts are described in the SMC's environmental management plans where relevant.

A SEP ERA workshop also identified the following issues relevant to rehabilitation/closure and were assigned a low risk ranking:

- Potential for failure of revegetation and/or habitat enhancement on post-mine landforms.
- Geotechnical issues related to the Roseville West Pit Extension (where excavating through reject material).
- Long-term stability and rehabilitation of CHPP rejects deposited in the co-disposal areas.

A Rehabilitation and Mine Closure Risk Assessment (CK Consultants [CKC], 2020) for the SMC was undertaken on 27 October 2020 to identify and assess the potential risks associated with achieving successful rehabilitation of the SMC. This risk assessment updates the SMC Environmental Risk Register for ongoing progressive rehabilitation and provides guidance for the SMC Mine Closure Plan and Schedule (Appendix 1). The risk assessment was undertaken in accordance with the AS/NZS ISO 31000:2018 *Risk Management Guidelines* and Yancoal's Risk Assessment Standard Consequences Matrix and was attended by a range of SMC and Yancoal personnel responsible for SMC mine planning and other relevant SMC consultants.

Further, the *Stratford Mining Complex: Closure & Rehabilitation Risk Assessment: Summary of Key Risks and Controls* was prepared by Integrated Environmental Management Australia (IEMA) (2021) for the SMC. The risk assessment workshop was held over two days from 16 to 17 August 2021. Where appropriate, the outcomes from the earlier risk assessments were considered in more detail to inform the detailed closure planning. The workshop comprised of seven individual sessions that assessed key risks associated with closure activities, including:

- Life of Mine Plan and General Closure Risks;
- Decommissioning and Demolition;
- Growth Media Suitability, Establishment, Rehabilitation Materials and Biological Resources;
- Final Landform Design and Establishment;
- Ecosystem Establishment;
- Ecosystem Sustainability and Rehabilitation Completion; and
- Other management aspects.

A summary of the key risks identified at the SMC from the 2021 *Closure & Rehabilitation Risk Assessment* (IEMA, 2021) include:

- Less than adequate Community Engagement which results in loss of reputation or loss of goods and services.
- Less than adequate assessment and mitigation of the social impacts relating to closure of the mine(s).
- Less than adequate Human Resource Strategy (redundancy/retention/redeployment).
- Uncertainty around what our closure criteria are for the site.
- Poor Record and Document Management systems for closure.
- Delay in relinquishment or retention of licenses and consent conditions (project approvals, EPL, radiation, etc.)
- Less than adequate understanding of the potentially acid forming (PAF)/ non-acid forming (NAF) materials balance to achieve suitable rehabilitation outcomes.
- Poor stockpiling of topsoil and handling has resulted in loss or impact on the physical properties of the soil.
- The approved Final Void (location and profile) are not able to be achieved and relinquished.
- Less than adequate design of final proposed highwalls (and low walls) for the final voids.
- Less than adequate post-mining groundwater recovery model or the model relies on poor assumptions.
- Less than adequate understanding of the final void(s) water quality and whether the voids will fill and spill.
- Less than adequate landform design parameters consistent with the approved final landform.
- Geotechnical stability of the final landform cannot be achieved.
- Surface water infrastructures fails or results in long term maintenance requirements.
- The methodologies used to apply seed or plant tube stick is not appropriate and results in failure to achieve the preferred rehab outcome.

For each of the key rehabilitation and mine closure risks identified, appropriate risk reduction strategies/actions were developed to adequately control the risk. Critical controls and actions for the risks listed above are provided in Attachment A.

This RMP addresses risks related to closure planning and the associated risk reduction strategies through incorporation of the SMC Mine Closure Plan and Schedule (Appendix 1). The findings of the 2021 *Closure & Rehabilitation Risk Assessment* summarised above will continue to inform the technical and environmental assessments required by the SMC Mine Closure Plan and Schedule (Appendix 1). The technical and environmental assessments undertaken and strategies developed as part of the SMC Mine Closure Plan and Schedule have been incorporated into the trigger, action, response plan (TARP) outlined in Section 10.

A copy of the *Closure & Rehabilitation Risk Assessment* conducted by IEMA (2021) is provided in Attachment A.



## 4 REHABILITATION OBJECTIVES AND REHABILITATION COMPLETION CRITERIA

The mine closure goal for the SMC is to achieve relinquishment to the satisfaction of the relevant Minister(s), meeting relevant ML and Development Consent conditions. Rehabilitation of mined lands will be considered suitable when the nominated standards and/or completion criteria have been met, or if the relevant Minister(s) otherwise accepts the rehabilitation status.

The key completion criteria for the SMC (Table 5) are designed to address rehabilitation objectives and incorporate outcomes from the assessment of completed rehabilitation in all final land use domains. Rehabilitation will need to achieve a standard which satisfies the NSW Resources Regulator that SCPL has met rehabilitation undertakings provided in this RMP and rehabilitation bonds can be released.

**Table 5:  
Key Completion Criteria**

Component	Key Completion Criteria
Mine Site (as a whole of the disturbed land and water)	<ul style="list-style-type: none"> <li>Safe, stable &amp; non-polluting, fit for the purpose of sustaining the intended post-mining land use(s).</li> </ul>
Infrastructure	<ul style="list-style-type: none"> <li>All infrastructure has been decommissioned and removed, unless justification has been provided for retention in the post-mining land use.</li> </ul>
Final Landforms	<ul style="list-style-type: none"> <li>Safe, stable, adequately drained post-mining landforms, which are visually consistent with the surrounding landscape.</li> <li>Geomorphic stability of drainage features comparable to existing natural drainage features.</li> </ul>
Final Voids	<ul style="list-style-type: none"> <li>Appropriate security measures implemented to ensure voids do not pose a risk to public safety.</li> <li>Final void landforms established to minimise the overall size and depth and confirmed to be safe and stable.</li> <li>Final voids profiled for long-term stability of highwalls and endwalls.</li> <li>Voids are sinks or flow through for the local groundwater system as confirmed by predictive post-mining groundwater model.</li> <li>Water quality in any approved final voids does not pose a risk to the final land use, any receiving ecosystems, or cause impacts to privately owned properties.</li> <li>The risk of flood interaction for all flood events is negligible.</li> </ul>
Native Ecosystem Rehabilitation and Biodiversity Corridors	<ul style="list-style-type: none"> <li>Ecosystem function restored, including maintaining or establishing self-sustaining ecosystems comprised of local native plant species and consistent with the surrounding environment.</li> <li>Landform integrates biodiversity enhancement corridors.</li> <li>Native ecosystem areas on trajectory towards self-sustaining ecosystem and/or measures of ecosystem function equivalent to unmined reference sites of remnant vegetation.</li> </ul>
Agricultural Rehabilitation	<ul style="list-style-type: none"> <li>The land capability and agricultural suitability classification for the relevant nominated agricultural pursuit for each domain is established.</li> </ul>
Water Management and Quality	<ul style="list-style-type: none"> <li>Retained water infrastructure is stable, safe and operating effectively.</li> <li>Water retained on site is fit for the intended post-mining land use(s).</li> <li>Water discharged from site is consistent with the baseline ecological, hydrological and geomorphic conditions of the creeks prior to mining disturbance.</li> </ul>
Community	<ul style="list-style-type: none"> <li>Socio-economic effects associated with mine closure has been minimised.</li> </ul>

#### **4.1 REHABILITATION OBJECTIVES AND REHABILITATION COMPLETION CRITERIA**

The overall objective for the final rehabilitated landform is to establish a safe, stable and non-polluting landform that is compatible with the surrounding landscape and fit for sustaining the intended post-mining land use. In accordance with Condition 53, Schedule 3 of Development Consent (SSD-4966), detailed domain rehabilitation objectives are further outlined in Table 6.

The rehabilitation objectives are considered to be broader objectives that cover specific aspects of rehabilitation. To complement these objectives, SCPL has developed performance indicators and completion criteria for each domain and rehabilitation phase based on the SMART principle. The objectives, indicators and completion criteria for each of the final land use and mining domains during the rehabilitation phases are specified in Table 6.

In accordance with Clause 12, Schedule 8A of the *Mining Regulation 2016*, the NSW Resources Regulator has approved the SMC Rehabilitation Objectives Statement. This RMP has been amended to substitute the proposed rehabilitation objectives with the approved rehabilitation objectives (Table 6) in accordance with Clause 11, Schedule 8A of the *Mining Regulation 2016*. Following submission of the rehabilitation completion criteria, this RMP will be further amended to substitute the proposed version (Table 6) with the version approved by the NSW Resources Regulator.

The approved rehabilitation objectives, proposed indicators and proposed rehabilitation completion criteria for each of the final land use and mining domains during the rehabilitation phases are specified in Table 6.

**Table 6:**  
**Rehabilitation Objectives and Proposed Rehabilitation Completion Criteria**

Final Land Use Domain	Mining Domains	Spatial Reference Field	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Rehabilitation Completion Criteria	Justification or Validation Method
<b>Domain A</b> Native Ecosystem	<b>Domain 1</b> Infrastructure Area	A1	Removal of Infrastructure	All infrastructure, including water management and rejects management 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, unless justification has been provided for retention in the post-mining land use.  Retention of water management infrastructure for post-mining use as agreed with relevant agencies and landholders.	Relevant infrastructure decommissioned and removed (as agreed via consultation).  Retained infrastructure has been assessed.	Complete removal of relevant infrastructure (as agreed via consultation).  Retained infrastructure is safe, stable and non-polluting.	<ul style="list-style-type: none"> <li>Infrastructure Decommissioning and Demolition Strategy.</li> <li>ITP – Decommissioning.</li> <li>Visual monitoring and reporting.</li> <li>Detailed Asset Register of Retained Infrastructure.</li> <li>Evidence of consultation.</li> </ul>
		A1	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.	Presence of any contaminated soils or sediments. Contaminated soils identified and proposed remediation measures consistent with requirements of the NSW <i>Contaminated Land Management Act 1997</i> .	Contaminated soils and sediments removed and remediation completed.	<ul style="list-style-type: none"> <li>Contaminated Lands Assessment.</li> <li>Requirements of the NSW <i>Contaminated Land Management Act 1997</i> (which references soil quality criteria [e.g. pH]).</li> </ul>
		A1	Landform stability	Construct final mine landforms that drain in a stable manner to the natural environment (i.e. Avondale Creek, Dog Trap Creek and their associated tributaries).	Landforms are free draining.	Adequately drained final landforms consistent with the surrounding agricultural landscape as evidenced by survey.	<ul style="list-style-type: none"> <li>ITP – Landform Establishment.</li> <li>Visual monitoring and final landform topographic survey.</li> </ul>
		A1	Landform stability	Creation of landforms which are geotechnically stable and minimise long-term erosion on rehabilitated waste emplacements and all other rehabilitated domains.	Slope of rehabilitated landform no greater than approximately 1 Vertical (V):4 Horizontal (H).  Appropriately designed berms, drains and contour banks.  No evidence of active erosion.	<p>Safe and stable landform. No evidence of active erosion.</p> <p>Landform erosion modelling demonstrates landforms are long-term stable.</p> <p>Waste emplacements constructed in accordance with approved design as evidenced by survey.</p> <p>Gradient for waste emplacement slopes no greater than approximately 1 V:4 H.</p> <p>Drainage on the outer emplacement batters facilitated via contour benches and drains with a longitudinal grade of 1 percent (%) flattening to 0.6 %.</p> <p>No large rocks present on waste emplacement slopes that prevent the establishment of the final land use.</p>	<ul style="list-style-type: none"> <li>ITP – Landform Establishment.</li> <li>Visual monitoring.</li> <li>Landform Survey.</li> <li>Landform Erosion Modelling.</li> <li>Surface water quality monitoring.</li> <li>Erosion and sediment control monitoring.</li> </ul>



**Table 6 (Continued):  
Rehabilitation Objectives and Proposed Rehabilitation Completion Criteria**

Final Land Use Domain	Mining Domains	Spatial Reference Field	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Rehabilitation Completion Criteria	Justification or Validation Method
As above	As above	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.	Slope of rehabilitated landform no greater than approximately 1 Vertical (V):4 Horizontal (H). Appropriately designed berms, drains and contour banks. No evidence of active erosion.	Safe and stable landform. No evidence of active erosion. Landform erosion modelling demonstrates landforms are long-term stable. Waste emplacements constructed in accordance with approved design as evidenced by survey. Gradient for waste emplacement slopes no greater than approximately 1 V:4 H. Drainage on the outer emplacement batters facilitated via contour benches and drains with a longitudinal grade of 1 percent (%) flattening to 0.6 %. No large rocks present on waste emplacement slopes that prevent the establishment of the final land use.	<ul style="list-style-type: none"> <li>• ITP – Landform Establishment.</li> <li>• Visual monitoring.</li> <li>• Landform Survey.</li> <li>• Landform Erosion Modelling.</li> <li>• Surface water quality monitoring.</li> <li>• Erosion and sediment control monitoring.</li> </ul>
		A1	Landform stability	Creation of landforms which are visually consistent with the surrounding environment.	Elevation of waste emplacements constructed in accordance with approved design.	Post-mining landforms consistent with the surrounding landscape. Waste emplacements constructed in accordance with approved design and Project Approval commitments.	<ul style="list-style-type: none"> <li>• ITP – Landform Establishment.</li> <li>• Topographic survey of final landform.</li> <li>• Photographic monitoring of rehabilitated landforms.</li> </ul>
		A1	Ecological rehabilitation	Levels of native ecosystem function have been established that demonstrate the rehabilitation is self-sustainable.	Ecosystem Function Analysis (EFA) indices: <ul style="list-style-type: none"> <li>• Landscape Function Analysis.</li> <li>• Vegetation Dynamics.</li> <li>• Habitat Complexity.</li> </ul>	Suitable EFA reference sites selected equivalent to the target vegetation community. EFA results indicate that the vegetation is maturing and developing characteristics similar to that found in the relevant reference site based on measurement of stability, infiltration, nutrient cycling indices and vegetation dynamics and habitat complexity results by a suitably qualified person.	<ul style="list-style-type: none"> <li>• ITP – Ecosystem/Land Use Establishment – Seeding/Planting and Finishing.</li> <li>• EFA: <ul style="list-style-type: none"> <li>– Landscape Function Analysis.</li> <li>– Vegetation Dynamics Monitoring.</li> <li>– Habitat Complexity Monitoring.</li> </ul> </li> </ul>
				The vegetation composition of the Native Ecosystem rehabilitation areas contains species that are commensurate with unmined reference sites of remnant vegetation in the local area.	EFA indices: <ul style="list-style-type: none"> <li>• Landscape Function Analysis.</li> <li>• Vegetation Dynamics.</li> <li>• Habitat Complexity.</li> </ul>	Native ecosystem areas on trajectory towards self-sustaining ecosystem and/or measures of ecosystem function (e.g. EFA indices) equivalent to unmined reference sites of remnant vegetation.	<ul style="list-style-type: none"> <li>• ITP – Ecosystem/Land Use Establishment – Seeding/Planting and Finishing.</li> <li>• Ecosystem Function Analysis: <ul style="list-style-type: none"> <li>– Landscape Function Analysis.</li> <li>– Vegetation Dynamics Monitoring.</li> <li>– Habitat Complexity Monitoring.</li> </ul> </li> </ul>

**Table 6 (Continued):  
Rehabilitation Objectives and Proposed Rehabilitation Completion Criteria**

Final Land Use Domain	Mining Domains	Spatial Reference Field	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Rehabilitation Completion Criteria	Justification or Validation Method
As above	As above	As above	As above	The vegetation structure of the Native Ecosystem rehabilitation areas is on a path towards obtaining comparable flora values with unmined reference sites of remnant vegetation in the local area.	EFA indices: <ul style="list-style-type: none"> <li>Landscape Function Analysis.</li> <li>Vegetation Dynamics.</li> <li>Habitat Complexity.</li> </ul>	Native Ecosystem areas on trajectory towards self-sustaining ecosystem and/or measures of ecosystem function (e.g. EFA indices) equivalent to unmined reference sites of remnant vegetation.	<ul style="list-style-type: none"> <li>ITP – Ecosystem/Land Use Establishment – Seeding/Planting and Finishing.</li> <li>EFA: <ul style="list-style-type: none"> <li>Landscape Function Analysis.</li> <li>Vegetation Dynamics Monitoring.</li> <li>Habitat Complexity Monitoring.</li> </ul> </li> </ul>
		A1	Surface water	Runoff water quality from rehabilitation areas is similar to, or better than the pre-disturbance runoff water quality.	Water quality monitoring results as per assessment of rehabilitation runoff in the SMC Water Management plan.	Water quality of runoff from rehabilitated agricultural areas is in accordance with the criteria in the SMC Water Management Plan.	Water quality monitoring as per the SMC Water Management Plan.
		A1	Bushfire	The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as part of rehabilitation.	*	*	*
Domain A Native Ecosystem	Domain 4 Overburden Emplacement Area	A4	Removal of Infrastructure	All infrastructure, including water management and rejects management 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, unless justification has been provided for retention in the post-mining land use.  Retention of water management infrastructure for post-mining use as agreed with relevant agencies and landholders.	Relevant infrastructure decommissioned and removed (as agreed via consultation).  Retained infrastructure has been assessed.	Complete removal of relevant infrastructure (as agreed via consultation).	<ul style="list-style-type: none"> <li>Infrastructure Decommissioning and Demolition Strategy.</li> <li>ITP – Decommissioning.</li> <li>Visual monitoring and reporting.</li> </ul>
						Retained infrastructure is safe, stable and non-polluting.	<ul style="list-style-type: none"> <li>Detailed Asset Register of Retained Infrastructure.</li> <li>Evidence of consultation.</li> </ul>
		A4	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.	Presence of any contaminated soils or sediments. Contaminated soils identified and proposed remediation measures consistent with requirements of the NSW <i>Contaminated Land Management Act 1997</i> .	Contaminated soils and sediments removed and remediation completed.	<ul style="list-style-type: none"> <li>Contaminated Lands Assessment.</li> <li>Requirements of the NSW <i>Contaminated Land Management Act 1997</i> (which references soil quality criteria [e.g. pH]).</li> </ul>
		A4	Management of waste and process materials	Residual waste materials stored on site will be appropriately contained / encapsulated so it does not pose any hazards or constraints for intended land use.	Presence of spontaneous combustion or heating of PAF material.	No areas of spontaneous combustion identified or heating of PAF material.	<ul style="list-style-type: none"> <li>ITP – PAF and Spontaneous Combustion Management.</li> <li>Monitoring and assessment of spontaneous combustion in the final landform.</li> </ul>
				Rehabilitated waste emplacements do not generate any material acid leachate/drainage.	Suitable pH levels recorded in surrounding groundwater/surface water, as per the monitoring program described in the Water Management Plan.	No evidence of acid mine drainage indicated by adverse pH levels recorded in surrounding surface/groundwater systems.	<ul style="list-style-type: none"> <li>ITP – PAF and Spontaneous Combustion Management.</li> <li>Groundwater and surface water monitoring as per the SMC Water Management Plan.</li> </ul>
				In-pit PAF material is stored appropriately below the predicted post-mining groundwater table and is non-polluting.	PAF material is placed below the predicted post-mining groundwater table.	Survey confirms as PAF material is placed below the predicted post-mining groundwater table.	<ul style="list-style-type: none"> <li>ITP – PAF and Spon Comm Management.</li> <li>Survey of placement of PAF materials.</li> </ul>

**Table 6 (Continued):  
Rehabilitation Objectives and Proposed Rehabilitation Completion Criteria**

Final Land Use Domain	Mining Domains	Spatial Reference Field	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Rehabilitation Completion Criteria	Justification or Validation Method
As above	As above	A4	Landform stability	Construct final mine landforms that drain in a stable manner to the natural environment (i.e. Avondale Creek, Dog Trap Creek and their associated tributaries).	Landforms are free draining.	Adequately drained final landforms consistent with the surrounding agricultural landscape as evidenced by survey.	<ul style="list-style-type: none"> <li>ITP – Landform Establishment.</li> <li>Visual monitoring and final landform topographic survey.</li> </ul>
		A4	Landform stability	Creation of landforms which are geotechnically stable and minimise long-term erosion on rehabilitated waste emplacements and all other rehabilitated domains.	<p>Slope of rehabilitated landform no greater than approximately 1V:4H.</p> <p>Appropriately designed berms, drains and contour banks.</p> <p>No evidence of active erosion.</p>	<p>Safe and stable landform. No evidence of active erosion.</p> <p>Landform erosion modelling demonstrates landforms are long-term stable.</p> <p>Waste emplacements constructed in accordance with approved design as evidenced by survey.</p> <p>Gradient for waste emplacement slopes no greater than approximately 1 V:4 H.</p> <p>Drainage on the outer emplacement batters facilitated via contour benches and drains with a longitudinal grade of 1 % flattening to 0.6 %.</p> <p>No large rocks present on waste emplacement slopes that prevent the establishment of the final land use.</p>	<ul style="list-style-type: none"> <li>ITP – Landform Establishment.</li> <li>Visual monitoring.</li> <li>Landform Topographic Survey.</li> <li>Landform Erosion Modelling.</li> <li>Surface water quality monitoring.</li> <li>Erosion and sediment control monitoring.</li> </ul>
		A4	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.	<p>Slope of rehabilitated landform no greater than approximately 1V:4H.</p> <p>Appropriately designed berms, drains and contour banks.</p> <p>No evidence of active erosion.</p>	<p>Safe and stable landform. No evidence of active erosion.</p> <p>Landform erosion modelling demonstrates landforms are long-term stable.</p> <p>Waste emplacements constructed in accordance with approved design as evidenced by survey.</p> <p>Gradient for waste emplacement slopes no greater than approximately 1 V:4 H.</p> <p>Drainage on the outer emplacement batters facilitated via contour benches and drains with a longitudinal grade of 1 % flattening to 0.6 %.</p> <p>No large rocks present on waste emplacement slopes that prevent the establishment of the final land use.</p>	<ul style="list-style-type: none"> <li>ITP – Landform Establishment.</li> <li>Visual monitoring.</li> <li>Landform Topographic Survey.</li> <li>Landform Erosion Modelling.</li> <li>Surface water quality monitoring.</li> <li>Erosion and sediment control monitoring.</li> </ul>
		A4	Landform stability	Creation of landforms which are visually consistent with the surrounding environment.	Elevation of waste emplacements constructed in accordance with approved design.	<p>Post-mining landforms consistent with the surrounding landscape.</p> <p>Waste emplacements constructed in accordance with approved design and Project Approval commitments.</p>	<ul style="list-style-type: none"> <li>ITP – Landform Establishment.</li> <li>Topographic survey of final landform.</li> <li>Photographic monitoring of rehabilitated landforms.</li> </ul>

**Table 6 (Continued):  
Rehabilitation Objectives and Proposed Rehabilitation Completion Criteria**

Final Land Use Domain	Mining Domains	Spatial Reference Field	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Rehabilitation Completion Criteria	Justification or Validation Method
As above	As above	A4	Ecological rehabilitation	Levels of native ecosystem function have been established that demonstrate the rehabilitation is self-sustainable.	Ecosystem Function Analysis indices: <ul style="list-style-type: none"> <li>Landscape Function Analysis.</li> <li>Vegetation Dynamics.</li> <li>Habitat Complexity.</li> </ul>	Suitable EFA reference sites selected equivalent to the target vegetation community. EFA results indicate that the vegetation is maturing and developing characteristics similar to that found in the relevant reference site based on measurement of stability, infiltration, nutrient cycling indices and vegetation dynamics and habitat complexity results by a suitably qualified person.	<ul style="list-style-type: none"> <li>ITP – Ecosystem/Land Use Establishment – Seeding/Planting and Finishing.</li> <li>EFA: <ul style="list-style-type: none"> <li>Landscape Function Analysis.</li> <li>Vegetation Dynamics Monitoring.</li> <li>Habitat Complexity Monitoring.</li> </ul> </li> </ul>
				The vegetation composition of the Native Ecosystem rehabilitation areas contains species that are commensurate with unmined reference sites of remnant vegetation in the local area.	Ecosystem Function Analysis indices: <ul style="list-style-type: none"> <li>Landscape Function Analysis.</li> <li>Vegetation Dynamics.</li> <li>Habitat Complexity.</li> </ul>	Native ecosystem areas on trajectory towards self-sustaining ecosystem and/or measures of ecosystem function (e.g. EFA indices) equivalent to unmined reference sites of remnant vegetation.	<ul style="list-style-type: none"> <li>ITP – Ecosystem/Land Use Establishment – Seeding/Planting and Finishing.</li> <li>EFA: <ul style="list-style-type: none"> <li>Landscape Function Analysis.</li> <li>Vegetation Dynamics Monitoring.</li> <li>Habitat Complexity Monitoring.</li> </ul> </li> </ul>
		A4	Ecological rehabilitation	The vegetation structure of the Native Ecosystem rehabilitation areas is on a path towards obtaining comparable flora values with unmined reference sites of remnant vegetation in the local area.	Ecosystem Function Analysis indices: <ul style="list-style-type: none"> <li>Landscape Function Analysis.</li> <li>Vegetation Dynamics.</li> <li>Habitat Complexity.</li> </ul>	Native Ecosystem areas on trajectory towards self-sustaining ecosystem and/or measures of ecosystem function (e.g. EFA indices) equivalent to unmined reference sites of remnant vegetation.	<ul style="list-style-type: none"> <li>ITP – Ecosystem/Land Use Establishment – Seeding/Planting and Finishing.</li> <li>EFA: <ul style="list-style-type: none"> <li>Landscape Function Analysis.</li> <li>Vegetation Dynamics Monitoring.</li> <li>Habitat Complexity Monitoring.</li> </ul> </li> </ul>
		A4	Surface water	Runoff water quality from rehabilitation areas is similar to, or better than the pre-disturbance runoff water quality.	Water quality monitoring results as per assessment of rehabilitation runoff in the SMC Water Management plan.	Water quality of runoff from rehabilitated agricultural areas is in accordance with the criteria in the SMC Water Management Plan.	Water quality monitoring as per the SMC Water Management Plan.
		A4	Bushfire	The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as part of rehabilitation.	*	*	*
Domain A Native Ecosystem	Domain 5 Active Mining Area (Open cut void)	A5	Removal of Infrastructure	All infrastructure, including water management and rejects management 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, unless justification has been provided for retention in the post-mining land use.	Relevant infrastructure decommissioned and removed (as agreed via consultation). Retained infrastructure has been assessed.	Complete removal of relevant infrastructure (as agreed via consultation).	<ul style="list-style-type: none"> <li>Infrastructure Decommissioning and Demolition Strategy.</li> <li>ITP – Decommissioning.</li> <li>Visual monitoring and reporting.</li> </ul>
				Retention of water management infrastructure for post-mining use as agreed with relevant agencies and landholders.		Retained infrastructure is safe, stable and non-polluting.	<ul style="list-style-type: none"> <li>Detailed Asset Register of Retained Infrastructure.</li> <li>Evidence of consultation.</li> </ul>



**Table 6 (Continued):  
Rehabilitation Objectives and Proposed Rehabilitation Completion Criteria**

Final Land Use Domain	Mining Domains	Spatial Reference Field	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Rehabilitation Completion Criteria	Justification or Validation Method
As above	As above	A5	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.	Presence of any contaminated soils or sediments. Contaminated soils identified and proposed remediation measures consistent with requirements of the NSW <i>Contaminated Land Management Act 1997</i> .	Contaminated soils and sediments removed and remediation completed.	<ul style="list-style-type: none"> <li>Contaminated Lands Assessment.</li> <li>Requirements of the NSW Contaminated Land Management Act 1997 (which references soil quality).</li> </ul>
		A5	Management of waste and process materials	Residual waste materials stored on site will be appropriately contained / encapsulated so it does not pose any hazards or constraints for intended land use.	Presence of spontaneous combustion or heating of PAF material.	No areas of spontaneous combustion identified or heating of PAF material.	<ul style="list-style-type: none"> <li>ITP – PAF and Spontaneous Combustion Management.</li> <li>Monitoring and assessment of spontaneous combustion in the final landform.</li> </ul>
		A5	Management of waste and process materials	Rehabilitated waste emplacements do not generate any material acid leachate/drainage.	Suitable pH levels recorded in surrounding groundwater/surface water, as per the monitoring program described in the Water Management Plan.	No evidence of acid mine drainage indicated by adverse pH levels recorded in surrounding surface/groundwater systems.	<ul style="list-style-type: none"> <li>ITP – PAF and Spontaneous Combustion Management.</li> <li>Groundwater and surface water monitoring as per the SMC Water Management Plan.</li> </ul>
		A5	Management of waste and process materials	In-pit PAF material is stored appropriately below the predicted post-mining groundwater table and is non-polluting.	PAF material is placed below the predicted post-mining groundwater table.	Survey confirms as PAF material is placed below the predicted post-mining groundwater table.	<ul style="list-style-type: none"> <li>ITP – PAF and Spon Comm Management</li> <li>Survey of placement of PAF materials..</li> </ul>
		A5	Landform stability	Construct final mine landforms that drain in a stable manner to the natural environment (i.e. Avondale Creek, Dog Trap Creek and their associated tributaries).	Landforms are free draining.	Adequately drained final landforms consistent with the surrounding agricultural landscape as evidenced by survey.	<ul style="list-style-type: none"> <li>ITP – Landform Establishment.</li> <li>Visual monitoring and final landform topographic survey.</li> </ul>
		A5	Landform stability	Creation of landforms which are geotechnically stable and minimise long-term erosion on rehabilitated waste emplacements and all other rehabilitated domains.	<p>Slope of rehabilitated landform no greater than approximately 1V:4H.</p> <p>Appropriately designed berms, drains and contour banks.</p> <p>No evidence of active erosion.</p>	<p>Safe and stable landform. No evidence of active erosion.</p> <p>Landform erosion modelling demonstrates landforms are long-term stable.</p> <p>Waste emplacements constructed in accordance with approved design as evidenced by survey.</p> <p>Gradient for waste emplacement slopes no greater than approximately 1 V:4 H.</p> <p>Drainage on the outer emplacement batters facilitated via contour benches and drains with a longitudinal grade of 1 % flattening to 0.6 %.</p> <p>No large rocks present on waste emplacement slopes that prevent the establishment of the final land use.</p>	<ul style="list-style-type: none"> <li>ITP – Landform Establishment.</li> <li>Visual monitoring.</li> <li>Landform Topographic Survey.</li> <li>Landform Erosion Modelling.</li> <li>Surface water quality monitoring.</li> <li>Erosion and sediment control monitoring.</li> </ul>

**Table 6 (Continued):  
Rehabilitation Objectives and Proposed Rehabilitation Completion Criteria**

Final Land Use Domain	Mining Domains	Spatial Reference Field	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Rehabilitation Completion Criteria	Justification or Validation Method
As above	As above	A5	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.	Slope of rehabilitated landform no greater than approximately 1V:4H. Appropriately designed berms, drains and contour banks. No evidence of active erosion.	Safe and stable landform. No evidence of active erosion. Landform erosion modelling demonstrates landforms are long-term stable. Waste emplacements constructed in accordance with approved design as evidenced by survey. Gradient for waste emplacement slopes no greater than approximately 1 V:4 H. Drainage on the outer emplacement batters facilitated via contour benches and drains with a longitudinal grade of 1 % flattening to 0.6 %. No large rocks present on waste emplacement slopes that prevent the establishment of the final land use.	<ul style="list-style-type: none"> <li>• ITP – Landform Establishment.</li> <li>• Visual monitoring.</li> <li>• Landform Topographic Survey.</li> <li>• Landform Erosion Modelling.</li> <li>• Surface water quality monitoring.</li> <li>• Erosion and sediment control monitoring.</li> </ul>
		A5	Landform stability	Creation of landforms which are visually consistent with the surrounding environment.	Elevation of waste emplacements constructed in accordance with approved design.	Post-mining landforms consistent with the surrounding landscape. Waste emplacements constructed in accordance with approved design and Project Approval commitments.	<ul style="list-style-type: none"> <li>• ITP – Landform Establishment.</li> <li>• Topographic survey of final landform.</li> <li>• Photographic monitoring of rehabilitated landforms.</li> </ul>
		A5	Ecological rehabilitation	Levels of native ecosystem function have been established that demonstrate the rehabilitation is self-sustainable.	EFA indices: <ul style="list-style-type: none"> <li>• Landscape Function Analysis.</li> <li>• Vegetation Dynamics.</li> </ul> Habitat Complexity.	Suitable EFA reference sites selected equivalent to the target vegetation community. EFA results indicate that the vegetation is maturing and developing characteristics similar to that found in the relevant reference site based on measurement of stability, infiltration, nutrient cycling indices and vegetation dynamics and habitat complexity results by a suitably qualified person.	<ul style="list-style-type: none"> <li>• ITP – Ecosystem/Land Use Establishment – Seeding/Planting and Finishing.</li> <li>• EFA: <ul style="list-style-type: none"> <li>– Landscape Function Analysis.</li> <li>– Vegetation Dynamics Monitoring.</li> </ul> </li> <li>• Habitat Complexity Monitoring.</li> </ul>
		A5	Ecological rehabilitation	The vegetation composition of the Native Ecosystem rehabilitation areas contains species that are commensurate with unmined reference sites of remnant vegetation in the local area.	Ecosystem Function Analysis indices: <ul style="list-style-type: none"> <li>• Landscape Function Analysis.</li> <li>• Vegetation Dynamics.</li> <li>• Habitat Complexity.</li> </ul>	Native ecosystem areas on trajectory towards self-sustaining ecosystem and/or measures of ecosystem function (e.g. EFA indices) equivalent to unmined reference sites of remnant vegetation.	<ul style="list-style-type: none"> <li>• ITP – Ecosystem/Land Use Establishment – Seeding/Planting and Finishing.</li> <li>• EFA: <ul style="list-style-type: none"> <li>– Landscape Function Analysis.</li> <li>– Vegetation Dynamics Monitoring.</li> <li>– Habitat Complexity Monitoring.</li> </ul> </li> </ul>

**Table 6 (Continued):  
Rehabilitation Objectives and Proposed Rehabilitation Completion Criteria**

Final Land Use Domain	Mining Domains	Spatial Reference Field	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Rehabilitation Completion Criteria	Justification or Validation Method
As above	As above	A5	Ecological rehabilitation	The vegetation structure of the Native Ecosystem rehabilitation areas is on a path towards obtaining comparable flora values with unmined reference sites of remnant vegetation in the local area.	Ecosystem Function Analysis indices: <ul style="list-style-type: none"> <li>Landscape Function Analysis.</li> <li>Vegetation Dynamics.</li> <li>Habitat Complexity.</li> </ul>	Native Ecosystem areas on trajectory towards self-sustaining ecosystem and/or measures of ecosystem function (e.g. EFA indices) equivalent to unmined reference sites of remnant vegetation.	<ul style="list-style-type: none"> <li>ITP – Ecosystem/Land Use Establishment – Seeding/Planting and Finishing.</li> <li>EFA: <ul style="list-style-type: none"> <li>Landscape Function Analysis.</li> <li>Vegetation Dynamics Monitoring.</li> <li>Habitat Complexity Monitoring.</li> </ul> </li> </ul>
		A5	Surface water	Runoff water quality from rehabilitation area is similar to, or better than the pre-disturbance runoff water quality.	Water quality monitoring results as per assessment of rehabilitation runoff in the SMC Water Management plan.	Water quality of runoff from rehabilitated agricultural areas is in accordance with the criteria in the SMC Water Management Plan.	Water quality monitoring as per the SMC Water Management Plan.
		A5	Bushfire	The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as part of rehabilitation.	*	*	*
<b>Domain B</b> Agriculture – Grazing	<b>Domain 1</b> Infrastructure Area	B1	Removal of Infrastructure	All infrastructure, including water management 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, unless justification has been provided for retention in the post-mining land use.  Retention of water management infrastructure for post-mining use as agreed with relevant agencies and landholders.	Relevant infrastructure decommissioned and removed (as agreed via consultation).  Retained infrastructure has been assessed.	Complete removal of relevant infrastructure (as agreed via consultation).	<ul style="list-style-type: none"> <li>Infrastructure Decommissioning and Demolition Strategy.</li> <li>ITP – Decommissioning.</li> <li>Visual monitoring and reporting.</li> </ul>
						Retained infrastructure is safe, stable and non-polluting.	<ul style="list-style-type: none"> <li>Detailed Asset Register of Retained Infrastructure.</li> <li>Evidence of consultation.</li> </ul>
		B1	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.	Presence of any contaminated soils or sediments. Contaminated soils identified and proposed remediation measures consistent with requirements of the NSW <i>Contaminated Land Management Act 1997</i> .	Contaminated soils and sediments removed and remediation completed.	<ul style="list-style-type: none"> <li>Contaminated Lands Assessment.</li> <li>Requirements of the NSW Contaminated Land Management Act 1997 (which references soil quality).</li> </ul>
		B1	Landform stability	Construct final mine landforms that drain in a stable manner to the natural environment (i.e. Avondale Creek, Dog Trap Creek and their associated tributaries).	Landforms are free draining.	Adequately drained final landforms consistent with the surrounding agricultural landscape as evidenced by survey.	<ul style="list-style-type: none"> <li>ITP – Landform Establishment.</li> <li>Visual monitoring and final landform topographic survey.</li> </ul>

**Table 6 (Continued):  
Rehabilitation Objectives and Proposed Rehabilitation Completion Criteria**

Final Land Use Domain	Mining Domains	Spatial Reference Field	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Rehabilitation Completion Criteria	Justification or Validation Method
As above	As above	B1	Landform stability	Creation of landforms which are geotechnically stable and minimise long-term erosion on rehabilitated waste emplacements and all other rehabilitated domains.	Slope of rehabilitated landform no greater than approximately 1V:4H. Appropriately designed berms, drains and contour banks. No evidence of active erosion.	Safe and stable landform. No evidence of active erosion. Landform erosion modelling demonstrates landforms are long-term stable. Waste emplacements constructed in accordance with approved design as evidenced by survey. Gradient for waste emplacement slopes no greater than approximately 1 V:4 H. Drainage on the outer emplacement batters facilitated via contour benches and drains with a longitudinal grade of 1 % flattening to 0.6 %. No large rocks present on waste emplacement slopes that prevent the establishment of the final land use.	<ul style="list-style-type: none"> <li>• ITP – Landform Establishment.</li> <li>• Visual monitoring.</li> <li>• Landform Topographic Survey.</li> <li>• Landform Erosion Modelling.</li> <li>• Surface water quality monitoring.</li> <li>• Erosion and sediment control monitoring.</li> </ul>
		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.	Slope of rehabilitated landform no greater than approximately 1V:4H. Appropriately designed berms, drains and contour banks. No evidence of active erosion.	Safe and stable landform. No evidence of active erosion. Landform erosion modelling demonstrates landforms are long-term stable. Waste emplacements constructed in accordance with approved design as evidenced by survey. Gradient for waste emplacement slopes no greater than approximately 1 V:4 H. Drainage on the outer emplacement batters facilitated via contour benches and drains with a longitudinal grade of 1 % flattening to 0.6 %. No large rocks present on waste emplacement slopes that prevent the establishment of the final land use.	<ul style="list-style-type: none"> <li>• ITP – Landform Establishment.</li> <li>• Visual monitoring.</li> <li>• Landform Topographic Survey.</li> <li>• Landform Erosion Modelling.</li> <li>• Surface water quality monitoring.</li> <li>• Erosion and sediment control monitoring</li> </ul>
As above	As above	B1	Landform stability	Creation of landforms which are visually consistent with the surrounding environment.	Elevation of waste emplacements constructed in accordance with approved design.	Post-mining landforms consistent with the surrounding landscape. Waste emplacements constructed in accordance with approved design and Project Approval commitments.	<ul style="list-style-type: none"> <li>• ITP – Landform Establishment.</li> <li>• Topographic survey of final landform.</li> <li>• Photographic monitoring of rehabilitated landforms.</li> </ul>
			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.	Landscape Function Analysis (LFA) soil surface assessment indices. Land capability and agricultural suitability classification.	Rehabilitated pasture is developing similar to that found in the relevant reference site based on measure of LFA indices, self-sustaining and trajectory towards Class 4 lands. The land capability and agricultural suitability classification for the relevant nominated agricultural pursuit for each domain is established (I.e. Class 4 agricultural suitability).	<ul style="list-style-type: none"> <li>• ITP - Ecosystem/Land Use Establishment – Seeding/Planting and Finishing.</li> <li>• LFA Assessment.</li> <li>• Agronomic assessment of land capability and agricultural suitability classification by a suitably qualified expert.</li> </ul>



