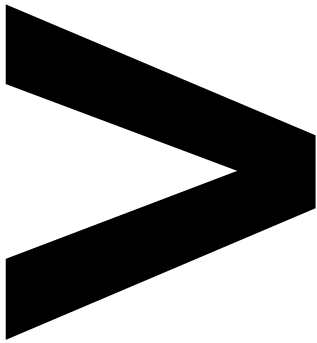




HUNTER VALLEY OPERATIONS

REHABILITATION MANAGEMENT PLAN

DOCUMENT NUMBER

HVOOC-1797567310-5041

STATUS

Approved

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4.0

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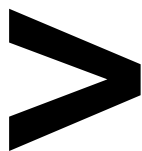
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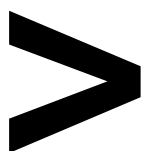
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OWNER

Environment and Community Coordinator



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Figure 1–Locality Plan**Figure 2–Site Layout****Figure 3–Land Ownership****Figure 4–Land Use**

1 | INTRODUCTION

This Rehabilitation Management Plan (RMP) outlines the proposed rehabilitation and final land use considerations at Hunter Valley Operations (HVO). HVO comprises Hunter Valley Operations North (HVO North) and Hunter Valley Operations South (HVO South). HVO North and HVO South are separated by the Hunter River and are located approximately 24 kilometres (km) north-west of Singleton in New South Wales (NSW) (see **Figure 1**).

HVO is owned by subsidiary companies of Yancoal and Glencore, as participants in the unincorporated HVO Joint Venture. The HVO Joint Venture is jointly controlled through a Joint Venture Management committee, with HV Operations Pty Ltd as the appointed manager. Coal & Allied Operations Pty Ltd (wholly owned subsidiary of Yancoal) holds 51% of interest in the Joint Venture, and Anotero Pty Ltd (wholly owned subsidiary of Glencore) holds 49%.

HVO North includes the Carrington Pit, West Pit (which includes the Mitchell Pit and Wilton Pit), North Pit Tailings Storage Facility (TSF), Dam 6W TSF, Cumnock Void TSF (under agreement with GCAA), Newdell Coal Preparation Plant (NCP), Hunter Valley Coal Preparation Plant (HVCPP), Howick Coal Preparation Plant (HCPP), and the stockpiling/train loading facilities at Newdell Load Point (NLP) and Hunter Valley Load Point (HVLP) (see **Figure 2**).

HVO South includes Cheshunt Pit, Riverview Pit and Lemington South Pit (see **Figure 2**).

This RMP has been prepared in accordance with the NSW Department of Regional NSW – Resources Regulator’s (RR) Form and Way: Rehabilitation management plan for large mines (2021). This document has also been developed to satisfy the requirements for a Rehabilitation Management Plan under Schedule 3, Condition 36 of Project Approval PA 06_0261 for HVO South.

1.1 | HISTORY OF OPERATIONS

The history of mining at HVO is summarised in **Table 1.1** to **Table 1.6**

Table 1.1 West Pit Development, Mining and Associated Approvals

Year	Details
1949	Mining in the area around West Pit commenced when the operating arm of the Joint Coal Board, the New South Wales Mining Company, started mining leases at Foybrook Open Cut. The New South Wales Mining Company subsequently constructed the NCP.
1952	Mining at West Pit (which was then known as Howick) commenced when Construction Pty Limited, under contract to the New South Wales Mining Company started operating on the Howick lease in the Pikes Gully Cut.
1968-1974	Title to some of the Howick lease was granted to Clutha Development Pty Limited in 1968 with additional titles granted in 1973 and 1974. A dragline operation started in 1971.
1981	Operations purchased by BP Coal.
1986	Approval granted to increase production at West Pit to 3.5 Mtpa of ROM coal and construct the HCPP to supply coal to the Bayswater and Liddell Power Stations as well as other domestic markets.
1989	An extension towards the south-east was granted with a corresponding increase to 7 Mtpa. At the end of 1989, the operation was purchased by Kembla Coal and Coke, a wholly owned subsidiary of Conzinc Rio Tinto of Australia Ltd (CRA), and operated by Novacoal, a newly established business unit of CRA.

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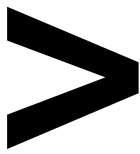
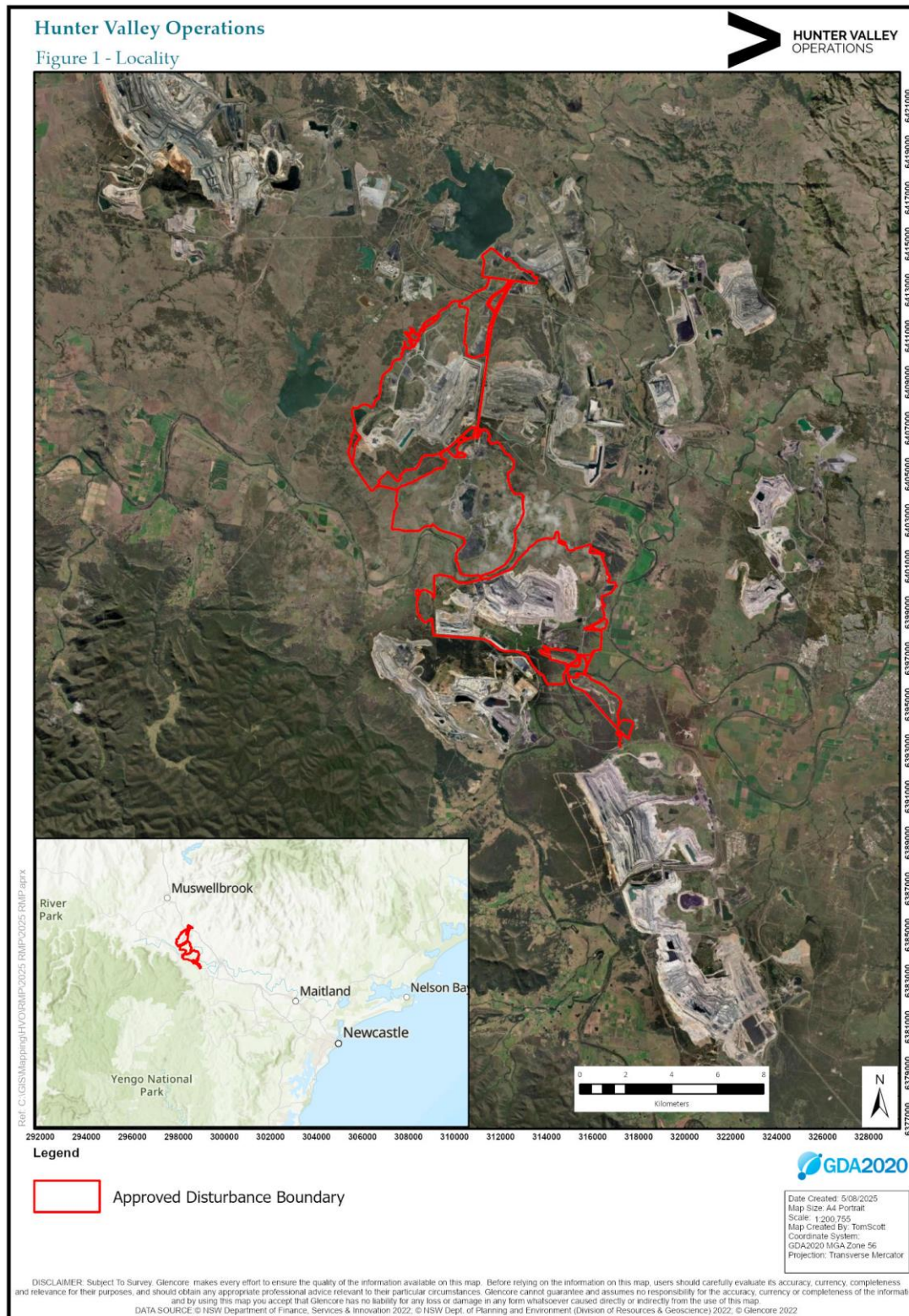


Figure 1-Locality



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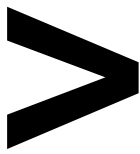
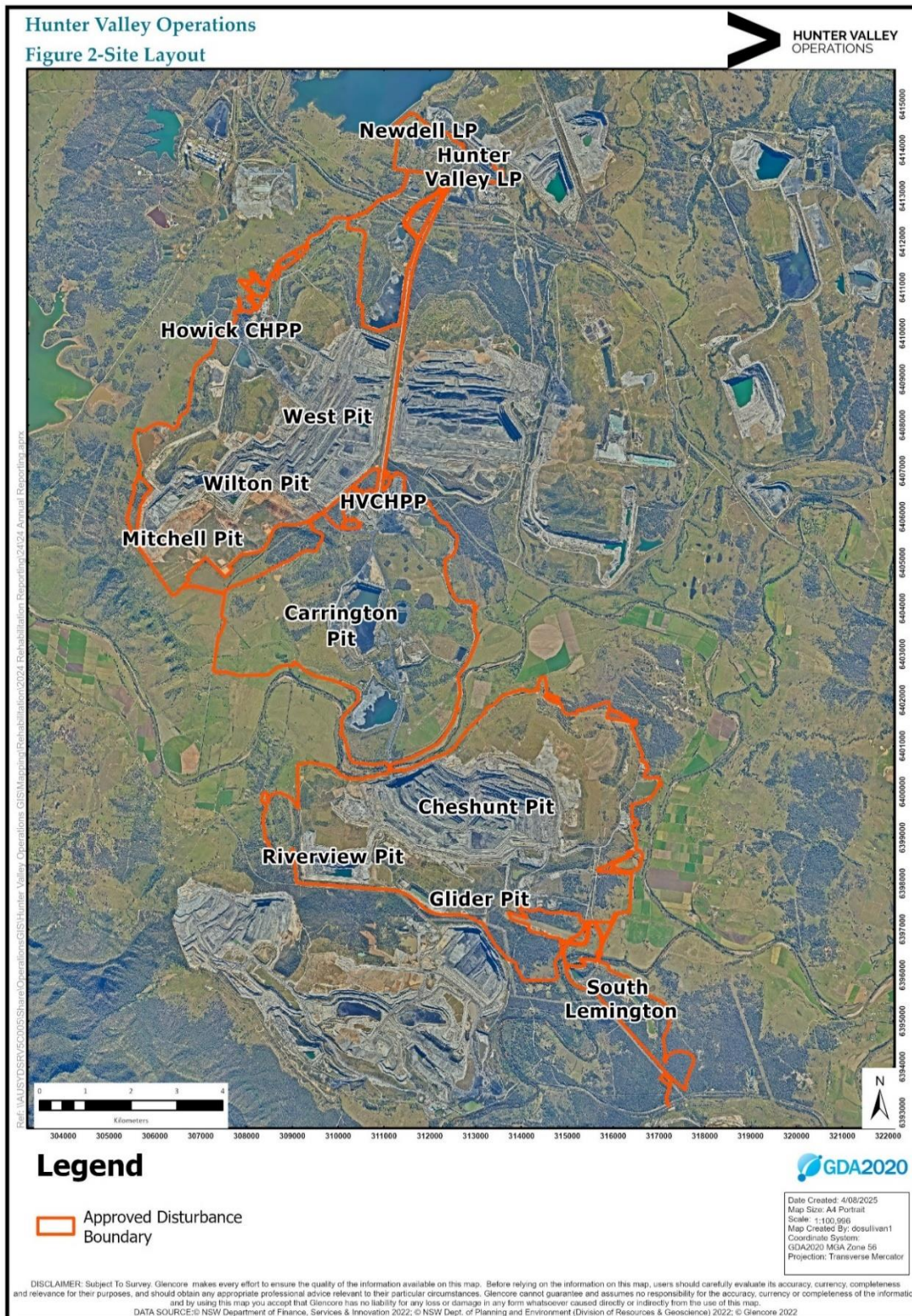


