



# Austar Coal Mine Mining Operations Plan

2019 – 2026

Amendment A



## Austar Coal Mine

### Mining Operations Plan **2019-2026 – Amendment A**

<b>Name of Mine:</b>	Austar Coal Mine
<b>MOP Commencement Date:</b>	June 2019
<b>MOP Completion Date:</b>	May 2026
<b>Mining Authorisations:</b>	Refer to Table 1.3
<b>Name of Authorisation Holders:</b>	Austar Coal Mine Pty Ltd
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<b>Signature of representative or authorisation holder:</b>	
<b>Signature Date:</b>	23 Feb 2021

## DOCUMENT CONTROL

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	0	26 June 2019	Carly McCormack	Brian Wesley
	<b>A</b>	<del>1 July 2020</del> <del>30 October 2020</del> 23 February 2021	Carly McCormack	William Farnworth
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## 1 INTRODUCTION

This Mining Operations Plan (MOP) for the Austar Coal Mine has been developed in accordance with *ESG3 – Mining Operations Plan Guidelines* (DRE, 2013) (the MOP Guidelines). **This MOP has been amended (July 2020) to reflect the mine’s recent transition to care and maintenance. Specifically, this MOP amendment reflects the outcomes of changes to environmental management during care and maintenance (refer to Section 3), and outlines the rehabilitation and mine closure planning activities to be carried out in the next two year period to manage any potential risks associated with unplanned closure.**

In accordance with the MOP Guidelines all text changes in this MOP Amendment A are in red text. MOP plans were not required to be revised for this MOP Amendment A.

This MOP will be reviewed and where required revised two years after submission of MOP Amendment A to consider any new information obtained during the period including outcomes of rehabilitation and mine closure planning studies completed in the two year period. Alternatively, if a decision is made to recommence operations, the MOP will be amended prior to this occurring.

### 1.1 History of Operations

Austar Coal Mine Pty Limited (Austar), a subsidiary of Yancoal Australia Limited (Yancoal) owns the Austar Coal Mine, an underground coal mine located approximately 10 kilometres south of Cessnock in the Lower Hunter Valley in NSW. Austar Coal Mine incorporates the former Ellalong, Pelton, Bellbird, Cessnock No.1 and Bellbird South Collieries. Operations include coal extraction, handling, processing and rail and road transport facilities. An overview of the operation is shown in **Plan 1A**. A significant part of the mine’s operational areas are listed under the Heritage provisions of the *Cessnock Local Environmental Plan 2011*.

Mining is approved under two major project approvals: Bellbird South (DA 29/95) and Stage 3 (PA 08\_0111), along with numerous development approvals from Cessnock City Council (as listed in Table 1-1). Within the Bellbird South Area, mining has been completed in Stage 1 (Longwalls A1 and A2) and Stage 2 (Longwalls A3-A5a). Within the approved Stage 3 area, mining has been completed in Longwalls A7 and A8 only.

**Up until the end of March 2020, mining is currently was** being undertaken in the Bellbird South Mining area (Longwalls B1 to B7). **Mining has been completed in Longwalls B2-B6, and Longwalls B1 and B7 are yet to be mined.** Within the Stage 3 area, Longwalls A9 to A19 are yet to be mined.

Underground mining activities are **now suspended; however, Austar intends-proposed** to continue within Bellbird South and Stage 3 areas **if operations recommence** during this MOP period (refer to **Section 2**).

## 1.2 Consents, Leases & Licences

The operation at Austar is regulated by a range of leases, licences and approvals from both State and Local authorities. The Austar Coal Mine is classified as a State Significant Development and therefore is classified as a Level 1 Mine in accordance with the MOP guidelines.

The following sections provide details of the status and requirements of each statutory approval.

### 1.2.1 Development Consents and Statutory Approvals

A summary of development approvals and consents held by Austar is outlined in **Table 1-1** below.

**TABLE 1-1 DEVELOPMENT CONSENTS HELD BY AUSTAR**

Consent Description	Date	Expiry	Approval Authority	Summary of Approved Development
DA 29/95	14 Feb 1996	14 Feb 2022	Minister for Urban Affairs and Planning	<p>Ellalong Colliery Extension into Bellbird South.</p> <p>Extension of underground mining activities into Bellbird South area (CML 2).</p> <p>Mine life of 21 years with a production of 3 Million tonnes per annum (Mtpa).</p> <p>Reject emplacement.</p> <p>Construction and operation of a new infrastructure site including new ventilation shaft and fan(s) (No. 2 Shaft) adjacent to Sandy Creek Road.</p> <p>Use of Pelton CHPP for washing and handling of coal.</p> <p>Provision of a maximum raw coal stockpile of 100,000 t.</p> <p>Reopening of disused Cessnock No. 1 Colliery shafts for ventilation and access, or the sinking of new shafts, as required.</p> <p>Construction of various water management devices including sedimentation and clean water dams and drainage systems.</p>
DA 29/95	27 September 2006  8 Jun 2008 (MOD 2)  28 May 2009	14 Feb 2022	Minister for Planning	<p>Extension of Underground Mining Activities into Bellbird South (Ellalong Colliery) – Modification.</p> <p>Use of long wall top coal caving (LTCC) mining methods in two longwall panels.</p> <p>Installation of a larger capacity fan at the site approved for DA 8/1999/1658.</p> <p>Installation of a new downcast ventilation shaft.</p> <p>Installation of a new 10 MVA substation.</p>



Consent Description	Date	Expiry	Approval Authority	Summary of Approved Development
	(MOD 3)  7 Dec 2010 (MOD 4)  27 April 2012 (MOD 5)  29 January 2016 (MOD 6)  25 August 2017 (MOD 7)			<p>Installation of a nitrogen inertisation plant with a 2,000 cubic metre capacity.</p> <p>Provision of a diesel and emulsion fluid storage area and dispatch system.</p> <p>Installation of a tube bundle shed to house electronic monitoring equipment.</p> <p>Upgrade of the existing water treatment plant.</p> <p>Upgrade of water reticulation and pumps.</p> <p>Minor embankment stabilisation works at Kalingo Dam.</p> <p>Longer and wider panels A4 and A5.</p> <p>Extract one additional Longwall Panel A5a (LW A5a)</p> <p>Extension of Longwall Panel A5a</p> <p>Extension to Bellbird South development consent area to include Longwall panels LWB1 to LWB 7</p> <p>Extension of consent to 14 February 2022</p>
Project Approval 08_0111	6 Sep 2009	31 Dec 2030	Minister for Planning	<p>Stage 3 Expansion Project - extension to longwall mining area to east of existing operations. Key features:</p> <p>Longwall production from the Greta coal seam from panels A6 to A17 using LTCC.</p> <p>Construction of a new surface infrastructure site south west of Kitchener including ventilation shafts and fans, winders, bath house facilities, a workshop, electricity substation, store and offices. Construction of a new road and intersection at Quorrobolong Road.</p> <p>Coal will continue to be brought to the surface at Austar's existing surface facilities at Paxton. These facilities will continue to be used to take large mining equipment into and out of the mine.</p> <p>Continued use of Austar's existing water management, coal transport systems, coal preparation plant and rejects emplacement areas.</p>
Project Approval 08_0111 (Modifications)	4 May 2010 (MOD 1)	31 Dec 2030	Delegate for Minister for Planning	<p>Minor change to subsidence impact performance measures to built features in Table 1 of Project Approval. The key performance indicator which was amended in the Project Approval</p>

Consent Description	Date	Expiry	Approval Authority	Summary of Approved Development
	13 March 2012 (MOD 2)			requires the project does not cause built features to go beyond safe, serviceable and repairable criteria, unless the landowner agrees in writing.  Reorientation of the Stage 3 longwalls. Removal of longwall A6, and extraction of coal in longwalls A7 to A19, which are a reorientation of previously approved longwalls A7 to A17 to more closely align with the direction of principal stress. In addition, the chain pillar widths are increased from 45m to 55m to reduce roadway failure risks which in turn further minimises subsidence. The modification will enable more efficient and safer extraction of coal from the Stage 3 area.  Extension of Stage 3 longwalls A7 to A10.
DA 74/75/79	4 Dec 1975	Nil expiry	Cessnock City Council (CCC)	Development Consent for a coal mine at Ellalong including: Approval for underground coal mining. Construction of a new access drift, upcast shaft and ventilation shaft. Expansion of the Pelton CHPP. Conveyance of coal from the Ellalong pit top to the Pelton CHPP Operation for the washing and handling of coal. Water management systems. Upgrade of the Pelton rail loading facility and railway spur. reject emplacement underground, open cut areas adjoining Pelton and other abandoned mine sites.
DA 118/680/93	8 Oct 1980	Nil expiry	CCC	Downcast Ventilation Shaft and Man Access Shaft, Bathhouse and Offices at Ellalong Colliery.
DA 118/691/181	26 Nov 1992	Nil expiry	CCC	Pelton Open Cut Coal Mine. Approval of an open cut coal mine adjoining Pelton Colliery up to 300,000 tonnes of coal and underground mining of approximately 27,000 tonnes of coal from a section of prior workings south of the proposed open cut.

Consent Description	Date	Expiry	Approval Authority	Summary of Approved Development
DA 118/691/181	11 Jan 1993	Nil expiry	CCC	Pelton Open Cut Coal Mine – Modification. Extension of open cut mining area. Infrastructure and water management modifications.
DA 118/691/229	7 Jan 1993	Nil expiry	CCC	Pelton Coal Handling Preparation Plant – Raw Coal Handling Facility, Washed Coal Facility and Upgrading of the Water Management System. Upgrade and replacement of coal handling infrastructure such as surge bin, automatic stacking system, reclaim facilities and skyline conveyor. Increase in stockpile capacity. Upgrade to water management system. Extension of the reclaim tunnel. Construction of a mine water transfer pipeline from Ellalong Colliery to Pelton. Provision of underground workings for emergency mine water disposal. Upgrade of lime treatment plant.
DA 118/693/42	26 Nov 1993	Nil expiry	CCC	Extension of Pelton Open Cut Mine. Extension of open cut mining area including emplacement of overburden in previously mined blocks and extension of the mine’s water management system.
DA 118/694/120	27 Jun 1994	Nil expiry	CCC	Approves the extraction of longwall panels LW13 and LW14 as a minor extension to the Ellalong Colliery within CML2.
DA 118/694/152	7 Jul 1994	Nil expiry	CCC	Relocatable Office and Temporary Bathhouse at Pelton Colliery.
DA 118/695/22	12 Jul 1995	Nil expiry	CCC	Establishment of an overburden stockpile for the Pelton Open Cut Operations.
DA 118/695/81	12 Jul 1995	Nil expiry	CCC	Additions for Bathhouse, office and car park at Ellalong Colliery. Extension to the bathhouse at the Ellalong drift site. Extension of existing offices or construction of portable offices. Construction of a 4000 square metre car park.

Consent Description	Date	Expiry	Approval Authority	Summary of Approved Development
DA 8/1999/1658	18 Feb 2000	Nil expiry	CCC	Relocation of Ventilation Facilities at Bellbird South Underground Mine. Installation of a ventilation shaft and fan house. Upgrading of the existing access track to the site from the Pelton - Ellalong Road.
DA 8/2002/655/1	16 Oct 2002	Nil expiry	CCC	Compressor and Pump Enclosure Buildings at Ellalong Colliery.
DA 118/695/18	21 Feb 1995	Nil expiry	CCC	Relocatable Office at Pelton Colliery.
DA 8/2012/503/1	19 Dec 2012	Nil expiry	CCC	Extension of car parking area associated with Austar Coal Mine

Details of the relevant Extraction Plan Approvals for Austar Coal Mine are summarised in **Table 1-2**.

**TABLE 1-2 SUBSIDENCE MANAGEMENT PLAN / EXTRACTION PLAN APPROVALS HELD BY AUSTAR**

Description	Date	Expiry Date	Approval Authority	Approval Summary
Extraction Plan Approval	30 May 2013	31 Dec 2030	Department of Planning and Environment (DP&E) now Department of Planning, Industry and Environment (DPIE)	Extraction Plan approval for Austar Longwalls A7 to A10
SMP Approval 13/1876	3 June 2013	31 May 2020	Division of Resources and Energy (DRE)	Subsidence Management Plan approval for Austar Longwalls A7 to A10.
Extraction Plan Approval	6 Jan 2014	31 Dec 2030	<del>DP&amp;E</del> DPIE	Extraction Plan approval for Austar Longwalls A7 to A10 to correspond to PA08_0111 MOD3 and retraction to LWA8 start position.
SMP Variation Approval 13/1876	7 Jan 2014	31 May 2020	DRE	Subsidence Management Plan approval for Austar Longwalls A7 to A10 to correspond to PA08_0111 MOD and retraction to LWA8 start position.

Description	Date	Expiry Date	Approval Authority	Approval Summary
SMP Variation Approval 13/1876	19 Feb 2014	31 May 2020	DRE	Subsidence Management Plan approval for retraction to LWA9 commencing end
Extraction Plan LWB1 to LWB3	16 May 2016	Not specified	DP&E DPIE	Extraction Plan for Bellbird South Longwalls B1 to B3 was approved by DP&E on 4 July 2016
Extraction Plan LWB4 to LWB7	1 February 2019	Not specified	DP&E DPIE	Extraction Plan for Bellbird South Longwalls B4 to B7 <b>approved by DP&amp;E on 20 September 2017</b> . Updated to include the shortening of LWB4 was approved by DP&E on <b>18 September 2018 and again on 12 February 2019</b> . <b>Other variations to Longwalls B5-B7 were approved by DP&amp;E on 7 August 2019</b>

Details of the relevant mining authorisations for Austar Coal Mine are summarised in **Table 1-3**.

**TABLE 1-3 MINING LEASES HELD BY AUSTAR**

Mining Title (Act)	Date Granted	Expiry Date	Area	Surface	Depth Restriction
EL 6598 (1992)	13/07/2006	16/06/2021	7,370	Yes	Various
Dam Site Lease 89 (1901)	04/04/1908	04/04/2030	3.961	Yes	Surface to 15.24 metres
Mineral Lease No. 1157 (1906)	8/07/1949	08/07/2028	10.24	Yes	Surface to 15.24 metres
Mineral Lease No. 1283 (1906)	13/07/1961	13/07/2022*	1.973	No (sub-surface)	7.62 to 15.24 metres
Mining Purposes Lease No. 23 (1906)	17/05/1909	17/05/2030	2.421	Yes	Surface to 15.24 metres
Mining Purposes Lease No. 204 (1906)	03/02/1916	03/02/2039	1.2	Yes	Surface to 15.24 metres
Mining Purposes Lease No. 217 (1906)	12/04/1916	03/02/2039	0.6298	Yes	Surface to 15.24 metres
Mining Purposes Lease No. 233 (1906)	01/08/1916	01/08/2036	1.973	Yes	Surface to 7.62 metres
Mining Purposes Lease No. 269 (1906)	07/12/1917	07/12/2018*	2.79	Yes	Surface to 6.1 metres below the level of the rails when laid

Mining Title (Act)	Date Granted	Expiry Date	Area	Surface	Depth Restriction
Mining Purposes Lease No. 1364 (1906)	28/10/1968	28/10/2029	0.4527	Yes	Surface to 15.24 metres
Consolidated Coal Lease No. 728 (1973)	10/10/1989	30/12/2023*	3296.8	Various	Various
Consolidated Coal Lease No. 752 (1973)	23/05/1990	30/12/2023*	3802	No (Sub-surface)	Various
Consolidated Mining Lease No. 2 (1992)	24/03/1993	06/07/2025	<del>3388</del> ML - 3406 ha AMA - 2.528 ha	Various	Various
Mining Lease No. 1345 (1992)	23/03/1995	30/12/2023*	<del>41.895</del> ML - 41.9 ha AMA - 0.5659 ha	Yes	Surface to 900 metres depth
Mining Lease No. 1388 (1992)	02/04/1996	02/04/2038	15.12	No (sub-surface)	30.48 to unlimited depth
Mining Lease No. 1550 (1992)	24/06/2004	23/06/2025	14.11	Yes	Surface to 20 metres
Mining Lease No. 1661 (1992)	22/11/2011	22/11/2032	469.32	No (sub-surface)	20 to 900 metres
Mining Lease No. 1666 (1992)	25/01/2012	25/01/2033	34.13	No (sub-surface)	30.48 to 900 metres
Mining Lease No. 1677 (1992)	23/08/2012	22/08/2032	9.16	Yes	Surface to 30.48 metres
Mining Lease Application No. 521 (1992)	Lodged February 2016	Pending Approval	115	Yes	Surface to 50m

\*Renewal sought

### 1.2.1.1 Environment Protection Licence

Austar operates in accordance with Environment Protection Licence 416 (EPL 416), issued on 5 April 2000 by the NSW Environment Protection Authority (EPA), under the authority of the *Protection of the Environment Operations Act 1997*.

### 1.2.1.2 Water Licences

Austar holds water licences for monitoring and dewatering bores across the operation. Austar’s current water licences issued under Part 5 of the Water Act 1912 or s87B of the **Water Management Act 2000** are provided in **Table 1-4**.

**TABLE 1-4 WATER LICENCES HELD BY AUSTAR**

Licence Held	Licence Number	Validity of Licence	Purpose of Licence	Extraction Limit
Bore Licence Certificate	20BL171361	17 May 2007 - Perpetuity	Monitoring Bore (AQD1077)	N/A
Bore Licence Certificate	20BL172524	20 July 2010 - Perpetuity	Monitoring Bore (NER1010)	N/A
Bore Licence Certificate	20BL172852	7 June 2011 - Perpetuity	Monitoring Bore (WBH1, WBH2, WBH3)	N/A
Bore Licence Certificate	20BL173843	1 Oct 2014 - Perpetuity	Monitoring Bore (BB1, BB2, BB3)	N/A
Bore Licence Certificate	20BL173878	8 Dec 2014 - Perpetuity	Monitoring Bore (MB01)	N/A
Bore Licence Certificate	20BL173891	19 Mar 2015 - Perpetuity	Monitoring Bore (MB02)	N/A
Water Access Licence / Associated Works	WAL19181 / 20AL210298	Continuing	Unregulated River Water Licence	Hunter Unregulated and Alluvial Water Sources - Upper Wollombi Water Source - Congewai Creek Management Zone. 10 shares
Water Access Licence / Associated Works	WAL41504 / 20AL217003	Continuing	Aquifer - Industrial dewatering 16CT pump station No 2 Shaft No 2 Shaft Borehole	Sydney Basin – North Coast Groundwater Source. North Coast Fractured and Porous Rock Groundwater Sources 2016. Extraction limit of 770ML in any 12-month period commencing 1 July

## 1.3 Land Ownership and Land Use

The final landform for the site has been developed in consideration of the current surrounding land uses and ownership of the site as outlined below.

### 1.3.1 Land Ownership

Most land on which Austar operates surface facilities is privately owned by Austar. The Stage 3 underground mining area is primarily located beneath private rural land holdings. The northern portion

of the Stage 3 extraction area extends underneath the Werakata State Conservation Area (SCA) and sections of Crown land, as well as an area of Austar-owned land to the west of the approved Surface Infrastructure Site. Land ownership above the Bellbird South / Ellalong longwall panels LWB1 to LWB7 is a mix of privately owned and Austar owned land.

Land ownership is shown in **Plan 1C** and **Appendix 1**. Stakeholder consultation undertaken during the preparation of this MOP is detailed in **Section 1.4**.

### 1.3.2 Land Use

Surrounding land uses include grazing, poultry production, state conservation area, residential and mining. Most of the **recent** underground mining area **that is the subject of this MOP** is located within mining authorisations CML2, ML1661, and CCL728.

The villages of Kitchener, Abernethy, Bellbird, Paxton, Pelton and Ellalong (refer to **Plan 1A**) are also located in proximity to **the mining activities undertaken by** Austar.

## 1.4 Stakeholder Consultation

Discussions with the ~~Department of Planning – Resources Regulator (DPE-RR)~~ Department of Regional NSW – Resources Regulator (Regional NSW – RR) are held annually during the Annual Review (AR) process and as required. Austar personnel maintain ongoing discussions with **DPIE and Regional NSW – RR** ~~the Department of Planning – Resources and Geoscience (DRG)~~ regarding Extraction Plan, MOP and AR processes. In addition, the Annual Review is distributed to all relevant agencies.

Consultation on Austar’s mining operations and environmental performance is undertaken on a regular basis with the Austar Community Consultative Committee (Austar CCC). The minutes of the Austar CCC meetings are distributed to main government agencies, the Cessnock City Council and placed on the Austar Coal Mine website. Stakeholders directly over the underground longwall mining area (landowners, infrastructure owners), and government agencies are engaged when preparing management plans through the Extraction Plan process, and are also provided with direct updates on mining operations progress and subsidence monitoring.

Consultation with ~~DPE-RR~~ **Regional NSW – RR** Inspector Environment in regards to the MOP identified a concern regarding the ability of the reject emplacement capping to maintain a barrier between the atmosphere and reject material (that is potentially acid forming and subject to spontaneous combustion) in the event of bushfire. This is discussed in **Section 3**.

**During care and maintenance, ongoing consultation will continue to be undertaken as required with relevant agencies and other key stakeholders. Consultation with the community will continue to be undertaken via the Austar CCC. Additional consultation will also be undertaken with landowners affected by subsidence or exploration activities. Austar will continue to operate a 24 hour telephone complaints line (1800 701 986) and complaints will be responded to in accordance with the complaints protocol in the Environmental Management Strategy (EMS).**



## 2 PROPOSED MINING ACTIVITIES

### 2.1 Project Description

A summary of the key features of the **approved** operations at Austar are summarised in **Table 2-1**.

**TABLE 2-1 APPROVED OPERATIONS**

Aspect	Operation
Extraction Limit	3.6 MT ROM coal per year
Project Approval Term	Stage 3 Project Approval 08_0111 (MOD3) valid to 31 December 2030 Bellbird South Development Consent DA29/95 (MOD7) valid to 14 February 2022* Ellalong Colliery Development Consent DA74/75/79 – no expiry
Operating Hours	24 hours a day 7 days per week
Number of operational employees	Approximately 200
Mining Methods	Longwall Top Coal Caving and Conventional Longwall
Mining Area	Austar Stage 3 (PA08_0111 MOD 3); Bellbird South (DA29/95 MOD 7); Ellalong Coal Mine (DA74/75/79); and Ellalong extension (DA 118/694/120).
External Coal Transport	Road transport of up to 60,000 tonnes annually. All other coal transported by rail.
Coal Processing	Pelton Coal Handling Preparation Plant for the washing and handling of coal.
Infrastructure	Existing approved infrastructure and facilities include: <ul style="list-style-type: none"> <li>- Pit Top facilities (admin buildings, workshops etc.)</li> <li>- CHPP and associated handling and processing infrastructure</li> <li>- Ventilation shafts</li> <li>- Men and materials shafts</li> <li>- Nitrogen plant</li> <li>- Reject emplacement areas</li> <li>- Kitchener Surface Infrastructure Site</li> <li>- Water Storage facilities</li> </ul>
Water Management	Water Management System as described in the Austar Site Water Management Plan including: <ul style="list-style-type: none"> <li>- pumping systems</li> <li>- pipelines</li> <li>- surface dams</li> <li>- storages within former underground workings</li> <li>- water treatment system</li> <li>- discharge as approved by Environment Protection Licence.</li> </ul>

Aspect	Operation
Additional Activities	Kitchener Surface Infrastructure Site (SIS) – approved infrastructure for Pit Top within infrastructure area. Further approved infrastructure for the Kitchener SIS may be constructed during the MOP term (refer to <b>Section 2.3.2</b> ).

\* Where required, an application to extend DA29/95 beyond the lapsing date will be made prior to that time.

During care and maintenance, activities will largely focus on maintaining plant, equipment and services. Rehabilitation and land management activities will continue on site. Environmental management activities will also continue; however, the frequency of environmental inspections and monitoring may be reduced to reflect a reduced environmental risk and while maintaining compliance with approvals and licences.

## 2.2 Asset Register

**Table 2-2** provides a summary of the assets in each Domain for Austar. The domains for the MOP are shown on **Plans 2A to 2I**.

**TABLE 2-2 AUSTAR ASSETS FOR EACH PRIMARY DOMAIN**

Domain	Assets
1 - Infrastructure (41 ha)	CHPP and associated infrastructure; Pit Top Facilities; Reject haul road; Underground mining infrastructure; Kitchener Surface Infrastructure Site; Kalingo Shaft Site; Shaft Sites 1 to 6; Boreholes and associated access tracks; Overland conveyor system; Rail infrastructure (may remain at closure); Administration and employee facilities; Electrical power reticulation; Telecommunications cables; Water supply and sewage systems; Workshop and refuelling facilities; Lighting; Explosives storage; and Water treatment plants.
2 -Tailings Storage Facilities and Reject Emplacement Area (98 ha)	No. 9 Tailings Dam and North West Emplacement Area; Associated facilities for pumping and placement of tailings materials to underground workings; Reject emplacement areas will generally be progressively filled in association with mining progression (refer to <b>Plan 3B and 3C</b> ); Aberdare Emplacement Area; Area 12 & 13 Emplacement Areas;

Domain	Assets
	East Open Cut Void Emplacement Area; West Pit Emplacement Area; and All other approved emplacement areas (refer to <b>Figure 2.1</b> ).
3 - Water Management Area (22 ha)	Water management infrastructure including <b>Dirty Mine</b> Water Management System and associated pipeline infrastructure; <b>Dirty Mine</b> Water Dams; Clean Water Dams; and Creek Realignment (CHPP area).
5 - Stockpiled Material (15 ha)	ROM Stockpile; Coal Product Stockpile; Tailings Drying Area.
7 - Rehabilitation Area (19 ha)	Includes buffer lands surrounding the CHPP which require rehabilitation but are currently not utilised for operational purposes. Refer to <b>Plan 2B</b> .
8 - Underground Mining Area (1,663 ha)	Approved and proposed underground mining areas in Stage 3 and Bellbird South (within 20mm subsidence contour estimate).

Note: Coal stockpile areas are maintained empty during care and maintenance.

~~Relevant approvals will be sought to demolish infrastructure and remove any items of heritage significance as part of rehabilitation activities undertaken at Austar Coal Mine as required. Works involved to demolish infrastructure listed above will be detailed in demolition and final land use assessments to be undertaken in future MOP terms as the operation approaches closure.~~

## 2.3 Proposed Activities during the MOP Term

### 2.3.1 Exploration / Coal Quality Drilling

Austar will continue to undertake exploration activities within the approved mining and exploration areas to increase the accuracy of the geological model and to assist with resource infill and mine planning. Works may include continued structural and coal quality drilling, as well as seismic and other non-intrusive survey as required. Reporting for these exploration programs will be conducted as per mining authorisation and exploration licence EL6598 requirements. During the MOP term, exploration activities may be undertaken within the existing MLs and ELs for the site. These works will be undertaken in accordance with the conditions of the MLs and ELs as required.

Austar will apply site Environmental Management Procedures to manage all drilling campaigns proposed during the MOP term. An application to conduct a Common Exploration Activity (CEA) will be submitted to **DRG-Regional NSW – Mining, Exploration and Geoscience (MEG)** where required prior to the commencement of any drilling works.

Exploration activities will continue to be undertaken during care and maintenance.

### 2.3.2 Construction

The Kitchener Surface Infrastructure Site (SIS) is located on a 16 hectare parcel of land to the south-west of Kitchener. This land is owned by Austar. The SIS is approved to include upcast and downcast shafts, access to the mine for personnel, bathhouse, offices, car parking and services such as an electricity sub-station. Associated with the SIS will be the construction and installation of site services. Such services may include the installation of a powerline, sewerage facilities, pollution control dams, pipelines and access roads.

The construction of the Kitchener SIS progressed substantially during the previous MOP term to include ventilation shafts, ventilation fans, water management infrastructure and associated electrical and communications services. Approved construction activities at the Kitchener SIS may continue during the duration of the MOP term. Approved infrastructure at the SIS includes Pit Top infrastructure buildings, offices, workshop, bathhouse, sewage management systems, and shafts for men and materials, car parking and associated services.

Construction of tailings disposal boreholes to the Pelton underground workings ~~will~~ may continue to occur during the MOP period. ~~Existing holes will be maintained for future use (i.e. they will not be decommissioned), and additional boreholes may be drilled in preparation for recommencing operations.~~ Tailings borehole construction ~~will~~ would occur within and adjacent to areas also approved for coarse reject emplacement. These works are approved under DA 29/95 and DA 74/75/79. Construction activities ~~will~~ would involve access track construction, borehole drilling, associated vegetation clearing, and pipeline installation. The planned progression of tailings borehole construction is illustrated in **Plan 3D**.

### 2.3.3 Mining Operations

~~At the end of March 2020, mining operations at the Austar Coal Mine were temporarily suspended and the site transitioned to care and maintenance. Prior to this, mining was being~~ ~~During the MOP term, mining will be~~ undertaken within the Bellbird South mining area (longwalls LWB5 to LWB7) using conventional longwall mining methods, and ~~would have then progressed to the~~ ~~within~~ remaining approved Longwall panels in the Stage 3 mining area (Longwalls A7 to A19) using the Longwall Top Coal Caving (LTCC) mining method.

~~No mining operations will be undertaken during care and maintenance. If operations recommence during the MOP term, Austar will amend this MOP to reflect the change in activities (see Section 11.1).~~

The LTCC mining method is approved for secondary extraction in the Stage 3 mining area. LTCC mining combines a conventional retreat longwall face with a second armoured face conveyor (AFC) towed behind the shield to recover coal that falls into the goaf. The roof supports are of a modified design incorporating a system of hydraulically operated tail canopies at the rear of the support. The tail canopies can be moved up and down to allow the broken coal in the goaf area to spill onto a second AFC. This process continues until the coal is recovered and waste rock appears. Once waste rock appears, the tail canopies are lowered and the AFC pulled forward to stop rock from being loaded onto the conveyor.

Development consents for the mine allow production of up to 3.6 Mtpa of ROM coal until 31 December 2030.

Secondary extraction of longwall panels is only undertaken after approval of an Extraction Plan. An Extraction Plan for LWB4 to LWB7 was prepared and approved by DP&E on 20 September 2017. The Extraction Plan was modified to reflect the shortening of longwalls and the modifications approved by DPIE on 18 September 2018, **12 February 2019 and 7 August 2019**.

Secondary extraction from within the Stage 3 area will be undertaken in accordance with existing or future approved Extraction Plans for the relevant area. A list of current approved Extraction Plans held by Austar is available in **Table 1-2**.

Extraction Plans describe relevant management strategies to address potential subsidence impacts from the extraction of the coal resource.

The planned progression of mining is illustrated in **Plan 3A**. **Timing for return to the Stage 3 area will be delayed with the transition to care and maintenance that followed completion of LWB6 in the Bellbird South Mining Area. Future recommencement of mining operations would likely resume in the Stage 3 area planned for 2020 on Plan 3A.**

#### **2.3.4 Reject Emplacement**

In accordance with Austar's development consents, Austar has several approved areas which may be utilised for reject emplacement. These areas are shown on **Figure 2-1** and include both active and proposed (approved) reject emplacement areas. These areas include:

- Aberdare Reject Emplacement Area (currently active);
- Area 12 and Area 13 (rehabilitated);
- East Open Cut Void (currently active);
- West Open Cut Emplacement Area (currently active);
- Reject Emplacement Area 1;
- Reject Emplacement Area 3;
- Reject Emplacement Area 4; and
- Other Reject Emplacement Areas of DA74/75/79.

**If operations recommence** during the MOP term, Austar propose to emplace rejects within the Aberdare Emplacement Area as well as the East Pit and West Pit Emplacement Areas.

**During care and maintenance, Austar will maintain the three active emplacement areas to ensure they remain available for future use if operations recommence (i.e. they will not be decommissioned). No additional reject material will be generated during care and maintenance, however some material may be rehandled.**

~~Modelling works completed based on production schedules for the purposes of this MOP, suggest that the capacity within the Aberdare emplacement area will be exhausted by approximately 2025. Following this time, Austar will utilise~~ Additional approved reject emplacement areas identified on **Figure 2.1** are also available for future use when the current emplacement areas reach capacity.

#### **Aberdare Extended Open Cut Void (Aberdare Extended)**

The Aberdare Extended Open Cut emplacement area will be utilised by Austar (**Plan 2C**) if operations recommence during the MOP term. Rejects are hauled by truck along a private haul road from the CHPP to the emplacement area.

Rehabilitation of the Aberdare Extended Reject Emplacement Area involves filling the open cut pit progressively with coarse reject from each end to allow for effective surface water management. Staging is shown on **Plan 3B**. The reject emplacement and rehabilitation schedules are highly dependent upon mining progression and timing, with reject being used to fill the void prior to capping material and vegetation establishment processes. There is an agreement in place with the private landowner to rehabilitate the Aberdare emplacement area to the final landform shown in **Plan 4C** and establish a grassland ecosystem. When the Aberdare emplacement area reaches final height, the voids on the CHPP site (East Pit and West Pit) will become the primary coal reject emplacement areas.

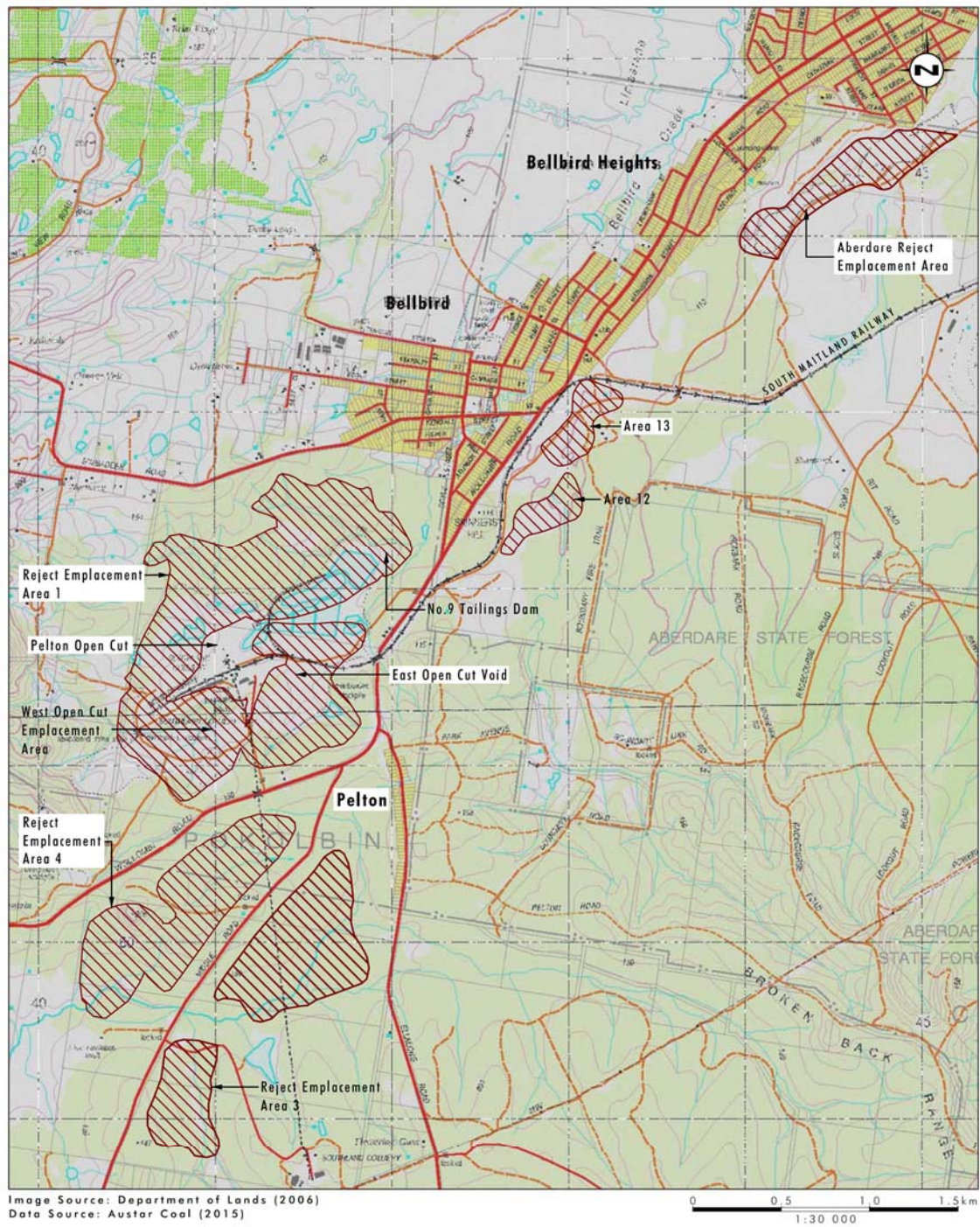
#### **East Open Cut Void (East Open Cut)**

The East Open Cut is a void on the CHPP site covering an area of approximately 15 hectares (refer to **Plan 2B**). It is intended that if operations recommence during the MOP term, the East Open Cut reject emplacement area will be used when production rates of coarse reject from development mining are low, or during periods of poor weather. Once the Aberdare Extended emplacement has reached its maximum capacity, the East Open Cut will become the primary emplacement area for Austar.

#### **West Open Cut Emplacement Area (West Open Cut)**

Parts of West Open Cut (see **Plan 2B**) has been utilised as a clean material overburden emplacement area during previous open cut operations at the site. This area provides a source of inert capping material, which will be utilised to cap reject emplacement areas. After removal of the clean overburden to be used for capping site rehabilitation works, it is planned to use the resulting void at the West Open Cut for ongoing reject emplacement.

Suitable capping material may be used for works in Aberdare Extended, East Open Cut, West Open Cut emplacement areas and for future capping requirements of the West Pit and CHPP areas.



**Legend**  
 Approved Reject Emplacement Area

FIGURE 2.1

Approved Reject Emplacement Areas

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FIGURE 2-1 APPROVED REJECT EMPLACEMENT AREAS

## **Aberdare Emplacement Areas 12 and 13**

Former reject emplacement areas 12 and 13 have been substantially rehabilitated and rehabilitation maintenance works will continue as required during the MOP term. Further details on the rehabilitation works to be undertaken in these areas during the MOP term is provided in **Section 7**.

### **2.3.5 Tailings Management**

**When operating**, the tailings from the CHPP are discharged into underground mine workings. The return water from these tailings gravitates through the mine workings and is recovered into the Austar Coal Mine via a dewatering borehole. A pump station **located at 16CT South Mains** has been constructed to return the decanted water to the mine water treatment system for treatment and it is then either used in the underground operations and CHPP or discharged off-site.

Additional tailings disposal boreholes to the Pelton underground workings may ~~to~~ be installed during the MOP term, **to prepare for recommencing operations**, depending on the performance of the current tailings boreholes. Future tailings borehole sites are shown in **Plan 3D**.

### **2.3.6 Water Management**

Austar Coal Mine pump underground mine water to the surface from Ellalong Goaf at 2 Shaft to prevent flooding of the underground workings in-by of Bellbird Mains. The mine water is pumped to the CHPP, through a series of pipelines via Kalingo Dam and Austar Dam, for processing in the RO Plant prior to reuse on-site or discharge from site under EPL 416. **Mine water management is further described in the approved Site Water Management Plan.**

**Mine water will continue to be managed in accordance with the Site Water Management Plan during care and maintenance.**

During the MOP term, Austar Coal may install replacement pipelines for both the #2 shaft and borehole pump systems from #2 shaft site to the Kalingo Dam. Austar propose to excavate and replace the existing pipelines in sections of the route that contain high ecological values minimising the disturbance footprint, and install the replacement pipelines in a new trench in other sections with the view of minimising environmental impacts.

**The #2 pipeline project may still be undertaken during care and maintenance.**

### **2.3.7 Re-Processing of Coarse Reject and Tailings Material**

**Austar has previously considered re-processing reject material within the No. 9 Tailings Dam and the North West Emplacement Area. The below activities may occur during the MOP term if operations recommence. Limited coal reject or tailings material may be processed during care and maintenance.**

#### **No. 9 Tailings Dam**

The No.9 tailings dam (refer to **Plan 2B**) is a facility that contains between 80,000 to 120,000 tonnes of good quality fine coal that may be suitable for market. The facility is no longer used as a tailings dam and water is drained from the dam such that it remains relatively dry. It is the intention of Austar to reclaim this material to blend with the product coal or for direct sale, thus recovering the facility ready for rehabilitation. The ability to sell this product will be dependent upon market availability and



as such the timing for this activity cannot be confirmed, however this activity may be undertaken **if operations recommence** during the MOP term.

### **North West Emplacement Area**

Material stored within the North-West Emplacement Area has been identified as being suitable for either re-processing or direct sale. ~~It is envisaged that~~ Material from this area ~~will~~ **may** be periodically reclaimed **if operations recommence** during the MOP term, which will provide an opportunity to undertake progressive rehabilitation of this area. The rate of reclamation will be dependent upon factors including:

- market demand;
- production rates from the current operation as well as coal quality, which will determine the rate at which the material from the North-West Emplacement Area can be blended through the CHPP; and
- road haulage limits for coal transported off site in accordance with Project Approval requirements (e.g. for sale to a power station).

### **2.3.8 Waste Management**

Waste management streams at Austar are detailed below. All waste management is undertaken by a waste management contractor who provides information to Austar regarding wastes removed each month. In addition, the waste management contractor also undertakes waste tracking in accordance with Protection of the Environment Operations (Waste) Regulation 2005.

**There will be no change to waste management practices during care and maintenance.**

#### **2.3.8.1 Putrescible Waste**

Putrescible waste is segregated into the following for disposal from site:

- General waste;
- Recyclable waste;
- Waste water (septic system); and
- Hazardous wastes.

#### **2.3.8.2 Hydrocarbon Waste Management**

Hydrocarbon wastes include:

- Used oil filters;
- Waste oil; and
- Recovered oil (from oil-water separators).

The hydrocarbon wastes are managed by a licensed waste contractor, with hydrocarbon wastes recycled where possible.

### **2.3.8.3 Contaminated Soil Management**

Hydrocarbon contaminated soils are stockpiled in a hydrocarbon remediation area at the CHPP which contains three bunded cells. Any contaminated material held within this area is either managed using bioremediation techniques or removed from site by a licensed waste contractor to an appropriate regulated waste management facility.

### **2.3.9 Decommissioning and Demolition Activities**

Demolition works may be conducted on structures within Austar's surface lease areas during the MOP term to progress Austar's rehabilitation objectives and to mitigate safety risks associated with some structures. For structures listed as heritage items, approvals from the appropriate heritage authority will be sought prior to demolition.

Structures associated with the former Pelton, Bellbird, and Kalingo Colliery areas which are not required for current operations may be demolished during this MOP period. Derelict structures will be made safe with fencing where required. Austar will complete heritage assessments on selected structures and apply for the necessary heritage approvals prior to any demolition works being undertaken. Demolition of selected structures may occur during the MOP period.

Detailed contamination assessments will be undertaken by a suitably qualified person during the closure phase of works.

Decommissioning and demolition activities may continue during care and maintenance. The mine closure planning strategy detailed in **Section 2.3.13** includes indicative timeframes for the completion of the historic heritage assessments, derelict/redundant infrastructure decommissioning strategy and infrastructure retention strategy.

### **2.3.10 Temporary Stabilisation**

Temporary stabilisation works may be undertaken if required during the MOP term. Stabilisation works will comply with the Erosion and Sediment Control Plan in the **Surface Site** Water Management Plan and may include:

- shaping of disturbed areas; and
- seeding and ongoing maintenance of areas of the site not required for ongoing operations.

Temporary stabilisation works may continue during care and maintenance.

### **2.3.11 Progressive Rehabilitation and Completion**

As an underground operation, surface disturbance at Austar Coal Mine is largely limited to surface infrastructure areas, including pit top facilities, the CHPP, remote infrastructure areas, reject emplacement areas, water storages and tailings dams. Most of these areas are needed to support mining operations. Opportunities for progressively rehabilitating areas not required to support management of the mine during care and maintenance or for potential recommencement of mining activities will be investigated and implemented where reasonably practicable such as redundant reject emplacement areas or derelict structures and buildings.

The primary objective of post-mining rehabilitation works will be to create a stable final landform that is free draining with acceptable post-mining land use capability. Rehabilitation of the reject emplacement areas will be conducted progressively over the life of the mine, as an integral component of mining operations. All rehabilitation works will be scheduled to occur progressively as soon as practicable after mining disturbance and decommissioning of infrastructure.

This approach will minimise the disturbed area at any time and reduces the environmental impact of mining. Progressive rehabilitation will also minimise the visual impacts as a result of the project. Austar’s approach to rehabilitation includes the re-establishment of a range of vegetation types (i.e. grassland or forest). Subsidence remediation works may also be undertaken above the mining areas at Austar during the MOP term. Further detail is provided in **Section 3.3.4 3.3.4**.

During the period of this MOP there will be no areas that will be in the relinquished land phase, however if rehabilitation progresses such that completion criteria are met, consultation will be undertaken with **DRG Regional NSW – RR** regarding the relinquishment of these areas. Areas that will be rehabilitated during the term of this MOP are detailed in **Section 7**.

### 2.3.11.1 Conservation and Biodiversity Offset Areas

The Biodiversity Offset Area was established as part of the approved Stage 3 project to offset impacts from clearing of approximately 10 hectares of bushland to establish the Kitchener SIS. Following Stage 3 project approval, 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 is managed in perpetuity by the NSW National Parks and Wildlife Service.

### 2.3.12 Material Production Schedule during MOP Term

Material production for the term of the MOP is summarised in **Table 2-3**.

**TABLE 2-3 INDICATIVE MATERIAL PRODUCTION SCHEDULE DURING THE MOP TERM**

Material	Unit	Year—1	Year—2	Year—3	Year—4	Year—5	Year—6	Year—7	Year—8
		Year 0 2019	Year 1 2020	Year 2 2021	Year 3 2022	Year 4 2023	Year 5 2024	Year 6 2025	Year 7 2026
Stripped Topsoil	m <sup>3</sup>	0	0	0	0	0	0	0	0
Rock/Overburden	m <sup>3</sup>	0	0	0	0	0	0	0	0
ROM Coal <sup>#</sup>	Mt	1.458 1.535	0.148 0.179	0.176 0	1.886 0	2.406 0	2.258 0	2.280 0	2.615 0
Reject Material <sup>#</sup>	Mt	0.218 0.196	0.026 0.001	0.031 0	0.330 0	0.421 0	0.395 0	0.399 0	0.457 0
Product <sup>#</sup>	Mt	1.240 1.339	0.122 0.178	0.145 0	1.556 0	1.985 0	1.862 0	1.882 0	2.158 0

*Notes to Table – # Production data is based on conceptual mining information, and may vary throughout the MOP term. Reject data is also based on a proposed yield at the CHPP and may vary subject to coal quality. Production data for 2019-20 is based on actual figures, as mining was complete at the time of preparation of this MOP Amendment A. Production forecast data for 2021-26 assumes that the mine remains in care and maintenance for the remainder of the MOP term.*

### 2.3.13 Mine Closure Planning

This section details the mine closure planning strategy, which outlines the technical and environmental assessments required to inform final rehabilitation planning and closure of the Austar Coal Mine. The planning strategy (**Table 2-4**) is designed to inform the preparation of a detailed Mine Closure Plan.

During the MOP period, Austar will commence detailed mine closure planning. The mine closure planning strategy, including timeframes, is set out in **Table 2-4** below. The outcomes of this mine closure planning will be incorporated into future MOP amendments and/or a final closure plan to be prepared prior to closing the mine.

