Landscape Management Plan – Kitchener SIS

April 2024

DOCUMENT CONTROL

DOCUMENT DETAILS	**Title**	Landscape Management Plan			
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	Document Status	Final			
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	0	24 June 2013	Updated following completion of construction phase and transition to operational phase at the Kitchener SIS	AECOM	Gary Mulhearn
	1	27 January 2015	Updated for (PA) 08_0111 MOD 3	AECOM	Gary Mulhearn
	2	13 April 2021	Updated to reflect closed status of Austar	Julie McNaughton	Carly McCormack
	3	20 February 2023	Revision following submission of an Annual Review. Updates to align with RMP.	Peter Madden	Julie McNaughton
	4	4 April 2024	Revision following DPHI comments.	IEMA	Julie McNaughton

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1 INTRODUCTION

1.1 Background

Austar Coal Mine Pty Ltd (Austar), a subsidiary of Yancoal Australia Limited (Yancoal), owns the Austar Coal Mine, an underground coal mine located approximately 10 kilometres southwest of Cessnock in the Lower Hunter Valley in NSW (refer to **Figure 1**). The Austar Coal Mine incorporates the former Pelton, Ellalong, Cessnock No. 1 (Kalingo) and Bellbird South Collieries and includes coal extraction, handling, processing and rail and road transport facilities (refer to **Figure 1**).

Extensive mining has been undertaken within the Austar Coal Mine since 1916. Historical mining was predominantly via bord and pillar mining and more recently via conventional longwall mining and longwall top coal caving (LTCC) methods. Mining within the Bellbird South areas (Southland, Stage 1, Stage 2 and LWB1-B7, refer to **Figure 1**) was approved by the Minister for Urban Affairs and Planning in 1996 under Development Approval DA 29/95, while mining of Stage 3 was approved by the Minister for Planning in 2009 under Project Approval 08_0111 (PA 08_0111). Longwall mining commenced in the Ellalong Colliery area in 1983 and has subsequently progressed into the Bellbird South and the Stage 3 areas.

Most recently, mining commenced in the Bellbird South LWB1-B7 mining area in 2016 under DA 29/95 (as modified) and was completed in February 2020. Longwall panels B1 and B7 have not been extracted. Austar mining areas are shown in **Figure 1**.

On 30 March 2020, the Austar Coal Mine transitioned to care and maintenance, with cessation of mining and coal processing activities. On 26 February 2021, a decision was made by the Yancoal board to transition the Austar Coal Mine from care and maintenance to closure. Nevertheless, active water management, environmental monitoring and mine inertisation remain key activities at Kitchener Surface Infrastructure Site (SIS). This revision of the Landscape Management Plan (LMP) has been prepared following completion of the rehabilitation risk assessment and implementation of the Rehabilitation Management Plan (RMP) (Austar, 2022).

1.1.1 Kitchener Surface Infrastructure Site (SIS)

PA 08_0111 approves the development of Pit Top facilities at the Kitchener Surface Infrastructure Site (SIS). Approved facilities include a personnel and materials shaft, ventilation shafts, workshop, services (including power, pipelines, and boreholes to deliver to underground), offices, car parking and amenities. The SIS is located on 16ha of land off Quorrobolong Road, 1.6km south of Kitchener and is bounded by the Werakata State Conservation Area. The SIS is of ecological value due to the presence of three threatened species and two Endangered Ecological Communities (EEC) (Umwelt, 2008).

Development at the SIS commenced in November 2009 with shaft construction and ancillary services. This initial construction phase was completed in 2013, with the site transitioning into an

operational phase. As the site is now in closure, Austar is not proposing to develop the remainder of the facilities and is currently planning demolition and rehabilitation of the site.

1.1.2 Biodiversity Offset Area

The Biodiversity Offset Area (the Offset Area) was established as part of the approved Stage 3 project to offset impacts from clearing of approximately 10ha of the SIS. The Offset Area location is shown in **Figure 2**. After the Stage 3 project was approved, Austar transferred ownership of the Offset Area to the National Parks Estate as part of the Werakata State Conservation Area. As such, the Offset Area will be managed in perpetuity by the NSW National Parks and Wildlife Service. Based on this transfer of ownership to reserved lands, the long term management of the Offset Area is not addressed in this LMP.

1.2 Purpose, Scope and Rehabilitation Objectives

This LMP outlines the management measures to be implemented during closure at the Kitchener SIS to minimise the potential for ecological impacts.

The purpose of this LMP is to:

- Identify and describe the environmental consequences of the Stage 3 project on land within the SIS.
- Specify the objectives and performance measures to effectively manage the environmental consequences on land within the SIS.
- Identify performance indicators and completion criteria which will be used to judge the effectiveness of land management activities and the environmental performance of the SIS.
- Describe the monitoring methods which will be employed to inform and/or trigger land management activities.
- Provide contingency measures which explicitly provide for adaptive management.
- Describe the process for responding to any incidents, complaints or non-compliances with statutory requirements.
- Describe the review, reporting and continual improvement process.

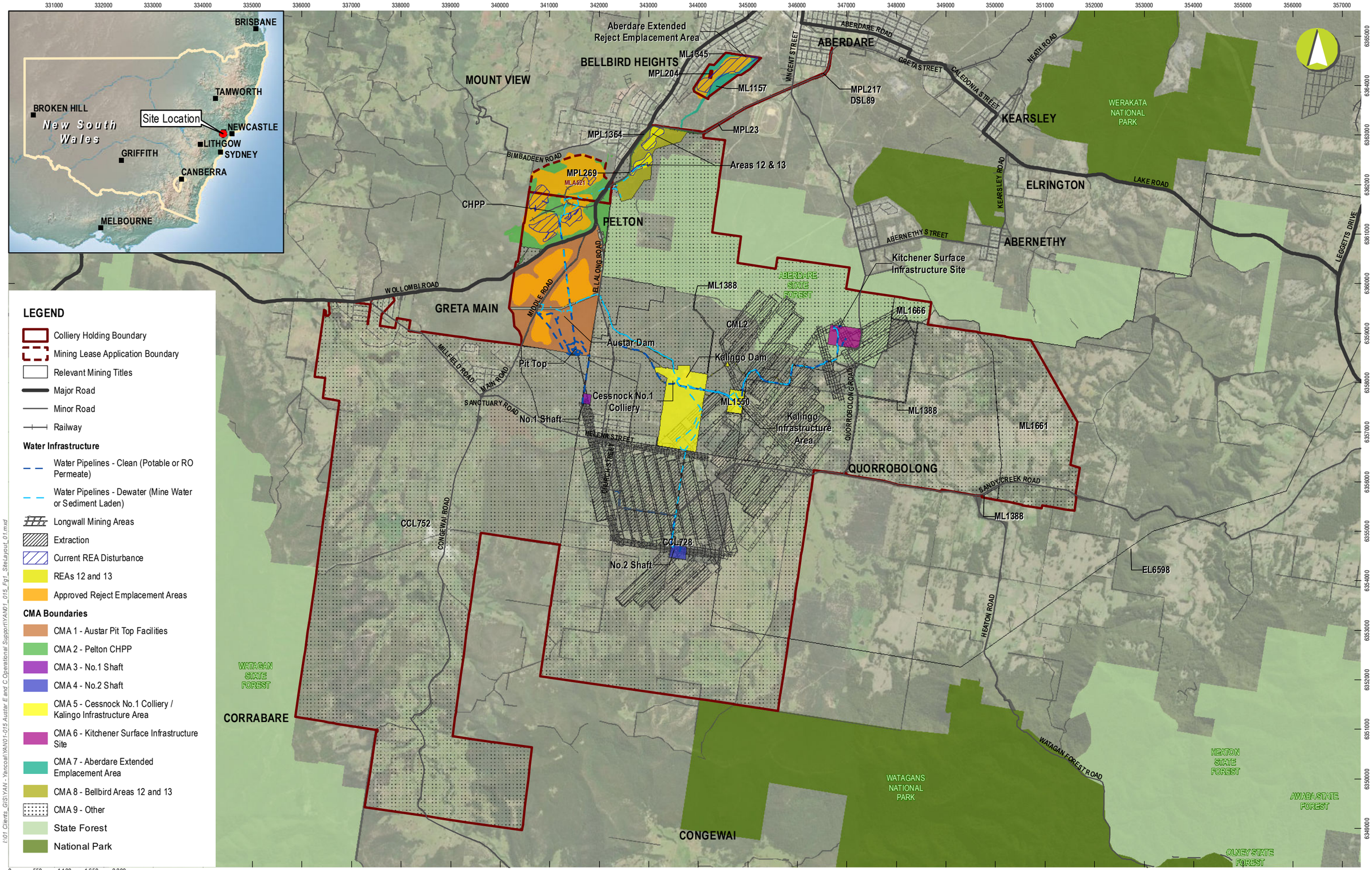
The LMP has been prepared in accordance with the relevant conditions of PA 08_0111 (refer to **Appendix A** for details of conditions). It is noted that this plan is limited to the rehabilitation and landscaping of the Kitchener SIS. A Rehabilitation Management Plan (RMP) as required by the Mining Act has been prepared for all Closure Management Areas and is available on the Austar website.

Rehabilitation objectives for land affected by the Stage 3 project are presented in **Table 1** (adapted from Table 6; PA 08_0111).

TABLE 1 - REHABILITATION OBJECTIVES

Domain	Objectives
Surface Infrastructure Site	Revegetate the cleared portion of the site with a structured native vegetation community similar to that existing pre-mining, or other landuse approved by the Director-General.
	Additional objectives, performance measures, indicators and criteria are detailed within Section 5.
Biodiversity Offset Area	Implement the offset strategy[1] described in the EA (Umwelt 2008) and shown conceptually in Appendix 5 (of the Project Approval).

[1] Ownership of the land encompassed by the Biodiversity Offset Area has been transferred to National Parks Estate as part of the Werakata State Conservation Area with the land to be managed in perpetuity by NSW National Parks and Wildlife Service. Management of the Biodiversity Offset Area is not discussed further in this Landscape MP.



LEGEND

- Colliery Holding Boundary
- Mining Lease Application Boundary
- Relevant Mining Titles
- Major Road
- Minor Road
- Railway

Water Infrastructure

- Water Pipelines - Clean (Potable or RO Permeate)
- Water Pipelines - Dewater (Mine Water or Sediment Laden)
- Longwall Mining Areas
- Extraction
- Current REA Disturbance
- REAs 12 and 13
- Approved Reject Emplacement Areas

CMA Boundaries

- CMA 1 - Austar Pit Top Facilities
- CMA 2 - Pelton CHPP
- CMA 3 - No.1 Shaft
- CMA 4 - No.2 Shaft
- CMA 5 - Cessnock No.1 Colliery / Kalingo Infrastructure Area
- CMA 6 - Kitchener Surface Infrastructure Site
- CMA 7 - Aberdare Extended Emplacement Area
- CMA 8 - Bellbird Areas 12 and 13
- CMA 9 - Other
- State Forest
- National Park

0 550 1,100 1,650 2,200 m

Scale: 1:70,000

GDA 1994 MGA Zone 56

25/01/2023

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Austar Coal Mine

Site Layout

FIGURE 1

INTEGRATED ENVIRONMENTAL MANAGEMENT AUSTRALIA
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Source:

2 STAKEHOLDER CONSULTATION

2.1 Pre 2023 Consultation

In accordance with Schedule 6 Condition 4(a) of PA 08_0111, consultation occurred during preparation of the original LMP as well as for subsequent updates, as required, and the plan was prepared by a suitably qualified expert endorsed by the Director-General.