Figure 2-Site Layout



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Table 1.2-West Pit Development, Mining and Associated Approvals

Year	Details
1996	Consent was granted for the Howick Coal Mine Expansion Project which included mining Mitchell Pit located to the south west of the original mine. This consent allowed coal production to increase to 12 Mtpa ROM coal and also allowed augmentation of the HCPP and construction of a conveyor to NCPP.
1998	Novacoal and Coal & Allied merged and West Pit became part of HVO.
2000	Consent issued for construction of Western Haul Road and bridge over Lemington Road. Modification to the 1996 consent to permit the transport of up to 8 Mtpa of coal from West Pit to HVCPP. NCPP ceased operations with disused parts of NCPP placed on a care and maintenance plan. Newdell coal receipt, stockpiling and train loading facilities continued to be used for coal from HCPP.
2004	Development Consent DA 450-10-2003 granted for HVO North – West Pit Extension and Minor Modifications. For an extension of existing operations at West Pit, increased production capacity at Carrington Pit and consolidation of 15 existing development approvals.
2016	Commonwealth approval EPBC 2016/7640 granted for vegetation clearing in areas with previous State approvals. Modification to consent DA 450-10-2003 granted for HVL sediment basin and HVO North Communications Towers.
2017	Modification to consent DA 450-10-2003 granted to amend the development consent boundary.
2025	Modification to consent DA 450-10-2003 to extend the approved limit on mining in West Pit until 31 December 2026.

Table 1.3-Carrington Pit Development, Mining and Associated Approvals

Year	Details
1991	Coal & Allied granted original exploration Authorisation (AUTH) 435, covering the Carrington Pit Area.
1997	Exploration Licence (EL) 5417 granted to determine extent of coal seam to the west.
1997	EL 5418 granted to test and monitor groundwater to the south-east.
1999	Exploration boundaries have been extended to the north into Mining Lease (ML) 1428, joint venture with Howick Coal.
2000	Development Consent DA 106-6-99 granted for Carrington Pit.
2004	Carrington Pit integrated into West Pit Extension and Minor Modifications consent, DA 450-10-2003.
2006	Statement of Environmental Effects (SEE) for extension to Carrington Pit approved by the former NSW Department of Planning.
2013	Modification to consent DA 450-10-2003 granted for Carrington West Wing (CWW) Extension (CWW Extension will not commence during RMP term).
2014	Modification to consent DA 450-10-2003 granted for HVO North Fine Reject Emplacement.
2017	Modification to consent DA 450-10-2003 granted for HVO North Carrington In-pit Fine Reject Emplacement.
2017	Modification to consent DA 450-10-2003 granted to amend the development consent boundary.
2019	In-pit tailings commenced at Carrington Pit.

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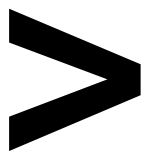


Table 1.4-North Pit Development, Mining and Associated Approvals

Year	Details
1979	Coal production commenced at Hunter Valley No. 1 Mine following the granting of Coal Lease (CL) 193 over an area of approximately 992 hectares (ha). Initial coal production was 1.5 Mtpa. All coal was washed in Liddell CHPP.
1980	Approved production was increased to 4 Mtpa. Construction of HVCPP.
1991	Operations commenced in the former Hunter Valley No. 2 Mine (now known as Cheshunt/Riverview Pit) on the southern side of the Hunter River, with all coal being transported to HVCPP via a dedicated bridge over the Hunter River (constructed in 1990).
1991	Mining commenced in the Southern Extension Area (200 ha) with the granting of Consolidated Coal Lease (CCL) 755 including revocation of CL 193. Production was increased to 6.4 Mtpa.
1995	Mining commenced in the ALRP with an average continued production of 4 Mtpa in the combined North Pit operations.
2003	Approved to receive tailings.
2004	North Pit integrated into West Pit Extension and Minor Modifications consent – DA 450-10-2003.
2017	Modification to consent DA 450-10-2003 granted to amend the development consent boundary.
2018	The receipt of tailings to the North Pit TSF ceased.

Table 1.5- Cheshunt and Riverview Pits Development, Mining and Associated Approvals

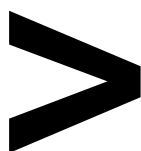
Year	Details
1986	Approval gained for Hunter Valley No. 2 Mine.
1990	Approval granted for Western out of pit emplacement of overburden in conjunction with development of Hunter Valley No. 2 Mine, rescheduling of mining of Riverview Pit and permanent re-alignment of Jerrys Plains Road.
1997	Approval granted for small extension (56 ha) to the south west of South Mine (formerly Hunter Valley No. 2 Mine) to re-orientate mining strips to increase mining efficiency.
2000	Approval granted to increase rate of mining to 8 Mtpa and development of the Cheshunt Pit with mining to progress south west through Riverview Pit; out of pit emplacement of overburden on the Lemington Mine site; and overland conveyor from HVO South to HVCPP (not yet commenced).
2001	Modification to approval to allow change in mining schedule to seven day operations from year one rather than year nine.
2002	Approval granted for altered mine plan including concurrent mining at Cheshunt and Riverview Pits; operation of dragline at Riverview Pit; and haulage of coal from Cheshunt and Riverview Pits to either or both the Lemington Coal Preparation Plant (LCPP) or the HVCPP.
2006	Approval granted for extension of open cut coal mining from the Cheshunt Pit through the Barry Property enabling the extraction of approximately 8 Mtpa of ROM coal; and extension of open cut coal mining to the south west of the Riverview Pit.

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Year	Details
2009	PA 06_0261 was granted to replace all existing HVO South approvals and to allow: Extension of open cut and highwall mining (increasing the approved mining surface disturbance footprint by 250 hectares); Mining of all coal seams within HVO South to unlimited depth; Mining up to 16 Mtpa ROM coal by a combination of draglines, shovels, excavators and associated haul trucks; Modification, upgrades and / or reconstruction of existing infrastructure including increase of processing capacity of the Lemington Coal Preparation Plant to 16 Mtpa, additional stockpiles and new coal loading infrastructure; and relocation of Comleroi Road and other infrastructure across HVO South; Infrastructure to facilitate transfer of product coal to the Wambo rail spur via either a rail spur and loop, overland conveyor (OLC) or trucks, or any combination; The full integration of operations at HVO South related to new activities as well as upgrades and modifications to approved operations, mining and processing rates, equipment use and relocation, water, reject and tailings disposal and coal handling; and Relocation or reconfiguration of the Hunter Valley Gliding Club (HVGC) airstrip and facilities (if agreed with the Club), to accommodate the integration of the Riverview Pit with South Lemington Pit 2. Subsequent modification to approval to allow raising of Lake James Dam.
2012	Modification to approval to allow transfer of biodiversity offset for HVO South from Archerfield to Goulburn River Biodiversity Area.
2016	Commonwealth approval EPBC 2016/7640 granted for vegetation clearing in areas with previous State approvals.
2018	Modification to the State development consent to enable: Cheshunt Pit to progress and extract the Bayswater Seam below Riverview Pit by open cut methods; Amendment to the approved overburden emplacement strategy to enable an 80m increase in height in some areas up to a maximum height of 240m Australian Height Datum AHD; Increase the rate of extraction to 20 Mtpa ROM coal; and Update the Statement of Commitments within PA 06_0261 to remove redundant commitments and conditions or those inconsistent with measures prescribed in the approved management plans.
2021	Modification to State development consent to enable onsite manufacturing of Ammonium Nitrate Emulsion.
2022	Modification to State development consent to enable storage of water in the Lemington Underground Workings.
2023	Modification to State development consent to enable the construction of an Ammonium Nitrate Storage Facility.

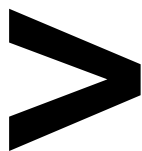
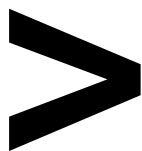


Table 1.6- Cheshunt and Riverview Pits Development, Mining and Associated Approvals

Year	Details
1971	Approval gained to establish open cut mine and No. 1 underground mining complex with 1 Mtpa ROM coal limit; and construct LCPP No. 1
1976	Approval granted to extend mining into No. 2 underground mining complex area and increase ROM coal to 2 Mtpa; and construct second LCPP rated at 440 tph of ROM coal.
1980	Approval granted to extend open cut and underground mining operations within Buchanan-Lemington Colliery; construct haul road from South Lemington to Lemington across Wollombi Brook; and increase capacity of LCPP No. 2 to 660 tph ROM coal.
1981	Approval gained to increase product coal production to 3 Mtpa.
1985	Approval gained to allow northern extension of open cut mining within Buchanan-Lemington Colliery Holding; and north west extension of Lemington Mine.
1987	LCPP No. 1 closed and decommissioned
1993	Approval granted to install a coarse reject transport conveyor to facilitate filling and progressive rehabilitation of underground mine No. 2 portal using coarse reject from LCPP (over 4-5 years).
1998	Approval granted to establish mining in South Lemington – two open cut pits, a scraper slot and trench, supplemented by highwall mining operations to 0.6 Mtpa product; total combined product limit of 3 Mtpa; and removal of 82 ha of Warkworth Sands Woodland (not listed under the former Threatened Species Conservation Act (TSC Act) at that time). South Lemington Pit 2, scraper slot and trench and highwall mining have not yet commenced.
1999	Approval gained to increase production to 3.5 Mtpa of product coal (North Lemington to 2.9 Mtpa and South Lemington to 0.6 Mtpa).
2001	Approval gained to increase saleable production to 4.4 Mtpa (North Lemington to 3.2 Mtpa and South Lemington to 1.2 Mtpa). Mining in South Lemington Pit 1 suspended. Approval granted for temporary crossings of Wollombi Brook to allow dragline and electric shovel relocation.
2003	Coal processing at LCPP No. 2 suspended and plant placed into care and maintenance.
2011	Infrastructure removal and site decontamination completed for LCPP No. 2.
2018	Modification to the State development consent to enable the South Lemington Pit 2 to mine to the base of the Vaux Seam below the Bowfield Seam.



1.2 | CURRENT DEVELOPMENT CONSENTS, LEASES AND LICENCES

1.2.1 | REGULATORY REQUIREMENTS

Table 1.7 summarises the development consents and modification history, including key features approved. Additionally, HVO holds an Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) Approval for the clearing of 61 ha of Central Hunter Valley Eucalypt Forest (CHVEF).