**TABLE 2-4 MINE CLOSURE PLANNING STRATEGY**

#	Aspect	Description	Timing
<b>Base Case: Final Land Use, Completion Criteria and Rehabilitation Objectives</b>			
1	Final land use assessment	<ul style="list-style-type: none"> <li>Undertake a final land use assessment, as described in <b>Section 4.2</b>. Final land uses are those approved in Austar’s various consents, however may be refined prior to mine closure.</li> </ul>	Q3, 2021
2	Mine closure risk assessment	<ul style="list-style-type: none"> <li>Undertake an Environmental Risk Assessment focused on mine closure preparedness and specifically risks to achieving the final land use, as described in <b>Section 3.2</b>.</li> </ul> <p>NB the risk register will be reviewed following completion of the mine closure risk assessment</p>	Completed
3	Completion criteria and rehabilitation objectives	<ul style="list-style-type: none"> <li>Refine the completion criteria and objectives in <b>Table 6-1</b> after final land uses confirmed, as described in <b>Section 6</b>.</li> </ul>	Q3, 2021
4	Final landform design	<ul style="list-style-type: none"> <li>Review the final landform designs to ensure it can sustain the nominated final land uses and meet the rehabilitation objectives in <b>Section 4.3</b>.</li> <li>Prepare detailed slope and drainage designs for the final landform to ensure long-term stability.</li> </ul>	Q4, 2022
<b>Knowledge Base: Gap analysis and initial mine closure planning studies</b>			
5	Rehabilitation resources balance	<ul style="list-style-type: none"> <li>Establish an inventory of materials available for capping and rehabilitation (in an appropriate spatial format), as described in <b>Section 3.3.7</b>.</li> </ul>	End of February 2021

#	Aspect	Description	Timing
		<ul style="list-style-type: none"> <li>Characterise available materials to confirm suitability for rehabilitation.</li> <li>In the case of a material deficit, develop a strategy to investigate and procure alternative sources of materials such as topsoils (and/or substitutes) and other rehabilitation materials such as clays, suitable weathered rock, hard rock, etc.</li> <li>The material balance will be reviewed following confirmation of rejects and tailings capping designs prior to decommissioning.</li> </ul>	Q4, 2022  Q4, 2022  Prior to decommissioning
6	Historic heritage assessments	<ul style="list-style-type: none"> <li>Undertake/review heritage assessments for known or potential historic heritage items at Austar Coal Mine to guide retention/demolition decisions, as described in <b>Sections 2.3.9</b> and <b>7.2.1</b>.</li> <li>Consult with Cessnock City Council heritage advisors and or the NSW Heritage Office (if required) to confirm approach and to seek appropriate heritage approvals prior to demolishing heritage items.</li> </ul>	Q4, 2021
7	Derelict / redundant infrastructure decommissioning strategy	<ul style="list-style-type: none"> <li>Prepare an infrastructure decommissioning strategy for progressive decommissioning of redundant, derelict or hazardous buildings, structures, machinery, plant and equipment.</li> <li>Consult with Cessnock City Council heritage advisors and or the NSW Heritage Office (if required) to confirm approach and to seek appropriate heritage approvals prior to demolishing heritage items.</li> </ul>	Q4, 2021
8	Infrastructure retention strategy	<ul style="list-style-type: none"> <li>Identify infrastructure that could be retained post closure (i.e. internal roads, access tracks, dams, buildings, services), subject to approval, to support the final land use or to retain heritage value.</li> </ul>	Q4, 2021
9	Mine water dam decommissioning strategy	<ul style="list-style-type: none"> <li>Prepare a preliminary strategy for decommissioning of redundant mine water dams.</li> </ul>	Q4, 2022

#	Aspect	Description	Timing
		<ul style="list-style-type: none"> <li>Prepare a strategy, in consultation with Dams Safety NSW, for decommissioning prescribed dams (i.e. Kalingo Dam).</li> </ul>	
10	Tailings storage facilities and reject emplacement area decommissioning and capping strategy	<ul style="list-style-type: none"> <li>Prepare strategy for progressive decommissioning of the tailings storage facilities and reject emplacement areas.</li> <li>Review capping techniques, as described in <b>Section 7.2.2</b></li> </ul>	Q4, 2022
11	Water management	<ul style="list-style-type: none"> <li>Review the existing groundwater information to consider aspects related to closure of the mine.</li> <li>Review the site water balance and any post closure water management requirements, including management of acid mine drainage.</li> <li>Review post closure water licensing requirements.</li> </ul>	Q4, 2022
12	Exploration borehole sealing	<ul style="list-style-type: none"> <li>Undertake desktop and field surveys of borehole sealing status.</li> <li>Prepare and commence implementation of the exploration borehole sealing strategy.</li> </ul>	Q1, 2021  Q1, 2022
13	Underground mine sealing	<ul style="list-style-type: none"> <li>Prepare mine sealing designs for all shafts, portals and operational boreholes.</li> </ul>	Prior to decommissioning
14	Subsidence remediation works	<ul style="list-style-type: none"> <li>Prepare a plan for post closure remediation of subsidence-related impacts to natural and built features, as described in <b>Section 3.3.4</b>.</li> </ul>	As per approved Extraction Plan.
15	Contaminated land assessments	<ul style="list-style-type: none"> <li>Undertake a Phase 1 contaminated lands assessment focusing on surface infrastructure areas to identify any remediation requirements.</li> <li>Undertake full Land Quality investigations and prepare a remediation action plan</li> </ul>	Q4, 2021  Prior to mine closure – to be included in final mine closure plan
16	Hazardous materials assessment	<ul style="list-style-type: none"> <li>Undertake assessments of hazardous materials and chemicals and develop registers and management strategies.</li> </ul>	Q4, 2021

#	Aspect	Description	Timing
17	Demolition waste disposal strategy	<ul style="list-style-type: none"> <li>Identify volumes of waste streams and options to dispose on site or at licenced facilities.</li> <li>Develop strategy to segregate and manage waste streams on site during demolition.</li> </ul>	Prior to decommissioning – to be included in final mine closure plan
18	Environmental Management Plans	<ul style="list-style-type: none"> <li>Review/ update the environmental management plans listed in <b>Section 3.3</b> to reflect mine closure activities.</li> </ul>	Prior to mine closure – to be included in final mine closure plan
19	Post-closure Monitoring and Maintenance	<ul style="list-style-type: none"> <li>Identify post-closure environmental monitoring requirements, including monitoring of rehabilitation, subsidence and water quality.</li> <li>Identify post-closure maintenance requirements such as weed and feral animal control, bushfire management and maintenance of safety signage/fencing to control public access.</li> </ul>	Prior to mine closure – to be included in final mine closure plan
20	Approvals and mining lease relinquishment strategy	<ul style="list-style-type: none"> <li>Prepare an approvals and mining lease relinquishment strategy that considers the timing and process for relinquishing approvals following mine closure (e.g. EPL, Project Approval and MLs).</li> </ul>	Prior to mine closure – to be included in final mine closure plan
21	Human resources strategy	<ul style="list-style-type: none"> <li>Prepare a human resources strategy to identify opportunities to stage the release of employees and contractors and to support redeployment where appropriate.</li> </ul>	Prior to mine closure – to be included in final mine closure plan
22	Community management strategy	<ul style="list-style-type: none"> <li>Prepare a community management strategy to minimise any adverse socio-economic effects of mine closure.</li> </ul>	Q2, 2021
23	Stakeholder engagement strategy	<ul style="list-style-type: none"> <li>Prepare a stakeholder engagement strategy to guide communication and engagement during mine closure.</li> </ul>	Q2, 2021

### 3 ENVIRONMENTAL ISSUES MANAGEMENT

#### 3.1 Environmental Risk Assessment

Austar Coal Mine has undertaken an Environmental Risk Assessment (2017) which addresses Section 3.0 of the ESG3: Mining Operations Plan (MOP) Guidelines (DRE, 2013). The Risk Assessment was undertaken in accordance with ISO 31000:2990 - Risk Management **and focused on risks associated with mining operations.**

The risk assessment identifies environmental issues associated with activities conducted under the mining lease in accordance with Section 3.2 of the MOP Guidelines (DRE, 2013). The relevant environmental management controls identified during the risk assessment are outlined in the following sections. The environmental elements associated with the risk assessment are summarised in **Table 3-1**.

On 5 June 2020, Austar undertook an Environmental Risk Assessment focused on environmental risks associated with care and maintenance. The key identified risks included:

- Reduced staffing leading to inadequate environmental management;
- Increased trespassing/theft/vandalism leading to asset damage, environmental impacts or personal injury;
- Suspended coal processing/reject emplacement leading to delayed filling, capping and rehabilitation of the reject emplacement areas;
- Inadequate inspection/maintenance of water management infrastructure (i.e. erosion and sediment controls, pipelines, dams and drainages) leading to run-off of sediment-laden or contaminated water and surface water quality impacts; and
- Increased potential for acid mine drainage from active reject emplacement areas.

**Table 3-1** and **Section 3.3** have been amended to address the key care and maintenance risks identified during the recent Environmental Risk Assessment.

**TABLE 3-1 SUMMARY OF RISK ASSESSMENT OUTCOMES FOR MINING OPERATIONS DURING THE MOP TERM**

Risk Aspect	Risk Description	Risk Ranking
Geology and Geochemistry	<ul style="list-style-type: none"> <li>• Coarse reject generates acidic surface runoff which impacts local surface water systems;</li> <li>• Revegetation failure due to geochemical nature of capping or reject material; and</li> <li>• Acid water leachate impacting surface or groundwater systems/users.</li> </ul>	Medium
Spontaneous Combustion	<ul style="list-style-type: none"> <li>• Spontaneous combustion of material in emplacement areas onsite; and</li> <li>• Spontaneous combustion of rehabilitated areas resulting in habitat loss.</li> </ul>	Low
Acid Mine Drainage	<ul style="list-style-type: none"> <li>• Acid water leachate impacting surface or groundwater systems/users.</li> </ul>	Medium
Mine Subsidence	<ul style="list-style-type: none"> <li>• Surface impacts to land surface require remediation to rectify cracking or surface drainage;</li> <li>• Surface impacts to built features require remediation to rectify drainage; and</li> <li>• Impacts to surface water flows or aquifers due to subsidence.</li> </ul>	Low
Erosion and Sediment Control	<ul style="list-style-type: none"> <li>• Erosion of landform design resulting in the inability to achieve mining lease requirements; and</li> </ul>	Medium



Risk Aspect	Risk Description	Risk Ranking
Soil Type(s) and Suitability	<ul style="list-style-type: none"> <li>Erosion resulting in sediment leaving the site.</li> <li>Revegetation failure due to geochemical nature of capping material.</li> </ul>	Medium
	<ul style="list-style-type: none"> <li>Insufficient topsoil/<b>inert capping material</b> for end rehabilitation of site.</li> </ul>	<del>Low</del> <b>Medium</b>
Flora	<ul style="list-style-type: none"> <li>Failure to achieve revegetation/ rehabilitation goals; and</li> <li>Excessive weed growth affects success of rehabilitation.</li> </ul>	Medium
Fauna	<ul style="list-style-type: none"> <li>Excessive pest fauna species affects success of rehabilitation.</li> </ul>	Medium
Slopes and Slope Management	<ul style="list-style-type: none"> <li>Erosion of landform design resulting in the inability to achieve mining lease requirements.</li> </ul>	Low
Air Quality	<ul style="list-style-type: none"> <li>Erosion of landform or activity in rehabilitation areas results in community impact.</li> </ul>	Low
Surface Water Quality	<ul style="list-style-type: none"> <li>Pipeline leak of mine water impacting on surface water systems / users.</li> <li>Contaminated surface water from mine operations impacts on surface water systems / users.</li> </ul>	High
Contaminated Land	<ul style="list-style-type: none"> <li>Contaminated land due to inappropriate material used for capping.</li> </ul>	Low
Hazardous Material	<ul style="list-style-type: none"> <li>Demolition of heritage structures potentially containing asbestos causes human health risk.</li> </ul>	Medium
Noise	<ul style="list-style-type: none"> <li>Noise complaints from residents adjacent to Aberdare Emplacement Area causes delay to rehabilitation program.</li> </ul>	Low
Visual and Lighting	<ul style="list-style-type: none"> <li>Insufficient management of visual and lighting aspects of mine operations resulting in community complaints.</li> </ul>	Low
Aboriginal and European Heritage	<ul style="list-style-type: none"> <li>Unauthorised disturbance of Aboriginal sites; and</li> <li>Unauthorised demolition or alteration of European heritage sites.</li> </ul>	Low
Bushfire	<ul style="list-style-type: none"> <li>Bushfire on rehabilitation area affects success of revegetation towards completion criteria.</li> </ul>	Medium
<b>Resourcing</b>	<ul style="list-style-type: none"> <li><b>Reduced staffing leading to inadequate environmental management.</b></li> </ul>	<b>Medium</b>
<b>Site Security and Public Safety</b>	<ul style="list-style-type: none"> <li><b>Trespassing / theft / vandalism leading to asset damage, environmental impacts or personal injury.</b></li> </ul>	<b>Medium</b>

The methodology used for internal risk assessments follows the Austar risk ranking table, Austar risk matrix and Austar consequence table.

Further details of the existing and proposed environmental management controls to mitigate the risks identified in **Table 3-1** are provided in **Section 3.2**.

**TABLE 3-2 YANCOAL RISK MATRIX [NEW MATRIX]**

Yancoal Risk Matrix		Effect / Consequence				
Loss Type		1 Insignificant	2 Minor	3 Moderate	4 Major	5 Catastrophic
(P) Harm to People	Slight injury or health effects – report only (RO) or first aid injury (FAI)	Minor injury or health effects – medical treatment injury (MTI) or restricted work injury (RWI)	Serious bodily injury or health effects – lost time injury	Single Fatality	Multiple fatalities	
(E) Environmental Impact	Environmental nuisance – trivial or negligible, short term impact to area of low significance, minimal or no physical remediation required  No regulation.  Cost < \$1,000	Minor environmental harm – short term impact to area of limited local significance, limited physical remediation .  Reportable Breach /Minor Non Compliance, potential warning notice, other notices (infringement / prosecution) unlikely.  Costs \$1K - \$50K	Serious environmental harm – medium term impact to area of local conservation value, medium term physical remediation, actual community health impacts or significance or pollution or contamination  Infringement Notice but Prosecution unlikely  Costs \$50k - \$250k	Major environmental harm – long term reversible impacts to area of regional conservation significance, health statistics in community alter as a result of this incident or pollution or contamination  Prosecution  Costs \$250k - \$1M	Extreme environmental harm – irreversible impacts on environmental values of extreme & widespread areas, or those of national conservation significance, community fatalities or pollution or contamination  Prosecution, License revoked  Costs > \$1M	
(O) Asset Damage and Other Consequential Losses	Slight damage  < \$1M or  < 1 day disruption to operation	Minor damage  \$1M - \$5M or  <1 week disruption to operation	Local damage  \$5M - \$20M or  <1 month disruption to operation	Major damage  \$20M - \$100M or  <6 months partial loss of operation	Extreme damage  > \$100M or 6 months  Substantial or total loss of operation	
(R) Impact on Reputation	Slight impact – Public awareness may exist but no public concern  Isolated compliance failure – no brand damage	Limited impact – Some local public concern  Intervention of regulating authority – minimal brand damage	Considerable impact - Regional public concern  Major compliance failure involving fines – medium brand damage	National impact – National public concern  Temporary withdrawal of license to operate – significant brand damage	International impact - International public attention  Loss of shareholder confidence – irreparable brand damage	
Likelihood	Likelihood Examples (Guide)	Level of Risk				
A (Almost Certain)	Likely that the unwanted event could occur several times per year in our jurisdiction	11 (M)	16 (H)	20 (H)	23 (E)	25 (E)
B (Likely)	Likely that the unwanted event could happen annually in our jurisdiction	7 (M)	12 (M)	17 (H)	21 (E)	24 (E)
C (Possible)	The unwanted event could happen within 10 years in our jurisdiction	4 (L)	8 (M)	13 (H)	18 (H)	22 (E)
D (Unlikely)	The unwanted event could happen within 50 years in our jurisdiction	2 (L)	5 (L)	9 (M)	14 (H)	19 (H)
E (Rare)	The unwanted event has never been known to occur is highly unlikely that it could ever occur in our jurisdiction	1 (L)	3 (L)	6 (M)	10 (M)	15 (H)

### 3.2 Risks to Achieving Closure

As part of the mine closure planning program (**Section 2.3.13**), Austar undertook an Environmental Risk Assessment in September 2020, utilising the BowTie methodology focussing on environmental risks associated with mine closure. It included a risk assessment for all life of mine considerations, as well as separate risk assessments for the key rehabilitation phases.

The outcomes of these risk assessments will inform the closure strategies and will assist in identifying if there is a need for additional technical or environmental assessments.

The key areas assessed where controls were deemed necessary are listed in **Table 3-3**, with the link to where they will be addressed in closure activities listed in **Table 2-4**.

**TABLE 3-3 KEY CLOSURE RISKS**

Key Areas Identified in Closure Risk Assessment	Item Number in Table 2-4
Defining and meeting completion criteria	3
Failure to meet final land use objectives	1, 2, 3 and 4
Material availability	5
Unfavourable climatic conditions	19
Stakeholder identification and engagement	23
Tailings dam and reject emplacement capping	10
Geochemistry (acid mine drainage, spontaneous combustion)	4, 5, 10 and 11
Post mining land use	1
Closure planning	All
Approvals	20
Groundwater	11
Surface water	11
Mine sealing	12 and 13
Public safety	19
Land quality	15
Hazardous materials	16
Waste management	17
Subsidence	14
Assets and infrastructure	7 and 8
Heritage	6

### 3.3 Environmental Risk Management

Management of environmental risks typically utilise existing controls within approved environmental management plans that have been prepared in response to development consent or Project Approval condition requirements. A comprehensive ~~Environmental Management Strategy (EMS)~~ has been prepared for the Austar Coal Mine which includes specific management plans to address

environmental risks. The following management plans are currently in place at Austar Coal Mine (in addition to the Extraction Plans listed in Table 1-2):

- Consolidated Environmental Monitoring Program
- Landscape Management Plan – Kitchener SIS
- Site Water Management Plan
- Noise and Vibration Management Plan
- Air Quality and Greenhouse Gas Management Plan
- Aboriginal Cultural Heritage Management Plan
- Historic Heritage Management Plan
- Bushfire Management Plan

Austar may update the above strategies, plans or programs to reduce the environmental monitoring/inspection requirements where appropriate during care and maintenance.

Approved environmental management documentation is included on the Austar website ([www.austarcoalmine.com.au](http://www.austarcoalmine.com.au)). Relevant environmental risk management processes from the EMS in relation to the Risk Assessment outlined in Section 3.1 are described below.

This section includes information on general environmental risk management and information on specific risks relating to rehabilitation and how they are managed at Austar.

For the most part, routine environmental risk management actions will continue to be undertaken during care and maintenance. The sections below have been amended to clarify which actions will be continued during care and maintenance.

### **3.3.1 Geology and Geochemistry**

Coarse reject material produced by Austar is potentially acid forming. This is managed through the addition of lime at the surface prior to capping. Sufficient capping thickness is also utilised to reduce the potential for acid leachate at the surface of the emplacement areas. More detail can be found in **Section 7.2.2**.

### **3.3.2 Spontaneous Combustion**

A Spontaneous Combustion **Principal Hazard** Management Plan (SCPHMP) has been developed and implemented at Austar to manage spontaneous combustion risks. The SCPHMP utilises enhanced gas monitoring and management using a range of systems and data analysis methods to constantly monitor spontaneous combustion risks.

Austar intends to further control the spontaneous combustion risk in Longwall goaf areas through use of improved ventilation seals to prevent ventilation leakage, ~~and the~~ continuous use of nitrogen

injection to reduce oxygen concentrations in the longwall goaf atmospheres **and other methods as required such as spraying seals and grouting, etc.**

Spontaneous combustion risk from coal reject material is considered to be low. **Reject emplacement areas are maintained in accordance with the CHPP Reject Haulage and Emplacement Area Procedure.** Spontaneous combustion risk is managed through the reject emplacement area compaction and capping techniques as identified in **Section 7**.

An additional geotechnical study is proposed to be finalised during the MOP term to further understand combustion risk associated with the coarse reject emplacement areas (refer to **Section 8.2.1**) to inform the capping process to ensure a long term safe and stable landform.

**Spontaneous combustion remains a potential environmental risk during care and maintenance. Austar will continue to implement the SCPHMP and CHPP Reject Haulage and Emplacement Area Procedure, including maintaining/compacting the active reject emplacement areas to reduce the potential for spontaneous combustion.**

### **3.3.3 Acid Mine Drainage**

Analysis of the waste materials undertaken at Austar indicates that it contains sulphur in the organic or pyritic form, and therefore has the potential for Acid Mine Drainage (AMD). The approved Austar Site Water Management Plan (SWMP) identifies the ongoing monitoring of surface water to identify any potential risk of AMD ~~during active operation~~.

In addition, rehabilitation strategies have been developed to reduce the potential for acid mine drainage and include:

- approved emplacement of reject material in available former open cut pits;
- direct connection of emplacement areas to underground workings with emplacement areas staged to drain to these areas;
- monitoring of historic underground workings;
- rehabilitated areas designed to direct surface water runoff away from emplaced material; and
- An additional geotechnical study is proposed to be finalised during the MOP term to better understand acid leachate risk associated with the coarse reject emplacement areas (refer to **Section 8.2.1**).

**AMD remains a potential environmental risk during care and maintenance. The active reject emplacement areas are the primary source of AMD and therefore they have been designed so that leachate drains directly to old underground workings. Austar will continue to undertake water monitoring during care and maintenance to ensure there are no impacts to the surface or groundwater systems/users.**

### **3.3.4 Mine Subsidence**

Mining areas under the current MOP period are covered by approved extraction plans: *Extraction Plan – Stage 3 Longwall Panels A7-A10* and *Extraction Plan – Bellbird South Longwall Panels LWB4-LWB7*.

Extraction plans include subsidence predictions and management strategies. Secondary extraction using LTCC or conventional longwall mining techniques may only occur after Extraction Plan approval is granted.

Subsidence predictions have been prepared for the Stage 3 mining area (as modified). Subsidence predictions indicate that:

- subsidence impacts to services and public infrastructure are likely to be low;
- impacts to flora and fauna are also likely to be negligible;
- in relation to surface hydrology, it is likely that:
  - there will be no significant change to catchment boundaries;
  - there will be no significant change to channel alignment or bank stability;
  - there will be no significant change to in channel or out of channel ponding; and
  - groundwater availability to riparian vegetation is not likely to substantially change due to mining impact.

Subsidence predictions have also been prepared for the Bellbird South mining area (as modified). Subsidence predictions are generally consistent with the predictions associated with the Stage 3 mining area. However, potential minor changes to the extent of remnant surface ponding at the southern end of LWB6 and LWB7 along an overflow channel south of Quorrobolong Creek are predicted. The potential impacts are generally confined to existing flow paths and is situated on mine owned land. Monitoring of this area will form part of the existing mine subsidence and landscape management monitoring programs.

A Built Features Management Plan (BFMP) is prepared as part of the relevant Extraction Plan. In consultation with the landholder, the BFMP outlines potential impacts of mining on the property and the management and remediation measures to be implemented.

A Land Management Plan is prepared as part of each Extraction Plan. The Land Management Plan identifies measures for the management of subsidence remediation including:

- regular inspections of the subsidence zone to identify surface cracking, erosion, compression ridges on steep slopes, surface ponding or any areas of instability;
- subsidence impact will be repaired commensurate with size and scale of impact e.g. major landform impact by filling or ripping the soil and re-compacting. Minor surface cracking may be remediated through the infilling with soil or suitable material; and
- revegetation comparable to pre-mining environment will be established. For pasture areas, revegetation will occur based on the existing landuse and surrounding vegetation. For forested areas (e.g. the Werakata SCA), remediated areas will be revegetated with native species selected based on the surrounding vegetation. All works within the Werakata SCA will be undertaken with the consent of the NSW National Parks and Wildlife Service.

Should subsidence remediation works be necessary for services and public infrastructure, Austar will seek the relevant approvals for any such works prior to the commencement of remediation works.

Future extraction plans are required to be developed and approved for Stage 3 longwall panels LWA11 to LWA19 prior to secondary extraction commencing in those panels.

**Subsidence remains a potential environmental risk during care and maintenance. Austar will continue to undertake subsidence monitoring, inspections and remediation works, as necessary, in accordance with the approved Extraction Plans.**

### **3.3.5 Erosion and Sediment Control**

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

- Site Water Management Plan, which includes the details of the water management structures on site and the Erosion and Sediment Control Plan;
- Ground Disturbance 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 are managed in accordance with a Land Management Plan included as part of an Extraction Plan for the specific mining area. All control devices, if required will be constructed generally in accordance with the 'Blue Book' (DECCW, 2008).

As part of periodic maintenance activities, sediment is removed from site water management structures to maintain their capacity. For ~~dirty~~ mine water management 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 is dried within the area that the sediment basin treats, prior to being used in landscaping at that site.

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

### **3.3.6 Soil Types and Suitability**

Soil types over the underground mining areas were identified in:

- the Stage 3 Modification 2 Environmental Assessment (Umwelt, 2011);
- LWB1-B3 Modification 6 Environmental Assessment (Umwelt, 2015); and
- LWB4-B7 Modification 7 Environmental Assessment (Umwelt, 2017).

This information is used to assist in the management of any topsoil reserves onsite and the management of any ground disturbance works (with respect to the erosion potential of exposed soils).

**Austar will continue to manage topsoil reserves onsite and investigate soil viability and treatment options to support successful revegetation.**

Austar will consider, where appropriate, opportunities that may assist in enhancing rehabilitation areas where a native vegetation community is to be established post mining. These include:

- the use of the topsoil seedbank (where appropriate) to improve species richness;
- undertaking ecological enhancement activities (weed control etc) ahead of clearing, noting that any future clearing is likely to be minimal; and
- management of topsoil stockpiles, including maintaining native species diversity.

Implementation of such opportunities will be on a case by case basis and will need to consider all other relevant aspects, such as safety and asset protection.

### 3.3.7 Capping Materials

There is limited capping and topsoil material available to cap reject emplacement areas.

Stockpiled overburden from old open cut operations is planned to be used as capping material and utilised as a growth medium where appropriate. Chemical characterisation testing may be undertaken on capping material and any available growth substrate to confirm any ameliorants required to facilitate rehabilitation and revegetation growth. Where there is an insufficient volume of topsoil for rehabilitation works, Austar shall utilise organic ameliorants (e.g. compost) sourced from an external provider.

Austar will utilise overburden material for capping of reject emplacement areas, where available. Prior to the utilisation of capping material, geochemical analysis may be undertaken to determine the materials suitability for use as capping material and growth substrate. Ameliorants will be applied to the capping material surface as required to reduce risk to vegetation establishment success. The emplacement of capping material will be undertaken in accordance with site specific processes with all capping emplacement works being supervised by appropriately trained site personnel.

Further details on the capping process and rehabilitation of emplacement areas is included in **Section 7.2.2.3**.

Capping and topsoil material availability will continue to be reviewed during care and maintenance to ensure there is sufficient material to support rehabilitation. The mine closure planning strategy detailed in **Section 2.3.13** includes indicative timeframes for completion of the rehabilitation resources balance. Rehabilitation trials assessing capping layer requirements are detailed in **Section 8.2.1**.

### 3.3.8 Flora and Fauna

The key revegetation goal for Austar is to establish a final landform that is free draining and includes locally occurring vegetation communities (e.g. open grassland and bushland) that are consistent with the surrounding landscape of the area.

Austar undertakes monthly environmental inspections and seasonal monitoring programs in parts of the operation and employs various tools to manage flora and fauna including:

- Stage 3 and Bellbird South LWB1-LWB7 Mining Area Ecological Monitoring Programs;



- Ground disturbance permits;
- Pre-clearance surveys;
- Extraction plans – Biodiversity Management Plans (including monitoring programs as required) over Extraction Plan areas.

Ongoing weed management is undertaken on an as needs basis by a licensed contractor to control weed species of concern.

In accordance with the *Local Land Services Act 2013*, Austar are required to control all declared pest species on their land. Species currently declared pests in NSW that are potentially relevant to Austar include wild rabbits; wild dogs; feral pigs; and foxes.

Austar will implement control actions to assist in the management of these species as necessary. Control actions may include a combination of baiting or trapping, and will be conducted in **accordance with** consultation with the Local Land Services Offices where required.

Flora and fauna impacts are not considered to be significant environmental risks during care and maintenance. Nevertheless, Austar will continue to undertake regular environmental inspections and seasonal monitoring programs over mining areas in accordance with the Extraction Plan Biodiversity Management Plans. Weed and pest animal management will also continue during care and maintenance.

Whilst it is not anticipated at this stage, should the need arise in the future for additional clearing of undisturbed land that has not been previously surveyed, an Ecologist will be engaged to undertake a due diligence inspection as part of the existing excavation permit process. If required, additional processes can be developed and implemented for the salvage of topsoil and biological resources (e.g. seed bank, plant materials, logs, hollows etc.) for use in rehabilitation.

### **3.3.9 Slopes and Slope Management**

Management of slopes in active mining areas will be undertaken in accordance with the Extraction Plan for the relevant underground mining area. The Extraction Plans commit to management strategies to rehabilitate land affected by the underground mining area to reflect pre-mining conditions and maintain consistency with the surrounding landform.

The slopes within the reject emplacement areas will be developed to reflect the existing undulating land surfaces in the surrounding area. All slope management works will be undertaken to achieve the rehabilitation goals and completion criteria for the site. Rehabilitation completion criteria are detailed further in **Table 6.1**.

The following factors will also be considered to maintain or achieve stable slopes with sustainable vegetation cover:

- general reshaping and vegetating to promote slope stability;
- topsoil stabilisation to support vegetation growth;
- linear slope profiles are preferred over concave slope profiles;

- batters on the landform are of a gentle gradient; and
- slopes may be ripped on the contour to create furrows and rilling activities applied to reduce the risk of erosion.

Slope management is not considered to be a significant risk during care and maintenance. Nevertheless, Austar will continue inspections of the active mining areas and reject emplacement areas to ensure that any eroding or unstable slopes are identified and remediated.

### 3.3.10 Air Quality

Air quality at Austar is managed in accordance with the Austar Air Quality and Greenhouse Gas Management Plan developed for its operations. This plan includes the following controls which relate to rehabilitation:

- Optimise load capacity when hauling reject to limit number of return trips and travel distance of haul trucks;
- Speed limit on haul road 50km/hour and 30km/hour at CHPP site;
- Haul roads and other unsealed roads are watered when in use;
- Visual dust monitoring is undertaken by supervisory staff to ensure effective dust control; and
- Regular maintenance of haul roads including grading, and where appropriate gravelling, of heavy trafficked areas. Grader speed is maintained below 8km/hour.

Austar implement the following controls to reduce dust emissions from rehabilitation area projects:

- Reject emplacement area is regularly compacted to stabilise the surface;
- Completed areas are progressively vegetated to reduce area of exposed soils at any one time;
- Minimise double handling of materials;
- Avoid dozer operations at wind exposed areas during dry, windy conditions; and
- Visual monitoring of rehabilitation projects by supervisors, with operations modified or ceased when elevated dust levels are observed to occur.

Air quality is not considered to be a significant risk during care and maintenance. Nevertheless, Austar will continue to manage air quality in accordance with the Austar Air Quality and Greenhouse Gas Management Plan, including maintaining unsealed roads and compacting reject emplacement areas to minimise dust emissions.

### 3.3.11 Surface Water Quality

Austar has developed a detailed Site Water Management Plan (SWMP), which addresses the management of water for the site. The SWMP includes:

- underground mine water management system;

- CHPP water management system including licenced discharge from water treatment plant;
- water balance including the pumping of water from current workings, and the return of mine water from historic underground workings;
- surface water storage and pumping system;
- reporting procedures;
- water management initiatives; and
- surface and ground water monitoring program.

Rehabilitation works are commenced as soon as practicable when areas become available to reduce the volume of **dirty mine** water to be managed by Austar. In addition, reject emplacement areas are designed to assist with the management of runoff into the **dirty mine** water system.

Site specific Erosion and Sediment Control Plans (ESCP) are developed as required for the reject emplacement areas, to minimise risks associated with **dirty mine** water run-off from these areas into surrounding environments. There is an existing ESCP for the Aberdare Extended Emplacement Area.

**Surface water remains a significant environmental risk during care and maintenance. Inadequate inspection/maintenance of water management infrastructure (i.e. erosion and sediment controls, pipelines, dams and drainages) could potentially lead to dam overflows and/or run-off of mine water into the clean water system. To avoid unauthorised discharges and surface water quality impacts, Austar will continue to undertake routine inspections and maintenance of all water management infrastructure in accordance with the Site Water Management Plan.**

### **3.3.12 Groundwater Management**

Austar manages groundwater in accordance with an approved Groundwater Monitoring Program. The Groundwater Monitoring Program has been developed as part of the Site Water Management Plan and discusses the monitoring and management of groundwater inflows and the relevant extraction requirements for Austar. The results of groundwater monitoring undertaken at Austar are reported in the Annual Review.

**Groundwater remains a potential environmental risk during care and maintenance. Austar will continue to manage groundwater in accordance with the Site Water Management Plan and Groundwater Monitoring Program.**

### **3.3.13 Contaminated Land**

To date, no significant areas of contaminated land have been identified at Austar. A phase 1 and 2 contamination assessment will be undertaken during the decommissioning phase of operations. During the operational phase of the site, contamination resulting from environmental incidents (e.g. spills) and areas of high risk associated with hydrocarbon storage infrastructure will be maintained and appropriately managed (e.g. remediated or disposed off-site by an authorised waste contractor) as soon as possible after they occur. Monthly environmental inspections will continue to be undertaken

by site personnel throughout the MOP term to identify and manage any potential contamination prior to mine closure works.

Contamination remains a potential environmental risk during care and maintenance. Austar will continue to undertake routine inspections of surface infrastructure areas where hydrocarbons or chemicals were used, including the CHPP, workshops and fuel storage areas.

Austar will continue to implement controls including bunding, concrete aprons and spill kits, and the waste management practices in **Section 2.3.8** to minimise the potential for contaminated surface water run-off.

#### **3.3.14 Noise**

Austar manages noise impacts in accordance with the approved Noise and Vibration Management Plan. Whilst reject emplacement activities occur on a 24-hour basis, rehabilitation works will be conducted during day time hours only. All equipment utilised in planned rehabilitation works will be maintained to ensure noise levels are appropriately managed.

Noise is not considered to be a significant risk during care and maintenance. Nevertheless, Austar will continue to manage noise in accordance with the Noise and Vibration Management Plan.

#### **3.3.15 Visual and Lighting**

During the MOP term, Austar will implement the following strategies to manage visual impacts from operations:

- any lighting required is located and orientated in a manner which minimises the potential impact upon surrounding properties, in accordance with Australian Standards for lighting;
- advantage is taken of any existing buffers or screening to minimise the potential for light/visual related impacts; and
- utilisation and maintenance of landscaped areas and visual screens.

Visual impacts are not considered to be a significant risk during care and maintenance. Lighting will be reduced where not required for security, and Austar will continue to maintain landscaped areas and visual screens.

#### **3.3.16 Cultural Heritage**

An Aboriginal Cultural Heritage Management Plan (ACHMP) and Historic Heritage Management Plan (HHMP) have been developed and implemented at Austar. Both documents provide the process for the management of unknown sites. Sites may be identified through rehabilitation activities such as topsoil stripping and are to be appropriately managed according to the ACHMP and HHMP.

Heritage impacts remain a potential environmental risk during care and maintenance. Austar will continue to implement the ACHMP and HHMP including managing known and unknown sites identified during ground disturbance works.

### **3.3.17 Bushfire**

Land surrounding Austar’s operations consist predominantly of native woodland and forests, with occasional grassland paddocks. These areas are considered valuable in providing a buffer zone to reduce the impact of operations on nearby private residences, however, do require active management to minimise the risk of bushfires originating, or spreading through Austar property.

A Bushfire Management Plan (BFMP) was developed in consultation with the Rural Fire Service (RFS) to ensure the land owned by Austar 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. Bushfire reduction activities such as vegetation slashing and maintenance within asset protection zones is undertaken at Austar. These areas will continue to be maintained during the MOP term to reduce fuel loads and maintain firebreaks across the site.

**Bushfire remains a potential environmental risk during care and maintenance. Austar will continue to implement the BFMP including undertaking bushfire reduction activities.**

### **3.3.18 Resourcing**

**Resourcing has been identified as an additional potential risk during care and maintenance. Reduced staffing during care and maintenance has the potential to lead to inadequate environmental management by being unable to keep up with the required inspections, monitoring programs, maintenance, studies, rehabilitation and reporting actions. This also increases the risk of being unable to comply with the relevant consents, approvals, leases and licences.**

**Austar will ensure that it retains sufficient resources during care and maintenance to undertake the actions committed to in this MOP, the environmental management plans and other commitments made during the Environmental Assessment process.**

### **3.3.19 Site Security and Public Safety**

**Site security and public safety has been identified as an additional potential risk during care and maintenance. Reduced activities on site have the potential to attract trespassing / theft / vandalism leading to asset damage, environmental impacts or personal injury.**

**The mine site is fenced, clearly signed, patrolled by security contractors and mine personnel, video surveillance of infrastructure areas, and unauthorised access to the site is prohibited; however, Austar may consider additional security measures to deter unauthorised access, such as increasing security patrols and installing additional fencing and signage in problem areas.**

## 4 POST MINING LAND USE

### 4.1 Regulatory Requirements

**Table 4.1** provides a summary of the regulatory requirements relevant to the post mining land use at Austar. Due to the age and specific nature of some of the regulatory requirements in **Table 4-1**, some of the timeframes associated with specific lease conditions have passed, or alternatively, the relevant agency has changed from that specified in development consent conditions. Each of the disturbance areas referred to in the regulatory requirements and final land use commitments for these areas are included in this MOP.

**TABLE 4-1 SUMMARY OF REGULATORY REQUIREMENTS RELATING TO POST MINING LAND USE**

Source	Detail of Regulatory Requirement	Area of Relevance												
Project Approval (PA 08_0111) Schedule 6, Condition 1	The Proponent shall achieve the rehabilitation objectives in Table 6 to the satisfaction of the Executive Director, Mineral Resources. Table 6: Rehabilitation Objectives	Stage 3 Mining Area, Kitchener SIS (Included in this MOP)												
	<table border="1"> <thead> <tr> <th style="background-color: #ff0000; color: white;">Domain</th> <th style="background-color: #ff0000; color: white;">Rehabilitation Objective</th> </tr> </thead> <tbody> <tr> <td>Surface Infrastructure Site</td> <td> <ul style="list-style-type: none"> <li>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</li> </ul> </td> </tr> <tr> <td>Biodiversity offset area</td> <td> <ul style="list-style-type: none"> <li>Implement the offset strategy described in the EA and shown conceptually in Appendix 5</li> </ul> </td> </tr> <tr> <td>Land affected by the project (including watercourses and steep slopes)</td> <td> <ul style="list-style-type: none"> <li>Rehabilitate landform, landuse and ecosystem function to that existing pre-mining and consistent with the surrounding landform</li> <li>Reduce safety hazards to no more than those existing pre-mining</li> <li>Minimise erosion risk</li> </ul> </td> </tr> <tr> <td>Built features</td> <td> <ul style="list-style-type: none"> <li>Repair/restore/replace to pre-mining condition or better, unless a claim under the Mine Subsidence Compensation Act 1961 is made for the repairs, restoration or replacement</li> </ul> </td> </tr> <tr> <td>Community</td> <td> <ul style="list-style-type: none"> <li>Minimise the adverse socio-economic effects associated with mine closure</li> </ul> </td> </tr> </tbody> </table>		Domain	Rehabilitation Objective	Surface Infrastructure Site	<ul style="list-style-type: none"> <li>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</li> </ul>	Biodiversity offset area	<ul style="list-style-type: none"> <li>Implement the offset strategy described in the EA and shown conceptually in Appendix 5</li> </ul>	Land affected by the project (including watercourses and steep slopes)	<ul style="list-style-type: none"> <li>Rehabilitate landform, landuse and ecosystem function to that existing pre-mining and consistent with the surrounding landform</li> <li>Reduce safety hazards to no more than those existing pre-mining</li> <li>Minimise erosion risk</li> </ul>	Built features	<ul style="list-style-type: none"> <li>Repair/restore/replace to pre-mining condition or better, unless a claim under the Mine Subsidence Compensation Act 1961 is made for the repairs, restoration or replacement</li> </ul>	Community	<ul style="list-style-type: none"> <li>Minimise the adverse socio-economic effects associated with mine closure</li> </ul>
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Community	<ul style="list-style-type: none"> <li>Minimise the adverse socio-economic effects associated with mine closure</li> </ul>													
Project Approval (PA 08_0111) Schedule 6, Condition 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.	Stage 3 Mining Area, Kitchener SIS (Included in this MOP)												

Source	Detail of Regulatory Requirement	Area of Relevance
Project Approval (PA 08_0111) Schedule 6, Condition 4	<p>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:</p> <p>(a) be prepared in consultation with the relevant stakeholders by suitably qualified expert/s whose appointment/s 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);</p> <p>(b) in addition to the standard requirements for management plans (see condition 2 of schedule 7), include:</p> <p>(i) the rehabilitation objectives for the site and offset area;</p> <p>(ii) a description of the short, medium, and long term measures that would be implemented to:</p> <ul style="list-style-type: none"> <li>• rehabilitate the site;</li> <li>• implement the offset strategy; and</li> <li>• manage the remnant vegetation and habitat on the site and in the offset area;</li> </ul> <p>(i) performance and completion criteria for the rehabilitation of the site and implementation of the offset strategy;</p> <p>(ii) a detailed description of the measures would be implemented over the next 3 years, including the procedures to be implemented for:</p> <ul style="list-style-type: none"> <li>• minimising and rehabilitating disturbed areas;</li> <li>• implementing the offset strategy;</li> <li>• protecting vegetation and soil outside the disturbance areas;</li> <li>• undertaking pre-clearance surveys;</li> <li>• managing impacts on fauna;</li> <li>• landscaping the site to minimise visual impacts;</li> <li>• conserving and reusing topsoil;</li> <li>• collecting and propagating seed for rehabilitation works;</li> <li>• salvaging and reusing material from the site for habitat enhancement;</li> <li>• controlling weeds and feral pests;</li> </ul>	<p>Stage 3 Kitchener SIS (Included in this MOP). This Land Management Plan details rehabilitation criteria to achieve a forest post-mining land use.</p> <p>This criteria is included in the completion criteria in this MOP as detailed in <b>Section 6</b></p>



Source	Detail of Regulatory Requirement	Area of Relevance				
	<ul style="list-style-type: none"> <li>controlling access; and</li> <li>bushfire management.</li> </ul>					
Project Approval (PA 08_0111) Commitment 1.14.1	A decommissioning plan will be prepared for the Surface Infrastructure Site as part of the MOP process and submitted to the DRE for approval approximately five years prior to the commencement of decommissioning works.	Stage 3 Kitchener SIS (Included in this MOP).				
DA 29/95 Environmental Impact Statement Ellalong Colliery Extension into Bellbird South HLA-Envirosciences, July 1995) Section 7.6, Section 8.9, Section 8.19, Section 9.2.4	<p>The result of the rehabilitation of the emplacements will be an undulating landscape supporting native vegetation similar to surrounding areas and capable of supporting a variety of compatible land uses. It is proposed to return all coarse reject emplacement areas to native bushland.</p> <p>When the mining operation ceases at Pelton/Ellalong, a Management Plan for discontinuance or abandonment will be implemented. This is a condition of the issuing of a Coal Lease under the Mining Act 1992 and the Coal Mines Regulation Act 1982. It is anticipated that the long term rehabilitated land surface will be suitable for small rural acreage land use zoning.</p>	DA29/95 Reject Emplacement Areas, Pelton Colliery, Austar Pit Top				
DA 29/95 Schedule 3 Condition 28	<p>The Applicant must rehabilitate the site to the satisfaction of DRG. This rehabilitation must be generally consistent with the proposed rehabilitation strategy described in the documents listed in Schedule 2, Condition 2, and comply with the objectives in Table 6.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Feature</th> <th>Objective</th> </tr> </thead> <tbody> <tr> <td>All areas affected by the development</td> <td> <ul style="list-style-type: none"> <li>Safe</li> <li>Hydraulically and geotechnically stable</li> <li>Non-polluting</li> <li>Fit for the intended post-mining land use(s)</li> </ul> </td> </tr> </tbody> </table>	Feature	Objective	All areas affected by the development	<ul style="list-style-type: none"> <li>Safe</li> <li>Hydraulically and geotechnically stable</li> <li>Non-polluting</li> <li>Fit for the intended post-mining land use(s)</li> </ul>	Bellbird South Mining Area, DA29/95 Reject Emplacement Areas and DA29/95 Infrastructure Areas
Feature	Objective					
All areas affected by the development	<ul style="list-style-type: none"> <li>Safe</li> <li>Hydraulically and geotechnically stable</li> <li>Non-polluting</li> <li>Fit for the intended post-mining land use(s)</li> </ul>					

Source	Detail of Regulatory Requirement		Area of Relevance
	Areas proposed for native ecosystem re-establishment	<ul style="list-style-type: none"> <li>Establish self-sustaining ecosystems comprising flora species selected to re-establish and complement local and regional biodiversity</li> </ul>	
	Areas proposed for agricultural or pastoral use	<ul style="list-style-type: none"> <li>Nominated land capability classification is achieved and is self-sustaining</li> </ul>	
	Other areas affected by the development	<ul style="list-style-type: none"> <li>Restore ecosystem function, including maintaining or establishing self-sustaining ecosystems comprised of local native plant species appropriate for the intended post mining land use(s) (unless DRG agrees otherwise)</li> </ul>	
	Surface Infrastructure of the development	<ul style="list-style-type: none"> <li>To be decommissioned and removed, unless DRG agree otherwise or development consent is obtained from the relevant consent authority for their retention and post-mining use</li> </ul>	
	Portals and vent shafts of the development	<ul style="list-style-type: none"> <li>To be decommissioned and made safe and stable</li> </ul>	
	Built features damaged by mining operations	<ul style="list-style-type: none"> <li>Repair/restore/replace to pre-mining condition or equivalent unless the: owner agrees otherwise; or damage is fully restored, repaired or compensated for under the Mine Subsidence Compensation Act 1961</li> </ul>	
	Final Landforms	<ul style="list-style-type: none"> <li>Consistent with surrounding topography to minimise visual impacts</li> <li>Incorporate relief patterns and design principles consistent with natural drainage</li> </ul>	
	All watercourses subject to mine-water discharges and/or subsidence impacts from the development	<ul style="list-style-type: none"> <li>Hydraulically and geomorphologically stable</li> <li>Aquatic ecology and riparian vegetation that is the same or better than prior to mining</li> </ul>	
	Water Quality	<ul style="list-style-type: none"> <li>Surface water retained onsite is fit for the intended post mining land use(s)</li> </ul>	
	Cliffs, minor cliffs and steep slopes	<ul style="list-style-type: none"> <li>No additional risk to public safety compared to prior to mining</li> </ul>	

Source	Detail of Regulatory Requirement	Area of Relevance		
	<table border="1" data-bbox="488 320 1778 403"> <tr> <td data-bbox="488 320 831 403">Community</td> <td data-bbox="831 320 1778 403"> <ul style="list-style-type: none"> <li>• Ensure public safety</li> <li>• Minimise adverse socio-economic effects associated with mine closure</li> </ul> </td> </tr> </table> <p data-bbox="488 424 1778 564"><i>Note: These rehabilitation objectives apply to all subsidence impacts and environmental consequences caused by the development and to all surface infrastructure components of the development. Where remediation of watercourses is likely to cause environmental consequences greater than those that require rehabilitation, alternative equivalent works may be undertaken within the affected watercourse.</i></p>	Community	<ul style="list-style-type: none"> <li>• Ensure public safety</li> <li>• Minimise adverse socio-economic effects associated with mine closure</li> </ul>	
Community	<ul style="list-style-type: none"> <li>• Ensure public safety</li> <li>• Minimise adverse socio-economic effects associated with mine closure</li> </ul>			
DA 29/95 Schedule 3 Condition 29	<p data-bbox="488 617 1778 758">The Applicant must rehabilitate the site progressively, that is, as soon as reasonably practicable following disturbance, to the satisfaction of DRG. All reasonable steps must be taken to minimise the total area exposed at any time. Interim stabilisation and temporary vegetation strategies must be employed when areas prone to dust generation, soil erosion and weed incursion cannot be permanently rehabilitated.</p> <p data-bbox="488 858 1778 922"><i>Note: It is accepted that some parts of the site that are progressively rehabilitated may be subject to further disturbance at some later stage of the development.</i></p>	Bellbird South Mining Area, DA29/95 Reject Emplacement Areas and DA29/95 Infrastructure Areas		
DA 74/75/79 Report on the Environmental Impact Investigation for the Aellalong Project (James B. Croft & Associates, October 1975) Section 2.4.8, Section 4.3.7	<p data-bbox="488 1058 1778 1198">The disposal of washery wastes on the Company's freehold to the north and south of the Wollombi Road will be determined by a Rehabilitation Management Plan which will have the future use of the areas as the long-term objective. Future uses not determined. General establishment of grass cover. Tree planting will be undertaken according to the Company's plans for the development of the sites.</p>	DA74/75/79 Reject Emplacement Areas		

Source	Detail of Regulatory Requirement	Area of Relevance
Development Consent (DA 118/691/181) Condition 8	The preparation of a Site Rehabilitation and Management Plan to the satisfaction of the Soil Conservation Service and Council prior to commencement of any works. Specific issues to be addressed include: (i) Design of contour banks and benches (ii) A comprehensive revegetation strategy addressing soil stability concerns (iii) Topsoil management including topsoil testing (iv) Soil erosion sedimentation control (v) Plan of final rehabilitated landform (vi) Clearing and stripping of topsoil (vii) Use of native seeds obtained from surrounding vegetation to enhance the genetic integrity of the site (viii) Drainage	Pelton Colliery (area included within this MOP)
Development Consent (DA 118/691/181) Condition 9	All rehabilitated areas will be maintained until such time as the surface has developed a density of vegetative cover that minimises surface erosion to the satisfaction of Council. In this regard a report from the Soil Conservation Service shall be lodged.	Pelton Colliery (area included within this MOP)
DA 118/691/181 – Statement of Environmental Effects for Proposed Open Cut at Pelton Colliery (Wayne Perry & Associates, October 1991) Section 2.4	Rehabilitation of disturbed areas will include earthworks to create a stable landform and revegetation to establish a similar Eucalypt vegetative cover as exists at present. Two ephemeral watercourses which flow through the area to be mined will be reinstated.	Pelton Colliery Open Cut (Included in this MOP)

Source	Detail of Regulatory Requirement	Area of Relevance
Development Consent (DA 118/691/229) Condition 8	The preparation of a Site Rehabilitation and Management Plan to the satisfaction of the Soil Conservation Service and Council within three (3) months of the issue of consent. Specific issues to be addressed include: - (i) Design of batters (ii) A comprehensive revegetation strategy addressing soil stability (iii) Topsoil management (iv) Soil erosion and sedimentation control. (v) Water management structures including spillways and channels (vi) Use of native seeds obtained from surrounding vegetation to enhance the genetic integrity of the site (vii) Rehabilitation of the man made channel (viii) Drainage	Pelton Colliery (area included within this MOP)
Development Consent (DA 118/691/229) Condition 9	All rehabilitated areas will be maintained until such time as the surface has developed a density of vegetative cover that minimises surface erosion to the satisfaction of Council. In this regard a report from the Soil Conservation service shall be lodged.	Pelton Colliery (area included within this MOP)
DA 118/691/229 - SEE for Extension and Modification of the Raw Coal and Washed Coal Handling Systems and Upgrading of the Water Management System at Pelton Colliery (Wayne Perry & Associates, May	The objectives of the rehabilitation program associated with the proposed development works are: to repair disturbed areas; to stabilise steep batter slopes and water management structures: and to reduce the extent of bare areas which are potentially dust-generating.	Pelton CHPP (Included in this MOP)

Source	Detail of Regulatory Requirement	Area of Relevance
1992) Section 2.4.8, Section 4.3.7		
Development Consent (DA 118/693/42) Condition 6	<p>The preparation of a Site Rehabilitation and Management Plan to the satisfaction of the Soil Conservation Service and Council prior to commencement of any works.</p> <p>Specific issues to be addressed include:</p> <ul style="list-style-type: none"> <li>(i) Design of contour banks and benches</li> <li>(ii) A comprehensive revegetation strategy addressing soil stability concerns</li> <li>(iii) Topsoil management including topsoil testing</li> <li>(iv) Soil erosion sedimentation control</li> <li>(v) Plan of final rehabilitated landform</li> <li>(vi) Clearing and stripping of topsoil</li> <li>(vii) Use of native seeds obtained from surrounding vegetation to enhance the genetic integrity of the site</li> <li>(viii) Drainage</li> </ul>	Pelton Colliery – Maitland Main Open Cut (area included within this MOP)
Development Consent (DA 118/693/42) Condition 7	All rehabilitated areas will be maintained until such time as the surface has developed a density of vegetative cover that minimises surface erosion to the satisfaction of Council. In this regard a report from the Soil Conservation Service shall be lodged.	Pelton Colliery – Maitland Main Open Cut (area included within this MOP)
DA 118/691/42 – Statement of Environmental Effects for Proposed Open Cut Maitland Main Extension (Wayne Perry &	<p>The objective of the rehabilitation program is to rehabilitate the backfilled open cut to a self-sustainable Eucalypt woodland, similar to that which exists at present. At the request of the landowner, reinstated land within the Maitland Main area with satisfactory slopes (less than 1V:6H or 10°) will be rehabilitated to a standard suitable for grazing. Post-mining land capability, as shown in Figure 5 will comprise a combination of Classes IV, VI and VII, similar to the pre-mine land capability as shown in Figure 8.</p>	Pelton Colliery Open Cut (Included in this MOP)

Source	Detail of Regulatory Requirement	Area of Relevance
Associates, January 1993) Section 2.4		
DA 118/695/22 Consent Condition for Establishment of Overburden Stockpile on Part Lot 1 DP 69968 Main Road 218, Pelton	Once the stockpile is removed its area will be rehabilitated in accordance with the requirements of the Department of Mineral Resources and the provisions of the Statement of Environmental Effects approved for the Pelton Open Cut Mine.	Pelton Colliery Open Cut – Overburden Stockpile (Included in this MOP)
Mining Lease (Consolidated Coal Lease No. 2 (1992)) Condition 7	Disturbed land must be rehabilitated to a sustainable/agreed end land use to the satisfaction of the Director-General.	CML2 (Included in this MOP)
Mining Lease (Consolidated Coal Lease No. 728 (1973)) Condition A-2-3	The precipitate dam (area 9d) is to be mucked out and desilted. The desilted material is to be disposed of within open cut void areas.	CHPP precipitate dam
Mining Lease (Consolidated Coal Lease No. 728 (1973)) Condition A-2-4	All pollution control dams (areas 9a, 9b, 9g, 9i) are to be desilted and stabilised to maintain storage capacity.	CHPP pollution control dams