2.2 2023 Consultation

In accordance with the requirements of PA 08_0111, the NSW Resources Regulator (as the relevant stakeholder) has been consulted in relation to this revision of the LMP.

The latest revision of the Landscape Management Plan has been prepared in consultation with suitably qualified experts who were endorsed by DPHI. The endorsement letter is included in **Appendix E**.

The management plan approval letter is provided in **Appendix B**.

3 EXISTING ENVIRONMENT (BASELINE DATA)

Land affected by construction of the SIS is shown in **Figure 2** and the features of this landscape are summarised below.

Detailed environment assessments were prepared to inform the original Stage 3 Project Environmental Assessment (EA) (Umwelt 2008) and Stage 3 Project Modification EA (Umwelt 2011). The key impact associated with the SIS is the clearing of vegetation during construction of the SIS. Austar is approved to clear approximately 10 ha of native vegetation at the SIS by PA 08_0111, with the impacts of this activity mitigated through the offset strategy and clearing procedures identified within the original EA (Umwelt 2008). There has been approximately 8.1 ha of land cleared for SIS construction and operational purposes.

3.1 Land Ownership and Access

Land ownership within the Stage 3 mining area, including surrounding the SIS is shown in **Figure 3**. The SIS is owned by Austar and is surrounded on all sides by the publicly accessible Werakata State Conservation Area and Quorrobolong Road. To minimise the risk of the public being involved in any unsafe activities or incidents on the SIS, a number of controls have been put in place which include:

- A fence has been constructed around the operational area of the SIS with lockable gates;
- A sign has been erected on the SIS access road identifying the SIS as being a mining lease area and being operated by Austar Coal Mine, and stating there is to be no unauthorised access;
- Security personnel available to attend Kitchener SIS outside of office hours;
- All visitors and members of the public are required to report to the main office prior to entering the SIS;

- Access is limited to defined tracks and where practical restricted in other areas via the use of barriers e.g. large woody debris;
- When public access is required, inductions are undertaken and inspections supervised by colliery personnel; and
- A private security company is employed to patrol the site, particularly after hours.

3.2 General Landform

The SIS is positioned within a 16 hectare parcel of land at the very top of the Black Creek catchment. An upcast ventilation shaft and water management dams are present on the west side of Black Creek, with downcast shaft, boreholes, a water management dam and electrical services on the east side of Black Creek. The SIS is located on the north side of Broken Back Range which is a major landform extending from west of Pokolbin to Mulbring. Broken Back Range has a maximum elevation adjacent to the SIS of RL 140 metres; the closest peak reaches a height of 190 metres to the south east of the SIS. This landform is characterised by steep slopes, narrow ridges and deep gullies. However land within the SIS itself is generally gently sloping, descending in elevation towards the north.

3.3 Hydrology and Drainage

The SIS is located within the Black Creek Catchment which is bounded to the south by Broken Back Range, to the east by the Wallis/Swamp Creek Catchment, and the LGA boundary to the north. Black Creek flows in a northerly direction through Cessnock to Branxton before joining the Hunter River some 32 kilometres downstream. The Black Creek Catchment is generally regarded as a degraded catchment suffering from saline water ingress and subsequent adverse effects due to extraction for irrigation and stock watering (Umwelt 2008). The SIS is positioned at the very top of the Black Creek catchment. The first order ephemeral drainage line which is described as Black Creek originates approximately 200m upslope of the SIS.

Strategies for controlling erosion, sedimentation, and managing water use at the SIS are contained within the Site Water Management Plan (SWMP) (Austar, 2022) and identified in **Figure 4**.

Erosion and sediment management and related control structures are consistent with the specifications contained in Managing urban stormwater – soils and construction, Volume 1, 4th edition (Landcom, 2004), and particularly Volume 2E Mines and Quarries (DECC, 2008a). Monthly environmental inspections are also undertaken to inspect the sediment control structures for capacity, structural integrity and effectiveness.

A component of the SWMP (Austar, 2022) is the Erosion and Sediment Control Plan (ESCP), encompassing works associated with Stage 3. The ESCP was developed to control and mitigate erosion and sediment impacts that may arise from operations at Austar. Measures to minimise future erosion and sediment generation at the SIS include:

- Identification and review of surface activities that may change surface water flows and result in erosion;
- Minimising the clearing of vegetation and where clearing is necessary, chipping of material and reusing on site for rehabilitation of disturbed areas;

- Regular checking of rehabilitated areas;
- Installation of temporary and/or additional permanent controls to manage locations that have been identified as requiring attention;
- Diversion of surface and road runoff away from disturbed areas;
- Regular inspection and cleaning of catch drains and structures following storm events or other activities such as vehicle movements that may result in damage; and
- Clearing of excessive vegetation and weeds along drainage lines.

3.4 Soil Landscapes

Two soil landscapes described below occur within the SIS as shown in **Figure 4**.

- Branxton Soil Landscape

The Branxton Soil Landscape occurs across the majority of the SIS including the banks of Black Creek. The soils of this landscape include yellow podzolic, red podzolic, yellow soloth soils, alluvial sands and siliceous sands. Excluding alluvial soils, the topsoil is moderately erodible.

- Aberdare Soil Landscape

Aberdare Soil Landscape extends along the south west boundary of the SIS. The topsoil and subsoil can be moderately erodible.

3.5 Flora and Fauna

The slopes and ridges within the Stage 3 mining area support an open forest dominated by spotted gum (*Corymbia maculata*) and broad-leaved ironbark (*Eucalyptus fibrosa*) with a sparse to moderately dense shrubby mid-story and grassy ground layer. The Stage 3 Environmental Assessment (Umwelt, 2008) identified the species and ecological communities present within the SIS and recorded the following species on site at the SIS:

- Three threatened flora species (refer **Figure 5**) (including the heath wrinklewort (*Rutidosis heterogama*), the small-flower grevillea (*Grevillea parviflora*), netted bottlebrush (*Callistemon linearfolius*)).
- Two Endangered Ecological Communities (refer **Figure 5**):
  - Hunter Lowland Redgum Forest; and
  - Lower Hunter Spotted Gum – Ironbark Forest
- Four threatened fauna species, the grey-crowned babbler (*Pomatostomus temporalis temporalis*), little bentwing-bat (*Miniopterus australis*), eastern bentwing-bat (*Miniopterus schreibersii oceanensis*) and large-footed myotis (*Myotis adversus*).

Management of impacts to flora and fauna from developed activities at the SIS include pre-clearance, vegetation clearing and nest box procedures which are outlined in **Appendix C**. Austar is approved to clear approximately 10 ha of native vegetation (including EECs and threatened species habitat) at the SIS by PA 08_0111.

Impacts to EECs and threatened species are mitigated through the biodiversity offset and site procedures undertaken in compliance with the Stage 3 EA (Umwelt, 2008). No rare or threatened

flora or fauna known to occur within the SIS will be significantly impacted (as defined under relevant legislation) by the development (Umwelt 2008). Strategies for the management of flora and fauna during operation of the SIS include:

- Limiting vehicle speed on access track and roads;
- Use of locally endemic native plant species in revegetation areas where possible;
- Incorporating habitat enhancement features in rehabilitated areas where practical including nest boxes, large woody debris and rock stockpiles;
- Where practical any injured native animals identified on site will be carefully captured by a qualified and experienced person, and taken to a wildlife carer or veterinary clinic;
- Optimising areas of native vegetation as areas of preferred habitat by restricting unauthorised vehicle access; and
- Limiting unauthorised access, in doing so mitigating the risk of weed species and exotic fauna from colonising the site.

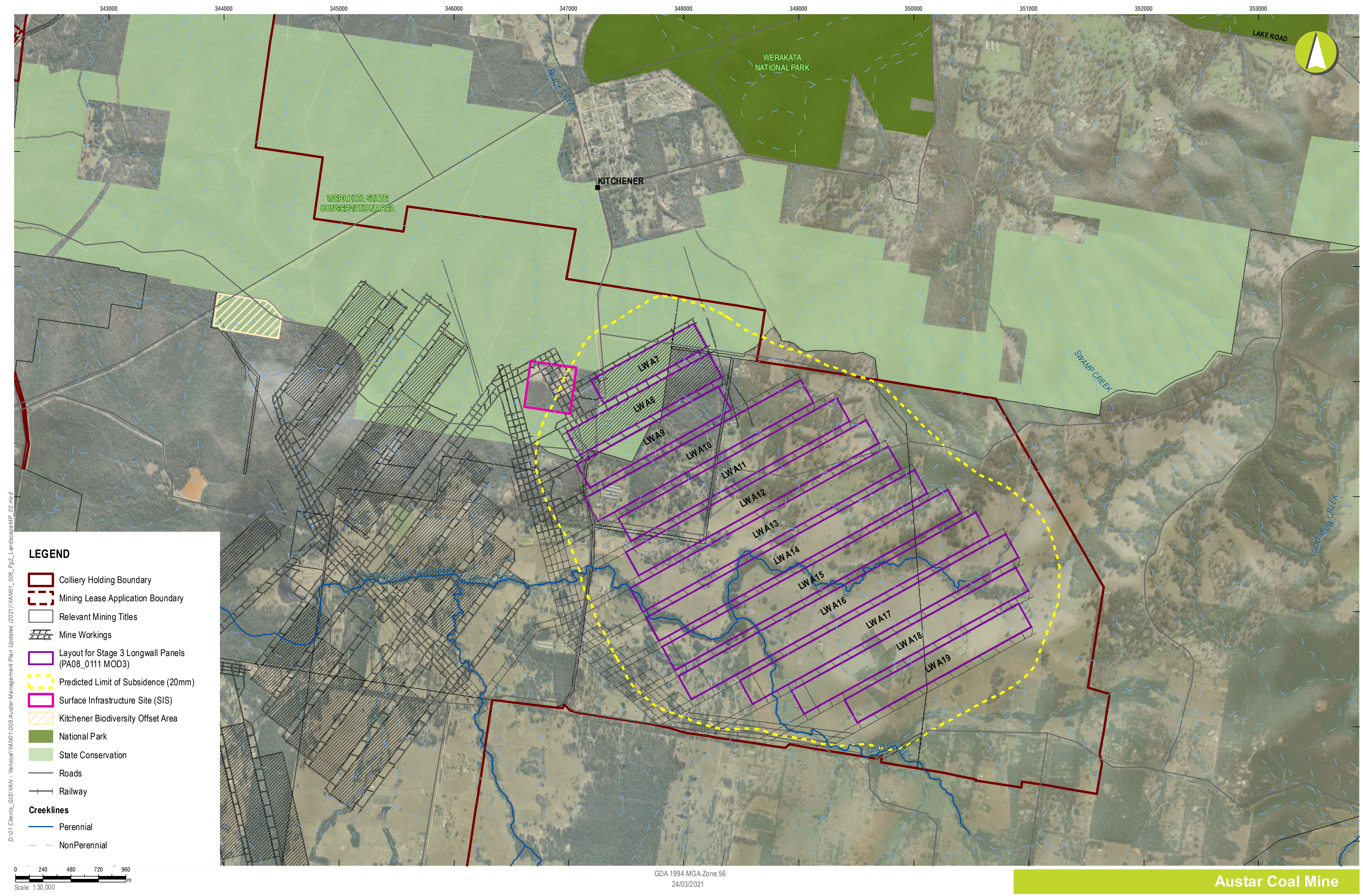
Bushfire hazard reduction activities may also require slashing or clearing activities to maintain Asset Protection Zones (APZs) in accordance with the Austar Bushfire Management Plan (BFMP, Eco Logical Australia, 2023). The BFMP ensures the land owned by the mine is managed in a way that minimises the risk of bushfire and to reduce the risk of fire originating on Austar owned land and spreading to adjacent properties. The risks of bushfire to surface infrastructure located at the SIS are proposed to be mitigated by the provision of an APZ in accordance with the BFMP.