**Table 6 (Continued):  
Rehabilitation Objectives and Proposed Rehabilitation Completion Criteria**

Final Land Use Domain	Mining Domains	Spatial Reference Field	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Rehabilitation Completion Criteria	Justification or Validation Method
As above	As above	B1	Surface water	Runoff water quality from rehabilitation area is similar to, or better than the pre-disturbance runoff water quality.	Water quality monitoring results as per assessment of rehabilitation runoff in the SMC Water Management plan.	Water quality of runoff from rehabilitated agricultural areas is in accordance with the criteria in the SMC Water Management Plan.	<ul style="list-style-type: none"> <li>Water quality monitoring as per the SMC Water Management Plan.</li> </ul>
			Bushfire	The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as part of rehabilitation.	*	*	*
			Removal of Infrastructure	All infrastructure, including water management 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, unless justification has been provided for retention in the post-mining land use.  Retention of water management infrastructure for post-mining use as agreed with relevant agencies and landholders.	Relevant infrastructure decommissioned and removed (as agreed via consultation).  Retained infrastructure has been assessed.	Complete removal of relevant infrastructure (as agreed via consultation).          Retained infrastructure is safe, stable and non-polluting.	<ul style="list-style-type: none"> <li>Infrastructure Decommissioning and Demolition Strategy.</li> <li>ITP – Decommissioning.</li> <li>Visual monitoring and reporting.</li> <li>Detailed Asset Register of Retained Infrastructure.</li> <li>Evidence of consultation.</li> </ul>
<b>Domain B</b> Agriculture – Grazing	<b>Domain 2</b> <b>Tailings Storage Facility</b>	B2	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.	Presence of any contaminated soils or sediments. Contaminated soils identified and proposed remediation measures consistent with requirements of the NSW <i>Contaminated Land Management Act 1997</i> .	Contaminated soils and sediments removed and remediation completed.	<ul style="list-style-type: none"> <li>Contaminated Lands Assessment.</li> <li>Requirements of the NSW Contaminated Land Management Act 1997 (which references soil quality).</li> </ul>
			Landform stability	Construct final mine landforms that drain in a stable manner to the natural environment (i.e. Avondale Creek, Dog Trap Creek and their associated tributaries).	Landforms are free draining.	Adequately drained final landforms consistent with the surrounding agricultural landscape as evidenced by survey.	<ul style="list-style-type: none"> <li>ITP – Landform Establishment.</li> <li>Visual monitoring and final landform topographic survey.</li> </ul>
				Creation of landforms which are geotechnically stable and minimise long-term erosion on rehabilitated waste emplacements and all other rehabilitated domains.	Slope of rehabilitated landform no greater than approximately 1V:4H. Appropriately designed berms, drains and contour banks. No evidence of active erosion.	Safe and stable landform. No evidence of active erosion. Landform erosion modelling demonstrates landforms are long-term stable. Waste emplacements constructed in accordance with approved design as evidenced by survey. Gradient for waste emplacement slopes no greater than approximately 1 V:4 H. Drainage on the outer emplacement batters facilitated via contour benches and drains with a longitudinal grade of 1 % flattening to 0.6 %.  No large rocks present on waste emplacement slopes that prevent the establishment of the final land use.	<ul style="list-style-type: none"> <li>ITP – Landform Establishment.</li> <li>Visual monitoring.</li> <li>Landform Topographic Survey.</li> <li>Landform Erosion Modelling.</li> <li>Surface water quality monitoring.</li> <li>Erosion and sediment control monitoring.</li> </ul>

**Table 6 (Continued):  
Rehabilitation Objectives and Proposed Rehabilitation Completion Criteria**

Final Land Use Domain	Mining Domains	Spatial Reference Field	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Rehabilitation Completion Criteria	Justification or Validation Method
As above	As above	B2	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.	Slope of rehabilitated landform no greater than approximately 1V:4H. Appropriately designed berms, drains and contour banks. No evidence of active erosion.	Safe and stable landform. No evidence of active erosion. Landform erosion modelling demonstrates landforms are long-term stable. Waste emplacements constructed in accordance with approved design as evidenced by survey. Gradient for waste emplacement slopes no greater than approximately 1 V:4 H. Drainage on the outer emplacement batters facilitated via contour benches and drains with a longitudinal grade of 1 % flattening to 0.6 %. No large rocks present on waste emplacement slopes that prevent the establishment of the final land use.	<ul style="list-style-type: none"> <li>• ITP – Landform Establishment.</li> <li>• Visual monitoring.</li> <li>• Landform Topographic Survey.</li> <li>• Landform Erosion Modelling.</li> <li>• Surface water quality monitoring.</li> <li>• Erosion and sediment control monitoring.</li> </ul>
			Landform stability	Creation of landforms which are visually consistent with the surrounding environment.	Elevation of waste emplacements constructed in accordance with approved design.	Post-mining landforms consistent with the surrounding landscape. Waste emplacements constructed in accordance with commitments approved design and Development Consent.	<ul style="list-style-type: none"> <li>• TP – Landform Establishment.</li> <li>• Topographic survey of final landform.</li> <li>• Photographic monitoring of rehabilitated landforms.</li> </ul>
			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.	Landscape Function Analysis (LFA) soil surface assessment indices. Land capability and agricultural suitability classification.	Rehabilitated pasture is developing similar to that found in the relevant reference site based on measure of LFA indices, self-sustaining and trajectory towards Class 4 lands. The land capability and agricultural suitability classification for the relevant nominated agricultural pursuit for each domain is established (I.e. Class 4 agricultural suitability).	<ul style="list-style-type: none"> <li>• ITP – Ecosystem/Land Use Establishment – Seeding/Planting and Finishing.</li> <li>• LFA Assessment.</li> <li>• Agronomic assessment of land capability and agricultural suitability classification by a suitably qualified expert.</li> </ul>
			Surface water	Runoff water quality from rehabilitation area is similar to, or better than the pre-disturbance runoff water quality.	Water quality monitoring results as per assessment of rehabilitation runoff in the SMC Water Management plan.	Water quality of runoff from rehabilitated agricultural areas is in accordance with the criteria in the SMC Water Management Plan.	<ul style="list-style-type: none"> <li>• Water quality monitoring as per the SMC Water Management Plan.</li> </ul>
			Bushfire	The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as part of rehabilitation.	*	*	*
<b>Domain B</b> Agriculture – Grazing	<b>Domain 3</b> Water Management Area	B3	Removal of Infrastructure	All infrastructure, including water management 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, unless justification has been provided for retention in the post-mining land use.  Retention of water management infrastructure for post-mining use as agreed with relevant agencies and landholders.	Relevant infrastructure decommissioned and removed (as agreed via consultation).  Retained infrastructure has been assessed.	Complete removal of relevant infrastructure (as agreed via consultation).	<ul style="list-style-type: none"> <li>• Infrastructure Decommissioning and Demolition Strategy.</li> <li>• ITP – Decommissioning.</li> <li>• Visual monitoring and reporting.</li> </ul>
						Retained infrastructure is safe, stable and non-polluting.	<ul style="list-style-type: none"> <li>• Detailed Asset Register of Retained Infrastructure.</li> <li>• Evidence of consultation.</li> </ul>

**Table 6 (Continued):  
Rehabilitation Objectives and Proposed Rehabilitation Completion Criteria**

Final Land Use Domain	Mining Domains	Spatial Reference Field	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Rehabilitation Completion Criteria	Justification or Validation Method
As above	As above	B3	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.	Presence of any contaminated soils or sediments. Contaminated soils identified and proposed remediation measures consistent with requirements of the NSW <i>Contaminated Land Management Act 1997</i> .	Contaminated soils and sediments removed and remediation completed.	<ul style="list-style-type: none"> <li>Contaminated Lands Assessment.</li> <li>Requirements of the NSW Contaminated Land Management Act 1997 (which references soil quality).</li> </ul>
		B3	Landform stability	Construct final mine landforms that drain in a stable manner to the natural environment (i.e. Avondale Creek, Dog Trap Creek and their associated tributaries).	Landforms are free draining.	Adequately drained final landforms consistent with the surrounding agricultural landscape as evidenced by survey.	<ul style="list-style-type: none"> <li>ITP – Landform Establishment.</li> <li>Visual monitoring and final landform topographic survey.</li> </ul>
		B3	Landform stability	Creation of landforms which are geotechnically stable and minimise long-term erosion on rehabilitated waste emplacements and all other rehabilitated domains.	<p>Slope of rehabilitated landform no greater than approximately 1 V:4 H.</p> <p>Appropriately designed berms, drains and contour banks.</p> <p>No evidence of active erosion.</p>	<p>Safe and stable landform. No evidence of active erosion.</p> <p>Landform erosion modelling demonstrates landforms are long-term stable.</p> <p>Waste emplacements constructed in accordance with approved design as evidenced by survey.</p> <p>Gradient for waste emplacement slopes no greater than approximately 1 V:4 H.</p> <p>Drainage on the outer emplacement batters facilitated via contour benches and drains with a longitudinal grade of 1 % flattening to 0.6 %.</p> <p>No large rocks present on waste emplacement slopes that prevent the establishment of the final land use.</p>	<ul style="list-style-type: none"> <li>ITP – Landform Establishment.</li> <li>Visual monitoring.</li> <li>Landform Topographic Survey.</li> <li>Landform Erosion Modelling.</li> <li>Surface water quality monitoring.</li> <li>Erosion and sediment control monitoring.</li> </ul>
		B3	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.	<p>Slope of rehabilitated landform no greater than approximately 1 V:4 H.</p> <p>Appropriately designed berms, drains and contour banks.</p> <p>No evidence of active erosion.</p>	<p>Safe and stable landform. No evidence of active erosion.</p> <p>Landform erosion modelling demonstrates landforms are long-term stable.</p> <p>Waste emplacements constructed in accordance with approved design as evidenced by survey.</p> <p>Gradient for waste emplacement slopes no greater than approximately 1 V:4 H.</p> <p>Drainage on the outer emplacement batters facilitated via contour benches and drains with a longitudinal grade of 1 % flattening to 0.6 %.</p> <p>No large rocks present on waste emplacement slopes that prevent the establishment of the final land use.</p>	<ul style="list-style-type: none"> <li>ITP – Landform Establishment.</li> <li>Visual monitoring.</li> <li>Landform Topographic Survey.</li> <li>Landform Erosion Modelling.</li> <li>Surface water quality monitoring.</li> <li>Erosion and sediment control monitoring.</li> </ul>

**Table 6 (Continued):  
Rehabilitation Objectives and Proposed Rehabilitation Completion Criteria**

Final Land Use Domain	Mining Domains	Spatial Reference Field	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Rehabilitation Completion Criteria	Justification or Validation Method
As above	As above	B3	Landform stability	Creation of landforms which are visually consistent with the surrounding environment.	Elevation of waste emplacements constructed in accordance with approved design.	Post-mining landforms consistent with the surrounding landscape. Waste emplacements constructed in accordance with approved design and Project Approval commitments.	<ul style="list-style-type: none"> <li>ITP – Landform Establishment.</li> <li>Topographic survey of final landform.</li> <li>Photographic monitoring of rehabilitated landforms.</li> </ul>
		B3	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.	Landscape Function Analysis (LFA) soil surface assessment indices. Land capability and agricultural suitability classification.	Rehabilitated pasture is developing similar to that found in the relevant reference site based on measure of LFA indices, self-sustaining and trajectory towards Class 4 lands. The land capability and agricultural suitability classification for the relevant nominated agricultural pursuit for each domain is established (I.e. Class 4 agricultural suitability).	<ul style="list-style-type: none"> <li>ITP - Ecosystem/Land Use Establishment – Seeding/Planting and Finishing.</li> <li>LFA Assessment.</li> <li>Agronomic assessment of land capability and agricultural suitability classification by a suitably qualified expert.</li> </ul>
		B3	Surface water	Runoff water quality from rehabilitation area is similar to, or better than the pre-disturbance runoff water quality.	Water quality monitoring results as per assessment of rehabilitation runoff in the SMC Water Management plan.	Water quality of runoff from rehabilitated agricultural areas is in accordance with the criteria in the SMC Water Management Plan.	<ul style="list-style-type: none"> <li>Water quality monitoring as per the SMC Water Management Plan.</li> </ul>
		B3	Bushfire	The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as part of rehabilitation.	*	*	*
Domain B Agriculture – Grazing	Domain 4 Overburden Emplacement Area	B4	Removal of Infrastructure	All infrastructure, including water management 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, unless justification has been provided for retention in the post-mining land use. Retention of water management infrastructure for post-mining use as agreed with relevant agencies and landholders.	Relevant infrastructure decommissioned and removed (as agreed via consultation). Retained infrastructure has been assessed.	Complete removal of relevant infrastructure (as agreed via consultation).  Retained infrastructure is safe, stable and non-polluting.	<ul style="list-style-type: none"> <li>Infrastructure Decommissioning and Demolition Strategy.</li> <li>ITP – Decommissioning.</li> <li>Visual monitoring and reporting.</li> <li>Detailed Asset Register of Retained Infrastructure.</li> <li>Evidence of consultation.</li> </ul>
			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.	Presence of any contaminated soils or sediments. Contaminated soils identified and proposed remediation measures consistent with requirements of the NSW <i>Contaminated Land Management Act 1997</i> .	Contaminated soils and sediments removed and remediation completed.	<ul style="list-style-type: none"> <li>Contaminated Lands Assessment.</li> <li>Requirements of the NSW Contaminated Land Management Act 1997 (which references soil quality).</li> </ul>
			Management of waste and process materials	Residual waste materials stored on site will be appropriately contained / encapsulated so it does not pose any hazards or constraints for intended land use.	Presence of spontaneous combustion or heating of PAF material.	No areas of spontaneous combustion identified or heating of PAF material.	<ul style="list-style-type: none"> <li>ITP – PAF and Spontaneous Combustion Management.</li> <li>Monitoring and assessment of spontaneous combustion in the final landform.</li> </ul>



**Table 6 (Continued):  
Rehabilitation Objectives and Proposed Rehabilitation Completion Criteria**

Final Land Use Domain	Mining Domains	Spatial Reference Field	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Rehabilitation Completion Criteria	Justification or Validation Method
<b>Domain B</b> Agriculture – Grazing	<b>Domain 4</b> Overburden Emplacement Area	B4	Management of waste and process materials	Rehabilitated waste emplacements do not generate any material acid leachate/drainage.	Suitable pH levels recorded in surrounding groundwater/surface water, as per the monitoring program described in the Water Management Plan.	No evidence of acid mine drainage indicated by adverse pH levels recorded in surrounding surface/groundwater systems.	<ul style="list-style-type: none"> <li>• ITP – PAF and Spontaneous Combustion Management.</li> <li>• Groundwater and surface water monitoring as per the SMC Water Management Plan.</li> </ul>
			Management of waste and process materials	In-pit PAF material is stored appropriately below the predicted post-mining groundwater table and is non-polluting.	PAF material is placed below the predicted post-mining groundwater table.	Survey confirms as PAF material is placed below the predicted post-mining groundwater table.	<ul style="list-style-type: none"> <li>• ITP – PAF and Spontaneous Combustion Management.</li> <li>• Survey of placement of PAF materials.</li> <li>• Groundwater modelling and monitoring.</li> </ul>
			Landform stability	Construct final mine landforms that drain in a stable manner to the natural environment (i.e. Avondale Creek, Dog Trap Creek and their associated tributaries).	Landforms are free draining.	Adequately drained final landforms consistent with the surrounding agricultural landscape as evidenced by survey.	<ul style="list-style-type: none"> <li>• ITP – Landform Establishment.</li> <li>• Visual monitoring and final landform topographic survey.</li> </ul>
		B4	Landform stability	Creation of landforms which are geotechnically stable and minimise long-term erosion on rehabilitated waste emplacements and all other rehabilitated domains.	<p>Slope of rehabilitated landform no greater than approximately 1V:4H.</p> <p>Appropriately designed berms, drains and contour banks.</p> <p>No evidence of active erosion.</p>	<p>Safe and stable landform. No evidence of active erosion.</p> <p>Landform erosion modelling demonstrates landforms are long-term stable.</p> <p>Waste emplacements constructed in accordance with approved design as evidenced by survey.</p> <p>Gradient for waste emplacement slopes no greater than approximately 1 V:4 H.</p> <p>Drainage on the outer emplacement batters facilitated via contour benches and drains with a longitudinal grade of 1 % flattening to 0.6 %.</p> <p>No large rocks present on waste emplacement slopes that prevent the establishment of the final land use.</p>	<ul style="list-style-type: none"> <li>• ITP – Landform Establishment.</li> <li>• Visual monitoring.</li> <li>• Landform Survey.</li> <li>• Landform Erosion Modelling.</li> <li>• Surface water quality monitoring.</li> <li>• Erosion and sediment control monitoring.</li> </ul>

**Table 6 (Continued):  
Rehabilitation Objectives and Proposed Rehabilitation Completion Criteria**

Final Land Use Domain	Mining Domains	Spatial Reference Field	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Rehabilitation Completion Criteria	Justification or Validation Method
As above	As above	B4	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.	Slope of rehabilitated landform no greater than approximately 1V:4H. Appropriately designed berms, drains and contour banks. No evidence of active erosion.	Safe and stable landform. No evidence of active erosion. Landform erosion modelling demonstrates landforms are long-term stable. Waste emplacements constructed in accordance with approved design as evidenced by survey. Gradient for waste emplacement slopes no greater than approximately 1 V:4 H. Drainage on the outer emplacement batters facilitated via contour benches and drains with a longitudinal grade of 1 % flattening to 0.6 %. No large rocks present on waste emplacement slopes that prevent the establishment of the final land use.	<ul style="list-style-type: none"> <li>• ITP – Landform Establishment.</li> <li>• Visual monitoring.</li> <li>• Landform Survey.</li> <li>• Landform Erosion Modelling.</li> <li>• Surface water quality monitoring.</li> </ul> Erosion and sediment control monitoring.
			Landform stability	Creation of landforms which are visually consistent with the surrounding environment.	Elevation of waste emplacements constructed in accordance with approved design.	Post-mining landforms consistent with the surrounding landscape. Waste emplacements constructed in accordance with commitments approved design and Development Consent.	<ul style="list-style-type: none"> <li>• ITP – Landform Establishment.</li> <li>• Topographic survey of final landform.</li> <li>• Photographic monitoring of rehabilitated landforms</li> </ul>
		B4	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.	Landscape Function Analysis (LFA) soil surface assessment indices. Land capability and agricultural suitability classification.	Rehabilitated pasture is developing similar to that found in the relevant reference site based on measure of LFA indices, self-sustaining and trajectory towards Class 4 lands. The land capability and agricultural suitability classification for the relevant nominated agricultural pursuit for each domain is established (I.e. Class 4 agricultural suitability).	<ul style="list-style-type: none"> <li>• ITP - Ecosystem/Land Use Establishment – Seeding/Planting and Finishing.</li> <li>• LFA Assessment.</li> <li>• Agronomic assessment of land capability and agricultural suitability classification by a suitably qualified expert.</li> </ul>
		B4	Surface water	Runoff water quality from rehabilitation area is similar to, or better than the pre-disturbance runoff water quality.	Water quality monitoring results as per assessment of rehabilitation runoff in the SMC Water Management plan.	Water quality of runoff from rehabilitated agricultural areas is in accordance with the criteria in the SMC Water Management Plan.	Water quality monitoring as per the SMC Water Management Plan.
		B4	Bushfire	The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as part of rehabilitation.	*	*	*
<b>Domain G</b> Water Storage (Excluding Final Void)	<b>Domain 3</b> 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 <i>Water Management Act 2000</i> ) and where required ensure sufficient licence shares are held in the water source(s) to account for water take.	Hydrological and hydro-geological assessments are undertaken to determine water take at completion from the relevant water sources to confirm that sufficient allocations are held.	Adequate water allocations and associated licenses are held for all applicable structures.	Copy of any relevant approvals or evidence if approvals not required. Confirmation from relevant Government Agency (e.g. NRAR) that licences are held. Independent water harvesting compliance assessment.

**Table 6 (Continued):  
Rehabilitation Objectives and Proposed Rehabilitation Completion Criteria**

Final Land Use Domain	Mining Domains	Spatial Reference Field	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Rehabilitation Completion Criteria	Justification or Validation Method
As above	As above	G3	Retention of infrastructure	All infrastructure that is to remain as part of the final land use is safe, does not pose any hazard to the community.  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).	Long-term stability of retained water structures. The upslope diversions have been designed to pass the peak flow generated by a 1% annual exceedance probability (AEP) rainfall event. Permanent diversion(s) including the final Coal Shaft Creek Diversion will be assessed against the probable maximum flood event.  Design requirements in the SMC Water Management Plan.	Retained water infrastructure has been assessed by a quality expert and demonstrated to be stable, safe and operating effectively.	<ul style="list-style-type: none"> <li>ITP – Decommissioning.</li> <li>Refer to the post-mining water management system described in the SMC Water Management Plan.</li> <li>Hydraulic and hydrologically modelling.</li> <li>Surface Water Monitoring Program (Closure Phase).</li> </ul>
		G3	Retention of infrastructure	The Stratford East Dam would be retained for future post-mining use as water storage for agricultural (i.e. stock watering, irrigation) or other use.	Decommissioning of Stratford East Dam as a mine storage dam.  Establishment of retain water body in consultation with relevant stakeholders.	Decommissioning of Stratford East Dam as a mine storage dam completed.  Retained water bodies have been established in consultation with relevant stakeholders.	<ul style="list-style-type: none"> <li>Survey of Stratford East Dam.</li> <li>Water quality monitoring.</li> <li>Evidence of consultation.</li> </ul>
		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.  Landform that is commensurate with surrounding natural landform and where appropriate, incorporates geomorphic design principles.	Slope of rehabilitated landform no greater than approximately 1V:4H.  Appropriately designed berms, drains and contour banks.  No evidence of active erosion.	Safe and stable landform. No evidence of active erosion.  Landform erosion modelling demonstrates landforms are long-term stable.  Waste emplacements constructed in accordance with approved design as evidenced by survey.  Gradient for waste emplacement slopes no greater than approximately 1 V:4 H.  Drainage on the outer emplacement batters facilitated via contour benches and drains with a longitudinal grade of 1 % flattening to 0.6 %.  No large rocks present on waste emplacement slopes that prevent the establishment of the final land use.	<ul style="list-style-type: none"> <li>ITP – Landform Establishment.</li> <li>Visual monitoring.</li> <li>Landform Survey.</li> <li>Landform Erosion Modelling.</li> <li>Surface water quality monitoring.</li> </ul> Erosion and sediment control monitoring.
		G3	Ecological rehabilitation	Levels of ecosystem function have been established that demonstrate the rehabilitation is self-sustainable.	Ecosystem Function Analysis indices: <ul style="list-style-type: none"> <li>Landscape Function Analysis.</li> <li>Vegetation Dynamics.</li> <li>Habitat Complexity.</li> </ul>	Native Ecosystem areas on trajectory towards self-sustaining ecosystem and/or measures of ecosystem function (e.g. EFA indices) equivalent to unmined reference sites of remnant vegetation.	<ul style="list-style-type: none"> <li>ITP – Ecosystem/Land Use Establishment – Seeding/Planting and Finishing.</li> <li>EFA <ul style="list-style-type: none"> <li>Landscape Function Analysis.</li> <li>Vegetation Dynamics Monitoring.</li> <li>Habitat Complexity Monitoring.</li> </ul> </li> </ul>
		G3	Bushfire	The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as part of rehabilitation.	*	*	*

**Table 6 (Continued):  
Rehabilitation Objectives and Proposed Rehabilitation Completion Criteria**

Final Land Use Domain	Mining Domains	Spatial Reference Field	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Rehabilitation Completion Criteria	Justification or Validation Method
<b>Domain J</b> Final Void	<b>Domain 5</b> Active Mining Area (Open cut void)	J5	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.  Landform that is commensurate with surrounding natural landform and where appropriate, incorporates geomorphic design principles.	Slope of rehabilitated landform no greater than approximately 1V:4H.  Appropriately designed berms, drains and contour banks.  No evidence of active erosion.	Safe and stable landform. No evidence of active erosion.  Landform erosion modelling demonstrates landforms are long-term stable.  Waste emplacements constructed in accordance with approved design as evidenced by survey.  Gradient for waste emplacement slopes no greater than approximately 1 V:4 H.  Drainage on the outer emplacement batters facilitated via contour benches and drains with a longitudinal grade of 1 % flattening to 0.6 %.  No large rocks present on waste emplacement slopes that prevent the establishment of the final land use.	<ul style="list-style-type: none"> <li>• ITP – Landform Establishment.</li> <li>• Visual monitoring.</li> <li>• Landform Survey.</li> <li>• Landform Erosion Modelling.</li> <li>• Surface water quality monitoring.</li> <li>• Erosion and sediment control monitoring.</li> </ul>
		J5	Management of waste and process materials	Residual waste materials stored on site will be appropriately contained / encapsulated so it does not pose any hazards or constraints for intended land use.	Presence of spontaneous combustion or heating of PAF material.	No areas of spontaneous combustion identified or heating of PAF material.	<ul style="list-style-type: none"> <li>• ITP – PAF and Spontaneous Combustion Management.</li> <li>• Monitoring and assessment of spontaneous combustion in the final landform</li> </ul>
		J5	Management of waste and process materials	Final voids do not generate any material acid leachate/drainage.	Suitable pH levels recorded in surrounding groundwater/surface water, as per the monitoring program described in the Water Management Plan.	No evidence of acid mine drainage indicated by adverse pH levels recorded in surrounding surface/groundwater systems.	<ul style="list-style-type: none"> <li>• ITP – PAF and Spontaneous Combustion Management.</li> <li>• Groundwater and surface water monitoring as per the SMC Water Management Plan.</li> </ul>
		J5	Management of waste and process materials	In-pit PAF material is stored appropriately below the predicted post-mining groundwater table and is non-polluting.	PAF material is placed below the predicted post-mining groundwater table.	Survey confirms as PAF material is placed below the predicted post-mining groundwater table.	<ul style="list-style-type: none"> <li>• ITP – PAF and Spontaneous Combustion Management.</li> <li>• Survey of placement of PAF materials.</li> </ul>
		J5	Landform stability	Minimise to the greatest extent practicable the size and depth of final voids.	Area of final voids: <ul style="list-style-type: none"> <li>• Avon North Open Cut.</li> <li>• Roseville West Pit.</li> <li>• Main Pit.</li> </ul>	Area is not greater than approximately: <ul style="list-style-type: none"> <li>• 44 ha (Avon North Open Cut).</li> <li>• 11 ha (Roseville West Pit).</li> <li>• 44 ha (Main Pit).</li> </ul>	<ul style="list-style-type: none"> <li>• A Landform Assessment undertaken to confirm that the areas are consistent with the Final Landform and Rehabilitation Plan.</li> </ul>
					Depth metre (m) of final voids: <ul style="list-style-type: none"> <li>• Avon North Open Cut.</li> <li>• Roseville West Pit.</li> <li>• Main Pit.</li> </ul>	Depth is not deeper than approximately: <ul style="list-style-type: none"> <li>• 176 m (Avon North Open Cut).</li> <li>• 89 m (Roseville West Pit).</li> <li>• 84 m (Main Pit).</li> </ul>	<ul style="list-style-type: none"> <li>• A Landform Assessment undertaken to confirm that the areas are consistent with the Final Landform and Rehabilitation Plan.</li> </ul>



**Table 6 (Continued):  
Rehabilitation Objectives and Proposed Rehabilitation Completion Criteria**

Final Land Use Domain	Mining Domains	Spatial Reference Field	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Rehabilitation Completion Criteria	Justification or Validation Method
As above	As above	J5	Landform stability	Minimise high wall, low wall, end wall and in-pit spoil slope instability risk so far as is reasonable and feasible.	Final void walls regraded to a stable grade that is consistent with the requirements of the Final Landform and Rehabilitation Plan.	<p>Slope angles for the final voids highwalls will be:</p> <ul style="list-style-type: none"> <li>&lt; 70° batters (Avon North Open Cut); Inter-Ramp Angle (IRA) &lt; 50° (approximately).</li> <li>&lt; 70° batters (Roseville West Pit); IRA &lt; 50° (approximately).</li> <li>&lt; 70° batter slopes on highwall (Main Pit); IRA &lt; 50° (approximately).</li> </ul> <p><i>NB 1: Main Pit slopes covered by spoil and surface water cover.</i></p>	<ul style="list-style-type: none"> <li>As constructed survey.</li> <li>A geotechnical assessment undertaken to confirm that the highwall (hanging wall) and endwall (sidewall) slopes are stable and as designed.</li> </ul>
						<p>Slope angles in the final voids low walls will be:</p> <ul style="list-style-type: none"> <li>&lt; 45° batters on low wall (Avon North Open Cut); IRA &lt; 32° (approximately) following coal floor contact.</li> <li>&lt; 45° batter slopes on low wall (footwall) (Roseville West Pit); IRA ≤ 35° (approximately) following floor contact, ≤ 60° batter angle on lower bench following steep coal contact.</li> <li>IRA &lt; 35° (Main Pit) – No exposed slope surfaces due to in-pit spoil cover.</li> </ul>	<ul style="list-style-type: none"> <li>As constructed survey.</li> <li>A geotechnical undertaken to confirm that the low wall (footwall) slopes are stable and to design.</li> </ul>
						<p>Slope angles for the final voids endwalls, weathered horizon slopes and in-pit spoil will be:</p> <ul style="list-style-type: none"> <li>&lt; 70° batter slopes on southern and northern endwall (Avon North Open Cut); IRA &lt; 50° (approximately).</li> <li>&lt; 70° batter slopes on endwall (Main Pit); IRA &lt; 50° (approximately).</li> <li>&lt; 70° batter slopes on southern endwall (Roseville West Pit); IRA &lt; 50° (approximately).</li> <li>Weathered horizon &lt; 45° slopes (Avon North Open Cut and Roseville West Pit).</li> <li>In-pit spoil - 37° batter slopes, ≤ 25° overall slope.</li> </ul> <p><i>NB 1: Main Pit slopes covered by spoil and surface water cover.</i></p>	<ul style="list-style-type: none"> <li>As constructed survey.</li> <li>A geotechnical assessment undertaken to confirm that the endwall (sidewall) and weathered horizon slopes are stable and as designed.</li> </ul>

**Table 6 (Continued):  
Rehabilitation Objectives and Proposed Rehabilitation Completion Criteria**

Final Land Use Domain	Mining Domains	Spatial Reference Field	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Rehabilitation Completion Criteria	Justification or Validation Method
As above	As above	As above	As above	As above	Geotechnical FoS.	<p>FoS for highwalls is a minimum:</p> <ul style="list-style-type: none"> <li>1.5 (Avon North Open Cut);</li> <li>1.5 (Roseville West Pit); and</li> <li>1.5 (Main Pit);</li> </ul> <p>for long-term stability unless otherwise agreed with the NSW Resources Regulator.</p>	<ul style="list-style-type: none"> <li>Independent engineering slope failure mode analysis and report.</li> </ul>
		J5	Groundwater	Designed as long-term groundwater sinks or flow through system and to maximise groundwater flows across back-filled pits and emplacements to the final void.	Local groundwater system flowing to final voids or flow through.	<p>FoS for low walls is a minimum:</p> <ul style="list-style-type: none"> <li>1.5 (Avon North Open Cut) for global and inter-ramp scale failure mechanisms;</li> <li>1.5 (Roseville West Pit) for global and inter-ramp scale failure mechanisms; and</li> <li>1.5 (Main Pit) for global and inter-ramp scale failure mechanisms;</li> </ul> <p>for long-term stability unless otherwise agreed with the NSW Resources Regulator.</p>	<ul style="list-style-type: none"> <li>Independent engineering slope failure mode analysis and report.</li> </ul>
						<p>FoS for endwalls, weathered horizon slopes and in-pit spoil is a minimum:</p> <ul style="list-style-type: none"> <li>1.5 (Avon North Open Cut);</li> <li>1.5 (Roseville West Pit); and</li> <li>1.5 (Main Pit);</li> </ul> <p>for long-term stability unless otherwise agreed with the NSW Resources Regulator.</p>	<ul style="list-style-type: none"> <li>Independent engineering slope failure mode analysis and report.</li> </ul>
						Voids are sinks or flow through for the local groundwater system as confirmed by predictive postmining groundwater model.	<ul style="list-style-type: none"> <li>Pit shell digital terrain model.</li> <li>Predictive post-mining groundwater model.</li> <li>Groundwater monitoring.</li> <li>Final void water level monitoring.</li> </ul>
		J5	Groundwater	Groundwater quality is similar to, or better than the pre-disturbance water quality.	The measured water quality at important groundwater assets meets predictions. Modelled drawdown and water take is consistent with approval predictions.	Groundwater quality and groundwater regime are within range as predicted in environmental assessments and in accordance with water sharing plans and water allocations held by the site.	<ul style="list-style-type: none"> <li>Independent hydro-geological assessment report.</li> <li>Monitoring reports.</li> </ul>
		J5	Groundwater	Impacts to groundwater regime are within range as per the development consent(s) / pre-mining environmental assessment.	The measured water quality at important groundwater assets meets predictions. Modelled drawdown and water take is consistent with approval predictions.	Groundwater quality and groundwater regime are within range as predicted in environmental assessments and in accordance with water sharing plans and water allocations held by the site.	<ul style="list-style-type: none"> <li>Independent hydro-geological assessment report.</li> <li>Monitoring reports.</li> </ul>
		J5	Surface water	Designed and constructed to ensure adequate freeboard to ensure no spillage under any foreseeable conditions.	No spill from the voids to the surrounding environment.	Voids are non-spilling as confirmed by predictive final void water balance.	<ul style="list-style-type: none"> <li>Predictive final void water balance.</li> <li>Final void water level monitoring.</li> </ul>
		J5	Surface water	Runoff water quality from mine site is similar to, or better than the pre-disturbance runoff water quality.	Water quality monitoring results as per assessment of rehabilitation runoff in the SMC Water Management plan.	Water quality of runoff from rehabilitated agricultural areas is in accordance with the criteria in the SMC Water Management Plan.	Water quality monitoring as per the SMC Water Management Plan.

**Table 6 (Continued):  
Rehabilitation Objectives and Proposed Rehabilitation Completion Criteria**

Final Land Use Domain	Mining Domains	Spatial Reference Field	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Rehabilitation Completion Criteria	Justification or Validation Method
As above	As above	J5	Surface water	Minimise to the greatest extent practicable the drainage catchment of final voids.	Area of drainage catchments: <ul style="list-style-type: none"> <li>Avon North Open Cut.</li> <li>Roseville West Pit.</li> <li>Main Pit.</li> </ul>	Area is not greater than approximately: <ul style="list-style-type: none"> <li>196 ha (Avon North Open Cut).</li> <li>25 ha (Roseville West Pit).</li> <li>118 ha (Main Pit).</li> </ul>	<ul style="list-style-type: none"> <li>A Landform Assessment undertaken to confirm that the areas are consistent with the Final Landform and Rehabilitation Plan.</li> <li>Evidence that catchment areas confirmed to be suitable by the predictive surface water balance and post-mining groundwater model.</li> </ul>
		J5	Surface water		Permanent up-catchment diversions.	Permanent up-catchment structures are designed and constructed to be stable in the long-term, convey 1 % AEP rainfall events and minimise the catchment area as much as reasonably practicable.	<ul style="list-style-type: none"> <li>A Landform Assessment undertaken to confirm that the areas are consistent with the Final Landform and Rehabilitation Plan.</li> <li>Evidence that catchment areas confirmed to be suitable by the predictive surface water balance and post-mining groundwater model.</li> </ul>
		J5	Surface water	Minimise to the greatest extent practicable risk of flood interaction.	Probability of inundation in a 0.1 % AEP flood event.	Probability of inundation is negligible as determined by independent flood modelling.	Independent hydrological modelling report.
					Flood risk to privately owned properties.	Landform provides that there are no increased adverse flood impacts to privately owned properties.	Independent hydrological modelling report.
		J5	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.	Presence of any contaminated soils or sediments. Contaminated soils identified and proposed remediation measures consistent with requirements of the NSW <i>Contaminated Land Management Act 1997</i> .	Contaminated soils and sediments removed and remediation completed.	<ul style="list-style-type: none"> <li>Contaminated Lands Assessment.</li> <li>Requirements of the NSW Contaminated Land Management Act 1997 (which references soil quality).</li> </ul>
		J5	Landform stability	Final void landform is sympathetic of visual amenity and aesthetics in the area and comparable to surrounds where practicable.	Minimal visual impact of the final landform as far as is reasonable and feasible.	Landform is consistent with the Final Landform and Rehabilitation Plan. Vegetation has been established as required. Vegetative screens have been established and maintained to improve visual amenity (where required).	<ul style="list-style-type: none"> <li>Remote sensing.</li> <li>Photographic records.</li> <li>Visual assessment.</li> </ul>

**Table 6 (Continued):  
Rehabilitation Objectives and Proposed Rehabilitation Completion Criteria**

Final Land Use Domain	Mining Domains	Spatial Reference Field	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Rehabilitation Completion Criteria	Justification or Validation Method
As above	As above	J5	Ecological rehabilitation	Levels of ecosystem function have been established that demonstrate the rehabilitation is self-sustainable.	EFA indices: <ul style="list-style-type: none"> <li>Landscape Function Analysis.</li> <li>Vegetation Dynamics.</li> <li>Habitat Complexity.</li> </ul>	Suitable EFA reference sites selected equivalent to the target vegetation community. EFA results indicate that the vegetation is maturing and developing characteristics similar to that found in the relevant reference site based on measurement of stability, infiltration, nutrient cycling indices and vegetation dynamics and habitat complexity results by a suitably qualified person.	<ul style="list-style-type: none"> <li>ITP – Ecosystem/Land Use Establishment – Seeding/Planting and Finishing.</li> <li>EFA: <ul style="list-style-type: none"> <li>Landscape Function Analysis.</li> <li>Vegetation Dynamics Monitoring.</li> <li>Habitat Complexity Monitoring</li> </ul> </li> </ul>
		J5	Ecological rehabilitation	Final voids do not present a risk to important groundwater ecosystems and assets (groundwater dependent ecosystems, Alluvial Aquifers, Landholder bores).	The measured water quality at important groundwater assets meets predictions. Modelled drawdown and water take is consistent with approval predictions.	Groundwater quality and groundwater regime are within range as predicted in environmental assessments and in accordance with water sharing plans and water allocations held by the site.	Independent hydro-geological assessment report, monitoring reports.
		J5	Water approvals	Structures that take or divert water such as final voids, dams, levees etc. are appropriately licensed (e.g. under the <i>Water Management Act 2000</i> ) and where required ensure sufficient licence shares are held in the water source(s) to account for water take.	Hydrological and hydro-geological assessments are undertaken to determine water take at completion from the relevant water sources to confirm that sufficient allocations are held.	Adequate water allocations and associated licenses are held for all applicable structures.	Copy of any relevant approvals or evidence if approvals not required. Confirmation from relevant Government Agency (e.g. NRAR) that licences are held. Independent water harvesting compliance assessment.
		J5	Bushfire	The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as part of rehabilitation.	*	*	*

\* DCPL is in the process of preparing rehabilitation completion criteria to align with this rehabilitation objective and will update this RMP once prepared.

## **4.2 REHABILITATION OBJECTIVES AND REHABILITATION COMPLETION CRITERIA – STAKEHOLDER CONSULTATION**

Key stakeholders have been consulted with throughout the SMC approval process including preparation of the SMC EIS (SCPL, 2012). Further to this, consultation has been undertaken with key stakeholders during the preparation of previous SMC MOP/RMPs.

As required by Condition 55, Schedule 3 of the Development Approval (SSD-4966), SCPL consulted with the BCD and Planning and Assessment Division within the then DPIE (now DPE), DPIE-Water (now DPE-Water), and MidCoast Council (MCC) for comment, prior to submission of the SMC MOP/RMP (1 January 2021 – 31 December 2023) to the NSW Resources Regulator for comment and approval.

Ongoing consultation with the community and relevant stakeholders occurs via the SMC's Community Consultative Committee (CCC), the SMC website, and SMC community hotline and response protocol.

In accordance with Clause 9, Schedule 8A of the *Mining Regulation 2016*, this RMP has been prepared in a form as specified by the Secretary using the *Form and Way – Rehabilitation Management Plan for Large Mine* (the Form and Way Guidelines) (NSW Resources Regulator, 2021).

The consultation undertaken during the preparation of all previous SMC MOP/RMPs, including the most recent MOP/RMP (1 January 2021 – 31 December 2023) is considered relevant to the preparation of this RMP as the overarching final land use, rehabilitation procedures, monitoring and completion criteria are generally consistent.