Table 1.7 Development Consents

Consent	Details	Issue Date	Expiry Date
HVO North			
DA 450-10-2003	West Pit Extension	12 June 2004	12 June 2025
	MOD 1 — S96(1A) modification of West Pit Extension – Upgrade of Hunter Valley Loading Point	16 August 2005	
	MOD 2 — Carrington Pit Extension	25 June 2006	
	MOD 3 — CWW Modification	19 March 2013	
	MOD 4 — HVO North Fine Reject Emplacement Modification	16 January 2014	
	MOD 5 — HVLP Sediment Basin and HVO North Communication Towers	9 December 2016	
	MOD 6 — Fine Rejects Carrington In-Pit	25 January 2017	
	MOD 7 — Extension of mining at West Pit	28 July 2017	
	MOD 8 — Extension of mining at West Pit	24 April 2025	31 December 2026
HVO South			
PA 06_0261	Granted to replace all existing HVO South approvals	24 March 2009	24 March 2030
	MOD 1 – Amending approval boundary and discharge at Lake James	17 December 2009	
	MOD 2 – Biodiversity offset amendments	3 February 2012	
	MOD 3 – Goulburn River biodiversity offset area amendments	31 October 2012	
	MOD 4 – Goulburn River biodiversity offset area amendments	31 October 2012	
	MOD 5 – Extend mining of Cheshunt Pit into Riverview Pit and down to Vaux Seam at South Lemington Pit 2	28 February 2018	
	MOD 6 – Manufacture of Ammonium Nitrate Emulsion	26 November 2021	
	MOD 7 – Storage of Water in Lemington Underground Workings	27 May 2022	
	MOD 8 – Construction of an Ammonium Nitrate Storage Facility	6 February 2023	

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Consent	Details	Issue Date	Expiry Date
HVO North and South			
EPBC 2016/7640	State Approved Mining	10 October 2016	31 December 2030

1.2.1.1 | DEVELOPMENT CONSENTS

As described above, this document has been prepared to satisfy the requirement for a Rehabilitation Management Plan in the standard mining lease conditions and the conditions of PA 06_0261. Following the approval of HVO North DA 450-10-2003 Mod 8, the requirement to develop an RMP was replaced with the requirement for a Rehabilitation Strategy which will be prepared as a separate document to this RMP. This document also satisfies the requirement for the Landscape and Rehabilitation Management Strategy (Condition 32), and flora and fauna procedures (parts of Condition 35) within the HVO North development consent (DA 450-10- 2003)

Relevant regulatory requirements under the HVO North and South Development Consents can be seen below in **Table 1.8** and **Table 1.9**.

Table 1.8- Regulatory Requirements PA 06_0261

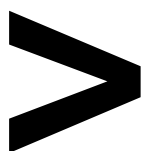
Consent Requirement		Section within this document																				
Schedule 3 Condition 34	The Applicant must rehabilitate the site progressively, that is, as soon as reasonably practicable following disturbance. All reasonable steps must be taken to minimise the total area exposed at any time. Interim stabilisation and temporary vegetation strategies must be employed when areas prone to dust generation, soil erosion and weed incursion cannot be permanently rehabilitated.	6																				
Schedule 3 Condition 35	The Applicant must rehabilitate the site in accordance with the provisions under the Mining Act 1992 and must be generally consistent with the proposed rehabilitation activities described in the documents listed in condition 2 of Schedule 2 (and shown conceptually in the figure in Appendix 6), and comply with the objectives in Table 16. <i>Table 16: Rehabilitation Objectives</i> <table><tr><th>Feature</th><th>Objective</th></tr><tr><td>All areas of the site affected by the development</td><td> • Safe, stable and non-polluting • Fit for the intended post-mining land use/s </td></tr><tr><td>Areas proposed for native ecosystem re-establishment</td><td> • Establish self-sustaining native woodland ecosystems characteristic of vegetation communities found in the local area </td></tr><tr><td>Areas proposed for agricultural land</td><td> • Establish/restore grassland areas to support sustainable agricultural activities • Achieve the nominated land capability classification </td></tr><tr><td>Final Landform</td><td> • Stable and sustainable for the intended post-mining land use/s • Integrated with surrounding natural landforms • Incorporate micro-relief and drainage lines that are consistent with surrounding topography, to the greatest extent practicable • Maximise surface water drainage to the natural environment (excluding final void catchment) • Protect and maintain, to the greatest extent practicable, existing views of the Wolllemi National Park and associated escarpments for residences of Maison Dieu </td></tr><tr><td>Final void</td><td> • Designed as long term groundwater sink to maximise ground water flows across backfilled pits to the final void • Minimise to the greatest extent practicable: – the size and depth of final voids; – the drainage catchment of final voids; – any high wall instability risk; and – the risk of flood interaction </td></tr><tr><td>Surface infrastructure of the development</td><td> • Decommissioned and removed, unless the Resources Regulator agrees otherwise </td></tr><tr><td>Rehabilitation materials</td><td> • Materials from areas disturbed under this consent (including topsoils, substrates and seeds) are to be recovered, managed and used as rehabilitation resources, to the greatest extent practicable </td></tr><tr><td>Water quality</td><td> • Water retained on the site is fit for the intended post-mining land use/s • Water discharged from the site is suitable for receiving waters and fit for aquatic ecology and riparian vegetation </td></tr><tr><td>Community</td><td> • Ensure public safety • Minimise adverse socio-economic effects associated with mine closure </td></tr></table>	Feature	Objective	All areas of the site affected by the development	• Safe, stable and non-polluting • Fit for the intended post-mining land use/s	Areas proposed for native ecosystem re-establishment	• Establish self-sustaining native woodland ecosystems characteristic of vegetation communities found in the local area	Areas proposed for agricultural land	• Establish/restore grassland areas to support sustainable agricultural activities • Achieve the nominated land capability classification	Final Landform	• Stable and sustainable for the intended post-mining land use/s • Integrated with surrounding natural landforms • Incorporate micro-relief and drainage lines that are consistent with surrounding topography, to the greatest extent practicable • Maximise surface water drainage to the natural environment (excluding final void catchment) • Protect and maintain, to the greatest extent practicable, existing views of the Wolllemi National Park and associated escarpments for residences of Maison Dieu	Final void	• Designed as long term groundwater sink to maximise ground water flows across backfilled pits to the final void • Minimise to the greatest extent practicable: – the size and depth of final voids; – the drainage catchment of final voids; – any high wall instability risk; and – the risk of flood interaction	Surface infrastructure of the development	• Decommissioned and removed, unless the Resources Regulator agrees otherwise	Rehabilitation materials	• Materials from areas disturbed under this consent (including topsoils, substrates and seeds) are to be recovered, managed and used as rehabilitation resources, to the greatest extent practicable	Water quality	• Water retained on the site is fit for the intended post-mining land use/s • Water discharged from the site is suitable for receiving waters and fit for aquatic ecology and riparian vegetation	Community	• Ensure public safety • Minimise adverse socio-economic effects associated with mine closure	1 1.2.1.2 2.2 4.1 5
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All areas of the site affected by the development	• Safe, stable and non-polluting • Fit for the intended post-mining land use/s																					
Areas proposed for native ecosystem re-establishment	• Establish self-sustaining native woodland ecosystems characteristic of vegetation communities found in the local area																					
Areas proposed for agricultural land	• Establish/restore grassland areas to support sustainable agricultural activities • Achieve the nominated land capability classification																					
Final Landform	• Stable and sustainable for the intended post-mining land use/s • Integrated with surrounding natural landforms • Incorporate micro-relief and drainage lines that are consistent with surrounding topography, to the greatest extent practicable • Maximise surface water drainage to the natural environment (excluding final void catchment) • Protect and maintain, to the greatest extent practicable, existing views of the Wolllemi National Park and associated escarpments for residences of Maison Dieu																					
Final void	• Designed as long term groundwater sink to maximise ground water flows across backfilled pits to the final void • Minimise to the greatest extent practicable: – the size and depth of final voids; – the drainage catchment of final voids; – any high wall instability risk; and – the risk of flood interaction																					
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Water quality	• Water retained on the site is fit for the intended post-mining land use/s • Water discharged from the site is suitable for receiving waters and fit for aquatic ecology and riparian vegetation																					
Community	• Ensure public safety • Minimise adverse socio-economic effects associated with mine closure																					

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Consent Requirement		Section within this document
Schedule 3 condition 36	The Applicant must prepare a Rehabilitation Management Plan for the development in accordance with the provisions under the <i>Mining Act 1992</i> , and carry out the development in accordance with this plan. This plan must:	1 12.1
	(a) be prepared by suitably qualified expert/s;	
	(b) be prepared in consultation with the Department, DPE Water, and Council by a suitably qualified and experienced person/s;	4.2.2 12.1
	(c) be submitted for approval within 3 months of the determination of Modification 5, unless otherwise approved by the Planning Secretary;	N/A
	(d) be prepared in accordance with any relevant Resources Regulator Guideline;	1
	(e) describe how the rehabilitation of the site would achieve the objectives identified in Table 16 and be integrated with the measures in the Biodiversity Management Plan;	4.1 6.3.1.2
	(f) include detailed performance and completion criteria for evaluating the performance of progressive and final rehabilitation and include triggers for remedial action, where these performance or completion criteria are not met;	4.1 10.2
	(g) describe the measures to be implemented to meet the performance and completion criteria, to ensure compliance with the relevant conditions of this consent and to address all aspects of rehabilitation including mine closure, final landform (including the final void), final land use/s, and water management in the final landform;	6 7
	(g) include procedures for the use of interim stabilisation and temporary vegetation strategies, where reasonable to minimise exposed areas;	6.3.3.6
	(h) include a program to monitor, independently audit and report on the effectiveness of the rehabilitation measures, and progress against the performance and completion criteria;	8 9
	(i) identify the potential risks to the successful implementation of rehabilitation, and include a description of the contingency measures to be implemented to mitigate against these risks; and	3
	(j) include details of who would be responsible for monitoring, reviewing, and implementing the plan.	11.3

Table 1.9- Regulatory Requirements DA 450-10-2003

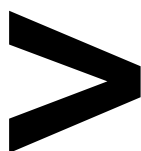
Consent Requirement		Section within this document
Schedule 3 condition 28	At least 5 years before the cessation of open cut coal extraction that will result in the creation of a final void, or as otherwise agreed with the Secretary, the Applicant must prepare a Final Void Management Plan for each void, in consultation with Resources Regulator and Water Group, and to the satisfaction of the Secretary.	Addressed in the HVO Final Void Management Plan
	Each plan must:	
	assess locational, design and future use options;	Addressed in the HVO Final Void Management Plan
	be integrated with the Water Management Plan and the Rehabilitation Management Plan;	5

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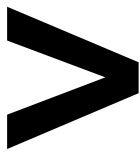
	Consent Requirement	Section within this document
	assess short term and long term groundwater and other impacts associated with each option; and	Addressed in the HVO Final Void Management Plan
	describe the measures to be would be implemented to avoid, minimise, manage and monitor potential adverse impacts of the final void over time.	Addressed in the HVO Final Void Management Plan
Schedule 3 condition 32	By 30 June 2007, the Applicant must prepare a conceptual Landscape and Rehabilitation Management Strategy, in consultation with affected agencies, to the satisfaction of the Secretary. The strategy must:	This RMP 4.2
	(a) include objectives for landscape management and rehabilitation of the site and a justification for the proposed strategy;	4
	(b) present a conceptual plan for a landscape management and rehabilitation of the site;	5
	(c)be integrated with the relevant rehabilitation requirements imposed on the mining lease(s) associated with the development under the Mining Act 1992;	This RMP 1.2
	(d) describe the measures that would be implemented to achieve the objectives (including an indicative timetable for mine closure);	6
	€ include proposals to offset the flora and fauna impacts of the development (including proposals resulting from condition 31 and 31A above), and an outline of how the strategy would integrate with existing and planned corridors of native vegetation in areas surrounding the development; and	Addressed in the HVO Integrated Biodiversity Management Plan
	(f) outline how the proposed strategy would be integrated with the landscape management and rehabilitation of the other operations within Hunter Valley Operations (both north and south of the Hunter River) and other coal mines in the vicinity.	6.3.3
Schedule 3 condition 35	The Applicant must prepare procedures for the management of flora and fauna for the development. These procedures must: (a)provide details on: delineating areas of disturbance	6.3.1.2 Addressed in the HVO Integrated Biodiversity Management Plan
	protecting areas outside of the disturbance areas;	Addressed in the HVO Integrated Biodiversity Management Plan
	identifying when pre-clearance surveys are required for fauna;	Addressed in the HVO Integrated Biodiversity Management Plan