Further ameliorative actions include:

- Ensuring mining activities that have the potential to cause ignition such as sparks from vehicles, metal grinding, welding etc. are identified and managed appropriately;
- Ensuring vegetation does not interfere with power lines; and
- Creating firebreaks to ensure that bushfire does not spread from surrounding lands.

3.6 Weeds

The ecological assessment undertaken for the Stage 3 Environmental Assessment (Umwelt 2008) included an assessment of general health and condition of vegetation as well as the presence of weeds. There are very low numbers of invasive species within the SIS, privately owned lands and surrounding Werakata State Conservation Area (Umwelt 2008). Without adequate mitigation, operation of the SIS may result in improved conditions for weed establishment and competition through the introduction of invasive species by vehicle, inappropriate species selection during landscaping activities or unchecked ground disturbance activities. Weeds identified at the SIS will be controlled in accordance with the objectives specified in **Section 5**.



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GDA 1994 MGA Zone 56
24/03/2021

Austar Coal Mine

Kitchener SIS & Biodiversity Offset Area

FIGURE 2

INTEGRATED ENVIRONMENTAL MANAGEMENT AUSTRALIA
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Source: AECOM Australia Pty Ltd

344000
345000
346000
347000
6360000
6359000
6358000

BLACK CREEK
QUORROBOLONG CREEK
CONY CREEK
LWA7
LWA8
LWA9
LWA10
LWA11
LWA12
LWA13

LEGEND

- Colliery Holding Boundary
- Relevant Mining Titles
- Mine Workings
- Layout for Stage 3 Longwall Panels (PA08_0111 MOD3)
- Predicted Limit of Subsidence (20mm)
- Surface Infrastructure Site (SIS)
- Approximate Cleared
- Kitchener Biodiversity Offset
- Creekline
- Austar Coal Mine - Austar Owned Land
- Crown
- Private Land
- Werakata State Conservation

0 90 180 270 360 m

Scale: 1:12,000

GDA 1994 MGA Zone 56
24/03/2021

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INTEGRATED ENVIRONMENTAL MANAGEMENT AUSTRALIA
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Source: AECOM Australia Pty Ltd

Austar Coal Mine

Kitchener SIS - Stage 3 Land Ownership

FIGURE 3

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347000

6359000

Lower Sediment Basin

No. 5 Shaft Fans

Eastern Sediment Basin

Upper Sediment Basin

No.6 Shaft

Service Boreholes

33kV Switchyard

LV Substation

LWA7

LWA8

LWA9

LWA10

BLACK CREEK

LEGEND

- Colliery Holding Boundary
- Mine Workings
- Layout for Stage 3 Longwall Panels (PA08_0111 MOD3)
- Predicted Limit of Subsidence (20mm)
- Surface Infrastructure Site (SIS)
- Pipeline
- Site Drainage
- Surface Drainage
- Fence
- Contours (2m)
- Catchment Boundary
- Creekline
- Approximate Cleared
- Structures
- Water Management
- Topsoil Stockpile
- Overburden Stockpile
- Undisturbed

Soil Landscapes

- Aberdare
- Branxton

0 40 80 120 160 m

Scale: 1:5,000

GDA 1994 MGA Zone 56

24/03/2021

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Austar Coal Mine

Kitchener SIS - Steep Slopes, Hydrology & Soil Landscapes

FIGURE 4

INTEGRATED ENVIRONMENTAL MANAGEMENT AUSTRALIA

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Source: AECOM Australia Pty Ltd

347000

6359000

BLACK CREEK

LWA7

LWA8

LW A9

LEGEND

- Colliery Holding Boundary
- Layout for Stage 3 Longwall Panels (PA08_0111 MOD3)
- Surface Infrastructure Site (SIS)
- Predicted Limit of Subsidence (20mm)
- Approximate Cleared Area

Creeklines

- NonPerennial

Threatened Flora

- Callistemon linearifolius
- Grevillea parviflora
- Rutidosis heterogama
- Pipeline

Endangered Ecological Communities

- 17a(i) - Lower Hunter Spotted Gum - Red Ironbark Forest (main variant)
- Hunter Lowland Red Gum Forest*

0 30 60 90 120 m

Scale: 1:4,000

*NOTE: Data digitised based off assumptions made in Austar EA

GDA 1994 MGA Zone 56
29/03/2021

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Source: AECOM Australia Pty Ltd

Austar Coal Mine

Kitchener SIS - Threatened Flora & Endangered Ecological Communites

FIGURE 5

4 STATUTORY REQUIREMENTS

Relevant conditions from PA 08_0111 and PA 08_0111 Statement of Commitments and where these are addressed in this Plan are provided in **Appendix A**.

Other statutory requirements that may be applicable to the management of landscape-related matters at the SIS include, but are not limited to:

- NSW *Biodiversity Conservation Act 2016*;
- NSW *Biosecurity Act 2015*; and
- Cessnock Local Environmental Plan 2011.

Austar Coal Mine is required to prepare all documentation in accordance with Schedule 8A of the Mining Regulation 2016 and to carry out rehabilitation in accordance with that documentation, as soon as reasonably practicable.

5 OBJECTIVES, PERFORMANCE MEASURES, INDICATORS AND CRITERIA

Consistent with Austar Coal Mine's Rehabilitation Management Plan (2023), detailed objectives, performance measures, indicators and criteria for the management of land have been developed for the SIS and are presented in **Table 2**. Specific objectives, indicator for the management of offset areas and remnant vegetation are detailed in **Table 3.**

Detailed land management procedures are provided in **Appendix C**. Rehabilitation measures were implemented throughout the operations on the site. Measures are now focused on the final rehabilitation and revegetation of the site to achieve the rehabilitation objectives.

The following timeframes have been specified, where relevant, to guide management activities undertaken in accordance with this Landscape MP. These timeframes are based on SIS construction, operation and decommissioning activities:

- Short term measures – are typically relevant to short term rehabilitation or mitigation measures associated with decommissioning and demolition phases of rehabilitation at the SIS.
- Medium term measures – are focussed on the landform establishment, growth media development, and revegetation phases of rehabilitation.
- Long term measures – are focussed on monitoring and maintenance of the final rehabilitation of Kitchener SIS.

The **Section 6** describes the key short, medium, and long term activities proposed at Kitchener SIS to achieve the rehabilitation objectives (refer to **Table 2**).

TABLE 2 REHABILITATION OBJECTIVES, PERFORMANCE MEASURES, INDICATORS AND CRITERIA

Item #	Final Land Use	Mining Domain	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Proposed Rehabilitation Completion Criteria	Validation Method
1	Native Ecosystem	Infrastructure Water Management Areas Underground Mining Area (Subsidence Management)	Removal of infrastructure	All non-heritage infrastructure removed to ensure the site is safe and free of hazardous materials	Removal of all services (power, water, communications, roads) that have been connected on site as part of the operation.	Services not required for post mining land use have been removed. Any services remaining are documented on a plan.	□ Demolition records □ Final landform plan
					Removal of all plant, equipment and associated infrastructure including processing facilities, stockpile areas, rail infrastructure and loading facilities, hydrocarbon storage tanks, office complex, portable buildings, exploration core samples, storage racks and samples.	Infrastructure not required for post mining land use has been removed. Any infrastructure remaining is documented on a plan	□ Demolition records □ Hazmat clearance records □ Waste disposal records □ As constructed final landform plan □ Photos
					Removal of all footings	Footings removed and/or removed to a specified depth to avoid exposure pathways to subsequent final land use.	□ Surveyed and marked on the as-constructed final landform plan
					Removal of water management infrastructure (including pumps, pipes and power)	Infrastructure removed. Any infrastructure remaining are documented on a plan.	□ Demolition records □ Photos
					Surveying and sealing of all drill holes and boreholes in accordance with departmental guidelines and relevant standards	Sealing completed and verified. Rehabilitation in accordance with EDG 01 Borehole Sealing Requirements.	□ Engineering report/statement □ Records of fill materials and grouting □ Photos □ ESF2 forms
					Surveying and sealing of all underground mine entries in accordance with departmental guidelines and relevant standards.	Shafts and mine openings filled and capped in accordance with DRE Guideline MDG 6001 ‘Guideline for the Permanent Filling and Capping of Surface Entries to Coal Seams (Feb, 2012)’.	□ Engineering report/statement □ Records of fill materials and concreting □ Photos
					Historic mine entries and boreholes investigated to assess any residual hazards and remediation requirements	Historic entries do not present any unacceptable residual risk	□ Documented inspection reports and photos
2	Native Ecosystem	Infrastructure Water Management Area Underground Mining area	Removal of infrastructure	All shafts mine openings and boreholes are sealed in accordance with the relevant guidelines to make safe and stable.	Surveying and sealing of all drill holes, boreholes and gas wells in accordance with departmental guidelines and relevant standards.	Sealing completed and verified.	□ Engineering report/statement, plug and abandonment log, photos, as-constructed drawings, records of fill materials and concrete plugs, filling methods etc.
					Surveying and sealing of all underground mine entries in accordance with departmental guidelines and relevant standards	Sealing completed and verified by suitably qualified engineer.	□ Engineering report/statement, plug and abandonment log, photos, as-constructed drawings, records of fill materials and concrete plugs, filling methods etc.
3	Native Ecosystem	Infrastructure Water Management Area	Land contamination	Ensure the site is safe and levels of hazardous materials are appropriate for final land use	Waste material and/or visible contamination areas on site surface.	There are no visible signs of contamination following the removal of plant, equipment and materials. All rubbish/ waste materials removed from site.	□ Statement provided and before/after photos.