Nonetheless, the SMC RMP has been provided to the agencies listed in Condition 55, Schedule 3 of Project Approval (SSD-4966). Comments have been received from the following agencies (Attachment B):

- BCD.
- DPE-Water.
- MidCoast Council.
- CCC.

BCD commented on the use of LFA as a rehabilitation indicator within the SMC Rehabilitation Objectives and Rehabilitation Completion Criteria (dated 12 July 2022). LFA and vegetation structure have been utilised as baseline monitoring metrics to track the progression towards meeting rehabilitation completion criteria since December 2013.

SCPL does not intend to update the proposed Rehabilitation Objectives and Rehabilitation Completion Criteria to remove the use of LFA given the history of the LFA methodology being undertaken at the SMC, as transitioning from the use of LFA would nullify rehabilitation data collected over the past approximately nine years at the SMC.

As described in Section 4.1, the NSW Resources Regulator has approved the SMC Rehabilitation Objectives Statement. This RMP has been amended to substitute the proposed rehabilitation objectives with the approved rehabilitation objectives (Table 6) in accordance with Clause 11, Schedule 8A of the *Mining Regulation 2016*. Following submission of the rehabilitation completion criteria, this RMP will be further amended to substitute the proposed version (Table 6) with the version approved by the NSW Resources Regulator.



A summary of the consultation completed for rehabilitation and transition to mine closure at the SMC is provided in Table 7. Table 8 provides a summary of comments received from DPE-Water and SCPL's response.

**Table 7:**  
**Stakeholder Consultation for the Rehabilitation Management Plan**

Relevant Stakeholder	Consultation Activity/ Form of Consultation
NSW Resources Regulator	<ul style="list-style-type: none"> <li>• Via the DPE - Major Projects Planning Portal.</li> <li>• Email.</li> <li>• Phone calls.</li> <li>• Site inspections.</li> <li>• Meetings.</li> <li>• Review of formal documentation.</li> </ul>
DPE – Planning and Assessment Division	<ul style="list-style-type: none"> <li>• Via the DPE - Major Projects Planning Portal.</li> <li>• Review of formal documentation.</li> </ul>
DPE – BCD	<ul style="list-style-type: none"> <li>• Via the DPE - Major Projects Planning Portal.</li> <li>• Review of formal documentation.</li> </ul>
DPE – Water	<ul style="list-style-type: none"> <li>• Via the DPE - Major Projects Planning Portal.</li> <li>• Review of formal documentation.</li> </ul>
MCC	<ul style="list-style-type: none"> <li>• Email.</li> <li>• CCC member.</li> <li>• Review of formal documentation.</li> </ul>
CCC	<ul style="list-style-type: none"> <li>• Email.</li> <li>• CCC meetings and presentations.</li> <li>• Site inspections.</li> </ul>

**Table 8:**  
**DPE-Water comments on the Rehabilitation Management Plan**

Comment (Attachment B)	SCPL Response
<p><i>When available, submit documentation to DPE Water for review comprising:</i></p> <p><i>(i) An updated groundwater model report:</i></p> <p><i>(ii) A revised final void water balance and water quality predictions, and</i></p> <p><i>(iii) A Life of Mine review of the disposed Potentially Acid Forming (PAF) material levels and a model that shows with a high level of confidence that the PAF levels are below the predicted groundwater level.</i></p>	<p>SCPL will provide the following relevant reports for review by the DPE, upon completion:</p> <ul style="list-style-type: none"> <li>• An updated groundwater model report:</li> <li>• A revised final void water balance and water quality predictions.</li> <li>• A Life of Mine review of the disposed Potentially Acid Forming (PAF) material levels and a model that shows with a high level of confidence that the PAF levels are below the predicted groundwater level.</li> </ul>
<p><i>The Rehabilitation Management Plan should be reviewed to achieve the following outcomes. These are intended to meet the department's legislative, policy and water management requirements.</i></p> <ul style="list-style-type: none"> <li>• <i>Sharing of water must protect the water source, its dependent ecosystems and basic landholder rights.</i></li> </ul>	<p>The SMC Rehabilitation Objectives and Rehabilitation Completion Criteria include objectives to hold sufficient water allocations throughout rehabilitation activities, ensuring that shared water sources, dependent ecosystems, and basic landholder rights would be protected.</p>

**Table 8 (Continued):  
DPE-Water comments on the Rehabilitation Management Plan**

Comment (Attachment B)	SCPL Response
<ul style="list-style-type: none"> <li>Water sources, floodplains and dependent ecosystems are protected and restored.</li> </ul>	<p>The SMC Rehabilitation Objectives and Rehabilitation Completion Criteria include objectives to restore ecosystem function by establishing self sustaining native ecosystems, thereby protecting and restoring water sources, floodplains and dependent ecosystems.</p>
<ul style="list-style-type: none"> <li>Activities within a water source should avoid or minimise land degradation, including soil erosion, compaction, geomorphic instability, contamination, and where possible land should be rehabilitated.</li> </ul>	<p>SCPL's overarching objective for the final rehabilitated landform is to establish a safe, stable and non-polluting landform compatible with the surrounding landscape and fit for sustaining the intended post mining land use. The SMC Rehabilitation Objectives and Rehabilitation Completion Criteria include reference to achieving geotechnical and geochemical stability, particularly in water sources that are retained in the final landform</p>
<ul style="list-style-type: none"> <li>The final Rehabilitation Management Plan is made electronically available on a public accessible website.</li> </ul>	<p>The SMC Rehabilitation Management Plan is available on the SMC's website.</p>
<ul style="list-style-type: none"> <li>A conceptual model/diagram clearly presents how the groundwater and surface water systems interact with the final landform. This is to be informed by recent environmental assessments/modelling reviews.</li> </ul>	<p>SCPL is preparing predictive surface water balance and post-mining groundwater models to understand how the groundwater and surface water systems would interact with the final landform at the SMC. Upon completion of these models, the reports would be provided to DPE-Water.</p>
<ul style="list-style-type: none"> <li>The final design and location of surface drainage features achieves a stable landform and maintains or improves riparian corridor functioning. This is to be completed with reference to industry guidelines such as: "Rehabilitation Manual for Australian Streams (LWRRDC 2000)", "Guideline: Works that interfere with water in a watercourse for a resource activity (DNRME 2019)" and "Guidelines for Controlled Activities on Waterfront Land (2012)" or their latest versions.</li> </ul>	<p>The SMC Rehabilitation Objectives and Rehabilitation Completion Criteria include objectives to create final landforms that are hydraulically and geomorphologically stable, with riparian vegetation that is the same or better than prior to mining. Notwithstanding, SCPL has updated the SMC Rehabilitation Objectives and Rehabilitation Completion Criteria to include reference to the relevant industry guidelines.</p>
<ul style="list-style-type: none"> <li>Dirty runoff catchment areas are rehabilitated and the conveyance of clean surface runoff downstream is maximised.</li> </ul>	<p>The SMC Rehabilitation Objectives and Rehabilitation Completion Criteria, and this RMP, include commitments to:</p> <ul style="list-style-type: none"> <li>ensure runoff from rehabilitated areas is suitable for discharge off-site to receiving environment;</li> <li>a number of permanent up-catchment diversions constructed to be stable in the long-term, and minimise the catchment area as much as reasonably practicable;</li> <li>maintain sediment dams downstream of the waste emplacements until the revegetated surface is stable and the runoff water quality is suitable for release off site as described in the WAMP; and</li> <li>conduct water quality monitoring (of rehabilitation runoff) as per the SMC Water Management Plan.</li> </ul>
<ul style="list-style-type: none"> <li>Decommissioning of groundwater boreholes is in accordance with the "Minimum Construction Requirements for Water Bores in Australia (2020)".</li> </ul>	<p>Any groundwater boreholes at the SMC would be decommissioned and rehabilitated in accordance with the <i>Minimum Construction Requirements for Water Bores in Australia (2020)</i> as per the SMC Groundwater Management Plan.</p>

**Table 8 (Continued):**  
**DPE-Water comments on the Rehabilitation Management Plan**

Comment (Attachment B)	SCPL Response
<ul style="list-style-type: none"> <li><i>Ongoing water take by the final landform via interception, storage or diversion is quantified and complies with relevant approvals and licences under the Water Management Act 2000 or a relevant exemption. Please note exemptions from the requirement to hold approvals under s.90 and 91 of the Water Management Act 2000 for approved SSD/SSI projects will not apply once the project approval ceases. Therefore, any relevant water management works that are to be retained will need to obtain an approval prior to the development consent lapsing.</i></li> </ul>	<p>Prior to relinquishment of the SMC Project Approval (SSD-4966), the appropriate approvals would be acquired for water management purposes relevant to the final landform.</p>
<ul style="list-style-type: none"> <li><i>Aquifer interference activities are designed to minimise ongoing water take and water quality impacts and meet the requirements of the NSW Aquifer Interference Policy.</i></li> </ul>	<p>The SMC Rehabilitation Objectives and Rehabilitation Completion Criteria include objectives to prevent final voids from presenting a risk to important groundwater ecosystems and assets and have been updated to include reference to the <i>NSW Aquifer Interference Policy</i>.</p>
<ul style="list-style-type: none"> <li><i>In-pit PAF material be stored below the predicted post-mining groundwater table and is non-polluting.</i></li> </ul>	<p>The SMC Rehabilitation Objectives and Rehabilitation Completion Criteria include objectives to store in-pit PAF material appropriately below the predicted post-mining groundwater table and be non-polluting.</p>
<ul style="list-style-type: none"> <li><i>Final voids do not present a risk to important groundwater ecosystems and assets (groundwater dependent ecosystems, alluvial aquifers, and landholder bores).</i></li> </ul>	<p>As stated above, the SMC Rehabilitation Objectives and Rehabilitation Completion Criteria include objectives to prevent final voids from presenting a risk to important groundwater ecosystems and assets (groundwater dependent ecosystems, alluvial aquifers, and landholder bores) and have been updated to include reference to the <i>NSW Aquifer Interference Policy</i>.</p>
<ul style="list-style-type: none"> <li><i>Final voids are designed to be sinks or to flow through the local groundwater system and need to be confirmed by a post-mining groundwater model.</i></li> </ul>	<p>SCPL is preparing predictive surface water balance and post-mining groundwater models to understand how the groundwater and surface water systems would interact with the final landform at the SMC. Rehabilitation Objectives and Rehabilitation Completion Criteria include the objective for final voids to be sinks or flow through systems for the local groundwater system, as confirmed by predictive post mining groundwater model.</p> <p>Upon completion of these models, the reports would be provided to DPE Water.</p>
<ul style="list-style-type: none"> <li><i>Residual risk to water sources is clearly understood and minimised. This is to include relevant assessment documentation and updated risk assessments to meet the requirements of the NSW Aquifer Interference Policy. Further detail can be found in Fact Sheet 5 in Appendix C of the “Guidelines for Groundwater Documentation for SSD/SSI Projects. Technical guideline (DPE 2022)”.</i></li> </ul>	<p>A closure and rehabilitation risk assessment was conducted by IEMA (2021) to identify any residual risks for the SMC. The SMC Rehabilitation Objectives and Rehabilitation Completion Criteria have also been updated to include reference to the <i>NSW Aquifer Interference Policy</i>.</p>

**Table 8 (Continued):**  
**DPE-Water comments on the Rehabilitation Management Plan**

Comment (Attachment B)	SCPL Response
<ul style="list-style-type: none"> <li><i>A monitoring and review program is included to ensure the rehabilitation outcomes are met.</i></li> </ul>	<p>Rehabilitation at the SMC has been monitored since 2013 to ensure vegetation is establishing in the rehabilitation areas and to determine the need for any maintenance and/or contingency measures. Quality assurance measures would be undertaken, integrated into day-to-day operations, and implemented throughout the life of the operation until rehabilitation relinquishment has been achieved.</p> <p>SCPL also reports on rehabilitation within the SMC Annual Reviews and Annual Rehabilitation Report which is made publicly available on the SMC's website.</p>

This RMP has been provided to the NSW Resources Regulator and key stakeholders for comment. All correspondence with key stakeholders to date is included in the Record of Consultation provided in Attachment B.

### **Mine Closure Consultation**

Proposed rehabilitation and post-mining land use concepts have been continuously developed throughout the SMC approval process, in consultation with relevant government agencies and key stakeholders, including the SMC's CCC.

Results of consultation undertaken with the stakeholders have been incorporated into the SMC RMP.

SCPL will continue to consult with relevant government agencies and the community throughout the mine life and during mine closure.

### **Community Consultative Committee**

The SMC's CCC was established in 2003 in accordance with Schedule 6, Condition 5 of Development Consent (SSD-4966) and operates under the guidance of the DPE. Meetings are held quarterly and provide a forum for open discussion between the community, SCPL, the MCC, and other stakeholders on issues relating to the mine's operations, environmental performance and community engagement.

The CCC for the SMC is currently comprised of:

- an independent Chairperson;
- five local community representatives;
- two local government representatives (MCC); and
- two SCPL representatives.

The CCC conducts meetings either on-site or at a location in the local community. The CCC undertakes regular inspections, reviews environmental and audit reports and discusses any concerns, incidents or complaints that may have been registered. The CCC members are an active conduit between local communities and the SMC. Minutes are taken from each meeting and published on the SMC's website.

Items of discussion at these meetings include (but are not limited to) mine progress, rehabilitation activities, environmental monitoring reporting, complaints and any environmental assessments undertaken. Outcomes from CCC meetings and community liaison activities are documented annually in the Annual Review.

The CCC will continue to be consulted regarding mine closure process, objectives and concepts.

### ***Aboriginal Groups***

Consultation with Aboriginal groups about the SMC has been extensive and involved various methods including advertisements, meetings, correspondence and archaeological survey attendance prior to the commencement of, and during, the operation of the SMC. Numerous groups have been consulted about the SCM to date, including:

- Forster Local Aboriginal Land Council;
- Gloucester Worimi First People;
- Karuah Local Aboriginal Land Council;
- Maaiangal Group, Worimi Nation;
- Mookibakh Traditional Owners Inc.; and
- Doo-wa-kee Cultural & Heritage Surveys.

These groups will continue to be consulted during mine closure.



## 5 FINAL LANDFORM AND REHABILITATION PLAN

### 5.1 FINAL LANDFORM AND REHABILITATION PLAN – ELECTRONIC COPY

A FLRP has been prepared to show the proposed final land use and final landform at the end of the mine life. These plans are generally in accordance with the details of the EIS, the Development Consent (SSD-4966) and subsequent assessments.

A simplified version of the FLRP has been developed and included in the body of this RMP as Plans 1 and 2. These plans include the following:

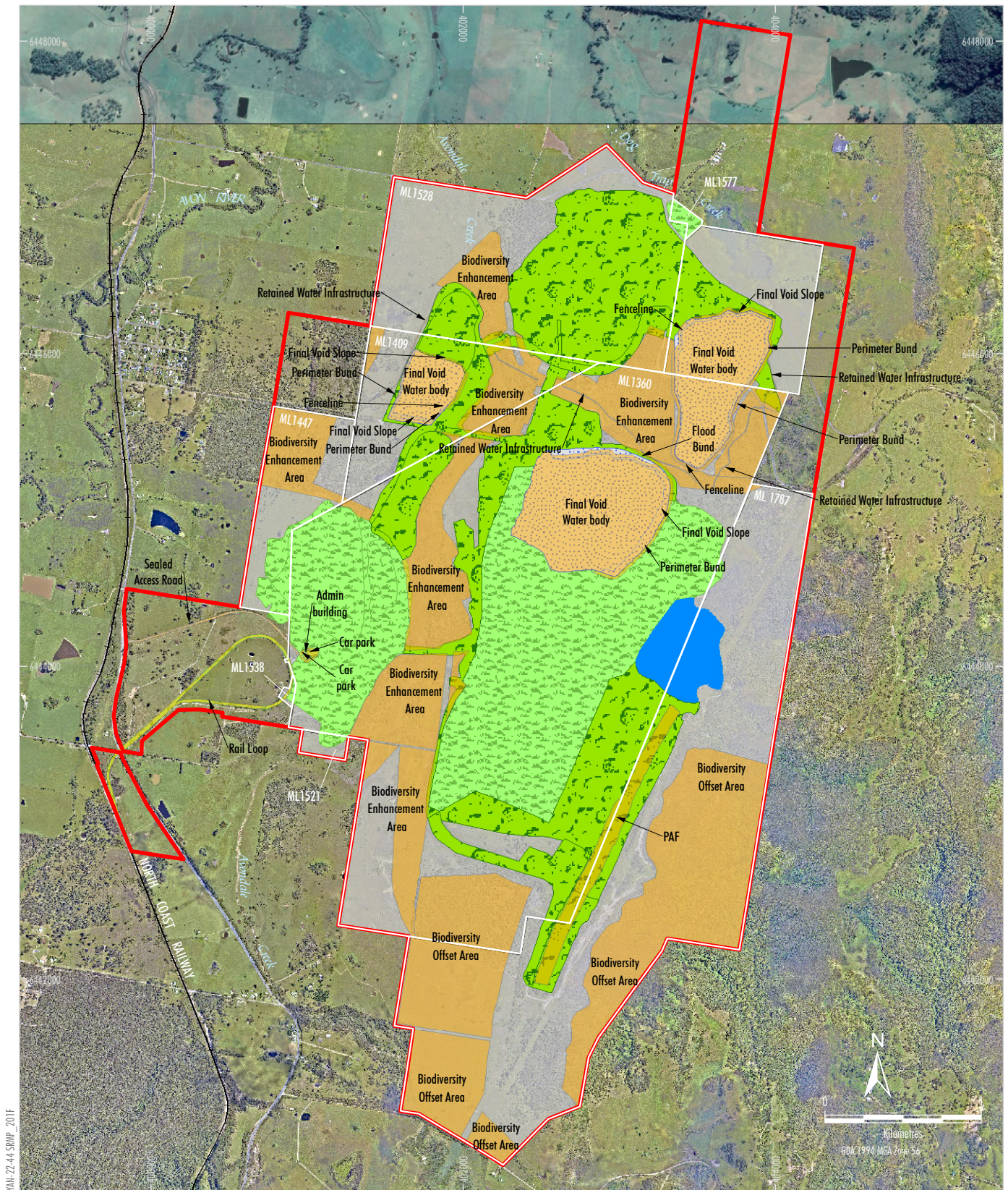
- Plan 1 (Final Landform Features):
  - Final Land Use Domains.
  - Final Landform Features.
  - Project Approval Boundary.
  - Current Titles.
  - Mine Operations Area.
- Plan 2 (Final Landform Contours):
  - Final Landform Contours.
  - Project Approval Boundary.
  - Current Titles.
  - Mine Operations Area.

In accordance with Clause 12, Schedule 8A of the *Mining Regulation 2016*, the SMC FLRP was submitted to the NSW Resources Regulator for approval. On 24 November 2022, the NSW Resources Regulator provided comments on the SMC FLRP. The revised FLRP was submitted to the NSW Resources Regulator for approval on 23 December 2022. On 12 April 2023, the NSW Resources Regulator provided additional commentary on the SMC FLRP. The revised FLRP was submitted to the NSW Resources Regulator for approval on 12 May 2023 addressing the NSW Resources Regulator's additional review commentary.

The NSW Resources Regulator approved the SMC FLRP on 22 August 2023. This RMP has been amended to incorporate the revised Plans 1 and 2 (i.e. SMC FLRP) which incorporates comments from the NSW Resources Regulator in accordance with Clause 11, Schedule 8A of the *Mining Regulation 2016*.

SCPL notes that the NSW Resources Regulator has requested a supporting report be prepared to assess whether the environmental outcomes of the final landform at the SMC (as presented in the FLRP) are consistent with those assessed as part of the SEP EIS (SCPL, 2012). SCPL is committed to submitting this report for the NSW Resources Regulator's records and consideration in Q2 2024.





YAN-22-44 SCMP\_201F

- LEGEND**
- Project Approval Boundary\*
  - Coal - Current Titles
  - Final Landform Features
  - Final Landuse Domain
  - Agricultural — Grazing
  - Final Void
  - Native Ecosystem
  - Water Storage (Excluding Final Void)

Source: Orthophoto - Yancoal (2021);  
LPI (2016); NSW Department of Planning & Environment (2017)



## STRATFORD EXTENSION PROJECT

### Final Landform Features

\* Note: Appendix 1 Schedule of Land in Development Consent (SSD-4966) includes some part lots.  
For simplicity, whole lots are included in the graphical representation shown on this figure.





YAN-22-44 SCMP\_2020

- LEGEND**
- Project Approval Boundary\*
  - Coal - Current Titles
  - Final Landform Contours (5 m intervals)

Source: Orthophoto - Yancoal (2021);  
LPI (2016); NSW Department of Planning & Environment (2017)



## STRATFORD EXTENSION PROJECT

### Final Landform Contours

\* Note: Appendix 1 Schedule of Land in Development Consent (SSD-4966) includes some part lots.  
For simplicity, whole lots are included in the graphical representation shown on this figure.



## 6 REHABILITATION IMPLEMENTATION

### 6.1 LIFE OF MINE REHABILITATION SCHEDULE

In accordance with Condition 5, Schedule 2 of the Development Consent (SSD-4966) mining activities at the SMC are authorised until 31 December 2025. Areas disturbed by the SMC have been progressively rehabilitated throughout mining activities in accordance with the schedules in previous MOP/RMPs and as reported in the Annual Reviews.

Rehabilitation at the SMC is undertaken progressively, behind advancing open cut or once areas become available for rehabilitation and aims to create a structurally stable landform capable of sustaining the agreed post-mining land use(s).

Table 9 and Plans 3A to 3D outlines the proposed rehabilitation schedule over the life of the SMC, from the commencement of this RMP (i.e. 1 July 2022) until mine closure and the achievement of the completion criteria for each final land use domain. The SMC Annual Rehabilitation Report and Forward Program provides further details of activities at the SMC from 1 July 2022 to 30 June 2025.

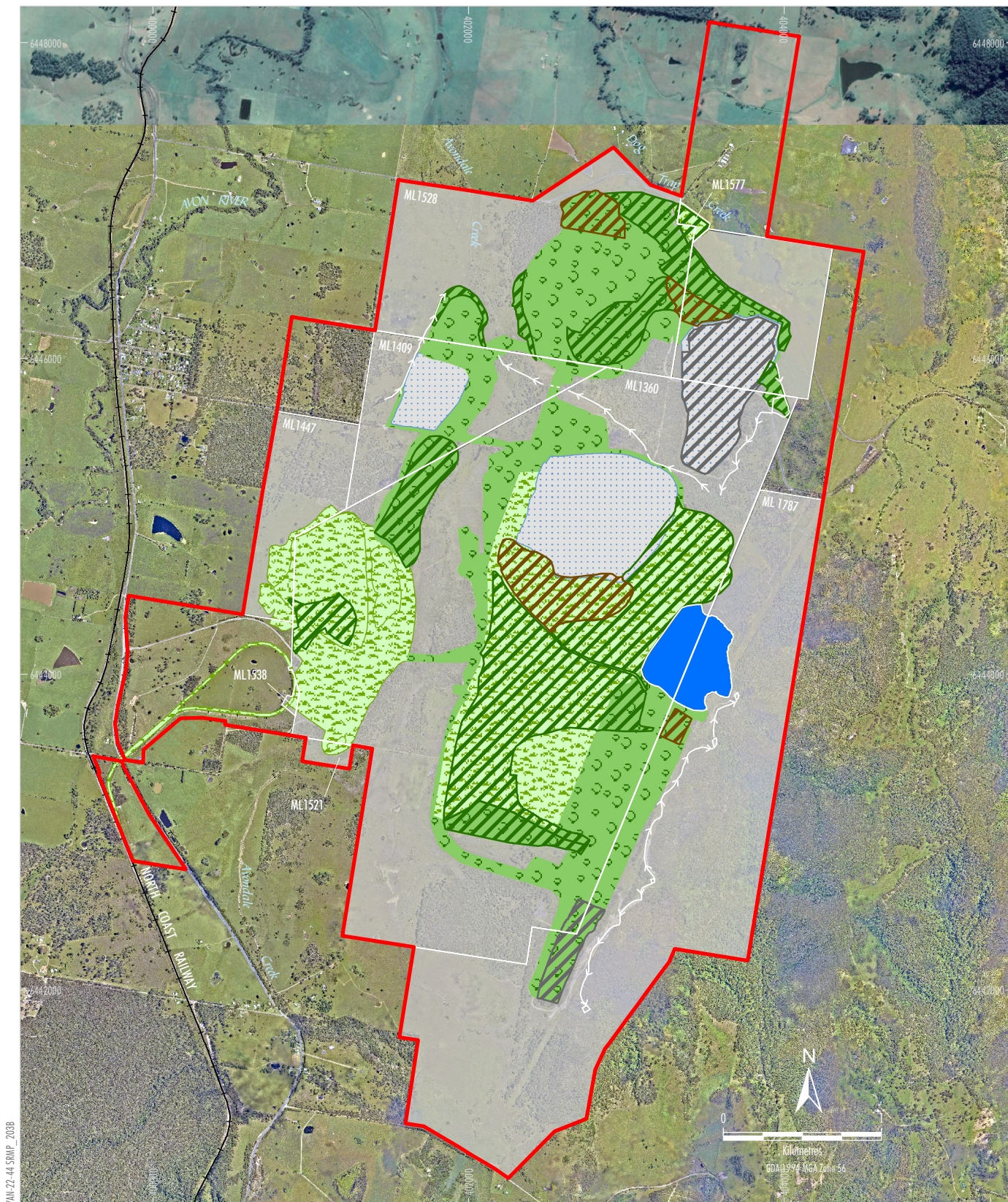
**Table 9:  
Proposed Rehabilitation Schedule Over the Life of the SMC**

Year	Total Disturbance Area (ha) <sup>1</sup>	Incremental Rehabilitation Area (ha)	Cumulative Rehabilitation Area (ha) <sup>2</sup>	Comments/Explanation
Prior to RMP commencement (i.e. up to June 2022).	757.6	269.1	269.1	Areas of existing rehabilitation are expected to progress. Ongoing progressive rehabilitation.
Year 3 (2025).	757.6	256.2	525.3	Mining operations cease 31 December 2025. SMC transitions to mine closure. Completion of key infrastructure decommissioning (e.g. including water management infrastructure). Completion of all bulk earth works, landform establishment and ecosystem establishment.
Year 8 (2030).	757.6	232.3	757.6	All areas of disturbance have minimum ecosystem establishment level of rehabilitation. Monitoring and maintenance phase.
Year 13 (2035).	757.6	0	757.6	Achievement of the Rehabilitation Completion Criteria. Sign-off and relinquishment phase.

<sup>1</sup> Total Disturbance Area includes areas of land which are within the Active and Decommissioning phases.

<sup>2</sup> Total Rehabilitation Area includes areas of land which are within the Landform Establishment and Growth Medium Development, Ecosystem and Land Use Establishment, and Ecosystem and Land Use Sustainability phases.





YAN-22-44 SCMP\_2038



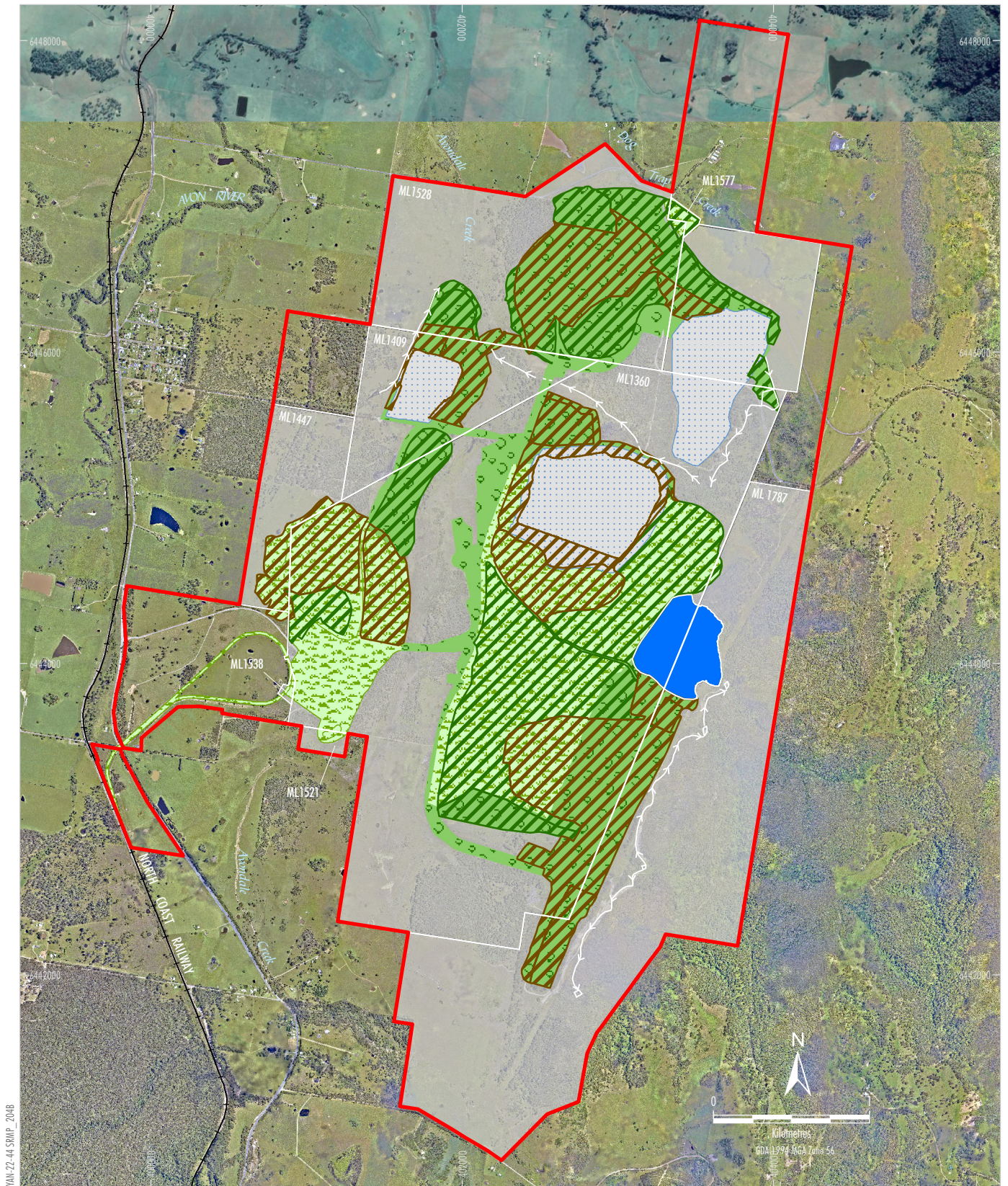
Source: Orthophoto - Yancoal (2021);  
LPI (2016); NSW Department of Planning & Environment (2017)



**STRATFORD EXTENSION PROJECT**  
**Life of Mine Rehabilitation Schedule -**  
**RMP Commencement (2022)**

\* Note: Appendix 1 Schedule of Land in Development Consent (SSD-4966) includes some part lots. For simplicity, whole lots are included in the graphical representation shown on this figure.





YAN-22-44 SCMP\_2048

LEGEND			
	Project Approval Boundary*		Final Land Use
	Coal - Current Titles		Agricultural - Grazing
			Final Void
			Native Ecosystem
			Water Storage (Excluding Final Void)
			Rehabilitation Phase
			Landform Establishment
			Ecosystem and Land Use Establishment

Source: Orthophoto - Yancoal (2021);  
LPI (2016); NSW Department of Planning & Environment (2017)

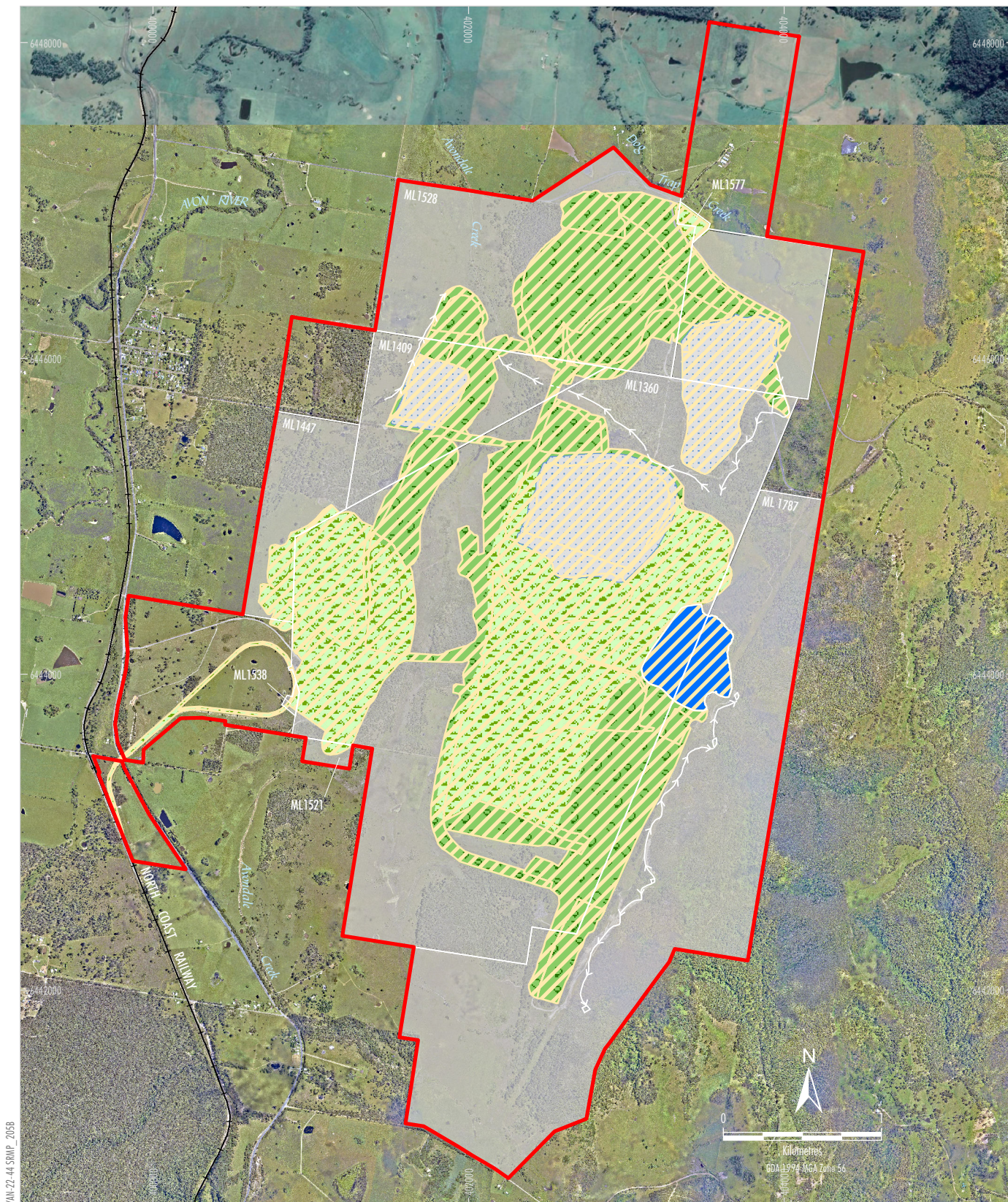


## STRATFORD EXTENSION PROJECT

### Life of Mine Rehabilitation Schedule - Year 3 (2025)

\* Note: Appendix 1 Schedule of Land in Development Consent (SSD-4966) includes some part lots. For simplicity, whole lots are included in the graphical representation shown on this figure.





YAN-22-44 SCMP\_2058



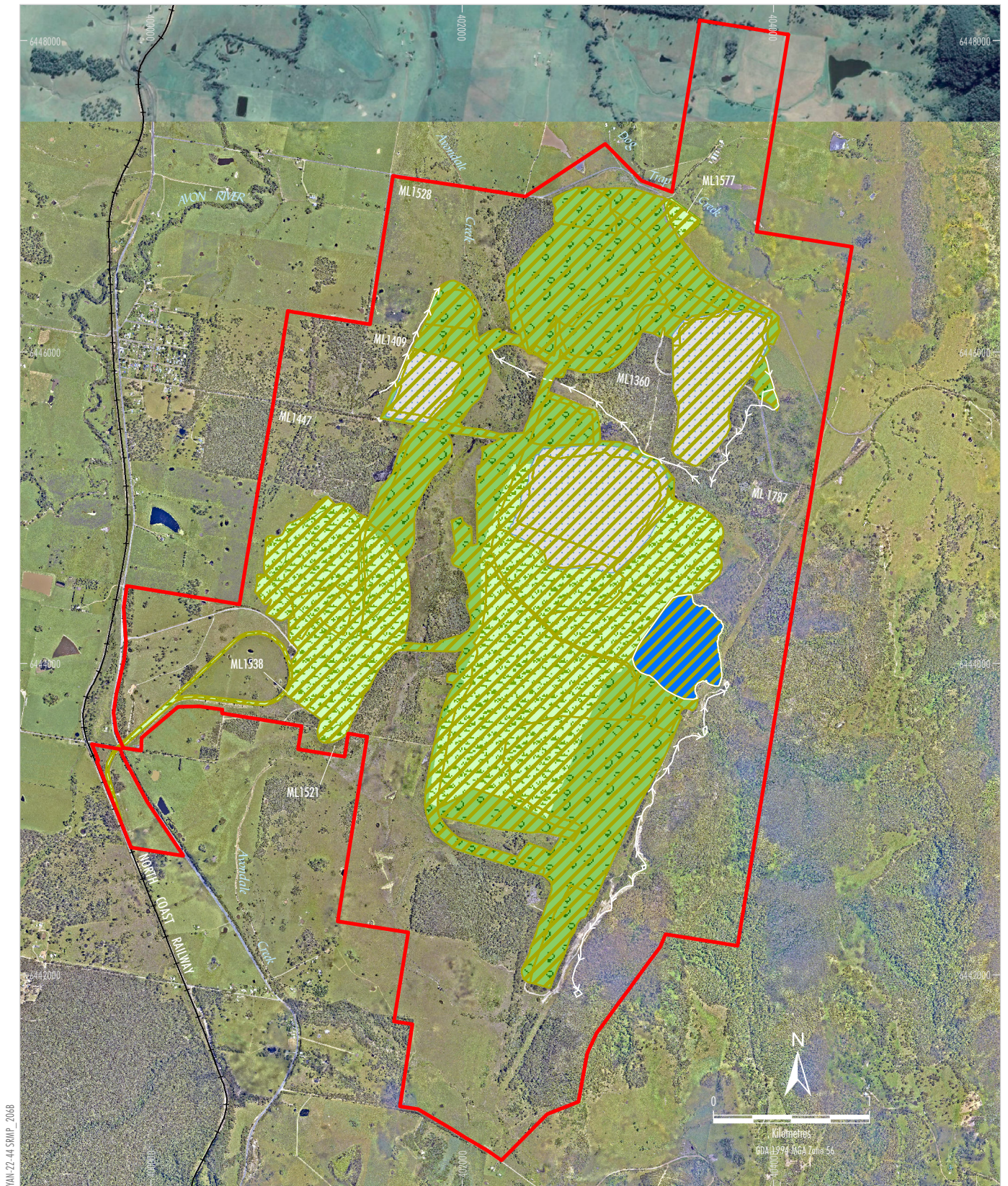
Source: Orthophoto - Yancoal (2021);  
LPI (2016); NSW Department of Planning & Environment (2017)



**STRATFORD EXTENSION PROJECT**  
**Life of Mine Rehabilitation Schedule -**  
**Year 8 (2030)**

\* Note: Appendix 1 Schedule of Land in Development Consent (SSD-4966) includes some part lots. For simplicity, whole lots are included in the graphical representation shown on this figure.





YAN-22-44 SCMP\_2068



Source: Orthophoto - Yancoal (2021);  
LPI (2016); NSW Department of Planning & Environment (2017)



**STRATFORD EXTENSION PROJECT**  
**Life of Mine Rehabilitation Schedule -**  
**Year 13 (2035)**

\* Note: Appendix 1 Schedule of Land in Development Consent (SSD-4966) includes some part lots.  
For simplicity, whole lots are included in the graphical representation shown on this figure.



In developing the rehabilitation schedule, several assumptions were made to ensure that rehabilitation is undertaken progressively and as soon as reasonably practicable, including:

- No major changes to mining schedules due to market conditions or other reasons.
- There are no extreme weather events that would prohibit landform establishment or rehabilitation progression (e.g. severe and prolonged dry or wet periods).
- Availability of suitable seed and tubestock.
- Workforce constraints (e.g. COVID-19 or other pandemic).