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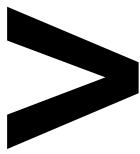
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Consent Requirement		Section within this document
	determining the best time to clear vegetation to avoid nesting/breeding activities of threatened fauna;	Addressed in the HVO Integrated Biodiversity Management Plan
	capturing and releasing fauna;	Addressed in the HVO Integrated Biodiversity Management Plan
	relocating bat roosts;	Addressed in the HVO Integrated Biodiversity Management Plan
	salvaging habitat resources and collecting seed;	6.3.1.2
	controlling weeds in regeneration/rehabilitation areas; and	6.3.5 6.3.6
	controlling access to the regeneration/rehabilitation areas;	6.3.6
	(b) describe how the land in regeneration areas would be revegetated;	Addressed in the HVO Integrated Biodiversity Management Plan
	(c) describe how the mined areas would be rehabilitated for grazing and biodiversity values;	6
	(d) identify actions to minimise the potential impacts of the development on threatened fauna;	Addressed in the HVO Integrated Biodiversity Management Plan
	(e) describe how the performance of the revegetation/rehabilitation strategies would be monitored over time including, as a minimum, the parameters in Table 18; and	8
	(f) identify who is responsible for monitoring, reviewing, and implementing the procedures.	11



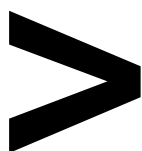
Consent Requirement		Section within this document														
Schedule 3 Conditions 62	The Applicant must rehabilitate the site in accordance with the conditions imposed on the mining lease(s) associated with the development under the Mining Act 1992. This rehabilitation must be generally consistent with the proposed rehabilitation activities described in the documents listed in Condition 2 of Schedule 3 (and depicted conceptually in the final landform plans in Appendices 6 and 7) and the objectives in Table 17. Table 17: Rehabilitation Objectives <table><tr><th>Area/Domain</th><th>Rehabilitation Objectives</th></tr><tr><td>Mine site (as a whole)</td><td> • Safe, stable & non-polluting • Final landforms designed to incorporate micro-relief and integrate with surrounding natural landforms • Constructed landforms maximise surface water drainage to the natural environment (excluding final void catchments) • Minimise long term groundwater seepage zones • Minimise visual impact of final landforms as far as is reasonable and feasible </td></tr><tr><td>Final void</td><td> • Safe, stable & non-polluting • Minimise the size and depth of the final void as far as is reasonable and feasible </td></tr></table> 26 CONSOLIDATED CONSENT <table><tr><td></td><td> • Minimise the drainage catchment of the final void as far as is reasonable and feasible • Minimise the risk of flood interaction for all flood events up to and including the Probable Maximum Flood • Negligible high wall instability risk </td></tr><tr><td>Carrington West Wing revised proposed extension area</td><td> • Reinstatement of Rural Land Capability agricultural land values to be measured as: • 65.0 hectares of Class II and 65.0 hectares of Class III </td></tr><tr><td>Surface infrastructure</td><td> • To be decommissioned and removed, unless the Resources Regulator agrees otherwise </td></tr><tr><td>Community</td><td> • Ensure public safety • Minimise the adverse socio-economic effects associated with mine closure </td></tr></table> Notes: • The Carrington West Wing revised proposed extension area is shown in Appendix 5. • The Applicant is not required to undertake any additional earthmoving or rehabilitation works on landforms that were rehabilitated prior to the determination of Modification 8, except where those earthworks are required for the establishment of a stable, non-polluting and free draining landform.	Area/Domain	Rehabilitation Objectives	Mine site (as a whole)	• Safe, stable & non-polluting • Final landforms designed to incorporate micro-relief and integrate with surrounding natural landforms • Constructed landforms maximise surface water drainage to the natural environment (excluding final void catchments) • Minimise long term groundwater seepage zones • Minimise visual impact of final landforms as far as is reasonable and feasible	Final void	• Safe, stable & non-polluting • Minimise the size and depth of the final void as far as is reasonable and feasible		• Minimise the drainage catchment of the final void as far as is reasonable and feasible • Minimise the risk of flood interaction for all flood events up to and including the Probable Maximum Flood • Negligible high wall instability risk	Carrington West Wing revised proposed extension area	• Reinstatement of Rural Land Capability agricultural land values to be measured as: • 65.0 hectares of Class II and 65.0 hectares of Class III	Surface infrastructure	• To be decommissioned and removed, unless the Resources Regulator agrees otherwise	Community	• Ensure public safety • Minimise the adverse socio-economic effects associated with mine closure	1.2.1.2 4.1 5
	Area/Domain	Rehabilitation Objectives														
	Mine site (as a whole)	• Safe, stable & non-polluting • Final landforms designed to incorporate micro-relief and integrate with surrounding natural landforms • Constructed landforms maximise surface water drainage to the natural environment (excluding final void catchments) • Minimise long term groundwater seepage zones • Minimise visual impact of final landforms as far as is reasonable and feasible														
	Final void	• Safe, stable & non-polluting • Minimise the size and depth of the final void as far as is reasonable and feasible														
	• Minimise the drainage catchment of the final void as far as is reasonable and feasible • Minimise the risk of flood interaction for all flood events up to and including the Probable Maximum Flood • Negligible high wall instability risk															
Carrington West Wing revised proposed extension area	• Reinstatement of Rural Land Capability agricultural land values to be measured as: • 65.0 hectares of Class II and 65.0 hectares of Class III															
Surface infrastructure	• To be decommissioned and removed, unless the Resources Regulator agrees otherwise															
Community	• Ensure public safety • Minimise the adverse socio-economic effects associated with mine closure															
Schedule 3 condition 62A	The Applicant must: (a) develop a detailed soil management protocol that identifies procedures for • comprehensive soil surveys prior to soil stripping; • assessment of top-soil and sub-soil suitability for mine rehabilitation; and • annual soil balances to manage soil handling including direct resspreading and stockpiling;	6.3.1 Addressed in the HVO Topsoil Management Plan														
	(b)maximise the salvage of suitable top-soils and sub-soils and biodiversity habitat components such as bush rocks, tree hollows and fallen timber for rehabilitation of disturbed areas within the site and for enhancement of biodiversity offset areas	6.3.1														
	(c)ensure that coal reject or any potentially acid forming interburden materials must not be emplaced at elevations within the pit shell or out of pit emplacement areas where they may promote acid or sulphate species generation and migration beyond the pit shell or out of pit emplacement areas; and	6.3.1.7 6.3.1.8														

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Consent Requirement		Section within this document
	(d)ensure that no dirty water can drain from an out of pit emplacement area to any offsite watercourse or to any land beyond the lease boundary.	Addressed In the HVO Water Management Plan

1.2.1.2 | MINING REGULATIONS SCHEDULE 8A

Table 1.10-Requirements under Schedule 8a of Mining Regulations 2016

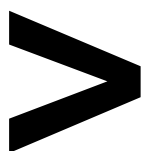
Condition	Requirement	Section within this document
Condition 5	Rehabilitation to occur as soon as reasonably practicable after disturbance The holder of a mining lease must rehabilitate land and water in the mining area that is disturbed by activities under the mining lease as soon as reasonably practicable after the disturbance occurs	6
Condition 6	Rehabilitation must achieve final land use (1) The holder of a mining lease must ensure that rehabilitation of the mining area achieves the final land use for the mining area.	5
	(2) The holder of the mining lease must ensure any planning approval has been obtained that is necessary to enable the holder to comply with subclause (1).	1
	(3) The holder of the mining lease must identify and record any reasonably foreseeable hazard that presents a risk to the holder's ability to comply with subclause (1). Note – Clause 7 requires a rehabilitation risk assessment to be conducted whenever a hazard is identified under this subclause.	3
Condition 7	Rehabilitation risk assessment (1) The holder of a mining lease must conduct a risk assessment (a "rehabilitation risk assessment") that-- (a) identifies, assesses and evaluates the risks that need to be addressed to achieve the following in relation to the mining lease-- (i) the rehabilitation objectives, (ii) the rehabilitation completion criteria, (iii) for large mines--the final land use as spatially depicted in the final landform and rehabilitation plan, and (b) identifies the measures that need to be implemented to eliminate, minimise or mitigate the risks. (2) The holder of the mining lease must implement the measures identified. (3) The holder of a mining lease must conduct a rehabilitation risk assessment-- (a) for a large mine--before preparing a rehabilitation management plan, and (b) for a small mine--before preparing the rehabilitation outcome documents for the mine, and	3

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Condition	Requirement	Section within this document
	(c) whenever a hazard is identified under clause 6(3)--as soon as reasonably practicable after it is identified, and (d) whenever given a written direction to do so by the Secretary.	
Condition 10	(1) The holder of a mining lease relating to a large mine must prepare a plan (a "rehabilitation management plan") for the mining lease that includes the following--	This RMP
	a) a description of how the holder proposes to manage all aspects of the rehabilitation of the mining area,	6
	(b) a description of the steps and actions the holder proposes to take to comply with the conditions of the mining lease that relate to rehabilitation,	6
	c) a summary of rehabilitation risk assessments conducted by the holder,	3
	(e) the rehabilitation outcome documents for the mining lease,	4 5
	(f) a statement of the performance outcomes for the matters addressed by the rehabilitation outcome documents and the ways in which those outcomes are to be measured and monitored.	4 5 6
	4) The holder of the mining lease-- (a) must implement the matters set out in the rehabilitation management plan,	This RMP 11
Condition 12	Rehabilitation outcome documents (1) The holder of a mining lease must prepare the following documents (the "rehabilitation outcome documents") for the mining lease and give them to the Secretary for approval-- (a) the "rehabilitation objectives statement" , which sets out the rehabilitation objectives required to achieve the final land use for the mining area,	4 4.1.1
	b) the "rehabilitation completion criteria statement" , which sets out criteria, the completion of which will demonstrate the achievement of the rehabilitation objectives,	4.1.2
	(c) for a large mine, the "final landform and rehabilitation plan" , showing a spatial depiction of the final land use.	5.1 Appendix A

Condition	Requirement	Section within this document
	(2) If the final land use for the mining area is required by a condition of development consent for activities under the mining lease, the holder of the mining lease must ensure the rehabilitation outcome documents are consistent with that condition.	5

1.2.2 | MINING TENEMENTS

Table 1.11 lists the mining titles applicable to both HVO North and HVO South. While not subject to the RMP at time of submission Mining Lease Applications (MLA's) are listed for completeness.