Item #	Final Land Use	Mining Domain	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Proposed Rehabilitation Completion Criteria	Validation Method
					Soil testing for contaminants of concern as listed by Health Investigation Level of the National Environment Protection (Assessment of Site Contamination) Measure (1999) applicable to land use type.	Contamination will be appropriately remediated so that appropriate guidelines for land use are met, e.g. Health Investigation Level of the National Environment Protection (Assessment of Site Contamination) Measure (1999). Excess sludge/material has been removed from surface water dams.	□ Contamination Remediation Report prepared by Land □ Contamination Validation Report □ Clearance Certificates
					Carbonaceous Material	Carbonaceous material has been emplaced or capped in accordance with the final land use plan or removed from the site.	□ Capping study report □ As-built survey
					Desilting of mine water management structures	All mine water management structures have been de-silted and material buried and capped onsite or material transferred to a licensed waste disposal facility.	□ Site inspection records □ Waste disposal records
4	Native Ecosystem	Infrastructure Water Management Area Overburden Emplacement Area	Land contamination	Contaminated areas and/or hazardous materials are identified and remediated, removed or otherwise managed to a level that is compatible with the final land use and does not pose a threat of environmental harm.	Waste material and/or visible contamination areas on site surface.	There are no visible signs of contamination following the removal of plant, equipment and materials. All rubbish/ waste materials removed from site.	□ Statement provided and before/after photos.
					Soil testing for contaminants of concern as listed by Health Investigation Level of the National Environment Protection (Assessment of Site Contamination) Measure (1999) applicable to land use type.	Contamination will be appropriately remediated so that appropriate guidelines for land use are met, e.g. Health Investigation Level of the National Environment Protection (Assessment of Site Contamination) Measure (1999). Excess sludge/material has been removed from surface water dams.	□ Contamination Remediation Report prepared by Land □ Contamination Validation Report □ Clearance Certificates
5	Native Ecosystem	Infrastructure Water Management Area Overburden Emplacement Area	Landform stability	The final landform is commensurate with the surrounding natural landform and has been designed and constructed in accordance with appropriate final landform design principles.	Visual assessment conducted to verify that landforms developed are compatible with surrounding landscape.	Inspection confirms landform is compatible with surrounding landscape. Photographic record.	□ Final landform approval documentation □ As-built survey □ Visual assessment
					Final landform shaped	Survey complete to confirm landform is generally in accordance with final landform design.	□ As-built survey
					Erosion	Minor rilling only within areas that landform works have been undertaken.	□ Rehabilitation monitoring report
6	Native Ecosystem	Infrastructure Water Management Area Overburden Emplacement Area Underground Mining Area (Subsidence Management)	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.	Visual - indicators of erosion and land instability. Visual - indicators that surface water management structure are functioning as designed. Measured – erosion rates from field trials and or surveys on both target analogue sites (representative of final land use) and rehabilitated profiles (tonnes / ha). Measured - Survey of rehabilitated landform to verify final landform construction in accordance with Final Landform and Rehabilitation Plan. Measured - survey of rehabilitated landform to specifically monitor settlement and/or material loss via erosion. Modelled – long term erosional stability (e.g. Landform Evolution Modelling) to verify the long-term stability of rehabilitated landform. Modelled – long term geotechnical stability (e.g. stability analysis) to verify the long-term stability of rehabilitated landform.	Visual- minimal erosion that would not require moderate to significant ongoing management and maintenance works. Visual – no signs of land instability such as mass movement. Visual - no areas of active gully erosion. Visual - no evidence of tunnel erosion. Visual – no evidence of active scour likely to compromise surface water management structure. Survey verifies final landform complies with final landform construction in accordance with Final Landform and Rehabilitation Plan. Survey verifies that settlement and/or material loss is within predicted limits and will not compromise final landform drainage via differential settlement. Erosion rate monitoring verifies that erosion levels are within the range of target analogue sites representative of final land use. Significant surface water management structures (e.g. spillways, drop structures, major drains and creek diversions) have been constructed in accordance with hydrological design.	□ Before and after photos, rehabilitation monitoring reports, as constructed surveys, erosion surveys, independent geotechnical reports (where required) and or erosion modelling reports (where required) that indicate long-term stability of rehabilitated landform.

Item #	Final Land Use	Mining Domain	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Proposed Rehabilitation Completion Criteria	Validation Method
						High risk landforms (such as steep slopes, high walls) have been constructed in accordance with geotechnical design.	
7	Native Ecosystem	Underground Mining Area (Subsidence Management)	Landform stability	Public Safety hazards above LW extraction area are managed and reduced to no more than those existing pre-mining	General landform public safety impacts are remediated. Identified slope instability issues are managed.	Subsidence Monitoring Program inspection results indicate no public safety hazards post mining.	□ SM monitoring reports □ End of Panel reports.
8	Native Ecosystem	Underground Mining Area (Subsidence Management)	Landform stability	Built features damaged by mining operations have been repaired, restored or replaced in accordance with Extraction Plan requirements	The structural integrity of the infrastructure is suitable and safe for use as part of the intended final land use	The structural integrity of the infrastructure has been inspected by a suitably qualified engineer and determined to be suitable and safe as part of the intended final land use.	□ Engineering report/statement, photos, risk assessment verifying modes of failure are adequately addressed to minimise risks to public safety or the environment.
					Infrastructure is in a condition (e.g. structural, electrical, other hazards) that is suitable for the intended final land use.	Formal acceptance from the subsequent landowner that infrastructure is in a condition that is suitable for the intended final land use in accordance with formal agreement.	□ Formal acceptance from landowner.
9	Native Ecosystem	Infrastructure Water Management Area Overburden Emplacement Area	Bushfire	The area does not present an unreasonable bushfire hazard to surrounding areas.	NSW Fire Service to provide comments on Bushfire Management Plan or the bushfire management plan has been developed using relevant NSW Fire Service guidelines.	Appropriate bushfire hazard controls have been implemented with advice from the NSW Rural Fire Service.	□ Bushfire management inspection □ Records of fire trail maintenance and clearing of understory
10	Native Ecosystem	Infrastructure Water Management Area Overburden Emplacement Area	Surface water	Runoff water from the rehabilitation areas is not having an adverse downstream impact on downstream water quality	Water quality parameters selected from Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000 and or Environment Protection Licence (further guidance available on NSW Environment Protection Authority website).	Water quality discharged from rehabilitated mining operation meet specifications in Environment Protection Licence and or ANZECC guidelines for specific environment.	□ Water quality monitoring reports. □ Environment Protection Licence relinquished by Environment Protection Authority. □ Independent hydrological assessment report.
11	Native Ecosystem	Infrastructure Water Management Area Underground Mining Area (Subsidence Management)	Groundwater	Groundwater quality is within the range predicted in the relevant Austar environmental assessments and does not present a risk of environmental harm	Water quality parameters selected from Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000 and or Environment Protection Licence (further guidance available on the NSW Environment Protection Authority website).	Water quality discharged from rehabilitated mining operation meet specifications in Environment Protection Licence and or ANZECC guidelines for specific environment.	□ independent hydrological assessment report. Depending on the nature, scale and risks associated with a specific site, achievement of criteria may need to be evaluated over a number of years
12	Native Ecosystem	Infrastructure Water Management Area Underground Mining Area (Subsidence Management)	Groundwater	Impacts to groundwater regime are within the range of the groundwater predictions in the relevant Austar environmental assessments	Water quality parameters selected from Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000 and or Environment Protection Licence (further guidance available on the NSW Environment Protection Authority website).	Water quality discharged from rehabilitated mining operation meet specifications in Environment Protection Licence and or ANZECC guidelines for specific environment.	□ independent hydrological assessment report. Depending on the nature, scale and risks associated with a specific site, achievement of criteria may need to be evaluated over a number of years
13	Native Ecosystem	Infrastructure Water Management Area Overburden emplacement area	Ecological rehabilitation	The vegetation composition of the rehabilitation contains species that are commensurate with native vegetation communities of the Lower Hunter Spotted Gum-Ironbark Forest and Hunter Coast Foothills Spotted Gum-Ironbark	Native plant species recorded from 0.04-hectare fixed monitoring plots are characteristic of the target vegetation community (e.g. target PCT)	Native plant species are characteristic of the target vegetation community(s) when compared to analogue sites.	□ Rehabilitation monitoring reports □ Photos □ Independent ecological monitoring reports that validates completion criteria

Item #	Final Land Use	Mining Domain	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Proposed Rehabilitation Completion Criteria	Validation Method
				Forest found in the local area			have been met
				The vegetation structure of the rehabilitation is similar to that of native vegetation communities of the Lower Hunter Spotted Gum-Ironbark Forest and Hunter Coast Foothills Spotted Gum-Ironbark Forest found in the local area	Cover and abundance of plant growth forms recorded from 0.04-hectare fixed monitoring plots are characteristic of the target vegetation community, or an ongoing trend toward becoming characteristic is evident from the monitoring data	Cover, abundance and height range of native plant growth forms are characteristic of, or trending towards, the target vegetation community type(s).	□ Rehabilitation monitoring reports □ Photos □ Independent ecological monitoring reports that validates completion criteria have been met
				Levels of ecosystem function have been established to demonstrate the ecosystem is self-sustainable	Indicators of nutrient cycling are suitable for sustaining the target vegetation community	Litter cover is within 10th-90th percentile variation range of reference sites/data	□ Rehabilitation monitoring reports □ Photos □ Independent ecological monitoring reports that validates completion criteria have been met
					Evidence of plant regeneration from 0.04 hectare fixed monitoring plots or a walk over of the ecological rehabilitation area	Second generation individuals of trees are within the 10th-90th percentile variation range of reference sites/data approved by the consent authority	□ Rehabilitation monitoring reports □ Photos □ Independent ecological monitoring reports that validates completion criteria have been met
					Cover of exotic species within 0.04 hectare fixed monitoring plots is low	Foliage cover of 'high threat exotic' (HTE) weeds is within 10th-90th percentile variation range of reference sites/data or at a level that does not cause significant risk to rehabilitation.	□ Rehabilitation monitoring reports □ Photos\ □ Independent ecological monitoring reports that validates completion criteria have been met
					Resilience demonstrated by the effects of drought and fire on composition, structure and other function attributes.	Resilience to drought and fire	□ Rehabilitation monitoring reports □ Environmental monitoring records
					Threats to rehabilitation	Vertebrate pest species – presence and damage is recorded at a level that does not cause significant risk to rehabilitation. Domesticated stock - presence and damage is recorded at a level that does not cause significant risk to rehabilitation.	□ Rehabilitation monitoring reports
14	Native Ecosystem	Infrastructure	Ecological rehabilitation	The vegetation structure of the rehabilitation is similar to that of the riparian zone of native vegetation communities of the Lower Hunter Spotted Gum-Ironbark Forest found in the local area (applicable to the reinstatement of Bellbird Creek at the CHPP	Cover and abundance of plant growth forms recorded from 0.04-hectare fixed monitoring plots are characteristic of the target vegetation community, or an ongoing trend toward becoming characteristic is evident from the monitoring data	Cover, abundance and height range of native plant growth forms are characteristic of, or trending towards, the target vegetation community type(s).	□ Rehabilitation monitoring reports □ Photos □ Independent ecological monitoring reports that validates completion criteria have been met