## 6.2 PHASES OF REHABILITATION AND GENERAL METHODOLOGIES

The rehabilitation methodologies described in this section have been developed in consideration of the key risks identified at the SMC from the 2021 *Closure & Rehabilitation Risk Assessment* (IEMA, 2021) (Section 3). The methodologies are link to the risk reduction strategies/actions developed to adequately control the individual risk items as described in Section 3 and Attachment A.

The final land use objectives will be achieved through a series of rehabilitation phases as defined in the NSW Resources Regulator's Form and Way – *Rehabilitation Management Plan for Large Mines* and detailed below:

- **Active** – The NSW Resources Regulator's Form and Way – *Rehabilitation Management Plan for Large Mines* states that in the context of rehabilitation, land associated with mining domains is considered 'active' for the period following disturbance until the commencement of rehabilitation.
- **Phase 1: Decommissioning** – Removal of infrastructure associated with mining activities including preparation plants, hard stand areas, buildings, contaminated materials and hazardous materials. This phase of rehabilitation may also include studies and assessments associated with decommissioning and demolition of infrastructure or works carried out to make safe or 'fit for purpose' built infrastructure to be retained for future use(s) following lease relinquishment.
- **Phase 2: Landform Establishment** – This phase of rehabilitation consists of the processes and activities required to construct the approved final landform (as per the development consent and, for large mines, the approved FLRP). 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). The landform design and construction part of this phase incorporates gradient, slope, aspect, drainage, substrate material characterisation and morphology.
- **Phase 3: Growing Media 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). 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. Additional characterisation of materials e.g. subsoils, topsoils, organic additives and overburden surface is usually required in this phase to cross check data from the earlier phases.
- **Phase 4: Ecosystem and Land Use Establishment** – This phase of rehabilitation consists of the processes to establish the approved final land use following construction of the final landform. For vegetated land uses this rehabilitation phase includes establishing the desired vegetation community (e.g. seeding or tube stocking) and implementing land management activities such as weed control. This phase of rehabilitation may also include habitat augmentation such as installation of nest boxes.



- **Phase 5: Ecosystem and Land Use Development** – This phase of rehabilitation consists of the activities to manage maturing rehabilitation areas on a trajectory to achieving rehabilitation objectives, completion criteria and the FLRP. Completion criteria for this phase will include components of floristic structure, nutrient cycling recruitment and recovery, community structure and function which are the key elements of a sustainable landscape.
- **Phase 6: Rehabilitation Completion** – This final phase of rehabilitation occurs where a rehabilitation area has achieved the final land use for the mining area as stated in the approved rehabilitation objectives and the approved rehabilitation completion criteria and spatially depicted in the approved FLRP. Rehabilitation areas may be classified as complete when the NSW Resources Regulator has determined in writing that rehabilitation has achieved the final land use following submission of the relevant application by the lease holder.

The phases listed above, and methodologies (where relevant) are discussed in more detail in the following sub-sections.

### **6.2.1 Active Mining Phase**

As stated in Section 6.1, mining activities at the SMC are authorised until 31 December 2025. Accordingly, the following subsections summarise how key aspects of the SMC active mining phase are managed at the SMC and how relevant components may continue into the closure phase.

#### **a. Soils and Materials**

General soil resource management practices would include the stripping and stockpiling of soil resources for use in rehabilitation. The objectives of soil resource management for the SMC are to:

- identify and quantify potential soil resources for rehabilitation;
- optimise the recovery of useable soil reserves during soil stripping operations; and
- manage soil reserves so as not to degrade the resource when stockpiled.

Topsoil management measures include:

- progressive stripping of approved disturbance areas to minimise the incremental disturbance;
- avoiding topsoil stripping during unsuitable weather conditions; and
- direct placement of topsoil on rehabilitation areas where practicable in preference to stockpiling.

Topsoil material has been recovered throughout the life of the SMC mining operations. Topsoil stripping depths for the site are determined on a case-by-case basis by a competent person, considering site conditions (e.g. soil type and salinity), to ensure all topsoil resources are recovered during clearing activities. Notwithstanding, topsoil stripping depths average approximately 100 to 150 millimetres (mm) across the site (SCPL, 2012).

Long-term soil stockpiles have been managed to maintain long-term soil viability by the following key management practices:

- Topsoil stockpiles have been limited in height to a maximum of 3 metres (m).
- Soil stockpiles have been constructed to minimise erosion, encourage drainage, and promote revegetation.

- Stockpiles have been sown with a stabilising cover crop once established.
- Where additions such as lime, gypsum or fertiliser were needed to improve the condition of stripped soil, they have been applied to the soil stockpiles as a component of soil stockpiling activities.

Existing topsoil stockpiles will continue to be managed to maintain soil viability until they are all utilised as part of the rehabilitation program at the SMC.

A site topsoil balance is undertaken annually, and the volume compared to the total remaining disturbed area requiring rehabilitation. Annual reporting of the site soil balance and rehabilitation performance is provided in the SMC Annual Review.

#### **b. Flora**

##### *Vegetation Clearance and Seed Collection*

A Vegetation Clearance Protocol has been developed for the SMC and is described in the BMP. The Vegetation Clearance Protocol has been implemented for all clearing activities.

During the habitat assessment phase of the Vegetation Clearance Protocol, trees within the proposed disturbance areas may be checked for their provision of seed to be utilised in the rehabilitation program, followed by the collection of seed during felling activities. Seed collection activities may also be undertaken within the SEP offset areas or SCPL-owned lands for use in plant propagation programs to provide tube stock for revegetation activities. The seed collected (type and quantity) would be reported in the SMC Annual Review.

Seed collection activities will be undertaken in accordance with the BMP.

##### *Threatened Flora Species Management*

During surveys undertaken for the SEP Flora Assessment Report, no threatened ecological communities listed under the *Biodiversity Conservation Act 2016* (BC Act) or EPBC Act were recorded within the SEP area (FloraSearch, 2012).

FloraSearch and Ecobiological undertook a literature and database review in addition to targeted surveys to identify threatened flora species listed under the BC Act or EPBC Act which could potentially occur within the SEP area. No threatened flora species were recorded in the SEP area or immediate surrounds (FloraSearch, 2012). No threatened flora populations listed under the BC Act or EPBC Act are relevant to the SEP (FloraSearch, 2012).

More recently, BCD has advised (Attachment 1) that one threatened flora species has been recorded in the Biodiversity Enhancement Area, namely *Eucalyptus largeana* (Craven Grey Box). Craven Grey Box is listed under the BC Act and EPBC Act as Endangered.

Management measures relevant to flora species are undertaken in accordance with the BMP.

##### *Weed Management*

Weed management measures at the SMC are described in the BMP and will include:

- minimisation of seed transport from the site during construction and operation through the use of the SMC vehicle wash bay;
- identification of weeds via site inspections and communication with landholders and regulatory authorities, as well as follow up inspections to ensure success;

- mechanical removal of identified weeds and/or the application of approved herbicides in authorised areas; and
- specific control of declared weeds.

Where relevant, appropriately qualified persons will be engaged to undertake weed control. Follow-up site inspections will occur to determine the effectiveness of weed control. Weed management and monitoring results will be reported in the SMC Annual Review.

#### *Flora Monitoring Management*

The SMC Rehabilitation Monitoring Program (Section 8) includes monitoring for the presence of weeds in areas of rehabilitation. Rehabilitation monitoring results are used to inform the requirement for weed control measures in the rehabilitation areas. The SMC's soil stockpiles are also inspected for presence of weed species, and subject to weed control as required.

### **c. Fauna**

#### *Threatened Fauna Species*

A total of 28 species of the fauna recorded at the SMC or surrounds are listed as threatened species under either the BC Act or EPBC Act (AMBS, 2012). This includes 15 species of birds and 13 species of mammals.

The potential impacts to fauna are currently managed through the implementation of measures included in the BMP and Squirrel Glider Management Plan.

#### *Threatened Fauna and Migratory Species under the Commonwealth EPBC Act*

The New Holland Mouse is listed as Vulnerable under the EPBC Act and is the only threatened species listed under the EPBC Act to have been recorded in the additional surface development area. The New Holland Mouse is not listed as a threatened species under the BC Act. The Grey-headed Flying-fox and Long-nosed Potoroo are also listed as threatened under the EPBC Act and have been recorded in the vicinity of the SMC (AMBS, 2012).

Eleven migratory bird species listed under the EPBC Act have been recorded within the SMC or surrounds. These include the: Fork-tailed Swift, Rainbow Bee-eater, Great Egret, Cattle Egret, Satin Flycatcher, Rufous Fantail, Black-faced Monarch, Spectacled Monarch, Double-banded Plover, Latham's Snipe and White-bellied Sea-eagle (AMBS, 2012).

#### *Fauna Habitat Management*

Fauna habitat management measures during vegetation clearance are described in the BMP. Where practicable, clearance of habitat trees will occur during late summer or early autumn to minimise impacts to a large range of fauna breeding during spring and summer, and fauna which will hibernate during winter (e.g. microbats).

If clearance of habitat trees is required outside of this time period, then suitably qualified personnel will assess the habitat to be disturbed and determine the appropriate vegetation clearance procedures (refer to BMP). Clearance of derived native grassland or non-habitat trees or shrubs will occur at any time of year.



### *Habitat Enhancement and Nest Box Program*

Habitat features (e.g. trunks, logs, large rocks, branches, small stumps and roots) are salvaged during vegetation clearance activities and stockpiled for relocation to nearby areas (i.e. rehabilitation areas, biodiversity enhancement areas or biodiversity offset areas). When relocated, these features are likely to provide habitat resources for a range of invertebrate and ground dwelling fauna.

Some tree hollows salvaged during vegetation clearance activities will be selectively chosen for placement in areas where habitat enhancement is required. These features may be securely attached to suitable trees or placed on the ground. Tree hollows placed in trees will be monitored according to the nest box program.

The existing nest box program is in place at the SMC to provide nesting habitat for birds, arboreal mammals, and bats and is documented in the BMP. Nest boxes will continue to be installed during this RMP to provide habitat opportunities for arboreal fauna in the short to medium-term in accordance with Condition 38(g), Schedule 3 of Development Consent (SSD-4966).

Once installed, the nest boxes will be monitored by suitably qualified personnel to observe fauna usage and the monitoring results will be reported in the Annual Review.

The nest box program is described in detail in the BMP.

### *Vertebrate Pest Management*

Management of pest animals at the SMC (including rehabilitation areas) is undertaken in accordance with the BMP. Measures to control pest animals include:

- Monitor the abundance of pest animals.
- Identification of suitable control methods for target pest animals (e.g. trapping and/or baiting for European Rabbits and European Red Foxes).
- Implementation of the selected control methods on the target pest animals.
- Re-monitor the abundance of pest animals to evaluate the effectiveness of the control methods.
- Follow-up control where previous control has been sub-optimal.

As described in the SEP EIS Terrestrial Fauna Assessment (AMBS, 2011b), some pest animal prevention and management techniques will include 1080 fox baiting and Pindone poison carrots for rabbits implemented in a manner that will minimise or eliminate collateral mortality of native fauna.

Control measures will be implemented by mine staff or by an appropriate Pest Control Contractor(s) as required. All personnel involved in pest animal control will be required to hold relevant and valid licences/permits, including any relevant chemical licences for pesticide use. The Humane Pest Animal Control: *Code of Practice and Standard Operating Procedures* (DP&I, 2013, or its revision) will be followed.

A selection of these techniques or additional techniques may be undertaken depending on the pest animal species which is in an abundance that requires control (as determined through monitoring) and the success of these control techniques. The control of pest animals is intended to be adaptive and will be informed/reviewed based on monitoring.

**d. Rock/Overburden Emplacement**

Waste rock will continue to be mined from the Avon North Open Cut and Stratford East Open Cut and will be used to backfill the BRNOC and Stratford East Open Cut, and the northern extent of the Roseville West Open Cut, and will be placed in the Eastern Emplacement Area.

No additional waste rock will be mined from the Stratford Main Pit.

Waste rock material extracted from the Stratford East Open Cut is expected to be PAF, with some potentially acid forming – low capacity (PAF-LC) and NAF materials also present. Extracted PAF material will be placed in a constructed PAF waste cell within the Eastern Emplacement Area, or within the Stratford East Open Pit below the predicted final water table recovery level. In accordance with Condition O6.14 of SMC's EPL 5161, SCPL has submitted the out-of-pit waste rock emplacement PAF cell design to the EPA for approval.

**e. Waste Management**

Key waste streams (apart from waste rock and CHPP rejects) generated at the SMC comprise:

- recyclable and non-recyclable general wastes;
- sewage and wastewater; and
- other wastes from mining and workshop activities (e.g. used tyres, scrap metal and waste hydrocarbons and oil filters).

General waste minimisation principles (i.e. reduce, re-use and recycle) will continue to be applied at the SMC to minimise the quantity of wastes that require off-site disposal.

All general domestic waste (e.g. general solid [putrescibles] waste and general solid [non-putrescible] waste as defined in *Waste Classification Guidelines Part 1: Classifying Waste* [NSW EPA, 2014]) and general recyclable products will continue to be collected by an appropriately licensed contractor. SCPL will maintain a register of regulated waste collected by the licensed waste contractor.

Waste tyres will continue to be stockpiled and disposed in the backfilled sections of pit voids. Tyres will be placed in discrete lots and buried with a minimum cover of 5 m, and avoid other combustible material. Records of buried locations and depths will continue to be recorded during the RMP term.

Exploration waste and other waste will be disposed of in-pit voids.

Scrap metal at the workshops will continue to be collected by a scrap metal merchant for recycling. Waste hydrocarbons and oil filters are currently collected, stored and removed by licensed contractors.

The current collection and storage methods (including containment of waste oil/grease tanks/drums within a separate bunded area at the workshop) will continue, with removal of waste hydrocarbons and oil filters by licenced contractors.

Soil and waste rock contaminated with hydrocarbons will be treated in bioremediation areas or disposed of offsite by a licenced contractor.

Sewage treatment at the SMC comprises:

- a 'Biotreat' tank system (including primary settlement and aeration) located at the site office;
- a septic tank system located at the training building near the site office;
- an active aeration system located at the bath-house complex near the site office;

- a primary treatment and aeration system located at the CHPP; and
- a septic tank system and transpiration trench located at the rail load-out bin.

Treated/grey water from the sewage treatment systems near the site office are sprayed onto grassed areas adjacent to the buildings. Treated water from the sewage treatment system located at the CHPP is sprayed on vegetated areas south of the CHPP.

The existing sewage treatment facilities (with upgrades as required) and treated/grey water spray areas will continue to be operated in a manner to the satisfaction of the MCC and in accordance with the *Environmental Guidelines: Use of Effluent by Irrigation* (NSW Department of Environment and Conservation, 2004).

#### **f. Geology and Geochemistry**

##### *Geology*

The coal resource mined at the SMC is located within the Permian aged Gloucester Basin in NSW. The SMC is located in the central eastern flank of the north-south trending synclinal structure of the Gloucester Basin. In this area, a thick sequence of Carboniferous volcanics is overlain by late Permian sedimentary strata including coal seams. The Permian succession is divided into the following three groups (oldest to youngest):

- Stroud Volcanics;
- Dewrang Group; and
- Gloucester Coal Measures.

The target coal seams at the SMC are located within the Craven and Avon Subgroups of the Gloucester Coal Measures and within the Dewrang Group, including

- Marker 7 Seams;
- Bindaboo Seams;
- Deards Seams;
- Cloverdale Seams;
- Roseville Seams;
- Bowens Road Seams;
- Avon Seams;
- Glenview Seams;
- Marker 2 Seams;
- Triple Coal Seams;
- Cheer-up Seams;
- Clareval Seams; and
- Rombo Coal Seams.

The Cloverdale, Roseville, Marker, Bowens Road and Avon Seams have been previously mined at the SMC. Coal seams in the SMC area are generally of constant thicknesses except to the east where thrust faulting has thickened and repeated strata, which is further complicated by the steeply dipping syncline structure. A description of the local geology and geological features (including faulting) in the vicinity of the SMC is provided in the SEP Groundwater Assessment (Heritage Computing Pty Ltd, 2012).

### *Geochemistry*

An assessment of the geochemical characteristics of the waste rock material and CHPP rejects material associated with the development of the SEP is provided in the SEP Geochemistry Assessment (Environmental Geochemistry International Pty Ltd, 2012) and available on the SMC's website.

Waste rock materials generated from the BRNOC would generally be expected to be NAF, similar to waste rock material generated from future access into the Roseville West Pit Extension, which is also expected to be NAF.

Based on the acid base accounting test work, the Avon North Open Cut would generally be expected to be NAF. A small quantity of overburden immediately adjacent to some of the coal seams would however, be PAF.

In general waste rock material generated from the Stratford East Open Cut is expected to be PAF, with some PAF-LC and NAF materials also present.

The co-disposed CHPP rejects generated at the SMC were expected to be PAF or PAF-LC, with low Acid Neutralising Capacity (ANC) and fast rates of reaction (Environmental Geochemistry International Pty Ltd, 2012).

To control the risk of adverse outcomes from incorrect management of PAF materials, the selective handling of PAF material is describe in Section 6.2.1h below.

To control the risk of adverse outcomes from incorrect management of CHPP rejects materials, the handling and storage of CHPP rejects material is describe in Section 6.2.1i below.

### ***g. Material Prone to Spontaneous Combustion***

Spontaneous combustion is oxidation at exposed coal surfaces which occurs at or near ambient temperature producing heat energy. Spontaneous combustion at the SMC is uncommon. Two spontaneous combustion incidents have occurred historically in the Stratford Main Pit and were associated with the Glenview Seam being exposed in the final highwall or endwall. Further, isolated occurrences of spontaneous combustion within product stockpiles.

The management and mitigation measures in the SMC Spontaneous Combustion Management Procedure will continue to be implemented to reduce the potential for, or impacts from, spontaneous combustion events.

### ***h. Material Prone to Generating Acid Mine Drainage***

The potential risks associated with PAF material are described in the Geochemical Assessment and also in the *2021 Closure and Rehabilitation Risk Assessment* (IEMA, 2021) (Attachment A). PAF material at the SMC is managed in accordance with the Surface Water Management Plan (SWMP). PAF management at the DCM includes the following components:

- PAF material identification and separation procedures;
- PAF material storage procedures; and



- monitoring of surface water and groundwater to determine the effectiveness of PAF material controls.

The targeted coal seams in the Stratford East Open Cut are equivalent to those mined at the DCM. Consistent with the PAF material management procedures adopted at the DCM, waste rock material from the Stratford East Open Cut will be segregated and selectively handled and then placed in either in-pit (below the predicted final water table recovery level) or out-of-pit waste rock emplacements (PAF waste cells).

For in-pit waste rock emplacement, PAF waste rock material will be placed below the predicted final water table recovery level. For the out-of-pit PAF cells, PAF waste rock material will be encapsulated within constructed containment cells and capped with a low permeability layer. The in-pit or out-of-pit engineered PAF waste cells will be constructed in accordance with designs prepared by a suitably qualified person. The design for the Eastern Emplacement Area PAF waste cell has been prepared by ATC Williams Pty Ltd and was submitted to the EPA for approval in February 2020, with additional information requested by the EPA provided in October 2020.

During operations, limestone would be placed on the open pit floor, interim waste rock in-pit and out-of-pit waste rock emplacement lifts/faces where PAF material is present in accordance with the Life of Mine Rejects Disposal Plan and the PAF Material Management Plan included in the SWMP, to minimise the release of acid rock drainage products.

Additional geochemical characterisation and investigation will be undertaken over the life of the SMC, including waste rock/roof rock PAF/NAF distribution.

SCPL will develop a PAF material handling and management procedure for the SMC and update the SMC Water Management Plan (WMP) to include design details for the Eastern Emplacement Area PAF cell, as well as PAF material handling and management procedures and monitoring that would be undertaken to enable identification of potential impacts.

#### ***i. Ore Beneficiation Waste Management (Reject and Tailings Disposal)***

The potential risks associated with CHPP rejects material are described in the Geochemical Assessment and also in the *2021 Closure and Rehabilitation Risk Assessment* (IEMA, 2021) (Attachment A). The disposal of CHPP rejects at the SMC will continue to be managed in accordance with the Life of Mine Rejects Disposal Plan (LOM RDP). The Stratford Main Pit will continue to be used for co-disposal of CHPP rejects at the SMC until the existing storage capacity is exhausted. The recovery of CHPP rejects from the Western Co-disposal Area will continue until cessation of mining activities.

The rejects disposal in Stratford Main Pit is primarily progressed from the southwest and central south areas via sub-aqueous deposition and sub-aerial deposition which has the pit floor sloping away primarily to the east. Below the northern wall of the pit, the depths from the crest to the pit floor (co-disposed reject and tailings) range from approximately 15 m to 70 m based on January 2019 surveys.

A method has been devised at the SMC to safely place rejects and overburden into Stratford Main Pit which still contains water and is actively depositing co-disposed rejects.

The LOM RDP includes a description of the rehabilitation strategy for the Western Co-disposal Area and the Stratford Main Pit.

**j. Erosion and Sediment Control**

The existing water management system at the SMC, as described in the WMP is based on the management of five separate water types, namely:

- clean water from up-catchment diversions/runoff;
- mine water sourced from open cut mining operations and preferentially used for coal processing, dust suppression and irrigation (during times of water surplus);
- sediment-laden water within runoff from areas disturbed by SMC activities;
- runoff from rehabilitated or partially rehabilitated areas; and
- sewage including treated/grey water.

Erosion and sediment control is undertaken in accordance with the Erosion and Sediment Control Strategy outlined in the SMC WMP. The primary objectives of erosion and sediment control at the SMC are to:

- minimise and control soil erosion and sediment generation in areas disturbed by ongoing mining and construction activities; and
- minimise the potential for mine related activities to lower the water quality (particularly in terms of total suspended solids content) of downstream local watercourses.

Control strategies for soil erosion and sediment migration for the SMC include:

- Maximum separation of runoff from disturbed and undisturbed areas.
- Construction of sediment dams downstream of disturbed areas to contain runoff up to specified design criteria (refer Design Criteria in the SMC WMP).
- Subsequent priority use of these waters in SMC related activities and/or natural controlled release to substantial buffer zones in a manner that minimises the potential for change to downstream turbidity.
- Selective use of benign flocculants such as gypsum to assist in the settlement of suspended solids if required.
- Construction of surface drains to facilitate the efficient transport of surface runoff.
- Construction of silt fences downslope of disturbed sites.
- Rapid and progressive stabilisation of disturbed surfaces.

The design criteria for the sediment control structures are outlined in the SMC WMP.

**k. Ongoing Management of Biological Resources for Use in Rehabilitation**

Management of biological resources (e.g. topsoil stockpiles and salvaged habitat features) are described in Sections 6.2.1a and c.

**l. Mine Subsidence**

The SMC is an open cut mining operation and is therefore not affected by mine subsidence.

**m. Management of Potential Cultural and Heritage Issues**

In accordance with Condition 43, Schedule 3 of the Development Consent (SSD-4966), SCPL implements a HMP which includes measures to manage potential impacts on items of heritage significance at the SMC.

Known Aboriginal and European heritage sites within the SMC and surrounds are fully described within the SEP EIS (SCPL, 2012) in Appendices I (Aboriginal Cultural Heritage Assessment) and J (Non-Aboriginal Assessment), respectively.

The HMP sets out the salvage, excavation, monitoring and management measures for archaeological sites and other Aboriginal objects located at the SMC, in accordance with the existing permits and consents. The HMP details the management of registered sites and other Aboriginal objects within the SMC area.

**n. Exploration Activities**

Mine exploration activities and drilling investigation/geotechnical investigation programs would continue within the MLs, AUTH 311, AUTH 315 and Exploration Licence (EL) 6904. These activities would occur within, and external to, the open cut footprints and is used to investigate aspects such as geological features, seam structure and coal/overburden characteristics as input to detailed mine planning and feasibility studies. These activities may target mine water dams (including the Stratford East Dam) to investigate geotechnical stability for rehabilitation and closure purposes, as well as for feasibility studies of alternate post-mining land uses at the SMC.

Exploration activities within the Authorisation/EL areas would require a Review of Environmental Factors (REF) prior to any works being undertaken.

**6.2.2 Decommissioning**

A detailed SMC Mine Closure Plan and Schedule is provided in Appendix 1 of this RMP. Decommissioning works are anticipated to be undertaken as soon as reasonably practicable in accordance with Condition 54, Schedule 3 of the Development Consent (SSD-4966). Further detail regarding decommissioning activities is located in the SMC Annual Rehabilitation Report and Forward Program.

**a. Site Security**

All efforts will be made to ensure the safety of the public, both as visitors to the SMC and off-site. Measures to minimise risks to the public include:

- Induction programmes for employees, contractors and visitors.
- Signage and communication protocols for visitors and suppliers.
- Identification systems for visitor access to the site.
- First aid training requirements for employees and contractors.
- Fence lines maintained in an operational condition.
- Speed control signs have been installed on roads on SCPL-owned land.
- Maintenance of locked gates around the site for security purposes.

Public and employee safety are fundamental considerations in the design and operation of the closure program and will be addressed through site procedures and work methods.

Site security measures will be implemented for the duration of the closure program. These measures will be maintained during closure, decommissioning and demolition activities to prevent unauthorised access and to ensure public safety. Security measures will include:

- fencing and signposting of the site;
- security patrols;
- all personnel, contractors and visitors will be required to undertake a relevant site induction and sign in and out of the site; and
- all visitors will be required to be accompanied by a site representative at all times.

***b. Infrastructure to be Removed or Demolished***

Post-operations, the key rehabilitation objectives for the infrastructure areas are to decommission and remove all infrastructure, unless otherwise agreed by the determining authority (Section 4), as required by Condition 53, Schedule 3 of the Development Consent (SSD-4966). The SMC Mine Closure Plan and Schedule (Appendix 1) includes consideration for infrastructure decommissioning including:

- Identify and remove/demolish all non-active infrastructure which is not required for the remainder of processing activities.
- Undertake consultation to confirm any alternative use for retained infrastructure (e.g. rail loop, haul roads, access tracks) post-mining.

During the decommissioning phase, the priority will be to dismantle fixed equipment and infrastructure for removal from site and re-use at another location or recycling. Non-salvageable/non-recyclable and non-contaminated infrastructure will be disposed of at suitable off-site disposal areas (or on-site subject to relevant approvals being obtained).

*Main Infrastructure Area and Administration Facilities*

Redundant site infrastructure will be removed and decommissioned gradually. Infrastructure located at the SMC that will be removed throughout the closure phase include:

- administration areas, muster areas and bathhouses;
- CHPP area and workshop;
- rail loading/unloading infrastructure; and
- internal haul roads.

The key rehabilitation objectives for the infrastructure areas are to (SCPL, 2012):

- Decommission and remove all infrastructure, unless otherwise agreed by the determining authority (e.g. decommissioning of the rail loop).
- If there are any contaminated soils associated with the site workshops or contaminated sediments in the return water dam, these will be identified and remediated in accordance with the requirements of the NSW *Contaminated Land Management Act 1997*.
- Profile the domain to a free-draining landform, with runoff reporting to Avondale Creek.
- Revegetate the domain to pasture or native ecosystem. Following rehabilitation, the majority of the domain will be suitable for grazing (e.g. Class 4 lands under the Agricultural Suitability classification system).



### *Rail Infrastructure*

Rail loading/unloading facilities will be decommissioned and removed in consultation with DPE and Australian Rail Trade Corporation.

If at the time of mine closure, the determining authority requires the decommissioning of the rail loop, SCPL will rehabilitate this area as follows:

- Removal of line and signalling infrastructure up to the junction with the main north coast rail line.
- Identify any contaminated soils associated in the rail loop area and remediate in accordance with the requirements of the *NSW Contaminated Land Management Act 1997*.
- Profile to a free-draining landform.
- Revegetate the area to pasture.

### *Haul Roads*

Haul roads will be decommissioned, reprofiled or removed where required, topsoiled and revegetated to native ecosystem unless otherwise agreed by the determining authority (e.g. retained for agricultural use). Light vehicle access tracks would be retained for future land management access.

### *Return Water Dam*

Decommissioning and rehabilitation of the Return Water Dam which adjoins the Western Co-disposal Area would involve dewatering the dam, reshaping, or removal where required of dam walls. The area would then be topsoiled and revegetated to pasture for agriculture (grazing).

### *Water Infrastructure Decommissioning Strategy*

Minor water management structures and sediment control dams will be decommissioned and rehabilitated or retained as farm water dams in consultation with relevant regulatory authorities and private landholders (if applicable).

Sediment dams downstream of the waste rock emplacements will be maintained until the revegetated surface is stable and the runoff water quality is suitable for release off-site. The stability of the landform will be determined by rehabilitation monitoring.

Decommissioning of water management infrastructure and on-site irrigation system infrastructure will commence following cessation of mining activities on 31 December 2025. Pumps and pipelines will be removed from site unless required for the final land use. A Detailed Decommissioning Strategy is detailed in the SMC Mine Closure Plan and Schedule (Appendix 1).

### **c. Buildings, Structures and Fixed Plant to be Retained**

Infrastructure that may be retained to support the post-mining uses, subject to outcomes of consultation with the determining authority and relevant stakeholders, includes:

- Some concrete hardstands, administration and ablution buildings, site access roads, sheds, buildings and sediment dams.
- Electricity transmission infrastructure, which may be retained for future use by the relevant electricity services provider, unless during consultation it is determined it is no longer required, in which case it will be decommissioned and removed from site.

- The rail loop, which may also be retained for future use if agreed with relevant regulatory authorities and if appropriate approvals are obtained. Alternately, if the determining authority requires decommissioning of the rail loop, it will be decommissioned.

Any infrastructure to be retained will be identified in the Decommissioning & Demolition Strategy included in the Mine SMC Closure Plan and Schedule (Appendix 1), and details included regarding outcomes of consultation.

An inspection of the infrastructure retained in the final landform will be undertaken by a suitably qualified person and a verification assessment completed to confirm that the infrastructure is safe, stable and non-polluting.

#### *Retained Water Infrastructure*

Retained water infrastructure will include Stratford East Dam, permanent up-catchment diversion structures (associated with final voids) and some irrigation structures.

Post-mining, the Stratford East Dam will be retained for future agricultural (grazing) use, use by a public authority and/or environmental benefit.

A number of up-catchment diversions associated with the catchments reporting to the final voids will be permanent structures that would remain post-mining.

Infrastructure that is retained will be determined in consultation and is further described in the SMC Mine Closure Plan and Schedule (Appendix 1).

#### **d. Management of Carbonaceous / Contaminated Material**

Management of contaminated materials is identified via a Contaminated Land Assessment. Details of the assessment are described in the SMC Mine Closure Plan and Schedule (Appendix 1).

Issues expected to be addressed by this assessment will include, but not be limited to, decontamination of areas such as those impacted by carbonaceous material (e.g. coal spillage, coal storage), by hydrocarbon spillage (e.g. workshops, fuel storage areas) or by sedimentation (e.g. dams which have directly received pit water).

The Contaminated Lands Assessment will provide recommendations for the development of a Remediation Action Plan, that will inform future contamination clean-ups.

All contamination areas will be remediated as recommended in the Remediation Plans, which is expected to involve excavation of the contaminated materials and disposal at an off-site licensed facility or treated on-site subject to relevant approvals being obtained. The remediation of any identified contaminated land would be undertaken in conjunction with the infrastructure Decommissioning Strategy. Rehabilitation of the area would be undertaken in accordance with the rehabilitation objectives for Infrastructure Areas (Domain 1) (i.e. revegetated to native ecosystem), or domain applicable to the area.

#### **e. Hazardous Materials Management**

Hydrocarbon storage facilities will continue to be operated in accordance with the requirements of AS 1940:2017 *The Storage and Handling of Flammable and Combustible Liquids*. All explosives at the SMC will continue to be stored in accordance with the requirements of AS 2187.1:1998 *Explosives – Storage Transport and Use – Storage*.

No chemicals or hazardous materials will be permitted on-site unless accompanied by the appropriate Safety Data Sheet.

A hazardous materials assessment will be undertaken for closure and will inform the Decommissioning and Demolition Strategy and the Closure Waste Management Plan.

**f. Underground Infrastructure**

The SMC is an open cut mining operation and therefore does not include underground infrastructure.

**6.2.3 Landform Establishment**

The following subsection details the key characteristics of landform establishment at the SMC in accordance with the design of the approved FLRP (Section 5).

**a. Water Management Infrastructure**

*Water Management*

Management of the site water management system is conducted in accordance with the SMC WMP required by the Development Consent (SSD-4966).

The water management system at the SMC comprises the following:

- water management storages;
- diversion of runoff from catchment areas upslope of the mine disturbance area;
- runoff control on disturbed and rehabilitated areas at the mine;
- runoff control on infrastructure areas;
- erosion and sedimentation control;
- open pit dewatering;
- disposal of excess water through on-site irrigation; and
- sewage treatment and disposal of effluent.

*Retained Water Infrastructure*

Key features of the final SMC landform include permanent Stratford East Dam water storage structure and various water management structures to direct the flow of water from the mine landforms to Avondale Creek, Dog Trap Creek and their associated tributaries.

Post-mining, the Stratford East Dam will be retained for future agricultural (grazing) use, use by a public authority and/or environmental benefit.

Final voids will also be retained for water storage.

*Rehabilitation Runoff Control*

Sediment dams would contain runoff from topsoiled/partially rehabilitated mine areas that have been shaped to final profiles, covered with topsoil and seeded. The sediment dams will allow for gravity settling of sediment prior to release off-site.

Sediment dams will be sized to capture runoff from a 90<sup>th</sup> percentile rainfall event with a duration of five days in accordance with Managing Urban Stormwater Soils and Construction Volume 2E Mines and Quarries (Department of Environment and Climate Change, 2008). The capacity of the sediment dams will be regularly monitored and works will be conducted as required to maintain the design capacity of the sediment dams.

Sediment dams will be maintained until such time as vegetation successfully establishes on topsoiled areas and where runoff has similar water quality characteristics to areas that are undisturbed by mining activities.

Outlet structures from sediment dams will also be designed in consideration of the *Guidelines for Outlet Structures* (NSW Office of Water, 2010).

Erosion and sediment issues discussed at the 2012 ERA workshop included potential long-term sediment/contaminant migration to downstream waterways and consequent impact on downstream water users and ecology. This risk was considered to be low.

#### **b. Final Landform Construction: General Requirements**

Final landform construction details are provided in the SMC Mine Closure Plan and Schedule (Appendix 1). The rehabilitation objectives for the final landforms requires final landform designs which sustain the mining domain for the final land use. Final landforms are to be consistent with and complement the topography of the surrounding region to minimise the visual prominence of the final landforms in the post-mining landscape. Final landforms are to incorporate design relief patterns and principles consistent with natural drainage.

The final landform will consist of integrated in-pit and out-of-pit waste emplacements. The maximum height of the Stratford Waste Emplacement and Northern Waste Emplacement at closure would be 196 m Australian Height Datum (AHD) and 165 m AHD, respectively, and include visible relief patterns and principles which are consistent with natural drainage where practicable.

The majority of the Stratford Waste Emplacement will be rehabilitated with pasture species for agricultural (grazing) purposes following landform establishment, as shown on Plan 1.

The Northern Waste Emplacement will be rehabilitated to native ecosystem following landform establishment, as shown on Plan 1.

The closure concept and rehabilitation strategy for the waste emplacements involves reshaping of the waste material to maximise stability and reduce erosion, spreading of soil substrates where required, revegetation and ongoing monitoring and management.

The outer batters of the waste emplacements will be constructed to a maximum gradient of approximately 1 Vertical:4 Horizontal with lesser gradients designed where practicable.

Drainage on the outer waste emplacement batters will be facilitated via contour benches and drains with a longitudinal grade of 1 percent (%) flattening to 0.6 %. No large rocks will be placed on waste emplacement slopes to minimise the potential of erosion downslope.

General rehabilitation principles will be applied to reduce the risk of erosion on rehabilitated batters (e.g. profiling free-draining landforms generally consistent with the surrounding topography).

The revised SMC Rehabilitation Objectives and Rehabilitation Completion Criteria (Section 4 of the RMP) includes requirements for landform erosion modelling to demonstrate the creation of landforms which are geotechnically stable and minimise long-term erosion on rehabilitated waste emplacements.



A review of the application of erosion modelling will be undertaken to identify landforms on the site that represent typical sites and recommend erosion modelling for these locations to demonstrate that the current design criteria are appropriate. In addition to the representative sites the erosion model will be applied on sites that are considered high risk across the site. Erosion modelling data will be used to fine-tune final site rehabilitation and be documented in subsequent revisions of this RMP.

**c. Final Landform Construction: Reject Emplacement Areas and Tailings Dams**

Reject emplacement areas and tailings dams at the SMC are to be rehabilitated to a standard that is safe, stable and non-polluting, and supports post-mining land uses.

*Stratford Main Pit*

As described in Section 6.2.1i, the rejects disposal in Stratford Main Pit is primarily progressed from the southwest and central south areas via sub-aqueous deposition and sub-aerial deposition which has the pit floor sloping away primarily to the east. Below the northern wall of the pit, the depths from the crest to the put floor (co-disposed reject and tailings) range from approximately 15 m to 70 m based on January 2019 surveys.

The Stratford Main Pit has been partially backfilled from the southern and western extents. Some backfilling has also been undertaken along the flood bund on the northern side of the Stratford Main Pit.

At the completion of mining, the Stratford Main Pit will be retained as a partially backfilled final void incorporating rejects and water storage. Rehabilitation of the final voids is described in Section 6.2.3d. The long-term storage of rejects within the Stratford Main Pit will be below the surrounding post-mining groundwater table.

*Western Co-Disposal Area*

Following the removal of historical CHPP rejects the landform will be progressively profiled to be free draining, prior to being revegetated to pasture. Any remaining historical CHPP reject material in the Western Co-disposal Area would be encapsulated with a suitably well-drained layer of material to act as a capillary breaking layer between the reject material and the overlying cover. The capping layer will be of approximately 0.6 m thickness, comprising compacted clay. The landform will then be profiled to be free draining, prior to being revegetated.

**d. Final Landform Construction: Final Voids, Highwalls and Low Walls**

The SMC final landform will include partially backfilled final voids located at Roseville West Pit, Avon North Open Cut, and Stratford Main Pit.

SCPL is required to rehabilitate the final void to ensure the landform is safe, stable and non-polluting. The final void design aims to minimise the overall extent of the final void as much as is reasonably feasible and within the Project Approval constraints. Rehabilitation objectives and rehabilitation completion criteria for the final voids, highwalls and lowwalls are detailed in this RMP (Section 4).

The refined final landform of Roseville West, Avon North and Stratford Main Pit voids is described in the SMC Mine Closure Plan and Schedule (Appendix 1) and depicted in Plan 1.

The open pits will be progressively backfilled with waste rock as the open pits are developed, with final voids remaining to the south of Roseville West and Avon North, and north of Stratford Main Pit. The integrated final landform comprises the above mentioned final voids, and the rehabilitated backfilled open pits integrated with rehabilitated out-of-pit waste rock emplacements.

Following the completion of mining activities at the SMC, it will be expected that the Roseville West final void, Avon North final void and Stratford Main Pit final void will continue to fill until an equilibrium level is reached.

The final voids will be surrounded by either native vegetation (i.e. Roseville West and Avon North) or pasture (for agricultural purposes) (i.e. Stratford Main Pit).

Void access restrictions (i.e. perimeter bunding and/or fencing) would be installed around the final voids where appropriate to ensure public safety and the exclusion of stock

#### **e. Construction of Creek / River Diversion Works**

The SMC final landform does not incorporate any creek/river diversions.

A number of up-catchment diversions associated with the catchments reporting to the final voids will be permanent structures that would remain post-mining. The diversions will comprise progressive development of:

- a diversion bund/drain to the west of Roseville West Pit;
- a diversion bund/drain to the east of the Avon North Open Cut; and
- diversion bunds/drains to the east of the Stratford East Open Cut.

### **6.2.4 Growth Medium Development**

#### *Topsoil Management and Spreading*

The site topsoil balance is undertaken annually to track the usage of topsoil and ensure adequate resources are available for rehabilitation at the SMC. Topsoil will be applied to the reshaped surface in an even layer approximately 100 mm to 150 mm deep.

The latest topsoil balance was updated in December 2021. The topsoil balance confirmed sufficient topsoil was held in various stockpiles to complete the required rehabilitation of the SMC.

#### *Ground Preparation for Seeding/Planting*

Ground preparation of the waste rock, subsoil and topsoil medium is undertaken in preparation for seeding/planting. Ground preparation for seeding/planting involves:

- Final grading of the waste emplacement.
- Ripping and rock raking to ensure large rocks are removed prior to topsoil spreading. Ripping is undertaken along the contour.
- Spreading of topsoil to approximately 100 to 150 mm thickness.
- Soil testing and amelioration if required.
- Ploughing of topsoil prior to seeding.