Source	Detail of Regulatory Requirement	Area of Relevance
Mining Lease (Consolidated Coal Lease No. 728 (1973)) Condition A-2-5	The Aberdare Extended area (6ha) is to be rehabilitated with capping material and maintained, with work to be carried out as scheduled (or earlier) in the Rehabilitation Plan. Earthworks are to commence by the end of the first quarter 1999 and are to be completed by 1 July 2000.	Aberdare Extended Emplacement Area (Timing has passed) Aberdare Emplacement Area included within this MOP
Mining Lease (Consolidated Coal Lease No. 728 (1973)) Condition 22	Upon completion of operations on the surface of the subject area or upon the expiry or sooner determination of this authority or any renewal thereof, the lease holder shall remove from such surface such buildings, machinery, plant, equipment, constructions and works as may be directed by the Minister and such surface shall be rehabilitated and left in a clean, tidy and safe condition to the satisfaction of the Minister.	CCL728 (Included in this MOP)
Mining Lease (Consolidated Coal Lease No. 728 (1973)) Condition A-2-2	The tailings ponds areas (1a, 1b, 1c) are to be cleaned out and kept for emergency use only until final rehabilitation is carried out according to final completion criteria satisfactory to the Department of Mineral Resources. The areas are not to be used to store acid water or acid forming materials except in the case of such emergency. In such event the water/material shall be treated as rapidly as is practical within sound treatment plant and mine site operational practice and the area dewatered.	Pelton Colliery (Included in this MOP)
Mining Lease (Consolidated Coal Lease No. 752 (1973)) Condition 22	Upon completion of operations on the surface of the subject area or upon the expiry or sooner determination of this authority or any renewal thereof, the lease holder shall remove from such surface such buildings, machinery, plant, equipment, constructions and works as may be directed by the Minister and such surface shall be rehabilitated and left in a clean, tidy and safe condition to the satisfaction of the Minister.	CCL752 (Included in this MOP)



Source	Detail of Regulatory Requirement	Area of Relevance
Mining Lease (Dam Site Lease 89 (1901)) Condition 5	Upon completion of operations on the surface of the subject area or upon the expiry or sooner determination of this lease or any renewal thereof, the registered holder shall remove from such surface such buildings, machinery, plant, equipment, constructions and works as may be directed by the Minister and such surface shall be rehabilitated and left in a clean, tidy and safe condition to the satisfaction of the Minister.	DSL89 - Portion of rail line (Included in this MOP)
Mining Lease (Mineral Lease No. 1157 (1906)) Condition 13	<p>(a) Land disturbed must be rehabilitated to a stable and permanent form suitable for a subsequent land use acceptable to the Director-General and in accordance with the Mining Operations Plan so that:-</p> <ul style="list-style-type: none"> <li>• there is no adverse environmental effect outside the disturbed area and that the land is properly drained and protected from soil erosion.</li> <li>• the state of the land is compatible with the surrounding land and land use requirements.</li> <li>• the landforms, soils, hydrology and flora require no greater maintenance than that in the surrounding land.</li> <li>• in cases where revegetation is required and native vegetation has been removed or damaged, the original species must be re-established with close reference to the flora survey included in the Mining Operations Plan. If the original vegetation was not native, any re-established vegetation must be appropriate to the area and at an acceptable density.</li> <li>• the land does not pose a threat to public safety.</li> </ul> <p>(b) Any topsoil that is removed must be stored and maintained in a manner acceptable to the Director-General.</p>	Aberdare Extended Emplacement Area (Included in this MOP)
Mining Lease (Mineral Lease No. 1283 (1906)) Condition 22	Upon completion of operations on the surface of the subject area or upon the expiry or sooner determination of this authority or any renewal thereof, the lease holder shall remove from such surface such buildings, machinery, plant, equipment, constructions and works as may be directed by the Minister and such surface shall be rehabilitated and left in a clean, tidy and safe condition to the satisfaction of the Minister.	Aberdare Extended Emplacement Area (Included in this MOP)
Mining Lease (Mineral Lease No. 1283 (1906)) Special Condition Annexure 1: Condition 1	<p>a) The leaseholder shall proceed with rehabilitation works at the Pelton Site (Coal Preparation Plant and Open Cut Mining Areas) and Aberdare Extended Site (Coal Washery Rejects Emplacement) in general accordance with those works documented in:</p> <p>ELLALONG/PELTON COLLIERY REHABILITATION PLAN</p>	Aberdare Extended Emplacement Area (Rehabilitation strategy for

Source	Detail of Regulatory Requirement	Area of Relevance
	SOUTHLAND COAL JUNE 1998 b) Rehabilitation works documented in 1(a) above are to be varied in accordance with the variations specified in Annexure A-2. c) Rehabilitation works as documented in 1(a) above and as may be varied in 1(b) above are to be integrated and documented in the Mining Operations Plan referred to in 2 under.	Aberdare included in this MOP)
Mining Lease (Mineral Lease No. 1283 (1906)) Special Condition Annexure 2: Condition 5	The Aberdare Extended area (6ha) is to be rehabilitated with capping material and maintained, with work to be carried out as scheduled (or earlier) in the Rehabilitation Plan. Earthworks are to commence by the end of the first quarter 1999 and are to be completed by 1 July 2000.	Aberdare Extended Emplacement Area (Rehabilitation strategy for Aberdare included in this MOP)
Mining Lease (Mining Lease 1345 (1992)) Condition 9	Subject to any specific condition of this authority providing for rehabilitation of any particular part of the subject area affected by mining or activities associated therewith, the lease holder shall; (a) shape and revegetate to the satisfaction of the Minister, any part of the subject area that may, in the opinion of the Minister have been damaged or deleteriously affected by mining operations and ensure such areas are permanently stabilised, and, (b) reinstate and make safe, including sealing and/ or fencing, any excavation within the subject area.	Aberdare Extended Emplacement Area (Included in this MOP)
Mining Lease (Mining Lease 1345 (1992)) Condition 13	Upon completion of operations on the surface of the subject area or upon the expiry or sooner determination of this authority or any renewal thereof, the lease holder shall remove from such surface such buildings, machinery, plant, equipment, constructions and - works as may be directed by the Minister and such surface shall be rehabilitated and left in a clean, tidy and safe condition to the satisfaction of the Minister.	Aberdare Extended Emplacement Area (Included in this MOP)

Source	Detail of Regulatory Requirement	Area of Relevance
Mining Lease (Mining Lease 1550 (1992)) Condition 22	Upon completion of operations on the surface of the subject area or upon the expiry or sooner determination of this authority or any renewal thereof, the lease holder shall remove from such surface such buildings, machinery, plant, equipment, constructions and works as may be directed by the Minister and such surface shall be rehabilitated and left in a clean, tidy and safe condition to the satisfaction of the Minister.	Kalingo Infrastructure Area (No. 3 Shaft area) (Included in this MOP)
Mining Lease (Mining Lease 1661 (1992)) Condition 7	Any disturbance as a result of activities under this lease must be rehabilitated to the satisfaction of the Director-General.	Stage 3 Mining Area (Included in this MOP)
Mining Lease (Mining Lease 1666 (1992)) Condition 7	Any disturbance as a result of activities under this lease must be rehabilitated to the satisfaction of the Director-General.	Stage 3 Mining Area (Included in this MOP)
Mining Lease (Mining Lease 1677 (1992)) Condition 7	Any disturbance as a result of activities under this lease must be rehabilitated to the satisfaction of the Director-General.	Stage 3 Kitchener SIS (Included in this MOP)
Mining Lease (Mining Purposes Lease No. 1364 (1906)) Condition 7	Disturbed land must be rehabilitated to a sustainable/agreed end land use to the satisfaction of the Director-General.	Austar rail line (Included in this MOP)
Mining Lease (Mining Purposes Lease No. 204 (1906)) Condition 22	Upon completion of operations on the surface of the subject area or upon the expiry or sooner determination at this authority or any renewal thereof, the lease holder shall remove from such surface such buildings, machinery, plant, equipment, constructions and works as may be directed by the Minister and such surface shall be rehabilitated and left in a clean, tidy and safe condition to the satisfaction of the Minister.	Aberdare Extended Emplacement Area (Included in this MOP)

Source	Detail of Regulatory Requirement	Area of Relevance
Mining Lease (Mining Purposes Lease No. 23 (1906)) Condition 7	Disturbed land must be rehabilitated to a sustainable/agreed end land use to the satisfaction of the Director-General.	Austar rail line (Included in this MOP)
Mining Lease (Mining Purposes Lease No. 233 (1906)) Schedule 2, Condition 2	<b>Rehabilitation</b> Any disturbance resulting from the activities carried out under this mining lease must be rehabilitated to the satisfaction of the Minister.	Aberdare Extended Emplacement Area (Included in this MOP)
Mining Lease (Mining Purposes Lease No. 269(1906)) Condition 15	Upon the completion of operations on the surface of the subject area or upon the expiry or sooner determination of this lease or any renewal thereof the registered holder shall remove from such surface such works and other constructions as may be required by the Minister and such surface shall be rehabilitated and left in a clean, tidy and safe condition to the satisfaction of the Minister.	Austar rail line (Included in this MOP)

## 4.2 Post Mining Land Use Goal

The final land uses described throughout this document are ~~those approved in Austar's various consents, however may indicative only and will~~ be further refined as the operation undertakes detailed mine closure planning and land use analysis ~~closer to the end of mine life. Closure is not anticipated within this MOP term.~~

During the MOP term, a preliminary final land use ~~options and opportunities~~ assessment will be undertaken ~~to determine potential land uses for the various surface sites post closure~~, and will involve consultation with the relevant government agencies including Cessnock City Council, ~~DRG, RFS~~ and landowners (where not Austar owned land). The preliminary final land use ~~options~~ assessments will be undertaken for all Domains as identified on **Plans 2A - 2I**. The preliminary final land use ~~options~~ assessment will take into consideration:

- approved final land uses;
- a high-level review of land use zoning; and
- current land use, ~~and~~
- ~~results of any contamination assessments for Austar's surface mining lease areas, conducted during the MOP term.~~

The results of these studies will identify constraints to the potential final land use ~~options~~ for each of the surface sites. The Aberdare Extended Emplacement Area is mainly privately owned land which is zoned for rural land use, ~~and is proposed to be rehabilitated during the MOP term~~. Austar has committed to returning an open grassland area to the landholder. The final land use for that area will be at the landowner's discretion within that land zoning.

The conceptual final landform design and rehabilitation plans are provided in **Plans 4A to 4J**. The rehabilitated final landforms are designed to produce a stable landform and vegetation that is consistent with surrounding landscapes and Project Approval requirements.

Infrastructure areas including pit top, CHPP and reject emplacement areas, will be rehabilitated to a range of grassland and forest communities. For the Stage 3 mining area, the Bellbird South mining area, and the Kitchener Surface Infrastructure Site, the final landuse domains have been developed through commitments made during the Environmental Assessment (EA) process. Rehabilitation objectives for the Kitchener Surface Infrastructure Site are set out in Project Approval 08\_0111 which states that Austar shall rehabilitate the Kitchener Surface Infrastructure Site to a structured native vegetation community similar to that existing pre-mining, or other landuse approved by the ~~Director-General of DP&E Planning Secretary at DPIE~~, and to the satisfaction of the Executive Director ~~Mineral Resources Regional NSW – RR~~. In accordance with this condition, Austar proposes to establish native bushland (forest) at the Kitchener SIS.

~~The preliminary final land use assessment will include a strategy to refine the final land use identified prior to mine closure.~~

### 4.3 Rehabilitation Objectives

The primary objective of post-mining rehabilitation works on lands managed by Austar is to create a stable final landform that is consistent with the surrounding natural landscape with acceptable post-mining land use capability. The conceptual final land use plans are provided as **Plans 4A to 4J**. Rehabilitation of the reject emplacement areas will be conducted progressively over the life of the mine, as an integral component of mining operations. All rehabilitation works will be scheduled to occur progressively as soon as practicable following disturbance. Rehabilitation of infrastructure areas including the Austar Pit Top, Kitchener SIS and the Pelton CHPP will occur as soon as practical following decommissioning of infrastructure. This approach will also minimise the total disturbed area at any one time while reducing the potential environmental and visual impact of mining operations.

The proposed conceptual final land use for the various surface sites will enable the re-establishment of a variety of vegetation types. Final land use assessments in future MOP terms will further refine the proposed final land use for the operations.

In accordance with Condition 1 of Schedule 6 of PA 08\_0111 and Condition 29 of Schedule 3 of DA 29/95, **TABLE 4-2** provides a summary of the objectives for the various post mining land uses specific to the relevant development areas. Preliminary completion criteria for the site are provided in **Section 6**.

**TABLE 4-2 OBJECTIVES OF FINAL LAND USE**

Project Approval Area	Rehabilitation Objective
Kitchener SIS (PA08_0111)	<ul style="list-style-type: none"> <li>Revegetate the cleared portion of the site with a structured native vegetation community similar to that existing pre-mining environment, or other landuse approved by the Director-General of the Department of Planning and Environment</li> </ul>
Biodiversity Offset Area (PA08_0111)	<ul style="list-style-type: none"> <li>Implement the offset strategy described in the Stage 3 Modification EA (complete).</li> </ul>
Land affected by the project (including watercourses and steep slopes) (PA08_0111)	<ul style="list-style-type: none"> <li>Rehabilitate landform, landuse and ecosystem function to the existing pre-mining environment and consistent with surrounding landform;</li> <li>Reduce safety hazards to no more than those existing pre-mining; and</li> <li>Minimise erosion risk.</li> </ul>
Land affected by the development (including watercourses and steep slopes) (DA29/95)	<ul style="list-style-type: none"> <li>Rehabilitate the site so that landuse and ecosystem function is the same as pre-mining and consistent with the surrounding landform</li> <li>Reduce safety hazards to no more than those existing pre-mining</li> <li>Minimise erosion risk</li> </ul>
PA08_0111 & DA29/95 - Built features	<ul style="list-style-type: none"> <li>Repair / restore / replace to pre-mining condition or better, unless a claim under the <i>Mine Subsidence Compensation Act 1961</i> is made for the repairs, restoration or replacement.</li> </ul>
Community	<ul style="list-style-type: none"> <li>Minimise the adverse socio-economic effects associated with mine closure.</li> </ul>

## 5 REHABILITATION PLANNING AND MANAGEMENT

Rehabilitation objectives are outlined in regulatory approvals and detailed in **Section 4.3**. The mine is split into Primary domains and Secondary domains as defined by the MOP Guideline.

Primary Domains, or Operational Domains are defined based on land management within the mine site – they generally have similar geophysical characteristics due to their operational and functional purpose while mining.

Secondary Domains, or Post Mining Land Use Domains are defined as land management units characterised by a similar post mining land use objective.

### 5.1 Domain Selection

The primary domains at Austar are provided in **Plans 2A to 2I** and are detailed in **Table 5-1** below. The primary domains are based on Table 4 of the MOP Guidelines (DRE, 2013).

**TABLE 5-1 PRIMARY AND SECONDARY DOMAINS FOR AUSTAR**

Primary (or operational) Domain	Code	Proposed Final Landuse (secondary Domain)
Infrastructure (all surface infrastructure sites except for Kitchener SIS and CHPP)	1C	Rehabilitation Area - Grassland
Infrastructure (Kitchener SIS and CHPP)	1F	Rehabilitation Area - Forest
Tailings Storage Facilities / Reject Emplacement Areas	2C	Rehabilitation Area - Grassland
Water Management	3C	Rehabilitation Area - Grassland
Water Management	3B	Water Management (remain at closure)
Stockpiled Material	5F	Rehabilitation Area - Forest
Rehabilitation Area	7C	Rehabilitation Area - Grassland
Underground Mining Areas	8F, 8D	Rehabilitation Area – Forest, Rehabilitation Area - Pasture

#### 5.1.1 Infrastructure

The various Austar infrastructure sites and their proposed conceptual final landuse are provided in **Table 5.2** below.

**TABLE 5-2 PRELIMINARY FINAL LANDUSES FOR AUSTAR SURFACE INFRASTRUCTURE FACILITIES**

Infrastructure Site	Conceptual Final Landuse
CHPP Infrastructure Area	Rehabilitation Area – Grassland & Forest
Austar Pit Top Facilities	Rehabilitation Area - Grassland
Kitchener SIS	Rehabilitation Area - Forest
Rail Line Infrastructure	Rehabilitation Area – Grassland

Infrastructure Site	Conceptual Final Landuse
Shaft Sites No.1 to No.3	Rehabilitation Area - Grassland
Kalingo Pit Top Site	Rehabilitation Area - Grassland

These conceptual final landuses have been developed for the purposes of this MOP based on a review of the approvals information for the various surface facilities. Further detailed assessments for final landuse for each surface site will be undertaken as the operation approaches closure.

~~All infrastructure sites will be in operation during the term of this MOP.~~

## 5.1.2 Tailings Storage Facilities and Reject Emplacement Areas

### 5.1.2.1 Tailings

If operations recommence during the MOP period, Austar will continue to return tailings to former underground workings. This will be undertaken utilising a series of boreholes. **Section 2.3.5** provides additional information on the tailings management strategy ~~for the period of the MOP~~. It is proposed that tailings disposal facilities will ~~continue to be used~~ remain active during the term of this MOP. The indicative final landuse for tailings borehole locations are shown on **Plan 4J**.

Previously tailings were stored in the Northwest and No.9 tailings storage areas. As discussed within **Section 2.3.7**, these areas may potentially be excavated and the material blended with Austar product coal if operations recommence during the MOP term, pending market conditions.

### 5.1.2.2 Reject Emplacement

Several active reject emplacement areas are utilised at Austar with emplacement following the progression of mining activities. The following areas are included in the Reject Emplacement Area domain and are annotated on **Plans 2B and 2C**:

- Aberdare Extended Reject Emplacement Area;
- North-West Emplacement Area (including noise bund);
- East Pit Emplacement Area; and
- West Pit Emplacement Area

Austar have approval for additional reject emplacement areas, if required. These reject emplacement areas are shown on **Figure 2-1**. Storage calculations completed for this MOP indicate that additional approved reject emplacement areas may need to be utilised beyond this MOP term.

Further rehabilitation works may be undertaken in the MOP term in capping and rehabilitating emplacement areas. Rehabilitation processes are discussed in **Section 7**. Proposed rehabilitation schedules for the reject emplacement areas are shown on **Plans 3B and 3C**.



### 5.1.3 Water Management Areas

The Water Management Domain includes:

- The water management infrastructure including **Dirty Mine** Water Management system and associated pipeline infrastructure at the CHPP;
- **Dirty Mine** water and clean water dams at the remaining infrastructure sites, including the Austar Pit Top Dam and the Kalingo Dam; and
- Creek Realignment (CHPP area).

The indicative final landuse for dams are shown on the various plans for the infrastructure sites on **Plans 4A to 4J**. The final landuse for the dams have been designated as either clean water dams to remain at closure, or **dirty mine** water dams to be rehabilitated and grassed. Further detailed information on the closure requirements and final landuse of the various dams will be completed as part of a detailed closure phase of works which will include detailed drainage design.

### 5.1.4 Stockpiled Material

The stockpiled material domain includes ROM and product stockpiles, tailings drying area and other areas as shown on **Plan 2B**. The product stockpile area is adjacent to the overland conveyor extending from the CHPP area to the Rail Line (refer to **Plan 2B**). Rehabilitation works at closure would involve ripping of hardstand areas and rehabilitation with forest species.

### 5.1.5 Rehabilitation

This domain includes buffer lands and previously disturbed areas of the CHPP which require rehabilitation but are currently not utilised for operational purposes. The final land use for the purposes of this MOP includes grassland and wooded landforms.

### 5.1.6 Underground Mining Area

For the purposes of this MOP, the underground mining area includes the Stage 3 Mining Area and the Bellbird South Mining Area as detailed on **Plan 3A**. These are anticipated to be the only active underground mining areas during the term of this MOP.

## 5.2 Domain Rehabilitation Objectives

Domain rehabilitation objectives have been developed for Austar and are based on regulatory requirements and are subject to detailed further final landuse options assessments which will be completed as closure approaches. The domain rehabilitation objectives are detailed in **Table 5-3**. Management of potential environmental risks will be controlled as described in **Section 3.2**.

**TABLE 5-3 SUMMARY OF REHABILITATION OBJECTIVES OF THE PRIMARY DOMAINS FOR AUSTAR**

Primary Domain	Code	Rehabilitation Objective
Infrastructure (42.65 ha)	1C, 1F	<ul style="list-style-type: none"> <li>Removal of infrastructure to ensure the site is safe and free of hazardous materials.</li> <li>Provide soil chemical and physical properties or alternate growth medium that is suitable for the establishment and maintenance of the selected vegetation species.</li> <li>Selected vegetation established</li> <li>Runoff water quality from the rehabilitated area is within the range of water quality data recorded from analogue sites.</li> </ul>
Tailings Storage Facilities and Reject Emplacement Area (84.6 ha)	2C	<ul style="list-style-type: none"> <li>Provide a self-sustaining landform post mine closure.</li> <li>Design of capping to prevent soil erosion and exposure of tailings and reject material.</li> <li>Where appropriate, incorporate ameliorants prior to capping.</li> <li>Provide growth medium that is suitable for the establishment and maintenance of the selected vegetation species.</li> <li>Selected vegetation established.</li> <li>Runoff water quality from the rehabilitated area is within the range of water quality data recorded from analogue sites.</li> </ul>
Water Management Area (21.8 ha)	3B, 3C	<ul style="list-style-type: none"> <li>Provide a self-sustaining landform post mine closure.</li> <li>Selected vegetation established.</li> </ul>
Stockpiled Material (15 ha)	5C	<ul style="list-style-type: none"> <li>Provide a self-sustaining landform post mine closure.</li> <li>Remove or cap carbonaceous material.</li> <li>Provide growth medium that is suitable for the establishment and maintenance of the selected vegetation species.</li> <li>Selected vegetation established.</li> <li>Runoff water quality from the rehabilitated area is within the range of water quality data recorded from analogue sites.</li> </ul>
Rehabilitation Area (18.9 ha)	7C	<ul style="list-style-type: none"> <li>Provide a self-sustaining land form post mine closure.</li> <li>Remove or cap carbonaceous material.</li> <li>Provide soil chemical and physical properties or alternate growth medium that is suitable for the establishment and maintenance of the selected vegetation species.</li> <li>Selected vegetation established.</li> </ul>

Primary Domain	Code	Rehabilitation Objective
		<ul style="list-style-type: none"> <li>Runoff water quality from the rehabilitated area is within the range of water quality data recorded from analogue sites.</li> </ul>
Underground Mining Areas - 20mm subsidence contour estimate (1,607 ha)	8F, 8D	<ul style="list-style-type: none"> <li>The above area is safe and does not present a hazard to people or the environment.</li> <li>Groundcover comparable to pre-mining environment is established following any required subsidence remediation activities.</li> </ul>

Note: Table 5.3 was developed in accordance with requirements of Table 4 of the MOP Guidelines.

### 5.3 Rehabilitation Phases

Successful rehabilitation can be described in logical steps or phases, with different completion criteria defined and achieved in each phase before moving to the next. Some final land uses require a progression through more phases than others (such as the establishment of native flora and fauna on overburden compared to subsidence repair in an agricultural setting). Rehabilitation will be conducted at Austar as soon as practicable following the completion of mining activities. Most areas remain active during the MOP term, ~~except for areas of rehabilitation (eg. Parts of Aberdare Emplacement Area).~~ **Table 5-4** outlines the phase of rehabilitation for each Domain at the end of the MOP term. Rehabilitation activities to be undertaken during the MOP term are detailed in **Section 7.2**.

**TABLE 5-4 PRIMARY AND SECONDARY DOMAINS FOR AUSTAR AS AT 2026**

Rehabilitation Phase	Infrastructure	Tailings Storage Facility & Reject Emplacement Area	Water Management Area	Stockpiled Material	Underground Mining Area (Extraction Plan)
Active Mining Area	Yes	Yes	Yes	Yes	Yes
Decommissioning	No	No	No	No	No
Landform establishment	No	Yes*	No	No	No
Growing Medium Development	No	Yes*	No	No	No
Ecosystem and Land Use Establishment	No	Yes*	No	No	Yes <sup>#</sup>
Ecosystem and Land Use Sustainability	No	Yes*	No	No	Yes <sup>#</sup>
Relinquished Lands	No	No	No	No	No

\* Rehabilitation phases undertaken at the Aberdare Emplacement Area, ~~and East Pit Emplacement Area~~

<sup>#</sup> Subsidence remediation works undertaken as required including remediation of subsidence cracks. As these works are minor in nature and the location of these works is not defined, the Underground Mining Area is all classified in the Ecosystem and Landuse sustainability phase.

## 6 COMPLETION / RELINQUISHMENT CRITERIA

### 6.1 Completion Criteria

The preliminary performance indicators and completion criteria represented in **Table 6-1** of this MOP are representative of the current knowledge (including from monitoring data and operational experience) relating to the proposed final landform at Austar. Given the current phase of operations and anticipated life of mine for Austar, the criteria provided in **Table 6-1** are preliminary and are expected to be amended as mining progresses. ~~A preliminary options assessment for final land use will be undertaken during the MOP term (refer to **Section 4.2**), however, final land use assessments for the operation will be undertaken during the detailed closure phase and are not anticipated to occur during the term of this MOP.~~ Therefore, the final land use domains provided in **Table 6-1** are indicative and will be amended or further developed in future MOPs and during detailed mine closure planning.

Indicators and criteria specific to the Kitchener SIS have been drawn from the Kitchener SIS Landscape Management Plan, while indicators and criteria for the active Mining Areas have been drawn from the Land Management Plan for the Stage 3 Mining Area and the LWB4-LWB7 Land Management Plan as part of the relevant Extraction Plans.

Data from existing Austar ecological monitoring programs have been utilised in the development of draft ecological performance indicators.

**TABLE 6-1 PRELIMINARY REHABILITATION COMPLETION CRITERIA**

Objective	Performance Indicator	Completion Criteria	Justification / Source	Complete (yes/no)	Applicable Site Area	Progress at start of MOP	Link to TARP
<b>Phase - Decommissioning</b>							
<b>Domain 1 - Infrastructure</b>							
All non-heritage infrastructure removed to ensure the site is safe and free of hazardous materials	Services: removal of all services (power, water, communications, roads)	Services not required for post mining land use has been removed.  Any services remaining are documented on the final landform plan in the closure MOP.	Mining Lease	No	Infrastructure	Infrastructure in use throughout MOP period.	N/A
	Rehabilitation of open boreholes used in the operations.	Boreholes used for operational purposes / monitoring that are no longer required for operations / monitoring purposes are rehabilitated in accordance with 'EDG 01 Borehole Sealing Requirements on Land'.	Mining Lease	No	Infrastructure	Infrastructure in use throughout MOP period.	N/A
	Ventilation Shafts and mine openings.	Shafts 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)'.	Mining Lease	No	Infrastructure	Infrastructure in use throughout MOP period.	N/A
	Kitchener SIS: removal of the SIS and all associated structures.	Infrastructure not required for post mining land use has been removed.  Hazardous materials removed to appropriate	PA 08_0111	No	Kitchener SIS	Infrastructure in use throughout MOP period.	N/A

Objective	Performance Indicator	Completion Criteria	Justification / Source	Complete (yes/no)	Applicable Site Area	Progress at start of MOP	Link to TARP
<b>Phase - Decommissioning</b>							
		standards (where applicable). Any infrastructure remaining are documented on the final landform plan in the closure MOP.					
	CHPP and associated infrastructure: removal of the CHPP and all associated conveyors and structures	Infrastructure not required for post mining land use has been removed. Hazardous materials removed to appropriate standards (where applicable). Any infrastructure remaining are documented on the final landform plan in the closure MOP.	Mining Lease	No	CHPP	Infrastructure in use throughout MOP period.	N/A
	Office and Workshop: demolition and removal of all office and workshop related facilities including refuelling facilities. Explosives and storage area removed.	Infrastructure not required for post mining land use has been removed. Any infrastructure remaining are documented on the final landform plan in the closure MOP.	Mining Lease	No	Austar Pit Top	Infrastructure in use throughout MOP period.	N/A
	Pumps, pipes and power: removal of water management infrastructure.	Infrastructure not required for post mining land use has been removed. Any infrastructure remaining are documented on the final landform plan in the closure MOP.	Mining Lease	No	Infrastructure	Infrastructure in use throughout MOP period.	N/A
	Dismantle CHPP rail facilities & load out.	Rail facilities and load out removed.	Mining Lease	No	CHPP Rail spur and loadout	Rail spurs in use throughout MOP period.	N/A

Objective	Performance Indicator	Completion Criteria	Justification / Source	Complete (yes/no)	Applicable Site Area	Progress at start of MOP	Link to TARP
<b>Phase - Decommissioning</b>							
	Removal of rail line	Infrastructure not required for post mining land use has been removed. Any infrastructure remaining are documented on the final landform plan in the closure MOP.	Cessnock City Council LEP / Heritage Listing	No	Austar Rail Line	Rail spurs in use throughout MOP period.	N/A
	Contaminated Site Assessment report completed by suitably qualified person	Contaminated Site Assessment report indicates site is suitable for proposed final land use in accordance with relevant contaminated land guidelines.	Developed for this MOP	No	Infrastructure	Infrastructure in use throughout MOP period.	N/A
Heritage infrastructure to be removed where appropriate.	Removal of heritage infrastructure is approved to occur.	Heritage listed infrastructure is only removed after receipt of required heritage approvals.	Cessnock City Council LEP / Heritage Listing	No	Infrastructure	Infrastructure may be removed during MOP term, refer to Section 7.	Refer to <b>Table 9-2</b>
Heritage Infrastructure to remain identified as safe for future use. For Heritage listed buildings at Austar.	Hazardous Materials	Hazardous Materials survey to be completed for any buildings to remain on site post closure – to identify any potential risks or safety concerns. No hazardous materials remain on site.	Cessnock City Council LEP / Heritage Listing	No	Infrastructure	Infrastructure in use throughout MOP period.	Refer to <b>Table 9-2</b>

Objective	Performance Indicator	Completion Criteria	Justification / Source	Complete (yes/no)	Applicable Site Area	Progress at start of MOP	Link to TARP
<b>Phase - Decommissioning</b>							
<b>Domain 2 – Tailings Storage Facilities and Reject Placement Areas</b>							
Final level of reject in emplacement areas or tailings facilities allows landform establishment process to commence and meet proposed final landform	Final reject level is correct to allow landform establishment process to commence	Survey confirms coarse reject / tailings level is suitable to commence capping	MOP Plans	No	Tailings Storage Facilities & Reject Emplacement Areas	Aberdare Emplacement Area has achieved decommissioning levels at either end of the emplacement shown in MOP plans prior to capping.	<b>Table 9-2</b>
	Lime buffer applied prior to landform establishment commencing	Lime is applied at the applicable rate as outlined in the current capping methodology to finished coarse reject level prior to capping	Developed for this MOP	No	Tailings Storage Facilities & Reject Emplacement Areas	Aberdare Emplacement has undergone lime application on coarse reject surface in areas that are capped at start of MOP	N/A
No spontaneous combustion present in emplacement areas	Presence of spontaneous combustion	No areas of spontaneous combustion detected  Compaction of reject and capping layers to minimise venting	Spontaneous Combustion <b>Principal Hazard</b> Management Plan/ Capping methodology	No	Tailings Storage Facilities & Reject Emplacement Areas	Active operation in period of the MOP	<b>Table 9-2</b>
Tailings Storage Facilities and Reject Emplacement Areas to be safe and all infrastructure removed	Pumps, pipes and power: removal of water management infrastructure.	Complete removal of all infrastructure	Mining Lease	No	Tailings Storage Facilities & Reject Emplacement Areas	Active operation in period of the MOP	N/A
<b>Domain 3 – Water Management Areas</b>							
Ensure the site is safe and levels of hazardous materials are appropriate for final land use	Desilting of <b>dirty mine</b> water management structures	All <b>dirty mine</b> water management structures have been de-silted and material buried and capped onsite or material	Mining Lease	No	Water Management Areas	Active operation in period of the MOP	N/A



Objective	Performance Indicator	Completion Criteria	Justification / Source	Complete (yes/no)	Applicable Site Area	Progress at start of MOP	Link to TARP
<b>Phase - Decommissioning</b>							
		transferred to a licensed waste disposal facility.					
Minimise risk of injury to people and animals from any remaining infrastructure.	Safety risks identified and appropriately mitigated.	Risk assessment conducted to document security controls to minimise risk of unauthorised access to mining area by personnel or animals.  Assessment at mine closure to provide report on Dam safety (Kalingo) and confirm slopes are stable for post mining land use.	WHS Act 2011 Dam Safety Committee (Kalingo Dam)	No	Water Management Areas	Active operation in period of the MOP	N/A
	Pumps, pipes and power: removal of water management infrastructure.	Infrastructure not required for post mining land use has been removed.  Any services remaining are documented on the final landform plan in the closure MOP.	Mining Lease	No	Water Management Areas	Active operation in period of the MOP	N/A
<b>Domain 5 – Stockpiled Areas</b>							
Ensure the site is safe and levels of hazardous materials are appropriate for final land use	Carbonaceous Material	Carbonaceous material has been emplaced or capped in accordance with the final land use plan or removed from the site.	Developed for this MOP	No	Stockpiled Areas	Stockpiled Areas in use throughout MOP period	N/A

Objective	Performance Indicator	Completion Criteria	Justification / Source	Complete (yes/no)	Applicable Site Area	Progress at start of MOP	Link to TARP
<b>Phase – Landform Establishment</b>							
<b>Domain 1 - Infrastructure</b>							
Landform is suitable for final land use and compatible with surrounding landscape.	Visual assessment conducted to verify that landforms developed are compatible with surrounding landscape.	Inspection confirms landform is compatible with surrounding landscape. Photographic record.	Mining Lease	No	Kitchener Surface Infrastructure Area CHPP	Mining Infrastructure and associated facilities in use throughout MOP period.	N/A
	Final landform shaped	Survey complete to confirm landform is generally in accordance with final landform.	Mining Lease	No	Kitchener Surface Infrastructure Area CHPP	Facilities in use throughout MOP period.	<b>Table 9-2</b>
	Erosion	Minor rilling only (less than 30 cm by 30 cm) within areas that landform works have been undertaken.	Mining Lease	No	Infrastructure Areas	Facilities in use throughout MOP period.	<b>Table 9-2</b>
<b>Domain 2 – Tailings Storage and Reject Emplacement Areas</b>							
Landform suitable for final land use and compatible with surrounding landscape.	Suitable capping thickness is applied to meet the MOP final landform	Minimum of 1m of capping is applied to decommissioned sections of Reject Emplacement Areas capped in this MOP period	Mining Lease	No	Tailings Storage Facilities and Reject Emplacement Areas.	Minimum of 1m capping thickness has been applied to finished sections of Aberdare Emplacement Area during previous MOP term.	<b>Table 9-2</b>
	Visual assessment conducted to verify that landforms developed are compatible with surrounding landscape.	Inspection confirms landform is compatible with surrounding landscape. Photographic record.	Mining Lease	No	Tailings Storage Facilities and Reject	Mining Infrastructure and associated Facilities in use	<b>Table 9-2</b>

Objective	Performance Indicator	Completion Criteria	Justification / Source	Complete (yes/no)	Applicable Site Area	Progress at start of MOP	Link to TARP
<b>Phase – Landform Establishment</b>							
					Emplacement Areas,	throughout MOP period.	
	Final landform shaped and rehabilitated	Survey complete to confirm landform is generally in accordance with the MOP final landform.	Mining Lease	No	Tailings Storage Facilities and Reject Emplacement Areas.	Aberdare Emplacement Area has achieved final landform capping level at either end of the emplacement shown in MOP plans. Area 12 and 13 have achieved final landform during previous MOP terms.	<b>Table 9-2</b>
	Erosion	Minor rilling only (less than 30 cm by 30 cm, whilst also maintaining the minimum compacted capping material depth) within areas that landform works have been undertaken.	Mining Lease	No	Tailings Storage Facilities and Reject Emplacement Areas.	Facilities in use throughout MOP period.	<b>Table 9-2</b>
<b>Domain 3 – Water Management Areas</b>							
Landform suitable for final land use and compatible with surrounding landscape.	Visual assessment conducted to verify that landforms developed are compatible with surrounding landscape.	Inspection confirms landform is compatible with surrounding landscape and MOP final landform. Photographic record.	Mining Lease	No	Water Management Areas	Facilities in use throughout MOP period	<b>Table 9-2</b>

Objective	Performance Indicator	Completion Criteria	Justification / Source	Complete (yes/no)	Applicable Site Area	Progress at start of MOP	Link to TARP
<b>Phase – Landform Establishment</b>							
	Erosion	Minor rilling only (less than 30 cm by 30 cm) within areas that landform works have been undertaken.	Mining Lease	No	Water Management Areas	Facilities in use throughout MOP period.	<b>Table 9-2</b>
<b>Domain 5 – Stockpile Areas</b>							
Landform suitable for final land use and compatible with surrounding landscape.	Visual assessment conducted to verify that landforms developed are compatible with surrounding landscape.	Inspection confirms landform is compatible with surrounding landscape. Photographic record.	Mining Lease	No	Stockpile Areas	Facilities in use throughout MOP period.	<b>Table 9-2</b>
	Final landform shaped and rehabilitated	Survey complete to confirm landform is generally in accordance with the MOP final landform.	Mining Lease	No	Stockpile Areas	Facilities in use throughout MOP period.	<b>Table 9-2</b>
	Erosion	Minor rilling only (less than 30 cm by 30 cm) within areas that landform works have been undertaken.	Mining Lease	No	Stockpile Areas	Facilities in use throughout MOP period.	<b>Table 9-2</b>
<b>Domain 7 – Rehabilitation Area</b>							
Reinstatement of the sections of creek that are currently piped underground through the CHPP area is suitable for final land use and compatible with surrounding landscape.	The final landform contains existing creek and realigned sections through the CHPP area as identified on the final landform plan for the CHPP.	Inspection conducted by a suitably qualified person to verify that the final creek alignment is effective and generally in accordance with final landform design.	Mining Lease	No	CHPP Rehabilitation Area	Not commenced	N/A

Objective	Performance Indicator	Completion Criteria	Justification / Source	Complete (yes/no)	Applicable Site Area	Progress at start of MOP	Link to TARP
<b>Phase – Landform Establishment</b>							
	Erosion	Erosion rills of less than 30 cm by 30 cm for the creek line	Developed for this MOP	No	CHPP Rehabilitation Area	Not commenced	N/A
	Surface layer is free of any hazardous materials.	Inspection conducted to verify that the surface layer is free of any hazardous materials.	Developed for this MOP	No	CHPP Rehabilitation Area	Not commenced	N/A
	Creek realignment designed to prevent interaction with potentially hostile sediments	Creek realignment to be designed such that a minimum 1m capping depth is installed over any remaining hostile sediments (where present) to minimise interaction with underlying ground conditions.	Developed for this MOP	No	CHPP Rehabilitation Area	Not commenced	N/A
<b>Domain 8 – Underground Mining Area</b>							
Rehabilitate the underground mining area for subsidence remediation as required	Results of monitoring undertaken in accordance with Subsidence Monitoring (SM) Program	SM Program implemented. Any surface cracks, erosion points, compression ridges, surface ponding areas, or steep slope instability, are identified by the SM Program to allow assessment or remediation options.	Extraction Plan for relevant mining area	No	Underground Mining Area	Underground mining continuing during the MOP term	N/A

Objective	Performance Indicator	Completion Criteria	Justification / Source	Complete (yes/no)	Applicable Site Area	Progress at start of MOP	Link to TARP
<b>Phase – Landform Establishment</b>							
	Landform remediated and prepared for vegetation establishment.	<p>Erosion and sediment controls are implemented for any required remedial works.</p> <p>Topsoil is conserved during remedial works and reused in vegetation establishment.</p> <p>Landform subsidence impact repaired commensurate with size and scale of impact (e.g. Major landform impact by filling or ripping the soil and re-compacting, Minor surface cracking may be remediated through infilling with soil or other suitable material).</p>	Extraction Plan for relevant mining area	No	Underground Mining Area	Underground mining continuing during the MOP term	N/A
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.	Extraction Plan for relevant mining area	No	Underground Mining Area	Underground mining continuing during the MOP term	N/A
Surface lands above the underground mining area safe and stable	Built Features	<p>No increased risk of flooding on Built features, unless the landowner agrees otherwise in writing.</p> <p>Built features are safe, serviceable and repairable, unless the owner agrees otherwise in writing.</p>	<p>PA 08_0111 Condition 1 of Schedule 3</p> <p>DA 29/95 Condition 2 of Schedule 3</p>	No	Underground Mining Area	Underground mining continuing during the MOP term	N/A

Objective	Performance Indicator	Completion Criteria	Justification / Source	Complete (yes/no)	Applicable Site Area	Progress at start of MOP	Link to TARP
<b>Phase – Landform Establishment</b>							
Surface lands above the underground mining area safe and stable	<b>Assessment of Subsidence Monitoring Program results and planned remedial measures completed.</b>	All identified impacts are assessed and specific remedial measures developed.  Management measures of the Extraction Plan are followed: -Public Safety Management Plan -Aboriginal Cultural Heritage Plan (ACHMP) -Biodiversity Management Plan (BMP) – including management of any clearing activities required.  Consultation with landholder regarding proposed remedial measures undertaken.  Assessment at mine closure to provide report on slope stability and confirm slopes are stable for post mining land use.	Extraction Plan for relevant mining area	No	Underground Mining Area	Underground mining continuing during the MOP term	N/A

Objective	Performance Indicator	Completion Criteria	Justification / Source	Complete (yes/no)	Applicable Site Area	Progress at start of MOP	Link to TARP
<b>Phase – Growth Medium Development</b>							
<b>Secondary Domain – Rehabilitation Area (Grassland)</b>							
Provide soil chemical and physical properties or alternate growth medium that is suitable for the establishment and maintenance of the selected vegetation species if required.	Topsoil or suitable alternative has been applied to the final landform surface.	Rehabilitation monitoring reports provide evidence that topsoil or suitable alternatives (e.g. compost) have been spread uniformly over the rehabilitation surface.	Previous Austar MOPs	No	Underground Mining Area	In use throughout MOP period.	N/A
	Soil Chemistry	Soil testing for pH and Cation Exchange Capacity is completed at a recognised soils laboratory. Ameliorants are applied to the soils at target rates recommended by the soils laboratory to enable plant growth.	Laboratory Reports for capping material (pH and CEC).	No	Tailings Storage Facilities and Reject Emplacement Areas	Infrastructure and Tailings Storage Facilities in use and being rehabilitated throughout the MOP term.	N/A
	Growth medium incorporation	The applied topsoil/alternative and ameliorants are keyed in to the upper part of the final landform surface by light mechanical ripping to develop the depth of growth medium (approx. 200mm depth)	Developed for this MOP.	No	Tailings Storage Facilities and Reject Emplacement Areas	Infrastructure and Tailings Storage Facilities in use and being rehabilitated throughout the MOP term.	N/A



Objective	Performance Indicator	Completion Criteria	Justification / Source	Complete (yes/no)	Applicable Site Area	Progress at start of MOP	Link to TARP
<b>Phase – Growth Medium Development</b>							
<b>Secondary Domain – Rehabilitation Area (Forest)</b>							
Provide soil chemical and physical properties comparable with the reference monitoring sites, or alternate growth medium that is suitable for the establishment and maintenance of the selected vegetation species	Topsoil or suitable alternative has been spread over the rehabilitation surface.	Rehabilitation monitoring reports provide evidence that topsoil or suitable alternatives (e.g. compost) have been spread uniformly over the rehabilitation surface.	Previous Austar MOPs	No	Infrastructure, Water Management Area, Stockpile Areas, Rehabilitation Area Kitchener SIS	In use throughout MOP period.	<b>Table 9-2</b>
	Soil Chemistry	Targets for soil chemistry for Rehabilitation - Forest areas are investigated and developed during the MOP term to enable future implementation (refer to <b>Section 8.2.1</b> ).		No	Infrastructure, Water Management Area, Stockpile Areas, Rehabilitation Area	In use throughout MOP period.	<b>Table 9-2</b>
	Growth medium incorporation	The applied topsoil/alternative and ameliorants are keyed in to the final landform surface by light mechanical ripping to develop the depth of growth medium (approx. 200mm depth)	Developed for this MOP.	No	Infrastructure, Water Management Area, Stockpile Areas, Rehabilitation Area	In use throughout MOP period.	N/A

Objective	Performance Indicator	Completion Criteria	Justification / Source	Complete (yes/no)	Applicable Site Area	Progress at start of MOP	Link to TARP
<b>Phase – Growth Medium Development</b>							
<b>Secondary Domain – Rehabilitation Area (Pasture)</b>							
Topsoil as a growth medium in underground mining areas with pasture final land use	Topsoil or suitable alternative has been spread over the rehabilitation surface.	Topsoil conserved from the subsidence remediation repair area is used as growth medium for revegetation works.	Extraction Plan for relevant mining area	No	Underground Mining Areas	Mining undertaken throughout MOP term	N/A

Objective	Performance Indicator	Completion Criteria	Justification / Source	Complete (yes/no)	Applicable Site Area	Progress at start of MOP	Link to TARP
<b>Phase – Ecosystem and Landuse Establishment</b>							
<b>Secondary Domain – Rehabilitation Area (Grassland)</b>							
Establishment of vegetation that will achieve final land use	Suitable target species are used to establish a grassland ecosystem	Areas are seeded with target species ( <b>Appendix 2</b> ) immediately following growth medium establishment	Mining Lease conditions	No	Infrastructure, Reject Emplacement Areas, Tailings Storage Facilities, Water Management Area, Stockpile Areas, Rehabilitation area.	Mining Infrastructure and associated facilities in use throughout MOP period.	N/A
	Success of initial strike after seeding	For Grassland areas, groundcover targets are: -0-20% canopy -60-100% groundcover within 12 months of sowing during ecosystem establishment phase.	Based on Austar's ecological monitoring programs undertaken across its operations.	No	Infrastructure, Reject Emplacement Areas, Tailings Storage Facilities, Water Management Area, Stockpile Areas, Rehabilitation area.	Mining Infrastructure and associated facilities in use throughout MOP period.	<b>Table 9-2</b>

Objective	Performance Indicator	Completion Criteria	Justification / Source	Complete (yes/no)	Applicable Site Area	Progress at start of MOP	Link to TARP
<b>Phase – Ecosystem and Landuse Establishment</b>							
<p>Weed growth does not dominate during vegetation establishment phase</p>	<p>Weeds comprise no more than 20% of ground cover vegetation.</p> <p>Weed growth does not dominate during vegetation establishment phase</p>	<p>Developed for this MOP.</p> <p><del>Based on Austar's ecological monitoring programs undertaken across its operations.</del></p> <p>Weeds comprise no more than 20% of ground cover vegetation.</p>	<p>No</p> <p>Developed for this MOP.</p> <p>Based on Austar's ecological monitoring programs undertaken across its operations.</p>	<p>Infrastructure, Reject Emplacement Areas, Tailings Storage Facilities, Water Management Area, Stockpile Areas, Rehabilitation Area</p> <p>No</p>	<p>Mining Infrastructure and associated Facilities in use throughout MOP period.</p> <p>Infrastructure, Reject Emplacement Areas, Tailings Storage Facilities, Water Management Area, Stockpile Areas, Rehabilitation Area</p>	<p>Mining Infrastructure and associated Facilities in use throughout MOP period.</p>	<p><b>Table 9-2</b></p>
<p>Fauna diversity is progressing towards the ecosystems planned in the final land use.</p>	<p>Fauna pest species are managed and controlled (where possible)</p>	<p>Pest control activities will be undertaken in accordance with the <i>Local Land Services Act 2013</i>. Austar will control declared species on their land, where identified through rehabilitation monitoring.</p>	<p>Developed for this MOP</p>	<p>No</p>	<p>Infrastructure, Reject Emplacement Areas, Tailings Storage Facilities, Water Management Area, Stockpile Areas, Rehabilitation Area</p>	<p>Mining Infrastructure and associated Facilities in use throughout MOP period.</p>	<p><b>Table 9-2</b></p>

Objective	Performance Indicator	Completion Criteria	Justification / Source	Complete (yes/no)	Applicable Site Area	Progress at start of MOP	Link to TARP
<b>Phase – Ecosystem and Landuse Establishment</b>							
The area does not present a significant risk commensurate with NSW RFS requirements.	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.	Developed for this MOP	No	Infrastructure, Reject Emplacement Areas, Tailings Storage Facilities, Water Management Area, Stockpile Areas, Rehabilitation Area	Mining Infrastructure and associated Facilities in use throughout MOP period.	<b>Table 9-2</b>
<b>Secondary Domain – Rehabilitation Area (Forest)</b>							
Revegetation of the Kitchener SIS	Native plant species compatible with the surrounding environment are used in revegetation	<p>Areas of exposed soils are revegetated to achieve cohesive ground cover using a native plant species mix compatible with the surrounding environment (see species list in <b>Appendix 2</b>).</p> <p>This information will be further developed as part of future MOPs as the site approaches closure and will utilise monitoring data from analogue sites and nearby monitoring plots.</p> <p>Indicative Vegetation Composition Criteria (i.e. groundcover targets):</p> <ul style="list-style-type: none"> <li>-10-60% canopy.</li> <li>- 5-60% understorey.</li> <li>- 20-80% groundcover</li> </ul>	Kitchener SIS Landscape Management Plan, PA 08_0111 Based on Austar's ecological monitoring programs undertaken across its operations.	No	Kitchener SIS facility	Mining Infrastructure and associated Facilities in use throughout MOP period.	N/A

Objective	Performance Indicator	Completion Criteria	Justification / Source	Complete (yes/no)	Applicable Site Area	Progress at start of MOP	Link to TARP
<b>Phase – Ecosystem and Landuse Establishment</b>							
		Within 24 months of sowing during ecosystem establishment phase.					
Weeds and pest species are actively managed and controlled at the Kitchener SIS site.	Monthly inspections conducted. Weeds identified on site are actively controlled and/or removed using appropriate weed control techniques.	No increase in weed population and monitoring indicates the absence of or decline in weed species	Kitchener SIS Landscape Management Plan	No	Kitchener SIS facility	Mining Infrastructure and associated Facilities in use throughout MOP period.	N/A
Floristic diversity is progressing towards the ecosystems planned in the final land use.	Development of vegetative ecosystems as per the final land use.	Areas are seeded with target species ( <b>Appendix 2</b> ) immediately following growth medium establishment works (if required)	Mining Lease conditions	No	All remaining Rehabilitation (Forest) Areas (Forest Areas shown on Plan 2B)	Mining Infrastructure and associated facilities in use throughout MOP period.	N/A
		For Forest Areas, groundcover targets: -10-60% canopy. - 5-60% understorey. - 20-80% groundcover Within 24 months of sowing during ecosystem establishment phase.	Based on Austar's ecological monitoring programs undertaken across its operations for forest areas.	No	All remaining Rehabilitation (Forest) Areas (Forest Areas shown on Plan 2B)	Mining Infrastructure and associated facilities in use throughout MOP period.	<b>Table 9-2</b>
Floristic diversity is progressing towards the ecosystems planned in the final land use.		Weeds are absent from canopy and understorey, and comprise no more than 20% of ground cover vegetation.	Developed for this MOP. Based on Austar's ecological monitoring programs	No	All remaining Rehabilitation (Forest) Areas (Forest Areas shown on Plan 2B)	Mining Infrastructure and associated Facilities in use throughout MOP period.	<b>Table 9-2</b>