Table 1.11- Mining Tenements

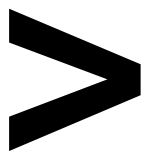
Title	Titleholder	Grant Date	Expiry Date	Status
AL 32	Coal & Allied Pty Ltd and Anotero Pty Ltd	04/11/2020	03/11/2026	Granted
AL 33	Coal & Allied Pty Ltd and Anotero Pty Ltd	04/11/2020	03/11/2026	Granted
AL 34	Coal & Allied Pty Ltd and Anotero Pty Ltd	04/11/2020	03/11/2026	Granted
AUTH72	Coal & Allied Pty Ltd and Anotero Pty Ltd	08/03/1977	8/03/2027	Granted
EL 5291	Coal & Allied Pty Ltd and Anotero Pty Ltd	28/04/1997	28/04/2029	Granted
EL 5292	Coal & Allied Pty Ltd and Anotero Pty Ltd	28/04/1997	27/04/2028	Granted
EL 5417	Coal & Allied Pty Ltd and Anotero Pty Ltd	23/12/1997	23/12/2024	Granted
EL 5418	Coal & Allied Pty Ltd and Anotero Pty Ltd	23/12/1997	23/12/2028	Granted
EL 5606	Coal & Allied Pty Ltd and Anotero Pty Ltd	11/08/1999	11/08/2029	Granted
EL 8175	Coal & Allied Pty Ltd and Anotero Pty Ltd	23/09/2013	23/09/2026	Granted
EL 8821	Coal & Allied Pty Ltd and Anotero Pty Ltd	13/02/2019	13/02/2025	Granted
(Part) CCL 708	Liddell Tenements Pty Ltd	17/05/1990	29/12/2023	Granted
CCL 714	Coal & Allied Pty Ltd and Anotero Pty Ltd	23/05/1990	30/08/2030	Granted
CCL 755	Coal & Allied Pty Ltd and Anotero Pty Ltd	24/01/1990	05/03/2030	Granted
CL 327	Coal & Allied Pty Ltd and Anotero Pty Ltd	06/03/1989	06/03/2031	Granted
CL 359	Coal & Allied Pty Ltd and Anotero Pty Ltd	21/05/1990	21/05/2032	Granted
CL 360	Coal & Allied Pty Ltd and Anotero Pty Ltd	29/05/1990	29/05/2032	Granted
CL 398	Coal & Allied Pty Ltd and Anotero Pty Ltd	04/06/1992	04/06/2034	Granted
CL 584	Coal & Allied Pty Ltd and Anotero Pty Ltd	01/01/1982	31/12/2044	Granted

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Title	Titleholder	Grant Date	Expiry Date	Status
CML 4	Coal & Allied Pty Ltd and Anotero Pty Ltd	02/03/1993	03/06/2033	Granted
ML 1324	Coal & Allied Pty Ltd and Anotero Pty Ltd	19/08/1993	19/08/2035	Granted
ML 1337	Coal & Allied Pty Ltd and Anotero Pty Ltd	01/02/1994	01/02/2034	Granted
ML 1359	Coal & Allied Pty Ltd and Anotero Pty Ltd	01/11/1994	31/10/2015	Renewal Pending
ML 1406	Coal & Allied Pty Ltd and Anotero Pty Ltd	27/02/1997	10/02/2027	Granted
ML 1428	Coal & Allied Pty Ltd and Anotero Pty Ltd	15/04/1998	14/04/2040	Granted
ML 1465	Coal & Allied Pty Ltd and Anotero Pty Ltd	21/02/2000	21/02/2042	Granted
ML 1474	Coal & Allied Pty Ltd and Anotero Pty Ltd	24/11/2000	23/11/2042	Granted
ML 1482	Coal & Allied Pty Ltd and Anotero Pty Ltd	19/03/2001	19/03/2040	Granted
ML 1500	Coal & Allied Pty Ltd and Anotero Pty Ltd	21/12/2001	20/12/2043	Granted
ML 1526	Coal & Allied Pty Ltd and Anotero Pty Ltd	03/12/2002	02/12/2044	Granted
ML 1560	Coal & Allied Pty Ltd and Anotero Pty Ltd	28/01/2005	27/01/2026	Granted
ML 1589	Coal & Allied Pty Ltd and Anotero Pty Ltd	02/11/2006	01/11/2027	Granted
ML 1622	Coal & Allied Pty Ltd and Anotero Pty Ltd	22/10/2010	10/03/2027	Granted
ML 1634	Coal & Allied Pty Ltd and Anotero Pty Ltd	31/07/2009	31/07/2030	Granted
ML 1682	Coal & Allied Pty Ltd and Anotero Pty Ltd	16/12/2012	15/12/2033	Granted
ML 1704	Coal & Allied Pty Ltd and Anotero Pty Ltd	05/12/2014	05/12/2035	Granted
ML 1705	Coal & Allied Pty Ltd and Anotero Pty Ltd	17/12/2014	17/12/2035	Granted
ML 1706	Coal & Allied Pty Ltd and Anotero Pty Ltd	09/12/2014	09/12/2035	Granted
ML 1707	Coal & Allied Pty Ltd and Anotero Pty Ltd	09/12/2014	09/12/2035	Granted
ML 1710	Coal & Allied Pty Ltd and Anotero Pty Ltd	22/12/2016	10/03/2027	Granted
ML 1732	Coal & Allied Pty Ltd and Anotero Pty Ltd	06/04/2016	06/04/2037	Granted
ML 1734	Coal & Allied Pty Ltd and Anotero Pty Ltd	06/04/2016	06/04/2037	Granted
ML 1748	Coal & Allied Pty Ltd and Anotero Pty Ltd	05/12/2016	04/12/2037	Granted
ML 1753	Coal & Allied Pty Ltd and Anotero Pty Ltd	19/04/2017	19/04/2038	Granted
ML 1810	Coal & Allied Pty Ltd and Anotero Pty Ltd	04/11/2020	04/11/2041	Granted
ML 1811	Coal & Allied Pty Ltd and Anotero Pty Ltd	04/11/2020	04/11/2041	Granted
ML 1840	Coal & Allied Pty Ltd and Anotero Pty Ltd	3/11/2022	3/11/2043	Granted
ML 1841	Coal & Allied Pty Ltd and Anotero Pty Ltd	3/11/2022	3/11/2043	Granted

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Title	Titleholder	Grant Date	Expiry Date	Status
ML 1849	Coal & Allied Pty Ltd and Anotero Pty Ltd	16/05/2023	16/05/2044	Granted
ML 1867	Coal & Allied Pty Ltd and Anotero Pty Ltd	16/11/2023	16/11/2044	Granted
ML 1869	Coal & Allied Pty Ltd and Anotero Pty Ltd	15/12/2023	15/12/2044	Granted
ML 1870	Coal & Allied Pty Ltd and Anotero Pty Ltd	15/12/2023	15/12/2044	Granted
ML 1871	Coal & Allied Pty Ltd and Anotero Pty Ltd	15/12/2023	15/12/2044	Granted

1.2.3 | OTHER APPROVALS

1.2.3.1 | LICENCES

Current licences applicable to HVO are summarised in **Table 1.12**

Table 1.12-Licences

Licence / Permit No.	Description	Expiry Date
HVO North and South		
EPL 640	Environmental Protection Licence	1 April (anniversary) 30/06/2030 (Review due date)
RML 5085293	Radiation Management Licence	14/11/2025
HVO North		
NDG 037852	Dangerous Goods Notification (for the storage and handling of hazardous chemicals)	No expiry date
HVO South		
XSTR200117	Licence to Store Dangerous Good/Explosives	02/05/2026
2394538	Road Occupancy Licences – Golden Highway	30/06/2026
9517/2025	Road Closure Approval – Lemington Road	30/06/2026
9510/2025	Road Closure Approval- Comleroi Road	30/06/2026

1.2.3.2 | WATER LICENCES

The water approvals and licences applicable to HVO are listed in **Table 1.13** and **Table 1.14**

Table 1.13- Water Approvals

Licence Number	Type of Licence	Purpose	Legislation	Description	Expiry Date
20BL030566	Bore	Well	Part 5 Water Act1912	East Open Cut	Perpetuity
20BL141584	Bore	MonitoringBore	Part 5 Water Act1912	HVO North – Carrington Work Licence	Perpetuity
20BL166637	Bore	MonitoringBore	Part 5 Water Act1912	No Current Bores	Perpetuity

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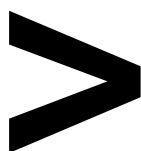
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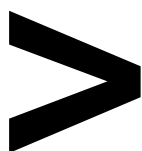
Licence Number	Type of Licence	Purpose	Legislation	Description	Expiry Date
20BL168820	Bore	MonitoringBore	Part 5 Water Act1912	HVO North – Bores:CGW39, CGW45a, CGW46, CGW47, CGW47a, CGW48, CGW49, P50/38.5, CGW56, 4036C, 4035P,4032P, 4034P, 4033P, 4053P, 4052P, 4051C, 4040P, 4038C, 4037P Destroyed: CGW7, CGW50,CGW57, CGW58, CGW59, CGW60, CGW61, CGW62, CGW63	Perpetuity
20BL169241	Bore	MonitoringBore	Part 5 Water Act1912	HVO North – Bores: DM1,HF3, HF7 Destroyed: DM2	Perpetuity
20BL169641	Bore	Monitoring Bore	Part 5 Water Act1912	HVO North – Bores: CGW5, CGW51A, CGW52, CGW53, CGW54, CGW55A, CGW53A, CGW52A, CGW54A, CGW6, CFW55, CFW57, CFW57A, CFW59, CFW55R Destroyed: CGW1, CGW2,CGW3, CGW5, CGW8, CGW9, CGW10, CGW12, CGW13 CGW14, CGW30,CGW33, CGW34, CGW35, CGW36,CGW37, CGW38, CGW40, CGW41,CGW42, CGW43, CGW44, CFW56, CFW56A, CFW58	Perpetuity
20BL170496	Bore	MonitoringBore	Part 5 Water Act1912	HVO South – Bores: BZ10(CHPZ 2A), BZ11 (CHPZ 3A), BZ18 (CHPZ 10A), BZ20 (CHPZ 12A), BZ21 (CHPZ 13D), BZ21A (CHPZ 13A), BZ20A (CHPZ 12D), BZ11A (CHPZ 3D) Destroyed: AP50/47.5, AQ52, AV50/56.5, AS50/62.5, AR55, Bunc 3, BZ25 (Bunc 12), BZ23 (Bunc 14), BZ24 (Bunc 13),	Perpetuity
20BL170497	Bore	MonitoringBore	Part 5 Water Act1912	HVO South – Bores: BZ15(CHPZ 7A), BZ16 (CHPZ 8D), BZ17 (CHPZ 9A), BZ19 (CHPZ 11A), BZ16A(CHPZ 8A), Bunc 46D Destroyed: Bunc 39 (Shallow & Deep), Bunc44D	Perpetuity
20BL170498	Bore	MonitoringBore	Part 5 Water Act1912	HVO South – Bores: BZ12(CHPZ 4A), BZ13 (CHPZ 5A), BZ14, BZ9 (CHPZ 1A), BC1, BC1a, BZ8-1,	Perpetuity