#### *Weed Management*

Weed management at the SMC is undertaken in accordance with the SMC BMP. General weed management measures conducted at the SMC are described in Section 6.2.1b of this RMP.

### **6.2.5 Ecosystem and Land Use Establishment**

The Rehabilitation Strategy includes establishment of final land uses of agricultural (grazing) and native ecosystem areas. Pasture and native vegetation communities may be established by methods described below.

#### ***Pasture Establishment***

The establishment of improved pasture is an important component of the progressive Rehabilitation Strategy at the SMC. Pasture seed utilised for areas of final land use of grazing will consist of a mix based on species successful in previous sowings, seasonal availability and external agronomic advice. This typically includes a mix of annual and perennial grasses consisting of both native and exotic species.

The selection of pasture species and varieties, fertilisers/ameliorants and application rates, and stocking rates will be influenced by experience at the SMC and the nearby DCM.

#### ***Native Ecosystem Establishment***

The native tree and shrub seed mixes for the native ecosystem rehabilitation areas generally include a selection of the framework species for the representative vegetation communities as shown on Figure 5. Species pallets are also provided in the BMP.

The target vegetation communities are representative of the pre-mining vegetation communities or the surrounding vegetation communities and are based on the vegetation mapping undertaken for the EIS 2012.

#### ***Overview of Methodologies That May Be Applied as Part of the Revegetation Process***

- Identify the appropriate vegetation community and species mix for either native ecosystem or pasture rehabilitation. Reference to species pallets and vegetation mapping is included in the SMC BMP.
- Seeding rate – calculate the appropriate seed rate and calculate species required.
- Seed collection/purchase and tubestock supply.
- Soil preparation techniques have been implemented in advance of seeding/planting.
- Seeding/planting techniques – appropriate method for seeding/planting has been implemented.
- Seasonal considerations have been addressed – preferred seeding times.

#### ***Seed Collection/Purchase and Tubestock Supply***

A key aim of seed collection is to collect where available, local provenance seed stock for propagation purposes. Seed collection for the rehabilitation areas will continue to be undertaken in the short to medium-term. Seed collection from vegetation within the Biodiversity Offset Areas will continue to be undertaken as required to collect local provenance seed stock for propagation purposes.

Seed collection is described in the BMP.

### *Direct and Broadcast Seeding*

Application of seed by hand or machinery will follow preparation of the surface which may consist of scarification and ameliorates to allow successful establishment of applied seed. Seasonal considerations (e.g. drought conditions, excessive heat) will be factored into the process to optimise conditions to support the initial establishment of the target vegetation. Generally, seeding should occur early in spring or autumn to enable sown seed to take advantage of soil warmth. Validation of direct seeding will occur via the Inspection and Test Plan (ITP) – *Ecosystem and Land Use Establishment – Seeding/Planting and Finishing*.

The native tree and shrub seed mixes for Final Land Use Domain A – Native Ecosystem rehabilitation areas generally includes a selection of the same species for the representative vegetation communities as shown on Figure 5. Species pallets are provided in the BMP.

Pasture seed utilised for Final Land Use Domain B – Agricultural – Grazing rehabilitation areas will consist of a mix based on species successful in previous sowings, seasonal availability and external advice.

Installation of tubestock for the target vegetation is described in the SMC BMP.

### ***Weed management and pest animal control to protect juvenile vegetation***

Weed and pest management has been implemented across the lifespan of the SMC as implemented by SCPL. Weed management at the SMC is described in Section 6.2.1b.

## **6.2.6 Ecosystem and Land Use Development**

At the ecosystem and land use development phase, rehabilitation monitoring results would be used to confirm rehabilitation areas are on a trajectory towards a self-sustaining ecosystem and meeting the rehabilitation completion criteria. Monitoring results would also be used to determine the recommendations and requirements for maintenance and/or contingency measures (e.g. supplementary plantings, weed control, erosion repair) to improve rehabilitation performance. The Rehabilitation Monitoring Program implemented at the SMC is described in Section 8.

### ***Weed and Pest Animal Control of Rehabilitation Areas***

Regular weed and pest animal control is undertaken over the entire SMC area and will continue into closure as described in Section 6.2.1c and in the BMP.

### ***Native Vegetation Rehabilitation Management and Agricultural Monitoring***

Rehabilitation monitoring has been established for the agricultural (grazing) and native ecosystem rehabilitation areas (Plan 1).

Rehabilitation monitoring for the native vegetation and pasture (agriculture grazing) areas includes a combination of visual monitoring and EFA monitoring. These monitoring methods are described in the Rehabilitation Monitoring Program (Section 8).

## **6.3 REHABILITATION OF AREAS AFFECTED BY SUBSIDENCE**

The SMC is an open cut mine and has no areas affected by underground mining subsidence.



## **7 REHABILITATION QUALITY ASSURANCE PROCESS**

A Rehabilitation Quality Assurance Process will be implemented which details the key actions and/or processes nominated for each rehabilitation phase to ensure that:

- Rehabilitation is implemented in accordance with the nominated methodologies and designs.
- Identified risks to rehabilitation are adequately addressed before proceeding to the next phase of rehabilitation.
- Rehabilitation is completed to the standard required to achieve the applicable completion criteria.

The Rehabilitation Quality Assurance Process will measure how the requirements of this RMP have been met and will document the rehabilitation evidence used for assessing against the completion criteria. The Rehabilitation Quality Assurance Process will be integrated into day to day operations at the SMC and implemented throughout the life of the operation, including into closure until rehabilitation relinquishment has been achieved. The Rehabilitation Quality Assurance Process is outlined in Table 10. Rehabilitation validation monitoring is undertaken as described in Section 8.

**Table 10:  
Rehabilitation Quality Assurance Processes**

Rehabilitation Phase	Asset/Domain	Quality Assurance Actions and Processes	Responsibilities for Implementation	Method for Documenting and Recording Process
Active Mining	N/A	N/A	N/A	N/A
Decommissioning	All Mining Domains	<ul style="list-style-type: none"> <li>• ITP – Decommissioning.</li> <li>• Infrastructure Decommissioning and Demolition Strategy.</li> <li>• Contaminated Lands Assessment.</li> <li>• Hazardous Materials Assessment.</li> </ul>	Operations Manager.  Suitably qualified persons.	<ul style="list-style-type: none"> <li>• ITP.</li> <li>• Inspections and documentation.</li> <li>• Validation Reports.</li> <li>• Annual Review.</li> <li>• Annual Rehabilitation Report and Forward Program.</li> </ul>
	<b>Domain 1</b> Infrastructure Area – Infrastructure Decommissioning	<ul style="list-style-type: none"> <li>• Infrastructure Decommissioning and Demolition Strategy.</li> <li>• ITP – Decommissioning.</li> <li>• Inspections and demolition reports.</li> </ul>	Operations Manager.  Suitably qualified persons.	<ul style="list-style-type: none"> <li>• ITP.</li> <li>• Demolition Reports.</li> <li>• Inspections and documentation.</li> </ul>
	<b>Domain 3</b> Water Management Area – Stratford East Dam	<ul style="list-style-type: none"> <li>• Survey of Stratford East Dam.</li> <li>• Water quality monitoring.</li> <li>• Evidence of consultation.</li> </ul>	Environment and Community Superintendent.  Suitably qualified persons.	<ul style="list-style-type: none"> <li>• Survey.</li> <li>• Monitoring Reports.</li> <li>• Consultation records.</li> </ul>
	<b>Domain 3</b> Water Management Area – Water Infrastructure Decommissioning	<ul style="list-style-type: none"> <li>• Water Infrastructure Decommissioning Strategy.</li> <li>• Post-mining water management system described in SMC WMP.</li> <li>• Hydraulic and hydrologically modelling.</li> <li>• Retained water infrastructure has been assessed by a qualify expert.</li> </ul>	Environment and Community Superintendent.  Suitably qualified persons.	<ul style="list-style-type: none"> <li>• Monitoring reports.</li> <li>• Modelling reports.</li> <li>• Validation Reports.</li> <li>• Annual Review.</li> </ul>
	<b>Domain 4</b> Overburden Emplacement Area – Spontaneous Combustion Management	<ul style="list-style-type: none"> <li>• ITP – PAF and Spontaneous Combustion Management.</li> <li>• Monitoring and assessment of Spontaneous combustion in the final landform.</li> </ul>	Mine Planning Superintendent.  Suitably qualified persons.	<ul style="list-style-type: none"> <li>• ITP.</li> <li>• Monitoring Reports.</li> <li>• Inspections and documentation.</li> </ul>

**Table 10 (Continued):  
Rehabilitation Quality Assurance Processes**

Rehabilitation Phase	Asset/Domain	Quality Assurance Actions and Processes	Responsibilities for Implementation	Method for Documenting and Recording Process
Decommissioning (Continued)	<b>Domain 4</b> Overburden Emplacement Area – PAF management	<ul style="list-style-type: none"> <li>ITP – PAF and Spontaneous Combustion Management.</li> <li>Approved PAF cell design by qualified expert.</li> <li>Survey and as-built construction report for PAF cell.</li> <li>Survey of PAF placement.</li> <li>Groundwater and surface water monitoring as per the SMC WMP.</li> </ul>	<p>Mine Planning Superintendent.</p> <p>Suitably qualified persons.</p>	<ul style="list-style-type: none"> <li>ITP.</li> <li>Survey.</li> <li>Monitoring Reports.</li> <li>Inspections and documentation.</li> </ul>
	<b>Domain 5</b> Active Mining Area (Open cut void)	<ul style="list-style-type: none"> <li>Evidence of sign-off by SMC Operations Manager (or delegate) that security measures (bundling, fencing and/or signage) installed and recommendations of risk assessment satisfied.</li> </ul>	<p>Operations Manager.</p> <p>Suitably qualified persons/engineers.</p>	<ul style="list-style-type: none"> <li>Validation Reports.</li> </ul>
Landform Establishment	All Final Land Use Domains	<ul style="list-style-type: none"> <li>ITP – Landform Establishment</li> <li>Final landform topographic survey.</li> <li>Landform erosion modelling.</li> <li>Surface water quality monitoring.</li> <li>Groundwater quality monitoring.</li> <li>Erosion and sediment control monitoring.</li> <li>Spontaneous combustion monitoring.</li> <li>Photographic monitoring of rehabilitated landforms.</li> <li>Visual monitoring.</li> </ul>	<p>Mine Planning Superintendent.</p> <p>Surveyor.</p> <p>Suitably qualified persons.</p>	<ul style="list-style-type: none"> <li>ITP.</li> <li>Survey.</li> <li>Monitoring reports.</li> <li>Inspections and documentation.</li> <li>Validation Reports.</li> <li>Annual Review.</li> <li>Annual Rehabilitation Report and Forward Program.</li> </ul>
	<b>Domain J</b> Final Void	<ul style="list-style-type: none"> <li>Landform survey.</li> <li>A landform assessment by a qualified expert undertaken to confirm that the areas are consistent with the Final Landform and Rehabilitation Plan.</li> <li>Geotechnical assessment of stability.</li> <li>Geochemical assessment.</li> <li>Independent engineering slope failure mode analysis and report.</li> <li>Predictive post-mining groundwater model.</li> <li>Final void water balance.</li> <li>Hydrological Modelling.</li> <li>Surface water and groundwater monitoring.</li> </ul>	<p>Mine Planning Superintendent.</p> <p>Surveyor.</p> <p>Suitably qualified persons.</p>	<ul style="list-style-type: none"> <li>Expert assessment reports.</li> <li>Validation Reports.</li> <li>Survey.</li> <li>Inspections and documentation.</li> </ul>

**Table 10 (Continued):  
Rehabilitation Quality Assurance Processes**

Rehabilitation Phase	Asset/Domain	Quality Assurance Actions and Processes	Responsibilities for Implementation	Method for Documenting and Recording Process
Growth Medium Development	All Final Land Use Domains	<ul style="list-style-type: none"> <li>• ITP - Growth Medium Development – Ground Preparations and Topsoil Spreading.</li> <li>• Supervision of topsoil spreading.</li> <li>• Visual and Photographic monitoring.</li> <li>• Tracking and review of topsoil balance.</li> <li>• Soil chemistry analysis.</li> <li>• Erosion and sediment control monitoring.</li> </ul>	Environment and Community Superintendent. Suitably qualified persons.	<ul style="list-style-type: none"> <li>• ITP.</li> <li>• Inspections and documentation.</li> <li>• Validation Reports.</li> <li>• Annual Review.</li> <li>• Annual Rehabilitation Report and Forward Program.</li> </ul>
Ecosystem and Land Use Establishment	<b>Domain B</b> Agriculture – Grazing	<ul style="list-style-type: none"> <li>• ITP - Ecosystem/Land Use Establishment – Seeding/Planting and Finishing.</li> <li>• LFA Assessment.</li> <li>• Surface water quality monitoring.</li> <li>• Groundwater quality monitoring.</li> <li>• Visual and Photographic monitoring.</li> </ul>	Environment and Community Superintendent. Suitably qualified persons.	<ul style="list-style-type: none"> <li>• ITP.</li> <li>• Monitoring Reports.</li> <li>• Inspections and documentation.</li> <li>• Annual Review.</li> <li>• Annual Rehabilitation Report and Forward Program.</li> </ul>
	<b>Domain A</b> Native Ecosystem	<ul style="list-style-type: none"> <li>• ITP - Ecosystem/Land Use Establishment – Seeding/Planting and Finishing.</li> <li>• EFA Assessment: <ul style="list-style-type: none"> <li>– LFA.</li> <li>– Vegetation Dynamics Modelling.</li> <li>– Habitat Complexity Monitoring.</li> </ul> </li> <li>• Surface water quality monitoring.</li> <li>• Groundwater quality monitoring.</li> <li>• Visual and Photographic monitoring.</li> </ul>	Environment and Community Superintendent. Suitably qualified persons.	<ul style="list-style-type: none"> <li>• ITP.</li> <li>• Monitoring reports.</li> <li>• Inspections and documentation.</li> <li>• Annual Review.</li> <li>• Annual Rehabilitation Report and Forward Program.</li> </ul>



**Table 10 (Continued):  
Rehabilitation Quality Assurance Processes**

Rehabilitation Phase	Asset/Domain	Quality Assurance Actions and Processes	Responsibilities for Implementation	Method for Documenting and Recording Process
Ecosystem and Land Use Development	<b>Domain B</b> Agriculture – Grazing	<ul style="list-style-type: none"> <li>• Agronomic assessment of land capability and agricultural suitability classification.</li> <li>• LFA Assessment.</li> <li>• Water quality monitoring as per the SMC WMP.</li> <li>• Visual monitoring.</li> <li>• Photographic monitoring.</li> </ul>	Environment and Community Superintendent. Suitably qualified persons.	<ul style="list-style-type: none"> <li>• ESF2 or equivalent.</li> <li>• Monitoring reports.</li> <li>• Inspections and documentation.</li> <li>• Validation Reports.</li> <li>• Annual Review.</li> <li>• Annual Rehabilitation Report and Forward Program.</li> </ul>
	<b>Domain A</b> Native Ecosystem	<ul style="list-style-type: none"> <li>• Water quality monitoring as per the SMC WMP.</li> <li>• Visual monitoring.</li> <li>• Photographic monitoring.</li> <li>• EFA Assessment: <ul style="list-style-type: none"> <li>– LFA.</li> <li>– Vegetation Dynamics Modelling.</li> <li>– Habitat Complexity Monitoring.</li> </ul> </li> </ul>	Environment and Community Superintendent. Suitably qualified persons.	<ul style="list-style-type: none"> <li>• ESF2 or equivalent.</li> <li>• Monitoring reports.</li> <li>• Inspections and documentation.</li> <li>• Validation Reports.</li> <li>• Annual Review.</li> <li>• Annual Rehabilitation Report and Forward Program.</li> </ul>
	<b>Domain G</b> Water Storage (Excluding Final Voids)	<ul style="list-style-type: none"> <li>• Independent report, water quality monitoring reports.</li> </ul>	Environment and Community Superintendent. Suitably qualified persons.	<ul style="list-style-type: none"> <li>• Monitoring reports.</li> <li>• Validation Reports.</li> <li>• Annual Review.</li> </ul>
	<b>Domain J</b> Final Void	<ul style="list-style-type: none"> <li>• Final void water level monitoring.</li> <li>• Independent expert assessment.</li> <li>• Independent hydro-geological assessment report.</li> <li>• Water quality monitoring reports.</li> </ul>	Environment and Community Superintendent. Suitably qualified persons.	<ul style="list-style-type: none"> <li>• ESF2 or equivalent.</li> <li>• Monitoring reports.</li> <li>• Validation Reports.</li> <li>• Annual Review.</li> </ul>

## 8 REHABILITATION MONITORING PROGRAM

Monitoring of the SMC rehabilitation areas is conducted in accordance with the following sections. Rehabilitation is monitored on a regular basis to ensure vegetation is establishing in the rehabilitation areas and to determine the need for any maintenance and/or contingency measures (e.g. supplementary plantings, weed or erosion control). The monitoring also aims to demonstrate the effectiveness of the rehabilitation techniques and track the progression towards achieving the rehabilitation completion criteria (Section 4).

The annual rehabilitation monitoring program includes the areas designated for agriculture (grazing) and native ecosystem final land uses.

### 8.1 ANALOGUE SITE BASELINE MONITORING

SCPL has established analogue sites and conducted baseline monitoring which has guided the development of rehabilitation completion criteria for approval by the Secretary. Analogue monitoring continues to be undertaken with the EFA and LFA programs for the native ecosystem areas and agricultural (grazing) areas (Section 8.2).

Rehabilitation areas at the SMC have been assessed against three analogue sites (one analogue pasture site and two native flora analogue sites) established as part of previous monitoring efforts conducted by Greening Australia (2014). The *2021 Stratford Mining Complex Rehabilitation Monitoring Report* prepared by Kleinfelder (2021) was the seventh survey of SMC rehabilitation areas undertaken to assess rehabilitation progress against performance and completion criteria specific to the SMC. Using EFA, the survey provided indicators of rehabilitation success and assessment of landscape processes.

It was determined by Kleinfelder (2021) that rehabilitation at the SMC continues to be on track for successful re-establishment of pasture for agricultural purposes (grazing) and native ecosystem with LFA indices suggesting analogue values are on track to be achieved. A copy of the *2021 Stratford Mining Complex Rehabilitation Monitoring Report* prepared by Kleinfelder (2021) can be found in Appendix 11 of the SMC Annual Review (SCPL, 2021).

### 8.2 REHABILITATION ESTABLISHMENT MONITORING

#### ***Native Ecosystem Rehabilitation Establishment Monitoring***

##### *Visual Monitoring*

Rehabilitation monitoring includes a visual assessment, comprising:

- monitoring of soil erosion status and the effectiveness of erosion control methods;
- observing drains to determine whether substantial silting of inverts and/or any localised failure of the drain embankment has occurred;
- assessing germination success and vegetation establishment (diversity and abundance);
- usage of habitat enhancement features;
- evaluating the behaviour of placed topsoil;
- evaluating threats posed to rehabilitated areas posed by weed infestation and pest animals; and
- opportunistic fauna observations.

Visual monitoring of rehabilitation areas provides an early identification of areas requiring remedial planting or other maintenance works to maintain rehabilitation progress. Annual surveys of select revegetation areas will be undertaken by an appropriately qualified and experienced person to review the success of rehabilitation and identify any additional measures required to achieve ongoing rehabilitation success.

#### *Ecosystem Function Analysis*

In-depth monitoring and assessment of the quality and ecological value of native ecosystem rehabilitation will be required prior to lease relinquishment. This assessment will be conducted using EFA. EFA aims to measure the progression of rehabilitation areas towards self-sustaining ecosystems. EFA has been incorporated into the overall SMC rehabilitation monitoring program to provide an assessment of ecosystem functionality.

The EFA is comprised of the following components:

- LFA;
- vegetation dynamics; and
- habitat complexity.

EFA Analogue Transects have been established in proximal areas to the SMC which represent the varying landscapes (i.e. slopes and aspects) and target communities planned for each rehabilitation area.

During December 2013, Greening Australia (2014) established a total of 30 fixed EFA Revegetation Monitoring Transects across a range of current rehabilitation areas at the SMC. Since 2013, LFA and revegetation monitoring has been undertaken annually at these sites.

As rehabilitation progresses, further EFA Revegetation Transects will be established in each of the rehabilitation domain areas. The location of each transect will be determined on the basis of representative slope, aspect and target vegetation community in consultation with a suitably qualified specialist.

The representativeness of the EFA transects are reviewed during each monitoring round to confirm that transects continue to accurately represent the status of rehabilitation across each of the rehabilitation domains.

The results of LFA, vegetation dynamics and habitat complexity monitoring (i.e. EFA) are used at the SMC to monitor progress towards rehabilitation completion and to determine a trajectory towards self-sustaining ecosystems.

SCPL will continue to engage a suitably qualified contractor to undertake annual LFA and vegetation structure monitoring at the SMC.

A detailed monitoring report is prepared annually that includes a summary of previous monitoring results, results of the current year's monitoring and any planned remedial works, if required. The monitoring results are summarised in the SMC's Annual Review which is made available on the Stratford Coal website.

### *Fauna Monitoring*

Fauna usage of the native ecosystem rehabilitation areas is monitored and documented over time. Fauna monitoring is conducted every three years to assess the success of the rehabilitation and revegetation activities in providing habitat for a range of vertebrate fauna. The surveys include an assessment of habitat complexity, species richness and abundance.

Recent fauna surveys conducted over the SMC rehabilitation areas, Biodiversity Offset Areas and Biodiversity Enhancement Areas indicate that these areas provide habitat for a range of native vertebrate fauna, including birds, mammals, reptiles and frogs.

### **Agricultural Rehabilitation Monitoring**

Rehabilitation monitoring has commenced for the rehabilitation areas proposed for agricultural purposes (grazing). The areas of the SMC final landform targeted for future agricultural pursuits will be rehabilitated with pasture species (e.g. areas of the Waste Emplacement and are proposed for Class 4 agricultural suitability. Class 4 Agricultural Suitability is defined as (NSW Agriculture, 2002):

*Land suitable for grazing but not for cultivation. Agriculture is based on native pastures and improved pastures established using minimum tillage techniques. Production may be high seasonally but the overall level of production is low as a result of a number of major environmental constraints, both environmental and edaphic.*

Monitoring of agricultural (grazing) rehabilitation areas will involve monitoring of LFA indices, including stability, infiltration and nutrient cycling indices.

Completion criteria for these areas will also be assessed by undertaking an assessment of the Agricultural Suitability class by a suitably qualified specialist or agronomist.

### **Other Rehabilitation Monitoring**

#### *PAF Material Monitoring*

As described in Section 6.2.1h, PAF material at the SMC is managed in accordance with the SWMP.

The PAF Material Management Plan includes routine monitoring to provide checks on materials management and effects of acid rock drainage (ARD). Monitoring includes (Environmental Geochemistry International Pty Ltd, 2012):

- confirmation of the long-term placement of PAF material;
- water quality monitoring of seepage and runoff from pit surfaces and waste rock dumps to check for ARD generation, to assess the performance of management strategies, and to determine and/or refine limestone treatment requirements; and
- routine site water quality monitoring including pH, electrical conductivity, acidity/alkalinity, Sulphate, Aluminium, Copper, Iron, Manganese, Nickel, Zinc and storage volumes and flows to monitor the performance of the ARD control program.

Rehabilitated area surface water runoff performance indicators and completion criteria have been established as part of the SWMP. The SWMP will be used to assess progress against the completion criteria.



SCPL will continue to monitor the water quality of contained water storages (i.e. pH and solute concentrations) during the life of the SMC as part of the existing surface water monitoring program. In the event ARD is identified through the surface water monitoring program, specific ARD controls will be implemented.

#### *Surface Water Monitoring*

The surface water management system and monitoring program is described in the WMP.

SCPL monitors surface water quality by sampling from ten monitoring locations in and surrounding the mine site. These locations comprise both streams and water storage structures. Surface water is sampled and analysed on a monthly and event basis, or following a sediment dam spill. Collected waters are analysed for a suite of physical and chemical parameters and the results are reported in the SMC Annual Review, along with a comparison to a number of performance indicators and measures. Surface water monitoring is also undertaken at a number of the water storages at the SMC.

This surface water monitoring will confirm whether rehabilitated areas are progressing satisfactorily to a final landform which is non-polluting and not adversely affecting off-site water quality.

#### *Groundwater Monitoring*

Groundwater monitoring is undertaken at a suite of monitoring bores located in and around the SMC area as described in the WMP. Monitoring is undertaken on a monthly, quarterly, six monthly or annual basis depending upon the parameter being measured. The groundwater monitoring network includes bores in close proximity to the BRNOC, Roseville West Pit and Stratford Main Pits. As mining progresses within the Avon North Open Cut Pit and the Stratford East Open Cut Pit, additional groundwater monitoring piezometers have been installed. Monitoring results are reported in the SMC Annual Review along with a comparison to relevant performance indicators.

A site water balance review is undertaken on an annual basis to monitor the status of inflows (including groundwater inflows to open pits), storage and consumption of final voids. The site water balance review is used to optimise water management performance and enables corrective actions to be implemented, if required. The results of the water balance reviews are reported in the SMC Annual Review.

Groundwater monitoring is described in the Groundwater Management Plan and will continue to be conducted at the SMC to confirm whether rehabilitation areas are progressing appropriately towards free draining and non-polluting landforms and not adversely affecting off-site water quality or receiving environments.

#### *Erosion and Sediment Control Monitoring*

All sediment dams are monitored on a minimum quarterly basis or following receipt of sufficient rain whereby such dams have the potential to spill. Maintenance activities are undertaken on sediment dams as required. Sediment dams are cleaned out when the storage volume is reduced by sediment deposition (i.e. when 30% of storage volume is lost to sediment build up) and inspected after major rainfall events. All overflows and controlled discharges from sediment dams are sampled and analysed.

Areas under rehabilitation are stabilised by structural controls such as bench drains and contour banks (as required), to break up effective slope length exposed to erosion.

All rehabilitation areas are assessed regularly via visual monitoring of soil erosion status and the effectiveness of erosion control methods (Section 8.1). The visual monitoring identifies any areas of active erosion occurring in the rehabilitation areas and remedial works are undertaken where required.

### *Spontaneous Combustion Monitoring*

The SMC Spontaneous Combustion Management Procedure includes details of identifying signs of self-heating and the management measures to be used to treat, remove and remediate affected areas.

Spontaneous combustion monitoring would also continue during the SMC decommissioning phase and would be undertaken in relevant domains to identify materials with the potential to spontaneously combust. Following identification, SCPL will commission the removal of the material by suitably qualified personnel prior to further rehabilitation proceeding.

## **8.3 MEASURING PERFORMANCE AGAINST REHABILITATION OBJECTIVES AND REHABILITATION COMPLETION CRITERIA**

Rehabilitation performance will be assessed in discrete areas/polygons based on the age and type of rehabilitation. The results of rehabilitation monitoring will be compared against the completion criteria described in Section 4.1 to track rehabilitation progress. Outcomes of the rehabilitation monitoring will be provided in subsequent SMC Annual Reviews, and the SMC Annual Rehabilitation Report and Forward Program.

Summaries of the monitoring results and performance against rehabilitation objectives and completion criteria will be included in this section when this RMP is updated or revised.

## **9 REHABILITATION RESEARCH, MODELLING AND TRIALS**

SCPL has extensive experience in both native ecosystem rehabilitation and agricultural pasture rehabilitation (for grazing purposes), with successful rehabilitation areas completed over the past 20 years at both the DCM and SMC mine sites. Learning from the rehabilitation works undertaken on-site to date along with industry best practice guidelines are employed in the methodology for new rehabilitation areas.

### **9.1 CURRENT REHABILITATION RESEARCH, MODELLING AND TRIALS**

No active rehabilitation research, modelling or trials are undertaken at the SMC. Learnings from rehabilitation works undertaken at both the SMC and DCM will continue to guide rehabilitation at the SMC for new rehabilitation areas.

### **9.2 FUTURE REHABILITATION RESEARCH, MODELLING AND TRIALS**

As per Section 1.1.3 of this RMP, rehabilitation at the SMC has occurred progressively during the active mining phase and will continue throughout the mine closure phase, as shown in Plan 3A. These well-established rehabilitation methods have placed the SMC on a trajectory to achieve the rehabilitation outcomes, detailed further in Section 4.

## 10 INTERVENTION AND ADAPTIVE MANAGEMENT

As stated in Section 1.1.3, SCPL has successfully undertaken rehabilitation activities at the SMC since 1996 with the results of rehabilitation monitoring continuing to inform the effectiveness of rehabilitation methods and requirements for contingency measures.

The 2012 ERA (SP Solutions, 2012), 2020 Rehabilitation Risk Assessment (CKC, 2020) (Section 3.1), and the 2021 *Closure & Rehabilitation Risk Assessment* (IEMA, 2021) identified potential issues and risks associated with rehabilitation and mine closure at the SMC. A TARP (Table 11) has been developed based on identified threats to rehabilitation at the SMC. Any emerging threats to rehabilitation success will be identified through the ongoing monitoring programs described in Section 9.



**Table 11:  
Rehabilitation Trigger Action Response Plan**

Final Land Use Domain	Threat to Rehabilitation Success	Trigger/Cause	Action/Response to Mitigate, Remediate and/or Compensate any Identified Impacts	Justification for Action/Response	How Impact will be Monitored	Notification Protocol
<b>Domain A</b> Native Ecosystem  <b>Domain B</b> Agricultural – Grazing	Severe drought results in loss of vegetation and failure of rehabilitation area.	Rehabilitation monitoring indicates revegetation species failure as a result of drought conditions.	<ul style="list-style-type: none"> <li>Species selection consistent with species native to area that are drought-tolerant.</li> <li>Monitoring of rehabilitation following any prolonged dry periods and watering and/or replanting of seeds as necessary.</li> </ul>	<ul style="list-style-type: none"> <li>This RMP.</li> <li>Successful implementation of action/response at the SMC.</li> </ul>	Regular visual inspection of remediated area and ongoing rehabilitation monitoring using LFA methodology.	Reporting in Annual Rehabilitation Report.
	Flooding results in loss of vegetation and failure of rehabilitation area.	Rehabilitation monitoring indicates significant erosion in rehabilitation area as a result of flooding and loss of revegetation.	<ul style="list-style-type: none"> <li>Design final landforms (e.g. slopes) and drainage structures to minimise impacts from heavy rainfall/flooding based on Site Water Balance and Site Flood Model.</li> <li>Design review and verification process.</li> <li>Survey control.</li> <li>Monitoring of rehabilitation areas following any major rainfall event and re-stabilisation of any landforms and/or replanting of seeds as necessary.</li> </ul>	<ul style="list-style-type: none"> <li>This RMP.</li> <li>WMP.</li> <li>Rehabilitation and closure risk assessments (CKC, 2020; IEMA, 2021) (Section 3).</li> <li>Successful implementation of action/response at the SMC.</li> </ul>	Regular visual inspection of remediated area and ongoing rehabilitation monitoring using LFA methodology.	Reporting in Annual Rehabilitation Report.
	Fire results in loss of vegetation and failure of rehabilitation area.	Occurrence of bushfire in rehabilitation area results in loss of revegetation.	<ul style="list-style-type: none"> <li>Species selection consistent with species native to area that are fire-tolerant.</li> <li>Implementation of fire prevention measures in rehabilitation area and surrounds.</li> </ul>	<ul style="list-style-type: none"> <li>This RMP.</li> <li>Successful implementation of action/response at the SMC.</li> </ul>	Regular visual inspection of remediated area and ongoing rehabilitation monitoring using LFA methodology.	Reporting in Annual Rehabilitation Report.

**Table 11 (Continued):  
Rehabilitation Trigger Action Response Plan**

<b>Final Land Use Domain</b>	<b>Threat to Rehabilitation Success</b>	<b>Trigger/Cause</b>	<b>Action/Response to Mitigate, Remediate and/or Compensate any Identified Impacts</b>	<b>Justification for Action/Response</b>	<b>How Impact will be Monitored</b>	<b>Notification Protocol</b>
<b>Domain A</b> Native Ecosystem  <b>Domain B</b> Agricultural – Grazing (Continued)	Exploration activities results in loss of vegetation and failure of rehabilitation area.	Rehabilitation monitoring indicates revegetation is damaged resulting in failure of rehabilitation area.	<ul style="list-style-type: none"> <li>Implement relevant impact avoidance measures in accordance with approval or REF.</li> <li>Monitoring of rehabilitation areas following exploration and replanting of seeds as necessary.</li> </ul>	<ul style="list-style-type: none"> <li>This RMP.</li> <li>Exploration activity approval or REF.</li> <li>Successful implementation of action/response at the SMC.</li> </ul>	Visual inspection of remediated area following exploration activities.	Reporting in Annual Rehabilitation Report.
<b>Domain B</b> Agricultural – Grazing	Erosion on steep slopes (e.g. outer batters of waste emplacements) due to overgrazing of pasture or damage from stock.	Rehabilitation monitoring indicates active erosion on outer batters.	<ul style="list-style-type: none"> <li>Exclude stock and remediate eroded area.</li> <li>Rest remediated area from continuous grazing to improve long-term stability of the area.</li> </ul>	<ul style="list-style-type: none"> <li>This RMP.</li> <li>Rehabilitation monitoring reports and recommendations.</li> <li>Successful implementation of action/response at the SMC.</li> </ul>	Regular visual inspection of remediated area and ongoing rehabilitation monitoring using LFA methodology.	Reporting in Annual Rehabilitation Report.

**Table 11 (Continued):  
Rehabilitation Trigger Action Response Plan**

<b>Final Land Use Domain</b>	<b>Threat to Rehabilitation Success</b>	<b>Trigger/Cause</b>	<b>Action/Response to Mitigate, Remediate and/or Compensate any Identified Impacts</b>	<b>Justification for Action/Response</b>	<b>How Impact will be Monitored</b>	<b>Notification Protocol</b>
<b>Domain B</b> Agricultural – Grazing (Continued)	Continuous grazing on areas revegetated with pasture results in low density, depth and cover of pasture grass, increasing erosion potential (particularly on steep batters of waste emplacement areas or other landforms).	Rehabilitation monitoring indicates active erosion and poor revegetation cover.	<ul style="list-style-type: none"> <li>Modify grazing regime to include rest periods.</li> </ul>	<ul style="list-style-type: none"> <li>This RMP.</li> <li>Rehabilitation monitoring reports and recommendations.</li> <li>Successful implementation of action/response at the SMC.</li> </ul>	Regular visual inspection of remediated area and ongoing rehabilitation monitoring using LFA methodology.	Reporting in Annual Rehabilitation Report.
<b>Domain A</b> Native Ecosystem	Dense cover of exotic grasses (i.e. Kikuyu) in un-grazed woodland areas results in suppression of native grasses.	Rehabilitation monitoring indicates low species diversity and dominance of exotic grasses.	<ul style="list-style-type: none"> <li>Discontinue use of Kikuyu/remove from seed mix.</li> <li>Increase number of native grass species in seed mix.</li> <li>Re-seed relevant areas with native grass species (i.e. <i>Themeda australis</i>).</li> </ul>	<ul style="list-style-type: none"> <li>This RMP.</li> <li>Rehabilitation monitoring reports and recommendations.</li> </ul>	Regular visual inspection of rehabilitation areas and ongoing rehabilitation monitoring using LFA methodology.	Reporting in Annual Rehabilitation Report.
<b>Domain A</b> Native Ecosystem <b>Domain B</b> Agricultural – Grazing	Direct-seeding of Eucalypt species is an ineffective method to achieve long-term development of resilient Eucalypt trees.	Rehabilitation monitoring indicates poor/slow growth and development of Eucalypt trees.	<ul style="list-style-type: none"> <li>Revegetation methods to include both direct-seeding and planting of tubestock (particularly for Eucalypt tree species).</li> </ul>	<ul style="list-style-type: none"> <li>This RMP.</li> <li>Rehabilitation monitoring reports and recommendations.</li> </ul>	Regular visual inspection of rehabilitation area and ongoing rehabilitation monitoring using LFA methodology.	Reporting in Annual Rehabilitation Report.

**Table 11 (Continued):  
Rehabilitation Trigger Action Response Plan**

Final Land Use Domain	Threat to Rehabilitation Success	Trigger/Cause	Action/Response to Mitigate, Remediate and/or Compensate any Identified Impacts	Justification for Action/Response	How Impact will be Monitored	Notification Protocol
<b>Domain A</b> Native Ecosystem  <b>Domain B</b> Agricultural – Grazing (Continued)	Species diversity and/or density in rehabilitation areas does not correspond with reference site(s).	During ecosystem establishment and sustainability phase, monitoring indicates that species diversity and/or density in some areas does not correspond with reference site(s).	<ul style="list-style-type: none"> <li>Conduct additional plantings or further actions following planting such as application of fertiliser or watering of rehabilitation areas.</li> <li>Obtain expert opinions if required.</li> </ul>	<ul style="list-style-type: none"> <li>This RMP.</li> <li>Rehabilitation monitoring reports and recommendations.</li> </ul>	Regular visual inspection of rehabilitation area and ongoing rehabilitation monitoring using LFA methodology.	Reporting in Annual Rehabilitation Report.
	Instability of rehabilitated CHPP reject disposal areas.	Geological drilling/testing indicates instability of rehabilitated profiled landform.	<ul style="list-style-type: none"> <li>Excavate CHPP rejects and dispose of in a pit void.</li> <li>Replace with stable material (e.g. waste rock).</li> </ul>	<ul style="list-style-type: none"> <li>This RMP.</li> <li>Rehabilitation and closure risk assessments (CKC, 2020; IEMA, 2021) (Section 3).</li> </ul>	Visual inspections and geological.	Reporting in Annual Rehabilitation Report.
	Compromised CHPP reject material capping layer.	Rehabilitation monitoring results indicate potential failure of capping layer over CHPP reject material disposal areas within Western Co-Disposal Area or within waste emplacement PAF cell.	<ul style="list-style-type: none"> <li>Conduct investigation, in consultation with suitably qualified person, to determine scale of affected area and likelihood for affected rehabilitation area to rectify without intervention or requirement for excavation of area to replace capping layer.</li> <li>If recommended by investigation, excavate affected area, replace capping layer as per design and rehabilitate as per Agricultural – Grazing and Native Ecosystem rehabilitation objectives.</li> </ul>	<ul style="list-style-type: none"> <li>This RMP.</li> <li>To ensure rehabilitation completion criteria are met.</li> </ul>	Verification capping layer installed as designed. Rehabilitation monitoring.	Reporting in Annual Rehabilitation Report.

**Table 11 (Continued):  
Rehabilitation Trigger Action Response Plan**

<b>Final Land Use Domain</b>	<b>Threat to Rehabilitation Success</b>	<b>Trigger/Cause</b>	<b>Action/Response to Mitigate, Remediate and/or Compensate any Identified Impacts</b>	<b>Justification for Action/Response</b>	<b>How Impact will be Monitored</b>	<b>Notification Protocol</b>
<b>Domain A</b> Native Ecosystem  <b>Domain J</b> Final Void	Geotechnical issues relating to the Rehabilitation of the Roseville Pit Extension where excavating through CHPP reject material in the backfilled Roseville Pit.	Geological drilling/testing indicates instability of pit walls.	<ul style="list-style-type: none"> <li>Cut back pit wall to reduce wall angle and improve stability.</li> </ul>	<ul style="list-style-type: none"> <li>This RMP.</li> <li>closure risk assessments (CKC, 2020; IEMA, 2021) (Section 3).</li> </ul>	Visual inspections and geological drilling/testing.	Reporting in Annual Rehabilitation Report.
<b>Domain A</b> Native Ecosystem	Insufficient material available to backfill Stratford Main Pit resulting in change to final landform to a water-filled final void.	SMC mine planning team identifies less than adequate (LTA) waste rock material available to achieve completely backfilled landform.	<ul style="list-style-type: none"> <li>Conduct operations in accordance with approved SMC LOM RDP and SMC Stratford Main Pit Rehabilitation Strategy.</li> <li>Develop a detailed closure plan for the Stratford Main Pit which includes materials balance analysis.</li> <li>Review potential approval pathways for modifying the Stratford Main Pit final landform and final land use.</li> <li>Annual material balance.</li> </ul>	<ul style="list-style-type: none"> <li>This RMP.</li> <li>Rehabilitation and closure risk assessments (CKC, 2020; IEMA, 2021) (Section 3).</li> <li>SMC Mine Closure Plan and Schedule (Appendix 1).</li> </ul>	Ongoing SMC mine planning meetings and continual review of SMC materials production balances and schedule.	Reporting in Annual Rehabilitation Report.