Objective	Performance Indicator	Completion Criteria	Justification / Source	Complete (yes/no)	Applicable Site Area	Progress at start of MOP	Link to TARP
<b>Phase – Ecosystem and Landuse Establishment</b>							
			undertaken across its operations.				
Fauna diversity is progressing towards the ecosystems planned in the final land use.	Rehabilitation areas provide a range of structural habitats similar to pre-mining fauna communities.	Monitoring data provides evidence of a range of structural habitats and habitats similar to pre-mining fauna communities are evident in rehabilitation areas.	Developed for this MOP	No	All remaining Rehabilitation (Forest) Areas (Forest Areas shown on Plan 2B)	Mining Infrastructure and associated Facilities in use throughout MOP period.	N/A
	Fauna pest species are managed and controlled (where possible)	Pest control activities will be undertaken in accordance with the <i>Local Land Services Act 2013</i> . Austar will control declared species on their land, where identified through rehabilitation monitoring.	Developed for this MOP	No	All remaining Rehabilitation (Forest) Areas (Forest Areas shown on Plan 2B)	Mining Infrastructure and associated Facilities in use throughout MOP period.	<b>Table 9-2</b>
The area does not present a significant risk commensurate with NSW RFS requirements.	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.	Developed for this MOP	No	All remaining Rehabilitation (Forest) Areas (Forest Areas shown on Plan 2B)	Mining Infrastructure and associated Facilities in use throughout MOP period.	N/A

Objective	Performance Indicator	Completion Criteria	Justification / Source	Complete (yes/no)	Applicable Site Area	Progress at start of MOP	Link to TARP
<b>Phase – Ecosystem and Landuse Establishment</b>							
Vegetation Establishment in subsidence remediation areas	<p>Ground cover comparable to pre-mining environment is re-established following remediation activities.</p> <p>Remediated areas revegetated with native species selected based on the surrounding vegetation and biodiversity planting list. All works within National Parks Estate are undertaken with the consent of the NSW National Parks and Wildlife Service.</p> <p>Ecosystem function is rehabilitated to that existing pre-mining and consistent with the surrounding landform.</p>	<p>Ecosystem function is rehabilitated to that existing pre-mining and consistent with the surrounding landform.</p> <p>For Forest Areas, groundcover targets:</p> <ul style="list-style-type: none"> <li>-10-60% canopy.</li> <li>- 5-60% understorey.</li> <li>- 20-80% groundcover</li> </ul> <p>Within 24 months of sowing.</p>	<p>Extraction Plan for relevant mining area</p> <p>Based on Austar’s ecological monitoring programs undertaken across its operations.</p>	No	Underground Mining Area (including within Werakata SCA)	Underground mining continuing during the MOP term	<b>Table 9-2</b>
<b>Secondary Domain Rehabilitation Area – Pasture</b>							
Vegetation Establishment in subsidence remediation areas	<p>Ground cover comparable to pre-mining environment is re-established following remediation activities.</p> <p>Remediated areas revegetated with species selected based on existing land use (i.e. pasture) and surrounding vegetation.</p>	<p>Ecosystem function is rehabilitated to that existing pre-mining and consistent with the surrounding landform.</p>	<p>Extraction Plan for relevant mining area</p>	No	Underground Mining Area within private land or Austar land	Underground mining continuing during the MOP term	N/A



Objective	Performance Indicator	Completion Criteria	Justification / Source	Complete (yes/no)	Applicable Site Area	Progress at start of MOP	Link to TARP
<b>Phase – Ecosystem and Land Use Sustainability</b>							
<b>Secondary Domain Rehabilitation Area – Grassland</b>							
Establishment of revegetation that is to achieve the final land use.	Revegetation is progressing towards a sustainable ecosystem and only requires maintenance that is consistent with the intended final land use.	For Grassland areas, groundcover targets: - 0-20% canopy - 70-100% Groundcover	Developed for this MOP	No	Infrastructure, Reject Emplacement Areas, Tailings Storage Facilities, Water Management Area, Stockpile Areas, Rehabilitation Area	Mining Infrastructure and associated Facilities in use throughout MOP period.	<b>Table 9-2</b>
Weeds and pest species are actively managed and controlled	Weeds identified on site are actively controlled and/or removed using appropriate weed control techniques to meet the final land use criteria.	Weeds are absent from canopy and understorey, and comprise no more than 20% of ground cover vegetation.	Developed for this MOP Based on Austar's ecological monitoring programs undertaken across its operations.	No	Infrastructure, Reject Emplacement Areas, Tailings Storage Facilities, Water Management Area, Stockpile Areas, Rehabilitation Area	Mining Infrastructure and associated Facilities in use throughout MOP period.	<b>Table 9-2</b>
<b>Secondary Domain Rehabilitation Area – Forest</b>							
Revegetation of the Kitchener SIS	Native plant species compatible with the surrounding environment are used in revegetation	Indicative Vegetation Composition Criteria (i.e. groundcover targets): -15-50% canopy. - 5-60% understorey. - 20-90% groundcover	Kitchener SIS Landscape Management Plan, PA 08_0111 Based on Austar's ecological monitoring programs	No	Kitchener SIS facility	Mining Infrastructure and associated Facilities in use throughout MOP period.	N/A

Objective	Performance Indicator	Completion Criteria	Justification / Source	Complete (yes/no)	Applicable Site Area	Progress at start of MOP	Link to TARP
<b>Phase – Ecosystem and Land Use Sustainability</b>							
			undertaken across its operations.				
	Rehabilitation monitoring indicates sustainability	Rehabilitation Monitoring is comparable or trending towards analogue sites (%).	Kitchener SIS Landscape Management Plan	No	Kitchener SIS facility	Mining Infrastructure and associated facilities in use throughout MOP period.	N/A
Weeds and pest species are actively managed and controlled at the Kitchener SIS site.	Weeds identified on site are actively controlled and/or removed using appropriate weed control techniques.	No increase in weed population and monitoring indicates the absence of or decline in weed species	Kitchener SIS Landscape Management Plan	No	Kitchener SIS facility	Mining Infrastructure and associated Facilities in use throughout MOP period.	<b>Table 9-2</b>
	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.  No increase in feral animal population and monitoring indicates the absence of or decline in feral animal species numbers.	Kitchener SIS Landscape Management Plan	No	Kitchener SIS facility	Mining Infrastructure and associated Facilities in use throughout MOP period.	<b>Table 9-2</b>
Establishment of revegetation that is to achieve the final land use.	Revegetation is progressing towards a sustainable ecosystem and only requires maintenance that is consistent with the intended final land use.	For Forest Areas, groundcover composition targets: - 15-50% canopy. - 5-60% understorey. - 20-90% groundcover	Developed for this MOP  Based on Austar's ecological monitoring programs	No	All remaining Rehabilitation (Forest) Areas (Forest Areas shown on Plan 2B)	Mining Infrastructure and associated Facilities in use throughout MOP period.	<b>Table 9-2</b>

Objective	Performance Indicator	Completion Criteria	Justification / Source	Complete (yes/no)	Applicable Site Area	Progress at start of MOP	Link to TARP
<b>Phase – Ecosystem and Land Use Sustainability</b>							
			undertaken across its operations.				
Establishment of revegetation that is to achieve the final land use.		Evidence indicating reproduction (seeding, flowering or second generation plants) present.	Developed for this MOP	No	All remaining Rehabilitation (Forest) Areas (Forest Areas shown on Plan 2B)	Mining Infrastructure and associated Facilities in use throughout MOP period.	N/A
		Signs of recruitment in all stratum. Or evidence to demonstrate that the ecosystem will progress towards recruitment.	Developed for this MOP	No	All remaining Rehabilitation (Forest) Areas (Forest Areas shown on Plan 2B)	Mining Infrastructure and associated Facilities in use throughout MOP period.	N/A
		For forest areas, more than 75% of trees are healthy and growing.	Developed for this MOP	No	All remaining Rehabilitation (Forest) Areas (Forest Areas shown on Plan 2B)	Mining Infrastructure and associated Facilities in use throughout MOP period.	N/A
		Weeds are absent from canopy and understorey, and comprise no more than 20% of ground cover vegetation.	Developed for this MOP Based on Austar's ecological monitoring programs undertaken across its operations.	No	All remaining Rehabilitation (Forest) Areas (Forest Areas shown on Plan 2B)	Mining Infrastructure and associated Facilities in use throughout MOP period.	<b>Table 9-2</b>
		Pest control activities will be undertaken in accordance with the <i>Local Land Services Act 2013</i> . Austar will control declared species on their land,	Developed for this MOP	No	All remaining Rehabilitation (Forest) Areas (Forest Areas	Mining Infrastructure and associated Facilities in use	<b>Table 9-2</b>

Objective	Performance Indicator	Completion Criteria	Justification / Source	Complete (yes/no)	Applicable Site Area	Progress at start of MOP	Link to TARP
<b>Phase – Ecosystem and Land Use Sustainability</b>							
		where identified through rehabilitation monitoring.			shown on Plan 2B)	throughout MOP period.	
The area does not present a 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.	Developed for this MOP	No	All remaining Rehabilitation (Forest) Areas (Forest Areas shown on Plan 2B)	Mining Infrastructure and associated Facilities in use throughout MOP period.	N/A
<b>Secondary Domain Rehabilitation Area – Pasture</b>							
Remediated subsidence impacted area in existing pasture is suitable for grazing	Ground cover comparable to pre-mining environment is re-established following remediation activities.	Monitoring program indicates pasture species and density is comparable to that existing pre-subsidence remediation activities.	Extraction Plan for relevant mining area	No	Underground Mining Area within private land	Underground mining continuing during the MOP term	N/A

## 6.2 Criteria Refinement

Austar will continue to refine criteria during mining. The closure criteria for the site will be refined during future MOP terms in consideration of the following:

- outcomes of further rehabilitation monitoring, detailed mine closure studies and final landuse assessments to be undertaken;
- government stakeholder expectations following any further consultation with government agencies;
- results of ongoing monitoring programs including ecological monitoring;
- research and development from relevant industry trials or site experiences; and
- long term sustainability in relation to both landform stability and ecosystem functionality.

## 7 REHABILITATION IMPLEMENTATION

### 7.1 Status at MOP Commencement

Austar rehabilitation activities have been progressively undertaken as opportunities became available during previous MOP terms. At the commencement of this MOP, there has been limited rehabilitation undertaken, as there has been limited land available to rehabilitate. Additional information regarding the rehabilitation to be undertaken will be included within future MOP documents for the site and are also briefly discussed in **Section 7.2**. The status of rehabilitation for each domain at the commencement of this MOP period is provided in **Table 7-1**.

**TABLE 7-1 REHABILITATION STATUS AT COMMENCEMENT OF MOP**

Domain	Rehabilitation Phase	Description of Rehabilitation Activities to Date
1 – Infrastructure	Active	Demolition of derelict site buildings has been undertaken at various former colliery sites. Several extant buildings and structures remain at former colliery sites which require heritage assessment and approvals prior to demolition.
2 – Tailings Storage Facilities & Reject Emplacement Areas	Active	East Open Cut, West Open Cut, <b>No.9 Tailings Dam</b> and North-West Emplacement Area are active emplacements. Most of Aberdare Emplacement Area remains active.
	Landform Establishment	Aberdare Extended Area: rehabilitation has involved the capping and revegetation of areas at the eastern and western ends of the emplacement and stabilising with open grassland.
	Ecosystem Development	Area 12 emplacement area: has been mostly capped and sown to pasture and woodland, except for <b>dirty mine</b> water borehole infrastructure areas. Area 13 emplacement area has been capped and sown to pasture. Rehabilitation monitoring in both areas indicates there are areas in this phase that are self-sustaining, and weed management is required to progress this ecosystem further.
3 – Water Management Area	Active	N/A – operational areas to remain active during the MOP term.
5 – Stockpiled Material	Active	N/A – operational areas to remain active during the MOP term.
7 - Rehabilitation Area	Active	N/A – buffer land will not be rehabilitated during this MOP term.
8 - Underground Mining Area	Active	Subsidence remediation works undertaken as required. Only very minor road/dam outlet works undertaken in previous MOP terms.

## 7.2 Proposed Rehabilitation Activities during the MOP term

The following sections provide further information on the rehabilitation methodology for the MOP term at Austar. Disturbance and rehabilitation progression at Austar during the term of the MOP is provided in **Table 7-2** in accordance with the MOP Guidelines (DRE, 2013).

During care and maintenance, the rehabilitation methodology will largely remain unchanged; however, there will be some delays to the progression of disturbance and rehabilitation originally planned for the MOP term. **Table 7-2** has been updated accordingly.

**TABLE 7-2 DISTURBANCE AND REHABILITATION PROGRESSION DURING THE TERM OF THE MOP**

Year	Total Disturbance Area (ha) *	Total Rehabilitation Area (ha) (per MOP Year) **	Cumulative Rehabilitation Area (ha)	Comments/Explanation (provide list of key changes)
Year 0 – 2019 (Start of MOP) †	<del>137.94</del> 144.6	<del>3.04</del> 0.0	<del>44.07</del> 43.3	Total Disturbance area includes area of all domains shown on Plans 2A to 2I except for rehabilitated areas. Cumulative rehabilitation at Year 0 includes: <ul style="list-style-type: none"> <li>- Rehabilitated areas of Aberdare Extended Emplacement Area;</li> <li>- Rehabilitated Reject Emplacement Areas 12 and 13; and</li> <li>- Rehabilitated areas at the CHPP (Domain 7 on Pelton CHPP <b>Plan 2B</b>)</li> </ul>
Year 1 – 2020	<del>134.9</del> 141.3	<del>3.43</del> 3.3	<del>47.5</del> 46.6	Rehabilitation for 2020 includes staged rehabilitation of Aberdare Emplacement Area and West Pit B (former stockpile area)
Year 2 – 2021	<del>130.7</del> 141.3	<del>3.4</del> 0.0	<del>50.9</del> 46.6	<del>Rehabilitation for 2021 includes staged rehabilitation of Aberdare Emplacement Area</del> Rehabilitation activities for 2021 include maintaining and enhancing existing rehabilitated areas at Aberdare Extended, Area 12 and Area 13 to progress through the rehabilitation phases
Year 3 – 2022	<del>124.6</del> 141.3	<del>6.5</del> 0.0	<del>57.4</del> 46.6	<del>Rehabilitation for 2022 includes staged rehabilitation of Aberdare Emplacement Area</del> Rehabilitation activities for 2022 include maintaining and enhancing existing rehabilitated areas at Aberdare Extended, Area 12 and Area 13 to progress through the rehabilitation phases
Year 4 – 2023	<del>118.7</del> 141.3	<del>6.0</del> 0.0	<del>63.4</del> 46.6	<del>Rehabilitation for 2023 includes staged rehabilitation of Aberdare Emplacement Area</del> Rehabilitation activities for 2023 include maintaining and enhancing existing rehabilitated areas at Aberdare Extended, Area 12 and Area 13 to progress through the rehabilitation phases

Year	Total Disturbance Area (ha) *	Total Rehabilitation Area (ha) (per MOP Year) **	Cumulative Rehabilitation Area (ha)	Comments/Explanation (provide list of key changes)
Year 5 – 2024	<del>119.2</del> 141.3	0.0	<del>63.4</del> 46.6	<del>No rehabilitation proposed for 2024. Increase to disturbance area due to tailings boreholes/access tracks</del> Rehabilitation activities for 2024 include maintaining and enhancing existing rehabilitated areas at Aberdare Extended, Area 12 and Area 13 to progress through the rehabilitation phases
Year 6 – 2025	<del>115.0</del> 141.3	<del>4.2</del> 0.0	<del>67.6</del> 46.6	<del>Rehabilitation for 2025 includes staged rehabilitation of East Pit Emplacement Area</del> Rehabilitation activities for 2025 include maintaining and enhancing existing rehabilitated areas at Aberdare Extended, Area 12 and Area 13 to progress through the rehabilitation phases
Year 7 – 2026	<del>110.8</del> 141.3	<del>4.55</del> 0.0	<del>72.15</del> 46.6	<del>Rehabilitation for 2026 includes staged rehabilitation of East Pit Emplacement Area</del> Rehabilitation activities for 2026 include maintaining and enhancing existing rehabilitated areas at Aberdare Extended, Area 12 and Area 13 to progress through the rehabilitation phases

\* Total Disturbance Area includes areas of land which are within the following phases: Active and Decommissioning. Temporary rehabilitation is to be considered as an active mining area for the purposes of this table.

\*\* Total Rehabilitation Area includes areas of land which are within the following phases: Landform Establishment, ~~and~~ Growth Medium Development, Ecosystem and Land Use Establishment, and Ecosystem and Land Use Sustainability.

^ Landform establishment works include subsidence remediation however it is difficult to quantify this area noting that the remediation is minor and related to the filling of subsidence cracks.

\* Change from 2019 Total Disturbance Area (ha) and Cumulative Rehabilitation Area (ha) the result of reconciliation against MOP Plan domains.



The rehabilitation strategy during the MOP term has been designed to provide for progressive rehabilitation of the site. The strategy includes the following areas:

- Infrastructure Area Domain:
  - Kalingo Site;
  - Austar CHPP; and
  - Bellbird Colliery remains.
- Tailings Storage Facilities and Reject Emplacement Area Domain:
  - Aberdare Emplacement Area 12;
  - Aberdare Emplacement Area 13;
  - ~~Reject emplacement, capping and vegetation establishment of~~ Aberdare Extended Emplacement Area / West Pit Emplacement Area and East Pit Emplacement Area; and
  - North West Emplacement Area and No.9 Tailings Dam.

Details regarding the rehabilitation strategy within each of these areas are discussed below.

## **7.2.1 Infrastructure Area Domain**

### **7.2.1.1 Kalingo Site**

Heritage items at the Kalingo site are in different states of disrepair. During the term, Austar Coal will continue consultation with Cessnock City Council heritage advisors and or the NSW Heritage Office (if required) regarding the future management or demolition of these buildings.

Operational features at the Kalingo Site include the Kalingo Dam, shafts and Nitrogen Plant, which will continue to be utilised during the MOP period.

### **7.2.1.2 Pelton Colliery (CHPP Site)**

Rehabilitation for existing heritage listed structures (such as the Pony Stables & Store) will depend on outcomes of consultation with ~~CCC~~Cessnock City Council heritage advisors and or the NSW Heritage Office (if required) regarding the future management of these buildings (e.g. demolition).

Dependent upon the outcomes of the above, if the buildings are to be demolished, the area would be temporarily revegetated using a grass species mix. Ultimately, the area will be incorporated into the overall rehabilitation of the site at the time of mine closure.

### **7.2.1.3 Bellbird Colliery**

Situated within the vicinity of the Aberdare Emplacement Area 12 are some remnants of buildings associated with the former Bellbird Colliery. Austar's intention is to demolish these buildings, remove rubbish and dumped vehicles from the surrounding area and rehabilitate the site. However, prior to any disturbance works further discussion with ~~CCC~~Cessnock City Council and or the NSW Heritage

Office (if required) must occur to confirm Austar’s approach regarding the future management of these buildings (e.g. demolition).

## **7.2.2 Tailings Storage Facilities and Reject Emplacement Area Domain**

### **7.2.2.1 Aberdare Emplacement Area 12**

Aberdare emplacement Area 12 was rehabilitated by capping and revegetating with pasture and grasses, apart from a stockpile of capping material which may be used for other rehabilitation works. Maintenance of the rehabilitation area will occur as required during the MOP period.

### **7.2.2.2 Aberdare Emplacement Area 13**

The Aberdare Area 13 emplacement area has been mostly rehabilitated **and is classified as being in the Ecosystem and Land Use Sustainability phase**. Austar has identified a significant sinkhole in this area which captures a 340 Ha catchment, sending runoff to underground workings. This is a legacy of previous operations. Austar is investigating sinkhole remediation methods, and will continue working with relevant authorities to manage this area during the MOP term. **Cessnock City Council have completed the Final Cessnock City (Black Creek) Floodplain Risk Management Study and Plan Report W4951 (February 2016) which applied sinkhole catchment flows to Bellbird Creek. Prior to reinstatement of this sinkhole alternate flood mitigation works within the Bellbird Creek catchment are required.**

Rehabilitation maintenance, such as weed management, will be undertaken as required during the MOP period.

### **7.2.2.3 Aberdare, East Pit and West Pit Emplacement Areas**

Rehabilitation activities during the MOP term for the Aberdare Extended Emplacement Area and East Pit Emplacement Area are shown in **Plans 3B and 3C**. As a guide, the Aberdare Emplacement will be filled with coarse reject, capped and rehabilitated first, followed by the East Pit Emplacement. West Pit Emplacement will be utilised further in future MOP terms.

**With limited reject material being emplaced during care and maintenance, the emplacement areas will not reach their intended capacities as planned and therefore the staged decommissioning and rehabilitation program for the Aberdare Emplacement Area and East Pit Emplacement Area will also be delayed. Austar will maintain the three active emplacement areas during care and maintenance to ensure they remain available for future use when operations recommence.**

The overall rehabilitation strategy for the Aberdare Emplacement Area is provided below. The strategy for West Pit and East Pit Emplacement Areas will broadly be undertaken in accordance with the Aberdare Emplacement Area Strategy and will be refined to suit the East Pit and West Pit Emplacement Areas, as required. The strategy includes the following:

- continued emplacement of coarse reject material, compacted in layers in accordance with the final landform design height;
- confirmation of sub-surface drainage mechanism to convey acid-leachate to the former underground workings;

- application of lime to the coarse reject surface at a rate of 20t/Ha prior to capping;
- capping the area with inert material. The inert material is primarily sourced from old open cut overburden stockpiles and will be compacted in layers. The thickness of capping will be a minimum of 1m. The thickness may be refined based on updated estimates for overall reject emplacement, capping requirements for all emplacement areas and additional research into acid leachate and combustion potential to be completed early in the MOP term, as described in **Section 8.2.1**. The cap thickness includes both the compacted capping layer and the growth media (ripped ameliorated material) in the upper cap layer;
- reshaping the surface to be free draining and establishing appropriate final drainage network to convey surface water runoff and prevent water ponding over the area. Light ripping will be undertaken to promote plant growth in the top layer of the cap; and
- progressively revegetating the areas to open grassland.

For the Aberdare Emplacement Area, there is an agreement in place with the private landowner to return this area to grassland.

As part of the rehabilitation process, representative soil samples are taken to characterise the nature of the capping material (e.g. pH, Cation Exchange Capacity, acid-generating potential) to determine the potential limitations to rehabilitation and sustainable plant growth. Soil testing results indicate that soil ameliorants (e.g. lime and gypsum) are required, they will be applied to the surface of the cap material. Where no topsoil is available, an organic ameliorant (e.g. compost) will be added to the cap surface to establish a suitable growth medium if required. Calculations have been undertaken to confirm that sufficient capping material is available in the West Pit to cap the Aberdare Emplacement Area, East Pit Emplacement Area and West Pit Emplacement Area. Should any additional approved reject emplacement areas be utilised during the MOP term, material will be stripped and stockpiled from these areas prior to emplacement, for later reuse as capping material.

Reject emplacement areas will be progressively rehabilitated in accordance with regulatory requirements. A site-specific Erosion and Sediment Control Plan has been developed for the Aberdare Emplacement Area. Erosion and Sediment will be managed under the approved site water management plan for East and West Pits. A conceptual cross-section of the rehabilitation of the Aberdare Extended Emplacement Area is provided as **Plan 5**.

#### **7.2.2.4 North-West Emplacement Area**

The North-West Emplacement Area is an approved emplacement area comprised predominantly of dry tailings and coarse reject material from older mining operations. It also includes a noise bund installed as part of a noise pollution **reduction** program as directed by the Environment Protection Authority. It has been identified that dependent upon market availability, the reject material contains a sufficient energy value that could warrant either re-processing on site for blending with product coal or direct sale as an energy coal. During previous MOP terms, some material has been blended with product coal. **If operations recommence**, Austar will continue this process where possible. Alternatively, the material may be removed and emplaced in old underground workings or in approved emplacement areas.

Utilisation of this material may involve the transport of material off site by trucks (e.g. direct to thermal power station or as a blending product to other collieries). Austar has approval to transport up to 60,000 tonnes per year of coal product by road.

There will be no rehabilitation activities undertaken at the North-West Emplacement Area other than potential material removal during the MOP term.

#### **7.2.2.5 No.9 Tailings Dam**

The No. 9 tailings dam (see **Plan 2B**) has been identified as another area on site that contains suitable material that could be re-processed on site and blended with the product coal or transported offsite. Reuse of this material will be dependent upon market availability. The material will be capped in-situ and rehabilitated or removed and emplaced in old underground workings or emplacement areas. Parts of this area may be rehabilitated during the MOP term.

### **7.3 Summary of Rehabilitation Areas during the MOP Term**

**Table 7-3** provides data on the rehabilitation area (ha) at the commencement and the end of the MOP for each of the site domains based on the rehabilitation phase status.

**TABLE 7-3 REHABILITATION DATA FOR PRIMARY AND SECONDARY DOMAIN AT THE COMMENCEMENT AND END OF THE MOP PERIOD<sup>1</sup>**

Primary Domain	Secondary Domain	Rehabilitation Phase	Area at Start of the MOP (ha)	Area at End of the MOP (ha)
1 – Infrastructure	Grassland / Forest	Active*	40.9 48.9	42.5 48.9
		Decommissioning	0	0
		Landform Establishment	0	0
		Growth Medium Development	0	0
		Ecosystem and Land Use Establishment	0	0.15 0
		Ecosystem and Land Use Sustainability	0	0
		Relinquished Lands	0	0
		<b>Total Area</b>		<b>40.9 48.9</b>
2 – Tailings Storage Facilities & Reject Emplacement Area	Grassland	Active	59.4 58.9	31.9 <sup>4</sup> 55.6 <sup>3</sup>
		Decommissioning	0	0
		Landform Establishment	0	0
		Growth Medium Development	0	0
		Ecosystem and Land Use Establishment	0 17.7	0
		Ecosystem and Land Use Sustainability	25.2 <sup>2</sup> 6.8	52.7 27.8
		Relinquished Lands	0	0
		<b>Total Area</b>		<b>84.6 83.6</b>
3 – Water Management Area	Water Management Area	Active	21.8	21.8
		Decommissioning	0	0
		Landform Establishment	0	0
		Growth Medium Development	0	0
		Ecosystem and Land Use Establishment	0	0
		Ecosystem and Land Use Sustainability	0	0
		Relinquished Lands	0	0
		<b>Total Area</b>		<b>21.8</b>

Primary Domain	Secondary Domain	Rehabilitation Phase	Area at Start of the MOP (ha)	Area at End of the MOP (ha)
5 – Stockpiled Material	Forest	Active	15	15
		Decommissioning	0	0
		Landform Establishment	0	0
		Growth Medium Development	0	0
		Ecosystem and Land Use Establishment	0	0
		Ecosystem and Land Use Sustainability	0	0
		Relinquished Lands	0	0
		<b>Total Area</b>	<b>15</b>	<b>15</b>
7 Rehabilitation Area	Grassland	Active	18.9	18.9
		Decommissioning	0	0
		Landform Establishment	0	0
		Growth Medium Development	0	0
		Ecosystem and Land Use Establishment	0	0
		Ecosystem and Land Use Sustainability	0	0
		Relinquished Lands	0	0
		<b>Total Area</b>	<b>18.9</b>	<b>18.9</b>
8 Underground Mining Areas <sup>2</sup>	Pasture / Forest	Active	1,663	1,663
		Decommissioning	0	0
		Landform Establishment	0	0
		Growth Medium Development	0	0
		Ecosystem and Land Use Establishment	0	0
		Ecosystem and Land Use Sustainability	0	0
		Relinquished Lands	0	0
		<b>Total Area</b>	<b>1,663</b>	<b>1,663</b>

\* Change in active infrastructure areas the result of access tracks being included in the infrastructure domain, and a small portion of Area 12 that contains operational infrastructure being reclassified from Ecosystem and Land Use Sustainability to the infrastructure domain.

Note 1: The data in this table corresponds to the information provided in the Rehabilitation Plans 3B and 3C.

Note 2: The area included within this table for Domain 8 represents the approximate mining area for the MOP term, i.e. Stage 3 mining area and Bellbird South Mining Area, based on an estimate of the 20 mm subsidence extent (refer to **Plan 3A**). Not all of Stage 3 or Bellbird South is proposed to be mined during the MOP term and therefore the 'Active' mining area is overstated.

~~Note 3: For the purposes of this rehabilitation table, the entirety of Emplacement Areas 12 and 13 and the rehabilitated sections of Aberdare Emplacement Area are within the Ecosystem and Land Use Establishment Phase at MOP commencement. Refer to **Section 7.2.2** for details.~~

Note 4 3: Active reject emplacement areas at the end of the MOP term (2026) are the **Aberdare Emplacement Area**, East Pit, North west Emplacement Area, the No.9 tailings dam and the West Pit (refer to **Plans 2B and 2C**).

Note 5 4: Following the completion of emplacement within the Aberdare Extended, East Pit and West Pit Emplacement Areas, a further approved reject emplacement area will be utilised (refer to **Figure 2.1**).

## 7.4 Relinquishment Phase Achieved During the MOP Period

During the MOP period, there will be no domains that will be in the relinquishment rehabilitation phase as per the MOP Guidelines (DRE, 2013).

## 8 REHABILITATION MONITORING AND RESEARCH

### 8.1 Rehabilitation Monitoring

Rehabilitation monitoring will be undertaken during the MOP term. Any subsidence remediation works completed over the underground mining area will require monitoring in accordance with the relevant Extraction Plan requirements. The reject emplacement areas, where rehabilitation is grassland, will be monitored on an annual basis until it is deemed self-sustaining and no longer requires management.

Monitoring of completed rehabilitation at the reject emplacement areas will ~~be~~ include visual inspections and photo monitoring and will focus on the following:

- soil conditions and erosion;
- drainage and sediment control structures;
- germination rates/ ground cover rates (5m x 5m monitoring area);
- weed and feral pest infestation; and
- general condition.

Monitoring events will identify any maintenance actions required, whether assistance is required to achieve target native vegetation communities, and will target issues such as progression of revegetation/regeneration and the need for targeted management strategies such as weed control or pest fauna management.

For forest rehabilitation areas, to monitor new criteria such as percentage canopy, understorey and groundcover, it is proposed that plot and transect surveys are undertaken in general accordance with current BioBanking survey methodology (BBAM) (OEH 2014) and photo point monitoring to confirm progression towards the revegetation criteria described in **Table 6.1**.

Forest area rehabilitation monitoring locations will involve the establishment of a 20 x 20 metre plot and a 50 metre transect.

It is envisaged that the refinement of the monitoring program will occur as part of subsequent reviews of the MOP that are submitted to ~~DRG~~ Regional NSW – RR. This will include the development of a formalised quality assurance process for validation of control measures (via monitoring, inspections and records) and verification of execution and records of key data (e.g. methodologies used, material parameters, weather conditions etc.) The gradual achievement (or otherwise) of the completion criteria will be assessed and discussed in the Annual Review, which will include the identification of



instances where criteria is not met, and measures taken to address any such issue. Where necessary, rehabilitation procedures will be amended accordingly with the aim of continually improving rehabilitation standards.

Monitoring within rehabilitation areas will be undertaken until it can be demonstrated that rehabilitation has satisfied the completion criteria.

## 8.2 Research and Rehabilitation Trials and Use of Analogue Sites

### 8.2.1 Rehabilitation Trials

The Aberdare Extended Reject Emplacement Area will be the first coarse reject emplacement area to be rehabilitated and will be used to refine emplacement and rehabilitation requirements at the East Pit and West Pit reject emplacement areas, as part of rehabilitation works. These areas have been selected as they directly drain to former underground workings providing a suitable long term control for leachate from the emplaced reject.

Aberdare Extended Reject Emplacement Area is to be rehabilitated as future open space (grassland) under agreement with the private landholder. This process is described in **Section 7.2.2.3**.

~~Two geotechnical studies have commenced on the Aberdare emplacement area to better understand the effectiveness of the capping to minimise risks posed by acid mine drainage and combustion of rejects.~~

~~The first study looked at compaction of coarse rejects to manage the risk of spontaneous combustion and minimise runoff through the reject emplacement area. This study was incorporated into the reject emplacement area operations procedure to ensure adequate reject compaction is achieved.~~

~~Another study is currently assessing current capping material to reduce the risks posed by water seepage and potential combustion. This study indicates that the risk of combustion in the rehabilitated reject emplacement area may be low. Upon completion of this work, further studies on future capping material will assess permeability and compaction effectiveness. These studies will be undertaken in the next MOP term, and will further inform the depth and compaction rate of future capping.~~

~~A geotechnical study on emplacement of reject for the management of potential combustion risk has informed the Austar CHPP Reject Haulage and Emplacement Area Procedure. The procedure requires tipped reject be levelled and spread in layers no more than 300mm and be compacted at no more than four weekly intervals to minimise the risk of spontaneous combustion.~~

~~A further geotechnical study assessing capping layer requirements to manage potential combustibility and acid generating potential of emplaced coarse reject has commenced. Initial findings indicate:~~

- ~~• The coarse rejects within the emplacement areas (Aberdare Emplacement Area and East Pit Emplacement Area) have a low risk of spontaneous combustion when compared to the NSW EPA Resource Recovery Order concentrations for combustible content.~~

- A cap is required to minimise the risk of generation of acid leachate as the coarse rejects has been shown to have a high propensity to generate acid leachate.
- For a rehabilitated area comprising managed grassland, the risk of combustion of the placed material is considered to be low provided it is appropriately covered with a low combustibility capping material. Therefore, for managed grassland, the thickness of the capping layer is predominantly based on the need to preclude infiltration of water in the coarse rejects to minimise the risk of acid generation. Subject to further field trials, it is considered that a 1 m cap would be suitable for the emplacement areas.

Recommended additional investigations and assessments to further support a 1 metre capping layer include:

- Field trial to assess suitability of capping layer to minimise the risk of acid leachate generation. This may include monitoring of seepage through the capping layer;
- If emplacement areas are to be forested following mine closure, further characterisation of the combustibility of the coarse rejects in the emplacement areas to assess the suitability of a 1 m thick capping layer;
- Investigations into the volume and suitability of capping material stored within the West Pit, including permeability testing and compaction achievability;
- Installation of groundwater monitoring wells within the emplacement areas to monitor groundwater levels and allow assessment of the efficiency of the drainage in to underground workings;
- Surface water quality monitoring of any water shedding off the placed capping layer to assess for any potential impacts resulting from the emplacement area. Note: currently surface water sheds to the centre of the emplacement areas and is sent underground.

These additional investigations and assessments may be progressed during the MOP period.

### 8.2.2 Use of Analogue Sites

Existing ecological monitoring information from the Austar Biodiversity Monitoring Program has been utilised to develop the vegetation composition criteria provided in **Section 6** relating to the Stage 3 mining area and Kitchener Surface Infrastructure Site. The criteria for other areas will be refined over time as more data becomes available and as final land uses for the various sites are confirmed, during the detailed closure planning phase for the site.

## 9 INTERVENTION AND ADAPTIVE MANAGEMENT

### 9.1 Threats to Rehabilitation

All rehabilitation activities will be undertaken as soon as practicable following the progressive completion of rehabilitation phases identified for the site. The issues and risks that may impact upon the ability of Austar to achieve their rehabilitation goals successfully, and where they are addressed within this document, are outlined in **Table 9-2**.

The management techniques utilised to avoid these potential threats to the success of rehabilitation from occurring are detailed in **Table 9-2**. Actions to be undertaken should these threats occur are detailed in **Section 9.2**.

**TABLE 9-1 THREATS TO REHABILITATION**

Issue/Risk	Section of this MOP
Erosion / poor water quality from rehabilitation areas.	<b>3.2.1.5</b>
Failure to meet criteria for each rehabilitation phase.	<b>9.2, 3.2.1</b>
Weed infestation threatening rehabilitation success.	<b>3.2.1.7</b>
Damage to rehabilitation by animals.	<b>3.2.1.7</b>
Growth medium not acceptable for rehabilitation requirements.	<b>7.2.2</b>
Final landform instability resulting in poor water quality, exposed materials such as carbonaceous or Potentially Acid Forming Materials.	<b>3.2.1.3</b>
Capping material not suitable for rehabilitation.	<b>7.2.2</b>
Rehabilitation not completed in accordance with rehabilitation goals and objectives	<b>9.2</b>
Spontaneous combustion of rehabilitation area	<b>3.2.1.2</b>

### 9.2 Trigger Action Response Plan

The rehabilitation monitoring program as outlined in **Section 8** will be used to identify any maintenance actions required and whether further works are required to achieve the specific closure criteria (refer to **Table 6-1**). The rehabilitation care and maintenance program will be undertaken following the completion of rehabilitation activities at the site, and will be utilised to manage the rehabilitation undertaken on the site and facilitate its progression towards relinquishment.

**Table 9-2** details the proposed containment and remediation actions based on the medium or high level risks relating to rehabilitation identified through the environmental risk assessment process

described in **Section 3.1**. Further details on the proposed environmental management measures utilised by Austar are provided in **Section 3.2**.

**TABLE 9-2 TRIGGER ACTION RESPONSE PLAN**

Trigger	Containment Action	Remediation Action
Hazardous Materials (asbestos) inappropriately removed during demolition of heritage structures, leading to soil contamination and/or health impact	Undertake monitoring / engage specialist to understand extent of the impact.  Install public safety management measures as required to minimise risk of harm.	Implement corrective actions as necessary based on outcomes of specialist reports.  Remediate soils and validate to minimise potential for harm.
Landform not in accordance with <b>DRG requirements (i.e. not within completion criteria identified in Table 6-1 including capping material depth)</b>	Undertake survey of areas of concern to determine areas that do not meet requirements.	Monitor areas to assess performance. If rehabilitation performance is inadequate, undertake reshaping works and reseedling of the amended landform, utilising target species for the proposed final land use.
Erosion / poor water quality from rehabilitation areas (in excess of target criteria identified in <b>Table 6-1</b> ).	Install appropriate erosion and sedimentation controls such as sediment fences or similar	Regrade and stabilise with target species for proposed final land use.  Check (and repair if required) adequate drainage to underground workings to minimise runoff
Lack of vegetation establishment or dieback of rehabilitated areas resulting in inability to meet vegetation criteria targets specified in <b>Table 6-1</b> .	Undertake soil chemistry monitoring of target area to determine if growth medium is appropriate for vegetation establishment.	Apply ameliorants as required based on results of laboratory testing and re-seed utilising appropriate species as per target final land use
Weed infestation threatening rehabilitation success (weeds in excess of identified criteria level (refer to <b>Table 6-1</b> )).	Undertake monitoring to understand weed location and abundance.	Implement weed management actions as required.  Re-seed utilising appropriate species as per target final land use where necessary.
Significant damage to rehabilitation areas by feral animals, resulting in inability to meet vegetation criteria targets specified in <b>Table 6-1</b>	Undertake monitoring to understand potential feral animal habitat location and abundance	Implement feral management actions as required.  Re-seed utilising appropriate species as per target final land use where necessary.
Acid leachate identified from rehabilitated reject emplacement areas, potentially resulting in offsite water impact and/or dieback of revegetation, resulting in inability to meet vegetation	Undertake soil / water chemistry monitoring and landform / drainage investigation of target	Amend landform to remediate issue, as informed by containment investigations.  Undertake water / soil testing post completion of corrective

Trigger	Containment Action	Remediation Action
criteria targets specified in <b>Table 6-1</b>	area to determine the source of the issue. Install containment measures to minimise risk associated with potential offsite impact.	actions to confirm adequacy of remediation. Re-seed utilising appropriate species as per target final land use (where required).
Spontaneous combustion of rehabilitation area	Undertake monitoring to understand nature and extent of the event	Amend landform to remediate issue, as informed by containment investigations. Implement corrective actions as necessary in accordance with Spontaneous Combustion <b>Principal Hazard</b> Management Plan

The rehabilitation monitoring / inspection program will be continued as required until it can be demonstrated that the rehabilitation has satisfied the closure criteria.

In addition to the annual monitoring program, routine site inspections are also conducted monthly by Austar environmental personnel. Mining personnel also conduct inspections of the site which also include rehabilitation areas and inspections of subsidence repairs undertaken. If issues are identified during this inspection process, the Environment and Community Superintendent is advised and corrective actions are implemented as required.

## 10 REPORTING

During the MOP period, an Annual Review will be completed in accordance with Project Approval 08\_0111, Development Consent DA29/95 and relevant mining authorisation conditions. The Annual Review will be completed to satisfy DP&IE and **DRG-Regional NSW – RR** requirements and will detail activities undertaken during the report period that support progression towards the final land use. The AR will include:

- summary of operations and rehabilitation undertaken during the report period;
- monitoring results against key performance indicators,
- summary of complaints and incidents during the report period;
- analysis of all monitoring results;
- key trends in monitoring results;
- non-compliances; and

- any other environmental aspects required by **DRG Regional NSW – RR**.

Austar also maintains a website which provides updates on the operations status and environmental monitoring program results.

## 11 REVIEW AND IMPLEMENTATION OF THE MOP

### 11.1 Review of the MOP

Ongoing monitoring and review on the performance and implementation of this MOP will be undertaken in accordance with the Austar **Environmental Management Strategy EMS**.

The Environment and Community Superintendent (or delegate) will review and if necessary, revise the MOP and resubmit to **DRG Regional NSW – RR within two years of submitting MOP Amendment A**, at the conclusion of the specified MOP term or following any changes to the current operational conditions on site. Any changes made to the MOP as a result of the review will be made in accordance with the current MOP guidelines.

### 11.2 MOP Implementation

Those responsible for the implementation and ongoing management of this MOP are identified in **Table 11-1**.

**TABLE 11-1 ROLES AND RESPONSIBILITIES**

<b>Role</b>	<b>Responsibilities</b>
<del>Mine Operations Manager</del> <del>Mining Engineering Manager</del>	Mine operations and the environmental performance of the Austar Coal Mine in accordance with mining lease conditions, including the outcomes of the MOP.
<del>CHPP Manager</del> <del>Mining Engineering Manager</del>	CHPP operations including coal handling and processing, reject emplacement, tailings management, water treatment plant.
Environment & Community Superintendent	Prepare, review and revise the MOP document where necessary. Rehabilitation activities on reject emplacement areas. Monitoring and reporting of progress against MOP in Annual Review.

## 12 REFERENCES

DECC (2008) Managing Urban Stormwater: Soils and Construction Volume 2A, 2C, 2D and 2E.

Umwelt (Australia) Pty Limited, (2011). Austar Stage 3 Modification, Environmental Assessment. Prepared for Austar Coal Mine Pty Limited.

Umwelt (Australia) Pty Limited, (2015). Austar Coal Mine LWB1-B3 Modification, Environmental Assessment. Prepared on behalf of Austar Coal Mine Pty Limited.

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NSW Government Department of Trade and Investment (2013) ESG3 – Mining Operations Plan (MOP) Guidelines.

Office of Environment and Heritage (OEH) (2014) BioBanking Assessment Methodology, September 2014

Austar Coal Mine, (December 2013). Austar Coal Mine Longwalls A7-A10 Extraction Plan Version 3.

Austar Coal Mine, (May 2016). Longwalls B1 – B3 Extraction Plan v2.

Austar Coal Mine, (January 2019). Austar Coal Mine Longwalls B4-B7 Extraction Plan v2.

Austar Coal Mine, (June 2018). Environmental Management Strategy.

Austar Coal Mine (June 2018). Aboriginal Cultural Heritage Management Plan.

Umwelt (Australia) Pty Limited, (January 2014). Historic Heritage Management Plan Austar Coal Mine Project – Stage 3.

Austar Coal Mine, (July 2018). Site Water Management Plan.

Austar Coal Mine, (June 2018). Air Quality and Greenhouse Gas Management Plan.

Austar Coal Mine Spontaneous Combustion **Principal Hazard** Management Plan

AECOM Australia Pty Ltd June 2013. Landscape Management Plan – Kitchener SIS.