Item #	Final Land Use	Mining Domain	Rehabilitation Objective Category	Rehabilitation Objectives	Indicator	Proposed Rehabilitation Completion Criteria	Validation Method
				area that is currently piped underground)			
				The vegetation composition of the rehabilitation contains species that are commensurate with the riparian zone of native vegetation communities of the Lower Hunter Spotted Gum-Ironbark Forest found in the local area (applicable to the reinstatement of Bellbird Creek at the CHPP area that is currently piped underground)	Native plant species recorded from 0.04-hectare fixed monitoring plots are characteristic of the target vegetation community (e.g. target PCT)	Native plant species are characteristic of the target vegetation community(s) when compared to analogue sites.	□ Rehabilitation monitoring reports □ Photos □ Independent ecological monitoring reports that validates completion criteria have been met

TABLE 3 –REMNANT VEGETATION AND OFFSET STRATEGY OBJECTIVES, PERFORMANCE MEASURES, INDICATORS AND CRITERIA

Objectives	Performance Measure	Performance Indicator	Criteria
Surface Infrastructure Site – Implement the Offset Strategy			
Implement the offset strategy (short, medium and long term)	Biodiversity offset area is managed in perpetuity.	The long term conservation of the offset area is secured.	Formal mechanism in place to ensure long term conservation of the offset area is completed within two years of project approval. This has been achieved by Austar transferring the offset area to NPWS estate.
Surface Infrastructure Site - Remnant Vegetation Management Activities			
Clearing activities are undertaken only as necessary and in accordance with the Project Approval.	Restrict the clearing of vegetation to the minimum area necessary to construct infrastructure and provide adequate bushfire protection.	Cleared area is not excessive for site requirements. Vegetation clearing is undertaken in accordance with the Vegetation Clearing Procedure. Security fencing is erected around the working areas of the SIS to limit disturbance outside the defined area.	Cleared area does not exceed the end project approved clearing of approximately 10 ha.
Adequate baseline fauna habitat information is obtained prior to impacts from clearing activities.	Pre-clearance survey undertaken prior to clearing by a suitably qualified person.	Pre-clearance survey undertaken in accordance with Pre-Clearance Procedure.	The number and quality of habitat features are identified by ecology survey prior to clearance activities.
The impacts of clearing do not lead to a reduction in nesting/roosting opportunities.	No reduction in nesting/roosting opportunities through replacement of tree hollows with nest boxes.	Nest boxes are correctly installed and maintained in accordance with Nest Box Procedure.	The number and quality of nesting/roosting opportunities for target species are maintained or improved
Cleared vegetation is re-used on site where appropriate.	Cleared native vegetation is mulched or kept as brush matting to allow re use on site.	Mulching and brush matting activities.	Cleared native vegetation is re-used on site as resources permit as either mulch or brush matting.
Revegetation	Native plant species compatible with the surrounding environment are used in revegetation (refer **Appendix D**).	Revegetation activities.	Areas of exposed soils are revegetated to achieve cohesive ground cover using a native plant species mix compatible with the surrounding environment.
Ground disturbance is minimised where practical.	Restricting unauthorised vehicle access and limiting vehicle speed limits on access track and roads.	Unauthorised vehicle access is restricted and vehicle speed limits enforced on access track and roads.	Vehicular ground disturbance is restricted to designated access tracks and roads.

Objectives	Performance Measure	Performance Indicator	Criteria
Weeds and pest animal species are actively managed and controlled.	Weed audits conducted on a regular basis.	No increase in weed population.	Monitoring indicates the absence of or decline in weed and pest species numbers and / or impact.
	Weeds identified on site are actively controlled and/or removed using appropriate weed control techniques.		
	A range of appropriate pest control measures (e.g. the destruction of habitat, trapping, targeted shooting programmes and baiting) are employed as determined in consultation with the Livestock Health and Pest Authority and adjoining landholders.	Follow-up inspections to assess the effectiveness of control measures implemented and the requirement for any additional control measures.	
		Distribution and density of feral animals – in terms of numbers and damage.	
Risk of bushfire is minimised and managed in accordance with the BFMP.	Appropriate firebreaks are created to ensure a bushfire does not spread to adjoining properties.	Appropriate Asset Protection Zones (APZs) are in place.	The risks of bushfires occurring on site are managed appropriately.
	Vegetation is maintained to reduce bushfire risk.	APZs are maintained appropriately.	
	Fire fighting equipment, training, and communication strategies are provided and in place for site staff.	Training and equipment maintenance is recorded.	

6 REHABILITATION MEASURES

Consistent with RMP the following rehabilitation measures are required at Kitchener SIS.

6.1 Short Term – Decommissioning and Demolition

6.1.1 Decommissioning

Austar intends to remove all above-ground infrastructure from the site. To reduce the risk of an unexpected failure of infrastructure resulting in spills and release of material to the environment, demolition will be undertaken in accordance with an engineering demolition methods and will be carried out by a licensed competent contractor.

Any hazardous materials identified during pre-demolition intrusive hazmat surveys will be logged in Austar's hazardous materials register and removed.

Any waste generated from the demolition will be segregated and tracked as per a waste management strategy. Austar currently has a waste contract in place for the regular transportation of waste to a licensed offsite facility.

Spill kits are available to be utilised in accordance with Austar's spill response procedure in the event of a spill. Where decommissioning activities take place outside of Austar's water management system, localised environmental controls will be installed before the commencement of works.

To minimise the risk of affecting third parties during demolition, a site services plan has been developed. Before the commencement of decommissioning, Austar will determine if any critical services need to be retained; if so, Austar will develop an alternate energy source plan to maintain any essential services. For plant to be decommissioned Austar will implement a de-energisation plan. All fluids will be drained before the demolition of any structure.

6.1.2 Contamination and HAZMAT

The following contamination studies were completed for Kitchener SIS during the closure PFS (Prefeasibility Study):

- Report on Preliminary Site Investigation (Contamination) (hereby 'PSI') (Douglas Partners 2021)
- Report on Pre-feasibility Contamination Assessment (hereby 'PFS Contamination Assessment') (Douglas Partners 2023)
- Austar Closure PFS Contaminated Land Management Strategy (CLMS) (GHD 2023)

The PFS Contamination Assessments (DP 2023) concluded that there was a general absence of gross contamination at the locations and depths tested at Kitchener SIS. Although the PFS testing may have indicated the absence of impacts in some areas, residual contamination may be present in the vicinity of identified areas of potential concern.

Austar engaged GHD to prepare a CLMS (GHD 2023) to consider the findings of the PFS Contamination Assessments and document a strategic pathway to manage the identified contaminated land closure liability. The outcomes of the CLMS (GHD 2023) did not identify contamination issues that warrant an independent strategy, however recommended additional intrusive investigations to address the

remaining knowledge gaps. In turn, this will then inform the next stage for feasibility and any requirements for a specific contamination Remediation Action Plan to execute closure.

FS contamination investigations for the Kitchener SIS are commencing in Q2 2024, and includes limited sampling and analysis for groundwater, sediment, concrete, surface water and groundwater.

All handling and lawful disposal of hazardous building materials (such as asbestos-containing materials, lead paint etc) would be carried out by appropriately qualified and licensed contractors in accordance with the Work Health and Safety Regulation 2011 and other relevant guidelines and disposed of at an appropriately licensed facility that is lawfully able to receive its waste classification.

6.1.3 Mine Sealing

Temporary mine sealing of the No. 5 and No. 6 Shafts at the Kitchener SIS (CMA6) is complete. These shafts have been sealed at the surface using 140 kPa rated engineered designed steel lids. Final Sealing will occur after the final landform plan at Kitchener SIS has been finalised.

6.2 Medium Term – Landform Establishment and Rehabilitation

6.2.1 Landform Establishment

The final landform at Kitchener SIS will be determined during the mine closure planning process. Detailed studies will be undertaken to determine rehandling and landform design requirements.

As Austar progresses through closure, it is expected that additional surface disturbance will be minimal. Some disturbance will be required through the clearing of tracks and work areas required for intrusive site investigation studies required as part of the detailed mine closure plan or mine closure activities (e.g. mine sealing).

Erosion and sedimentation in areas disturbed by mining activities are managed through:

- The Austar Site Water Management Plan, which includes the details of the water management structures on site and the Erosion and Sediment Control Plan;
- The Work Permit process utilised at Austar prior to any clearance or ground disturbance activities identifies appropriate erosion and sediment controls to be established prior to the commencement of any works; and
- The erosion and sediment control requirements for the surface area above the underground mining areas was managed in accordance with a Land Management Plan included as part of an Extraction Plan for the specific mining area. There are no control devices still in place in these areas.

As part of periodic maintenance activities, sediment is removed from site water management structures to maintain their capacity. For mine water dams, the sediment is disposed at approved emplacement areas in accordance with Mining Lease conditions. For clean water sediment basins (e.g. Kitchener SIS), the sediment may be dried within the area that the sediment basin treats, prior to being used in landscaping at that site or disposed of in emplacement areas in accordance with mining lease conditions. Dams at Kitchener SIS will be removed and rehabilitated.

Erosion and sedimentation remain potential environmental risks during closure. Austar will continue to implement the Erosion and Sediment Control Plans and Land Management Plans to control erosion and sedimentation.

6.2.2 Growth Media Development

Topsoil and/or growth media will be spread uniformly onto areas requiring rehabilitation. Sampling will be undertaken to characterise the geochemical nature of the growth media used at Austar and recommendations for ameliorations will be provided by a suitably qualified agronomist or soil scientist.

Stockpiles are managed in the context of weed control and topsoil viability. Where topsoil is not available, a suitable organic soil substitute may be used. If Austar requires an alternative growth medium such as composted green waste or biosolids, the material will be used in accordance with the relevant EPA resource recovery order and exemption.

The spreading of soil (where available), the addition of soil ameliorants and fertiliser, and the application of seed will be carried out in consecutive operations (where possible) to reduce the potential for soil loss to wind and water erosion.

Following the spreading of topsoil, ameliorants and fertiliser will be applied to the surface using a mechanical spreader prior to ripping for incorporation into the seedbed. Ameliorant rates will be determined based on the results of topsoil and manure quality testing prior to spreading.