**Table 11 (Continued):  
Rehabilitation Trigger Action Response Plan**

Final Land Use Domain	Threat to Rehabilitation Success	Trigger/Cause	Action/Response to Mitigate, Remediate and/or Compensate any Identified Impacts	Justification for Action/Response	How Impact will be Monitored	Notification Protocol
<b>Domain A</b> Native Ecosystem (Continued)	Potential for offsite impacts from water discharge from final voids.	<ul style="list-style-type: none"> <li>• Too great catchment area reporting to final void.</li> <li>• Inaccurate final void modelling.</li> <li>• Inaccurate Final void assumptions.</li> <li>• Climatic changes.</li> </ul>	<ul style="list-style-type: none"> <li>• Conceptual final void design. Final voids modelled as groundwater sink with zero discharge (equilibrium below spill level) in EIS.</li> <li>• Site water balance and post-mining final void water balance.</li> <li>• Post-mining final landform drainage design review.</li> <li>• Flood model.</li> <li>• Site groundwater model (including review of site groundwater model as part of mine closure planning program).</li> </ul>	<ul style="list-style-type: none"> <li>• This RMP.</li> <li>• Rehabilitation and closure risk assessments (CKC, 2020; IEMA, 2021) (Section 3).</li> <li>• SMC Mine Closure Plan and Schedule (Appendix 1).</li> </ul>	Post-mine monitoring program including monitoring of final void water level.	Reporting in Annual Rehabilitation Report.

**Table 11 (Continued):  
Rehabilitation Trigger Action Response Plan**

Final Land Use Domain	Threat to Rehabilitation Success	Trigger/Cause	Action/Response to Mitigate, Remediate and/or Compensate any Identified Impacts	Justification for Action/Response	How Impact will be Monitored	Notification Protocol
<b>Domain A</b> Native Ecosystem  <b>Domain B</b> Agricultural – Grazing  <b>Domain G</b> Water Storage (Excluding Final Void)	Surface water run-off causes detrimental effects on aquatic ecology.	<ul style="list-style-type: none"> <li>LTA acid mine drainage management.</li> <li>LTA design of water management structures.</li> <li>LTA management or decommissioning of irrigation area run-off.</li> <li>Seepage from waste emplacements into creeks.</li> <li>Reduction in catchment run-off.</li> <li>Runoff from rehabilitated areas.</li> <li>Runoff from area of contaminated land.</li> </ul>	<ul style="list-style-type: none"> <li>PAF model.</li> <li>Development of PAF material handling and management procedure, and detailed PAF cell and capping designs prepared by suitably qualified person/s.</li> <li>Geochemical assessment carried out as part of EIS.</li> <li>Mine surveying and tracking of waste materials.</li> <li>WMP including; site water balance, SWMP, Irrigation Management Plan.</li> <li>On-going geochemical testing of waste materials.</li> <li>Water management infrastructure design, monitoring and reporting.</li> <li>Mine plans, dig plans and dump plans include PAF controls.</li> <li>Water quality monitoring and aquatic ecology monitoring.</li> <li>Contaminated land assessment post-closure.</li> </ul>	<ul style="list-style-type: none"> <li>This RMP.</li> <li>Rehabilitation and closure risk assessments (CKC, 2020; IEMA, 2021) (Section 3).</li> <li>SMC Mine Closure Plan and Schedule (Appendix 1).</li> </ul>	Operational SWMP monitoring program and post-mine monitoring program.  Rehabilitation monitoring program.	Reporting in Annual Rehabilitation Report.

**Table 11 (Continued):  
Rehabilitation Trigger Action Response Plan**

Final Land Use Domain	Threat to Rehabilitation Success	Trigger/Cause	Action/Response to Mitigate, Remediate and/or Compensate any Identified Impacts	Justification for Action/Response	How Impact will be Monitored	Notification Protocol
<b>Domain A</b> Native Ecosystem <b>Domain B</b> Agricultural – Grazing <b>Domain G</b> Water Storage (Excluding Final Void) (Continued)	Unplanned release of mine water during rehabilitation/operations.	<ul style="list-style-type: none"> <li>Current WMP water management practices on site are LTA for rehabilitation stage of operations.</li> <li>LTA surface and ground water controls for rehabilitation stage of operations.</li> <li>Uncontrolled spill from Mine Water Storage Dams.</li> <li>Unexpected structural failure of dam, flood bunds.</li> <li>Unplanned removal of water management infrastructure, e.g. minor levee or bund.</li> <li>Failure to correctly identify where run-off from rehab areas could occur and where they could report to.</li> </ul>	<ul style="list-style-type: none"> <li>SMC WMP procedures and monitoring.</li> <li>Dedicated resources on site.</li> <li>Current water infrastructure in place.</li> <li>Site water balance.</li> <li>Ground disturbance and clearing procedure.</li> <li>Mine Planning procedures.</li> </ul>	<ul style="list-style-type: none"> <li>This RMP.</li> <li>Rehabilitation and closure risk assessments (CKC, 2020; IEMA, 2021) (Section 3).</li> </ul>	Operational SWMP monitoring program and post-mine monitoring program.	Reporting in Annual Rehabilitation Report.

**Table 11 (Continued):  
Rehabilitation Trigger Action Response Plan**

<b>Final Land Use Domain</b>	<b>Threat to Rehabilitation Success</b>	<b>Trigger/Cause</b>	<b>Action/Response to Mitigate, Remediate and/or Compensate any Identified Impacts</b>	<b>Justification for Action/Response</b>	<b>How Impact will be Monitored</b>	<b>Notification Protocol</b>
<b>Domain A</b> Native Ecosystem <b>Domain B</b> Agricultural – Grazing <b>Domain G</b> Water Storage (Excluding Final Void) (Continued)	Poor quality runoff from rehabilitated areas.	<ul style="list-style-type: none"> <li>Current water management practices on site are LTA for rehabilitation stage of operations.</li> <li>LTA surface and ground water controls for rehabilitation stage of operations.</li> <li>Vegetation not adequately established.</li> <li>LTA landform and drainage structure design.</li> <li>LTA erosion controls.</li> <li>LTA PAF cell design/ capping.</li> </ul>	<ul style="list-style-type: none"> <li>Established WMP trigger level criteria.</li> <li>Dedicated resources on site.</li> <li>Current water infrastructure in place.</li> <li>Site water balance.</li> <li>This RMP.</li> <li>Landform, drainage and erosion control design by suitably competent person (including review of final landform drainage design as part of SMC Mine Closure Plan and Schedule).</li> <li>Development of PAF material handling and management procedure, and detailed PAF cell and capping designs prepared by suitably qualified person/s.</li> <li>Demonstrated rehabilitation areas success.</li> <li>Mine inspection program for sediment dams, drains, erosion controls etc.</li> </ul>	<ul style="list-style-type: none"> <li>This RMP.</li> <li>Rehabilitation and closure risk assessments (CKC, 2020; IEMA, 2021) (Section 3).</li> <li>SMC Mine Closure Plan and Schedule (Appendix 1).</li> </ul>	WMP monitoring program and post-mine monitoring program.  Rehabilitation monitoring program.	Reporting in Annual Rehabilitation Report.
All Final Land Use Domains	Rehabilitation is incompatible or unable to achieve proposed final land use, requiring rework or re-approval.	<ul style="list-style-type: none"> <li>Failure to carry out rehabilitation in accordance with final land use.</li> <li>LTA final landform design.</li> </ul>	<ul style="list-style-type: none"> <li>RMP clearly identifies final land use goals, linked to Development Consent (SSD-4966) requirements.</li> <li>Yancoal Project Governance System.</li> <li>Rehabilitation monitoring and reporting.</li> <li>SMC Mine Closure Plan and Schedule team to manage and assess rehabilitation implementation</li> </ul>	<ul style="list-style-type: none"> <li>This RMP.</li> <li>Rehabilitation and closure risk assessments (CKC, 2020; IEMA, 2021) (Section 3).</li> <li>SMC Mine Closure Plan and Schedule (Appendix 1).</li> </ul>	Rehabilitation monitoring program and post-mine monitoring program.	Reporting in Annual Rehabilitation Report.

**Table 11 (Continued):  
Rehabilitation Trigger Action Response Plan**

<b>Final Land Use Domain</b>	<b>Threat to Rehabilitation Success</b>	<b>Trigger/Cause</b>	<b>Action/Response to Mitigate, Remediate and/or Compensate any Identified Impacts</b>	<b>Justification for Action/Response</b>	<b>How Impact will be Monitored</b>	<b>Notification Protocol</b>
All Final Land Use Domains (Continued)	Failure to achieve rehabilitation completion criteria causes delay to relinquishment.	<ul style="list-style-type: none"> <li>• Reinstatement of flora and fauna habitat LTA.</li> <li>• LTA implementation of rehabilitation controls.</li> <li>• Rehabilitated landform doesn't sustain intended final land use.</li> <li>• Climatic conditions.</li> <li>• Fire damage.</li> </ul>	<ul style="list-style-type: none"> <li>• RMP performance and completion criteria (Section 4.1).</li> <li>• RMP monitoring and reporting requirements (Section 8).</li> <li>• Previous site rehabilitation and experience.</li> <li>• BMP, including bushfire management controls.</li> <li>• RMP rehabilitation procedures are scientifically based.</li> <li>• Analogue monitoring sites established.</li> <li>• Selection of appropriate land uses for climatic conditions.</li> <li>• SMC Mine Closure Plan and Schedule (Appendix 1) team to manage and assess rehabilitation implementation.</li> <li>• Rehabilitation assessment during closure phase.</li> </ul>	<ul style="list-style-type: none"> <li>• This RMP.</li> <li>• Rehabilitation and closure risk assessments (CKC, 2020; IEMA, 2021) (Section 3).</li> <li>• SMC Mine Closure Plan and Schedule (Appendix 1).</li> </ul>	Rehabilitation monitoring program and post-mine monitoring program.	Reporting in Annual Rehabilitation Report.



**Table 11 (Continued):  
Rehabilitation Trigger Action Response Plan**

Final Land Use Domain	Threat to Rehabilitation Success	Trigger/Cause	Action/Response to Mitigate, Remediate and/or Compensate any Identified Impacts	Justification for Action/Response	How Impact will be Monitored	Notification Protocol
<b>Domain G</b> Water Storage (Excluding Final Void)	Final landform water management infrastructure does not provide for long term stability.	<ul style="list-style-type: none"> <li>LTA design of water infrastructure.</li> <li>LTA modelling of water infrastructure requirements.</li> <li>LTA construction of water infrastructure requirements.</li> <li>Changed climate conditions.</li> </ul>	<ul style="list-style-type: none"> <li>Site flood model.</li> <li>Site water balance.</li> <li>Approved conceptual final landform design which incorporates water infrastructure.</li> <li>Design approach to minimise drainage structures on rehabilitated slopes.</li> <li>Review of final landform drainage design as part of SMC Mine Closure Plan and Schedule (Appendix 1).</li> <li>Design review and verification process.</li> <li>Survey control.</li> </ul>	<ul style="list-style-type: none"> <li>This RMP.</li> <li>Rehabilitation and closure risk assessments (CKC, 2020; IEMA, 2021) (Section 3).</li> <li>SMC Mine Closure Plan and Schedule (Appendix 1).</li> </ul>	Rehabilitation and WMP monitoring programs and post-mine monitoring program.	Reporting in Annual Rehabilitation Report.

**Table 11 (Continued):  
Rehabilitation Trigger Action Response Plan**

<b>Final Land Use Domain</b>	<b>Threat to Rehabilitation Success</b>	<b>Trigger/Cause</b>	<b>Action/Response to Mitigate, Remediate and/or Compensate any Identified Impacts</b>	<b>Justification for Action/Response</b>	<b>How Impact will be Monitored</b>	<b>Notification Protocol</b>
<b>Domain A</b> Native Ecosystems  <b>Domain B</b> Agricultural – Grazing  <b>Domain J</b> Final Void	Geotechnical instability of rehabilitated waste emplacements and final void.	<ul style="list-style-type: none"> <li>Steepness of final highwalls, endwalls, batters and waste emplacements.</li> <li>Undetermined water impacts on wall stability and submerged rehabilitated waste emplacements.</li> <li>Uncontrolled erosion.</li> <li>Do not have final landform design or void design.</li> <li>Water displaced from void by failure.</li> </ul>	<ul style="list-style-type: none"> <li>Operational geotechnical assessments.</li> <li>Conceptual final landform design.</li> <li>Post-mining water balance model and final void water balance model.</li> <li>Complete detailed final landform design and final void design.</li> <li>Carry out a geotechnical assessment of the final void design including water filled void at interim stages.</li> <li>Final landform stability assessment.</li> </ul>	<ul style="list-style-type: none"> <li>This RMP.</li> <li>Rehabilitation and closure risk assessments (CKC, 2020; IEMA, 2021) (Section 3).</li> <li>SMC Mine Closure Plan and Schedule (Appendix 1).</li> </ul>	Rehabilitation and WMP monitoring programs and post-mine monitoring program.	Reporting in Annual Rehabilitation Report.
<b>Domain J</b> Final Void	Public safety risk of access to/ interaction with final voids.	<ul style="list-style-type: none"> <li>Uncontrolled access to final void.</li> <li>LTA security measures, barriers and bunding.</li> <li>Final pit wall angle unsafe.</li> </ul>	<ul style="list-style-type: none"> <li>RMP includes provision and maintenance of perimeter fencing, signage and bunding.</li> <li>Post-closure monitoring and maintenance.</li> </ul>	<ul style="list-style-type: none"> <li>This RMP.</li> <li>Rehabilitation and closure risk assessments (CKC, 2020; IEMA, 2021) (Section 3).</li> <li>SMC Mine Closure Plan and Schedule (Appendix 1).</li> </ul>	Review of adequacy of final void perimeter fencing, signage and bunding.	Reporting in Annual Rehabilitation Report.

## 11 REVIEW, REVISION AND IMPLEMENTATION

### ***Review and Revision of this RMP***

In accordance with Clause 11, Schedule 8A of the *Mining Regulation 2016*, SCPL will amend this RMP in the following circumstances:

- to substitute the proposed version of the rehabilitation objectives and rehabilitation completion criteria (Section 4) or FLRP (Section 5) with the version approved by the Secretary—within 30 days after the document is approved;
- as a consequence of an amendment made to the rehabilitation objectives and rehabilitation completion criteria (Section 4) or FLRP (Section 5) – within 30 days after the amendment is made;
- to reflect any changes to the risk control measures in the RMP that are identified in a rehabilitation risk assessment – as soon as practicable after the rehabilitation risk assessment is conducted; and
- whenever directed in writing to do so by the Secretary – in accordance with the direction.

SCPL notes that the rehabilitation objectives and FLRP have been approved by the NSW Resources Regulator. Accordingly, this RMP includes the approved versions of the rehabilitation objectives and FLRP, as required by Clause 11, Schedule 8A of the *Mining Regulation 2016*.

SCPL will ensure that this RMP remains current and relevant to ensure it defines the rehabilitation outcomes to be achieved in relation to the mining area and sets out the strategy to achieve those outcomes. This will be partly informed by ensuring that the effectiveness of the rehabilitation risk assessment and controls adopted in the life of mine progressive rehabilitation schedule and rehabilitation phases are routinely evaluated throughout the life cycle of the SMC.

Whenever any foreseeable hazard is identified that presents a risk to achieving the rehabilitation objectives and rehabilitation completion criteria, or the FLRP, SCPL will update the rehabilitation risk assessment and this RMP.

If necessary, SCPL will update this RMP to include more detailed mine closure activities as rehabilitation progresses. The review and updating of this RMP will include and be informed by (as relevant) additional stakeholder consultation. The results of any environmental performance monitoring undertaken during the Forward Program term will contribute to refining future RMPs.

The rehabilitation principles and targets described in this RMP will continue to be tracked via SCPL's internal review and tracking systems and the reporting and auditing mechanisms.

### ***Annual Review and Annual Rehabilitation Report***

In accordance with Condition 4, Schedule 5 of Development Consent (SSD-4966), SCPL will prepare an Annual Review prior to the end of March each year (or other timing as may be agreed with the Secretary of the DPE) to review the environmental performance of the SMC. The Annual Review will report on SCPL's compliance with all conditions of Development Consent (SSD-4966), SMC's MLs and other relevant environmental approvals and licences.

In addition to addressing the requirements of Condition 4, Schedule 5 of Development Consent SSD-4966, the Annual Review will include:

- a description of rehabilitation activities undertaken during the reporting period and the forecasted rehabilitation activities proposed for the next reporting period;
- a summary of rehabilitation monitoring results and any observations of the effectiveness of the rehabilitation practices and measures;
- a review of the rehabilitation monitoring results against the rehabilitation performance indicators and completion criteria; and
- an update on the Mine Closure Plan and Schedule process.

In accordance with Condition 11, Schedule 5 of Development Consent (SSD-4966), the Annual Review will be made publicly available on the Stratford Coal website ([www.stratfordcoal.com.au](http://www.stratfordcoal.com.au)).

### **Implementation of this RMP**

A general overview of the responsibility of SCPL personnel in regard to the monitoring, review and implementation of this RMP is provided in Table 12 below.

**Table 12:  
Site Environmental and Mining Management Relevant to Implementation of this RMP**

<b>Management Team Member(s)</b>	<b>Role and Responsibility</b>
Operations Manager	<ul style="list-style-type: none"> <li>• Provide adequate resourcing to support site environmental management.</li> <li>• Provide strategic direction.</li> <li>• Overall site management responsibility.</li> <li>• Responsible for management of mining contractors and SCPL staff.</li> </ul>
Superintendent – Mine Planning	<ul style="list-style-type: none"> <li>• Responsible for monitoring, review and implementation of planning and engineering aspects of this RMP.</li> <li>• Annual internal auditing and reporting (Annual Review).</li> <li>• Responsible for the performance of activities undertaken within the mining area.</li> </ul>
Superintendent – Environment and Community	<ul style="list-style-type: none"> <li>• Responsible for monitoring, review and implementation of environmental aspects of this RMP.</li> <li>• Environmental related approvals and planning.</li> <li>• Management of the implementation and compliance with Environmental Management Plan, approvals, licensing and permits.</li> <li>• Responsible for site environmental monitoring.</li> <li>• Annual internal auditing and reporting (Annual Review).</li> <li>• Progressive rehabilitation planning, development and reporting.</li> <li>• External government and stakeholder consultation.</li> <li>• Responsible for community enquiry and initiatives management.</li> </ul>
General Staff and Contractors	<ul style="list-style-type: none"> <li>• All general staff members trained in environmental procedures and protocols as part of the induction process and regular site meetings.</li> <li>• All general staff members responsible for immediately reporting environmental incidents.</li> <li>• All general staff members responsible for undertaking works in an environmentally sound manner and in accordance with this RMP.</li> <li>• Environmental Management Plan, and site commitments.</li> </ul>

## 12 REFERENCES

- Australian Museum Business Services (2011a) *Stratford Surrounds Flora Survey*.
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- Department of Environment and Conservation (2004) *Environmental Guidelines: Use of Effluent by Irrigation*.
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- Kleinfelder (2021). *Stratford Mining Complex Rehabilitation EFA Monitoring 2021*.
- Land and Water Resources Research and Development Corporation (2000) *A Rehabilitation Manual for Australian Streams*.
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- New South Wales Resources Regulator (2021) *Form and Way – Rehabilitation Management Plan for Large Mines*.



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Report prepared for Stratford Coal Pty Ltd.

Stratford Coal Pty Ltd (2021) – *Annual Review*.

Stratford Coal Pty Ltd (1994) Stratford Coal Environmental Impact Statement.

Stratford Coal Pty Ltd (2012) *Stratford Extension Project Environmental Impact Statement*.

## APPENDIX 1

### STRATFORD MINING COMPLEX: MINE CLOSURE PLAN AND SCHEDULE

# STRATFORD MINING COMPLEX

## Mine Closure Plan and Schedule

# 1 MINE CLOSURE PLAN AND SCHEDULE

SCPL is planning for the commencement of the mine closure phase and has prepared this Mine Closure Plan in support of the SMC Rehabilitation Management Plan (RMP).

A Mine Closure Planning Program (MCP) was developed for the SMC and was included in previous versions of the MOP/RMP. The purpose of this MCP was to provide a strategy and a description of all the works required to develop the Mine Closure Plan. The technical assessments identified in the MCP have been informed by the key risks and risk reduction strategies associated with rehabilitation and mine closure of the DCM, as identified in the rehabilitation and closure risk assessments.

This revision of the MCP was prepared to expand on and provide a higher level of detail than the MCP described in the previous MOP/RMP. It also includes a description of the status of operations at the SMC and the schedule for transition to mine closure.

The majority of the assessments/studies required by the MCP have been completed progressively during the previous MOP/RMP term. The remaining components of the program will continue to be developed.

SCPL has prepared a Rehabilitation Management Plan (RMP) consistent with the new standard rehabilitation conditions on mining leases imposed through an amendment to the Regulation under the *Mining Act* 1992. The outcomes of completed components of the Mine Closure Planning Program are described in the subsections below and have informed or been considered in the preparation of the RMP. The RMP will include all relevant information from the detailed mine closure planning process. It is anticipated that work on the internal detailed closure plan will continue beyond 30 June 2022 and relevant outcomes will be included in future revisions of the RMP.

The MCP actions/components and completion status/schedule for each component is provided in the table below. Specific detail on individual components of the MCP and the outcomes of the completed mine closure studies and strategies are described in the following sub-sections.

**Table 1**  
**Mine Closure Planning – Action Plan and Schedule**

Risk Assessment Actions	Target Completion Date
<b>003: Development of Completion Criteria</b> – Undertake a review of the completion criteria as part of the RMP review and incorporate the outcomes of this review in the preparation of the detailed mine closure plan.	30 June 2022 Completed.
<b>004: Develop the Human Resources Strategy</b> - Ensure that a representative from HR is involved in the Mine Closure working group so that the HR strategy can be developed in consultation with the working group and aligned to the needs of the closure plan.	Initially by 1 August 2022 with ongoing review and refinement
<b>007: Mine Closure Stakeholder Strategy</b> – Develop the Mine Closure Plan Stakeholder Strategy which will include a list of all relevant stakeholders, how they will be engaged with and when. In addition, this should include a consultation log which is a record of the engagement along with any outcomes and actions.	Initially by 30 June 2022 with ongoing review and refinement
<b>009: Socio-economic Impact Assessment</b> – Scope and prepare a study that is an assessment of the impact on the local community as a result of closure of the mines. There should be a focus on capacity building to ensure sustainability beyond closure of the mine.	Initially by 31 December 2022 with ongoing review and refinement

**Table 1 (Continued)**  
**Mine Closure Planning – Action Plan and Schedule**

Risk Assessment Actions	Target Completion Date
<b>019: Document and Records Control Management System</b> – Develop an appropriate Document and Records Control Management System to be used during the detailed mine closure planning process. The purpose is to keep all evidence to demonstrate and verify closure objectives have been met. As part of the setup review the existing records that are relevant to relinquishments so that they can be brought into the systems and the value of this work is not lost.	30 June 2022
<b>021: Monitoring &amp; Maintenance Program</b> - Prepare a Monitoring and Maintenance Program as part of the Detailed Mine Closure Plan. This should be detailed in the existing Environmental Management Plans. Review the existing monitoring programs and align with and or add elements to specifically address the closure success criteria that are adopted for each CMA. This review should also include a review what elements of the existing monitoring system can cease when mining ceases.	30 June 2022 Completed. Ongoing review and refinement in the EMPs.
<b>023: Review Environmental Management Plans for closure phase</b> - Undertake a review of the existing approved EMPs and update them as the site moves into closure. This review will not only include incorporating any aspects that are related to closure, but also removing operational requirements that are no longer applicable when the site is in closure. Consider monitoring and maintenance requirements during and after closure.	31 December 2023. Periodic review and refinement
<b>025: Approvals/Licences Relinquishment Strategy</b> – Develop a relinquishment strategy for all relevant approvals, consents, and licences. This is in addition to the tenement requirements.	31 October 2022 with ongoing review and refinement
<b>028: Public Safety Risk Assessment</b> - Complete a RA to assess any risks to the public during and post closure of the mine(s)	30 September 2022 with ongoing review and refinement
<b>029: Develop Mine Closure Risk Register</b> and undertake periodic risk assessment reviews.	Completed Periodic risk assessment review
<b>033: Decommissioning &amp; Demolition Plan</b> - Prepare a Decommissioning & Demolition Plan for the site which includes a list of all infrastructure to be removed, assessment of waste streams and volumes, consideration of hazmat [i.e. asbestos, radiation sources, etc.]. Include a management and maintenance strategy for any assets that are retained. This could include a long-term strategy for the assets.	31 October 2022 with ongoing review and refinement
<b>035: Exploration inspection program</b> - Undertake a program to inspect a representative sample of the rehabilitated exploration boreholes sites to gather evidence that the work has been completed to a satisfactory standard.	30 June 2020 Commenced. Continues during closure.
<b>038: Water Management Infrastructure retention strategy.</b>	31 March 2023
<b>041: Closure waste management plan</b> - Develop a strategy to manage the waste streams generated by the demolition of site infrastructure. This is to include identifying a suitable licensed disposal option and the use of appropriately licensed contractors to manage the waste transfer and disposal.	31 October 2022 with ongoing review and refinement



**Table 1 (Continued)**  
**Mine Closure Planning – Action Plan and Schedule**

Risk Assessment Actions	Target Completion Date
<b>042: Contaminated Sites Assessment</b> - Complete a Land Quality Assessment for the site which aims to identify any contaminated sites, undertake intrusive investigations, and prepare Remediation Action Plans for the identified sites.	31 October 2022 (PSI level) Detailed assessment in late 2022.
<b>049: Review Historical PAF</b> management practices & compile rehabilitation signoff evidence – Consider targeted investigations where appropriate, draw on site experience, review historical dumping plans and records, and photo records. Develop a data set that can be used in the mine closure plan and ESF2 to demonstrate that the PAF material has been managed appropriately during mining operations.	30 June 2024, undertaken during closure execution
<b>050: LOM Rehab Materials Register &amp; Mass Balance</b> - Develop a rehabilitation materials register including topsoil, clay, and rock. Undertake a review of the rehabilitation materials required (e.g. topsoil, rock, clay, etc.) and compare that the material available in stockpile or available to be recovered from the remaining mining areas.	30 June 2022 Completed. Ongoing annual review
<b>051: Rehabilitation Methods SOPs</b> – Current rehabilitation practices have been refined over time with experience at the site however there is currently no documented methods statement or SOP in place. Develop a Rehabilitation Methods SOP document to include the processes specific for the site(s). This could include, but not be limited to: <ul style="list-style-type: none"> <li>- Topsoil stripping and handling</li> <li>- rehab materials stockpiling and mass balance</li> <li>- habitat material salvage</li> <li>- Rehabilitation timing</li> <li>- Surface preparation</li> <li>- Topsoil spreading and allocation of topsoil</li> <li>- Spreading and addition of ameliorants</li> <li>- Seed selection</li> <li>- Seed purchase and storing</li> <li>- Seed application.</li> <li>- supervisor and operator training</li> <li>- design specifications for water infrastructure, etc.</li> </ul> The document also needs include requirements for records that will be used to support the rehabilitation process and verify that the methodology used is appropriate. This information should be included in the document control system.	30 September 2022 with ongoing review and refinement

**Table 1 (Continued)**  
**Mine Closure Planning – Action Plan and Schedule**

Risk Assessment Actions	Target Completion Date
<p><b>052: Final Voids Strategy</b> – Undertake a study to review the preferred final void design which can be taken forward to the Regulator for agreement on relinquishment criteria. I.e. to add clarity to the definition of “safe, stable and non-polluting” and give certainty to achieving signoff status and residual risks.</p> <p>The assessment should include, but not be limited to:</p> <ul style="list-style-type: none"> <li>- overarching strategy – non-spill or flow through system;</li> <li>- detailed geotechnical design parameters agreeing on FoS;</li> <li>- erosion modelling completed on the designs;</li> <li>- review the areas available to enable treatment [approval boundaries];</li> <li>- offsets and creeks;</li> <li>- cut and fill versus backfill and look at the cost benefits;</li> <li>- review the constructed landforms and the impact they have on achieving the preferred final void outcome;</li> <li>- review these keys assumptions that feed into the final void design;</li> <li>- review what impact the preferred final void will have on what water infrastructure can be retained and what the design parameters should be adopted to ensure long term stability;</li> <li>- review the surface and groundwater models, including fill and spill and water quality; and</li> <li>- establish success criteria for the final voids.</li> </ul>	<p>31 December 2022 with ongoing review and refinement</p>
<p><b>053: Final Void water balance</b> - Review the post-mining surface and groundwater models and understand the impacts of the preferred final void design. Prepare an updated final void water balance. This assessment is to include a review of the potential fill and spill scenarios along with a review of the resulting water quality and mitigation that may be required.</p>	<p>Completed. Ongoing review and refinement</p>
<p><b>056: Review application of erosion modelling</b> - Identify landforms on the site(s) that represent typical sites and complete erosion modelling for these locations to demonstrate that the current design criteria are appropriate. In addition to the representative sites apply the erosion model on sites that are considered high risk across the site.</p>	<p>31 July 2022</p>
<p><b>057: Development of a QA/QC process for landform design</b> - Develop and implement a QA/QC process around demonstrating that the landforms have been built to the approved design.</p>	<p>30 June 2022 Completed. Ongoing review and refinement</p>
<p><b>058: Document control &amp; Records</b> - Implement a document control and records keeping to demonstrate that works completed as designed [ESF2].</p>	<p>31 December 2022</p>
<p><b>059: Surface water infrastructure design review</b> – Review the current surface water infrastructure that will be retained post-mining and review the initial design parameters to make sure are functioning as designed and that they are long term stable. Where required propose mitigation or additional works to ensure long term stable post closure.</p>	<p>31 March 2023 with ongoing review and refinement</p>
<p><b>064: PAF/NAF Placement Model</b> - Undertake a Life of Mine review of the dumped PAF levels and develop a model that shows with a high level of confidence what the RLs are of the PAF below the predicted groundwater level.</p>	<p>31 March 2024 undertaken during closure execution</p>

**Table 1 (Continued)**  
**Mine Closure Planning – Action Plan and Schedule**

Risk Assessment Actions	Target Completion Date
<p><b>077: GIS data/records of rehabilitation implementation</b> - (Closure evidence, ESF2) - Prepare a spatially referenced database of rehabilitation implementation at Stratford and Duralie including:</p> <ul style="list-style-type: none"> <li>- evidence of rehabilitation date,</li> <li>- landform design,</li> <li>- rehabilitation target domain,</li> <li>- target vegetation community,</li> <li>- reference to specific completion criteria.</li> </ul> <p>Review the existing GIS data that can be pulled into the document and records management system. Undertake a review of the quality of data to ensure that it is accurate for external reporting (Rehabilitation Portal)</p>	<p>30 September 2024</p> <p>Progressively prepared during closure execution.</p>
<p><b>081: Management of Heritage Sites</b> - Undertake consultation with the RAPs to resolve the long-term management of the known Aboriginal heritage sites as part of the preparation of the detailed mine closure plan.</p>	<p>Completed. Periodic review and refinement in HMP.</p>
<p><b>085: Detailed final landform design</b> – Review the existing final landform design and prepare a revised detailed final landform design considering all aspects of the current mine layout and the proposed post-mining land use. The assessment should include, but not be limited to:</p> <ul style="list-style-type: none"> <li>- detailed geotechnical design parameters, include geomorphology</li> <li>- erosion and runoff modelling completed on the designs</li> <li>- final waste mass balance</li> <li>- water infrastructure required in final landform</li> <li>- review the post-mining site water balance forecast</li> </ul>	<p>30 June 2022</p> <p>Completed. Ongoing review and refinement in RMP</p>
<p><b>086: PAF Management Procedure</b> – Review the current processes being undertaken at the site and review and update with specific reference to mine closure outcomes. Use this review to develop a PAF management procedure that documents the requirements for the management of PAF at the site(s) as they move towards closure.</p>	<p>31 July 2022</p>

### 1.1 REHABILITATION & CLOSURE RISK ASSESSMENT

A description of the Rehabilitation & Closure Risk Assessments prepared for the DCM is included in Section 3 of the RMP. A copy of the latest revision of the Risk Assessment is included in Attachment 1 of the RMP and the action plan has guided the preparation of this MCPP.

Rehabilitation & Closure Risk Assessments prepared for the SMC include:

- Environmental RA 2012 (SP Solutions 2012) – prepared for the Stratford Extension Project EIS 2012, identified environmental and rehabilitation risks relevant to the Stratford Mining Complex.
- Rehabilitation and Closure RA 2020 (CK Consultants, 2020) – reviewed the previous risk assessment and updated the risk and impacts specifically related to rehabilitation and closure.
- Detailed Mine Closure & Rehabilitation RA 2021 (IEMA, 2021) – reviewed the outcomes from the earlier risk assessments and considered these risks in more detail in preparation for closure execution.

The mine closure planning schedule includes a mid-point Risk Assessment review and a final Risk Assessment review which will update the risk register following the completion of various technical studies and strategies.

- Mid-point Risk Assessment: Mid-point will be timed to coincide with completion of technical studies. It will ensure that risks identified during the initial closure risk assessment have been closed out. It will also review technical studies that will contribute to the Mine Closure Plans.
- Final Risk Assessment: The final risk assessment will be timed to occur immediately before finalisation of the Mine Closure Plan documents. It will close out all technical closure risks. Any risk that will be carried into the post closure period will be recorded in a Residual Risk Register and these will be managed as required. The final risk assessment will also include an operational closure risk assessment for the closure and execution phase (to be completed in accordance with Yancoal risk protocols)
- Public Safety Risk Assessment: A public safety risk assessment will be completed in accordance with Yancoal Risk Protocols and consider public safety risk during closure and execution as well as any residual safety risk posed by the site (e.g. highwalls).

## **1.2 REHABILITATION OBJECTIVES & COMPLETION CRITERIA**

SCPL has prepared a new Rehabilitation Management Plan (RMP) for the Stratford Mining Complex (SMC) in accordance with the requirements of the NSW Mining Amendment (Standard Conditions of Mining Leases – Rehabilitation) Regulation 2021 (the Regulation). The new RMP includes the requirement to prepare rehabilitation outcome documents including a rehabilitation objectives and completion criteria statement.

The revised SMC Rehabilitation Objectives and Rehabilitation Completion Criteria are included in Section 4 of the RMP. The objectives, indicators and completion criteria for each of the final land use and mining domains during the rehabilitation phases are specified in the RMP Table 7. The rehabilitation objectives statement and rehabilitation completion criteria statement has been prepared in accordance with the Resources Regulator's Form and Way Rehabilitation Objectives, Rehabilitation Completion Criteria and Final Landform and Rehabilitation Plan for Large Mines.

## **1.3 REHABILITATION EVIDENCE – DOCUMENTS & RECORDS MANAGEMENT SYSTEM**

The MCPP included an action to develop an appropriate document and records control management system to be used during the mine closure process. The purpose is to ensure all relevant rehabilitation evidence is documented and recorded to demonstrate and verify closure objectives and completion criteria have been met. The system will move away from traditional paper-based reports and capture data directly to a spatially enabled database that also links to and manages relevant documents.

A rehabilitation evidence document and records management system is currently under development and a “proof of concept” testing currently underway. The system will use a combination of GIS spatial capabilities and data storage to present and access the spatial data linked to records and documents of rehabilitation and closure implementation. Controlled data and reports will be backed up and stored in a document management system and linked to the spatial platform. Yancoal is developing closure projects across multiple sites and is investigating integration between the ESRI suite and its document management system, M-Files. The system will be informed by and aligned to the RMP closure completion criteria (RMP Section 4) and the Quality Assurance (QA) process (RMP Section 7).

This system will be utilised throughout the rehabilitation and closure execution phase to provide records of rehabilitation evidence. This will be followed by progressive preparation of ESF2 applications (or equivalent required by the Resources Regulator) during and after closure execution to achieve final rehabilitation sign-off in preparation for site relinquishment.

## **1.4 REHABILITATION QA/QC PROCESSES**

The MCPP included and action to develop and implement a QA/QC process for rehabilitation activities including demonstrating that the landforms have been built to the approved design and rehabilitation has been implemented as per the defined procedures to deliver the intended final land use.

A Rehabilitation Quality Assurance Process has been included in Section 7 of the RMP. The Rehabilitation Quality Assurance Process will be implemented which details the key actions and/or processes nominated for each rehabilitation phase to ensure that:

- Rehabilitation is implemented in accordance with the nominated methodologies and designs.
- Identified risks to rehabilitation are adequately addressed before proceeding to the next phase of rehabilitation.
- Rehabilitation is completed to the standard required to achieve the applicable completion criteria.

The Rehabilitation Quality Assurance Process will measure how the requirements of the RMP have been met and will document the rehabilitation evidence used for assessing against the completion criteria. The Rehabilitation Quality Assurance Process will be integrated into day-to-day operations at the SMC and implemented throughout the life of the operation, including into closure until rehabilitation relinquishment has been achieved. The Rehabilitation Quality Assurance Process is outlined in Table 10 of the RMP. Rehabilitation validation monitoring is undertaken as described in Section 8 of the RMP.

Yancoal is now looking to integrate the QA/QC process with the spatial data platform for the rehabilitation evidence documents and records management system. ITP and checklist processes are being developed for each phase of rehabilitation at the site, including specific processes for landform design and establishment. This system will be utilised throughout the closure execution phase to provide records of landform design and rehabilitation evidence.

## **1.5 APPROVALS AND MINING LEASE RELINQUISHMENT STRATEGY**

Details of the date of grant and duration of the Project Approval, mining authorisations and licenses issued by the relevant government agencies for the SMC are provided in Section 1.2 and Table 1 of the RMP.

An Approvals/Licences Relinquishment Strategy and a Tenements Relinquishment Strategy will be developed for the SMC that outlines the process and indicative timing for relinquishing/surrendering the SMC's approvals and mining leases following mine closure. The timing for relinquishment/surrendering each approval instrument will be informed by the conditions or requirements associated with each instrument, and the likely consultation requirements involved.

The preparation of these strategies has commenced. The strategy will outline the general relinquishment timing and pathway to ensure all approvals and licences are closed out in a strategic way. The Tenements Relinquishment Strategy will be finalised in October 2022. A preliminary Approvals and Licences Relinquishment Strategy will be finalised in September 2022 with the final exit strategy being delivered in mid-2023.

## **1.6 FINAL LANDFORM DESIGN**

The new RMP includes the requirement to prepare rehabilitation outcome documents including a final landform and rehabilitation plan. The Final Landform and Rehabilitation Plan is described in Section 5 of the RMP and has been prepared to show the proposed final land use and final landform at the end of the SMC mine life.



The rehabilitation objectives for the SMC final landforms requires final landform designs which sustain the intended land use for the post-mining domain(s). Final landforms are to be consistent with and complement the topography of the surrounding region to minimise the visual prominence of the final landforms in the post-mining landscape. Final landforms are to incorporate design relief patterns and principles consistent with natural drainage.

The conceptual SMC final landform design (prepared as part of the 2012 SEP EIS) has been refined to reflect the proposed status of the SMC upon completion of mining operations and considering mining will conclude without recovering all approved resources. The refined final landform design includes detailed designs for each of the SMC final voids (i.e. Roseville West, Avon North and Stratford Main voids), and a detailed drainage design for the final landform which includes drainage density comparable to local natural landforms. The detailed design considers long-term settlement, landform stability, water balance modelling, groundwater modelling and surface water erosion issues. The refined final landform design also includes consideration of long term PAF placement and remediation of the Western Co Disposal Area.

An updated final landform design was completed in May 2022 and included in the RMP. As mining will not be undertaken to the full approved extent in all areas, as shown in the conceptual SMC final landform design in SSD-4966, the key changes in the refined final landform design include:

- Approved Roseville West Extension Pit not mined.
- Stratford East Pit not mined to full approved extent.
- Stratford Main Pit retained as a final void (due to no mining of Roseville West Extension).
- Stratford East Pit is backfilled entirely.

SCPL has prepared the spatial data files in accordance with the spatial data theme requirements described in the Resources Regulator's Form and Way Rehabilitation Objectives, Rehabilitation Completion Criteria and Final Landform and Rehabilitation Plan for Large Mines (RMP Section 5).

As required by the MCPP, numerous technical assessments have been undertaken based on the refined final landform design, including a Landform Stability Assessment, a Geotechnical Assessment of the final voids, post-mining groundwater recovery model, final void water balance and final void water quality review, and a revised site water balance.