# **Appendix 1:**

# **Schedule of Lands**



Lot/Section/DP	Ownership
LotSecPlan	Ownership
1/ /DP727312	Private Land
2081/ /DP1219443	Private Land
2082/ /DP1219443	Private Land
100/ /DP1219658	Private Land
101/ /DP1219658	Private Land
1/ /DP852328	Private Land
1/ /DP798955	Private Land
11/ /DP1000136	Private Land
51/ /DP794214	Private Land
522/ /DP1003186	Private Land
1/ /DP950221	Private Land
10/ /DP1000136	Private Land
2/ /DP595102	Private Land
521/ /DP1003186	Private Land
3/ /DP745656	Private Land
2/ /DP575428	Private Land
4/ /DP571638	Private Land
3/ /DP575428	Private Land
61/ /DP814379	Private Land
1/ /DP841360	Private Land
31/ /DP847374	Private Land
1/ /DP738718	Private Land
1/ /DP170894	Private Land
2/ /DP841360	Private Land
75/ /DP755254	Private Land
1/ /DP1016843	Private Land
2/ /DP747207	Private Land
342/ /DP1044033	Private Land
2/ /DP243366	Private Land
351/ /DP808936	Private Land
60/ /DP814379	Private Land
1/ /DP171040	Private Land
1/ /DP738726	Private Land
21/ /DP1079917	Private Land
22/ /DP1079917	Private Land
10/ /DP1093269	Private Land
11/ /DP1093269	Private Land
2/ /DP1173947	Private Land
836/ /DP1112858	Assumed Freehold Land
298/ /DP13226	Private Land
1/ /DP700364	Private Land
19/ /DP1052902	Private Land
207/ /DP13226	Assumed Freehold Land
20/ /DP13226	Private Land
294/ /DP13226	Assumed Freehold Land
25/E/DP12493	Assumed Freehold Land

Lot/Section/DP	Ownership
8/C/DP12493	Assumed Freehold Land
231/ /DP1005135	Private Land
4/ /DP1035288	Private Land
22/C/DP12493	Private Land
31/C/DP12493	Private Land
213/ /DP13226	Private Land
9/A/DP12493	Assumed Freehold Land
3/C/DP12493	Private Land
26/E/DP12493	Assumed Freehold Land
9/E/DP12493	Private Land
14/E/DP12493	Assumed Freehold Land
4/A/DP12493	Private Land
11/C/DP12493	Assumed Freehold Land
5/A/DP12493	Assumed Freehold Land
297/ /DP13226	Assumed Freehold Land
10/A/DP12493	Assumed Freehold Land
21/C/DP12493	Assumed Freehold Land
6/C/DP12493	Assumed Freehold Land
22/ /DP862340	Private Land
21/ /DP862340	Private Land
1/ /DP850336	Private Land
240/ /DP1017683	Private Land
103/ /DP853204	Private Land
203/ /DP13226	Assumed Freehold Land
211/ /DP13226	Assumed Freehold Land
4/E/DP12493	Private Land
176/ /DP13226	Assumed Freehold Land
500/ /DP710475	Assumed Freehold Land
43/ /DP13226	Private Land
301/ /DP13226	Assumed Freehold Land
26/C/DP12493	Assumed Freehold Land
523/ /DP708708	Private Land
1/E/DP12493	Assumed Freehold Land
9/C/DP12493	Private Land
10/C/DP12493	Private Land
6/A/DP12493	Assumed Freehold Land
30/C/DP12493	Assumed Freehold Land
210/ /DP13226	Assumed Freehold Land
3/B/DP12493	Assumed Freehold Land
5/ /DP619556	Private Land
3/D/DP12493	Assumed Freehold Land
8/A/DP12493	Assumed Freehold Land
18/E/DP12493	Assumed Freehold Land
16/E/DP12493	Private Land
2/A/DP12493	Private Land
8/D/DP12493	Private Land
105/ /DP853204	Private Land
204/ /DP13226	Assumed Freehold Land

Lot/Section/DP	Ownership
1/A/DP12493	Assumed Freehold Land
3/ /DP618957	Private Land
25/C/DP12493	Private Land
7/D/DP12493	Private Land
9/B/DP12493	Private Land
293/ /DP13226	Assumed Freehold Land
6/D/DP12493	Private Land
10/E/DP12493	Private Land
23/C/DP12493	Private Land
29/C/DP12493	Private Land
1/ /DP858391	Assumed Freehold Land
70/ /DP13226	Assumed Freehold Land
5/D/DP12493	Private Land
3/E/DP12493	Private Land
7/E/DP12493	Private Land
202/ /DP13226	Assumed Freehold Land
2/ /DP1045678	Assumed Freehold Land
102/ /DP853204	Private Land
11/ /DP1069000	Private Land
8/ /DP1069000	Private Land
7/ /DP1069000	Private Land
9/ /DP1069000	Private Land
2/ /DP1069000	Private Land
1/ /DP1069000	Private Land
4/ /DP1069000	Private Land
6/ /DP732181	Private Land
3/ /DP1055477	Private Land
2/ /DP619366	Private Land
5/ /DP1069000	Private Land
106/ /DP853204	Private Land
6/ /DP1069000	Private Land
3/ /DP1069000	Private Land
1001/ /DP1102332	Private Land
1002/ /DP1102332	Private Land
1003/ /DP1102332	Private Land
1004/ /DP1102332	Private Land
1005/ /DP1102332	Private Land
1006/ /DP1112552	Private Land
1007/ /DP1112552	Private Land
1009/ /DP1112552	Private Land
3/ /DP1115923	Private Land
2/ /DP1115923	Private Land

Lot/Section/DP	Ownership
1010/ /DP1121795	Private Land
1014/ /DP1121795	Private Land
1018/ /DP1121795	Private Land
1012/ /DP1121795	Private Land
1011/ /DP1121795	Private Land
1013/ /DP1121795	Private Land
1016/ /DP1121795	Private Land
1017/ /DP1121795	Private Land
1019/ /DP1167712	Private Land
1020/ /DP1167712	Private Land
1021/ /DP1167712	Private Land
2/ /DP1168802	Assumed Freehold Land
1/ /DP1168802	Assumed Freehold Land
5/ /DP1176054	Private Land
4/ /DP1176054	Private Land
11/ /DP1184613	Private Land
1/ /DP1184613	Private Land
2/ /DP1184613	Private Land
3/ /DP1184613	Private Land
4/ /DP1184613	Private Land
6/ /DP1184613	Private Land
13/ /DP1184613	Private Land
12/ /DP1184613	Private Land
3/ /DP1176054	Private Land
2/ /DP1176054	Private Land
1/ /DP1176054	Private Land
10/ /DP1069057	Private Land
345/ /DP1087573	Assumed Freehold Land
1/ /DP619366	Assumed Freehold Land
1/G/DP12493	Assumed Freehold Land
201/ /DP13226	Assumed Freehold Land
296/ /DP13226	Assumed Freehold Land
12/B/DP12493	Private Land
27/C/DP12493	Assumed Freehold Land
17/B/DP12493	Private Land
12/A/DP12493	Assumed Freehold Land
11/E/DP12493	Private Land
1/ /DP609075	Private Land
2/E/DP12493	Assumed Freehold Land
1/C/DP12493	Assumed Freehold Land

Lot/Section/DP	Ownership
2/D/DP12493	Private Land
28/C/DP12493	Private Land
13/F/DP12493	Assumed Freehold Land
192/ /DP13226	Assumed Freehold Land
63A/ /DP12136	Private Land
42/ /DP13226	Assumed Freehold Land
206/ /DP13226	Assumed Freehold Land
7/B/DP12493	Private Land
61/ /DP12136	Private Land
24/C/DP12493	Private Land
9/ /DP12136	Private Land
3/A/DP12493	Private Land
12/C/DP12493	Assumed Freehold Land
11/A/DP12493	Assumed Freehold Land
16/B/DP12493	Private Land
107/ /DP853204	Private Land
101/ /DP853204	Private Land
292/ /DP13226	Private Land
14/ /DP12136	Private Land
89/ /DP13687	Private Land
12/E/DP12493	Assumed Freehold Land
4/B/DP12493	Assumed Freehold Land
299/ /DP13226	Assumed Freehold Land
2/ /DP1061571	Private Land
44/ /DP13226	Private Land
2/B/DP12493	Private Land
11/B/DP12493	Assumed Freehold Land
1/ /DP327620	Cessnock City Council
19/ /DP12136	Assumed Freehold Land
208/ /DP13226	Assumed Freehold Land
10/B/DP12493	Assumed Freehold Land
209/ /DP13226	Assumed Freehold Land
4/D/DP12493	Assumed Freehold Land
11/ /DP12136	Private Land
A/ /DP311973	Private Land
199/ /DP13226	Assumed Freehold Land
1/ /DP1010898	Private Land
28/ /DP12136	Private Land
13/A/DP12493	Assumed Freehold Land
8/E/DP12493	Assumed Freehold Land
1/B/DP12493	Assumed Freehold Land
5/C/DP12493	Assumed Freehold Land
17/E/DP12493	Assumed Freehold Land
14/C/DP12493	Private Land
198/ /DP13226	Assumed Freehold Land
10/ /DP853942	Private Land
12/F/DP12493	Private Land
1/ /DP1045678	Private Land

Lot/Section/DP	Ownership
2/ /DP1010898	Private Land
15/A/DP12493	Assumed Freehold Land
2/ /DP834726	Assumed Freehold Land
295/ /DP13226	Assumed Freehold Land
5/E/DP12493	Private Land
20/C/DP12493	Assumed Freehold Land
15/B/DP12493	Assumed Freehold Land
15/C/DP12493	Assumed Freehold Land
18/B/DP12493	Assumed Freehold Land
7/C/DP12493	Private Land
13/C/DP12493	Private Land
9/D/DP12493	Assumed Freehold Land
11/F/DP12493	Assumed Freehold Land
13/E/DP12493	Assumed Freehold Land
6/E/DP12493	Private Land
65/ /DP12136	Private Land
300/ /DP13226	Assumed Freehold Land
73/ /DP12136	Private Land
205/ /DP13226	Private Land
10/ /DP12136	Private Land
200/ /DP13226	Assumed Freehold Land
10/F/DP12493	Assumed Freehold Land
15/E/DP12493	Assumed Freehold Land
14/A/DP12493	Private Land
212/ /DP13226	Assumed Freehold Land
4/C/DP12493	Private Land
2/C/DP12493	Assumed Freehold Land
8/B/DP12493	Private Land
46/ /DP12136	Private Land
1/D/DP12493	Assumed Freehold Land
7/A/DP12493	Assumed Freehold Land
9/F/DP12493	Private Land
4/ /DP12136	Private Land
4/ /DP619556	Assumed Freehold Land
104/ /DP853204	Private Land
10/ /DP1069000	Private Land
27/ /DP658523	Private Land
44/ /DP12136	Private Land
48/ /DP12136	Private Land
4/ /DP13687	Private Land
1/ /DP365734	Cessnock City Council
27/ /DP12136	Private Land
1/ /DP834726	Private Land
8/ /DP13687	Private Land
74/ /DP12136	Private Land
1/ /DP1061571	Private Land
1/ /DP309362	Cessnock City Council
75/ /DP11825	Private Land

Lot/Section/DP	Ownership
21/ /DP11825	Private Land
2/ /DP314679	Private Land
61/ /DP11825	Private Land
34/ /DP11825	Private Land
71/ /DP11825	Private Land
105/ /DP11825	Private Land
55/ /DP11825	Private Land
106/ /DP11825	Private Land
A/ /DP321307	Private Land
29/ /DP11825	Private Land
68/ /DP11825	Private Land
59/ /DP11825	Private Land
1/ /DP175536	Minister for Education
118/ /DP11825	Private Land
64/ /DP11825	Private Land
15/ /DP11825	Private Land
63/ /DP11825	Private Land
97/ /DP11825	Private Land
86/ /DP11825	Assumed Freehold Land
35/ /DP11825	Private Land
41/ /DP11825	Private Land
10/ /DP11825	Private Land
115/ /DP11825	Private Land
1/ /DP617927	Private Land
57/ /DP11825	Private Land
25/ /DP11825	AUSTRALIAN TELECOMMUNICATIONS COMMISSION
30/ /DP11825	Private Land
93/ /DP11825	Private Land
73/ /DP11825	Private Land
20/ /DP11825	Private Land
92/ /DP11825	Private Land
66/ /DP11825	Private Land
37/ /DP11825	Private Land
A/ /DP318547	Private Land
94/ /DP11825	Private Land
49/ /DP11825	Private Land
33/ /DP11825	Private Land
32/ /DP11825	Private Land
77/ /DP11825	Private Land
60/ /DP11825	Private Land
12/ /DP11825	Private Land
103/ /DP11825	Private Land
100/ /DP11825	Private Land
98/ /DP11825	Private Land
81/ /DP11825	Private Land
70/ /DP11825	Private Land
45/ /DP11825	Private Land

Lot/Section/DP	Ownership
74/ /DP11825	Private Land
65/ /DP11825	Private Land
23/ /DP11825	Private Land
91/ /DP11825	Private Land
67/ /DP11825	Private Land
117/ /DP11825	Private Land
116/ /DP11825	Private Land
14/ /DP11825	Assumed Freehold Land
2/ /DP617927	Private Land
39/ /DP11825	Assumed Freehold Land
1/ /DP314679	Private Land
48/ /DP11825	Private Land
85/ /DP11825	Private Land
47/ /DP11825	Private Land
79/ /DP11825	Private Land
16/ /DP11825	Private Land
83/ /DP11825	Assumed Freehold Land
18/ /DP11825	Private Land
20/ /DP608964	Private Land
19/ /DP11825	Private Land
36/ /DP11825	Private Land
99/ /DP11825	Assumed Freehold Land
40/ /DP11825	Private Land
95/ /DP11825	Private Land
28/ /DP11825	Private Land
56/ /DP11825	Private Land
102/ /DP11825	Private Land
111/ /DP11825	Private Land
76/ /DP11825	Private Land
1/ /DP360790	Cessnock City Council
101/ /DP11825	Private Land
96/ /DP11825	Private Land
31/ /DP11825	Private Land
110/ /DP11825	Private Land
104/ /DP11825	Private Land
62/ /DP11825	Private Land
113/ /DP11825	Private Land
89/ /DP11825	Private Land
82/ /DP11825	Private Land
46/ /DP11825	Private Land
69/ /DP11825	Private Land
80/ /DP11825	Private Land
24/ /DP11825	Private Land
54/ /DP11825	Private Land
114/ /DP11825	Private Land
49/ /DP12136	Private Land
76/ /DP12136	Private Land
15/ /DP12136	Private Land

Lot/Section/DP	Ownership
16/ /DP12136	Private Land
72/ /DP12136	Private Land
6/ /DP1061571	Private Land
1/ /DP12136	Private Land
2/ /DP12136	Private Land
87/ /DP13687	Kearsley Council
30/ /DP12136	Private Land
6/ /DP12136	Private Land
41/ /DP12136	Private Land
7/ /DP12136	Private Land
67/ /DP12136	Private Land
63/ /DP12136	Private Land
75/ /DP12136	Private Land
7/ /DP13687	Private Land
3/ /DP1061571	Private Land
90/ /DP13687	Private Land
13/ /DP12136	Private Land
29/ /DP12136	Private Land
B/ /DP363723	Private Land
3/ /DP12136	Private Land
47/ /DP12136	Private Land
68/ /DP12136	Private Land
12/ /DP12136	Private Land
1/ /DP867260	Private Land
62/ /DP12136	Private Land
B/ /DP321307	Private Land
69/ /DP12136	Assumed Freehold Land
8/ /DP12136	Private Land
18/ /DP12136	Private Land
50/ /DP12136	Private Land
53/ /DP12136	Private Land
2/ /DP1065119	Private Land
2/ /DP867260	Private Land
17/ /DP12136	Private Land
88/ /DP13687	Private Land
51/ /DP12136	Private Land
5/ /DP13687	Private Land
64/ /DP12136	Assumed Freehold Land
5/ /DP12136	Private Land
66/ /DP12136	Private Land
6/ /DP13687	Private Land
45/ /DP12136	Private Land
A/ /DP363723	Assumed Freehold Land
121/ /DP848796	Hunter Water
3/ /DP867260	Private Land
122/ /DP848796	Hunter Water
1/ /DP1158786	Energy Australia
7/ /DP1181682	Private Land

Lot/Section/DP	Ownership
2/ /DP1181682	Private Land
5/ /DP1181682	Private Land
3/ /DP1181682	Private Land
4/ /DP1181682	Assumed Freehold Land
1/ /DP1181682	Private Land
10/ /DP1181682	Private Land
702/ /DP1182904	Private Land
701/ /DP1182904	Assumed Freehold Land
502/ /DP1083188	Private Land
501/ /DP1083188	Assumed Freehold Land
112/ /DP11825	Private Land
31/ /DP12136	Private Land
1/ /DP1065119	Private Land
42/ /DP11825	Private Land
B/ /DP318547	Private Land
52/ /DP12136	Private Land
42/ /DP12136	Private Land
22/ /DP11825	Private Land
17/ /DP11825	Private Land
58/ /DP11825	Private Land
43/ /DP12136	Private Land
84/ /DP11825	Assumed Freehold Land
3/ /DP617927	Assumed Freehold Land
13/ /DP11825	Private Land
90/ /DP11825	Private Land
10/ /DP1034264	Private Land
78/ /DP11825	Private Land
7/ /DP1034264	Private Land
1/ /DP312349	Private Land
1/ /DP314475	Private Land
8/ /DP1034264	Private Land
4/ /DP1034264	Private Land
13/ /DP1034264	Private Land
15/ /DP1034264	Private Land
13/ /DP69968	Austar Coal Mine
6/ /DP714067	Private Land
4/ /DP1061121	Private Land
14/ /DP1034264	Private Land
11/ /DP1034264	Private Land
20/ /DP1034264	Private Land
11/ /DP69968	Austar Coal Mine
6/ /DP1034264	Private Land
12/ /DP69968	Austar Coal Mine
19/ /DP1034264	Private Land
9/ /DP1034264	Private Land
11/ /DP11825	Private Land
1/ /DP312463	Private Land
17/ /DP1034264	Private Land

Lot/Section/DP	Ownership
10/ /DP69968	Austar Coal Mine
1/ /DP1034264	Private Land
38/ /DP11825	Private Land
1/ /DP772226	Private Land
18/ /DP1034264	Private Land
16/ /DP1034264	Private Land
12/ /DP1034264	Private Land
5/ /DP1061121	Private Land
8/ /DP69968	Austar Coal Mine
152/ /DP12136	Private Land
101/ /DP817644	Hunter Water
37/ /DP12136	Private Land
144/ /DP12136	Private Land
88/ /DP12136	Private Land
139/ /DP12136	Private Land
161/ /DP12136	Private Land
156/ /DP12136	Private Land
155/ /DP12136	Private Land
125/ /DP12136	Private Land
78/ /DP12136	Private Land
174/ /DP12136	Private Land
145/ /DP12136	Private Land
98/ /DP12136	Private Land
179/ /DP12136	Private Land
95/ /DP12136	Private Land
169/ /DP12136	Private Land
188/ /DP12136	Private Land
35/ /DP12136	Private Land
129/ /DP12136	Private Land
81/ /DP12136	Private Land
101/ /DP12136	Private Land
108/ /DP12136	Private Land
137/ /DP12136	Private Land
94/ /DP12136	Private Land
136/ /DP12136	Private Land
82/ /DP12136	Private Land
154/ /DP12136	Private Land
90/ /DP12136	Private Land
151/ /DP12136	Private Land
107/ /DP12136	Private Land
132/ /DP12136	Private Land
120/ /DP12136	Private Land
133/ /DP12136	Private Land
1/ /DP318934	Private Land
185/ /DP12136	Private Land
140/ /DP12136	Private Land
110/ /DP662217	Private Land
58/ /DP12136	Private Land

Lot/Section/DP	Ownership
149/ /DP12136	Private Land
1/ /DP312611	Private Land
181/ /DP12136	Private Land
2/ /DP312611	Private Land
176/ /DP12136	Private Land
56/ /DP12136	Private Land
85/ /DP12136	Private Land
134/ /DP12136	Private Land
87/ /DP12136	Private Land
121/ /DP12136	Private Land
183/ /DP12136	Private Land
186/ /DP12136	Private Land
86/ /DP12136	Private Land
192/ /DP12136	Private Land
102/ /DP12136	Private Land
128/ /DP12136	Private Land
163/ /DP12136	Private Land
142/ /DP12136	Private Land
77/ /DP12136	Private Land
34/ /DP12136	Private Land
59/ /DP12136	Private Land
97/ /DP12136	Private Land
187/ /DP12136	Private Land
105/ /DP12136	Private Land
99/ /DP12136	Private Land
171/ /DP12136	Private Land
180/ /DP12136	Private Land
164/ /DP12136	Private Land
158/ /DP12136	Private Land
119/ /DP12136	Private Land
143/ /DP12136	Private Land
54/ /DP12136	Private Land
148/ /DP12136	Private Land
96/ /DP12136	Private Land
182/ /DP12136	Private Land
127/ /DP12136	Private Land
177/ /DP12136	Private Land
106/ /DP12136	Private Land
178/ /DP12136	Private Land
109/ /DP12136	Private Land
38/ /DP12136	Private Land
115/ /DP666780	Private Land
162/ /DP12136	Private Land
175/ /DP12136	Private Land
33/ /DP12136	Private Land
160/ /DP12136	Private Land
170/ /DP12136	Private Land
189/ /DP12136	Private Land

Lot/Section/DP	Ownership
36/ /DP12136	Private Land
57/ /DP12136	Private Land
100/ /DP12136	Private Land
191/ /DP12136	Private Land
153/ /DP12136	Private Land
91/ /DP12136	Private Land
79/ /DP12136	Private Land
190/ /DP12136	Private Land
116/ /DP12136	Private Land
141/ /DP12136	Private Land
159/ /DP12136	Private Land
172/ /DP12136	Private Land
138/ /DP12136	Private Land
173/ /DP12136	Private Land
60/ /DP12136	Private Land
104/ /DP12136	Private Land
150/ /DP12136	Private Land
157/ /DP12136	Private Land
93/ /DP12136	Private Land
92/ /DP12136	Private Land
147/ /DP12136	Private Land
112/ /DP12136	Private Land
A/ /DP19714	Private Land
204/ /DP1062990	Private Land
1/ /DP1065923	Private Land
3/ /DP1065923	Private Land
E/ /DP19714	Private Land
202/ /DP1062990	Private Land
4/ /DP1065923	Private Land
C/ /DP19714	Private Land
D/ /DP19714	Private Land
2/ /DP329463	Private Land
1/ /DP772233	Private Land
2/ /DP1065923	Private Land
201/ /DP1062990	Private Land
2/ /DP1090956	Private Land
1/ /DP1090956	Private Land
52/ /DP1093350	Private Land
51/ /DP1093350	Private Land
311/ /DP1091621	Private Land
304/ /DP1091621	Private Land
317/ /DP1091621	Private Land
316/ /DP1091621	Private Land
315/ /DP1091621	Assumed Freehold Land
310/ /DP1091621	Private Land
308/ /DP1091621	Private Land
307/ /DP1091621	Private Land
306/ /DP1091621	Private Land

Lot/Section/DP	Ownership
305/ /DP1091621	Private Land
302/ /DP1091621	Private Land
301/ /DP1091621	Private Land
312/ /DP1091621	Private Land
313/ /DP1091621	Private Land
1241/ /DP1105946	Private Land
1242/ /DP1105946	Private Land
1461/ /DP1112665	Private Land
1462/ /DP1112665	Private Land
2032/ /DP1141149	Private Land
2031/ /DP1141149	Private Land
1132/ /DP1141419	Private Land
1131/ /DP1141419	Private Land
31/ /DP1144473	Private Land
33/ /DP1144473	Private Land
32/ /DP1144473	Assumed Freehold Land
30/ /DP1144473	Assumed Freehold Land
2052/ /DP1145831	Assumed Freehold Land
2051/ /DP1145831	Private Land
1841/ /DP1168502	Private Land
1842/ /DP1168502	Private Land
3091/ /DP1182489	Private Land
3092/ /DP1182489	Private Land
2/ /DP1034264	Private Land
3141/ /DP1189281	Private Land
3142/ /DP1189281	Assumed Freehold Land
31/ /DP1083169	Private Land
30/ /DP1083169	Private Land
21/ /DP1034264	Assumed Freehold Land
135/ /DP12136	Private Land
89/ /DP12136	Private Land
122/ /DP12136	Private Land
126/ /DP12136	Private Land
B/ /DP19714	Private Land
123/ /DP12136	Private Land
103/ /DP12136	Private Land

Lot/Section/DP	Ownership
55/ /DP12136	Private Land
80/ /DP12136	Private Land
111/ /DP12136	Private Land
165/ /DP12136	Private Land
168/ /DP12136	Private Land
167/ /DP12136	Private Land
1/ /DP185087	Private Land
166/ /DP12136	Private Land
1/ /DP1116494	Assumed Freehold Land
1/ /DP837901	Private Land
5/ /DP11825	Private Land
1/ /DP339399	Private Land
2/ /DP11825	Private Land
234/ /DP808055	Private Land
9/ /DP11825	Private Land
1/ /DP308679	Private Land
A/ /DP412769	Private Land
1/ /DP843371	Private Land
67/ /DP627761	Private Land
5/ /DP714067	Private Land
6/ /DP11825	Private Land
7/ /DP11825	Private Land
3/ /DP11825	Private Land
108/ /DP11825	Private Land
21/ /DP657097	Private Land
3/ /DP602482	Private Land
8/ /DP11825	Private Land
14/ /DP661009	Assumed Freehold Land
230/ /DP560558	Private Land
20/ /DP880922	Private Land
1/ /DP602482	Private Land
233/ /DP808055	Private Land
1/ /DP391819	Private Land
4/ /DP11825	Private Land
109/ /DP11825	Private Land
1/ /DP11825	Private Land
2/ /DP602482	Private Land
8/ /DP755225	Private Land
107/ /DP11825	Private Land
20/ /DP7396	Private Land
85/ /DP755225	Assumed Freehold Land
1/ /DP308680	Private Land
372/ /DP832114	Private Land
1/ /DP305225	Private Land
11/ /DP840227	Private Land
8/ /DP7396	Private Land
7/ /DP7396	Private Land
1/ /DP772352	Private Land

Lot/Section/DP	Ownership
3/ /DP13897	Private Land
9/ /DP13897	Private Land
16/ /DP7396	Private Land
10/ /DP7396	Private Land
36/ /DP7396	Assumed Freehold Land
1/ /DP506445	Private Land
1/ /DP309629	Private Land
2/ /DP726861	Private Land
B/ /DP350427	Private Land
1/ /DP324126	Private Land
1/ /DP170509	Private Land
39/ /DP7396	Private Land
1/ /DP602484	Private Land
1/ /DP380331	Private Land
11/ /DP7396	Private Land
2/ /DP506445	Private Land
12/ /DP7396	Private Land
1/ /DP726861	Assumed Freehold Land
28/ /DP7396	Private Land
1/ /DP319279	Private Land
84/ /DP755225	Private Land
1/ /DP301570	Private Land
1/ /DP309628	Private Land
4/ /DP1003305	Assumed Freehold Land
A/ /DP350427	Private Land
1/ /DP304170	Private Land
3/ /DP1003305	Private Land
27/ /DP7396	Assumed Freehold Land
90/ /DP755225	Private Land
2/ /DP843371	Private Land
1/ /DP174028	Private Land
164/ /DP665475	Private Land
101/ /DP1033985	Private Land
331/ /DP829406	Private Land
2/ /DP347691	Private Land
1/ /DP1035288	Private Land
35/ /DP653974	Private Land
239/ /DP1017683	Private Land
11/ /DP13897	Private Land
402/ /DP833011	Private Land
121/ /DP861773	Private Land
238/ /DP1017683	Private Land
1/ /DP1044030	Assumed Freehold Land
1/ /DP305728	Private Land
8/ /DP13897	Private Land
4/ /DP13897	Private Land
1/ /DP616207	Private Land
3/ /DP1035288	Private Land

Lot/Section/DP	Ownership
1/ /DP124558	Private Land
243/ /DP1017683	Private Land
401/ /DP833011	Private Land
1/ /DP598329	Private Land
5/ /DP13897	Private Land
122/ /DP861773	Private Land
102/ /DP1033985	Private Land
2/ /DP602484	Private Land
1/ /DP1068185	Assumed Freehold Land
1/ /DP795298	Minister for Education
2/ /DP1035288	Private Land
332/ /DP829406	Private Land
1/ /DP122731	Minister for Education
1/ /DP315530	Private Land
10/ /DP13897	Private Land
262/ /DP1142572	Assumed Freehold Land
2/ /DP1168335	Private Land
1/ /DP1168335	Private Land
2371/ /DP1170348	Private Land
2372/ /DP1170348	Assumed Freehold Land
9/ /DP1181682	Private Land
8/ /DP1181682	Private Land
6/ /DP1181682	Private Land
2/ /DP1044030	Private Land
15/ /DP1082788	Private Land
211/ /DP1083970	Assumed Freehold Land
2/ /DP304170	Private Land
19/ /DP7396	Private Land
21/ /DP1079609	Private Land
22/ /DP1079609	Private Land
12/ /DP1197817	Assumed Freehold Land
1/ /DP180954	Private Land
1/ /DP726039	Private Land
30/ /DP7396	Private Land
214/ /DP1044421	Private Land
212/ /DP1044421	Private Land
213/ /DP1044421	Private Land
215/ /DP1044421	Private Land
211/ /DP1044421	Private Land
31/ /DP7396	Private Land
110/ /DP881097	Private Land
14/ /DP1014546	Private Land
111/ /DP881097	Private Land
1/ /DP986143	Private Land
114/ /DP1013882	Private Land
113/ /DP1013882	Private Land
32/ /DP7396	Private Land

Lot/Section/DP	Ownership
1/ /DP347691	Private Land
81/ /DP1088750	Private Land
82/ /DP1088750	Private Land
16/ /DP1095497	Assumed Freehold Land
3/ /DP1129284	Private Land
4/ /DP1129284	Private Land
2/ /DP1129284	Private Land
261/ /DP1142572	Private Land
12/ /DP1159608	Assumed Freehold Land
13/ /DP1159608	Assumed Freehold Land
11/ /DP1159608	Assumed Freehold Land
14/ /DP1159608	Assumed Freehold Land
15/ /DP1159608	Assumed Freehold Land
60/ /DP1185153	Assumed Freehold Land
61/ /DP1185153	Private Land
1/ /DP169281	Private Land
2/ /DP169281	Private Land
10/ /DP1075943	Private Land
1/ /DP1129284	Private Land
18/ /DP779060	Private Land
11/ /DP1075943	Private Land
12/ /DP1075943	Private Land
22/ /DP1036379	Private Land
1/ /DP851896	Private Land
21/ /DP1036379	Private Land
2/ /DP851896	Private Land
108/ /DP755225	Private Land
1/ /DP786248	Private Land
A/ /DP105587	Private Land
81/ /DP755225	Private Land
56/ /DP755225	Private Land
10/ /DP727398	Private Land
5/10/DP758382	Private Land
8/5/DP13008	Assumed Freehold Land
17/2/DP13008	Assumed Freehold Land
3/23/DP758382	Private Land
8/2/DP11584	Assumed Freehold Land
1/2/DP11584	Assumed Freehold Land
16/ /DP775122	Assumed Freehold Land
4/20/DP758382	Assumed Freehold Land
2/11/DP758382	Assumed Freehold Land
20/4/DP13656	Austar Coal Mine
10/2/DP11584	Private Land
1/4/DP758382	Private Land
6/22/DP758382	Private Land
4/ /DP805838	Private Land
6/13/DP758382	Assumed Freehold Land
5/21/DP758382	Assumed Freehold Land

Lot/Section/DP	Ownership
8/20/DP758382	Assumed Freehold Land
8/3/DP758382	Private Land
10/20/DP758382	Private Land
8/ /DP8691	Assumed Freehold Land
14/ /DP8691	Assumed Freehold Land
10/22/DP758382	Private Land
2/7/DP758382	Assumed Freehold Land
7/22/DP758382	Private Land
6/ /DP805838	Private Land
2/23/DP758382	Private Land
14/4/DP13008	Assumed Freehold Land
2/22/DP758382	Private Land
1/3/DP11584	Private Land
5/ /DP709474	Private Land
11/4/DP758382	Assumed Freehold Land
9/ /DP727398	Private Land
11/ /DP8691	Private Land
7/10/DP758382	Private Land
62/ /DP755225	Assumed Freehold Land
48/ /DP755225	Private Land
6/2/DP11584	Private Land
7/2/DP758382	Private Land
14/ /DP775122	Private Land
255/ /DP755225	Private Land
2/17/DP758382	Assumed Freehold Land
3/22/DP758382	Private Land
215/ /DP755225	Private Land
5/5/DP758382	Assumed Freehold Land
1/17/DP758382	Assumed Freehold Land
9/6/DP758382	Assumed Freehold Land
5/6/DP758382	Private Land
3/ /DP709474	Private Land
99/ /DP755225	Austar Coal Mine
24/4/DP13008	Assumed Freehold Land
2/ /DP805838	Private Land
28/ /DP1005818	Private Land
21/ /DP775122	Assumed Freehold Land
3/8/DP758382	Private Land
21/ /DP833965	Assumed Freehold Land
11/23/DP758382	Private Land
10/3/DP758382	Private Land
24/10/DP758382	Private Land
1/22/DP758382	Private Land
4/ /DP709474	Private Land
2/2/DP11584	Assumed Freehold Land
15/ /DP775122	Private Land
2/4/DP11584	Assumed Freehold Land
4/7/DP758382	Private Land

Lot/Section/DP	Ownership
41/ /DP850188	Private Land
27/ /DP1005818	Private Land
19/10/DP758382	Private Land
6/ /DP709474	Private Land
30/ /DP1005818	Private Land
1/ /DP727398	Private Land
10/21/DP758382	Private Land
2/ /DP709474	Private Land
31/1/DP13008	Assumed Freehold Land
1/23/DP758382	Private Land
4/2/DP11584	Assumed Freehold Land
16/4/DP13656	Assumed Freehold Land
7/23/DP758382	Private Land
6/10/DP758382	Private Land
3/3/DP11584	Assumed Freehold Land
8/22/DP758382	Private Land
4/19/DP758382	Assumed Freehold Land
10/3/DP13656	Private Land
12/23/DP758382	Private Land
4/4/DP13656	Assumed Freehold Land
1/2/DP758382	Private Land
3/6/DP758382	Assumed Freehold Land
17/10/DP758382	Private Land
3/2/DP11584	Private Land
10/1/DP11584	Assumed Freehold Land
1/ /DP932739	Private Land
2/ /DP775122	Assumed Freehold Land
4/21/DP758382	Assumed Freehold Land
9/ /DP805838	Private Land
1/18/DP758382	Assumed Freehold Land
4/1/DP11584	Private Land
9/5/DP13008	Assumed Freehold Land
5/ /DP805838	Private Land
6/23/DP758382	Private Land
3/1/DP11584	Private Land
34/ /DP1052062	Assumed Freehold Land
3/4/DP11584	Assumed Freehold Land
5/3/DP758382	Private Land
3/19/DP758382	Assumed Freehold Land
22/10/DP758382	Private Land
9/8/DP758382	Assumed Freehold Land
29/1/DP13008	Private Land
9/23/DP758382	Private Land
2/ /DP1033845	Assumed Freehold Land
26/2/DP13008	Assumed Freehold Land
247/ /DP755225	Private Land
18/ /DP775122	Private Land
1/7/DP758382	Assumed Freehold Land

Lot/Section/DP	Ownership
5/22/DP758382	Assumed Freehold Land
11/2/DP11584	Private Land
12/3/DP13656	Private Land
6/20/DP758382	Assumed Freehold Land
3/21/DP758382	Assumed Freehold Land
10/ /DP11504	Private Land
2/ /DP727398	Private Land
13/ /DP8691	Private Land
6/21/DP758382	Private Land
6/5/DP758382	Assumed Freehold Land
18/3/DP13008	Private Land
6/ /DP11504	Private Land
8/23/DP758382	Private Land
30/4/DP13656	Austar Coal Mine
8/21/DP758382	Private Land
15/ /DP8691	Assumed Freehold Land
5/23/DP758382	Private Land
3/ /DP727398	Private Land
6/3/DP758382	Assumed Freehold Land
12/4/DP758382	Assumed Freehold Land
10/2/DP758382	Assumed Freehold Land
2/3/DP13008	Private Land
5/19/DP758382	Private Land
170/ /DP755225	Private Land
44/3/DP13656	Assumed Freehold Land
7/3/DP758382	Private Land
1/ /DP709474	Private Land
22/ /DP833965	Private Land
12/3/DP758382	Private Land
5/13/DP758382	Assumed Freehold Land
4/ /DP727398	Private Land
11/ /DP775122	Private Land
9/ /DP775122	Assumed Freehold Land
2/4/DP758382	Private Land
26/ /DP1005818	Private Land
20/ /DP775122	Private Land
13/10/DP758382	Private Land
8/3/DP13656	Private Land
22/1/DP13008	Assumed Freehold Land
331/ /DP879525	Private Land
8/3/DP13008	Private Land
8/2/DP13008	Assumed Freehold Land
11/4/DP13656	Assumed Freehold Land
16/4/DP13008	Assumed Freehold Land
23/4/DP13008	Assumed Freehold Land
2/ /DP786248	Private Land
223/ /DP791486	Private Land
21/2/DP13656	Assumed Freehold Land

Lot/Section/DP	Ownership
2/ /DP775718	Austar Coal Mine
5/ /DP32572	Private Land
49/ /DP755225	Private Land
1/ /DP620099	Private Land
101/ /DP826687	Private Land
1/ /DP115675	Private Land
21/2/DP13008	Assumed Freehold Land
6/ /DP836487	Private Land
1/2/DP13008	Assumed Freehold Land
1/ /DP131054	Austar Coal Mine
28/2/DP13008	Assumed Freehold Land
27/2/DP13008	Assumed Freehold Land
1/ /DP870512	Private Land
1/ /DP159382	Private Land
12/ /DP634069	Private Land
1/ /DP775718	Austar Coal Mine
441/ /DP633142	Private Land
442/ /DP633142	Private Land
47/ /DP755225	Private Land
9/ /DP755225	Private Land
11/ /DP601130	Private Land
3/ /DP786248	Private Land
40/ /DP755225	Private Land
63/ /DP755225	Assumed Freehold Land
1/ /DP740210	Private Land
1/ /DP614784	Private Land
1/ /DP315050	Private Land
1/ /DP727401	Assumed Freehold Land
10/ /DP708972	Private Land
2/ /DP727400	Assumed Freehold Land
42/ /DP610808	Private Land
2/ /DP709338	Private Land
50/ /DP755225	Private Land
1/ /DP727400	Assumed Freehold Land
1/ /DP662527	Assumed Freehold Land
3/ /DP547566	Private Land
51/ /DP755225	Private Land
1712/ /DP1121895	Assumed Freehold Land
1711/ /DP1121895	Private Land
122/ /DP1126842	Private Land
121/ /DP1126842	Private Land
410/ /DP1127012	Assumed Freehold Land
411/ /DP1127012	Assumed Freehold Land
68/ /DP1133266	Assumed Freehold Land
7300/ /DP1146455	Crown
38/ /DP1148949	Private Land

Lot/Section/DP	Ownership
431/ /DP1150174	Private Land
432/ /DP1150174	Assumed Freehold Land
46/ /DP755225	Private Land
45/ /DP755225	Assumed Freehold Land
1/ /DP1078770	Private Land
249/ /DP755225	Crown
19/2/DP13656	Assumed Freehold Land
10/23/DP758382	Private Land
4/6/DP758382	Assumed Freehold Land
4/8/DP758382	Assumed Freehold Land
133/ /DP755225	Assumed Freehold Land
6/ /DP727398	Private Land
27/3/DP13008	Private Land
16/ /DP8691	Assumed Freehold Land
9/ /DP8691	Private Land
7/1/DP13008	Private Land
6/3/DP11584	Assumed Freehold Land
50/3/DP13656	Private Land
5/1/DP13008	Assumed Freehold Land
9/7/DP758382	Private Land
7/7/DP758382	Assumed Freehold Land
8/ /DP727398	Private Land
1/ /DP807322	Private Land
23/10/DP758382	Private Land
216/ /DP192812	Private Land
10/ /DP8691	Private Land
1/3/DP758382	Private Land
13/6/DP758382	Private Land
1/1/DP13008	Private Land
1678/ /DP740713	Assumed Freehold Land
1/1/DP11584	Private Land
23/3/DP13008	Private Land
9/ /DP11504	Private Land
20/10/DP758382	Private Land
2/3/DP11584	Assumed Freehold Land
3/20/DP758382	Assumed Freehold Land
5/20/DP758382	Private Land
82/ /DP1046758	Private Land
2/20/DP758382	Private Land
2/3/DP758382	Private Land
12/22/DP758382	Private Land
7/ /DP775122	Assumed Freehold Land
9/1/DP11584	Private Land
7/1/DP11584	Private Land
23/4/DP13656	Assumed Freehold Land
12/2/DP11584	Assumed Freehold Land
12/ /DP8691	Assumed Freehold Land
1/11/DP758382	Private Land

Lot/Section/DP	Ownership
1/21/DP758382	Private Land
4/1/DP13008	Assumed Freehold Land
11/2/DP13008	Assumed Freehold Land
1/ /DP805838	Private Land
21/3/DP13008	Assumed Freehold Land
5/1/DP11584	Private Land
4/9/DP758382	Minister for Education
1/ /DP1042271	Private Land
5/ /DP727398	Private Land
7/20/DP758382	Assumed Freehold Land
55/3/DP13656	Assumed Freehold Land
42/ /DP809589	Private Land
10/7/DP758382	Private Land
7006/ /DP93602	Crown
51/3/DP13656	Assumed Freehold Land
9/21/DP758382	Private Land
3/10/DP758382	Private Land
2/ /DP727399	Private Land
6/ /DP807322	Private Land
29/ /DP1005818	Private Land
14/2/DP13656	Assumed Freehold Land
6/4/DP13656	Assumed Freehold Land
10/8/DP758382	Private Land
3/3/DP13008	Assumed Freehold Land
8/7/DP758382	Private Land
5/8/DP758382	Private Land
5/7/DP758382	Private Land
4/ /DP807322	Private Land
2/ /DP8691	Assumed Freehold Land
4/22/DP758382	Private Land
9/2/DP758382	Private Land
7/8/DP758382	Assumed Freehold Land
1/ /DP8691	Assumed Freehold Land
8/1/DP13008	Private Land
4/10/DP758382	Private Land
18/2/DP13656	Assumed Freehold Land
22/3/DP13008	Private Land
7/ /DP727398	Assumed Freehold Land
11/22/DP758382	Private Land
131/ /DP1046300	Private Land
2/8/DP758382	Private Land
12/20/DP758382	Private Land
8/10/DP758382	Private Land
258/ /DP820562	Minister for Education
81/ /DP1046758	Private Land
8/ /DP805838	Private Land
10/1/DP13008	Assumed Freehold Land
15/3/DP13656	Assumed Freehold Land

Lot/Section/DP	Ownership
11/1/DP11584	Private Land
3/7/DP758382	Assumed Freehold Land
6/1/DP13008	Private Land
21/10/DP758382	Assumed Freehold Land
5/2/DP11584	Private Land
13/2/DP11584	Assumed Freehold Land
3/3/DP758382	Private Land
1/ /DP821138	Private Land
1/ /DP727399	Private Land
22/2/DP13656	Assumed Freehold Land
1/ /DP1066918	Private Land
5/3/DP11584	Assumed Freehold Land
6/1/DP11584	Private Land
2/ /DP807322	Private Land
1/20/DP758382	Private Land
12/4/DP13008	Assumed Freehold Land
10/10/DP758382	Private Land
1/4/DP11584	Assumed Freehold Land
7/21/DP758382	Private Land
6/7/DP758382	Private Land
15/ /DP875095	Private Land
13/4/DP13008	Assumed Freehold Land
26/4/DP13656	Austar Coal Mine
1/ /DP745336	Private Land
9/2/DP11584	Private Land
19/3/DP13008	Assumed Freehold Land
18/10/DP758382	Assumed Freehold Land
11/20/DP758382	Private Land
15/4/DP13008	Assumed Freehold Land
17/ /DP775122	Private Land
9/22/DP758382	Private Land
6/8/DP758382	Private Land
9/20/DP758382	Assumed Freehold Land
3/ /DP807322	Private Land
4/3/DP758382	Assumed Freehold Land
5/ /DP8691	Private Land
34/ /DP801957	Assumed Freehold Land
8/2/DP758382	Assumed Freehold Land
7/2/DP11584	Private Land
1/ /DP1038238	Assumed Freehold Land
7/ /DP805838	Private Land
14/10/DP758382	Private Land
1/8/DP758382	Assumed Freehold Land
12/1/DP11584	Assumed Freehold Land
11/7/DP758382	Private Land
5/ /DP11504	Assumed Freehold Land
7/ /DP11504	Private Land
1/ /DP775122	Private Land

Lot/Section/DP	Ownership
4/23/DP758382	Private Land
4/ /DP11504	Assumed Freehold Land
5/ /DP807322	Private Land
1/ /DP11504	Assumed Freehold Land
83/ /DP1046758	Private Land
2/21/DP758382	Private Land
11/3/DP758382	Private Land
102/ /DP826687	Private Land
8/8/DP758382	Assumed Freehold Land
8/ /DP11504	Private Land
19/3/DP13656	Assumed Freehold Land
6/ /DP775122	Assumed Freehold Land
20/3/DP13008	Assumed Freehold Land
5/9/DP758382	Minister for Education
28/4/DP13656	Austar Coal Mine
12/7/DP758382	Private Land
19/ /DP775122	Private Land
3/ /DP805838	Private Land
5/4/DP758382	Assumed Freehold Land
4/3/DP11584	Assumed Freehold Land
8/4/DP758382	Assumed Freehold Land
9/3/DP758382	Private Land
9/3/DP13656	Private Land
2/1/DP11584	Private Land
8/1/DP11584	Private Land
35/ /DP755225	Austar Coal Mine
2/4/DP13008	Assumed Freehold Land
332/ /DP879525	Assumed Freehold Land
23/2/DP13656	Private Land
17/5/DP13008	Assumed Freehold Land
57/3/DP13656	Assumed Freehold Land
8/4/DP13656	Assumed Freehold Land
27/4/DP13656	Austar Coal Mine
5/4/DP13008	Assumed Freehold Land
5/2/DP13008	Assumed Freehold Land
26/3/DP13656	Private Land
20/3/DP13656	Assumed Freehold Land
29/2/DP13008	Assumed Freehold Land
20/2/DP13656	Assumed Freehold Land
167/ /DP755225	Private Land
47/3/DP13656	Private Land
23/1/DP13656	Private Land
32/1/DP13008	Assumed Freehold Land
16/2/DP13008	Assumed Freehold Land
4/ /DP836487	Private Land
4/4/DP13008	Assumed Freehold Land
29/3/DP13656	Private Land
13/3/DP13656	Private Land

Lot/Section/DP	Ownership
2/ /DP78128	Private Land
45/3/DP13656	Assumed Freehold Land
17/3/DP13656	Assumed Freehold Land
29/4/DP13656	Austar Coal Mine
52/3/DP13656	Private Land
24/3/DP13008	Private Land
15/4/DP13656	Assumed Freehold Land
9/4/DP13008	Assumed Freehold Land
6/3/DP13008	Private Land
58/3/DP13656	Assumed Freehold Land
28/3/DP13008	Private Land
234/ /DP755225	Private Land
24/1/DP13656	Assumed Freehold Land
254/ /DP755225	Private Land
12/3/DP13008	Assumed Freehold Land
9/ /DP32572	Private Land
11/1/DP13008	Private Land
10/4/DP13656	Assumed Freehold Land
1/3/DP13008	Private Land
2/1/DP13008	Assumed Freehold Land
4/3/DP13008	Assumed Freehold Land
15/6/DP13008	Assumed Freehold Land
30/2/DP13008	Assumed Freehold Land
18/4/DP13656	Austar Coal Mine
26/3/DP13008	Private Land
1/ /DP998682	Private Land
3/1/DP13008	Private Land
35/3/DP13656	Private Land
14/2/DP13008	Assumed Freehold Land
12/2/DP13008	Assumed Freehold Land
6/2/DP13008	Assumed Freehold Land
13/2/DP13008	Assumed Freehold Land
138/ /DP755225	Assumed Freehold Land
19/4/DP13656	Austar Coal Mine
19/1/DP13008	Private Land
10/2/DP13008	Assumed Freehold Land
5/3/DP13008	Assumed Freehold Land
10/4/DP13008	Assumed Freehold Land
5/ /DP836487	Private Land
4/2/DP13008	Assumed Freehold Land
23/1/DP13008	Assumed Freehold Land
169/ /DP755225	Private Land
43/3/DP13656	Assumed Freehold Land
1/ /DP836487	Private Land
56/3/DP13656	Assumed Freehold Land
14/1/DP13008	Private Land
15/1/DP13008	Assumed Freehold Land
7004/ /DP93601	Crown

Lot/Section/DP	Ownership
28/1/DP13008	Private Land
7/4/DP13656	Private Land
16/2/DP13656	Assumed Freehold Land
25/4/DP13656	Austar Coal Mine
22/2/DP13008	Assumed Freehold Land
256/ /DP755225	Private Land
2/2/DP13008	Assumed Freehold Land
41/ /DP809589	Private Land
1/ /DP78128	Private Land
11/3/DP13656	Private Land
31/2/DP13008	Assumed Freehold Land
1/ /DP113363	Private Land
18/2/DP13008	Assumed Freehold Land
14/4/DP13656	Assumed Freehold Land
331/ /DP1064519	Private Land
24/3/DP13656	Private Land
13/4/DP13656	Assumed Freehold Land
2/ /DP130986	Private Land
3/2/DP13008	Assumed Freehold Land
2/ /DP806246	Assumed Freehold Land
1/ /DP1038341	Private Land
13/6/DP13008	Private Land
6/4/DP13008	Assumed Freehold Land
91/ /DP878153	Private Land
27/1/DP13008	Private Land
235/ /DP755225	Private Land
28/3/DP13656	Private Land
7/4/DP13008	Assumed Freehold Land
15/2/DP13008	Assumed Freehold Land
54/3/DP13656	Private Land
104/ /DP255530	Austar Coal Mine
51/ /DP599170	Private Land
14/ /DP755225	Austar Coal Mine
54/ /DP755254	Private Land
100/ /DP255530	Private Land
9/ /DP69968	Austar Coal Mine
12/ /DP755225	Austar Coal Mine
42/ /DP850188	Private Land
96/ /DP755254	Private Land
13/ /DP755225	Austar Coal Mine
973/ /DP804896	Private Land
A/ /DP161957	Private Land
9/ /DP880657	Private Land
1/ /DP873717	Private Land
120/ /DP755225	Austar Coal Mine
101/ /DP803246	Private Land
21/4/DP13656	Austar Coal Mine
3/ /DP880657	Private Land

Lot/Section/DP	Ownership
6/ /DP880657	Private Land
5/ /DP880657	Private Land
19/ /DP755225	Austar Coal Mine
31/3/DP13656	Private Land
9/4/DP13656	Assumed Freehold Land
223/ /DP755225	Private Land
27/3/DP13656	Assumed Freehold Land
32/3/DP13656	Private Land
99/ /DP755254	Austar Coal Mine
1/ /DP880657	Private Land
46/3/DP13656	Assumed Freehold Land
21/1/DP13008	Assumed Freehold Land
2/ /DP131087	Austar Coal Mine
132/ /DP1046300	Private Land
22/4/DP13008	Assumed Freehold Land
13/3/DP13008	Private Land
8/4/DP13008	Assumed Freehold Land
253/ /DP755225	Private Land
20/2/DP13008	Assumed Freehold Land
7/ /DP880657	Private Land
1/ /DP1047479	Private Land
21/3/DP13656	Assumed Freehold Land
2/ /DP836487	Assumed Freehold Land
1/4/DP13008	Private Land
19/2/DP13008	Assumed Freehold Land
3/ /DP836487	Assumed Freehold Land
1/ /DP778494	Private Land
9/2/DP13008	Assumed Freehold Land
33/1/DP13008	Assumed Freehold Land
7/3/DP13008	Private Land
25/3/DP13656	Private Land
30/1/DP13008	Assumed Freehold Land
25/2/DP13008	Assumed Freehold Land
4/ /DP755225	Austar Coal Mine
53/3/DP13656	Assumed Freehold Land
3/ /DP131087	Austar Coal Mine
30/3/DP13656	Private Land
5/ /DP131087	Austar Coal Mine
9/1/DP13008	Assumed Freehold Land
3/ /DP755225	State Conservation Area
22/4/DP13656	Assumed Freehold Land
24/2/DP13008	Assumed Freehold Land
2/ /DP873717	Private Land
168/ /DP755225	Private Land
18/3/DP13656	Assumed Freehold Land
16/ /DP876894	Assumed Freehold Land
26/1/DP13008	Assumed Freehold Land
14/6/DP13008	Private Land

Lot/Section/DP	Ownership
2/ /DP778494	Private Land
16/3/DP13656	Assumed Freehold Land
2/ /DP755225	Austar Coal Mine
12/4/DP13656	Assumed Freehold Land
15/2/DP13656	Assumed Freehold Land
3/4/DP13008	Assumed Freehold Land
7/2/DP13008	Assumed Freehold Land
23/2/DP13008	Assumed Freehold Land
4/ /DP131087	Austar Coal Mine
20/1/DP13008	Private Land
14/3/DP13656	Private Land
75/ /DP755225	Austar Coal Mine
1/ /DP131087	Austar Coal Mine
5/4/DP13656	Assumed Freehold Land
2/ /DP880657	Private Land
100/ /DP755254	Austar Coal Mine
17/2/DP13656	Assumed Freehold Land
25/3/DP13008	Private Land
31/ /DP849031	Private Land
41/3/DP13656	Private Land
42/3/DP13656	Assumed Freehold Land
11/4/DP13008	Assumed Freehold Land
1/ /DP32572	Private Land
9/ /DP240664	Private Land
24/4/DP13656	Austar Coal Mine
17/4/DP13656	Assumed Freehold Land
12/6/DP13008	Assumed Freehold Land
30/ /DP849031	Private Land
98/ /DP755254	Austar Coal Mine
1/ /DP709338	Private Land
52/ /DP599170	Private Land
32/ /DP626738	Private Land
1/ /DP130986	Private Land
125/ /DP755225	Austar Coal Mine
36/ /DP809095	Private Land
1/ /DP819222	Austar Coal Mine
1001/ /DP856790	Private Land
1/ /DP828916	Austar Coal Mine
1/ /DP727397	Private Land
2/ /DP819222	Private Land
13/ /DP843329	Assumed Freehold Land
1/ /DP811962	Private Land
31/ /DP626738	Assumed Freehold Land
11/ /DP733545	Assumed Freehold Land
35/ /DP809095	Private Land
45/ /DP635630	Private Land
2/ /DP727397	Private Land
4/ /DP880657	Private Land

Lot/Section/DP	Ownership
4/ /DP240664	Private Land
12/ /DP866231	Austar Coal Mine
7/ /DP240664	Private Land
32/ /DP755215	Austar Coal Mine
8/ /DP240664	Private Land
1/ /DP806246	Assumed Freehold Land
11/ /DP866231	Austar Coal Mine
67/ /DP755225	Austar Coal Mine
34/ /DP1052033	Private Land
66/ /DP755225	Austar Coal Mine
92/ /DP878153	Private Land
35/ /DP1045080	Private Land
14/ /DP843329	Private Land
1/ /DP135945	Cessnock City Council
2/ /DP828916	Austar Coal Mine
1/ /DP650540	Cessnock City Council
24/ /DP755215	State Conservation Area
3/ /DP240664	Private Land
8/ /DP880657	Private Land
64/ /DP755225	Austar Coal Mine
34/ /DP708501	Private Land
110/ /DP859794	Private Land
2/ /DP240664	Private Land
65/ /DP755225	Austar Coal Mine
111/ /DP859794	Private Land
10/ /DP240664	Private Land
15/ /DP843329	Private Land
2/ /DP714067	Austar Coal Mine
3/ /DP714067	Austar Coal Mine
91/ /DP1064579	Austar Coal Mine
1/ /DP1094701	Private Land
2/ /DP1101724	Private Land
1/ /DP1101724	Private Land
1291/ /DP1113215	Private Land
1292/ /DP1113215	Private Land
1/ /DP1076392	Assumed Freehold Land
2/ /DP1076392	Assumed Freehold Land
121/ /DP1114826	Assumed Freehold Land
120/ /DP1114826	Assumed Freehold Land
9/ /DP1118095	Private Land
621/ /DP1124419	Private Land
622/ /DP1124419	Private Land
16/ /DP1130950	Private Land
202/ /DP1136015	Private Land
201/ /DP1136015	Private Land
1/ /DP1145356	Austar Coal Mine
2/ /DP1145356	State Conservation Area

Lot/Section/DP	Ownership
1/ /DP1173947	Private Land
2/ /DP1182363	Assumed Freehold Land
1/ /DP1182363	Assumed Freehold Land
59/ /DP1072712	Assumed Freehold Land
1/ /DP1071931	Private Land
13/ /DP866231	Private Land
2/12/DP758382	Assumed Freehold Land
9/5/DP758382	Crown
15/ /DP755225	Crown
39/ /DP755225	Assumed Freehold Land
341/ /DP1189472	Assumed Freehold Land
342/ /DP1189472	Assumed Freehold Land
5/ /DP775122	Private Land
13/ /DP1194493	Assumed Freehold Land
140/ /DP755215	State Conservation Area
1/ /DP240664	Private Land
121/ /DP1070821	Private Land
122/ /DP1070821	Assumed Freehold Land
1/ /DP1079762	Assumed Freehold Land
1/12/DP758382	Assumed Freehold Land
140/ /DP755225	Cessnock City Council
215/ /DP1185596	State Conservation Area
33/ /DP11747	Private Land
27/ /DP11747	Private Land
22/ /DP11747	Private Land
41/ /DP11747	Private Land
46/ /DP11747	Private Land
49/ /DP11747	Austar Coal Mine
45/ /DP11747	Private Land
30/ /DP11747	Assumed Freehold Land
37/ /DP11747	Austar Coal Mine
15/ /DP11747	Austar Coal Mine
50/ /DP11747	Private Land
57/ /DP11747	Austar Coal Mine
51/ /DP11747	Private Land
43/ /DP11747	Private Land
47/ /DP11747	Austar Coal Mine
21/ /DP11747	Private Land
2/ /DP11747	Private Land
29/ /DP11747	Private Land
10/ /DP11747	Private Land
32/ /DP11747	Austar Coal Mine
25/ /DP11747	Private Land
18/ /DP11747	Austar Coal Mine
58/ /DP11747	Austar Coal Mine
4/ /DP589534	Private Land
39/ /DP11747	Private Land
6/ /DP11747	Private Land