Cover crops will be used in revegetation, where necessary, to provide for an effective groundcover until the target seed species are established. This will minimise the likelihood of erosion during the initial establishment phase of the rehabilitation. To further minimise degradation of the substrate rehabilitation areas are progressively revegetated to reduce areas of exposed soil. Erosion and sediment control will be undertaken in accordance with the Blue Book.

6.2.3 Ecosystem and Land Use Establishment

Revegetation activities will be planned to occur after the completion of reshaping, topdressing with growth media and construction of drainage structures. Seeding should be undertaken in optimal seasonal conditions for the establishment of vegetation, i.e. not in hot dry conditions or extremely cold conditions.

As detailed in **Appendix D** where possible seeds will be sourced from the target vegetation communities in the local area. An experienced contractor will handle, treat and store the seeds appropriated. Seeds will be collected and stored in accordance with the NSW Government Florabank Guidelines (Florabank 2022).

Native trees and shrubs will be established from either direct seeding or tube stock planting. Grasslands will generally be established via direct seeding but may also be planted as tube stock if required. Where appropriate, seeds will be treated i.e. inoculated and scarified prior to sowing to improve the chance of early and successful germination.

Austar will use a plant species mix compatible with the surrounding environment.

6.3 Long Term – Maintenance and Monitoring

Following completion of revegetation, ongoing maintenance and land management activities, rehabilitation monitoring, and adaptive management will be undertaken. Maintenance at rehabilitated areas may include, but not be limited to:

- Weeds and pest/feral animal species control;
- Managing bushfire risks;
- Minor earthworks to remediate erosion features, including contour banks and diversion channels;
- Infill planting and/or seeding to improve rehabilitation based on monitoring recommendations; and
- Maintaining erosion and sediment controls.

Additional rehabilitation maintenance and management activities will be informed by the findings and recommendations of annual rehabilitation monitoring to achieve the objectives detailed in Section **Table 2**.

During closure execution Austar will continue to undertake environmental monitoring including surface water, groundwater, air quality, and noise in accordance with the development consent and EPL requirements. Details on landscape and rehabilitation monitoring are included in **Section 7**. This monitoring guide Austar to completing the objective set out **Table 2** to create the target final land use which is visually commensurate with the surrounding environment.

7 MONITORING

7.1 Monitoring Methodology

General landform condition inspections are undertaken on a monthly basis by Austar personnel to inform land management activities in accordance with the Austar Environmental Monitoring Program (EM Program) through the Monthly Environmental Inspection.

The general condition monitoring activities identify:

- The presence of weed species and/or weed outbreaks;
- Evidence of feral animal activity;
- The effect and success of any weed control activities undertaken in the previous inspection period;
- Locations of exposed soils or sources of soil erosion which may require remediation;
- General condition and correct operation of sediment control devices, catch drains and drainage structures and;
- General vegetation condition and percentage ground cover in areas undergoing rehabilitation.

Where remedial works are required to manage weeds, monthly general landform condition inspections will continue to identify the progress of revegetation activities and confirm the success and adequacy of remediation and repair works. The timing and degree of monitoring activities will be dependent on the nature of remediation works required.

Where sensitive environmental features are identified (e.g. threatened species or habitats), or impacts resulting from feral animal activity are identified, additional monitoring requirements may be established.

In the context of land management, the Annual Review will report, review and summarise the findings of monitoring.

7.2 Landscape Function Analysis

Following decommissioning of the SIS where cleared portions of the site are to be revegetated with a structured community similar to that existing pre-mining, a monitoring program will be developed. This program will be in accordance with the Landscape Function Analysis (LFA) methodology as developed by CSIRO (Tongway *et al.* 2005) or similar and will be employed to ascertain whether vegetation is developing in structure and complexity comparable to that of the local remnant vegetation.

LFA is a methodology used to assess key indicators of ecosystem function as measures of how well the landscape retains and uses vital resources. Key indicators include landscape organisation and soil surface condition and these are assessed to quantify the utilisation of vital landscape resources (e.g. water, topsoil, organic matter and perennial vegetation) in space and time.

LFA methodology employed at the SIS may include:

- Establishment of transects and nested quadrats
- Landscape organisation assessment – to characterise and map the monitored sites in terms of the spatial pattern of resource loss or accumulation (Tongway & Hindley, 2004).
- Soil Surface Assessment - to establish soil surface condition indices (SSCI) which may include:
    - **Stability Index:** indicates the ability of the soil to withstand erosive forces, and to reform following disturbance.
    - **Infiltration Index:** defines how the soil partitions rainfall into soil-water (water available for plant use, and runoff water which is lost from the local system, or may also transport materials (soil, nutrients and seeds) away.
    - **Nutrient Cycling Index:** indicates how efficiently organic matter is cycled back into the soil.
    - The SSCI are then used to determine the “strength” and “weaknesses” of the monitoring site and directly compare the soil condition with vegetation data to obtain an overall site condition.
- Photographic monitoring may be used to compliment LFA monitoring activities.

7.3 Analogue Sites

An analogue site is an ecosystem that serves as a model for restoring another ecosystem. The use of analogue sites to set the benchmark for rehabilitation is considered an appropriate way to track rehabilitation progress and outcomes (Nichols, 2005). This data can also be used to establish or refine target values for key biophysical parameters and indicators related to vegetation

diversity/structure and habitat complexity, and provide data on the long-term goal for the rehabilitation areas.

Austar has chosen long term monitoring sites for biodiversity monitoring outside of the Stage 3 Mining Area that are used to monitor areas which are not subject to subsidence impacts. One site is located within the SIS, and one on Austar owned land to the south of the SIS. Monitoring on these sites commenced in 2013. Data from these sites is intended to be used as the analogue sites for SIS rehabilitation.

7.4 Weed Action Plan

Austar implements a Weed Action Plan (WAP) to manage weed issues within the Austar Coal Mine properties. The WAP is a key component of Austar's broader Weed Control Program, designed to detect, prioritise, and handle weed infestations effectively.

The WAP draws upon the guidelines of the Biosecurity Act 2015, the Hunter Local Land Services' Hunter Regional Strategic Weed Management Plan, and direct environmental assessments to assign urgent weed control tasks.

To assist in precise and focused intervention, the plan includes GIS maps that accurately locate weed infestations on the mine's property. Additionally, the WAP provides a detailed timetable, categorizing various weeds by priority levels (high, medium, low) and suggesting the optimal times and methods for their treatment throughout the year.

The approach underlines the necessity for continuous effort, including yearly evaluations and subsequent treatments, ensuring special attention and resources are allocated for tackling high-priority areas initially.

The WAP is prepared by experienced land management professionals. Weed management activities are reported in the Annual Review.

8 CONTINGENCY PLAN FOR UNPREDICTED IMPACTS

In the event the performance measures provided in **Section 5** are considered to have been exceeded, or are likely to be exceeded, the site will undertake the following:

- Report the likely exceedance of the performance indicator to the relevant agencies as required under the project approval or legislation after becoming aware of the exceedance;
- Identify an appropriate course of action with respect to the identified impact in consultation with appropriate specialists and relevant agencies;
- Submit the proposed course of action to any relevant government agencies for consultation/approval (if required);
- Implement the approved course of action, consistent with other relevant management plans to the satisfaction of the appropriate agencies (if required); and

- Review the effectiveness of this Landscape MP to adequately manage potential impacts within the limits of the project approval.

8.1 Trigger Action Response Plan

Consistent with Table 23 of Austar's Rehabilitation Management Plan (2022), the following Trigger Action Response Plan (TARP) identifies the proposed contingencies strategies in the event of unexpected variations or impacts to rehabilitation outcomes. A risk-based approach has been used to assess the potential consequences and mitigation measures.

Table 4 outlines the key identified risks, triggers and proposed mitigation measures.

TABLE 4 - PROPOSED MEASURES TO REDUCE KEY RISKS

Risk	Trigger	Proposed Mitigation Measure
Wind and water erosion.	Visual monitoring indicates sites of persistent wind or water erosion. Water quality results do not satisfy completion criteria specified in the RMP.	Erosion and sedimentation controls will be employed, monitored and maintained during rehabilitation activities. Where persistent issues are identified additional controls may be employed including planting of windbreaks and/or minor re-shaping of the landform to improve local drainage characteristics.
Poor vegetation establishment success.	Rehabilitation monitoring data indicates non-compliance with completion criteria specified in the RMP.	Undertake soil chemistry monitoring of target area to determine if growth medium is appropriate for vegetation establishment Review species mix used to ensure alignment with the seasonal conditions of the site. Where possible, use native species associated with the target vegetation communities. Seed collection / obtainment program undertaken to ensure adequate resources of seed are available during the life of the project. Undertake follow up maintenance and/or replanting activities where required.
Major storm event resulting in geotechnical instability, major erosion and/or widespread damage to rehabilitated areas.	Weather warnings relate to severe storms and localised flooding. Monitoring program indicates lack of adequate ground cover.	Design final landforms, structures and revegetation to be sympathetic to existing landform to cope with major storm events. Review maintenance procedures on sediment structures and undertake repairs / maintenance where required. Undertake follow up maintenance and/or replanting activities where required.

Risk	Trigger	Proposed Mitigation Measure
Severe and/or prolonged drought leading to widespread failure of revegetation.	Monitoring and vegetation assessments highlight inadequate ground cover and or paucity in species diversity / distribution.	Selection of drought-tolerant species for revegetation. Selection of species aligned to desired vegetation community. Time plantings to take advantage of suitable weather conditions. Undertake follow up maintenance and/or replanting activities where required. Ensure use of appropriate soil ameliorants, ground cover and maintenance activities during any further revegetation efforts.
Asset Protection Zone is not maintained in context of bushfire risk	Site assessment of APZ shows unacceptable fuel loads.	Review control and maintenance measures identified within the BFMP. Control and maintain a suitable APZ surrounding rehabilitation areas by slashing or controlled grazing in accordance with the BFMP. Allocate additional resources to maintenance activities, if required, to ensure acceptable fuel loads.
Landform not in accordance with completion criteria specified in the RMP	Validation/survey shows non-conformance to completion criteria	Monitor areas to assess performance. If rehabilitation performance is inadequate, undertake reshaping works and reseeding of the amended landform, utilising target species for the proposed final land use.
Weeds out-compete rehabilitation	Rehabilitation monitoring or general condition monitoring shows weeds out-compete rehabilitation	Monthly general condition monitoring includes assessing the presence of weed species and/or weed outbreaks Implement weed management actions as required.
Damage to rehabilitation by feral animals resulting in an inability to meet vegetation criteria targets specified in the RMP	Rehabilitation monitoring or general condition monitoring shows damage to rehabilitation by feral animals	Monthly general condition monitoring includes assessing the presence of feral animals Implement feral animal control actions as required

9 CONTINUAL IMPROVEMENT

Austar will implement reasonable and feasible best practice landscape management measures at the Kitchener SIS appropriate for a closed site. The basis for continuous improvement of landscape management will be through ongoing monitoring and the contingency response and adaptive management process outlined in **Section 8.**

10 COMPLAINTS, INCIDENTS AND REPORTING

10.1 Community Complaints and Independent Review

Community complaints are to be managed in accordance with the requirements of the Environmental Management Strategy.