### **1.6.1 Final Landform Design Verification & Landform Erosion Modelling**

In accordance with the recommended risk reduction actions from the Rehabilitation and Mine Closure Risk Assessment, following the completion of final landform rehabilitation works (during the post-closure phase), a Stability Assessment will be undertaken of all drainage features, water management areas and rehabilitated waste emplacements to verify the long-term stability of the final landform, and a Geotechnical Assessment of the final voids will be undertaken to verify the long-term stability of final void walls.

The revised SMC Rehabilitation Objectives and Rehabilitation Completion Criteria (Section 4 of the RMP) includes requirements for landform erosion modelling to demonstrate the creation of landforms which are geotechnically stable and minimise long-term erosion on rehabilitated waste emplacements.

A review of the application of erosion modelling will be undertaken and the proposed approach to landform erosion modelling will be addressed in the RMP. This review will identify landforms on the site that represent typical sites and complete erosion modelling for these locations to demonstrate that the current design criteria are appropriate. In addition to the representative sites the erosion model will be applied on sites that are considered high risk across the site. Erosion modelling data will be used to fine-tune final site rehabilitation and be documented in subsequent revisions of the RMP.

## **1.7 FINAL VOID STRATEGY**

At the cessation of mining, the SMC final landform will include final voids located at Roseville West Pit, Avon North Open Cut, and Stratford Main Pit. A final void strategy was included in the SEP EIS 2012. A final void water balance and groundwater model was also prepared for the SEP EIS 2012.

SCPL is required to rehabilitate the final voids to ensure the landform is safe, stable and non-polluting. The final void design aims to minimise the overall extent of the final void as much as is reasonably feasible and within the Development Consent constraints. The revised SMC Rehabilitation Objectives and Rehabilitation Completion Criteria (Section 4 of the RMP) includes objectives, performance indicators and completion criteria for the final void areas including specific criteria during each rehabilitation phase and the risk associated with rehabilitation and closure of the final voids.

The open pits will be progressively backfilled with waste rock as the open pits are developed, with final voids remaining in Roseville West, Avon North, and Stratford Main Pit. The integrated final landform comprises the above mentioned final voids, and the rehabilitated backfilled open pits integrated with rehabilitated out-of-pit waste rock emplacements.

Following the completion of mining activities at the SMC, it will be expected that the Roseville West final void, Avon North final void and Stratford Main Pit final void will continue to fill until an equilibrium water level is reached.

The final voids will be surrounded by either native vegetation (i.e. Roseville West and Avon North) or pasture (i.e. Stratford Main Pit).

Void access restrictions (i.e. perimeter bunding and/or fencing) would be installed around the final voids where appropriate to ensure public safety and the exclusion of stock

The mine closure planning schedule includes several components relating to the final void strategy, including a review of the final void geometry and an assessment of void water quality and final void function (hydrology and hydrogeology) post closure.

### **1.7.1 Refined Final Void Design, Geotechnical Assessment & Completion Criteria**

The following works have been completed in relation to the preparation of a final voids strategy:

- Refinement of the proposed final landform with focus on the final voids (i.e. May 2022).
- Initial geotechnical assessment was carried out to identify areas of concern related to geotechnical stability of the final void landforms, to inform the development of a set of final void completion criteria, and to provide recommendations for the long-term stability of slopes, and to meet conditions of the final landform completion criteria, as approved by the NSW Resources Regulator.
- Development of final void completion criteria for the final voids which result from implementing the current mine plan and the proposed final landform. Completion criteria have been developed for the key risks and impacts relating to final voids, and for each phase of rehabilitation and are presented in a format that aligns with the NSW Resources Regulator's Guideline Rehabilitation objectives and rehabilitation completion criteria.

The conceptual SMC final landform design (prepared as part of the 2012 SEP EIS) has been refined to reflect the proposed status of the SMC upon completion of mining operations and considering mining will conclude without recovering all approved resources.

A refined final void design has been prepared in May 2022. The refined final landform of Roseville West, Avon North and Stratford Main Pit voids is depicted in the RMP Plan 1. Mining will not be undertaken to the full approved extent in all areas, as shown in the conceptual SMC final landform design in SSD-4966. As such the design of the final voids has been refined to reflect the proposed geometry of each void. The approximate void maximum depth, surface area and catchment area is included in the completion criteria in the RMP. The refined final void design aims to minimise the overall extent of the void area and the catchment area compared to the conceptual design.

An initial Geotechnical Assessment of the final voids has been undertaken to verify the long-term stability of final void walls. Generally the assessment found that the voids will be long term stable. This work has been independently reviewed and some additional investigation is recommended to be completed during 2022.

### **1.7.2 Post-mining Groundwater Recovery Model**

The groundwater model for the post-mining groundwater system is intrinsically related to the final void water balance. In conjunction with the final void water balance review, SLR has undertaken a verification of the site groundwater model in relation to the final landform designs and to confirm the groundwater seepage rates to the final void. The groundwater model revision was completed in 2021, however the outcomes of this study indicated further revision would be required to achieve satisfactory outcomes for the proposed final landform and final void design.

SLR is currently undertaking a further review and verification of the site groundwater model in relation to the refined final landform designs from May 2022 and to confirm the groundwater seepage rates to the final void to ensure the function of the final voids is consistent with the approved completion criteria. Completion of the groundwater model review and groundwater assessment for closure is due for completion in December 2022.

### **1.7.3 Final Void Water Balance**

A final void water balance was prepared for each void for the SEP EIS (Gilbert & Associates, 2012).

The final void water balance conducted by Gilbert & Associates (2012) for the SMC indicates the final voids would slowly fill over time and the final water levels in the voids would stabilise below the spill levels.

Following refinement of the detailed final void designs, a review or if necessary, a re-calibration, of the final void water balances would be required to verify the predicted long term final void equilibrium water levels and water quality as presented in the SEP EIS, consistent with the recommended risk reduction actions from the Rehabilitation and Mine Closure Risk Assessment.

The final void water balance review/re-calibration would:

- be informed by the site groundwater model which reflects the detailed final landform (and final void) designs to verify the predicted groundwater inflows to the final voids;
- review of the drainage catchments to each final void based on the detailed final landform design to verify the predicted surface water inflows to the final voids;
- consider contemporary operational monitoring data (including open cut pit/void inflow rates and water quality data); and
- consider contemporary climate data, including contemporary rainfall runoff and evapotranspiration estimates.

A review of the final void water balance has been prepared by ATC Williams in 2021 to ensure the balance incorporates the refined final landform design, surface water inflows and outflows to/from the final void and to predict the long-term filling and equilibrium level, however the outcomes of this study indicated further revision would be required to achieve satisfactory outcomes for the proposed final landform and final void design.

ATC Williams is currently undertaking further recalibration and verification of the final void water balance based on the refined landform from May 2022 to ensure the function of the final voids is consistent with the approved completion criteria.

#### **1.7.4 Final Void Water Quality**

A review of the medium to long term water quality predictions for the final voids, considering contemporary operational monitoring data and void inflow data collected following the cessation of mining, would be undertaken to verify that the predictions from the SEP EIS remain valid. The review would determine the requirement for additional/alternate management measures other than that currently proposed. Further revision of these studies will be required following the completion of the detailed final landform design and post-mining groundwater model.

### **1.8 WATER MANAGEMENT**

The rehabilitation and post-mining water management strategy is described in the SMC EIS 2012 and the WMP. The refined final landform design has been considered in the context of the surface water management system for closure and to ensure that it is integrated with the final landform

#### **1.8.1 Site Water Balance**

A site water balance has been prepared for the SEP EIS by a suitably qualified and experienced person (Gilbert & Associates, 2012).

As described above a review of the post-mining site water balance has been prepared by ATC Williams to ensure the water balance incorporates the refined final landform design and final void designs, including all surface water inflows and outflows, consistent with the recommended risk reduction actions from the Rehabilitation and Mine Closure Risk Assessment. The site water balance is included in the SMC Water Management Plan.

Site water balance reviews are undertaken annually to track performance of the SMC water management system including inflows, outflows, and current storage. The current site water balance provides the baseline for the development of the post-mining site water balance.

Further review and verification of the post-mining site water balance will be undertaken throughout the closure phase.

#### **1.8.2 Water Infrastructure Decommissioning Strategy**

A review of water management infrastructure has been undertaken to ensure all surface water aspects and impacts have been considered for closure and appropriately managed in the Mine Closure Plan for SMC. Details are included within the water management domain sections within the RMP.

Consistent with the approved SMC, rehabilitation of water management infrastructure will occur in consultation with regulatory authorities and the community, considering future local and regional water infrastructure needs.

Water management infrastructure including sediment dams, Disturbed Area Dams, the Return Water Dam and temporary diversion drains not required in the final landform will be decommissioned and rehabilitated in accordance with the rehabilitation objectives in the RMP for the Water Management domain and Infrastructure Area domain

Sediment dams downstream of the waste rock emplacements will be maintained until the revegetated surface is stable and the runoff water quality is suitable for release off-site. The stability of the landform will be determined by rehabilitation monitoring.

Decommissioning of water management infrastructure and on-site irrigation system infrastructure will commence following cessation of mining activities on 31 December 2025. Pumps and pipelines will be removed from site unless required for the final land use.

### **1.8.3 Retained Water Infrastructure**

Retained water infrastructure will include Stratford East Dam, permanent up-catchment diversion structures (associated with final voids) and some irrigation structures.

Post-mining, the Stratford East Dam will be retained for future agricultural use, use by a public authority and/or environmental benefit. A review will be undertaken, by a suitably qualified and experienced person, of the future approval requirements for the Stratford East Dam which would include an assessment of the dam's catchment and harvestable rights, and potential future uses for either agriculture, use by a public authority or environmental benefit.

Sediment dams will only remain pending long-term acceptable water quality and may be kept for stock water if suitable.

Irrigation infrastructure owned by SCPL will be retained following an assessment to identify whether beneficial to support the agricultural production land use activities associated with the rehabilitated agricultural lands.

Other retained water infrastructure would include the permanent up-catchment diversion structures surrounding the SMC final landforms and final voids required to direct up-catchment runoff to surrounding receiving creeks and tributaries, and final landform drainage structures (e.g. drop structures) required to facilitate drainage to the natural environment.

All retained water infrastructure will ultimately be determined in consultation with the regulatory authorities and the community and will consider future local and regional water infrastructure needs.

Retained infrastructure will be inspected by a suitably qualified person and a verification assessment undertaken to confirm that the infrastructure is safe and stable.

### ***Water Infrastructure Design Review***

The water infrastructure retention strategy will include a review of the current surface water infrastructure that will be retained post-mining and review the initial design parameters to make sure are functioning as designed and that they are long term stable.

A review of the design for water management infrastructure to be retained is a component of the rehabilitation evidence system and QA/QC process for landform design which is included in the RMP Section 7. The preparation of water infrastructure design reviews will be progressively undertaken both during and beyond the closure execution phase. This evidence will ultimately support the preparation of ESF2 forms for rehabilitation signoff by the Resources Regulator.



## **1.9 REHABILITATION RESOURCES**

Rehabilitation resources refers to all physical resources required to carry out rehabilitation of the SMC, including topsoil, clay, rock, and habitat material. The requirement for a LOM rehabilitation materials register is included in the RMP.

Topsoil resources are managed in accordance with the RMP. To ensure suitable and adequate topsoil resources are available for final rehabilitation, a site topsoil balance is undertaken annually, and the volume compared to the total remaining disturbed area requiring rehabilitation.

The majority of topsoil stripping has been completed for the proposed SMC disturbance areas. There are currently sufficient topsoil resources available to complete rehabilitation of the SMC.

The SMC's topsoil balance will be augmented to incorporate estimates of other materials required to complete rehabilitation of the SMC, including inert capping material (i.e. NAF material) and clay. Characterisation (i.e. geochemical and soil test work) will be undertaken to confirm that the capping materials are NAF and are suitable for use.

The NSW Resources Regulator completed a TAP inspection regarding rehabilitation soils and materials management at the SMC on 2 September 2020. The assessment focused on progressive rehabilitation obligations as outlined in the RMP and how materials and soils on site were being managed to achieve sustainable rehabilitation outcomes. The site inspections identified no significant rehabilitation risks or compliance issues at the SMC.

The Resources Regulator provided a summary of observations and recommendations on 24 September 2020:

- Update the risk assessments for rehabilitation and mine closure.
- Develop an assurance process to validate monitoring and inspection results to ensure rehabilitation control measures are effective throughout the mining/rehabilitation lifecycle.
- Reporting of any delays to rehabilitation progress in the Annual Reviews.
- Conduct agricultural rehabilitation trials to demonstrate completion criteria.
- Assess and report on the requirement for clay resources at Duralie as part of the annual material balance survey.
- Review of the Rehabilitation Trigger Action Response Plan included in the MOP.

These recommendations were considered and addressed in the rehabilitation and closure risk assessment and have been included in the preparation of the new RMP.

## **1.10 INFRASTRUCTURE DECOMMISSIONING & DEMOLITION**

The MCPD includes consideration for infrastructure decommissioning and demolition including:

- Identify and remove/demolish all non-active infrastructure which is not required post-mining.
- Undertake consultation to confirm any alternative use for retained infrastructure (i.e., rail loop, haul roads, access tracks and dams) post-mining.

SCPL is preparing a Decommissioning & Demolition Plan for the site which includes a list of all infrastructure to be removed, assessment of waste streams and volumes, consideration of hazardous materials [i.e. asbestos, radiation sources, etc.] and potential contaminated lands. The strategy includes a management and maintenance strategy for any assets that are retained.

The preparation of several strategies has commenced to assist the closure project to identify infrastructure and assets to be decommissioned/demolished or to be retained on site and to identify the most appropriate method/s to allow decommissioning or retention to occur. This includes the following requirements:

- Fixed and Mobile Plant Asset Register
- Infrastructure Assets Register
- Hazardous Materials Assessment
- Contaminated Sites Assessment
- Decommissioning & Demolition Plan
- Closure Waste Management Plan

Details of infrastructure decommissioning or retention are now included in Section 6.2 of the RMP and in the subsections below.

#### **1.10.1 CONTAMINATED LAND ASSESSMENT**

A contaminated land assessment will be undertaken once mining operations have ceased, during the mine closure phase. The assessment will focus on potentially contaminated areas including decommissioned infrastructure areas, including ROM coal handling and stockpiling facilities, workshops, fuel storage areas and chemical storage facilities.

The contaminated land assessment will be undertaken in accordance with the requirements of the NSW *Contaminated Land Management Act, 1997* and in consideration of relevant guidelines, including the *Managing Land Contamination Planning Guidelines SEPP 55–Remediation of Land* (Department of Urban Affairs and Planning and EPA, 1998), *Guidelines for Consultants Reporting on Contaminated Sites* (OEH, 2011) and the *National Environment Protection (Assessment of Site Contamination) Measure* (National Environment Protection Council, 2013).

Scoping and engagement of the preliminary site investigations has commenced and will include an initial limited sampling program as most areas for investigation (i.e. that are potentially contaminated) are already known. Follow-up detailed assessments including intrusive investigations will be undertaken in the second half of 2022. The detailed assessments will provide recommendations for the development of a Remediation Action Plan, that will inform future contamination clean-ups.

Any potential contamination areas will be remediated as recommended in the assessment, which is expected to involve excavation of the contaminated materials and disposal at an off-site licensed facility or on-site subject to relevant approvals being obtained. The remediation of any identified contaminated land would be undertaken in conjunction with the infrastructure decommissioning plan. Rehabilitation of the area would be undertaken in accordance with the rehabilitation objectives for the Infrastructure Area Domain (i.e. revegetated to native ecosystem), or domain applicable to the area.

#### **1.10.2 HAZARDOUS MATERIALS ASSESSMENT**

A hazardous materials assessment will be undertaken for closure and will inform the Decommissioning & Demolition Strategy and the Closure Waste Management Plan.

SPCL maintains a register of chemicals and hazardous materials on site, and this will be used as a basis for investigation. An audit of all chemicals stored at the SMC was undertaken in 2021. The Hazmat Assessment scope will refine existing registers, highlight any issues for decommissioning and demolition and provide guidance for safe disposal of hazardous materials. The Hazmat Assessment will be finalised during 2022.

### **1.10.3 INFRASTRUCTURE DECOMMISSIONING & DEMOLITION STRATEGY**

#### ***Detailed Asset Register of Retained Infrastructure***

Section 6.2 of the RMP provides an overview of the infrastructure anticipated to be removed from the SMC or to be retained and the proposed rehabilitation objectives for the former infrastructure areas.

To inform the infrastructure to be retained in the final landform and the infrastructure required to be decommissioned, a detailed Asset Register will be prepared which will include:

- details of the infrastructure to be retained or decommissioned;
- the purpose/justification for retained infrastructure;
- a description of the preliminary scope for the regulatory processes required for retention;
- details of the final land use for the infrastructure to be retained;
- details of the documentation that will validate the final condition/land use of the retained infrastructure (e.g. report completed by a suitably qualified person that validates that the infrastructure is safe, stable and non-polluting).

Infrastructure that may be retained to support the post-mining uses, subject to outcomes of consultation with the determining authority and relevant stakeholders, includes:

- Some concrete hardstands, administration and ablution buildings, site access roads, sheds, buildings and sediment dams.
- Electricity transmission infrastructure, which may be retained for future use by the relevant electricity services provider, unless during consultation it is determined it is no longer required, in which case it will be decommissioned and removed from site.
- The rail loop, which may also be retained for future use if agreed with relevant regulatory authorities and if appropriate approvals are obtained. Alternately, if the determining authority requires decommissioning of the rail loop, it will be decommissioned.
- Some internal roads will be retained for future use to facilitate access through the site.

An inspection of the infrastructure retained in the final landform will be undertaken by a suitably qualified person and a verification assessment completed to confirm that the infrastructure is safe, stable and non-polluting.

#### ***Anticipated Infrastructure Removal Strategy and Timing***

Infrastructure anticipated to be removed from site includes:

- fixed equipment and infrastructure (for re-use at another location or recycling); and
- non-salvageable/non-recyclable and non-contaminated infrastructure (for disposal at an off-site licensed facility or on-site subject to relevant approvals being obtained).

Once mining operations have ceased, it is expected that infrastructure and equipment not required to support final rehabilitation activities (i.e. landform bulk shaping and soil placement) and ongoing monitoring and maintenance works, will be progressively decommissioned and removed from site.

Once all equipment and infrastructure components have been removed from an area, the area will be rehabilitated in accordance with the rehabilitation objectives for the Infrastructure Area Domain. Rehabilitation will involve deep-ripping the area, topsoiling and seeding/planting with native ecosystem species or pasture.

Scheduling of infrastructure removal will be undertaken on a campaign basis to minimise disruptions to road networks. Oversize heavy vehicle transport of infrastructure/equipment will be undertaken in accordance with relevant permits and load declarations obtained in accordance with *Additional Access Conditions – Oversize and over mass heavy vehicles and loads* (Roads and Maritime Services, 2017) (or its current equivalent at the time of the event) and any other licences and escorts as required by regulatory authorities. Any relevant permits and transport requirements will be obtained in consultation with the RMS and relevant local councils at the time.

Heavy vehicle scheduling will, where possible, consider and occur outside of peak periods associated with general movement of vehicles (e.g. morning and afternoon peak traffic times) to minimise disruptions to the road networks along the transport route.

#### **1.10.4 Closure Waste Management Strategy**

The MCPP included the development a strategy to manage the waste streams generated by the demolition of site infrastructure. This is to include identifying a suitable licensed disposal option and the use of appropriately licensed contractors to manage the waste transfer and disposal.

Work on the waste management strategy will commence around early-2023 and inform SCPL of options and legal requirements for waste disposal, including recycling. Following completion of the Decommissioning & Demolition Plan, the closure waste management plan will be developed to record quantities of various waste streams and inform management requirements. Relevant details will be included in subsequent revisions of the RMP.

### **1.11 BIODIVERSITY OFFSET INTEGRATION**

Condition 33, Schedule 3 of the Development Consent SSD-4966 requires a portion of the mine rehabilitation (350 ha of native vegetation) to form part of the Biodiversity Offset Strategy. Additionally and as described in the SMC's BMP, Biodiversity Enhancement Areas have been established through the SMC to provide a linkage of natural habitat (wildlife corridors) with the native woodland/forest rehabilitation areas. Both the native rehabilitation areas and the Biodiversity Enhancement Areas will be integrated and provide connectivity to the Biodiversity Offset Areas as described in the BMP.

Completion criteria have been developed for the SMC's Biodiversity Offset Strategy and are detailed in the SMC's BMP. During the pre-closure phase, an assessment will be undertaken to confirm that the Biodiversity Offset Strategy completion criteria have been met.

An Annual Biodiversity Report reviews the effectiveness of measures in the BMP and tracks progress of the Offset Areas against the performance indicators and completion criteria. The Annual Biodiversity Report is incorporated within the SMC Annual Review and is made available on SMC's website. The Biodiversity Report will continue to be prepared annually, or at an alternate frequency as agreed with the DPE, until the assessment outlined above confirms the Biodiversity Offset Strategy completion criteria have been met.

## **Long Term Biodiversity Security**

### *Biodiversity Offset Areas*

In accordance with Condition 36, Schedule 3 of Development Consent (SSD-4966), SCPL has made suitable arrangements to protect the Biodiversity Offset Areas in perpetuity to the satisfaction of the Secretary.

Public Positive Covenants and Restrictions on the Use of Land for the Biodiversity Offsets were registered on title with NSW Land and Property Information in October 2019. Copies of the executed Positive Covenants and notice of registration of the instruments was included in the 2019 SMC Annual Biodiversity Report which can be found on the SMC's website.

In accordance with Condition 34, Schedule 3 of the Development Consent (SSD-4966), should SCPL acquire Property 44, the property, exclusive of the residence and its immediate surrounds, shall be added to the Biodiversity Offset Strategy and managed in accordance with the requirements applicable to this Strategy. Should SCPL not acquire Property 44, SCPL shall use its best endeavours to enter into an agreement with the owner that conserves, enhances and provides long-term security for native vegetation on the property.

### *Biodiversity Enhancement Areas*

The Biodiversity Enhancement Areas is a proposal for land management during the life of the SMC (SCPL, 2012). The final tenure of the Biodiversity Enhancement Areas will be subject to future consultation (SCPL, 2012).

### **Biodiversity Conservation Bond**

In accordance with Condition 40, Schedule 3 of Development Consent (SSD-4966), SCPL has lodged a Conservation Bond with the DPE to ensure that the Biodiversity Offset Strategy (Biodiversity Offset Areas and Biodiversity Enhancement Areas) is implemented in accordance with the performance and completion criteria within Section 6 of the Biodiversity Management Plan (BMP).

The sum of the bond was determined by:

- (a) calculating the full cost of implementing the Biodiversity Offset Strategy (other than land acquisition costs); and
- (b) employing a suitably qualified quantity surveyor to verify the calculated costs.

The Conservation Bond calculation was prepared by Kleinfelder, and a verification of the costs was undertaken by Rider Levett Bucknall. The Conservation Bond calculation was submitted in January 2019 and subsequently approved by DPE on 15 January 2019.

The Conservation Bond in the form of a bank guarantee was executed and lodged with DPE on 8 February 2019.

Condition 40, Schedule 3 of Development Consent (SSD-4966) states that if the Biodiversity Offset Strategy is completed generally in accordance with the completion criteria in the BMP to the satisfaction of the Secretary, the Secretary will release the Conservation Bond. If the Biodiversity Offset Strategy is not completed generally in accordance with the completion criteria in the BMP (Section 6), the Secretary will call in all, or part of, the Conservation Bond, and arrange for the satisfactory completion of the relevant works.



## **1.12 HERITAGE SITE MANAGEMENT**

The SMC Heritage Management Plan (HMP) has been prepared for the SMC in accordance with the requirements of Condition 43, Schedule 3 of the SEP Development Consent SSD 4966 and includes measures to manage potential impacts on items of heritage significance at the SMC.

The HMP has been revised to describe the current status of operations at the SMC and describe anticipated changes to SMC operations as the site progresses towards mine closure.

In preparation for the mine closure phase SCPL will further revise the HMP to describe anticipated mine closure activities and describe the current status of known Aboriginal heritage sites. The HMP also describes the process for consultation with relevant Aboriginal stakeholders to inform the long-term management of known heritage sites following closure.

In accordance with Condition 43, Schedule 3 of SSD 4966, the HMP has been provided to DPIE, Registered Aboriginal stakeholders, Heritage NSW and MidCoast Council for consultation purposes and is available on the SMC website.

## **1.13 POST-CLOSURE MONITORING AND MAINTENANCE PROGRAM**

SCPL has an existing Monitoring and Maintenance Program detailed within the existing Environmental Management Plans and the RMP.

SCPL will revise the Monitoring and Maintenance Program for closure as part of the Mine Closure Plan, which will align with and or added elements to specifically address the closure success criteria that are adopted for the RMP. The review also identify what elements of the existing monitoring system can progressively cease during the closure phase.

The mine closure phase will commence once all mining activities at the SMC have ceased, all relevant infrastructure required to be removed has been decommissioned and removed and once all final landform rehabilitation works (e.g. bulk shaping, soil placement and revegetation activities) have been completed. The post-closure monitoring and maintenance phase is relevant to the period after the completion of all works needed to implement closure of the SMC, as described above, up until relinquishment of the SMC.

### ***Post-Closure Monitoring***

SCPL currently conducts numerous environmental monitoring programs at the SMC in accordance with the SMC's Development Consent, EPL and environmental management plan requirements, including air quality, noise, blasting, surface water, groundwater, rehabilitation and offset area monitoring programs.

Some of these monitoring programs will continue during the post-closure phase (e.g. surface water and groundwater monitoring, rehabilitation monitoring), however, some programs will become redundant and will cease (e.g. blast monitoring) or will be gradually refined once coal extraction and landform bulk shaping and soil placement rehabilitation works have ceased (e.g. noise and air quality monitoring).

Consistent with the recommended risk reduction actions from the Rehabilitation and Mine Closure Risk Assessment, a Post-closure Monitoring and Maintenance Requirements Strategy will be developed and will inform the revisions required to the EMPs and monitoring programs for the post-closure phase. SCPL will refine its environmental management plans and monitoring programs in consultation with the relevant government agencies during the mine closure phase.

It is anticipated that the surface water and groundwater monitoring program will be progressively refined during the post-closure period to focus on runoff areas from the major mine landforms and groundwater aquifers potentially impacted by the SMC.

Rehabilitation performance monitoring will continue throughout the post-closure phase and results from the rehabilitation monitoring program will be used to confirm that the rehabilitation completion criteria in the RMP have been met.

Similarly, monitoring of regeneration and revegetation performance in the biodiversity offset areas will continue during the post-closure phase and results from the offset monitoring program will be used to confirm that the offset area completion criteria have been met.

Further amendments to the monitoring programs during the post-closure phase will be reflected in the relevant EMP revisions. It is expected that the residual monitoring programs will be undertaken for approximately ten years following mine closure.

### ***Post-Closure Maintenance***

Results from the post-closure monitoring programs will be used to inform the post-closure maintenance requirements (e.g. the requirement for erosion control, supplementary rehabilitation plantings or offset area revegetation plantings, weed and pest control activities). It is expected that any maintenance requirements will be undertaken on a campaign / as required basis.

Post-closure maintenance activities will continue until the specific rehabilitation objectives and completion criteria in the RMP have been met and confirmation has been received from the relevant authority.

## **1.14 ENVIRONMENTAL MANAGEMENT PLANS**

The SMC Environmental Management Strategy (EMS) and associated Environmental Management Plans (EMPs) have been prepared by SCPL in accordance with Development Consent SDD-4966 to guide environmental management on-site:

- EMS;
- NMP;
- BLMP;
- AQMP;
- WMP (including SWB, SWMP and GWMP);
- Squirrel Glider Management Plan;
- BMP;
- HMP; and
- RMP.

Similar to the post-closure monitoring programs during the mine closure and post-closure phases, it is expected that a number of these management plans will become redundant to reflect the cessation of coal extraction and associated earthworks such as waste emplacement construction (e.g. the BLMP, NMP, HMP) or require revisions to reflect the refined scope of the monitoring programs (e.g. WMP).

Revision and removal of these plans will be undertaken in consultation with the relevant regulatory agencies required under Development Consent SSD-4966.

During 2021, SCPL has prepared revisions of the EMS and EMPs to describe the current status of operations at the SMC and describe anticipated changes to SMC operations as the site progresses towards mine closure. In preparation for the mine closure phase SCPL will further revise the EMPs to describe anticipated mine closure activities.

The EMPs have been approved by DPIE and are available on the Stratford Coal website.

### **1.15 HUMAN RESOURCES STRATEGY**

Preparation of a Human Resources (HR) strategy and associated components has commenced in consultation with relevant site and corporate HR representatives. The HR strategy reflects the revised mining schedule and manning requirements during mining operations and into the rehabilitation and mine closure phase.

It is anticipated that the SMC workforce would be progressively refined/contracted commensurate with the change in scale of activities at the SMC, i.e. after the cessation of coal extraction, after the cessation of processing, and after the completion of site decommissioning works and landform bulk shaping and rehabilitation activities.

### **1.16 MINE CLOSURE STAKEHOLDER CONSULTATION STRATEGY**

#### ***RMP Consultation***

Details of stakeholder engagement undertaken during the preparation of the RMP (including previous versions) is included in Section 4.2 of the RMP.

Proposed rehabilitation and post-mining land use concepts have been continuously developed throughout the SMC approval process, in consultation with relevant government agencies and key stakeholders, including the SMC's CCC.

Results of consultation undertaken with the stakeholders have been incorporated into the RMP. SCPL will continue to consult with relevant government agencies and the community throughout the mine life and during mine closure.

#### ***Mine Closure Stakeholder Consultation Strategy***

A summary of the consultation completed for rehabilitation and transition to mine closure at the SMC is provided in the RMP.

A Mine Closure Stakeholder Consultation Strategy has been prepared for the SMC. The strategy contains:

- Register and strategy for regulatory and government consultation;
- Register and strategy for consultation with near neighbours;
- Register and strategy for wider stakeholder groups;
- Strategy for sharing closure information and progress with the public.

Implementation of the strategy for key stakeholders has commenced with wider consultation to occur from the beginning of 2023 and continue throughout the closure phase.

## **1.17 CLOSURE SOCIO-ECONOMIC IMPACT ASSESSEMENT**

A Socio-economic Impact Assessment was prepared as part of the SEP EIS 2012. The socio-economic effects on the local community post-closure of the SMC have been considered as part of the MCPP.

Cessation of mining operations at the SMC is expected to result in a contraction in regional economic activity. However, the magnitude of regional economic impacts at the end of the SMC life depends on a number of interrelated factors, including the proposed movements of workers and their families, alternative development and employment opportunities and the economic structure and trends in the regional economy at the time.

It is anticipated that the SMC workforce would be progressively refined/contracted commensurate with the change in scale of activities at the SMC, i.e. after the cessation of coal extraction, after the cessation of processing, and after the completion of site decommissioning works and landform bulk shaping and rehabilitation activities.

A socio-economic assessment will be undertaken to assess the impact on the local community as a result of the closure of both the Stratford and Duralie mines. This assessment will consider the impact of closure of the two mine sites on the local community and recommend mitigation strategies that can reduce any unwanted impacts that can be implemented during the closure phase. The strategy is due for completion at end of Quarter 3, 2022.

Upon the completion of mining operations at the SMC, the contributions to Mid-Coast Council required under Schedule 2, Condition 17 of Development Consent SSD\_4966 will cease. The annual contributions to the Mid-Coast Council for road maintenance of The Bucketts Way and Wenham Cox Road, required under Schedule 3, Conditions 46 and 47 of Development Consent SSD\_4966, will also cease. Ongoing consultation will be undertaken with the Mid-Coast Council prior to during the SMC mine closure phase.

ATTACHMENT A

STRATFORD MINING COMPLEX: CLOSURE & REHABILITATION RISK ASSESSMENT:  
SUMMARY OF RISKS AND CONTROLS





# **Stratford Mining Complex**

## **Closure & Rehabilitation Risk Assessment: Summary of Key Risks and Controls**

**Prepared for:**  
Yancoal Australia

2021

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## 1. RISK ASSESSMENT FOR REHABILITATION AND MINE CLOSURE

In 2021, IEMA was engaged by Yancoal to complete detailed risk assessments for the rehabilitation and closure of the Stratford Mining Complex (SMC) and the Duralie Coal Mine (DCM).

The risk assessment was conducted for the mine closure and rehabilitation stage of operations to provide guidance for the Mine Closure Planning Program and Rehabilitation Management Plan.

Consistent with NSW Resource Regulator guidelines, a bowtie risk assessment methodology was applied.

This document provides a summary of the methodology employed and risk assessment outcomes for the SMC.

### 1.1. Scope and Objectives

The purpose of the risk assessment (IEMA, 2021) was to identify and evaluate risks associated with the rehabilitation and closure of the site and to inform the preparation of a Mine Closure Planning Program. The risk assessment was undertaken in accordance with Yancoal's internal Mine Closure Risk Management Standard and Resource Regulator risk assessment guidance.

The objectives for each risk assessment included:

- Review the mine closure risks identified in the 2017 Mine Closure Risk Assessment (refer to previous Mining Operations Plan) to update the risks and controls based on the works completed to date (it is intended that this risks assessment would supersede the 2017 risk assessment).
- Use the collective knowledge of key site and corporate stakeholders to identify any new or additional risks.
- Develop a better understanding of the rehabilitation and closure commitments for the site.
- Identify and assess risks that could impact achieving the Rehabilitation Objectives, Completion Criteria and the Final Land Use for closure and result in closure delays, additional cost or non-compliances.
- Identify preventative controls [both existing and proposed] with a focus on identifying those assessed critical controls required for effective closure.
- Assess the effectiveness of existing controls and identify opportunities for control improvement.
- Develop an Action Plan to develop and implement new controls as well as address controls requiring improvement or development.

There were a wide range of aspects considered as part of the risk assessment for the SMC. These are summarised below as:

- Regulatory compliance.
- Closure Criteria.
- Post-mining uses and landforms.
- Closure planning, resourcing and governance.
- Human Resources.

- Community engagement and socio-economic impacts.
- Property and tenements strategy.
- Closure knowledge, records keeping, QA/QC processes.
- Mine closure costs.
- Decommissioning and demolition.
- Rehabilitation resources.
- Rehabilitation phase including growth media suitability, landform design and establishment, ecosystem establishment and ecosystem sustainability.

## 1.2. Methodology

The risk assessment was completed by Andrew Hutton (Director and Principal Consultant at IEMA) who has over 25 years of experience in mining operations and closure.

Seven workshop sessions were undertaken over two days. Participants within each workshop are outlined in Table 3. The workshops assessed key risks associated with rehabilitation and closure activities and covered the following themes:

- Life of Mine Plan and General Mine Closure Risks
- Decommissioning and Demolition
- Growth Media Suitability, Establishment, Rehabilitation Materials and Biological Resources
- Adequacy of Final Landform Design and Establishment
- Ecosystem Establishment
- Ecosystem Sustainability and Rehabilitation Completion; and
- Other management aspects.

Each workshop /risk assessment session was conducted using the Bow-Tie risk assessment methodology using BowTie XP software. This methodology uses a systematic approach to qualitatively identify risks associated with an unwanted event. Participants workshopped potential threats (causes) and barriers (preventative controls) to manage and prevent unwanted events. The workshop also identified mitigating actions, or controls, that Yancoal would implement to minimise consequences that could result in closure delays, additional cost or non-compliances.

The Bow Tie methodology focuses on qualitative assessment of controls to identify:

- The effectiveness of the control to prevent the threat.
- The criticality of the control (i.e., identify which are the 'critical controls' that must be implemented to avoid the unwanted event).
- Failure modes for critical controls, and measures to mitigate the potential failure modes such as training, monitoring and QA processes to verify that critical controls are implemented and effective.

- Required actions to be completed to implement new controls or processes and improve the effectiveness of existing controls considered by the group to require improvement.

### 1.3. Assessment of Critical Controls and Outcomes

The ICMM define critical controls as “an act, object or technological system which of itself will prevent or mitigate an incident” (ICMM, 2020).

The risk assessment workshop was conducted to give regard to the ICMM critical control management principles, including:

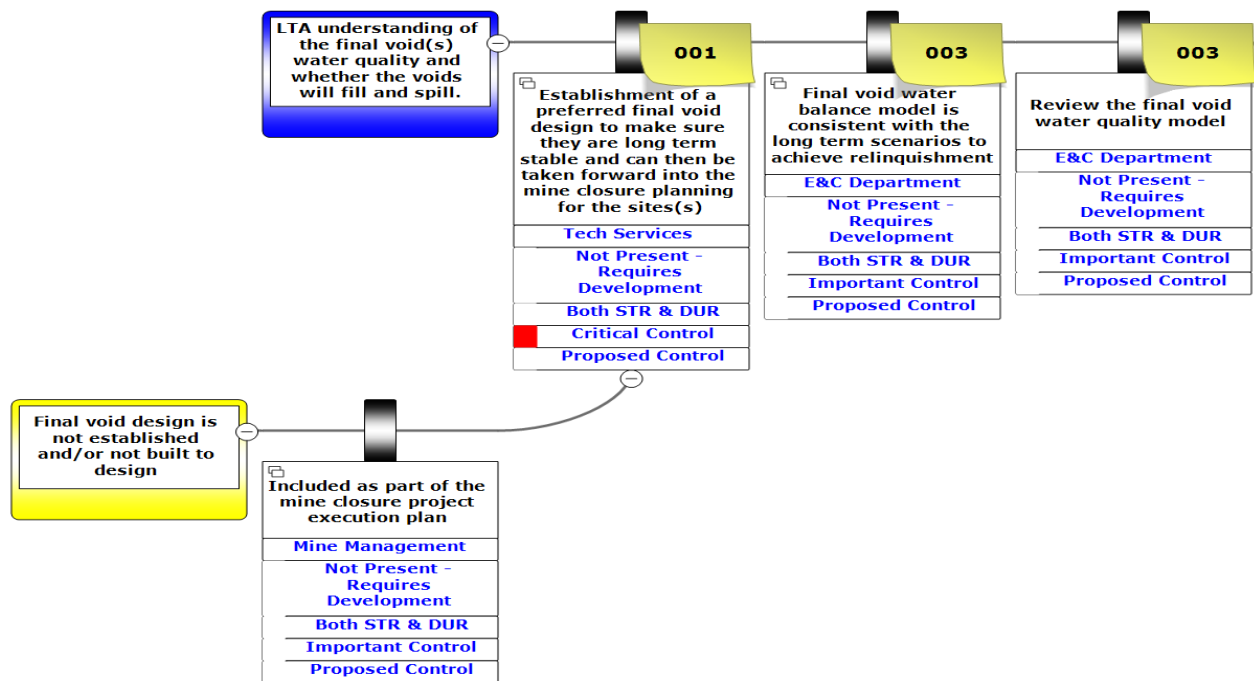
- Identifying the critical controls.
- Assessing what these controls need to do to prevent the undesired event.
- Identifying checks to ensure that the critical controls are working as intended.
- Accountability for the implementation of the controls (i.e., who is responsible for making it work?).
- Reporting on the performance of all critical controls.

The risk assessment identified the critical controls required to manage each identified risk.

Actions were assigned and included in a mine closure action plan to ensure that all identified controls were implemented as required.

**Figure 8** below shows a worked example of a key mine closure risk assessed for the SMC.

Figure 8 - Critical control identification using BowTie XP



## 2. Risk Assessment Controls and Actions

Barrier actions were developed to address the risks and controls identified in the Risk Assessment. A mine closure action plan has been developed and includes the actions relating to all controls identified as critical or important. The tables below include a summary of the relevant risks and associated actions. **Table 1** includes those risks where a *critical* control has been identified, whilst **Table 2** includes the risks where an *important* control has been identified.