Lot/Section/DP	Ownership
52/ /DP11747	Private Land
40/ /DP11747	Private Land
23/ /DP11747	Private Land
26/ /DP11747	Private Land
38/ /DP11747	Austar Coal Mine
24/ /DP11747	Private Land
17/ /DP11747	Assumed Freehold Land
36/ /DP11747	Austar Coal Mine
28/ /DP11747	Private Land
9/ /DP11747	Austar Coal Mine
44/ /DP11747	Private Land
4/ /DP11747	Private Land
13/ /DP11747	Austar Coal Mine
59/ /DP11747	Private Land
8/ /DP11747	Assumed Freehold Land
42/ /DP11747	Austar Coal Mine
56/ /DP11747	Austar Coal Mine
34/ /DP11747	Austar Coal Mine
1/ /DP11747	Private Land
48/ /DP11747	Austar Coal Mine
31/ /DP11747	Private Land
55/ /DP11747	Austar Coal Mine
11/ /DP11747	Private Land
16/ /DP11747	Private Land
5/ /DP11747	Private Land
19/ /DP11747	Private Land
54/ /DP11747	Austar Coal Mine
53/ /DP11747	Private Land
14/ /DP11747	Austar Coal Mine
3/ /DP11747	Private Land
12/ /DP11747	Private Land
35/ /DP11747	Austar Coal Mine
7/ /DP11747	Private Land
20/ /DP11747	Private Land
2/ /DP589534	Private Land
7321/ /DP1157260	State Conservation Area
7322/ /DP1157260	Crown
7320/ /DP1157260	Crown
48/ /DP1185567	State Conservation Area
4/ /DP1185571	State Conservation Area
5/ /DP1185571	State Conservation Area
12/ /DP755215	State Conservation Area
138/ /DP755215	State Conservation Area
7/ /DP1063410	Private Land
6/ /DP131087	Austar Coal Mine
6/ /DP1063410	Private Land

Lot/Section/DP	Ownership
2/ /DP124547	Austar Coal Mine
3/ /DP124547	Austar Coal Mine
5/ /DP1063410	Private Land
1/ /DP87087	Austar Coal Mine
150/ /DP755215	Crown
2/ /DP834889	Private Land
47/ /DP1185567	State Conservation Area
1/ /DP834889	Private Land
2/ /DP69968	Austar Coal Mine
1/ /DP69968	Austar Coal Mine
1/ /DP823133	Austar Coal Mine
42/ /DP812815	Austar Coal Mine
5/ /DP69968	Austar Coal Mine
109/ /DP755225	Private Land
161/ /DP1214464	Private Land
162/ /DP1214464	Private Land
98/ /DP755225	Private Land
16/ /DP1014546	Private Land
4/ /DP714067	Private Land
25/1/DP13656	Assumed Freehold Land
109/ /DP1228184	Assumed Freehold Land
107/ /DP1228184	Assumed Freehold Land
108/ /DP1228184	Assumed Freehold Land
106/ /DP1228184	Assumed Freehold Land
105/ /DP1228184	Assumed Freehold Land
101/ /DP1228184	Assumed Freehold Land
101/ /DP1231595	Assumed Freehold Land
1/ /DP1227159	Private Land
3/ /DP1227159	Private Land
2/ /DP1227159	Private Land
4/ /DP1227159	Private Land
10/ /DP1232003	Assumed Freehold Land
1/ /DP996145	Private Land
352/ /DP808936	Private Land
341/ /DP1044033	Private Land
581/ /DP1017350	State Conservation Area
2362/ /DP1233134	Private Land
2361/ /DP1233134	Private Land
235/ /DP1017683	Private Land
1/ /DP124547	Austar Coal Mine
1/ /DP1228428	Private Land
2/ /DP1228428	Private Land
32/ /DP12136	Private Land
225/ /DP1232862	Assumed Freehold Land
224/ /DP1232862	Assumed Freehold Land
223/ /DP1232862	Assumed Freehold Land
222/ /DP1232862	Assumed Freehold Land

Lot/Section/DP	Ownership
221/ /DP1232862	Assumed Freehold Land
220/ /DP1232862	Assumed Freehold Land
218/ /DP1232862	Assumed Freehold Land
217/ /DP1232862	Assumed Freehold Land
216/ /DP1232862	Assumed Freehold Land
215/ /DP1232862	Assumed Freehold Land
214/ /DP1232862	Assumed Freehold Land
213/ /DP1232862	Assumed Freehold Land
212/ /DP1232862	Assumed Freehold Land
211/ /DP1232862	Assumed Freehold Land
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236/ /DP1232862	Assumed Freehold Land
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238/ /DP1232862	Assumed Freehold Land
227/ /DP1232862	Assumed Freehold Land
112/ /DP1185747	Private Land
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110/ /DP1228184	Assumed Freehold Land
104/ /DP1228184	Assumed Freehold Land
103/ /DP1228184	Assumed Freehold Land
102/ /DP1228184	Assumed Freehold Land
111/ /DP1228184	Assumed Freehold Land
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13/ /DP1219167	Private Land
303/ /DP1091621	Private Land
2701/ /DP1219166	Private Land
2702/ /DP1219166	Private Land
2/ /DP1061121	Private Land
1/ /DP1212219	

Lot/Section/DP	Ownership
301/ /DP1236971	Assumed Freehold Land
302/ /DP1236971	Assumed Freehold Land
303/ /DP1236971	Assumed Freehold Land
304/ /DP1236971	Assumed Freehold Land
305/ /DP1236971	Assumed Freehold Land
306/ /DP1236971	Assumed Freehold Land
1/ /DP1219841	Crown
2/ /DP1219841	Crown
12/6/DP758382	Private Land
8/5/DP758382	Crown
7323/ /DP1157245	Crown
2/ /DP1164334	Assumed Freehold Land
307/ /DP1236971	Assumed Freehold Land
308/ /DP1236971	Assumed Freehold Land
309/ /DP1236971	Assumed Freehold Land
310/ /DP1236971	Assumed Freehold Land
311/ /DP1236971	Assumed Freehold Land
315/ /DP1236971	Assumed Freehold Land
316/ /DP1236971	Assumed Freehold Land
317/ /DP1236971	Assumed Freehold Land
318/ /DP1236971	Assumed Freehold Land
319/ /DP1236971	Assumed Freehold Land
320/ /DP1236971	Assumed Freehold Land
321/ /DP1236971	Assumed Freehold Land
322/ /DP1236971	Assumed Freehold Land
323/ /DP1236971	Assumed Freehold Land
324/ /DP1236971	Assumed Freehold Land
325/ /DP1236971	Assumed Freehold Land
326/ /DP1236971	Assumed Freehold Land
327/ /DP1236971	Assumed Freehold Land
328/ /DP1236971	Assumed Freehold Land
329/ /DP1236971	Assumed Freehold Land
330/ /DP1236971	Assumed Freehold Land
331/ /DP1236971	Assumed Freehold Land
332/ /DP1236971	Assumed Freehold Land
333/ /DP1236971	Assumed Freehold Land
334/ /DP1236971	Assumed Freehold Land
335/ /DP1236971	Assumed Freehold Land
336/ /DP1236971	Assumed Freehold Land
2/ /DP1197775	Assumed Freehold Land
219/ /DP1232862	Assumed Freehold Land
14/ /DP1237761	Private Land
2/ /DP1214999	Private Land
103/ /DP1243665	Private Land
104/ /DP1243665	Private Land
105/ /DP1243665	Private Land
106/ /DP1243665	Private Land

Lot/Section/DP	Ownership
107/ /DP1243665	Private Land
108/ /DP1243665	Private Land
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120/ /DP1243665	Private Land
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125/ /DP1243665	Private Land
123/ /DP1243665	Private Land
122/ /DP1243665	Private Land
401/ /DP1239815	Assumed Freehold Land
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403/ /DP1239815	Assumed Freehold Land
404/ /DP1239815	Assumed Freehold Land
405/ /DP1239815	Assumed Freehold Land
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407/ /DP1239815	Assumed Freehold Land
408/ /DP1239815	Assumed Freehold Land
409/ /DP1239815	Assumed Freehold Land
410/ /DP1239815	Assumed Freehold Land
411/ /DP1239815	Assumed Freehold Land
412/ /DP1239815	Assumed Freehold Land
413/ /DP1239815	Assumed Freehold Land
414/ /DP1239815	Assumed Freehold Land
415/ /DP1239815	Assumed Freehold Land
5/ /DP1184613	Private Land

Lot/Section/DP	Ownership
7/ /DP1184613	Private Land
8/ /DP1184613	Private Land
9/ /DP1184613	Private Land
10/ /DP1184613	Private Land
312/ /DP1236971	Assumed Freehold Land
313/ /DP1236971	Assumed Freehold Land
314/ /DP1236971	Assumed Freehold Land
2/ /DP614784	Private Land
101/ /DP1243665	Private Land
102/ /DP1243665	Private Land
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132/ /DP1243665	Private Land
135/ /DP1243665	Private Land
140/ /DP1243665	Private Land
148/ /DP1243665	Private Land
150/ /DP1243665	Private Land
121/ /DP1243665	Private Land
112/ /DP1243665	Private Land
111/ /DP1243665	Private Land
110/ /DP1243665	Private Land
136/ /DP1243665	Private Land
1/ /DP327619	Cessnock City Council
119/ /DP11825	Private Land
1/ /DP378933	Private Land
4/ /DP1061571	Private Land
1/ /DP1251187	Private Land
20/ /DP1241986	Assumed Freehold Land
21/ /DP1241986	Assumed Freehold Land
22/ /DP1241986	Assumed Freehold Land
23/ /DP1241986	Assumed Freehold Land
24/ /DP1241986	Assumed Freehold Land
11/ /DP1184254	Private Land
2/ /DP1055477	Private Land
9/ /DP1069057	Private Land
1/ /DP1212221	

# Appendix 2: Species List

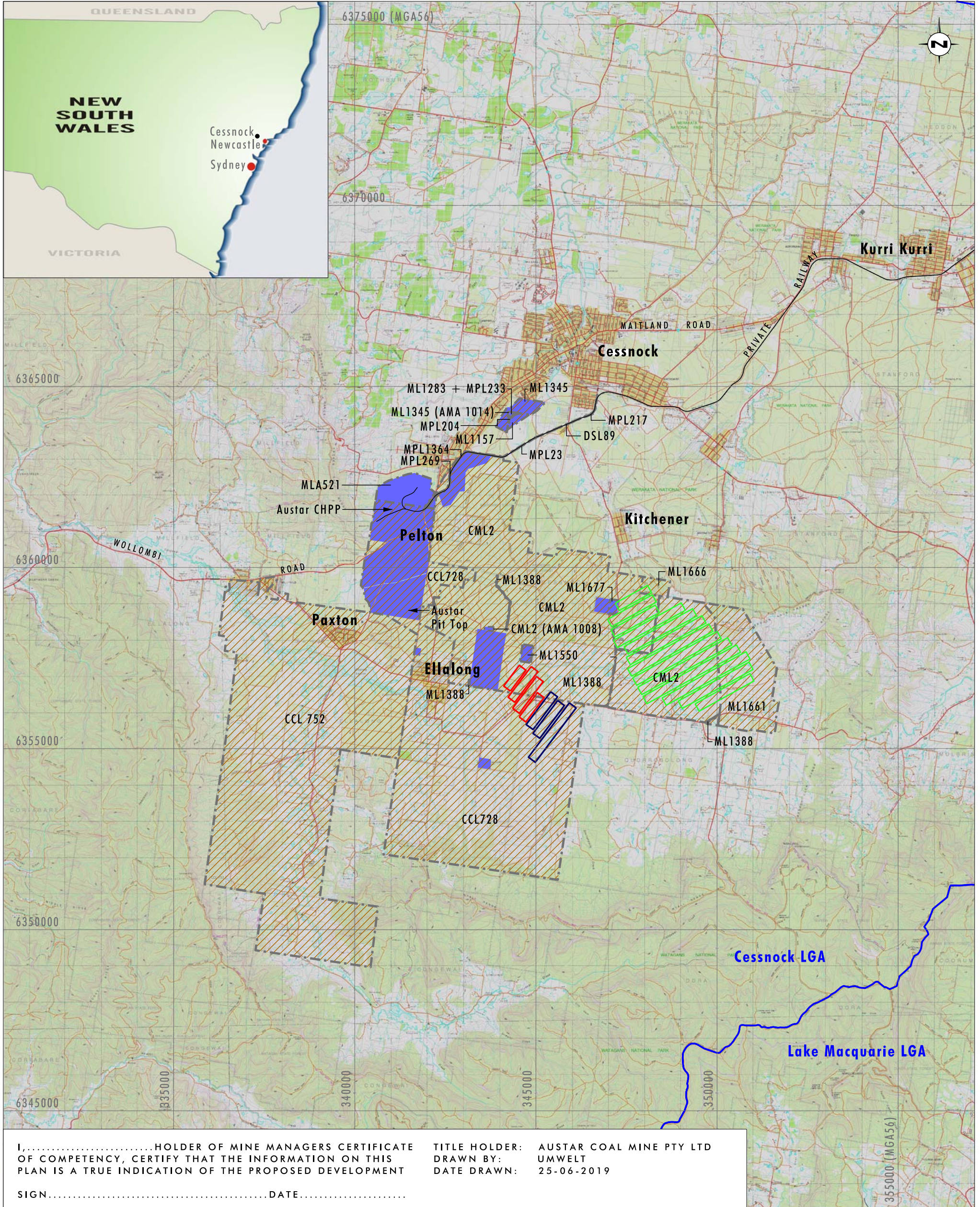
## Appendix 2 – Species List

Species List for Grassland / Pasture Rehabilitation Areas	
Japanese Millet (summer cover crop)	Haifa Clover
Coolabah Oats (winter cover crop)	Wimmera Rye
Couch	Perennial Rye
Kikuyu	Green Panic
Lucerne	Phalaris
Seaton Park Clover	

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

Species List for Temporary Stabilisation (Construction Areas at Kitchener SIS)	
Japanese Millet (summer cover crop)	Haifa Clover
Coolabah Oats (winter cover crop)	Wimmera Rye
Couch	Perennial Rye
Seaton Park Clover	Green Panic

# MOP Plans



I, ..... HOLDER OF MINE MANAGERS CERTIFICATE OF COMPETENCY, CERTIFY THAT THE INFORMATION ON THIS PLAN IS A TRUE INDICATION OF THE PROPOSED DEVELOPMENT

SIGN ..... DATE .....

TITLE HOLDER: AUSTAR COAL MINE PTY LTD  
 DRAWN BY: UMWELT  
 DATE DRAWN: 25-06-2019

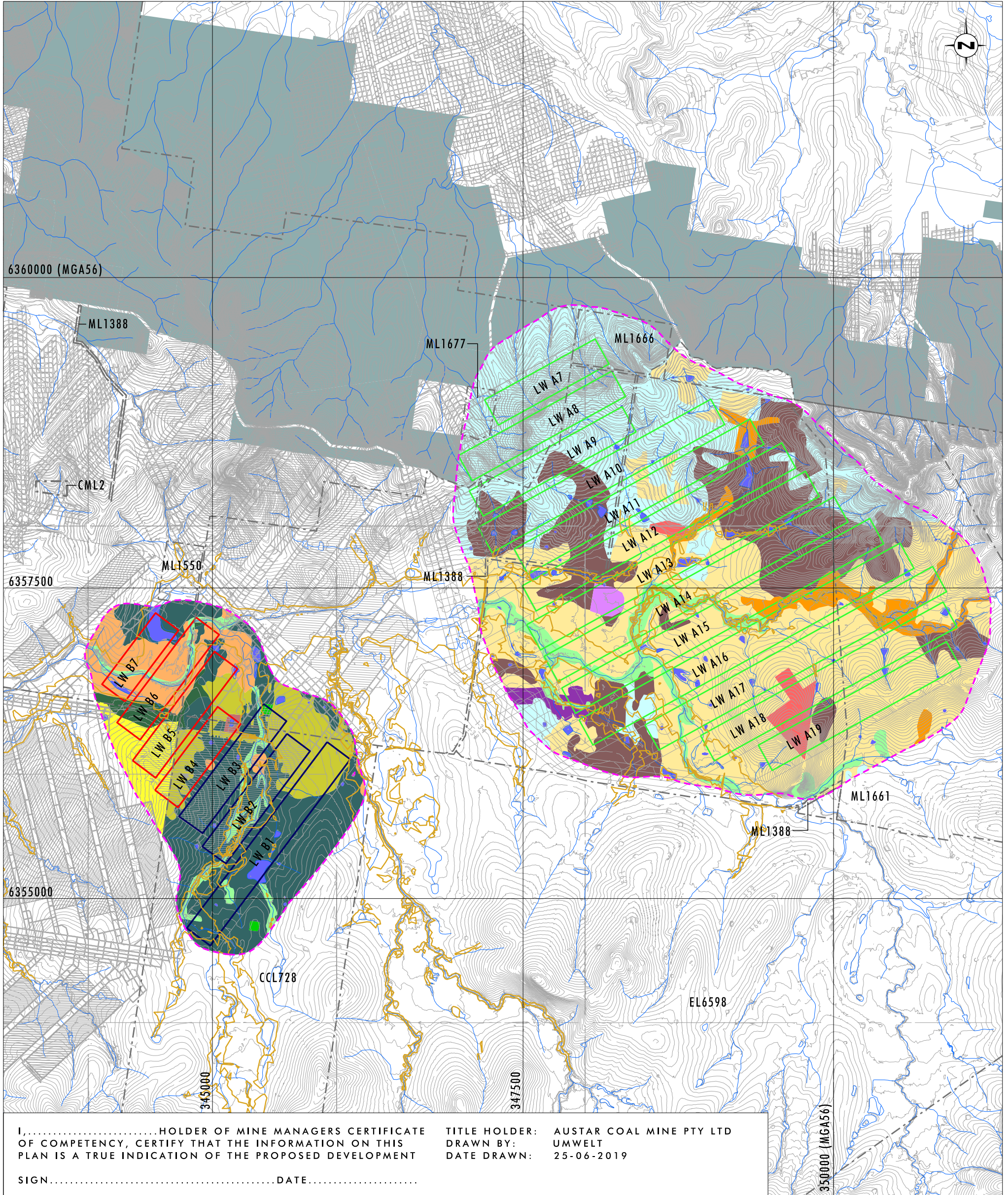
Image Source: Department of Land (2006)  
 Data Source: Austar Coal Mine (2019)

0 1 2 5km  
 1:100 000 (at A3)

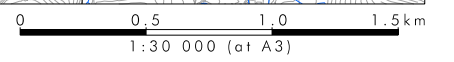
**Legend**

- Local Government Area Boundary
- Mining Lease Boundary
- Bellbird South B1-B3 Longwall Panels (DA29/95 MOD6)
- Bellbird South B4-B7 Longwall Panels (DA25/95 MOD7)
- Layout for Stage 3 Longwall Panels (PA08\_0111 MOD3)
- Surface Lease
- Sub Surface Lease

**PLAN 1A**  
**Pre-Mining Environment**  
**Project Locality**

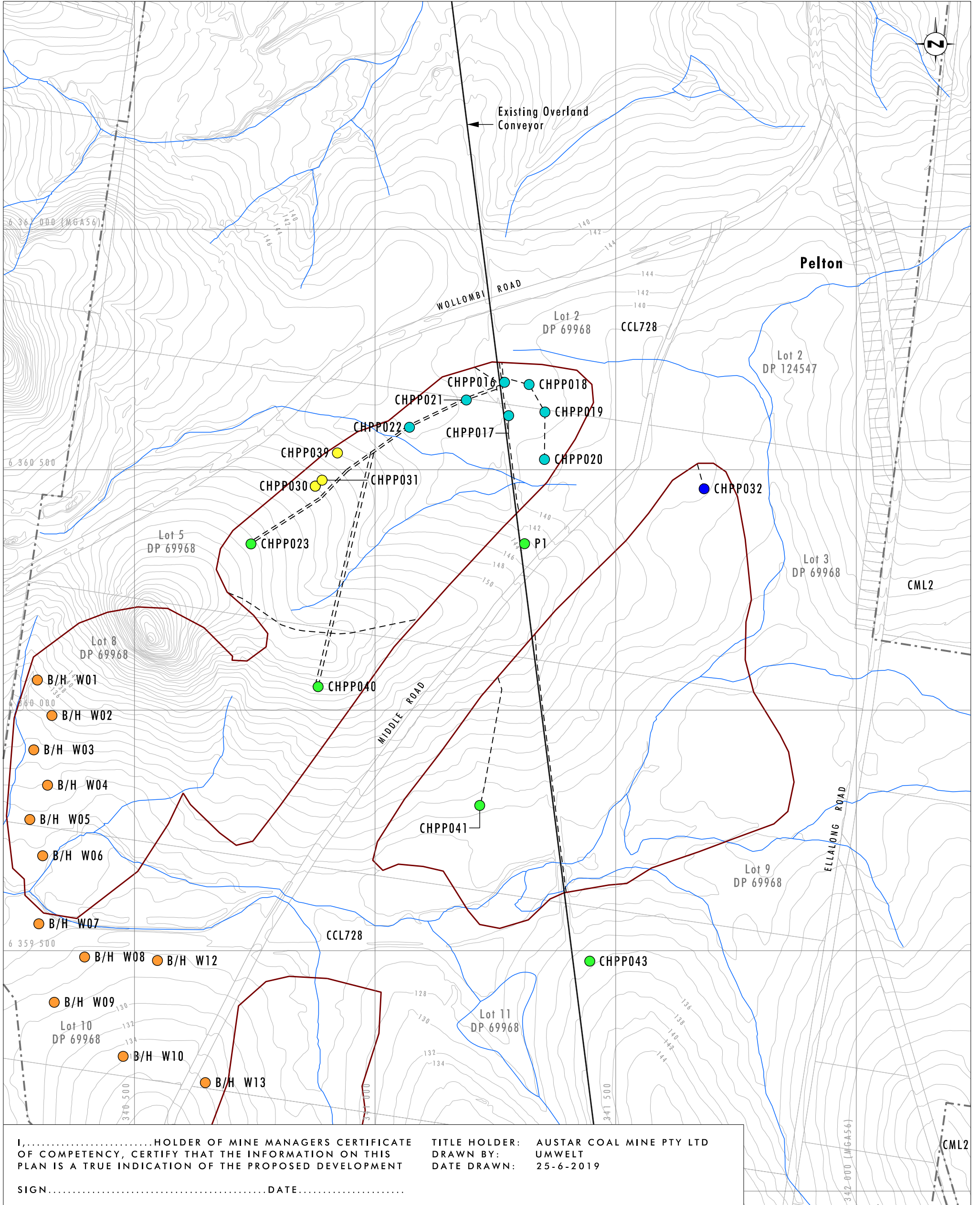


Data Source: Austar Coal Mine (2015), Bell and Driscoll (2008), OEH (2012)  
 Note: 2m Contour Interval



**Legend**

- Mining Lease Boundary
- Bellbird South B1-B3 Longwall Panels (DA29/95 MOD6)
- Bellbird South B4-B7 Longwall Panels (DA25/95 MOD 7)
- Layout for Stage 3 Longwall Panels (PA08\_0111 MOD3)
- Previously Mined Land/First Workings
- 1:100 Year Flood Prone Land
- 20mm Subsidence Contour Estimate
- Cabbage Gum Floodplain Woodland
- Central Hunter Swamp Oak Forest (Swamp Oak variant)
- Modified Grassland
- Derived Grassland / Pasture
- Derived Grassland with Scattered Canopy Trees
- Riparian Red Gum Forest - EEC
- Lower Hunter Spotted Gum Ironbark Forest - EEC
- Lower Hunter Spotted Gum - Red Ironbark Forest (main variant)
- Swamp Oak Riparian Forest
- Woollybutt Open Forest Remnant
- Non Native Vegetation
- Regeneration
- Planted Vegetation
- Quorrobolong Scribbly Gum Forest
- Melaleuca Shrubland with Emergent Eucalypts
- Riparian Cabbage Gum Open Forest
- Spotted Gum Ironbark Forest
- Water Body
- Cultivated
- Werakata State Conservation Area
- Drainage Line
- Contour Line

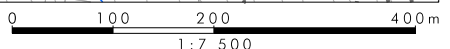


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SIGN..... DATE.....

TITLE HOLDER: AUSTAR COAL MINE PTY LTD  
 DRAWN BY: UMWELT  
 DATE DRAWN: 25-6-2019

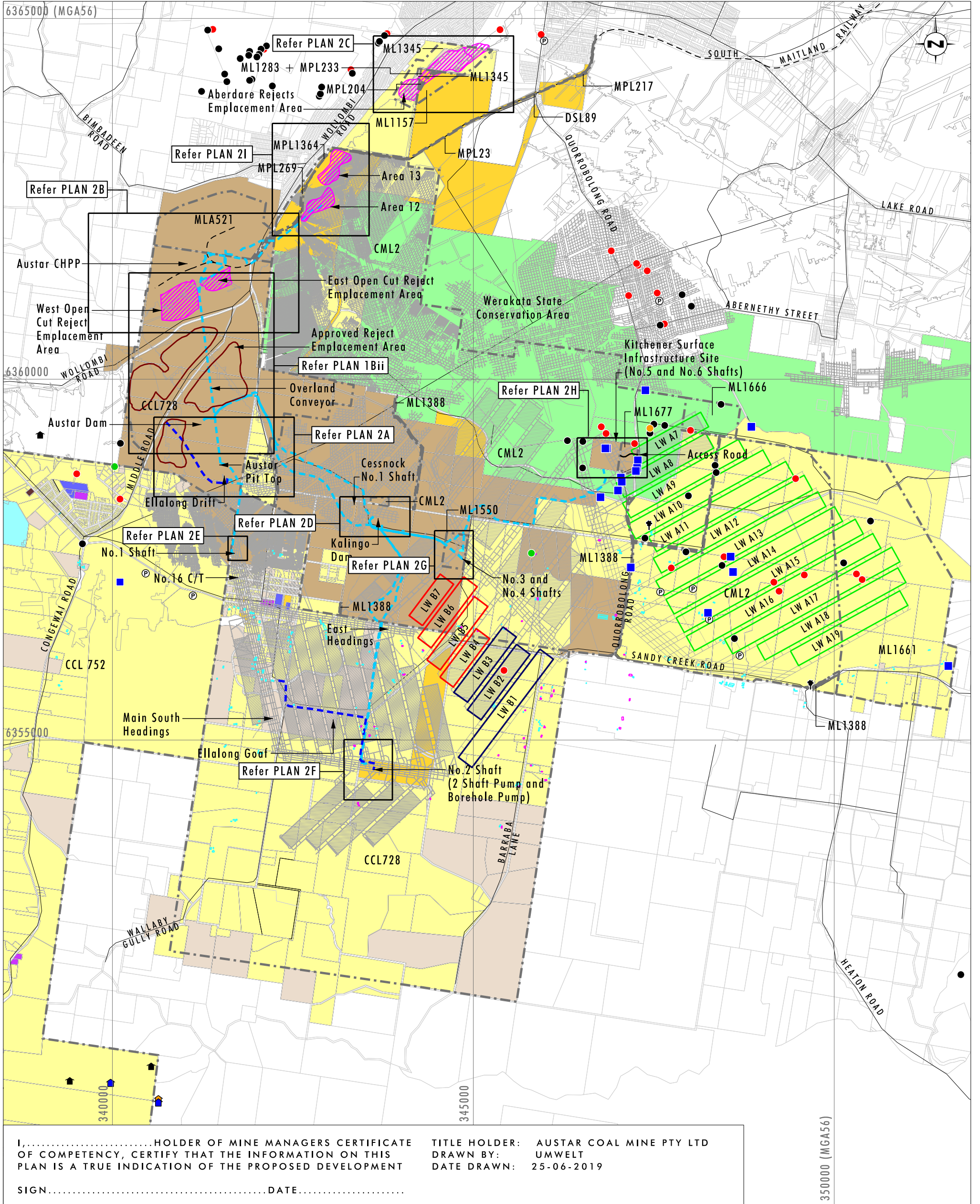
Data Source: Austar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
 Note: 2m Contour Interval



- Legend**
- Approved Reject Emplacement Area
  - Mining Lease Boundary
  - Capped Borehole
  - Grouted Borehole
  - Open Borehole
  - Open Full Borehole
  - Proposed Borehole
  - Access Track/Tailings Pipeline
  - Drainage Line
  - Contour Line
  - Cadastral Line

**PLAN 1Bii**  
**Pre-mining Environment**  
**Natural Environment**  
**(Tailings Boreholes Area)**





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SIGN ..... DATE .....

TITLE HOLDER: AUSTAR COAL MINE PTY LTD  
 DRAWN BY: UMWELT  
 DATE DRAWN: 25-06-2019

Data Source: Austar Coal Mine (2015)

**Legend**

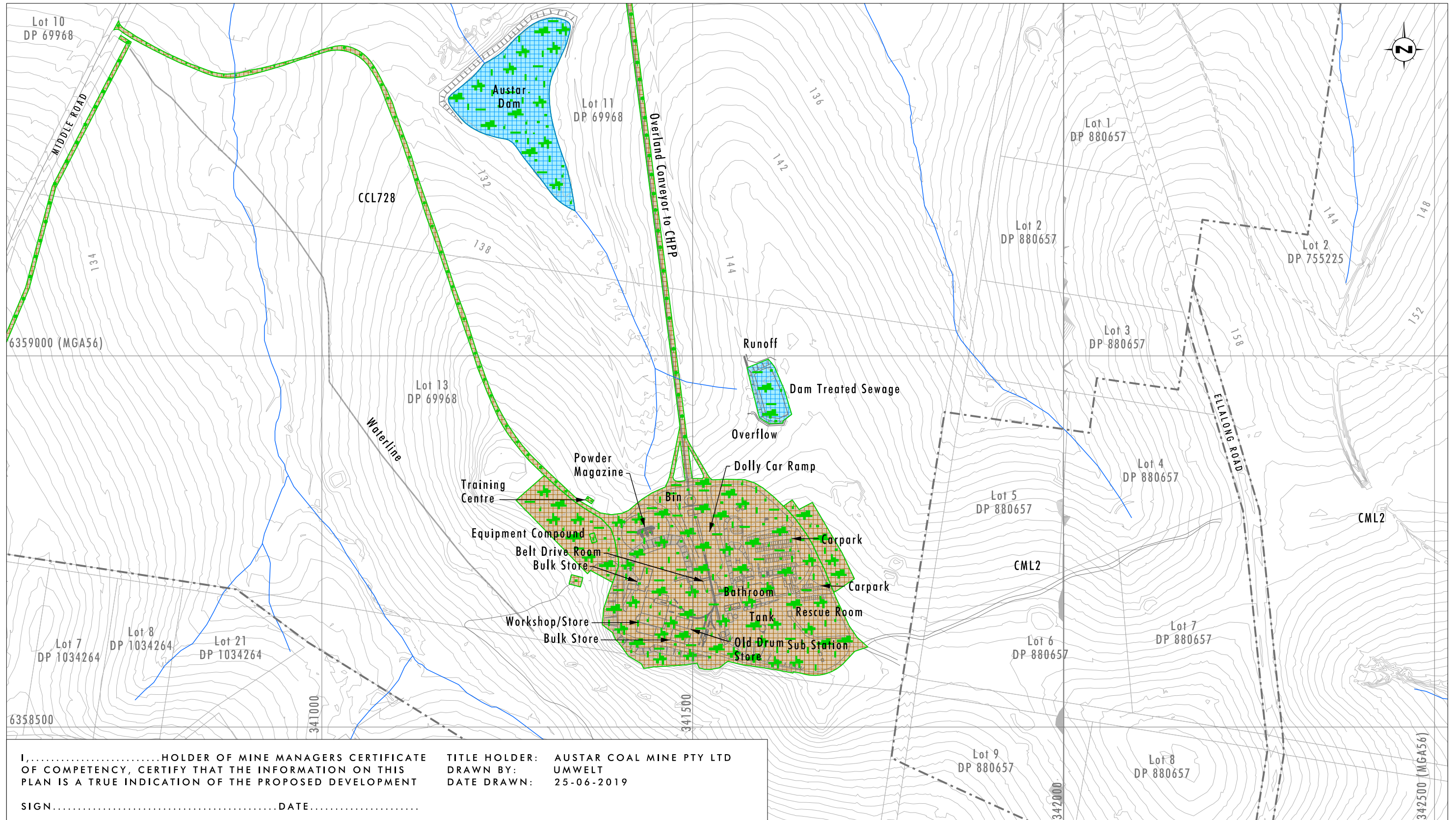
- Bellbird South B1-B3 Longwall Panels (DA29/95 MOD6)
- Bellbird South B4-B7 Longwall Panels (DA25/95 MOD7)
- Layout for Stage 3 Longwall Panels (PA08\_0111 MOD3)
- Approved Reject Emplacement Area
- Reject Emplacement Areas
- Previously Mined Land/First Workings
- Mining Lease Boundary
- Water Pipeline
- Water Pipeline - Potable

- State Conservation Area
- Australian Communications Commission
- Austar Coal Mine Land
- Cessnock City Council
- Crown Land
- Energy Australia
- Hunter Water
- Minister for Education
- Private Land
- Assumed Freehold Land

- PAD & Isolated Find
- Historic Heritage Site
- Artefact Scatter
- Isolated Find
- ✦ Scarred Tree
- Grinding Groove & Isolated Find
- Open Camp Site
- Ⓟ PAD
- 🏠 Shelter with Art
- Dwelling
- Structure

0 1.0 2.0 2.5km  
 1:50 000 (at A3)

**PLAN 1C**  
**Pre Mining Environment**  
**Built Environment**

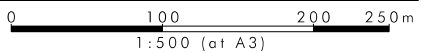


I, ..... HOLDER OF MINE MANAGERS CERTIFICATE OF COMPETENCY, CERTIFY THAT THE INFORMATION ON THIS PLAN IS A TRUE INDICATION OF THE PROPOSED DEVELOPMENT

SIGN..... DATE.....

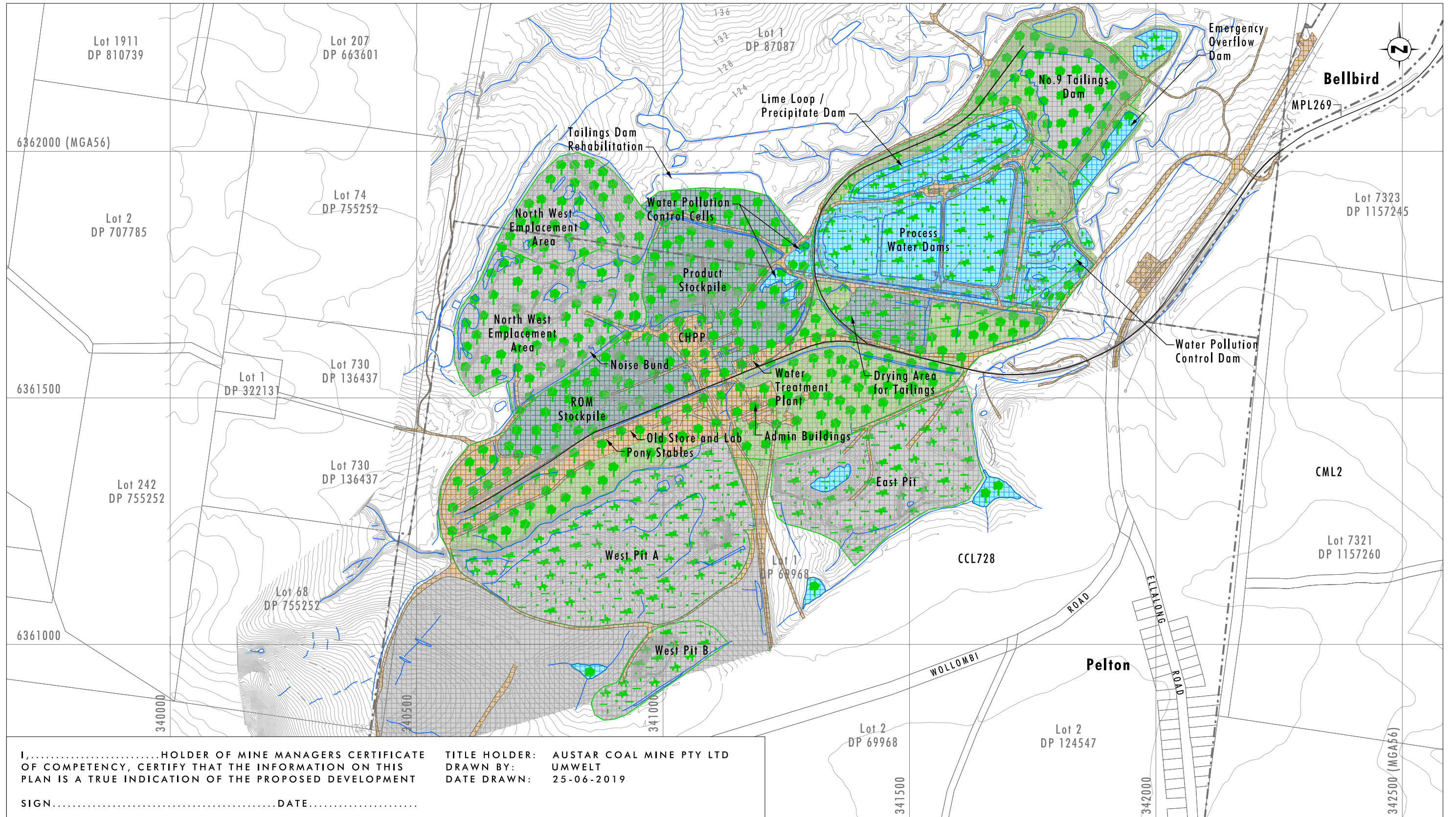
TITLE HOLDER: AUSTAR COAL MINE PTY LTD  
 DRAWN BY: UMWELT  
 DATE DRAWN: 25-06-2019

Data Source: Astar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
 Note: 1m Contour Interval



- Legend**
- ▭ Mining Lease Boundary
  - Drainage Line
  - Contour Line
  - Cadastral Line
  - Primary Domains
    - ▭ 1 - Infrastructure Area
    - ▭ 3 - Water management Area
  - Secondary Domains
    - ▭ Rehabilitation Area - Grassland

**PLAN 2A**  
**Astar Pit Top Facilities**

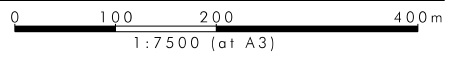


I, ..... HOLDER OF MINE MANAGERS CERTIFICATE OF COMPETENCY, CERTIFY THAT THE INFORMATION ON THIS PLAN IS A TRUE INDICATION OF THE PROPOSED DEVELOPMENT

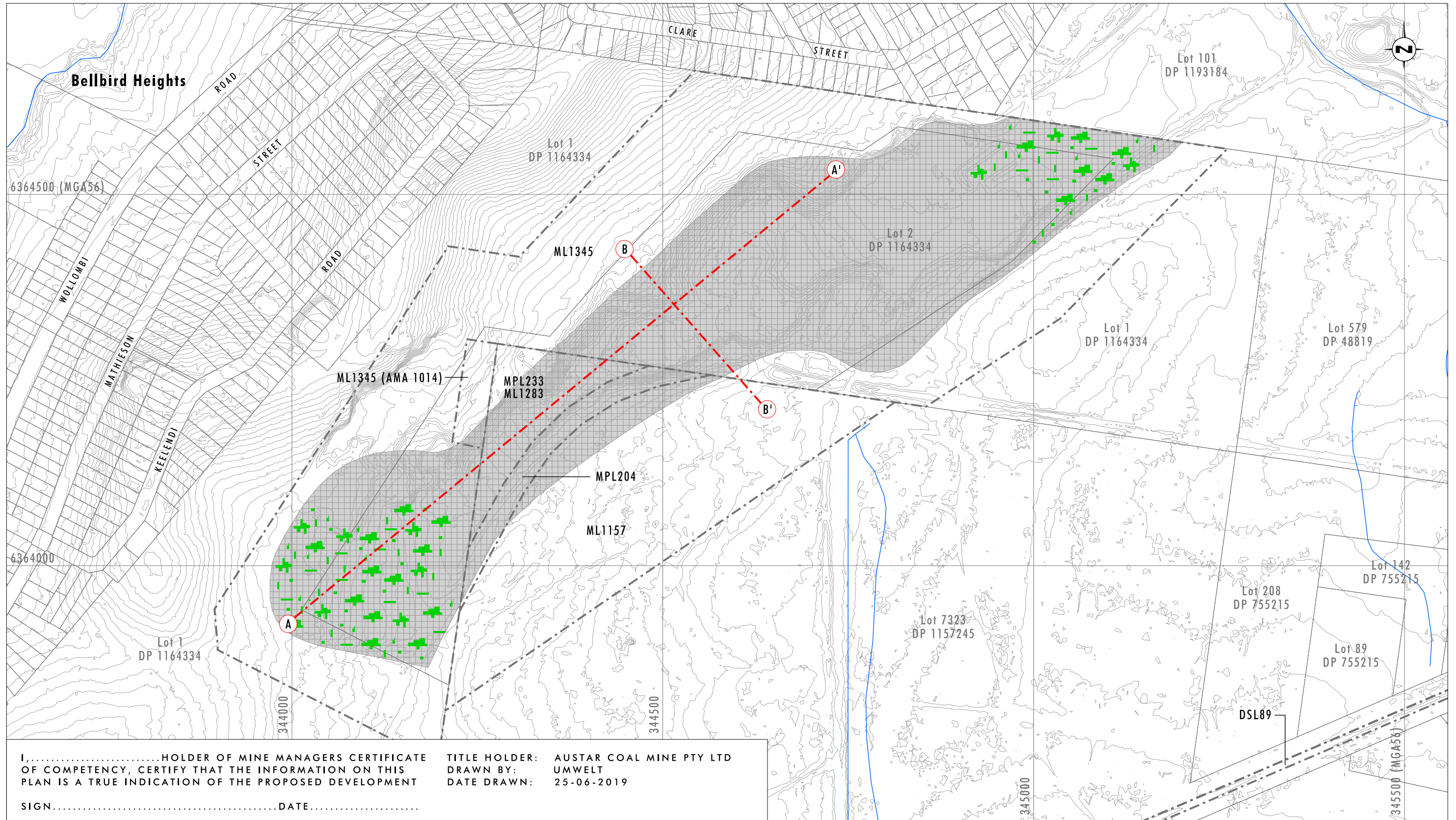
SIGN..... DATE.....

TITLE HOLDER: AUSTAR COAL MINE PTY LTD  
 DRAWN BY: UMWELT  
 DATE DRAWN: 25-06-2019

Data Source: Austar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
 Note: 1m and 10m Contour Interval



Legend	
	Mining Lease Boundary
	Drainage Line
	Contour Line
	Cadastral Line
	Railway Line
<b>Primary Domains</b>	
	1 - Infrastructure Area
	2 - Tailings & Reject Emplacement Area
	3 - Water Management Area
	5 - Stockpiled Material
	7 - Rehabilitation Area - Pasture
<b>Secondary Domains</b>	
	Rehabilitation Area - Forest
	Rehabilitation Area - Grassland

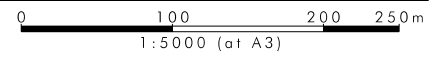


I, ..... HOLDER OF MINE MANAGERS CERTIFICATE OF COMPETENCY, CERTIFY THAT THE INFORMATION ON THIS PLAN IS A TRUE INDICATION OF THE PROPOSED DEVELOPMENT

SIGN..... DATE.....

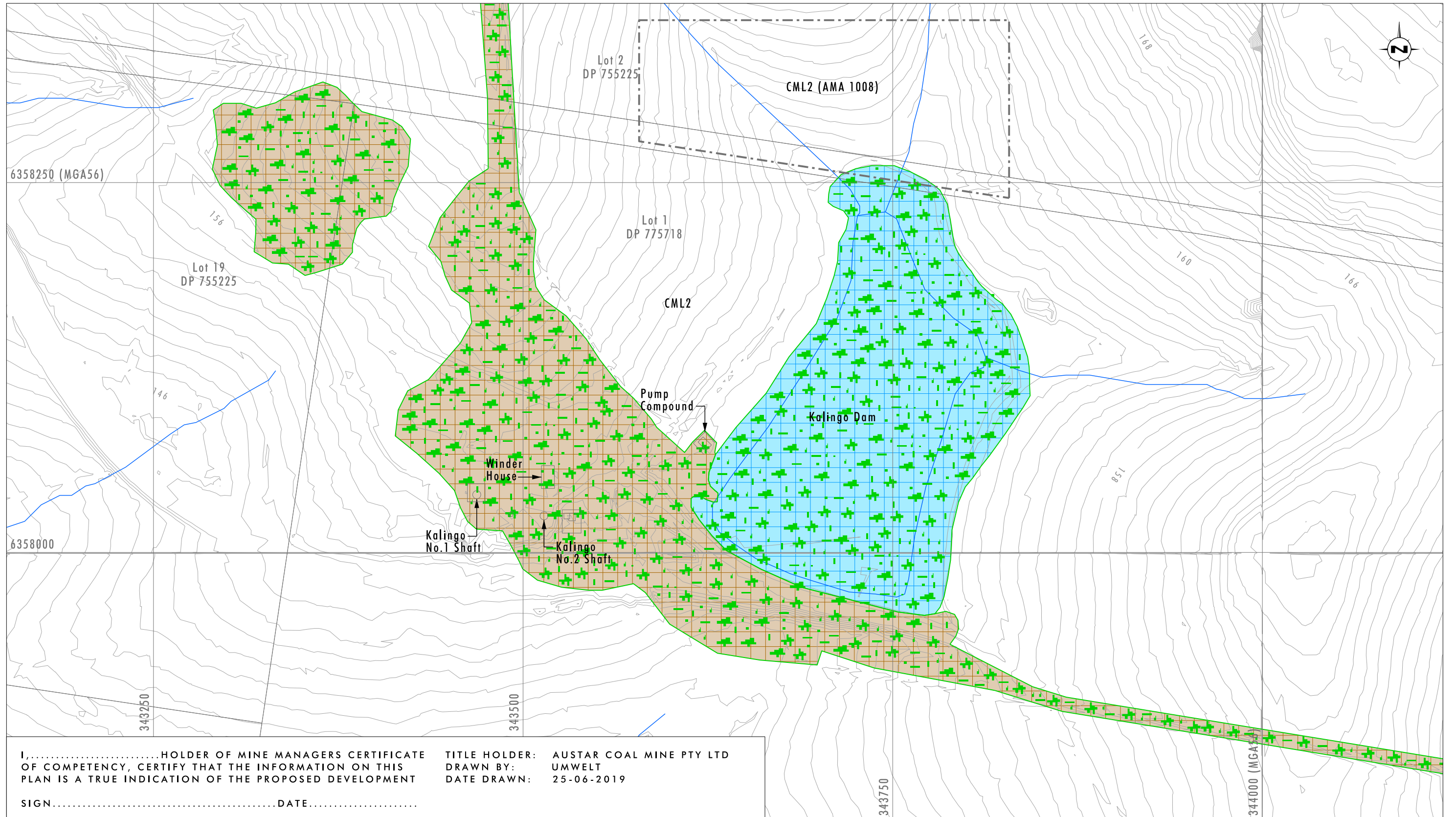
TITLE HOLDER: AUSTAR COAL MINE PTY LTD  
 DRAWN BY: UMWELT  
 DATE DRAWN: 25-06-2019

Data Source: Austar Coal Mine (2018), Department of Finance, Services & Innovation (2017)  
 Note: 1m and 10m Contour Interval

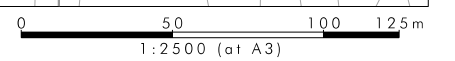


- Legend**
- Mining Lease Boundary
  - Drainage Line
  - Contour Line
  - Cadastral Line
  - Cross Section Location
  - Primary Domain
  - 2 - Reject Emplacement Area
  - Secondary Domains
  - Rehabilitation Area - Grassland

**PLAN 2C**  
**Aberdare Extended Emplacement Area**

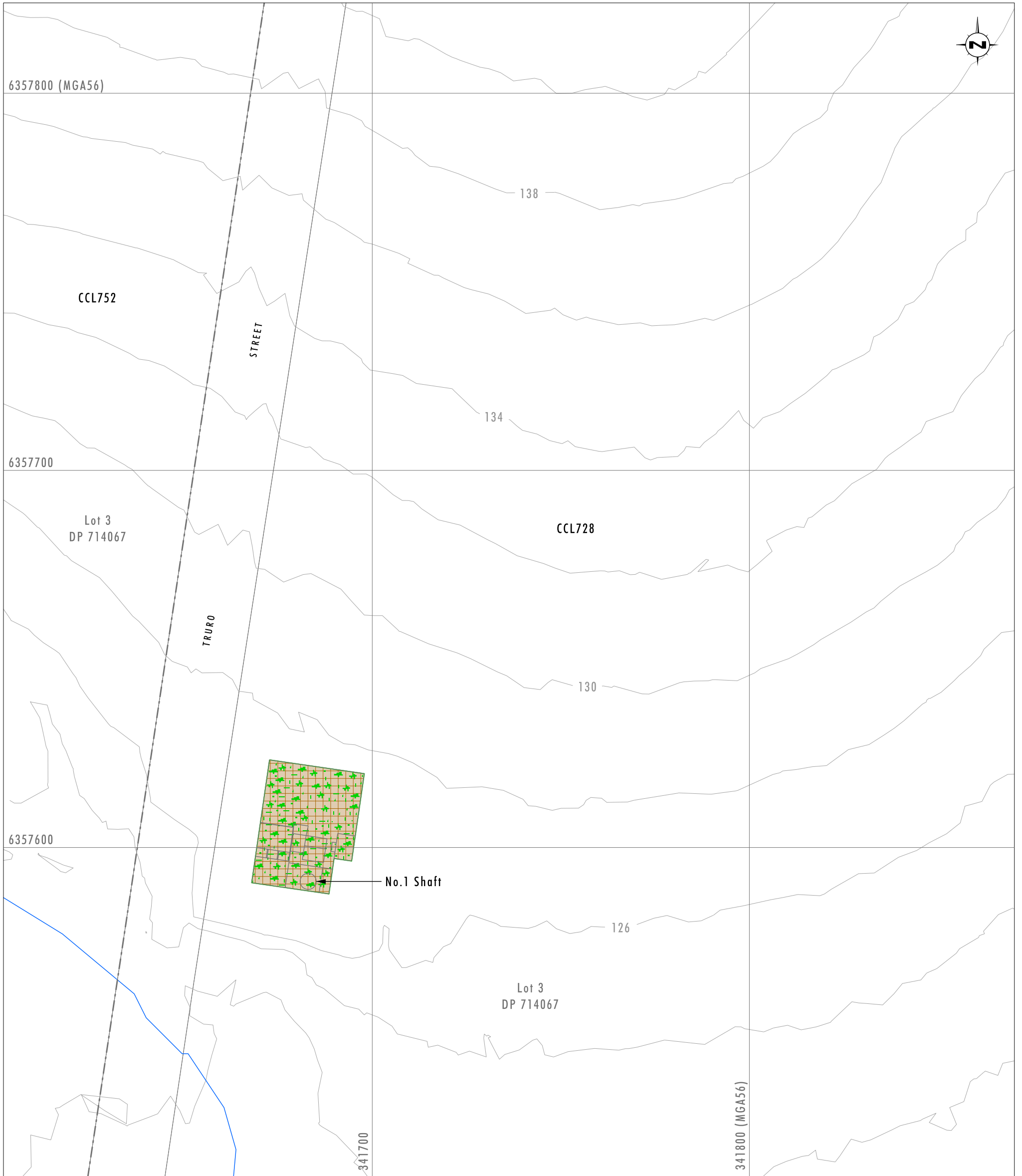


Data Source: Austar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
Note: 1m Contour Interval



**Legend**

- Mining Lease Boundary
- Drainage Line
- Contour Line
- Cadastral Line
- Primary Domain  
1 - Infrastructure Area
- 3 - Water Management Area
- Secondary Domains  
Rehabilitation Area - Grassland

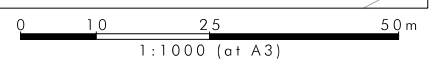


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SIGN.....DATE.....