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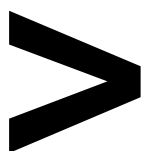
Licence Number	Type of Licence	Purpose	Legislation	Description	Expiry Date
				BZ8-2, BZ8-3, HG1, HG2, HG2a, HG3, S4, S6, BZ22(CHPZ14D), BZ22A (CHPZ 14A), BZ5-1, BZ5-2 Destroyed: S2, S3, S9, S11	
20BL171423	Bore	Monitoring Bore	Part 5 Water Act 1912	E1.5	Perpetuity
20BL171424	Bore	Monitoring Bore	Part 5 Water Act 1912	Destroyed: GW9711	Perpetuity
20BL171425	Bore	Monitoring Bore	Part 5 Water Act 1912	Bores: GW9701, GW9710	Perpetuity
20BL171426	Bore	Monitoring Bore	Part 5 Water Act 1912	Bores: GW9702 Destroyed: D2(WH236)	Perpetuity
20BL171427	Bore	Monitoring Bore	Part 5 Water Act 1912	Bores: C335, C630 (BFS)	Perpetuity
20BL171428	Bore	Monitoring Bore	Part 5 Water Act 1912	D807	Perpetuity
20BL171429	Bore	Monitoring Bore	Part 5 Water Act 1912	HVO South – Bores: B925(BFS), C122 (BFS), C122 (WDH)	Perpetuity
20BL171430	Bore	Monitoring Bore	Part 5 Water Act 1912	HVO South – Bores: C613(BFS), C809 (GM/WDH)	Perpetuity
20BL171431	Bore	Monitoring Bore	Part 5 Water Act 1912	HVO South – Bores: B631(BFS), B631 (WDH)	Perpetuity
20BL171432	Bore	Monitoring Bore	Part 5 Water Act 1912	HVO South – Bores: C130(AFSH1), C130 (ALL), C130(BFS), C130 (WDH)	Perpetuity
20BL171433	Bore	Monitoring Bore	Part 5 Water Act 1912	HVO South – Bore B334 (BFS)	Perpetuity
20BL171434	Bore	Monitoring Bore	Part 5 Water Act 1912	HVO South – Bores: C317 (BFS), C317 (WDH)	Perpetuity
20BL171435	Bore	Monitoring Bore	Part 5 Water Act 1912	HVO South – Bores: BZ3- 1, BZ3-2, BZ3-3	Perpetuity
20BL171436	Bore	Monitoring Bore	Part 5 Water Act 1912	HVO South – Bores: BZ4A(1), BZ4A(2), BZ4B	Perpetuity
20BL171437	Bore	Monitoring Bore	Part 5 Water Act 1912	Bores: WG1, WG2, WG3	Perpetuity
20BL171439	Bore	Monitoring Bore	Part 5 Water Act 1912	Bores: BRN, E012	Perpetuity
20BL171492	Bore	Monitoring Bore	Part 5 Water Act 1912	Bores: C1(WJ039), GW9704, North, GWA981	Perpetuity
20BL171681	Bore	Monitoring Bore	Part 5 Water Act 1912	HVO South – Bores: Bunc 45A, Bunc 45D	Perpetuity

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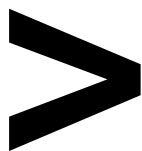
Licence Number	Type of Licence	Purpose	Legislation	Description	Expiry Date
20BL171725	Bore	Monitoring Bore	Part 5 Water Act 1912	HVO South – Bores: B425 (WDH), BRS, C621 (BFS), C919 (ALL), D317 (BFS), D317(ALL), D317(WDH) Destroyed: D420, D425, D621, PB02	Perpetuity
20BL171726	Bore	Monitoring Bore	Part 5 Water Act 1912	Bores: SR002, SR003, SR004, SR005, SR006, SR007	Perpetuity
20BL171727	Bore	Monitoring Bore	Part 5 Water Act 1912	SR001	Perpetuity
20BL171728	Bore	Monitoring Bore	Part 5 Water Act 1912	HVO South – Bores: BZ2B, BZ1-1, BZ1-2, BZ1- 3, BZ2-1, BZ2-2	Perpetuity
20BL171762	Bore	Monitoring Bore	Part 5 Water Act 1912	HVO South – Bores: C817, D010 (BFS), D214 (BFS), D406 (BFS) (AFS), D510 (BFS), PB01 (ALL), D510 (AFS), D010 (GM), D010 (WDH), D406 (BFS) (AFS), D612 (AFS), D612 (BFS)	Perpetuity
20BL171851	Bore	Monitoring Bore	Part 5 Water Act 1912	HVO North/South – Bores: HV2, PZ1CH200, PZ2CH400, PZ3CH800, 4118P, 4119P	Perpetuity
20BL171852	Bore	Monitoring Bore	Part 5 Water Act 1912	HVO North – PZ4CH1380	Perpetuity
20BL171853	Bore	Monitoring Bore	Part 5 Water Act 1912	HVO North – DM3	Perpetuity
20BL171854	Bore	Monitoring Bore	Part 5 Water Act 1912	HVO North – Bores: DM5, PZ6CH2450	Perpetuity
20BL171855	Bore	Monitoring Bore	Part 5 Water Act 1912	HVO North – PZ5CH1800	Perpetuity
20BL171856	Bore	Monitoring Bore	Part 5 Water Act 1912	HVO North – Bores: HV6, HV3, DM6, HV2 (2), 4113P, 4114P. 4116P, 4117P	Perpetuity
20BL171857	Bore	Monitoring Bore	Part 5 Water Act 1912	Bores: HV4, HV4 (2) (GA3), GA3,	Perpetuity
20BL171858	Bore	Monitoring Bore	Part 5 Water Act 1912	HVO North – DM4	Perpetuity
20BL171895	Bore	Monitoring Bore	Part 5 Water Act 1912	HVO West – Destroyed: NPZ4	Perpetuity
20BL171896	Bore	Monitoring Bore	Part 5 Water Act 1912	HVO West – NPZ2	Perpetuity
20BL171897	Bore	Monitoring Bore	Part 5 Water Act 1912	HVO West – Bores: NPZ1 Destroyed: NPZ5	Perpetuity
20BL171898	Bore	Monitoring Bore	Part 5 Water Act 1912	HVO West – NPZ3	Perpetuity

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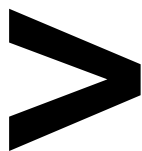
Licence Number	Type of Licence	Purpose	Legislation	Description	Expiry Date
20BL173062	Bore	Monitoring Bore	Part 5 Water Act 1912	RC14	Perpetuity
20BL173065	Bore	Monitoring Bore	Part 5 Water Act 1912	HQ11	Perpetuity
20BL173063	Bore	Monitoring Bore	Part 5 Water Act 1912	RC07, RC08	Perpetuity
20BL173064	Bore	Monitoring Bore	Part 5 Water Act 1912	RC06	Perpetuity
20BL173069	Bore	Monitoring Bore	Part 5 Water Act 1912	RC11	Perpetuity
20CA201247	Works Approval	Pumping Plant	Water Management Act 2000	Associated with WAL965	Perpetuity
20CA212713	Works Approval	Pumping Plant	Water Management Act 2000	Associated with WAL36190	30/05/2025
20FW213280	Flood Work Approval	Levee	Water Management Act 2000	HVO North – Carrington Levee 5	21/09/2027
20FW213281 Formerly 20CW802613	Flood Work Approval	Levee	Water Management Act 2000	HVO South – Barry Levee	21/09/2027
20FW213277 Formerly 20CW802603	Flood Work Approval	Block Dam	Water Management Act 2000	HVO South – Hobden Gully Levee	21/09/2027
20FW213278 Formerly 20CW802604	Flood Work Approval	Levee	Water Management Act 2000	HVO North – North Pit Levee 3	21/09/2027
20WA210991 (See WAL 18307) Formerly 20SL050903	Stream Diversion	Stream Diversion	Water Management Act 2000	HVO West – Parnells Creek Dam	09/01/2033
20WA211427 Formerly 20SL061290	Stream Diversion	Cutting (Diversion Drain)	Section 10 Water Act 1912	Pikes Gully Creek Stream Diversion	07/09/2033
20WA210985 (See WAL 18327) 20SL042746	Diversion Works	Industrial	Water Management Act 2000	HV Loading Point Pump Bayswater Creek	08/09/2032
20WA211428 20SL061594	Stream Diversion	Cutting (Diversion Drain)	Water Management Act 2000	HVO North – Carrington Stream Diversion	31/07/2032

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20WA201238 (see WAL 962)	Diversion Works	Pumping Plant	Water Management Act 2000	HVCPD River Pump	16/03/2028
20WA201257 (see WAL 970)	Diversion Works	Pumping Plant	Water Management Act 2000	HVO South – LCPP River Pump	Perpetuity
20WA201338 (See WAL 1006)	Diversion Works	Pumping Plant	Water Management Act 2000	HVO South – LCPP River Pump	Perpetuity
20WA201501 (See WAL 1070)	Diversion Works	Pumping Plant	Water Management Act 2000	HVO South – LCPP River Pump	Perpetuity
20WA201685 (See WAL 13387)	Diversion Works	Pumping Plant	Water Management Act 2000	HVO West – "Lake Liddell" Licence	Perpetuity
20FW213274	Flood Work Approval	Levee	Water Management Act 2000	Riverview	26/10/2028

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Table 1.14- Water Access Licences

Licence Number	Description	Water Source	Water Sharing Plan	Water Source – Management Zone	Approved Extraction (ML)
WAL867	Comleroi, farming & irrigation	Hunter River	Hunter Regulated River WSP	Zone 2a (Hunter River from Glennies Creek Junction to Wollombi Brook Junction)	486
WAL962	HVO North – HVCPP River Pump – Water Access Licence	Hunter River	Hunter Regulated River WSP	Zone 1b (Hunter River from Goulburn River Junction to Glennies Creek Junction)	3,165
WAL969	HVO South – Former Riverview pump	Hunter River	Hunter Regulated River WSP	Zone 1b (Hunter River from Goulburn River Junction to Glennies Creek Junction)	39
WAL970	HVO South – LCPP River Pump – Water Access Licence	Hunter River	Hunter Regulated River WSP	Zone 2a (Hunter River from Glennies Creek Junction to Wollombi Brook Junction)	500
WAL1006	HVO South – LCPP River Pump – Water Access Licence	Hunter River	Hunter Regulated River WSP	Zone 2a (Hunter River from Glennies Creek Junction to Wollombi Brook Junction)	500
WAL1070	HVO South - LCPP River Pump – Water Access Licence	Hunter River	Hunter Regulated River WSP	Zone 2a (Hunter River from Glennies Creek Junction to Wollombi Brook Junction)	500
WAL13387	Macquarie Generation Hunter River Pump Station	Hunter River	Hunter Regulated River WSP	Zone 1b (Hunter River from Goulburn River Junction to Glennies Creek Junction)	20
WAL 13391	HVO North – Alluvial Rehabilitation Irrigation.	Hunter River	Hunter Regulated River WSP	Zone 1b (Hunter River from Goulburn River Junction to Glennies Creek Junction)	420 (908 ML after transfers)
WAL18127	Carrington BB1	Hunter River Alluvium	Hunter Unregulated and Alluvial Water Sources WSP	Hunter Regulated River Alluvial Water Source – Upstream Glennies Creek management zone	383
WAL18158	Ollenberry	Hunter River Alluvium	Hunter Unregulated and Alluvial Water Sources WSP	Hunter Regulated River Alluvial Water Source – Upstream Glennies Creek management zone	65
WAL18307	HVO West – Parnells Creek Dam (Diversion Works By wash)	Unregulated River	Hunter Unregulated and Alluvial Water Sources WSP	Jerrys Water Source; Jerrys Management Zone	500

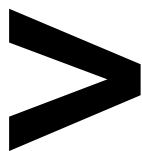
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Licence Number	Description	Water Source	Water Sharing Plan	Water Source – Management Zone	Approved Extraction (ML)
WAL18327	HV Loading Point Pump Bayswater Creek (Diversion Works)	Unregulated River	Hunter Unregulated and Alluvial Water Sources WSP	Jerrys Water Source; Jerrys Management Zone	150
WAL23889	Greenleek	Wollombi Brook	Hunter Unregulated and Alluvial Water Sources WSP	Low er Wollombi Brook Water Source	144
WAL36190	HVO North, old farm bore	Hunter River Alluvium	Hunter Unregulated and Alluvial Water Sources WSP	Hunter Regulated River Alluvial Water Source – Jerrys Management Zone	120

1.2.3.3 | HERITAGE PERMITS

The Section 90 Heritage Permits applicable to HVO South are listed in **Table 1.15**.