**TABLE 1: SUMMARY OF STRATFORD CRITICAL CONTROLS AND ASSOCIATED ACTIONS**

Session	Risk	Critical Control	Actions	Status
Life of Mine and Closure Risks (General)	LTA Community Engagement which results in loss of reputation or loss of goods and services.	Mine Closure Stakeholder Engagement Strategy [linked to the HR strategy]	<b>007: Mine Closure Stakeholder Strategy</b> – Develop the Mine Closure Plan Stakeholder Strategy which will include a list of all relevant stakeholders, how they will be engaged with and when. In addition, this should include a consultation log which is a record of the engagement along with any outcomes and actions.	Proposed Control
	LTA assessment and mitigation of the social impacts relating to closure of the mine(s).	Socio-economic impact assessment which will include development of mitigation	<b>009: Socio-economic Impact Assessment</b> – Scope and prepare a study that is an assessment of the impact on the local community as a result of closure of the mines. There should be a focus on capacity building to ensure sustainability beyond closure of the mine.	Proposed Control
	Less than adequate Human Resources Strategy (redundancy / retention / redeployment)	Develop an HR strategy which is linked to the Mine Closure Plan.	<b>004: Develop the Human Resources Strategy</b> - Ensure that a representative from HR is involved in the Mine Closure working group so that the HR strategy can be developed in consultation with the working group and aligned to the needs of the closure plan.	Proposed Control
	Uncertainty around what our closure criteria are for the site.	Mine Closure Completion Criteria	<b>003: Development of Completion Criteria</b> – Undertake a review of the completion criteria as part of the RMP review and incorporate the outcomes of this review in the preparation of the detailed mine closure plan.	Existing Control
	Poor Record and Document Management systems for closure.	Develop a document management process for closure	<b>019: Document and Records Control Management System</b> – Develop an appropriate Document and Records Control Management System to be used during the detailed mine closure planning process. The purpose it to keep all evidence to demonstrate and verify closure objectives have been meet. As part of the setup review the existing records that are relevant to relinquishments so that they can be brought into the systems and the value of this work is not lost.  <b>029: Develop Mine Closure Risk Register</b> and undertake periodic risk assessment reviews.	Proposed Control

Session	Risk	Critical Control	Actions	Status
	Delay in relinquishment or retention of licenses and consent conditions [project approvals, EPL, radiation, etc]	Strategy to relinquish all other approvals and licences	<b>025: Approvals/Licences Relinquishment Strategy</b> – Develop a relinquishment strategy for all relevant approvals, consents, and licences. This is in addition to the tenement requirements.	Proposed Control
Rehabilitation establishment, materials & resources	Less than adequate understanding of the PAF/NAF materials balance to achieve suitable rehabilitation outcomes.	Review records to development of a historical dumping plan to demonstrate that PAF material has been appropriately managed	<p><b>049: Review historical PAF</b> management practices &amp; compile rehabilitation signoff evidence – Consider targeted investigations where appropriate, draw on site experience, review historical dumping plans and records, and photo records. Develop a data set that can be used in the mine closure plan and ESF2 to demonstrate that the PAF material has been managed appropriately during mining operations.</p> <p><b>086: PAF management procedure</b> – Review the current processes being undertaken at the site and review and update with specific reference to mine closure outcomes. Use this review to develop a PAF management procedure that documents the requirements for the management of PAF at the site(s) as they move towards closure.</p>	Proposed Control
Rehabilitation establishment, materials & resources	Poor stockpiling of topsoil and handling has resulted in loss or impact on the physical properties of the soil.	Rehabilitation Methods SOPs	<p><b>051: Rehabilitation Methods SOPs</b> – Current rehabilitation practices have been refined over time with experience at the site however there is currently no documented methods statement or SOP in place. Develop a Rehabilitation Methods SOP document to include the processes specific for the site(s). This could include, but not be limited to:</p> <ul style="list-style-type: none"> <li>- Topsoil stripping and handling</li> <li>- rehab materials stockpiling and mass balance</li> <li>- habitat material salvage</li> <li>- Rehabilitation timing</li> <li>- Surface preparation</li> <li>- Topsoil spreading and allocation of topsoil</li> <li>- Spreading and addition of ameliorants</li> <li>- Seed selection</li> <li>- Seed purchase and storing</li> <li>- Seed application.</li> <li>- supervisor and operator training</li> <li>- design specifications for water infrastructure, etc</li> </ul>	Proposed Control

Session	Risk	Critical Control	Actions	Status
			The document also needs include requirements for records that will be used to support the rehabilitation process and verify that the methodology used is appropriate. This information should be included in the document control system.	
Final Landform	The approved Final Void [location and profile] are not able to be achieved and relinquished.	Establishment of a preferred final void design to make sure they are long term stable and can then be taken forward into the mine closure planning for the sites(s)	<p><b>052: Final Voids Strategy</b> – Undertake a study to review the preferred final void design which can be taken forward to the Regulator for agreement on relinquishment criteria. I.e. to add clarity to the definition of “safe, stable and non-polluting” and give certainty to achieving signoff status and residual risks. The assessment should include, but not be limited to:</p> <ul style="list-style-type: none"> <li>- overarching strategy – non-spill or flow through system;</li> <li>- detailed geotechnical design parameters agreeing on FoS;</li> <li>- erosion modelling completed on the designs;</li> <li>- review the areas available to enable treatment [approval boundaries];</li> <li>- offsets and creeks;</li> <li>- cut and fill versus backfill and look at the cost benefits;</li> <li>- review the constructed landforms and the impact they have on achieving the preferred final void outcome;</li> <li>- review these keys assumptions that feed into the final void design;</li> <li>- review what impact the preferred final void will have on what water infrastructure can be retained and what the design parameters should be adopted to ensure long term stability;</li> <li>- review the surface and groundwater models, including fill and spill and water quality; and</li> <li>- establish success criteria for the final voids.</li> </ul> <p><b>059: Surface water infrastructure design review</b> – Review the current surface water infrastructure that will be retained post-mining and review the initial design parameters to make sure are functioning as designed and that they are long term stable. Where required propose mitigation or additional works to ensure long term stable post closure.</p> <p><b>053 Final Void water balance</b> - Review the post-mining surface and groundwater models and understand the impacts of the preferred final void</p>	Proposed Control

Session	Risk	Critical Control	Actions	Status
			design. Prepare an updated final void water balance. This assessment is to include a review of the potential fill and spill scenarios along with a review of the resulting water quality and mitigation that may be required.  <b>002: Early engagement</b> with the Regulator to confirm consistency of the revised final landform with the Project Approval conditions.	
Final Landform	Less than adequate design of final proposed highwalls [and low walls] for the final voids.	Establishment of a preferred final void design to make sure they are long term stable and can then be taken forward into the mine closure planning for the sites(s)	See Action No. <b>052 Final Void Strategy</b>	Proposed Control
Final Landform	Less than adequate post mining GW recovery model or the model relies on poor assumptions.	Establishment of a preferred final void design to make sure they are long term stable and can then be taken forward into the mine closure planning for the sites(s)	See Action No. <b>052 Final Void Strategy &amp; 053 Final Void water balance</b>	Proposed Control
Final Landform	Less than adequate understanding of the final void(s) water quality and whether the voids will fill and spill.	Establishment of a preferred final void design to make sure they are long term stable and can then be taken forward into the mine closure planning for the sites(s)	See Action No. <b>052 Final Void Strategy</b>	Proposed Control

Session	Risk	Critical Control	Actions	Status
Final Landform	Less than adequate landform design parameters consistent with the approved final landform	ID the key studies that impact the final landform and ensure that the outcomes are feedback into landform design	<p><b>085: Detailed final landform design</b> – Review the existing final landform design and prepare a revised detailed final landform design considering all aspects of the current mine layout and the proposed post-mining land use.</p> <p>The assessment should include, but not be limited to:</p> <ul style="list-style-type: none"> <li>- detailed geotechnical design parameters, include geomorphology</li> <li>- erosion and runoff modelling completed on the designs</li> <li>- final waste mass balance</li> <li>- water infrastructure required in final landform</li> <li>- review the post-mining site water balance forecast</li> </ul>	Proposed Control
Final Landform	Geotechnical stability of the final landform cannot be achieved	Review the design parameters to ensure that they meet appropriate factors of safety	See Action No. <b>085 Detailed final landform design</b>	Proposed Control
Final Landform	Surface water infrastructures fails or results in long term maintenance requirements	Establishment of a preferred final void design to make sure they are long term stable and can then be taken forward into the mine closure planning for the sites(s)	See Action No. <b>052 Final Void Strategy</b>	Proposed Control

Session	Risk	Critical Control	Actions	Status
Ecosystem establishment	The methodologies used to apply seed or plant tube stock is not appropriate and results in failure to achieve the preferred rehab outcome	Pull existing information into a consolidated spatial closure document system [re historical records]	<p><b>077 GIS data/records of rehabilitation implementation</b> - (Closure evidence, ESF2) - Prepare a spatially referenced database of rehabilitation implementation at Stratford and Duralie including:</p> <ul style="list-style-type: none"> <li>- evidence of rehabilitation date,</li> <li>- landform design,</li> <li>- rehabilitation target domain,</li> <li>- target vegetation community,</li> <li>- reference to specific completion criteria.</li> </ul> <p>Review the existing GIS data that can be pulled into the document and records management system. Undertake a review of the quality of data to ensure that it is accurate for external reporting (Rehabilitation Portal)</p>	Proposed Control



**TABLE 2: SUMMARY OF STRATFORD IMPORTANT CONTROLS AND ASSOCIATED ACTIONS**

Session	Risk	Control	Actions	Status
Life of Mine and Closure Risks (General)	LTA Monitoring and Maintenance programs in place or not aligned to preferred post mining land use	Develop a mine closure monitoring and maintenance plan and estimate	<b>021 Monitoring &amp; Maintenance Program</b> - Prepare a Monitoring and Maintenance Program as part of the Detailed Mine Closure Plan. This should be detailed in the existing Environmental Management Plans. Review the existing monitoring programs and align with and or add elements to specifically address the closure success criteria that are adopted for each CMA. This review should also include a review what elements of the existing monitoring system can cease when mining ceases.	Existing Control
Life of Mine and Closure Risks (General)	Ongoing off site environmental impacts	Environmental Monitoring and TARPs maintained to address closure criteria	<b>023 Review Environmental Management Plans for closure phase</b> - Undertake a review of the existing approved EMPs and update them as the site moves into closure. This review will not only include incorporating any aspects that are related to closure, but also removing operational requirements that are no longer applicable when the site is in closure. Consider monitoring and maintenance requirements during and after closure.	Existing Control
Life of Mine and Closure Risks (General)	Public safety risk of access to/ interaction the mine site including final voids	Public Safety Risk Assessment will be undertaken as part of the closure plan	<b>028 Public Safety Risk Assessment</b> - Complete a RA to assess any risks to the public during and post closure of the mine(s)	Proposed Control
Decom and Demolition	LTA assessment of the decom and demo requirements for the sites [including retention of assets]	Demolition and Decom plan	<b>033 Decommissioning &amp; Demolition Plan</b> - Prepare a Decommissioning & Demolition Plan for the site which includes a list of all infrastructure to be removed, assessment of waste streams and volumes, consideration of hazmat [i.e.. asbestos, radiation sources, etc]. Include a management and maintenance strategy for any assets that are retained. This could include a long term strategy for the assets.	Proposed Control
Decom and Demolition	Failure to identify and rehabilitate exploration boreholes	Physical inspections of the known exploration borehole sites	<b>035 Exploration inspection program</b> - Undertake a program to inspect a representative sample of the rehabilitated exploration boreholes sites to gather evidence that the work has been completed to a satisfactory standard	Proposed Control

Session	Risk	Control	Actions	Status
Decom and Demolition	LTA planning on what surface water features that will be retained at closure	ID what water infrastructure will be required longer term	<b>038 • Water Management Infrastructure retention strategy</b>	Proposed Control
Decom and Demolition	LTA planning for the waste streams that will result from the Decom and demo activities (increased costs, impact on environment)	ID waste that requires remediation and develop a strategy for either off site or on-site disposal	<b>041 Closure waste management plan</b> - Develop a strategy to manage the waste streams generated by the demolition of site infrastructure. This is to include identifying a suitable licensed disposal option and the use of appropriately licensed contractors to manage the waste transfer and disposal.	Proposed Control
Decom and Demolition	Areas of land contamination are not identified resulting on unplanned costs or off site impacts	PSI and further contamination investigations to ID and quantify the material to be managed as part of a remediation action plan	<b>042 Contaminated Sites Assessment</b> - Complete a Land Quality Assessment for the site which aims to identify any contaminated sites, undertake intrusive investigations, and prepare Remediation Action Plans for the identified sites.	Proposed
Rehabilitation establishment, materials & resources	Lack of rehabilitation topsoil required to achieve rehabilitation outcomes	Topsoil Mass Balance which is reviewed every 12 months. Accurate measures of material required.	<b>050 LOM Rehab Materials Register &amp; Mass Balance</b> - Develop a rehabilitation materials register including topsoil, clay and rock. Undertake a review of the rehabilitation materials required (eg. topsoil, rock, clay, etc) and compare that the material available in stockpile or available to be recovered from the remaining mining areas.	Existing Control
Final landform	LTA rehabilitation of PAF waste emplacements causing AMD contamination of surface and ground water	PAF material is placed in the dumps below the predicted post mining GW levels	<b>064 PAF/NAF Placement Model</b> - Undertake a Life of Mine review of the dumped PAF levels and develop a model that shows with a high level of confidence what the RLs are of the PAF below the predicted groundwater level.	Proposed Control

Session	Risk	Control	Actions	Status
Final landform	Geo technical stability of the final landform cannot be achieved	Undertake erosion modelling on the landforms to demonstrate long term stability of the designs	<b>056 Review application of erosion modelling</b> - Identify landforms on the site(s) that represent typical sites and complete erosion modelling for these locations to demonstrate that the current design criteria is appropriate. In addition to the representative sites apply the erosion model on sites that are considered high risk across the site.	Proposed Control
Final landform	Geo technical stability of the final landform cannot be achieved	Implement a document control and records keeping demonstrating that works completed as designed [ESF2]	<b>058 Document control &amp; Records</b> - Implement a document control and records keeping to demonstrate that works completed as designed [ESF2].	Proposed Control
Final landform	LTA QA/QC process in place or poor record keeping to demonstrate that the constructed landforms meet the approved criteria	QA/QC process around demonstrating that the landforms have been built to the approved design	<b>057 Development of a QA/QC process for landform design</b> - Develop and implement a QA/QC process around demonstrating that the landforms have been built to the approved design.	Proposed Control
Other Mine Closure Risks	LTA consideration of Aboriginal heritage items during closure execution [including consultation with the key stakeholders]	Existing heritage management plans at both sites.	<b>081 Management of Heritage Sites</b> - Undertake consultation with the RAPs to resolve the long-term management of the known Aboriginal heritage sites as part of the preparation of the detailed mine closure plan.	Existing Control

**TABLE 3 – RISK WORKSHOP ATTENDEES**

Name	Position	Company	Session
Andrew Hutton	Managing Director/Principal Consultant	IEMA	All
Rhys Williams	Senior Environmental Consultant	IEMA	All
Tawna Ryan	Environmental Consultant	IEMA	1,2,3
John Cullen	Operations Manager	Stratford Coal	All
Nathan Vaughan	Mine Planning Superintendent	Stratford Coal	1,3,4,5,6, and 7
Todd Hutchings	Coal planning Superintendent	Stratford Coal	1,3,4,5,6, and 7
Mike Plain	Environment & Community Superintendent	Stratford Coal	All
Mick Bird	Mining Supervisor	Stratford Coal	1,3,4,5,6
Jeff Torkington	Chief Mining Engineer	Yancoal	As required
Andrew Lau	Mine Closure Manager	Yancoal	All
Michael Moore	Manager - Environmental Standards	Yancoal	All
Alan Andrews	Manager - Property	Yancoal	1 and 2
Thomas Holz	Manager - Tenements & Land Access	Yancoal	1 and 2
Scott Fittler	Stakeholder	Yancoal	1
Steve Lloyd	Accountant	Stratford Coal	1
Alexander Wellings	Stat Mechanical Engineer	Managed Contractor	1 and 2
Bruce Robinson	CHPP/ Stat Electrical Engineer	Stratford Coal	2
Ron Farley	Mechanical Reliability Coordinator	Stratford Coal	2
Paul Kellner	Infrastructure & Projects Supervisor	Stratford Coal	1 and 2
Brett Crouch	Maintenance Superintendent	Stratford Coal	2
Leonie Taylor	Health Safety Training Superintendent	Stratford Coal	1
Olivia Hall	Human Resources Advisor	Yancoal	1

## ATTACHMENT 1 -RISK ASSESSMENT ACTION PLAN

Risk Assessment Actions	Target Completion Date
<b>003: Development of Completion Criteria</b> – Undertake a review of the completion criteria as part of the RMP review and incorporate the outcomes of this review in the preparation of the detailed mine closure plan.	30 June 2022
<b>004: Develop the Human Resources Strategy</b> - Ensure that a representative from HR is involved in the Mine Closure working group so that the HR strategy can be developed in consultation with the working group and aligned to the needs of the closure plan.	Initially by 1 August 2022 with ongoing review and refinement
<b>007: Mine Closure Stakeholder Strategy</b> – Develop the Mine Closure Plan Stakeholder Strategy which will include a list of all relevant stakeholders, how they will be engaged with and when. In addition, this should include a consultation log which is a record of the engagement along with any outcomes and actions.	Initially by 30 June 2022 with ongoing review and refinement
<b>009: Socio-economic Impact Assessment</b> – Scope and prepare a study that is an assessment of the impact on the local community as a result of closure of the mines. There should be a focus on capacity building to ensure sustainability beyond closure of the mine.	Initially by 31 December 2022 with ongoing review and refinement
<b>019: Document and Records Control Management System</b> – Develop an appropriate Document and Records Control Management System to be used during the detailed mine closure planning process. The purpose is to keep all evidence to demonstrate and verify closure objectives have been met. As part of the setup review the existing records that are relevant to relinquishments so that they can be brought into the systems and the value of this work is not lost.	30 June 2022
<b>021: Monitoring &amp; Maintenance Program</b> - Prepare a Monitoring and Maintenance Program as part of the Detailed Mine Closure Plan. This should be detailed in the existing Environmental Management Plans. Review the existing monitoring programs and align with and or add elements to specifically address the closure success criteria that are adopted for each CMA. This review should also include a review what elements of the existing monitoring system can cease when mining ceases.	30 June 2022 with ongoing review and refinement
<b>023: Review Environmental Management Plans for closure phase</b> - Undertake a review of the existing approved EMPs and update them as the site moves into closure. This review will not only include incorporating any aspects that are related to closure, but also removing operational requirements that are no longer applicable when the site is in closure. Consider monitoring and maintenance requirements during and after closure.	Completed. Periodic review and refinement
<b>025: Approvals/Licences Relinquishment Strategy</b> – Develop a relinquishment strategy for all relevant approvals, consents, and licences. This is in addition to the tenement requirements.	31 October 2022 with ongoing review and refinement

Risk Assessment Actions	Target Completion Date
<b>028: Public Safety Risk Assessment</b> - Complete a RA to assess any risks to the public during and post closure of the mine(s)	30 September 2022 with ongoing review and refinement
<b>029: Develop Mine Closure Risk Register</b> and undertake periodic risk assessment reviews.	Completed – periodic review
<b>033: Decommissioning &amp; Demolition Plan</b> - Prepare a Decommissioning & Demolition Plan for the site which includes a list of all infrastructure to be removed, assessment of waste streams and volumes, consideration of hazmat [i.e. asbestos, radiation sources, etc.]. Include a management and maintenance strategy for any assets that are retained. This could include a long-term strategy for the assets.	31 October 2022 with ongoing review and refinement
<b>035: Exploration inspection program</b> - Undertake a program to inspect a representative sample of the rehabilitated exploration boreholes sites to gather evidence that the work has been completed to a satisfactory standard.	31 December 2022 with ongoing review and refinement
<b>038: Water Management Infrastructure retention strategy.</b>	31 March 2023
<b>041: Closure waste management plan</b> - Develop a strategy to manage the waste streams generated by the demolition of site infrastructure. This is to include identifying a suitable licensed disposal option and the use of appropriately licensed contractors to manage the waste transfer and disposal.	31 October 2022 with ongoing review and refinement
<b>042: Contaminated Sites Assessment</b> - Complete a Land Quality Assessment for the site which aims to identify any contaminated sites, undertake intrusive investigations, and prepare Remediation Action Plans for the identified sites.	31 October 2022 (PSI level) Detailed assessment in late 2022.
<b>049: Review Historical PAF</b> management practices & compile rehabilitation signoff evidence – Consider targeted investigations where appropriate, draw on site experience, review historical dumping plans and records, and photo records. Develop a data set that can be used in the mine closure plan and ESF2 to demonstrate that the PAF material has been managed appropriately during mining operations.	30 June 2023, during closure execution
<b>050: LOM Rehab Materials Register &amp; Mass Balance</b> - Develop a rehabilitation materials register including topsoil, clay and rock. Undertake a review of the rehabilitation materials required (e.g. topsoil, rock, clay, etc.) and compare that the material available in stockpile or available to be recovered from the remaining mining areas.	30 June 2022 with annual review
<b>051: Rehabilitation Methods SOPs</b> – Current rehabilitation practices have been refined over time with experience at the site however there is currently no documented methods statement or SOP in place. Develop a Rehabilitation Methods SOP document to include the processes specific for the site(s). This could include, but not be limited to: <ul style="list-style-type: none"> <li>- Topsoil stripping and handling</li> <li>- rehab materials stockpiling and mass balance</li> <li>- habitat material salvage</li> <li>- Rehabilitation timing</li> <li>- Surface preparation</li> </ul>	30 September 2022 with ongoing review and refinement



Risk Assessment Actions	Target Completion Date
<ul style="list-style-type: none"> <li>- Topsoil spreading and allocation of topsoil</li> <li>- Spreading and addition of ameliorants</li> <li>- Seed selection</li> <li>- Seed purchase and storing</li> <li>- Seed application.</li> <li>- supervisor and operator training</li> <li>- design specifications for water infrastructure, etc.</li> </ul> <p>The document also needs include requirements for records that will be used to support the rehabilitation process and verify that the methodology used is appropriate. This information should be included in the document control system.</p>	
<p><b>052: Final Voids Strategy</b> – Undertake a study to review the preferred final void design which can be taken forward to the Regulator for agreement on relinquishment criteria. I.e. to add clarity to the definition of “safe, stable and non-polluting” and give certainty to achieving signoff status and residual risks. The assessment should include, but not be limited to:</p> <ul style="list-style-type: none"> <li>- overarching strategy – non-spill or flow through system;</li> <li>- detailed geotechnical design parameters agreeing on FoS;</li> <li>- erosion modelling completed on the designs;</li> <li>- review the areas available to enable treatment [approval boundaries];</li> <li>- offsets and creeks;</li> <li>- cut and fill versus backfill and look at the cost benefits;</li> <li>- review the constructed landforms and the impact they have on achieving the preferred final void outcome;</li> <li>- review these keys assumptions that feed into the final void design;</li> <li>- review what impact the preferred final void will have on what water infrastructure can be retained and what the design parameters should be adopted to ensure long term stability;</li> <li>- review the surface and groundwater models, including fill and spill and water quality; and</li> <li>- establish success criteria for the final voids</li> </ul>	30 June 2022 with ongoing review and refinement
<p><b>053: Final Void water balance</b> - Review the post-mining surface and groundwater models and understand the impacts of the preferred final void design. Prepare an updated final void water balance. This assessment is to include a review of the potential fill and spill scenarios along with a review of the resulting water quality and mitigation that may be required.</p>	Completed. Ongoing review and refinement
<p><b>056: Review application of erosion modelling</b> - Identify landforms on the site(s) that represent typical sites and complete erosion modelling for these locations to demonstrate that the current design criteria are appropriate. In addition to the representative sites apply the erosion model on sites that are considered high risk across the site.</p>	31 July 2022
<p><b>057: Development of a QA/QC process for landform design</b> - Develop and implement a QA/QC process around demonstrating that the landforms have been built to the approved design.</p>	30 June 2022 with ongoing review and refinement
<p><b>058: Document control &amp; Records</b> - Implement a document control and records keeping to demonstrate that works completed as designed [ESF2].</p>	31 December 2022

Risk Assessment Actions	Target Completion Date
<p><b>059: Surface water infrastructure design review</b> – Review the current surface water infrastructure that will be retained post-mining and review the initial design parameters to make sure are functioning as designed and that they are long term stable. Where required propose mitigation or additional works to ensure long term stable post closure.</p>	<p>31 March 2023 with ongoing review and refinement</p>
<p><b>064: PAF/NAF Placement Model</b> - Undertake a Life of Mine review of the dumped PAF levels and develop a model that shows with a high level of confidence what the RLs are of the PAF below the predicted groundwater level.</p>	<p>31 March 2023 with ongoing review and refinement</p>
<p><b>077: GIS data/records of rehabilitation implementation</b> - (Closure evidence, ESF2) - Prepare a spatially referenced database of rehabilitation implementation at Stratford and Duralie including:</p> <ul style="list-style-type: none"> <li>- evidence of rehabilitation date,</li> <li>- landform design,</li> <li>- rehabilitation target domain,</li> <li>- target vegetation community,</li> <li>- reference to specific completion criteria.</li> </ul> <p>Review the existing GIS data that can be pulled into the document and records management system. Undertake a review of the quality of data to ensure that it is accurate for external reporting (Rehabilitation Portal)</p>	<p>30 September 2023</p>
<p><b>081: Management of Heritage Sites</b> - Undertake consultation with the RAPs to resolve the long-term management of the known Aboriginal heritage sites as part of the preparation of the detailed mine closure plan.</p>	<p>Completed. Periodic review and refinement.</p>
<p><b>085: Detailed final landform design</b> – Review the existing final landform design and prepare a revised detailed final landform design considering all aspects of the current mine layout and the proposed post-mining land use.</p> <p>The assessment should include, but not be limited to:</p> <ul style="list-style-type: none"> <li>- detailed geotechnical design parameters, include geomorphology</li> <li>- erosion and runoff modelling completed on the designs</li> <li>- final waste mass balance</li> <li>- water infrastructure required in final landform</li> <li>- review the post-mining site water balance forecast</li> </ul>	<p>30 June 2022 with ongoing review and refinement</p>
<p><b>086: PAF Management Procedure</b> – Review the current processes being undertaken at the site and review and update with specific reference to mine closure outcomes. Use this review to develop a PAF management procedure that documents the requirements for the management of PAF at the site(s) as they move towards closure.</p>	<p>30 June 2022</p>

ATTACHMENT B  
CONSULTATION WITH KEY STAKEHOLDERS

Our ref: DOC22/549431-2

Your ref: SSD-4966

Mr Michael Plain  
Environment and Community Superintendent  
Stratford Coal Limited  
[michael.plain@yancoal.com.au](mailto:michael.plain@yancoal.com.au)

Dear Mr Plain

### **Stratford Mining Complex (SSD-4966) – Review of Rehabilitation Management Plan**

I refer to the request on the Major Project Planning Portal dated 1 July 2022 in which the Planning and Assessment Division (P&A) of the Department of Planning and Environment (the Department) invited Biodiversity and Conservation Division (BCD) to provide advice in relation to the Rehabilitation Management Plan (RMP) for the Stratford Mining Complex.

BCD has reviewed the RMP and notes that mining activities are authorised to be carried out until 31 December 2025. BCD recommends that the following changes are made to the RMP:

- 1) Update the 'Table of Contents' to include page numbers for the 'List of Tables', 'List of Plates' and 'List of Figures'.
- 2) Updated Figure 4 'Land Use' – the two shades of green used: for 'Active rehabilitation' and 'Biodiversity Offset Areas' are very similar. Choose colours that are easy to distinguish in the map and legend.
- 3) Update Figure 5 'Vegetation Community Boundaries' by:
  - a) Adding the Biometric Vegetation Type Code to each vegetation community. It is currently missing for vegetation zones 1, 3, 5, 7 and 11, and
  - b) Change the shades of brown used in the colour ramp for Wet Sclerophyll Forest types as they are too similar. Choose colours and patterns that make all vegetation communities easy to see and identify on the map (such as used in Figure 6).
- 4) Add a section to describe the climate at the site, including average monthly minimum and maximum temperatures, and average monthly rainfall and the average annual rainfall. Include details of any recent extreme events that may have affected rehabilitation in the biodiversity enhancement areas.
- 5) Table 6 'Proposed Rehabilitation Objectives and Rehabilitation Completion Criteria' for Domain A 'Native Ecosystem' refers (on page 34) to the use of Landscape Function Analysis (LFA) as one of the ways that the success of rehabilitation will be measured. However, studies by Erskine *et al.* (2013) 'Opportunities and constraints of functional assessment of mine land rehabilitation' published in Mine Closure 2013, on pages 345 – 355: DOI: 10.13140/RG.2.1.3217.8088, suggest that the underlying assumptions of LFA are unlikely to be met on a post-mined landscape. This has led to other mines in the Hunter Valley, e.g., the Liddell Coal Mine, to replace LFA with soil chemical analysis and transects of waste dumps in its revised 'Biodiversity Management Plan'. BCD recommends that Stratford Coal reassess the use of LFA in this monitoring process and either provides an assessment of why this technique is appropriate for inclusion in the monitoring of rehabilitation on the Stratford Mining Complex or provides details of an alternative methods to measure and gauge success of its rehabilitation of mined landscapes.

- 6) Update Section 6.2.1 'Active Mining Phase' to state that since the Flora Assessment Report prepared for Stratford Coal Pty Limited by FloraSearch (2012) was published, when no threatened plant species were known from the habitat enhancement areas, that Craven Grey Box (*Eucalyptus largeana*) has since been found in the habitat enhancement area. Discuss any specific management actions for this species.

BCD's comments, above, supplement our recommendations for the revised Biodiversity Management Plan for the Stratford Mining Complex. Recommendations for the Biodiversity Management Plan were provided in our letter dated 29 March 2022.

If you have any further questions in relation to this matter, please contact Robert Gibson, Senior Regional Biodiversity Conservation Officer, on 4927 3154 or via email at [huntercentralcoast@environment.nsw.gov.au](mailto:huntercentralcoast@environment.nsw.gov.au)

Yours sincerely



**SARAH WARNER**  
**Acting Senior Team Leader Planning**  
**Hunter Central Coast Branch**  
**Biodiversity and Conservation Division**

**12 July 2022**

Our ref: OUT22/13383

Michael Plain

Email: Michael.plain@yancoal.com.au

19 August 2022

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Subject: Stratford Mine Extension (SSD-4966) – Rehabilitation Management Plan

Dear Mr Plain

I refer to your request seeking advice from the Department of Planning and Environment – Water (the department) on a Rehabilitation Management Plan for the above matter. It is understood this consultation is in accordance with conditions of approval for the project.

The department has reviewed the plan and has identified a number of reports are to be prepared or revised over the next 18 months to provide confidence in rehabilitation outcomes at the site. These include an updated groundwater model report, a revised final void water balance, and a review of the disposed Potential Acid Forming material in relation to the groundwater level. Upon completion of these studies the Department would appreciate the opportunity to provide further comment.

The Department also requests the plan be considered further to ensure relevant water legislation, policy and management requirements are addressed. The department has defined a range of outcomes relevant to assist in the preparation of Rehabilitation Management Plans. Please see Attachment A for further detailed comments.

Should you have any further queries in relation to this submission please do not hesitate to contact DPE Water Assessments at [water.assessments@dpie.nsw.gov.au](mailto:water.assessments@dpie.nsw.gov.au)

Yours sincerely,

A handwritten signature in black ink, appearing to read "S. Francis".

Simon Francis  
Senior Project Officer, Assessments, Knowledge Division  
**Department of Planning and Environment: Water**



## Attachment A

# Detailed advice regarding the Stratford Mine Extension – Rehabilitation Management Plan

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## 1.0 Groundwater Management

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### 1.1 Recommendation

When available, submit documentation to DPE Water for review comprising:

- (i) An updated groundwater model report;
- (ii) A revised final void water balance and water quality predictions, and
- (iii) A Life of Mine review of the disposed Potentially Acid Forming (PAF) material levels and a model that shows with a high level of confidence that the PAF levels are below the predicted groundwater level.

### Explanation

- Yancoal has undertaken a verification of the site groundwater model in relation to the final landform designs and to confirm the groundwater seepage rates to the final void. The groundwater model revision was completed in 2021, however the outcomes of this study indicated further revision would be required to achieve satisfactory outcomes for the proposed final landform and final void design.  
  
Yancoal is currently undertaking a further review and verification of the site groundwater model in relation to the refined final landform designs from May 2022 and to confirm the groundwater seepage rates to the final void to ensure the function of the final voids is consistent with the approved completion criteria. Completion of the groundwater model review and groundwater assessment for closure is due for completion in December 2022.
- A review of the final void water balance was prepared in 2021 to ensure the balance incorporates the refined final landform design, surface water inflows and outflows to/from the final void and to predict the long-term filling and equilibrium level. However the outcomes of this study indicated further revision would be required to achieve satisfactory outcomes for the proposed final landform and final void design.
- A review of the medium to long term water quality predictions for the final voids, considering contemporary operational monitoring data and void inflow data collected following the cessation of mining, needs to be undertaken to verify that the predictions from the EIS remain valid. The review would determine the requirement for additional/alternate management measures other than that currently proposed. Further revision of these studies will be required following the completion of the detailed final landform design and post-mining groundwater model.
- Confirming the location of the PAF material in relation to the groundwater level is critical to understand the potential risk to the water source.

## 2.0 Rehabilitation Management Plan Outcomes

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### 2.1 Recommendation

The Rehabilitation Management Plan should be reviewed to achieve the following outcomes. These are intended to meet the department's legislative, policy and water management requirements.

- Sharing of water must protect the water source, its dependent ecosystems and basic landholder rights.
  - Water sources, floodplains and dependent ecosystems are protected and restored.
-

- Activities within a water source should avoid or minimise land degradation, including soil erosion, compaction, geomorphic instability, contamination, and where possible land should be rehabilitated.
- The final Rehabilitation Management Plan is made electronically available on a public accessible website.
- A conceptual model/diagram clearly presents how the groundwater and surface water systems interact with the final landform. This is to be informed by recent environmental assessments/modelling reviews.
- The final design and location of surface drainage features achieves a stable landform and maintains or improves riparian corridor functioning. This is to be completed with reference to industry guidelines such as: “*Rehabilitation Manual for Australian Streams* (LWRRDC 2000)”, “*Guideline: Works that interfere with water in a watercourse for a resource activity* (DNRME 2019)” and “*Guidelines for Controlled Activities on Waterfront Land* (2012)” or their latest versions.
- Dirty runoff catchment areas are rehabilitated and the conveyance of clean surface runoff downstream is maximised.
- Decommissioning of groundwater boreholes is in accordance with the “Minimum Construction Requirements for Water Bores in Australia (2020)”.
- Ongoing water take by the final landform via interception, storage or diversion is quantified and complies with relevant approvals and licences under the *Water Management Act 2000* or a relevant exemption. Please note exemptions from the requirement to hold approvals under s.90 and 91 of the *Water Management Act 2000* for approved SSD/SSI projects will not apply once the project approval ceases. Therefore, any relevant water management works that are to be retained will need to obtain an approval prior to the development consent lapsing.
- Aquifer interference activities are designed to minimise ongoing water take and water quality impacts and meet the requirements of the NSW Aquifer Interference Policy.
- In-pit PAF material be stored below the predicted post-mining groundwater table and is non-polluting.
- Final voids do not present a risk to important groundwater ecosystems and assets (groundwater dependent ecosystems, alluvial aquifers, and landholder bores).
- Final voids are designed to be sinks or to flow through the local groundwater system and need to be confirmed by a post-mining groundwater model.
- Residual risk to water sources is clearly understood and minimised. This is to include relevant assessment documentation and updated risk assessments to meet the requirements of the NSW Aquifer Interference Policy. Further detail can be found in Fact Sheet 5 in Appendix C of the “*Guidelines for Groundwater Documentation for SSD/SSI Projects. Technical guideline* (DPE 2022)”.
- A monitoring and review program is included to ensure the rehabilitation outcomes are met.

**End of Attachment**

23 September 2022

Michael Plain  
[michael.plain@yancoal.com.au](mailto:michael.plain@yancoal.com.au)

Dear Michael

### **Stratford Mine Rehabilitation Management Plan**

Thank you for providing the opportunity for Council to review the Stratford Rehabilitation Management Plan, submitted by Yancoal. In general, Council is accepting of the detail and content of the plan subject to the following:

#### **Biodiversity**

Key issues in relation to biodiversity matters in mine closure design and implementation include:

- Final land uses involving the creation of stable native vegetation communities in the plans match the requirements of the consent and established commitments,
- Risks to rehabilitation are appropriately identified, considered and adaptively managed,
- Indicators and completion criteria are clearly defined and are appropriate (defining what rehabilitation success looks like),
- Rehabilitation timeframes are appropriate and include active work phases and monitoring phases, with adaptability to manage risks including rehabilitation trigger actions,
- Rehabilitation processes are appropriate and well-planned.

Council is satisfied that these key issues are considered and defined within both the Rehabilitation Management Plan.

It is noted that on pg. 55 of the Plan, the reference to a "Sugar Glider Management Plan" should refer to a "Squirrel Glider Management Plan".

After 2035 and the completion of the rehabilitation works, it is assumed that the land will be disposed. It is questioned whether there needs to be any mechanisms established that seek to preserve the restoration of native vegetation outside of the biodiversity offset areas so that any future occupier or owner does not clear this rehabilitated habitat. Consideration should be given to the appropriate mechanism that gives native vegetation communities in the closed mine sufficient protection.

### **Contamination**

Should contamination be identified that requires remediation, remediation works may require relevant approvals to be obtained. It should be noted that MidCoast Council has a Contaminated Land Policy for the purposes of assessing if proposed remediation works are Category 1 remediation work: work needing consent or Category 2 remediation work: work not needing consent in accordance with State Environmental Planning Policy (Resilience and Hazards) 2021.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'B Moore'.

Bruce Moore  
**Coordinator Major Assessment**

## Michael Plain

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**From:** Philip Greenwood <philip.greenwood@activ8.net.au>  
**Sent:** Monday, 4 July 2022 3:42 PM  
**To:** Michael Plain  
**Subject:** Re: Stratford Mining Complex – Rehabilitation Management Plan

**Follow Up Flag:** Follow up  
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Hello Michael

Thanks for the invitation to provide comments on the RMP.

There are just a few things that I'd like to raise following a first reading:

### **Positive Covenants and the 2019 Annual Biodiversity Report**

The 2019 Annual Biodiversity Report is referenced on p123 of the RMP in a section outlining long term biodiversity security. The RMP text says:

"Copies of the executed Positive Covenants and notice of registration of the instruments was included in the 2019 SMC Annual Biodiversity Report which can be found on the SMC's website".

That report seems to be no longer directly accessible on the website. It is included as an appendix to the 2019 Annual Review but, as that's not readily apparent, perhaps it should be listed as an archived document. Also, in my copy of the 2019 ABR the Covenants aren't actually included - there's a statement that they're available on request. They are an important part of the long term rehab management and should be included as an appendix to the RMP.

(I don't think I've ever seen the Covenants - could you send me a copy?)

### **Infrastructure**

Concerns have been put to me about the possibility of un-used infrastructure remaining on the basis of possible future use by other operations such as the company that now holds the old GRL lease areas. Specifically, the concern is about how to ensure that any agreement to leave infrastructure in place carries with it the responsibility for its ultimate removal even in the event that an intended re-purposing doesn't proceed. Perhaps a statement addressing that question could be included.

### **Fire**

The threat of fire is an issue relevant to all the proposed post-mining land uses. I might have overlooked it, but apart from a brief note in Table 10, I don't think there is any mention of fire strategy in the sections addressing ecosystem and land use establishment and development. If you think something more about fire threat management could be useful, the map of access tracks you provided to the CCC last year might be a good addition.

### **Minor typo**

P53 - Phase 6 Rehabilitation *Competition* (should read *Completion*?)

Short as they are, I hope these comments are helpful. If this weather keeps up I might get a chance to re-read the document, and will forward any further comments/suggestions!

Regards

Philip



## Michael Plain

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**From:** Philip Greenwood <philip.greenwood@activ8.net.au>  
**Sent:** Thursday, 7 July 2022 11:52 AM  
**To:** Michael Plain  
**Subject:** Additional RMP comments

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Hello Mike

I've been reading through the RMP again, and have a further query / suggestion.

It occurs to me that the long term integrity and stability of the rehabilitation measures will be dependent on future land use.

Assuming the whole of the rehabilitated MLA will ultimately be divested by Yancoal, shouldn't there be mechanism such as a positive covenant in place to avoid future land use compromising the stability of the rehabilitated waste rock stockpiles, the native vegetation corridors and the final voids, and use of water from the final voids?

Positive covenants aren't a particularly strong protection (providing indefinite restriction rather than perpetual) but they would at least require a consideration of the issues before being lifted, and the long term maintenance of the rehabilitated MLA is just as important as that of the offset areas.

Apologies if there is already provision along these lines in the RMP that I've overlooked!

Regards

Philip