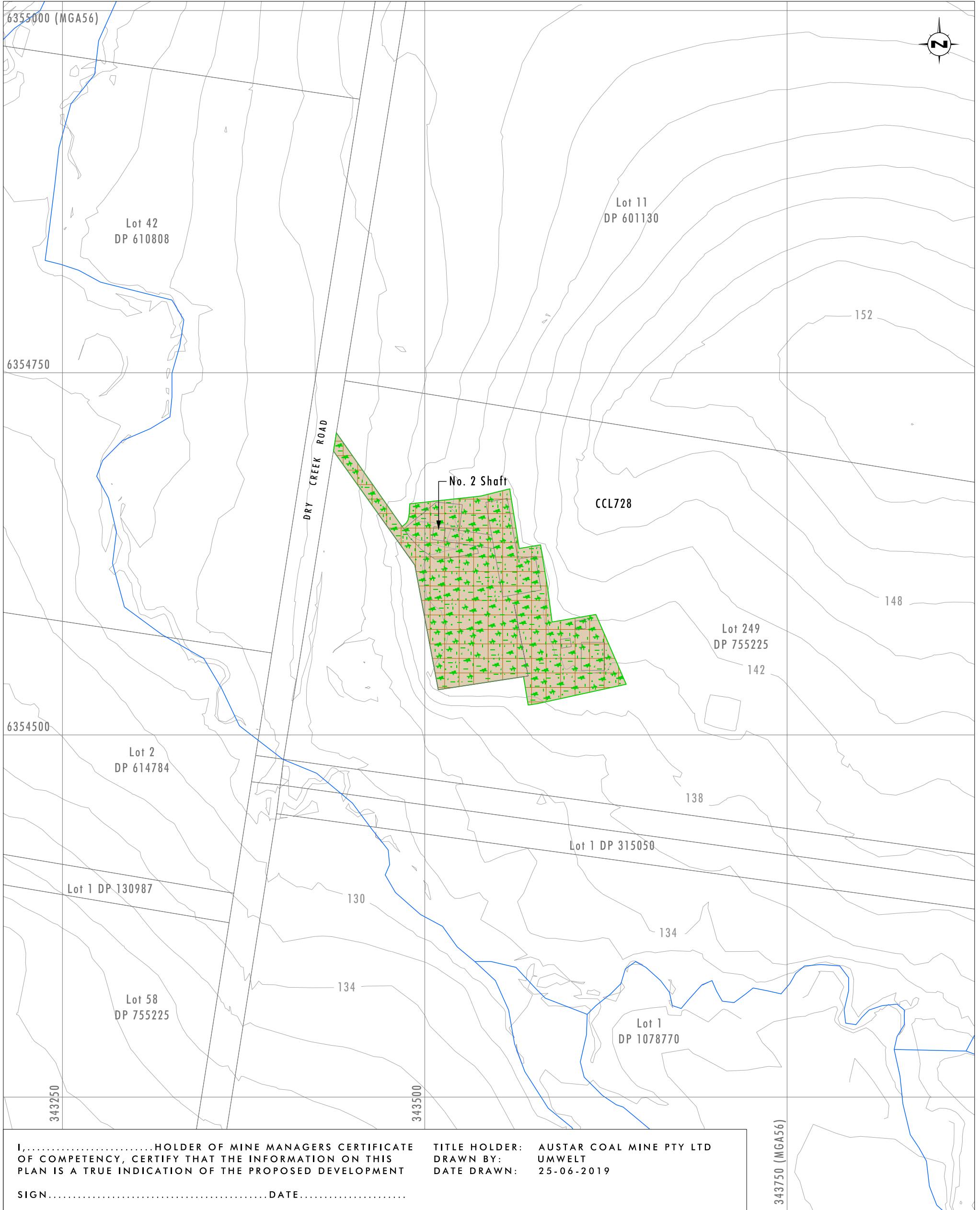
TITLE HOLDER: AUSTAR COAL MINE PTY LTD  
 DRAWN BY: UMWELT  
 DATE DRAWN: 25-06-2019

Data Source: Austar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
 Note: 2m Contour Interval



- Legend**
- Mining Lease Boundary
  - Drainage Line
  - Contour Line
  - Cadastral Line
  - Primary Domains  
1 - Infrastructure Area
  - Secondary Domains  
Rehabilitation Area - Grassland

**PLAN 2E**  
**No.1 Shaft**

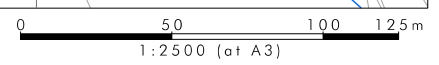


I,.....HOLDER OF MINE MANAGERS CERTIFICATE OF COMPETENCY, CERTIFY THAT THE INFORMATION ON THIS PLAN IS A TRUE INDICATION OF THE PROPOSED DEVELOPMENT

SIGN.....DATE.....

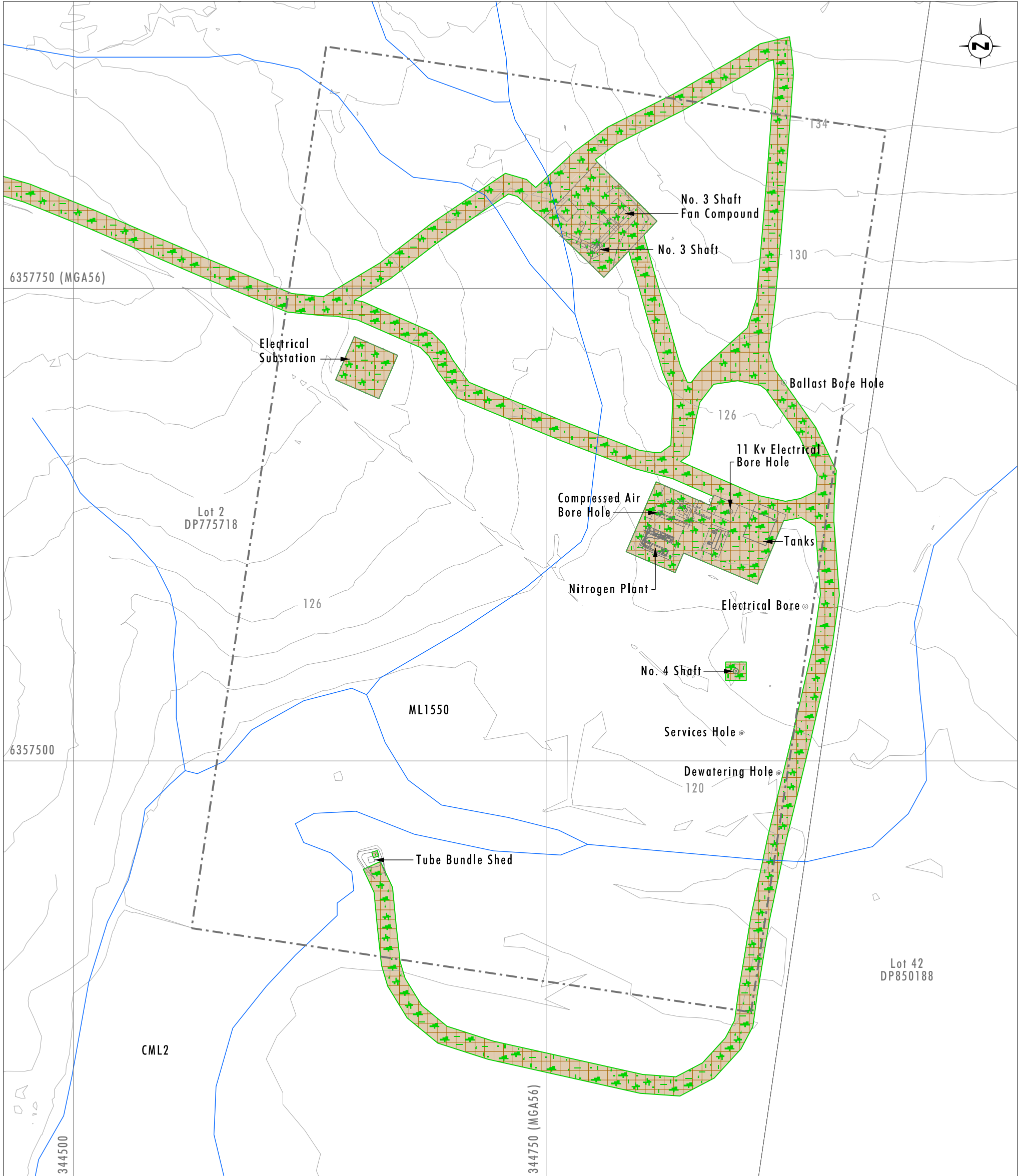
TITLE HOLDER: AUSTAR COAL MINE PTY LTD  
 DRAWN BY: UMWELT  
 DATE DRAWN: 25-06-2019

Data Source: Austar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
 Note: 2m Contour Interval



- Legend**
- Mining Lease Boundary
  - Drainage Line
  - Contour Line
  - Cadastral Line
  - Primary Domains**
  - 1 - Infrastructure Area
  - Secondary Domains**
  - Rehabilitation Area - Grassland

**PLAN 2F**  
**No.2 Shaft**

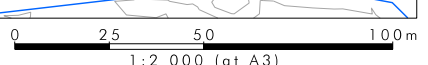


I, ..... HOLDER OF MINE MANAGERS CERTIFICATE OF COMPETENCY, CERTIFY THAT THE INFORMATION ON THIS PLAN IS A TRUE INDICATION OF THE PROPOSED DEVELOPMENT

SIGN..... DATE.....

TITLE HOLDER: AUSTAR COAL MINE PTY LTD  
 DRAWN BY: UMWELT  
 DATE DRAWN: 25-06-2019

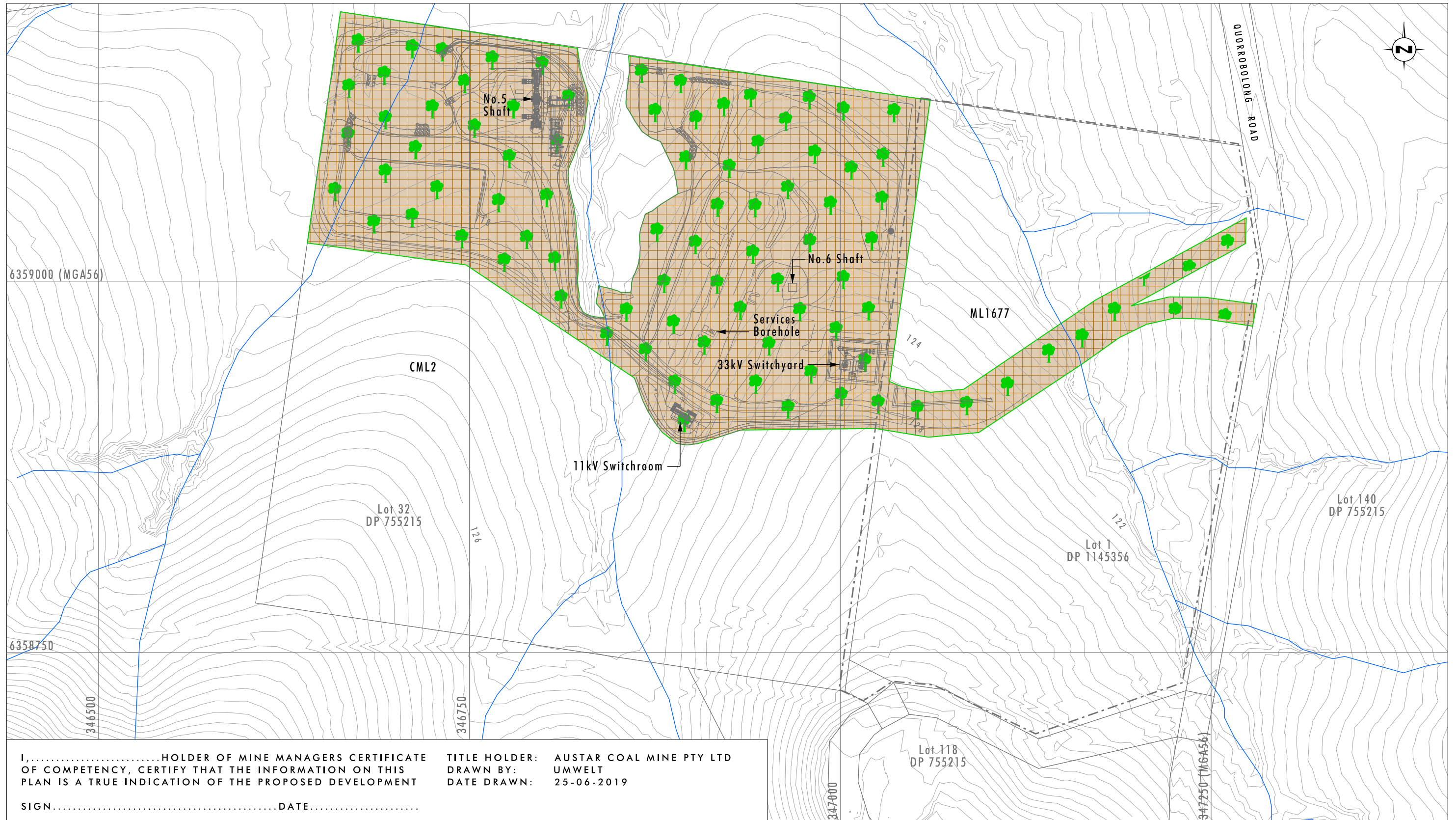
Data Source: Austar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
 Note: 2m Contour Interval



- Legend**
- Mining Lease Boundary
  - Drainage Line
  - Contour Line
  - Cadastral Line
  - Primary Domains  
1 - Infrastructure Area
  - Secondary Domains  
Rehabilitation Area - Grassland

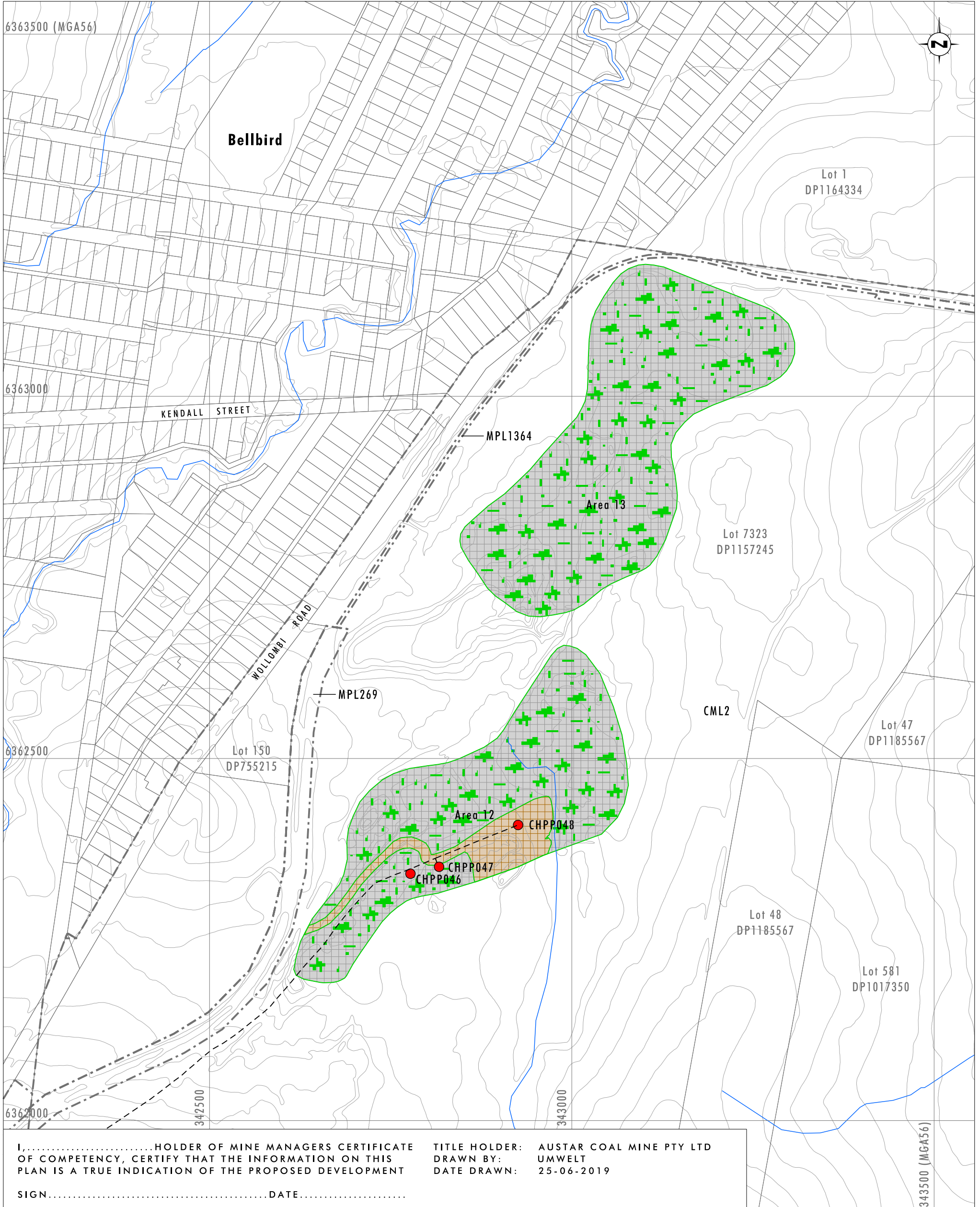
**PLAN 2G**  
**No.3 Shaft**





Data Source: Austar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
Note: 1m Contour Interval

- Legend**
- Mining Lease Boundary
  - Drainage Line
  - Contour Line
  - Cadastre
  - Primary Domain
  - 1 - Infrastructure Area
  - Secondary Domains
  - Rehabilitation Area - Forest



I, ..... HOLDER OF MINE MANAGERS CERTIFICATE OF COMPETENCY, CERTIFY THAT THE INFORMATION ON THIS PLAN IS A TRUE INDICATION OF THE PROPOSED DEVELOPMENT

SIGN..... DATE.....

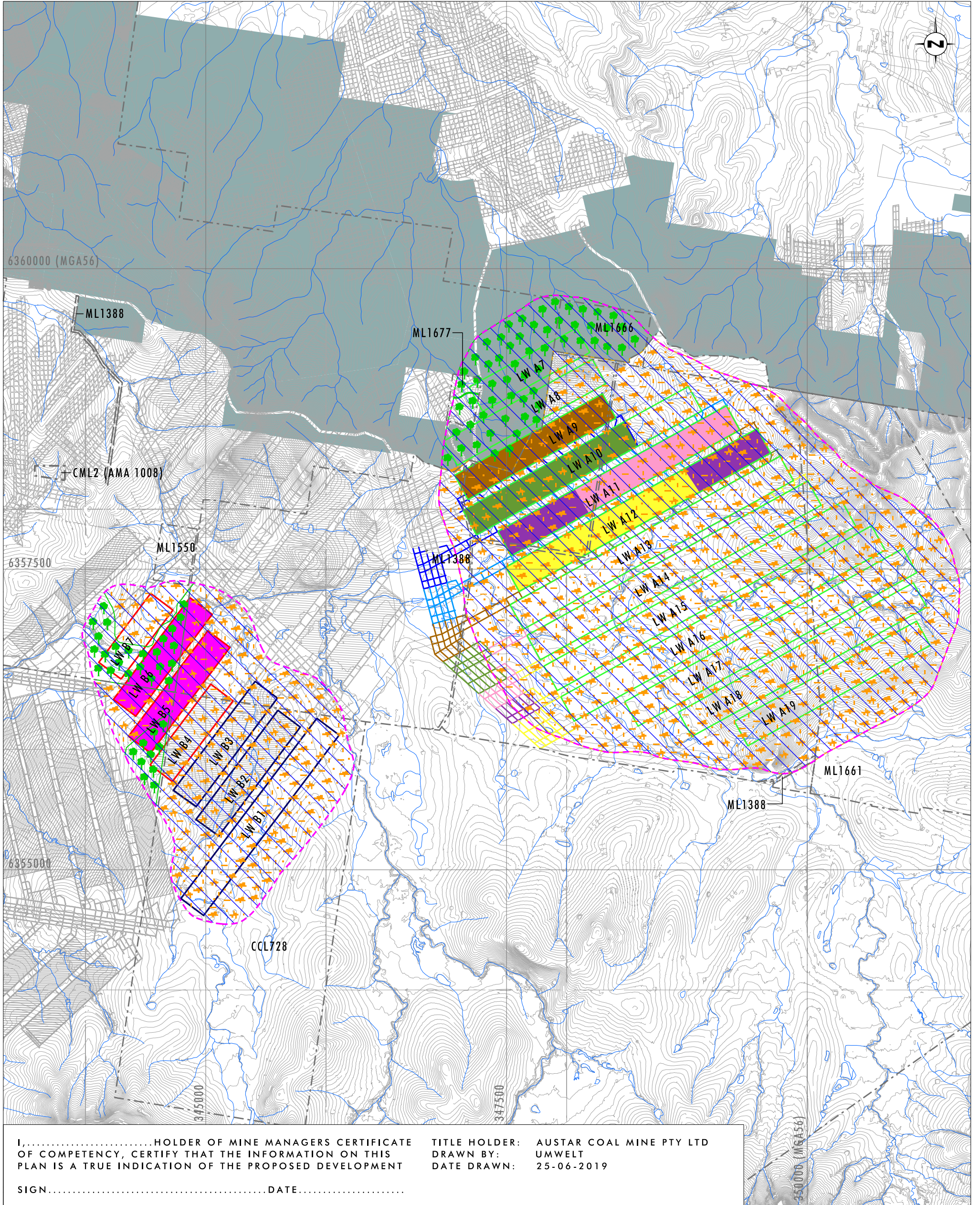
TITLE HOLDER: AUSTAR COAL MINE PTY LTD  
 DRAWN BY: UMWELT  
 DATE DRAWN: 25-06-2019

Data Source: Austar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
 Note: 2m Contour Interval

0 100 200 250m  
 1:5000 (at A3)

**Legend**

- Mining Lease Boundary
- Dewater Pipeline
- Brine Borehole
- Drainage Line
- Contour Line
- Cadastral Line
- Primary Domain
- 2 - Reject Emplacement Area
- Secondary Domains
- Rehabilitation Area - Grassland



I, ..... HOLDER OF MINE MANAGERS CERTIFICATE OF COMPETENCY, CERTIFY THAT THE INFORMATION ON THIS PLAN IS A TRUE INDICATION OF THE PROPOSED DEVELOPMENT

SIGN..... DATE.....

TITLE HOLDER: AUSTAR COAL MINE PTY LTD  
 DRAWN BY: UMWELT  
 DATE DRAWN: 25-06-2019

Data Source: Austar Coal Mine (2015), Bell and Driscoll (2008), OEH (2012)  
 Note: 2m Contour Interval

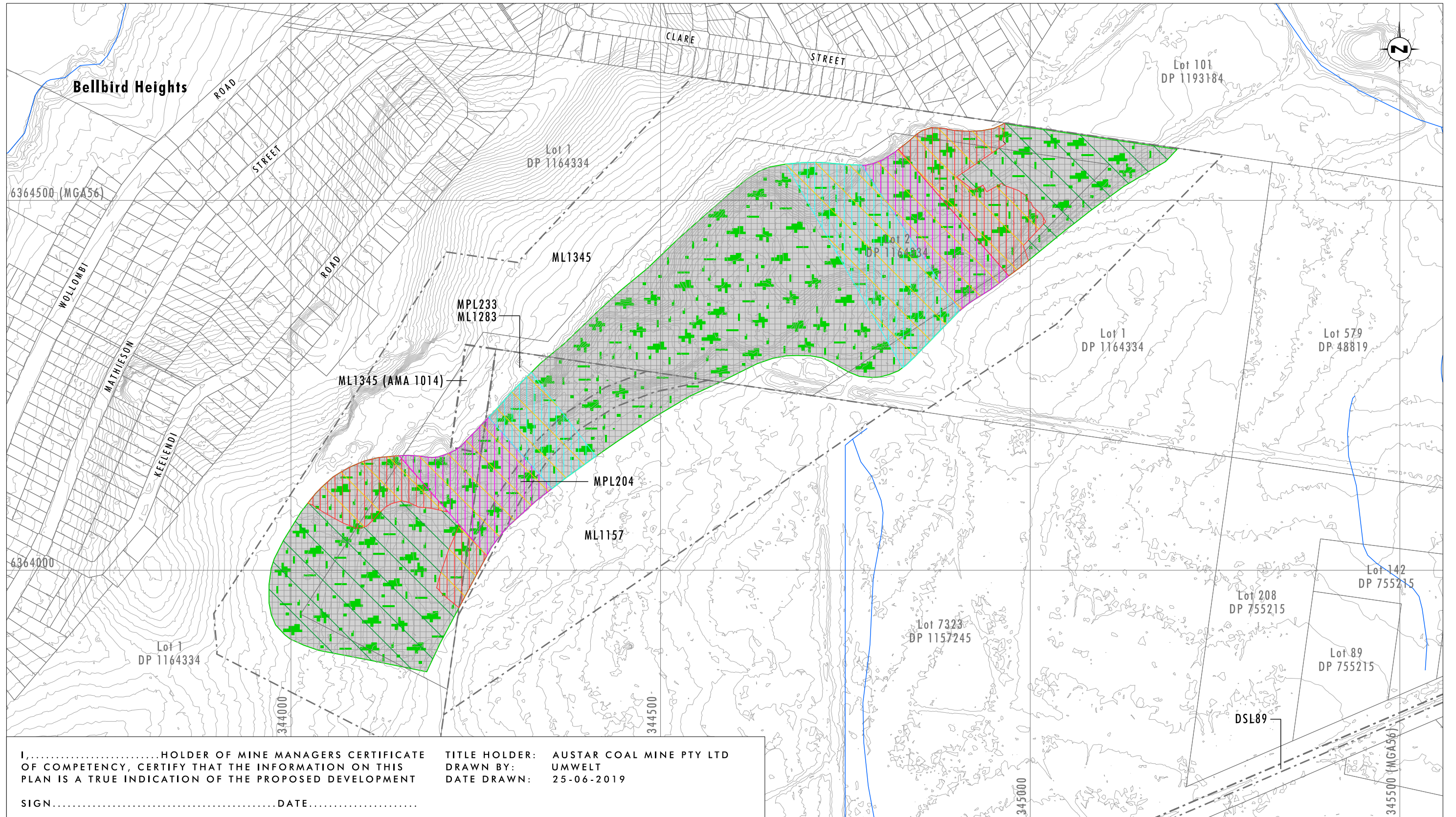
0 0.5 1.0 1.5km  
 1:30 000 (at A3)

**Legend**

- Mining Lease Boundary
- ▭ Bellbird South B1-B3 Longwall Panels (DA29/95 MOD6)
- ▭ Bellbird South B4-B7 Longwall Panels (DA25/95 MOD 7)
- ▭ Layout for Stage 3 Longwall Panels (PA08\_0111 MOD3)
- ▭ Previously Mined Land/First Workings
- ▭ 20mm Subsidence Contour Estimate
- Drainage Line
- Contour Line
- Secondary Domains
- ▭ Rehabilitation Area - Forest
- ▭ Rehabilitation Area - Pasture
- Mining Sequence:
- ▭ 2019
- ▭ 2020
- ▭ 2021
- ▭ 2022
- ▭ 2023
- ▭ 2024
- ▭ 2025
- ▭ 2026
- Rehabilitation Phase:
- ▭ Ecosystem and Land Use Sustainability

PLAN 3A

Mining and Rehabilitation

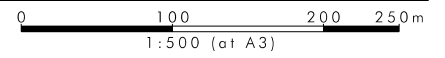


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SIGN..... DATE.....

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 DRAWN BY: UMWELT  
 DATE DRAWN: 25-06-2019

Data Source: Austar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
 Note: 1m Contour Interval



- Legend**
- Mining Lease Boundary
  - Drainage Line
  - Contour Line
  - Cadastral Line
  - Primary Domain:**
    - 2 - Reject Emplacement Area
  - Secondary Domains:**
    - Rehabilitation Area - Grassland
  - Rehabilitation Sequence:**
    - Stage Plan 2021
    - Stage Plan 2023
    - Stage Plan 2026
  - Rehabilitation Phase:**
    - Landform Establishment
    - Ecosystem and Land Use Establishment

PLAN 3B

**Aberdare Extended Emplacement Area  
 Mining and Rehabilitation**

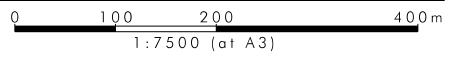


I, ..... HOLDER OF MINE MANAGERS CERTIFICATE OF COMPETENCY, CERTIFY THAT THE INFORMATION ON THIS PLAN IS A TRUE INDICATION OF THE PROPOSED DEVELOPMENT

SIGN..... DATE.....

TITLE HOLDER: AUSTAR COAL MINE PTY LTD  
 DRAWN BY: UMWELT  
 DATE DRAWN: 25-06-2019

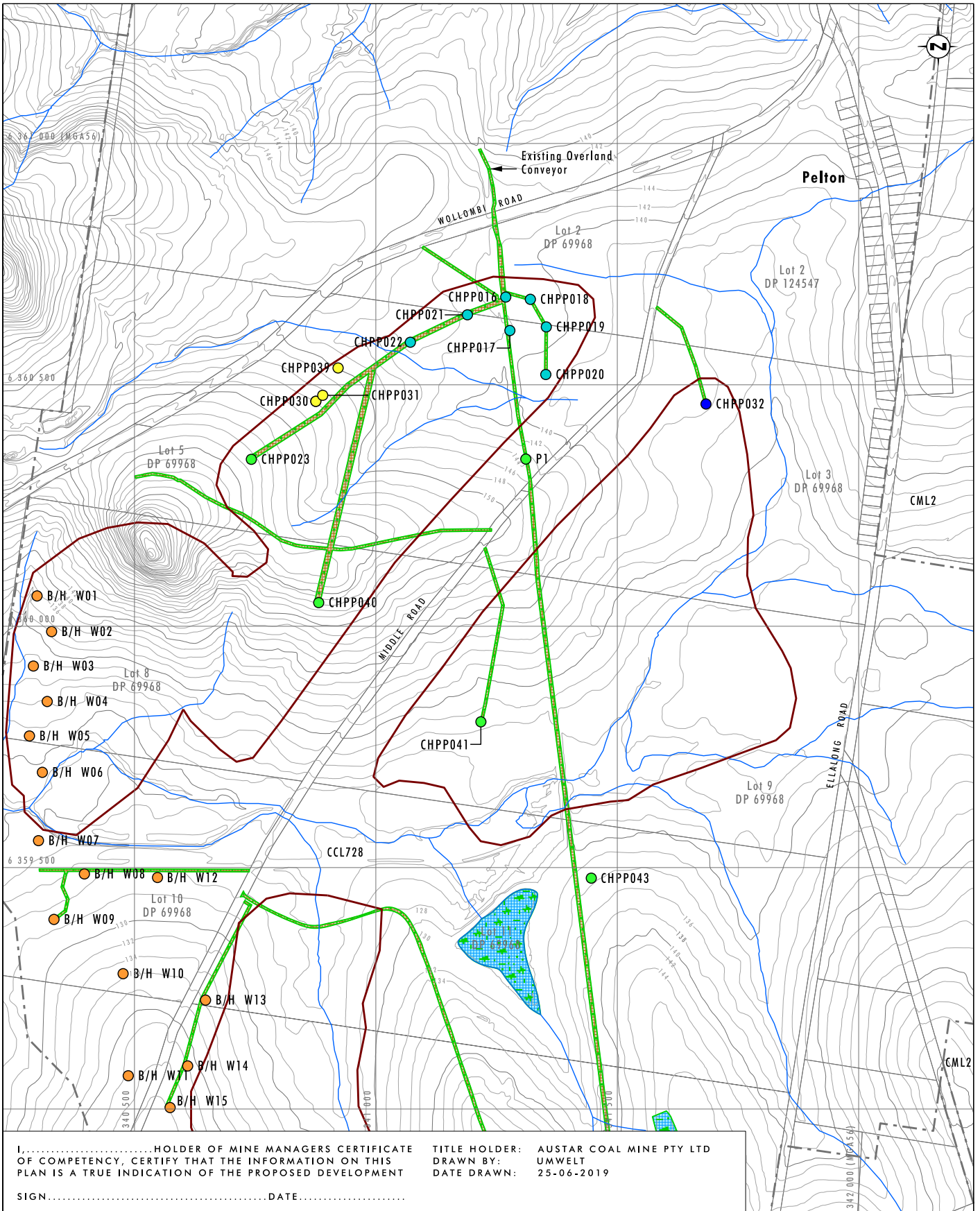
Data Source: Austar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
 Note: 1m and 10m Contour Interval



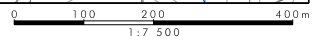
**Legend**

- Mining Lease Boundary
  - Drainage Line
  - Contour Line
  - Cadastral Line
- Primary Domains:**
- 1 - Infrastructure Area
  - 2 - Tailings & Reject Emplacement Area
  - 3 - Water Management Area
- Secondary Domains:**
- Rehabilitation Area - Forest
  - Rehabilitation Area - Grassland

**PLAN 3C**  
**Austar CHPP**  
**Mining and Rehabilitation**

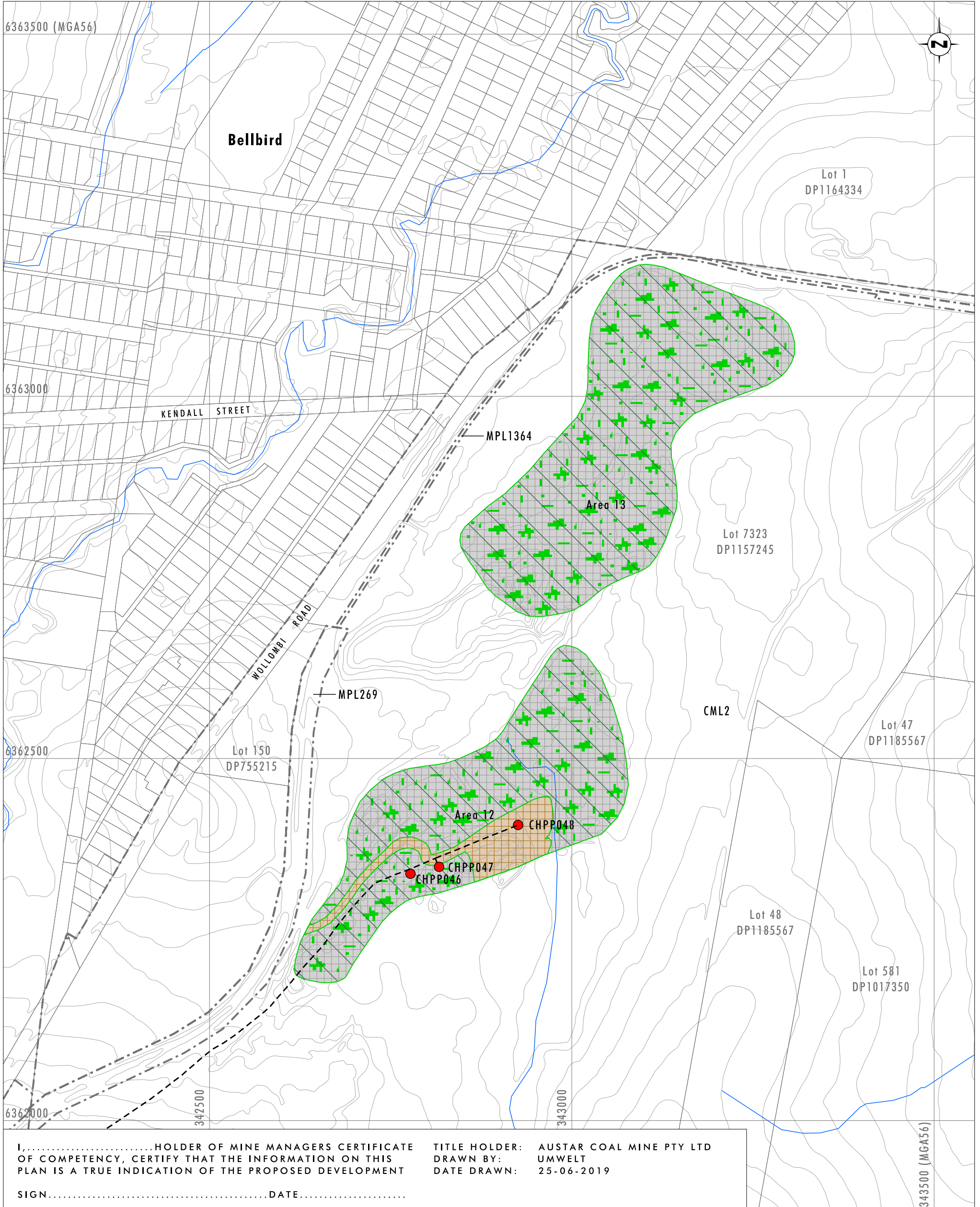


Data Source: Austar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
 Note: 2m Contour Interval



**Legend**

- ▭ Approved Reject Emplacement Area
- ▭ Mining Lease Boundary
- Capped Borehole
- Grouted Borehole
- Open Borehole
- Open Full Borehole
- Proposed Borehole
- Drainage Line
- Contour Line
- Cadastral Line
- Primary Domains
- ▭ 1 - Infrastructure Area
- ▭ 3 - Water Management Area
- Secondary Domains
- ▭ Rehabilitation Area - Forest
- ▭ Rehabilitation Area - Grassland



Data Source: Austar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
 Note: 2m Contour Interval

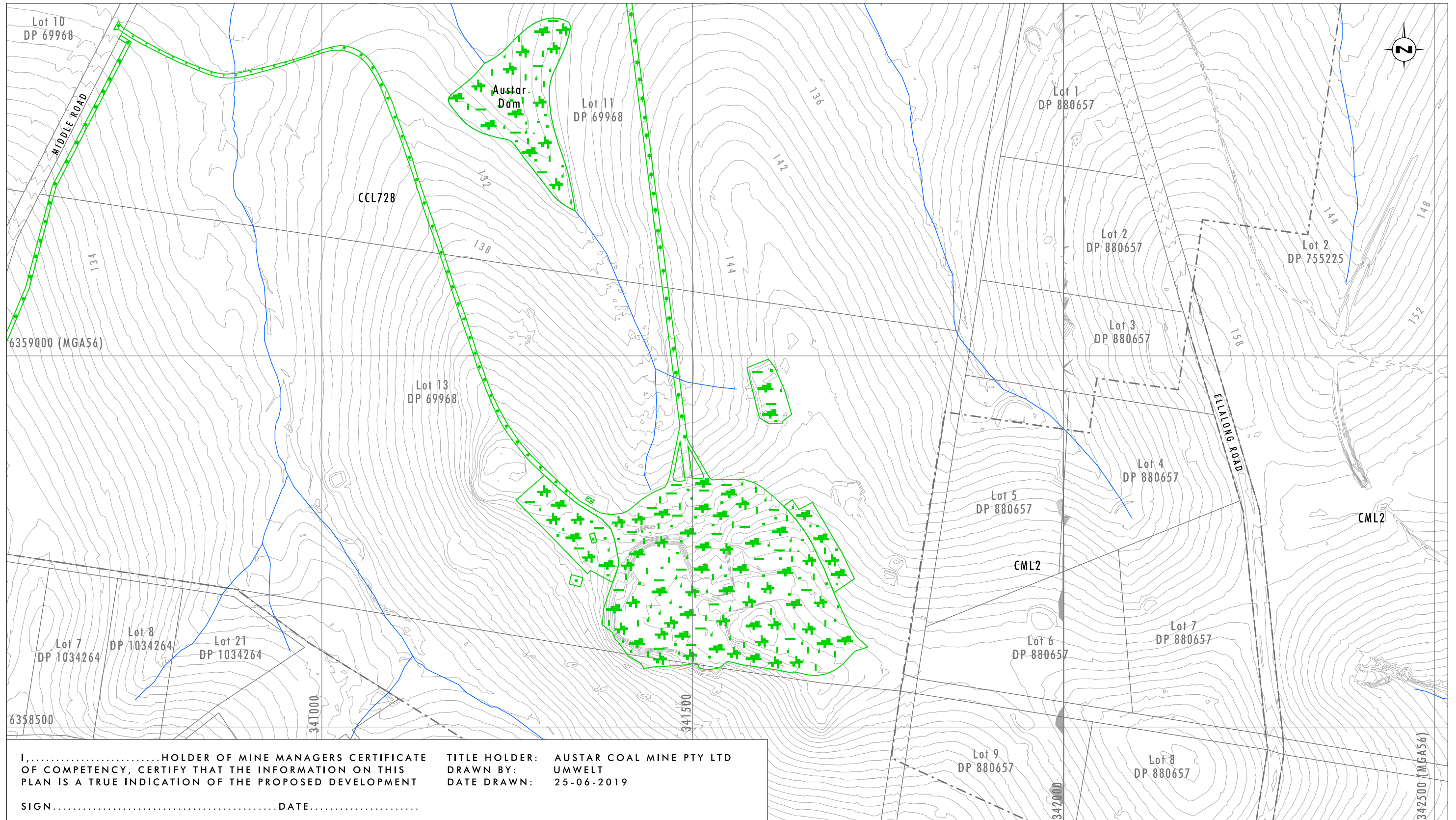
0 100 200 250m  
 1:5000 (at A3)

**Legend**

- Mining Lease Boundary
- Dewater Pipeline
- Brine Borehole
- Drainage Line
- Contour Line
- Cadastral Line
- Primary Domains**
- 1 - Infrastructure Area
- 2 - Tailings Storage Facility
- Secondary Domains**
- Rehabilitation Area - Grassland
- Rehabilitation Phase:**
- Ecosystem and Land Use Establishment

PLAN 3E

**Aberdare Emplacement Areas 12 and 13  
 Mining and Rehabilitation**

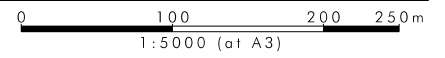


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SIGN..... DATE.....

TITLE HOLDER: AUSTAR COAL MINE PTY LTD  
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 DATE DRAWN: 25-06-2019

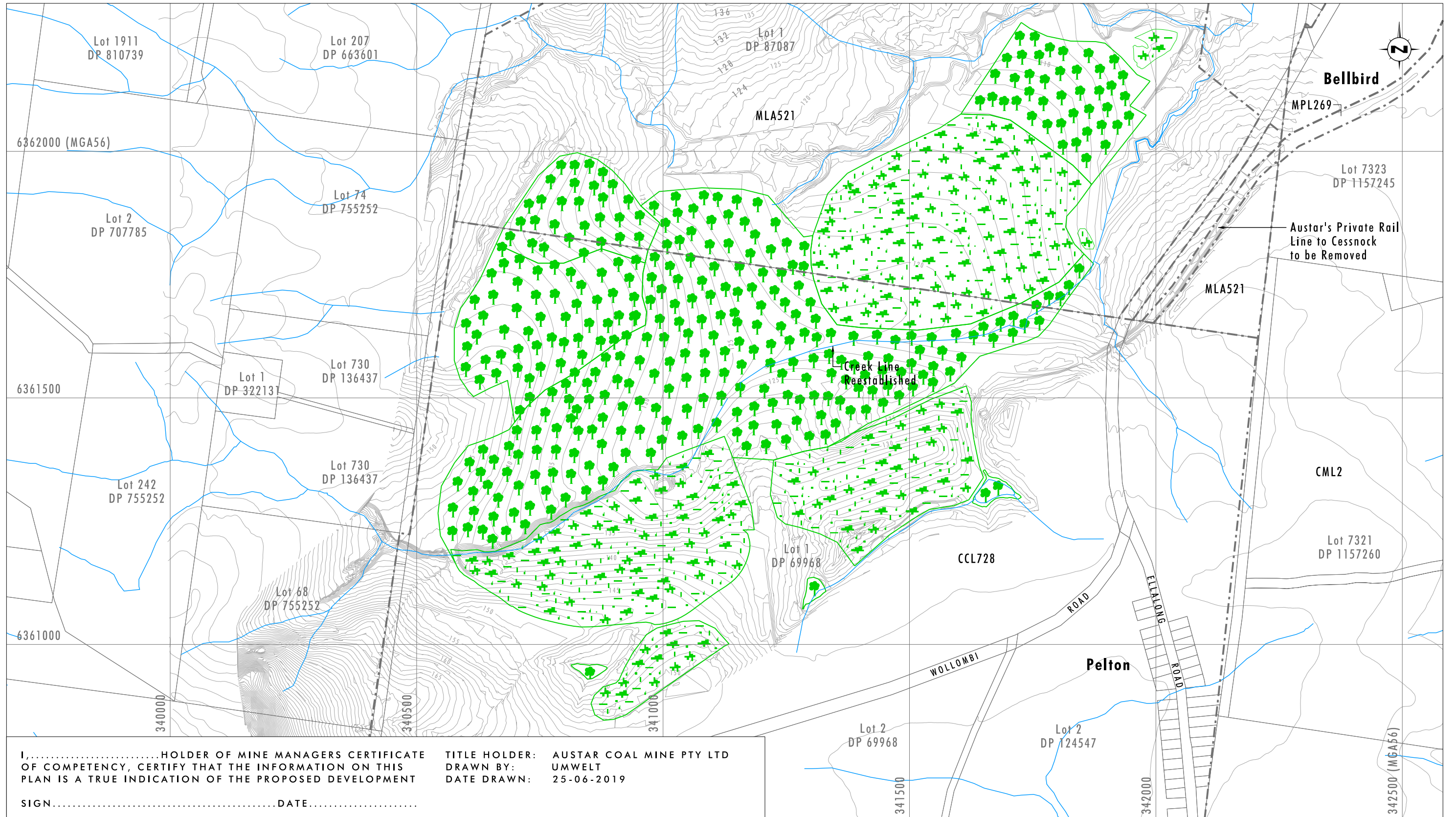
Data Source: Austar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
 Note: 1m Contour Interval



- Legend**
- Mining Lease Boundary
  - Drainage Line
  - Contour Line
  - Cadastral Line
  - Secondary Domains
  - Rehabilitation Area - Grassland

**PLAN 4A**  
**Final Rehabilitation and Post Mining Land Use**  
**Austar Pit Top Facilities**



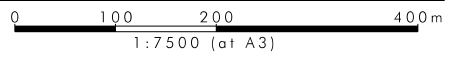


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SIGN..... DATE.....

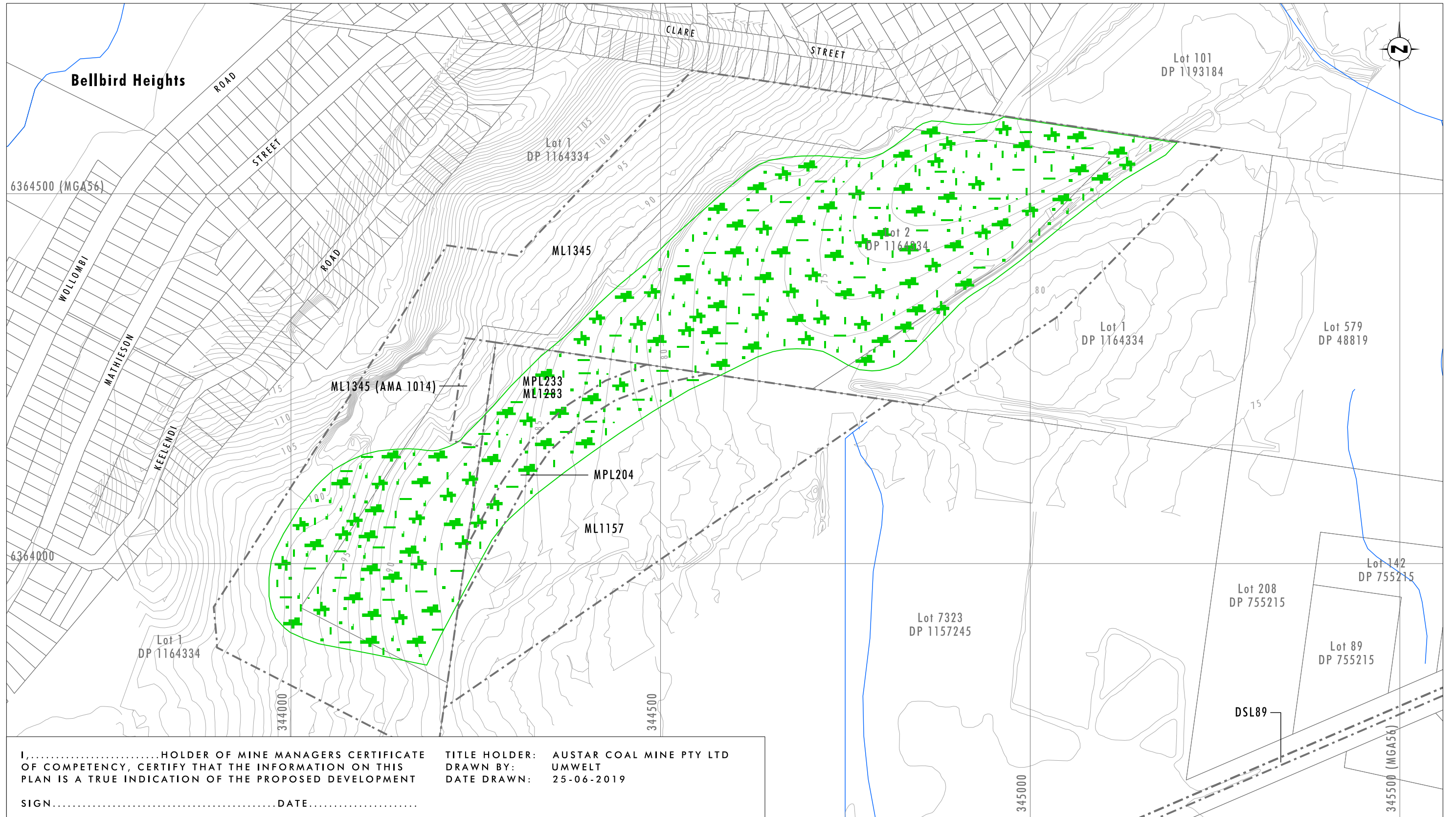
TITLE HOLDER: AUSTAR COAL MINE PTY LTD  
 DRAWN BY: UMWELT  
 DATE DRAWN: 25-06-2019

Data Source: Austar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
 Note: 1m and 10m Contour Interval



- Legend**
- Mining Lease Boundary
  - Drainage Line
  - Contour Line
  - Cadastral Line
  - Secondary Domains**
  - Rehabilitation Area - Forest
  - Rehabilitation Area - Grassland

**PLAN 4B**  
**Final Rehabilitation and Post Mining Land Use Pelton CHPP**



I, ..... HOLDER OF MINE MANAGERS CERTIFICATE OF COMPETENCY, CERTIFY THAT THE INFORMATION ON THIS PLAN IS A TRUE INDICATION OF THE PROPOSED DEVELOPMENT

SIGN..... DATE.....