A complaints register will be published on the Austar Coal Mine website, which will be updated monthly, and a summary of complaints will be provided in the Annual Review.

10.2 Incident Reporting

Schedule 7 Condition 6 of PA 08_0111 specifies the requirements for incident reporting. An incident is defined as a set of circumstances that causes or threatens to cause material harm to the environment, and/or breaches or exceeds the limits or performance measures/criteria in the approval.

Austar will notify the Department and any other relevant agencies, of any incident associated with the mine complex as soon as practicable after Austar becomes aware of the incident.

Within 7 days of the date of the incident, Austar will provide a detailed report on the incident to the Department and any other relevant agencies. The report will include the following details:

- The date, time and nature of the exceedance/incident;
- Identify the cause (or likely cause) of the exceedance/incident;
- Describe what action has been taken to date; and
- Describe the proposed measures to address the exceedance/incident.

Further investigation may be required beyond the 7 days depending on the nature of the incident.

The EPL should be referred to for notification requirements relating to incidents causing or threatening material harm to the environment.

10.3 Information Dissemination

A summary of monitoring results will be presented at Austar Community Consultative Committee (CCC) meetings.

Information will also be made available on the Austar website in accordance with the requirements of Schedule 7 Condition 9 of PA 08_0111.

10.4 Annual Review

In accordance with Schedule 7 Condition 3 of PA 08_0111, Austar will prepare an Annual Review for submission to the Department.

11 DOCUMENT REVIEW AND REVISION

Schedule 7 Condition 4 of PA 08_0111 specifies the requirements for revision of strategies plans and programs, as follows:

> *Within 3 months of:*
> *(a) the submission of an annual review under Condition 3 above;*

(b) the submission of an incident report under Condition 6 below;
(c) the submission of an audit report under Condition 7 below; or
(d) any modification to the conditions of this approval, (unless the conditions require otherwise),
the Proponent shall review the strategies, plans, and programs required under this approval, to the satisfaction of the Director-General. Where this review leads to revisions in any such document, then within 4 weeks of the review the revised document must be submitted for the approval of the Director-General.

Note: The purpose of this condition is to ensure that strategies, plans and programs are regularly updated to incorporate any measures recommended to improve environmental performance of the project.

12 REFERENCES

Austar Coal Mine Pty Ltd (2018), *Bushfire Management Plan*

Austar Coal Mine Pty Ltd (2022), *Site Water Management Plan*

Austar Coal Mine Pty Ltd (2022), *Rehabilitation Management Plan*

Department of Environment and Climate Change (DECC), (2008), Managing Urban Stormwater: Soils and Construction, Volume 2E Mines and Quarries, June 2008

Eco Logical Australia (2018), *Austar Coal Mine Bushfire Management Plan*

Landcom (2004), *Managing Urban Stormwater: Soils and Construction Volume 1 "Blue Book".*

Nichols, O.G. (2005), *Development of rehabilitation completion criteria for native ecosystem establishment on mineral mines in the Hunter Valley*, Australian Centre for Minerals Extension and Research. ACARP Project No. C13048, Queensland.

Tongway, D.L., Hindley, N.L. (2005), *Landscape Function Analysis: Procedures for Monitoring and Assessing Landscapes, with special reference to Minesites and Rangelands, CSIRO, February 2005*

Umwelt (2008), Austar Coal Mine Project – Stage 3 Environmental Assessment, Prepared by Umwelt (Australia) Pty Limited on behalf of Austar Coal Mine Pty Ltd, October 2008

Umwelt (2011), Austar Coal Mine Project – Stage 3 Modification Environmental Assessment, Prepared by Umwelt (Australia) Pty Limited on behalf of Austar Coal Mine Pty Ltd, September 2011

Appendix A:

Approval Requirements

PROJECT APPROVAL REQUIREMENTS

Relevant conditions from PA 08_0111 and where these conditions are addressed in this Plan are listed in the table below.

PROJECT APPROVAL CONDITIONS (PA 08_0111)

Schedule	Project Approval Condition	Section of this Plan
2	**STRATEGIES, PLANS AND PROGRAMS**	
2	12. With the approval of the Director-General, the Proponent may submit any strategies, plans or programs required by this approval on a progressive basis.	Noted
2	13. With the approval of the Director-General, the Proponent may integrate any strategies, plans, programs, reviews, audits or committees required by this approval with any similar requirement under another development consent or approval relating to the Austar Mine Complex.	Noted
6	**REHABILITATION AND OFFSETS**	
6	**Rehabilitation Objectives** 1. The Proponent shall achieve the rehabilitation objectives in Table 6 to the satisfaction of the Executive Director, Mineral Resources. 	1.2
6	**Progressive Rehabilitation** 2. To the extent that mining operations permit, the Proponent shall carry out rehabilitation progressively, that is, as soon as reasonably practicable following the disturbance.	5
6	**Long Term Security of Offsets** 3. Within 2 years of the date of this approval, the Proponent shall make suitable arrangements to provide appropriate long term conservation security for the offset area to the satisfaction of the Director-General Note: The offset area is described in the EA and shown conceptually in Appendix 5.	1.1.2
6	**Landscape Management Plan** 4. The proponent shall prepare and implement a Landscape Management Plan for the project to the satisfaction of the Director-general and the Executive Director, Mineral Resources. This plan must:	This Landscape MP
6	4(a). Be prepared in consultation with the relevant stakeholders by suitably qualified expert/s whose appointments have been endorsed by the Director-general, and be submitted to the Director-General for approval prior to the commencement of second workings in Stage 3 and construction of the Surface Infrastructure Site (other than shaft construction referred to in condition 1 of schedule 4)	Endorsement received by letter correspondence dated 20/12/12.
6	4(b). In addition to the standard requirements for management plans (see condition 2 of schedule 7) include:	
6	4(b) i. The rehabilitation objectives for the site and offset area;	5

Schedule	Project Approval Condition	Section of this Plan
6	4(b) ii. A description of the short, medium, and long term measures that would be implemented to: • Rehabilitate the site; • Implement the offset strategy; and • Manage the remnant vegetation and habitat on the site and in the offset area.	5
6	4(b) iii. Performance and completion criteria for the rehabilitation of the site and implementation of the offset strategy;	5
6	4(b) iv. A detailed description of the measures that would be implemented over the next 3 years, including the procedures to be implemented for: • Minimising and rehabilitating disturbed areas; • Implementing the offset strategy; • Protecting vegetation and soil outside the disturbance areas; • Undertaking pre-clearance surveys; • Managing impacts on fauna; • Landscaping the site to minimise visual impacts; • Conserving and reusing topsoil; • Collecting and propagating seed for rehabilitation works; • Salvaging and reusing material from the site for habitat - enhancement; • Controlling weeds and feral pests; • Controlling access; and • Bushfire management.	5
7	**ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING**	
7	**Management Plan Requirements** 2. The proponent shall ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include:	
7	(a) Detailed baseline data;	3
7	(b) A description of: • The relevant statutory requirements (including any relevant approval, licence, or lease conditions);	4
	• Any relevant limits or performance measures/criteria;	5
	• The specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures;	5
7	(c) A description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	5
7	(d) A program to monitor and report on the: • Impacts and environmental performance of the project; • Effectiveness of any management measures;	6

Schedule	Project Approval Condition	Section of this Plan
7	(e) A contingency plan to manage any unpredicted impacts and their consequences;	8
7	(f) A program to investigate and implement ways to continually improve the environmental performance of the project over time;	9
7	(g) A protocol for managing and reporting any: • Incidents; • Complains; • Non-compliances with statutory requirements; and • Exceedences of the impact assessment criteria and/or performance criteria; and	10
7	(h) A protocol for periodic review of the plan.	11
7	**Annual Review** Each year, the Proponent shall review the environmental performance of the mine complex to the satisfaction of the Director-General. This review must: (a) describe the works that were carried out in the past year, and the works that are proposed to be carried out over the next year; (b) include a comprehensive review of the monitoring results and complaints records of the mine complex over the past year, which includes a comparison of these results against the · the relevant statutory requirements, limits or performance measures/criteria; · the monitoring results of previous years; and · the relevant predictions in the EA and Extraction Plan; (c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance; (d) identify any trends in the monitoring data over the life of the mine complex; (e) identify any discrepancies between the predicted and actual impacts of the mine complex, and analyse the potential cause of any significant discrepancies; and (f) describe what measure will be implemented over the next year to improve the environmental performance of the mine complex.	10.4
7	**Revision of Strategies, Plans and Programs** 4. Within 3 months of: (a) The submission of an annual review under Condition 3 above; (b) The submission of an incident report under condition 6 below; (c) The submission of an audit report under Condition 7 below; or (d) Any modification to the conditions of this approval, (unless the conditions require otherwise), the Proponent shall review the strategies, plans, and programs required under this approval, to the satisfaction of the Director-General. Where this review leads to revisions in any such document, then within 4 weeks of this review the revised	11

Schedule	Project Approval Condition	Section of this Plan
	document must be submitted for the approval of the Director-General. *Note: The purpose of this condition is to ensure that strategies, plans and programs are regularly updated to incorporate any measures recommended to improve environmental performance of the project.*	
7	**Incident Reporting** 6. The Proponent shall notify the Director-General and any other relevant agencies of any incident associated with the mine complex as soon as practicable after the Proponent becomes aware of the incident. Within 7 days of the date of the incident, the Proponent shall provide the Director-General and any relevant agencies with a detailed report on the incident.	10.2
7	**Access to Information** 9. From the end of 2009, the Proponent shall make the following information publicly available on its website: (a) a copy of all current statutory approvals for the mine complex; (b) a copy of the current environmental management strategy and associated plans and programs; (c) a summary of the monitoring results of the mine complex, which have been reported in accordance with the various plans and programs approved under the conditions of this approval; (d) a complaints register, which is to be updated on a monthly basis; (e) a copy of the minutes of CCC meetings; (f) a copy of any Annual Reviews (over the last 5 years); (g) a copy of any Independent Environmental Audit, and the Proponent's response to the recommendations in any audit; and (h) any other matter required by the Director-General.	10.3

STATEMENT OF COMMITMENTS

A list of the Statement of Commitments from PA 08_0111 which are relevant to landscape management and where these commitments are addressed in this Plan are listed in the table below.