Table 1.15- Section 90 Permits

Permit No.	Location Description	Authority	Expiry Date
C0001890	Care Agreement	OEH	3 June 2036
C0002193	Aboriginal Heritage Impact Permit	OEH	6 December 2026

1.2.3.4 | TAILINGS EMPLACEMENT AREA APPROVALS

Tailings emplacement approvals held for active or un-capped facilities at HVO North are listed in **Table 1.16**. Additionally, a portion of the GCAA-owned Cumnock Void TSF is utilised under agreement by HVO for the storage of tailings from the HCPP.

Table 1.16- Tailings Emplacement Area Approvals

Approval	Approval Date	TSF Status
Central TSF	17 April 1998	Inactive
South-East TSF	5 October 2001	Capped and rehabilitated
Bobs Dump TSF – Stage 2	23 December 2003	Inactive capping in progress
North Pit TSF	13 June 2003	Inactive
Dam 6W TSF	18 August 2011	Inactive
Carrington In-Pit TSF	25 January 2017	Active

1.3 | LAND OWNERSHIP AND LAND USE

HVO owns the majority of the lands within the existing leases area (**Figure 3**). A schedule of HVO land ownership on and adjacent to HVO coal leases is attached as (as reproduced from Appendix A of DA 450-10-2003 and PA 06_0261) and is shown on **Figure 4**.

HVO is situated in a landscape that is characterised by mining land, grazing land, more intensive agriculture on the Hunter River alluvial zone (cropping and dairying) and some private and public woodland (**Figure 4** Error! Reference source not found.). HVO is adjoined by Bayswater Power Station to the north, Ravensworth Operations to the northeast, grazing land to the east and west, grazing properties, residences and Mount Thorley Warkworth mining operations to the south east, and United Wambo Open Cut to the south west.

1.3.1 | LAND OWNERSHIP AND LAND USE FIGURE

The required land ownership and land use information has been separated into two figures (**Figures 3 and 4**) to facilitate clearer presentation and improve readability of the data.

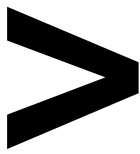
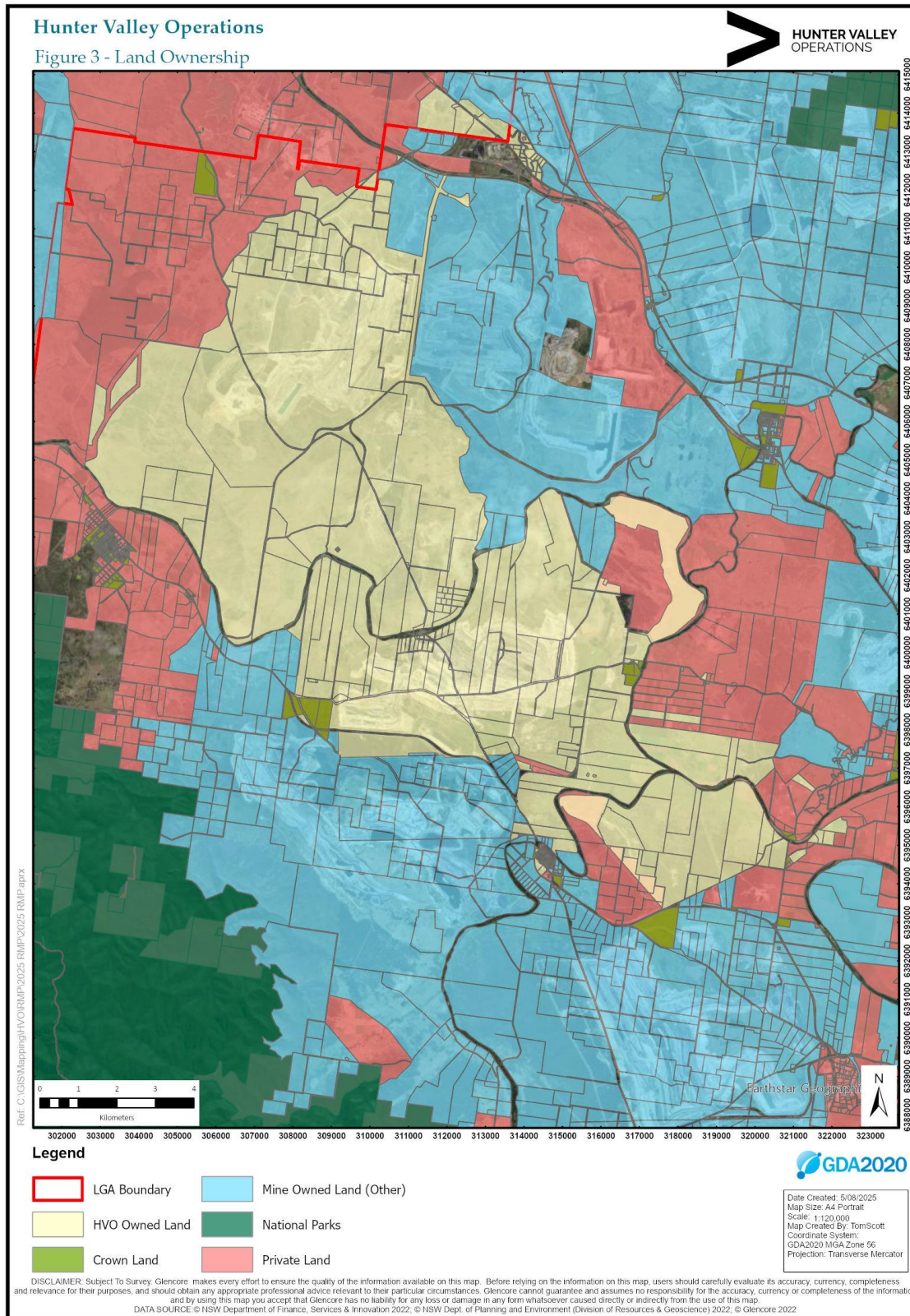


Figure 3- Land Ownership



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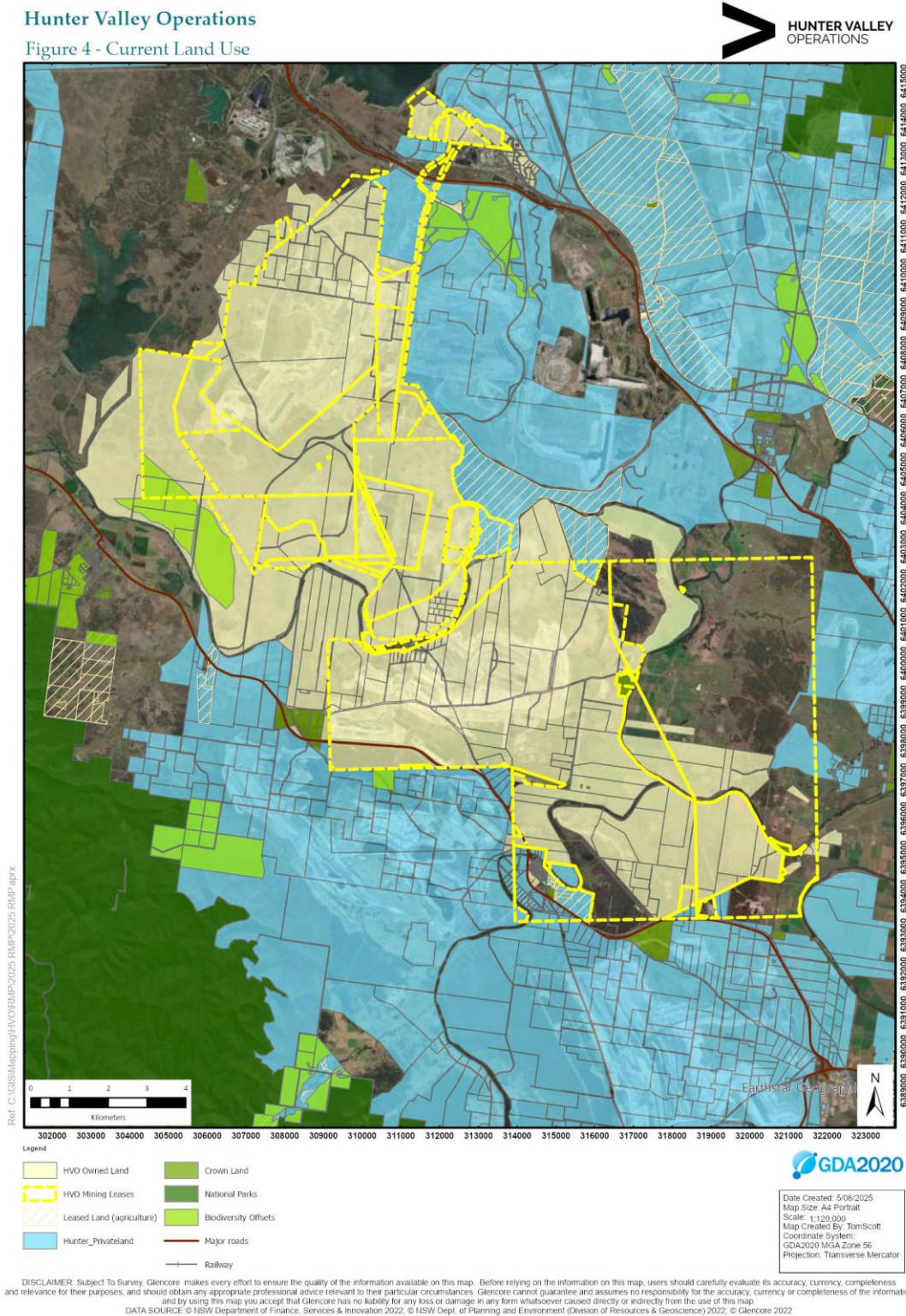
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Figure 4-Current Land Use



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2 | FINAL LAND USE

2.1 | REGULATORY REQUIREMENTS FOR REHABILITATION

The regulatory requirements related to rehabilitation and the final land use for the site are described in **Section 2.3** |

2.2 | FINAL LAND USE OPTIONS ASSESSMENT

This section is not applicable as the HVO North development consent and HVO South project approval define the final land use.

2.3 | FINAL LAND USE STATEMENT

The approved final land use for the operation is a mixture of grazing land and woodland for biodiversity and native habitat. **Plan 1** in **Appendix A**: provides a conceptual final rehabilitation plan showing the proposed location of these final land uses.

For HVO North, 70% of rehabilitation will be restored for grazing on native or introduced pastures, which will provide some biodiversity values for native fauna species that are able to persist in grazed or disturbed areas. Reinstatement of 62ha of Class I and Class II agricultural land will be restored in the Alluvial Lands Rehabilitation Area (ALRA) as well as 3.8ha of Class II land in Carrington.

The remaining 30% of the landscape will be restored to a woodland community with a more diverse native suite of species. This will include overstorey strata to provide habitat and encourage native fauna populations and threatened species that are known to occur, or traverse, in and around HVO. A small section of rehabilitation (0.14ha) will be restored at Newdell to land that is consistent with the Swamp Oak Floodplain Forest vegetation community.