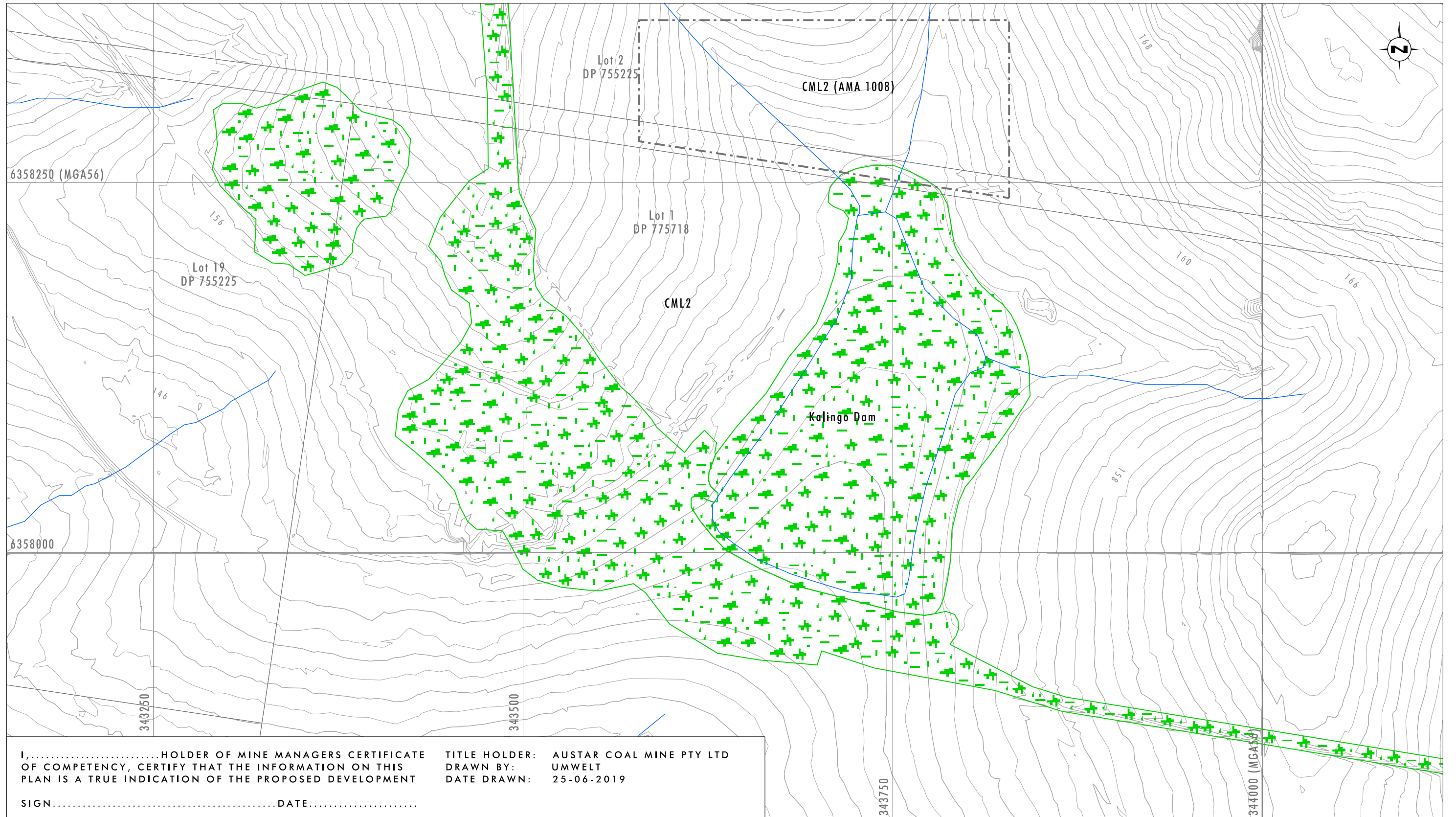
TITLE HOLDER: AUSTAR COAL MINE PTY LTD  
 DRAWN BY: UMWELT  
 DATE DRAWN: 25-06-2019

Data Source: Austar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
 Note: 1m and 10m Contour Interval



- Legend**
- Mining Lease Boundary
  - Drainage Line
  - Contour Line
  - Cadastral Line
  - Secondary Domains
  - Rehabilitation Area - Grassland

**PLAN 4C**  
**Final Rehabilitation and Post Mining Land Use**  
**Aberdare Extended Emplacement Area**

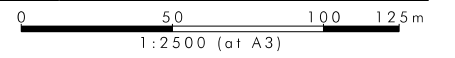


I, ..... HOLDER OF MINE MANAGERS CERTIFICATE OF COMPETENCY, CERTIFY THAT THE INFORMATION ON THIS PLAN IS A TRUE INDICATION OF THE PROPOSED DEVELOPMENT

SIGN..... DATE.....

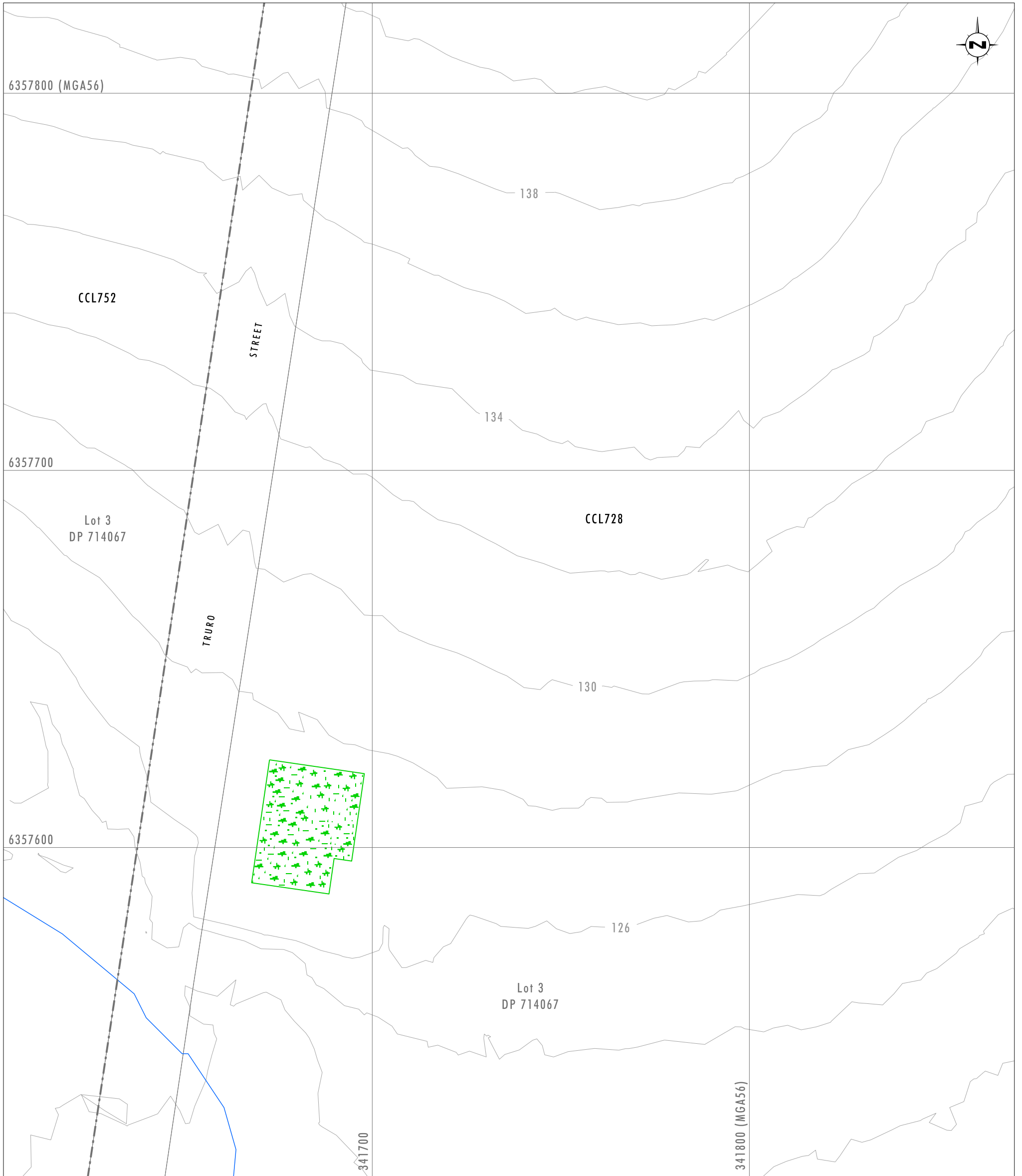
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 DRAWN BY: UMWELT  
 DATE DRAWN: 25-06-2019

Data Source: Austar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
 Note: 1m Contour Interval



- Legend**
- Mining Lease Boundary
  - Drainage Line
  - Contour Line
  - Cadastral Line
  - Secondary Domains**
  - Rehabilitation Area - Grassland

**PLAN 4D**  
**Final Rehabilitation and Post Mining Land Use Kalingo Site**

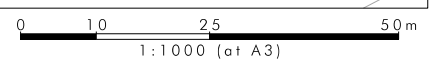


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SIGN.....DATE.....

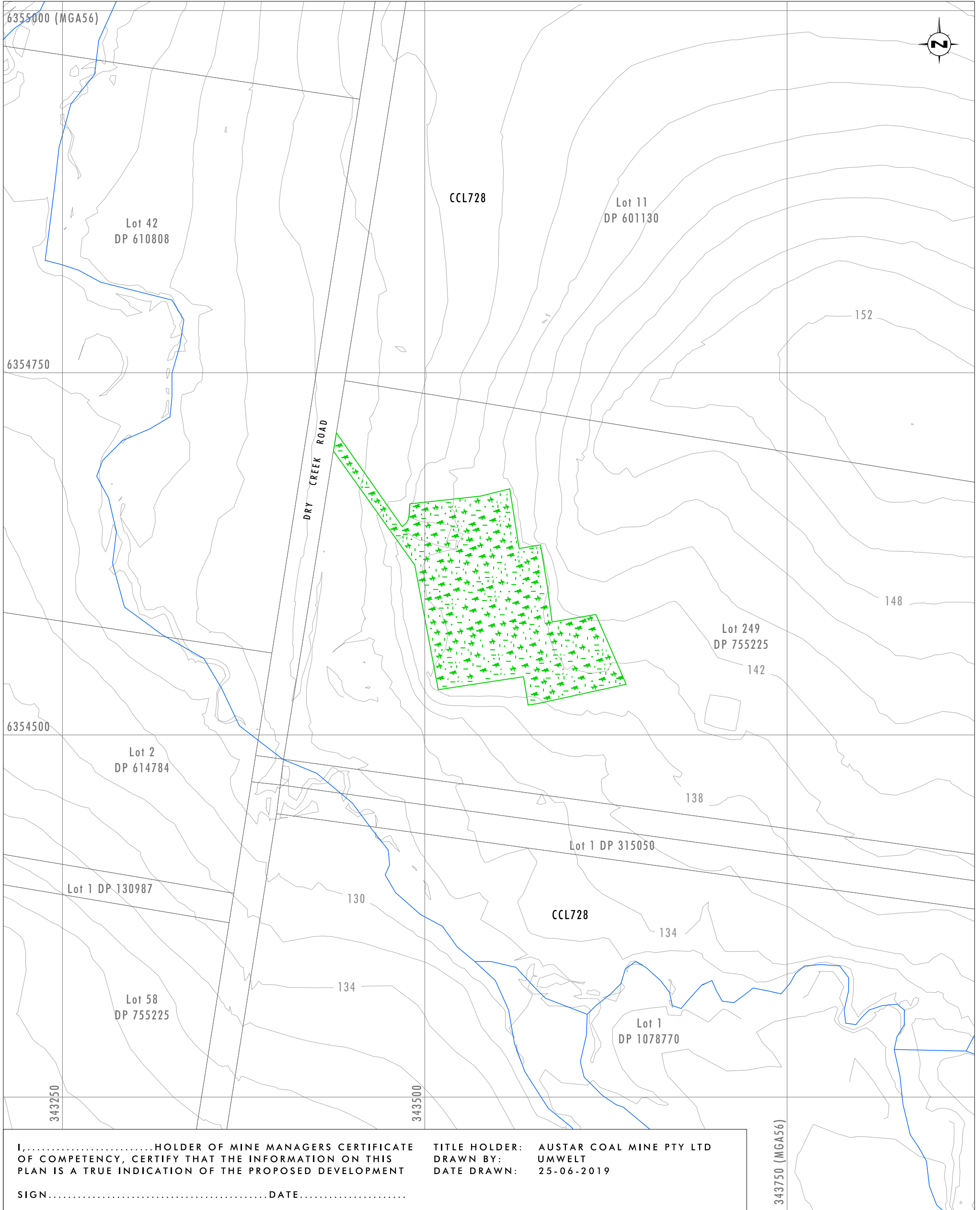
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 DRAWN BY: UMWELT  
 DATE DRAWN: 25-06-2019

Data Source: Austar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
 Note: 2m Contour Interval



- Legend**
- Mining Lease Boundary
  - Drainage Line
  - Contour Line
  - Cadastral Line
  - Secondary Domains
  - Rehabilitation Area - Grassland

**PLAN 4E**  
**Final Rehabilitation and**  
**Post Mining Land Use**  
**No.1 Shaft**

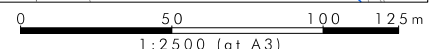


I,.....HOLDER OF MINE MANAGERS CERTIFICATE OF COMPETENCY, CERTIFY THAT THE INFORMATION ON THIS PLAN IS A TRUE INDICATION OF THE PROPOSED DEVELOPMENT

SIGN.....DATE.....

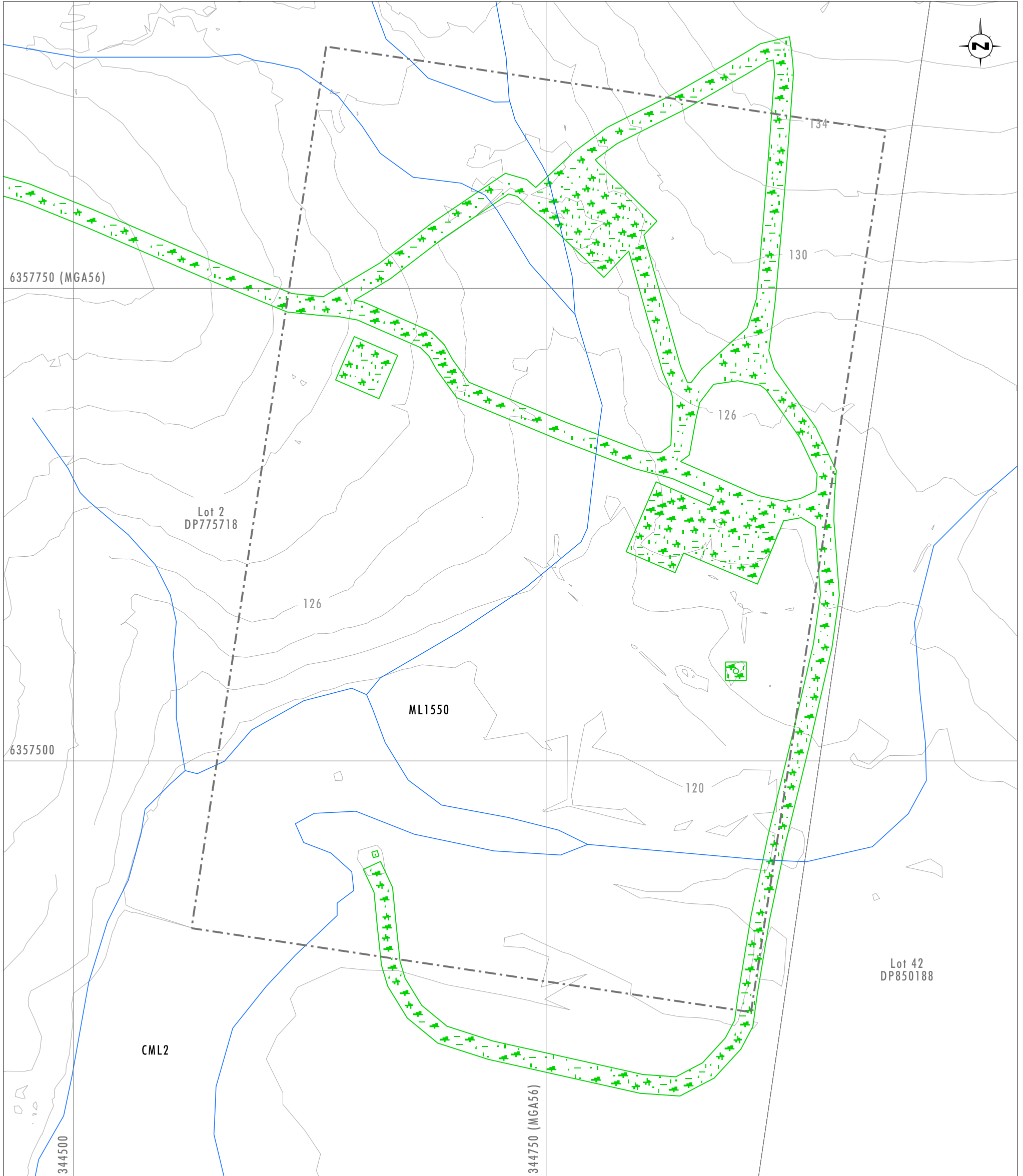
TITLE HOLDER: AUSTAR COAL MINE PTY LTD  
 DRAWN BY: UMWELT  
 DATE DRAWN: 25-06-2019

Data Source: Austar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
 Note: 2m Contour Interval



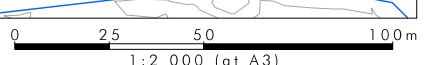
- Legend**
- Mining Lease Boundary
  - Drainage Line
  - Contour Line
  - Cadastral Line
  - Secondary Domains
  - Rehabilitation Area - Grassland

**PLAN 4F**  
**Final Rehabilitation and Post Mining Land Use**  
**No.2 Shaft**



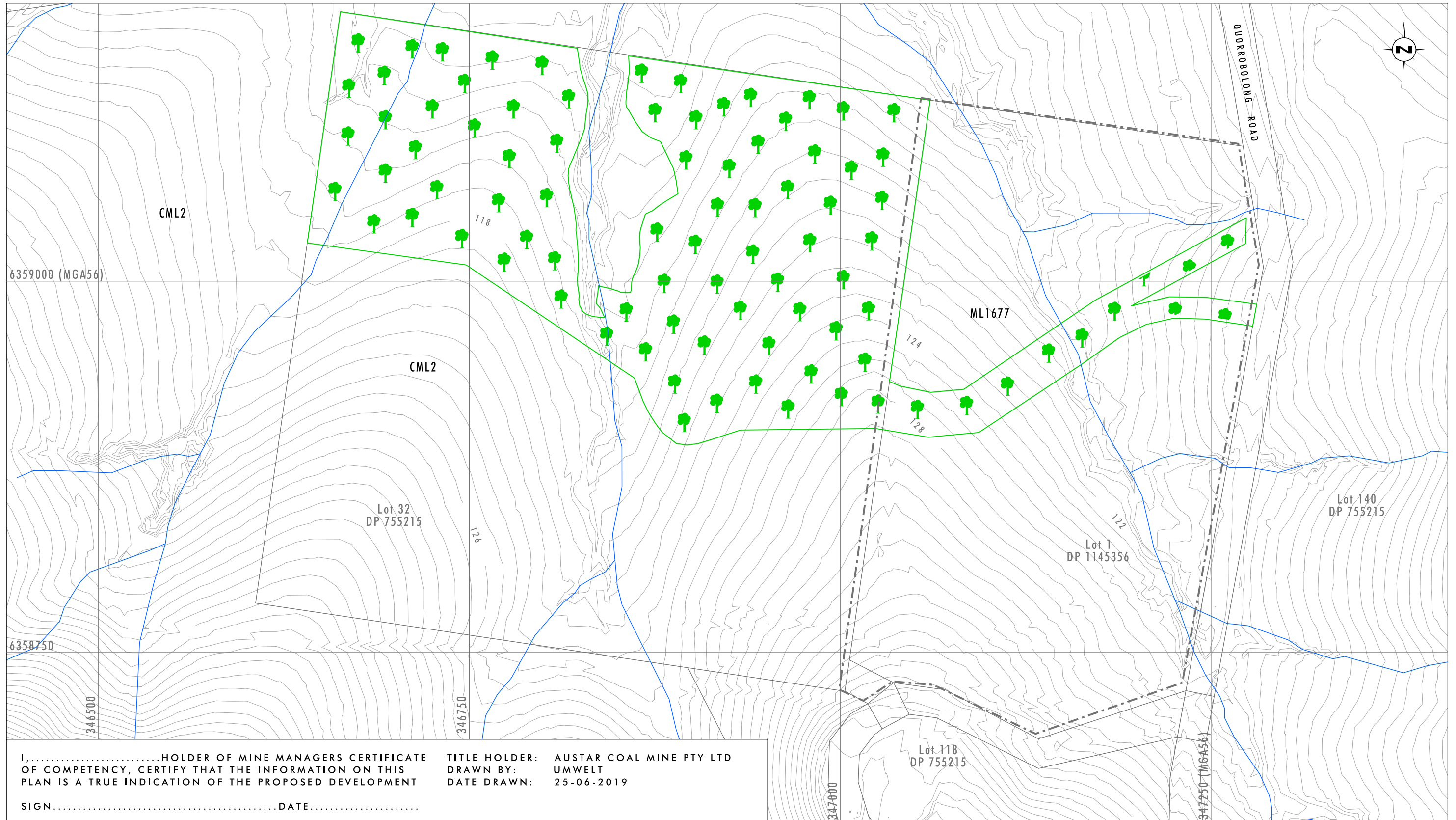
I, .....	HOLDER OF MINE MANAGERS CERTIFICATE	TITLE HOLDER:	AUSTAR COAL MINE PTY LTD
OF COMPETENCY, CERTIFY THAT THE INFORMATION ON THIS	PLAN IS A TRUE INDICATION OF THE PROPOSED DEVELOPMENT	DRAWN BY:	UMWELT
SIGN.....	DATE.....	DATE DRAWN:	25-06-2019

Data Source: Austar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
 Note: 2m Contour Interval



- Legend**
- Mining Lease Boundary
  - Drainage Line
  - Contour Line
  - Cadastral Line
  - Secondary Domains
  - Rehabilitation Area - Grassland

**PLAN 4G**  
**Final Rehabilitation and**  
**Post Mining Land Use**  
**No.3 Shaft**

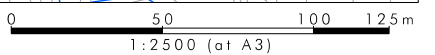


I, ..... HOLDER OF MINE MANAGERS CERTIFICATE OF COMPETENCY, CERTIFY THAT THE INFORMATION ON THIS PLAN IS A TRUE INDICATION OF THE PROPOSED DEVELOPMENT

SIGN..... DATE.....

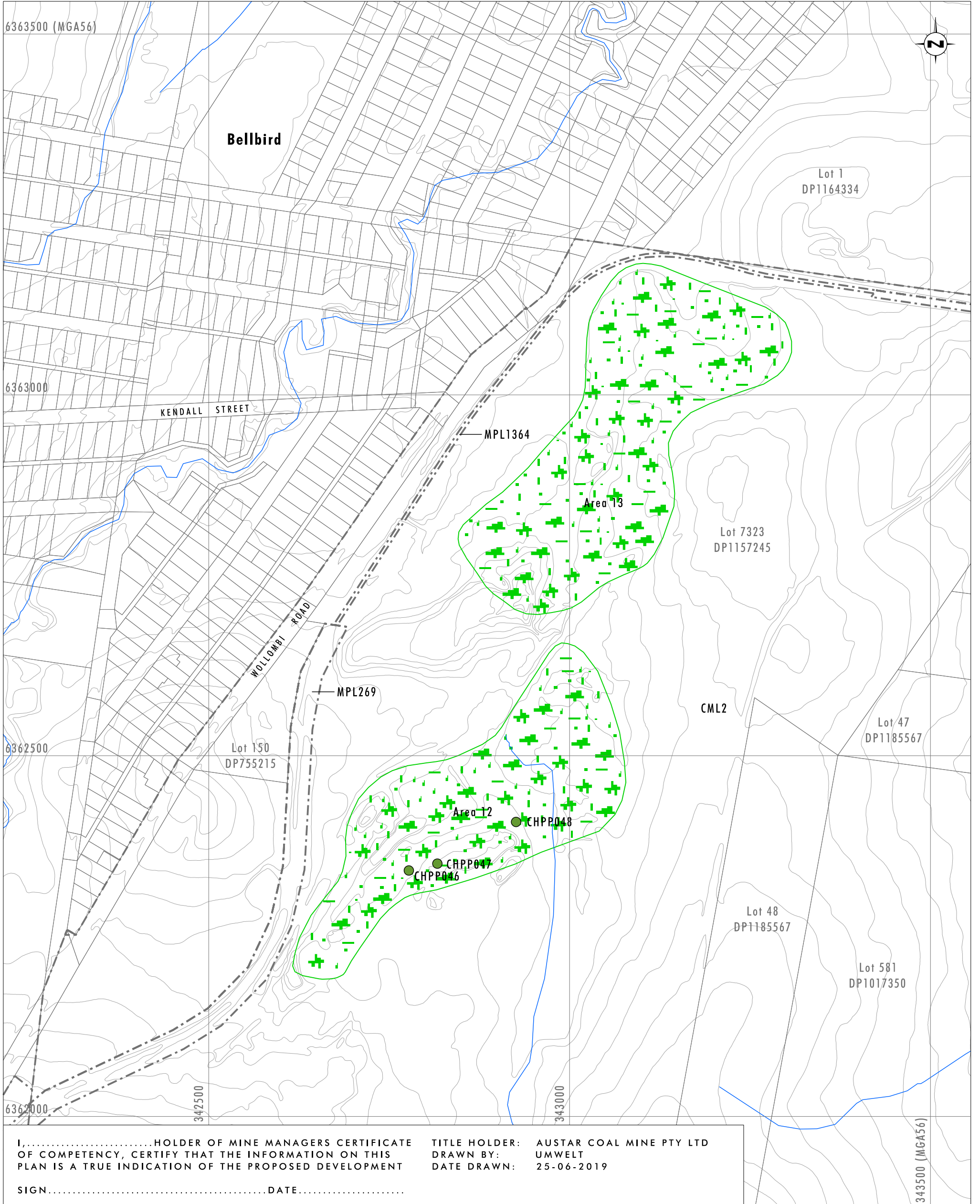
TITLE HOLDER: AUSTAR COAL MINE PTY LTD  
 DRAWN BY: UMWELT  
 DATE DRAWN: 25-06-2019

Data Source: Austar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
 Note: 1m Contour Interval



- Legend**
- Mining Lease Boundary
  - Drainage Line
  - Contour Line
  - Cadastre
  - Secondary Domains**
  - Rehabilitation Area - Forest

**PLAN 4H**  
**Final Rehabilitation and Post Mining Land Use**  
**Kitchener Infrastructure Area**



Data Source: Austar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
 Note: 2m Contour Interval

0 100 200 250m  
 1:5000 (at A3)

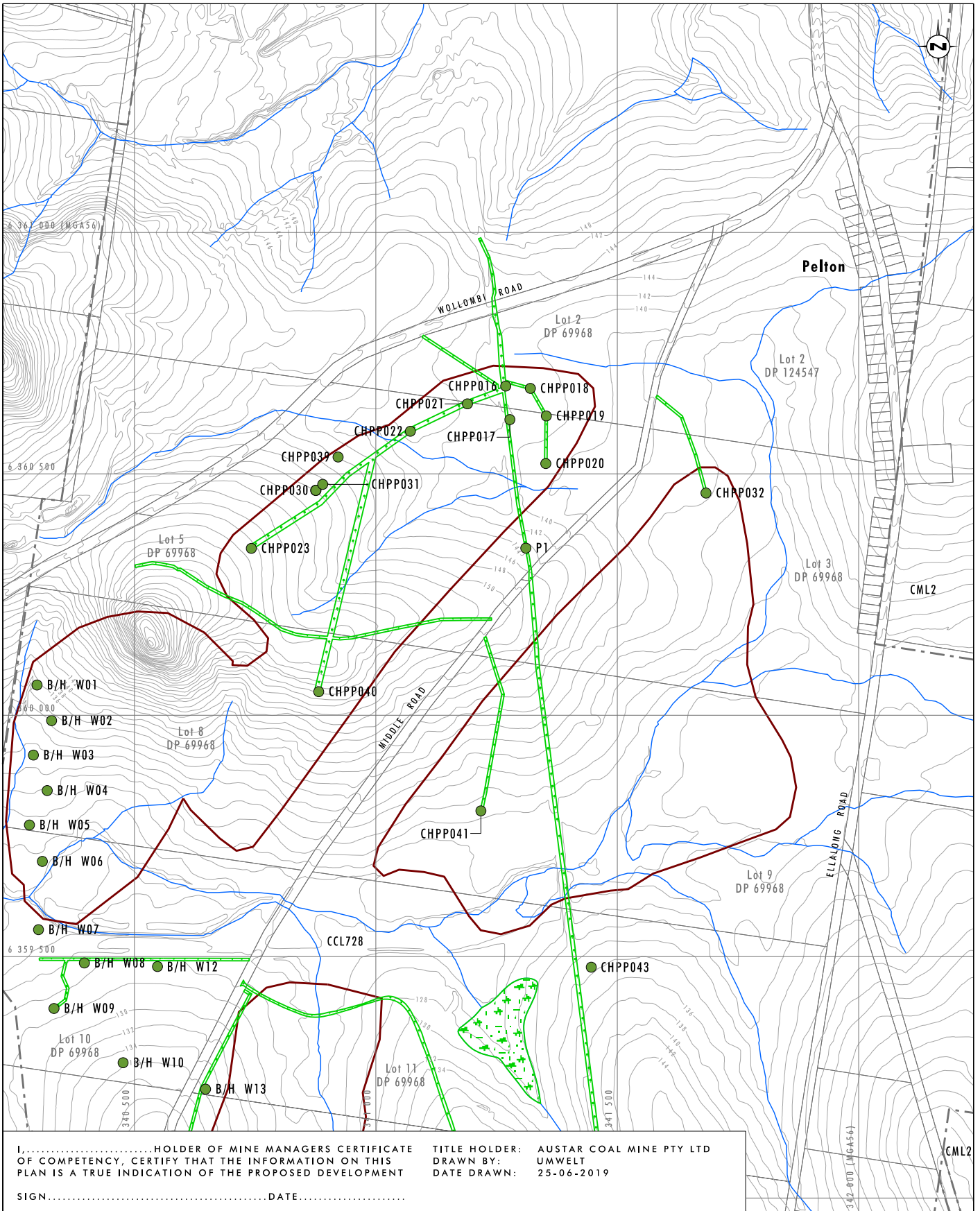
**Legend**

- Mining Lease Boundary
- Rehabilitated Borehole
- Drainage Line
- Contour Line
- Cadastral Line
- Secondary Domains
- Rehabilitation Area - Grassland

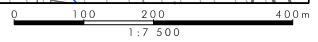
PLAN 41

**Final Rehabilitation and  
 Post Mining Land Use  
 Aberdare Emplacement Areas 12 and 13**





Data Source: Austar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
 Note: 2m Contour Interval

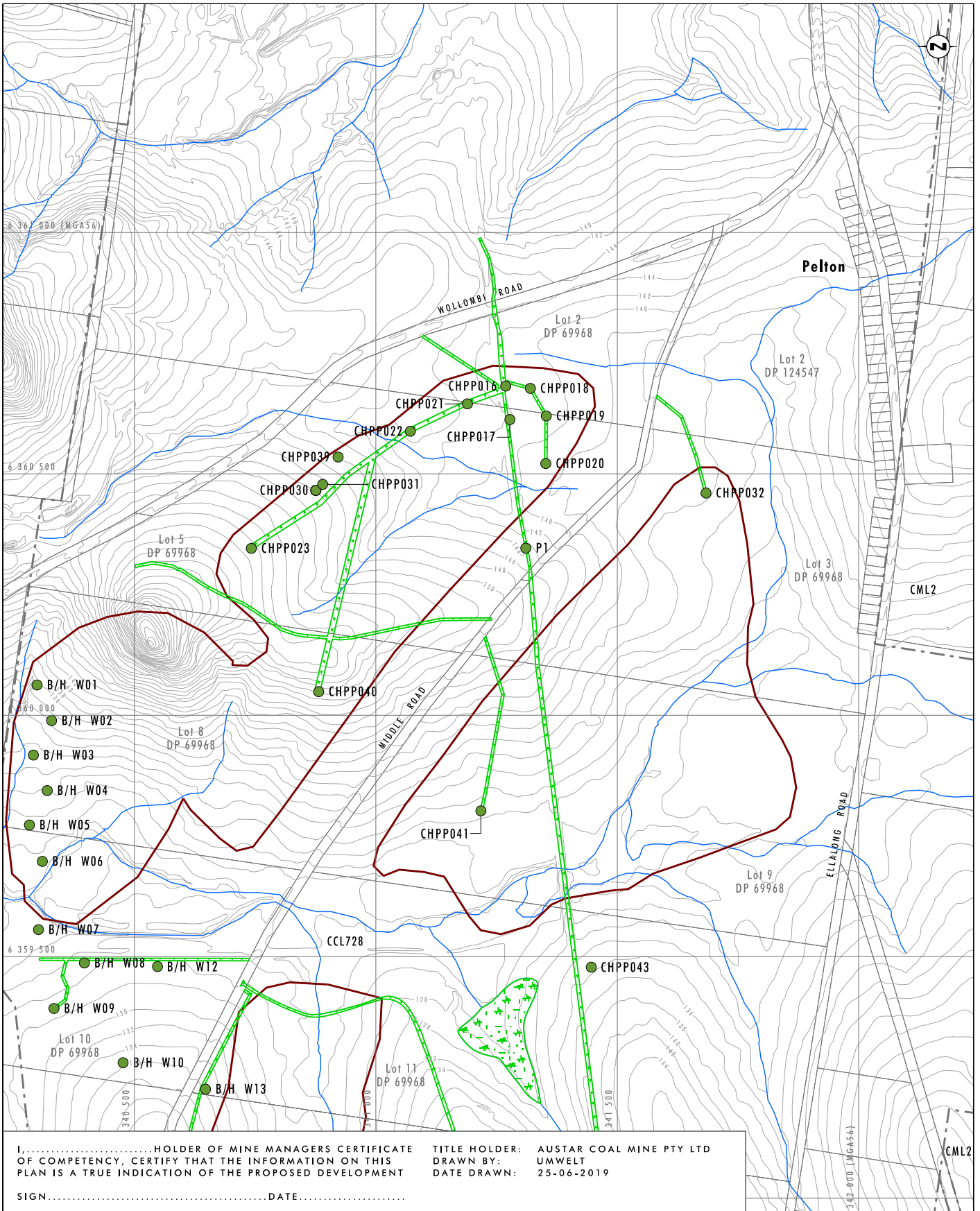


**Legend**

- ▭ Approved Reject Emplacement Area
- Mining Lease Boundary
- Rehabilitated Borehole
- Drainage Line
- Contour Line
- Cadastral Line
- Secondary Domains
- + + + Rehabilitation Area - Forest
- + + + Rehabilitation Area - Grassland

PLAN 4J

**Final Rehabilitation and Post Mining Land Use Tailings Boreholes Area**



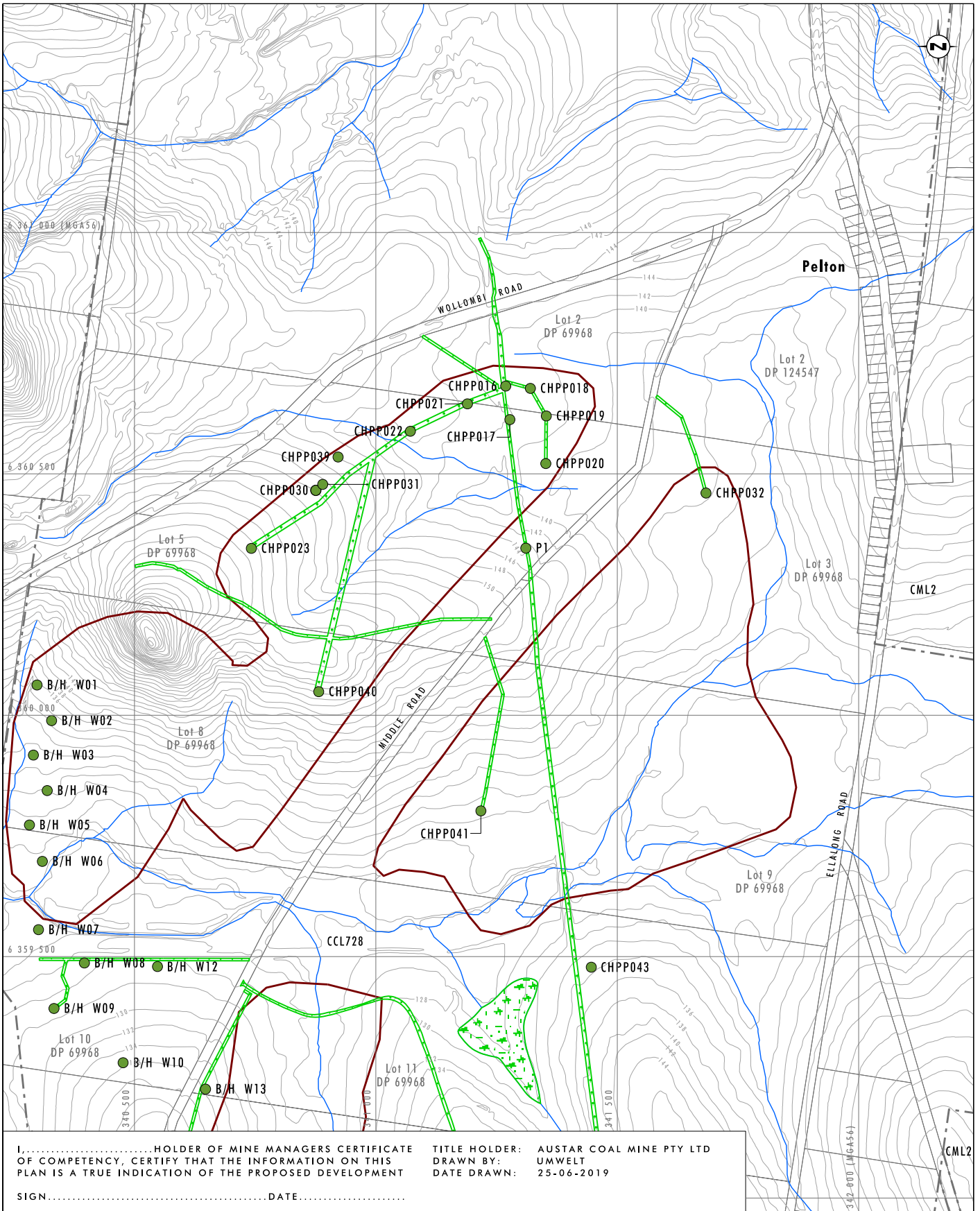
I, ..... HOLDER OF MINE MANAGERS CERTIFICATE OF COMPETENCY, CERTIFY THAT THE INFORMATION ON THIS PLAN IS A TRUE INDICATION OF THE PROPOSED DEVELOPMENT

SIGN..... DATE.....

TITLE HOLDER: AUSTAR COAL MINE PTY LTD  
 DRAWN BY: UMWELT  
 DATE DRAWN: 25-06-2019

Data Source: Austar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
 Note: 2m Contour Interval

- Legend**
- Approved Reject Emplacement Area
  - Mining Lease Boundary
  - Rehabilitated Borehole
  - Drainage Line
  - Contour Line
  - Cadastral Line
  - Secondary Domains
  - Rehabilitation Area - Forest
  - Rehabilitation Area - Grassland

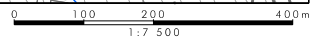


I, ..... HOLDER OF MINE MANAGERS CERTIFICATE OF COMPETENCY, CERTIFY THAT THE INFORMATION ON THIS PLAN IS A TRUE INDICATION OF THE PROPOSED DEVELOPMENT

SIGN..... DATE.....

TITLE HOLDER: AUSTAR COAL MINE PTY LTD  
 DRAWN BY: UMWELT  
 DATE DRAWN: 25-06-2019

Data Source: Austar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
 Note: 2m Contour Interval

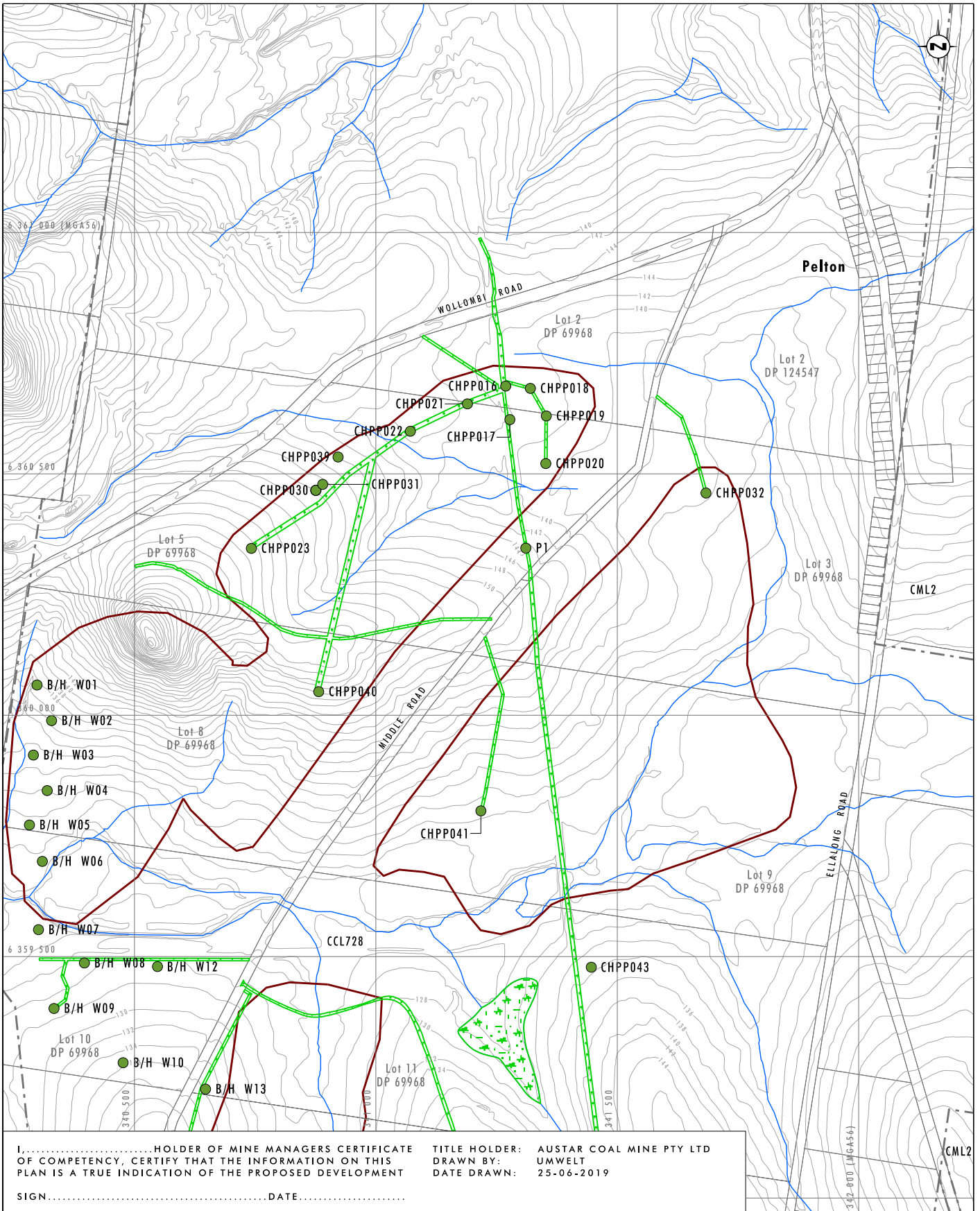


**Legend**

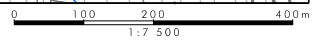
- Approved Reject Emplacement Area
- Mining Lease Boundary
- Rehabilitated Borehole
- Drainage Line
- Contour Line
- Cadastral Line
- Secondary Domains
- Rehabilitation Area - Forest
- Rehabilitation Area - Grassland

PLAN 4J

**Final Rehabilitation and Post Mining Land Use Tailings Boreholes Area**



Data Source: Austar Coal Mine (2015), Department of Finance, Services & Innovation (2017)  
 Note: 2m Contour Interval

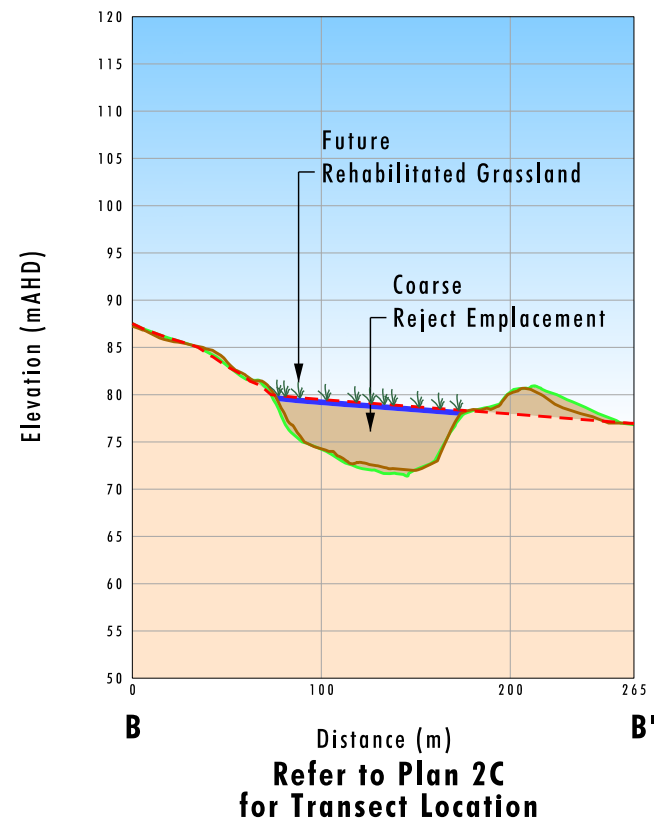
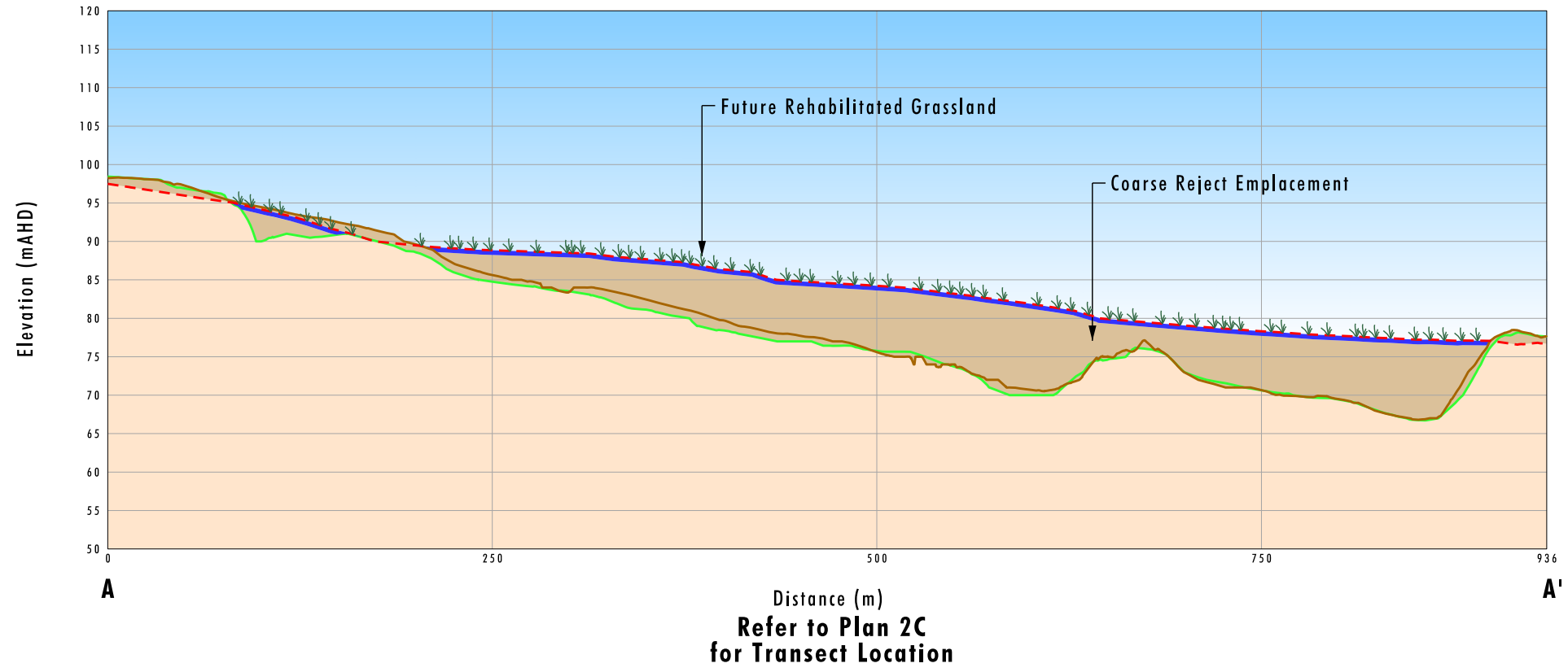


**Legend**

- ▭ Approved Reject Emplacement Area
- Mining Lease Boundary
- Rehabilitated Borehole
- Drainage Line
- Contour Line
- Cadastral Line
- ▭ Secondary Domains
- ▭ Rehabilitation Area - Forest
- ▭ Rehabilitation Area - Grassland

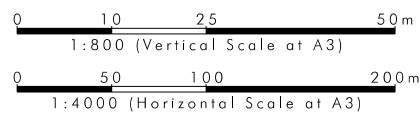
PLAN 4J

**Final Rehabilitation and  
 Post Mining Land Use  
 Tailings Boreholes Area**



**Legend**

- Existing Surface (2018)
  - Existing Surface (2012)
  - - - Final Landform
  - █ Minimum 600mm Capping Layer
- Note: Vertical Exaggeration 5:1



I, ..... HOLDER OF MINE MANAGERS CERTIFICATE OF COMPETENCY, CERTIFY THAT THE INFORMATION ON THIS PLAN IS A TRUE INDICATION OF THE PROPOSED DEVELOPMENT

SIGN..... DATE.....

TITLE HOLDER: AUSTAR COAL MINE PTY LTD  
 DRAWN BY: UMWELT  
 DATE DRAWN: 25-06-2019