PROJECT APPROVAL STATEMENT OF COMMITMENTS (08_0111)

Appendix	Statement of Commitments	Section of this Plan
3	**Ecology**	
	1.4.1 Austar Coal Mine will establish and manage the proposed Biodiversity Offset Area (refer to **Figure 7.1** of the EA) to protect and enhance its ecological values in perpetuity, to the satisfaction of the Director-General.	1.1.2
	1.4.2 A Weed Management Plan will be developed for the Surface Infrastructure Site.	Internal Weed Action Plan
	1.4.3 The Austar bushfire management strategy will be revised to include the specific requirements of the Surface Infrastructure Site during the construction and operation phases.	Bushfire Management Plan

Appendix	Statement of Commitments	Section of this Plan
	1.4.4 Prior to the commencement of construction of the Surface Infrastructure Site (other than for those works identified in the Shaft Construction Management Plan), an Austar Mine Complex Ecological Management Plan which integrates management of ecological issues associated with construction of the Surface Infrastructure Site, Stage 3 underground mining and with the remainder of Austar Coal Mine operations will be submitted to the Director-General for approval. This will include: · clearing procedures for establishment of the Surface Infrastructure Site and associated access road/services easement; · replacement of arboreal habitat within surrounding areas or within the Biodiversity Offset Area, should the removal of any hollow-bearing trees be required; and · extension of the existing Austar Coal Mine ecological monitoring program to include monitoring of vegetation condition within subsidence affected areas.	This document (for Kitchener SIS)
	1.4.5 Clearing of vegetation will be restricted to the minimum area necessary to construct the proposed infrastructure and provide adequate fire protection and will be undertaken in accordance with the tree felling procedure outlined in Section 7.5.3 of the EA.	5
	1.4.6 An appropriate speed limit on access roads will be implemented to minimise the risk of vehicle collision with ground-dwelling fauna dispersing between adjacent habitats.	5
	1.4.7 An appropriately designed nest box will be erected (either within remaining bushland areas or within the Biodiversity Offset Area) for the compensation of each tree hollow removed as a result of clearing required for construction of the proposed Surface Infrastructure Site.	3.5 5
	1.4.8 Any outbreaks of invasive weeds observed on the property boundary will be appropriately controlled to avoid their escape into the surrounding Werakata State Conservation Area and subsequently competing with threatened flora species. Early detection will ensure the management required is not extensively onerous.	5
	1.4.9 Any landscaping undertaken around infrastructure areas will use only locally occurring native plant species to reduce the risk of invasive plant species escaping into the adjacent reserve and competing with threatened flora species. Particular care will be taken to avoid planting species which are known to escape and naturalise into native bushland.	5

Appendix B:

Management Plan Approval

Department of Planning and Environment

Our ref: MP08_0111-PA-58

Carly McCormack
Environment & Community Superintendent
Austar Coal Mine Pty Limited
Darling Park - Tower 2
Level 18, 201 Sussex Street
Sydney NSW 2000

24/04/2024

Subject: Austar Coal Mine Landscape Management Plan

Dear Ms McCormack,

I refer to the Landscape Management Plan submitted to the Department of Planning, Housing and Infrastructure (the Department) as required by Schedule 6, Condition 4 of MP08_0111. I also acknowledge your response to the Department's review comments and request for additional information.

The Department has carefully reviewed the document and is satisfied it meets the requirements of the relevant Conditions of Consent. Accordingly, the Planning Secretary has approved the Landscape Management Plan (Revision 4 dated 4 April 2024).

Please ensure that the approved plan is placed on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Katie Weekes on 02 9228 6255.

Yours sincerely

Jessie Evans
Director, Resource Assessments
Resource Assessments

As nominee of the Planning Secretary

Appendix C:

Land Management Procedures

PRE-CLEARANCE AND WORKPERMIT PROCEDURE

As there will be no further underground mining at Austar, there will be no planned clearing of vegetation or ground disturbance relating to the mining process. However, minor clearing may be required to execute the planned rehabilitation and closure activities and to undertake required technical studies to inform mine closure.

Vegetation clearing during closure activities will be managed in accordance with the Austar Work Permit and preclearance procedures. When work is to be undertaken outside of established disturbed areas, the Work Permit procedure requires that:

- prior to any ground disturbance taking place, a Work Permit must be approved;
- an archaeological and ecological due diligence assessment of the area must be carried out before work commences (if the area isn't previously significantly disturbed) and any recommendations will be incorporated into the Work Permit as control measures (e.g. marking and managing habitat features and delineating sensitive area);
- erosion and sediment controls and rehabilitation requirements are considered;
- work must be carried out in accordance with these control measures; and
- work areas should be demarcated and work is not permitted outside of these boundaries as defined in the Work Permit.

To further minimise adverse impacts to flora during mine closure activities, it was proposed in the Rehabilitation Management Plan risk assessment that Austar will carry out the following:

- forward planning of Work Permit areas as part of the site investigation contract scheduling;
- include mapped EEC and threatened species areas in Austar's GIS systems; and
- a review of the Work Permit Procedure regarding demarcation standards.

VEGETATION CLEARING PROCEDURE

Any clearing required during rehabilitation and closure activities will be undertaken in accordance with the Work Permit procedure. The ecological due diligence assessment undertaken for the Work Permit will identify:

- potential habitat features located within proposed disturbance areas (such as hollow-bearing trees) that may require special management during clearing;
- habitat features that can be salvaged for reuse in rehabilitation areas or in adjoining non-disturbed native vegetation areas;
- active nesting/roosting sites that may require active management prior to or during disturbance to minimise impacts on those fauna species; and
- threatened species that may be affected by the proposed disturbance.

Applicableecommendations from the due diligence report are included as conditions in the Work Permit.

After the pre-clearance inspection has been completed and a work permit has been completed, the clearing of bushland vegetation will also incorporate the following:

- Prior to clearing, the Environmental Coordinator will contact the local wildlife rescue organisation and have them on standby should the need arise to recover any fauna from the felled habitat trees.
- All non-habitat trees will be cleared first, taking care to avoid all marked habitat trees. Providing that pre-clearing inspections have been completed, it is not necessary for an ecologist to be present while clearing non-habitat trees.
- Within one to two days following the clearing of non-habitat trees, habitat trees will be cleared in the presence of a suitably qualified and experienced person. Before clearing, the trunk of the hollow-bearing tree will be shaken vigorously with heavy machinery. The machinery operator will then push the tree over as slowly as possible, so as to minimise the intensity of impact when hitting the ground.
- Once the tree has been felled, the qualified and experienced person will inspect the tree (particularly tree hollows) for signs of any trapped or injured fauna. Where necessary, a spotlight will be used to inspect deep hollows. Any resultant fauna will be left on site to allow it to move to areas of surrounding vegetation. All hollows where fauna is recorded will be checked prior to the tree being moved.
- Any injured fauna will be carefully captured by the qualified and experienced person, and taken to a wildlife carer or veterinary clinic.
- Cleared vegetation is proposed to be mulched with large timber being used as site barriers to allow re-use either at the SIS, or on other Austar rehabilitation projects.

NEST BOX PROCEDURE

The erection of nest boxes as compensatory habitat for tree hollows removed is required. Once habitat trees have been felled they are to be inspected and nest boxes erected for each hollow removed as follows:

- The number of hollows present in each tree will be recorded, as will the size class of each hollow.
- The total number of hollows in each tree cleared will define the number of nest boxes that are required to compensate for the clearing. Nest boxes will be erected in nearby secure habitats within the SIS land holding.
- The nest boxes will be will be appropriate for native fauna species known from the area.
- All nest boxes will be mounted using an appropriate method to allow for growth of the trunk without damage to the tree, or nest box.

Appendix D:

Species to be used for Revegetation in the Surface Infrastructure Site

In general, seeds will be sourced from target vegetation communities in the local area where possible and an experienced contractor has been engaged to handle, treat and store seeds appropriately. Seeds will be collected and stored in accordance with the NSW Government Florabank Guidelines (Florabank 2022). The table below outlines the species that may be used in the revegetation component of the rehabilitation program within the Surface Infrastructure Site (SIS).

A suitable seed propagation program may be implemented when necessary. Propagation measures will be based on the characteristics of the target species.

SPECIES THAT MAY BE USED IN REVEGETATION PROGRAM WITHIN THE SIS

Common Name	Taxonomic Name
Canopy	
Spotted gum	*Corymbia maculata*
Cabbage gum	*Eucalyptus amplifolia subsp. amplifolia*
Large-fruited grey gum	*Eucalyptus canaliculata*
Narrow-leaved ironbark	*Eucalyptus crebra*
Thin-leaved stringybark	*Eucalyptus eugenioides*
Broad-leaved ironbark	*Eucalyptus fibrosa*
Grey box	*Eucalyptus moluccana*
Grey gum	*Eucalyptus punctata*
Forest red gum	*Eucalyptus tereticornis*
Turpentine	*Syncarpia glomulifera subsp. glomulifera*
Shrub Stratum	
Silver-stemmed wattle	*Acacia parvipinnula*
Coffee bush	*Breynia oblongifolia*
Blackthorn	*Bursaria spinosa subsp. spinosa*
Broom bitter pea	*Daviesia genistifolia*
Gorse Bitter Pea	*Daviesia ulicifolia*
Healthy Parrot Pea	*Dillwynia retorta*
Ground Stratum	
Threeawn speargrass	*Aristida vagans*
Blue flax lily	*Dianella caerulea*
Wiry panic	*Entolasia stricta*
Love creeper	*Glycine tabacina*
Star Goodenia	*Goodenia rotundifolia*
Purple Coral Pea; Waraburra	*Hardenbergia violacea*
Blady grass	*Imperata cylindrica var. major*
Wattle Mat-rush	*Lomandra filiformis*
Many-flowered mat-rush	*Lomandra multiflora subsp. multiflora*
Kangaroo grass	*Themeda australis*

Appendix E:

Endorsement of Experts

Department of Planning, Housing & Infrastructure

Our ref: MP08_0111-PA-70

Julie McNaughton
Environment and Community Senior Advisor
Austar Coal Mine Pty Limited
Darling Park – Tower 2
Level 18, 201 Sussex Street
Sydney, NSW, 2000

05/03/2024

Subject: Appointment of experts to prepare Landscape Management Plan

Dear Ms McNaughton

I refer to your request for the Planning Secretary's endorsement of suitably qualified and experienced experts to prepare the Landscape Management Plan required under Condition 4, Schedule 6 of the consent for the Austar Coal Mine Project – Stage 3 (08_0111).

The Department has reviewed the information you have provided and is satisfied that the nominees are suitably qualified and experienced. Accordingly, I can advise that the Planning Secretary endorses the appointment of Nathan Archer and Rhys Williams of Integrated Environmental Management Australia to prepare the Landscape Management Plan.

If you wish to discuss the matter further, please contact James McDonough on (02) 9585 6313 or james.mcdonough@dpie.nsw.gov.au.

Yours sincerely

Jessie Evans
Director, Resource Assessments
Resource Assessments

As nominee of the Planning Secretary