Additionally, the Carrington West Wing (CWW) Extension, which was approved in 2013 by Modification 3 of DA 450-10-2003 requires the following (subject to the proposed mining occurring):

- Reinstatement of 65ha of Class II land;
- Reinstatement of 65ha of Class III land; and
- Rehabilitation of 4ha of land that is consistent with the Central Hunter Grey Box Ironbark Woodland community.

HVO South, 60-70% of rehabilitation will be restored for grazing with native or introduced pasture. The remaining 30-40% will be rehabilitated to a woodland community.

2.4 | FINAL LAND USE AND MINING DOMAINS

2.4.1 | FINAL LAND USE DOMAINS

Final land use domains are defined as land management units characterised by similar final land use objectives. Each final land use domain will require specific decommissioning and rehabilitation methods. The final land use domains have been selected to be consistent with those specified in Form and Way: Rehabilitation management plan for large mines (RR, 2021), and are listed with their descriptions in **Table 2.1**. The final land use domains are shown on **Plans 1 and 2** in **Appendix A**.

Table 2.1- Final Land Use Domains

Domain	Description	Code
Native Ecosystem	Areas to be rehabilitated with woodland species commensurate with adjacent remnant vegetation. Approximately 30% (HVO North) and 30-40% (HVO South) of mined land will be returned to woodland. This will also include a network of tree corridors to ensure connectivity of woodland community areas, as well as 4ha of land consistent with the Central Hunter Grey Box Ironbark Woodland ¹ .	A
Agricultural - Grazing	Areas to be rehabilitated with selected native and exotic grasses and pasture species. Approximately 70% (HVO North) and 60-70% (HVO South) of mined land will be returned to pasture. Includes 65ha of Class II and 65ha of Class III land ¹ .	B
Water Management Area	A network of dams and surface water management structures are planned to be retained to assist in ongoing water and land management (e.g. stock watering).	F
Water Storage (excluding final voids)	Two large water storage dams (Parnells Dam and Lake James) are proposed to remain in the final landform.	G
Final Void	Three final voids are planned to remain in place at completion of mining at HVO North. Two separate voids will remain in West Pit and a single final void in Carrington Pit. One final void is planned to remain in place at HVO South following the cessation of mining. This is located in the south-western corner of the Riverview Pit. Final voids will create permanent water bodies. Landforms above pit water level will be vegetated where practical with woodland vegetation communities.	J

¹ Subject to proposed mining occurring and triggering this rehabilitation requirement

2.4.2 | MINING DOMAINS

Mining domains have been defined as the set of discrete areas that have a particular operational or functional purpose. All areas previously disturbed by mining have been assigned to an appropriate mining domain (as per Form and Way: Rehabilitation management plan for large mines), as listed in **Table 2.2**. The current footprint of each mining domain is also depicted on **Plan 3 in Appendix A**.

Table 2.2- Mining Domains

Domain	Description	Code
Infrastructure	Existing infrastructure and facilities including the pit top, workshops, administration buildings, access roads, haul roads, hardstand/laydown areas, topsoil stockpiles, unsealed boreholes and monitoring equipment.	1
Tailings Storage Facility	The footprint of current tailings emplacement areas (fine rejects).	2
Water Management Area	This domain includes the network of dams and associated water management structures at HVO.	3
Overburden Emplacement Areas	The footprint of all in-pit and out of pit waste rock emplacements (overburden and coarse rejects).	4
Active Mining	The footprint of the HVO active mining areas, including: Pre-strip areas ahead of mining; Active mining areas; and Voids and inactive in-pit areas prior to commencement of backfilling.	5
Beneficiation Facility	The footprint of the coal washing facilities, and associated infrastructure.	7
Other	Includes all areas that don't fall into the above categories including: Existing pasture and woodland rehabilitation areas; Temporary rehabilitation areas; and Topsoil stockpiles.	8

3 | REHABILITATION RISK ASSESSMENT

Risks to achieving rehabilitation completion have been identified and assessed in accordance with the GCAA Risk Management Standard (GCAA-625378177-2844) and Clause 7 of Schedule 8A of the Mining Regulation 2016.

The initial rehabilitation risk assessment for HVO was undertaken on 7 February 2022 and was used in the initial development of the original RMP (V1.0). This risk assessment was reviewed in October 2024 and again in July 2025.

There were two high risks identified during the 2025 risk assessment review. These high risks related to the knowledge gap for ground and surface water interactions from mine voids and former underground workings at closure. Actions are assigned to develop a groundwater monitoring networks to assist with filling the knowledge gaps in key areas.

A further eight medium risks were identified which included:

- Failure to identify topsoil types when salvaging/stockpiling (e.g. pasture vs woodland)
- Limited biological resources available for salvage.
- Poor handling and containment of geochemical and geotechnically unsuitable tailings and reject materials
- Soil (topsoil and/or subsoil) deficit for rehabilitation activities.
- Soils inadequate to support revegetation or agricultural land capability.
- Weed infestation limiting target species / community.
- Weather and climatic influences (drought, flood) during initial establishment.
- Insufficient establishment of target species and limited species diversity.
- Acacia Saligna infestations limiting target species/community.

A table outlining all of the risks identified, their risk ranking, controls and where the controls are included in this RMP is included as **Appendix C**.

4 | REHABILITATION OBJECTIVES AND REHABILITATION COMPLETION CRITERIA

4.1 | REHABILITATION OBJECTIVES AND REHABILITATION COMPLETION CRITERIA

4.1.1 | REHABILITATION OBJECTIVES

Rehabilitation objectives for the site were initially developed during the environmental assessment and approval phases, before being refined during the operational phase and being approved by the NSW Resources Regulator in August 2024. The rehabilitation objectives stated in each of the Development Consents (and on which the approved objectives are based) are displayed in **Table 4.1**. The objectives approved by the NSW Resources Regulator in August 2024 are displayed in **Table 4.2**.

Table 4.1- Development Consent Rehabilitation Objectives

Area / Domain	Rehabilitation Objective
HVO North	
Mine site (as a whole)	Safe, stable & non-polluting Final landforms designed to incorporate micro-relief and integrate with surrounding natural landforms. Constructed landforms maximise surface water drainage to the natural environment (excluding final void catchments). Minimise long term groundwater seepage zones. Minimise visual impact of final landforms as far as is reasonable and feasible.
Final void	Safe, stable & non-polluting. Minimise the size and depth of the final void as far as is reasonable and feasible. Minimise the drainage catchment of the final void as far as is reasonable and feasible. Minimise the risk of flood interaction for all flood events up to and including the Probable Maximum Flood. Negligible high wall instability risk.
Carrington West Wing revised proposed extension area	Reinstatement of Rural Land Capability agricultural land values to be measured as: 65.0 hectares of Class II and 65.0 hectares
Surface infrastructure	To be decommissioned and removed, unless the Resources Regulator agrees otherwise
Community	Ensure public safety Minimise the adverse socio-economic effects associated with mine closure
HVO South	
All areas of the site affected by the development	Safe, stable and non-polluting Fit for the intended post-mining land use/s
Areas proposed for native ecosystem re-establishment	Establish self-sustaining native woodland ecosystems characteristic of vegetation communities found in the local area
Areas proposed for agricultural land	Establish/restore grassland areas to support sustainable agricultural activities Achieve the nominated land capability classification

Area / Domain	Rehabilitation Objective
Final Landform	Stable and sustainable for the intended post-mining land use/s Integrated with surrounding natural landforms Incorporate micro-relief and drainage lines that are consistent with surrounding topography, to the greatest extent practicable Maximise surface water drainage to the natural environment (excluding final void catchment) Protect and maintain, to the greatest extent practicable, existing views of the Wollemi National Park and associated escarpments for residences of Maison Dieu
Final void	Designed as long term groundwater sink to maximise ground water flows across backfilled pits to the final void Minimise to the greatest extent practicable: the size and depth of final voids; the drainage catchment of final voids; any high wall instability risk; and the risk of flood interaction
Surface infrastructure of the development	Decommissioned and removed, unless the Resources Regulator agrees otherwise
Rehabilitation materials	Materials from areas disturbed under this consent (including topsoils, substrates and seeds) are to be recovered, managed and used as rehabilitation resources, to the greatest extent practicable
Water quality	Water retained on the site is fit for the intended post-mining land use/s Water discharged from the site is suitable for receiving waters and fit for aquatic ecology and riparian vegetation
Community	Ensure public safety Minimise adverse socio-economic effects associated with mine closure

Table 4.2- NSW Resources Regulator Approved Rehabilitation Objectives

Rehabilitation Objective Category	Rehabilitation Objective	Spatial References
Removal of Infrastructure	All infrastructure that is not required as part of the final land use will be removed.	A1, B1, F1
Retention of Infrastructure	All infrastructure that is to remain as part of the final land use is safe and has relevant approvals in place.	A1, B1, F1
Land Contamination	There is no residual soil contamination on site that is incompatible with the final land use or that poses a threat of environmental harm.	A1, A2, A4, B1, B2, B3, B4, B7, F1, F3, F4, F5, J2, J5
Landform Stability	The final landform is stable and does not present a risk of environmental harm downstream/downslope of the site or a safety risk to the public/stock/native fauna.	A1, A2, A4, B1, B2, B3, B4, B7, F1, F3, F4, F5, J2, J5
Bushfire	The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as part of rehabilitation.	A1, A2, A4, B1, B2, B3, B4, B7, F1, F3, F4, F5, J2, J5
Surface Water	Runoff water quality is similar to, or better than the pre-mining disturbance runoff water quality.	A1, A2, A4, B1, B2, B3, B4, B7, F1, F3, F4, F5, J2, J5

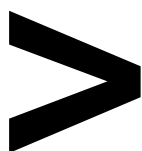
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Rehabilitation Objective Category	Rehabilitation Objective	Spatial References
Groundwater	Groundwater quality and groundwater regime are within range as predicted in environmental assessment and Water Management Plan. The risk to important groundwater assets (GDE's, Alluvial Aquifers, Landholder bores) has been addressed by the rehabilitation.	A1, A2, A4, B1, B2, B3, B4, B7, F1, F3, F4, F5, J2, J5
Water Approvals	Structures that take water are appropriately licensed.	A1, A2, A4, B1, B2, B3, B4, B7, F1, F3, F4, F5, J2, J5
Ecological Rehabilitation	Approximately 30% (HVO North) and 30-40% (HVO South) of mined land re-established as woodland areas.	A1, A2, A4
	Establish a minimum of 4ha of Central Hunter Grey Box Ironbark Woodland and 0.14ha of Swamp Oak Floodplain Forest.	A1, A2, A4
	The vegetation composition of the rehabilitation is recognisable as, or is trending towards Swamp Oak Floodplain Forest.	A1
	The vegetation composition of the rehabilitation is recognisable as, or is trending towards Central Hunter Grey Box Ironbark Woodland.	A1, A2, A4
	The vegetation structure of the rehabilitation is recognisable as, or is trending towards Swamp Oak Floodplain Forest.	A1
	The vegetation structure of the rehabilitation is recognisable as, or is trending towards Central Hunter Grey Box Ironbark Woodland.	A1, A2, A4
	Levels of ecosystem function have been established that demonstrate the rehabilitation is self-sustainable (Swamp Oak Floodplain Forest).	A1
	Levels of ecosystem function have been established that demonstrate the rehabilitation is self-sustainable (Central Hunter Grey Box Ironbark Woodland).	A1, A2, A4
	The vegetation composition of the native woodland rehabilitation contains species that are commensurate with the Central Hunter Grey Box - Ironbark Woodland and Central Hunter Ironbark - Spotted Gum - Grey Box Forest communities found in the local area.	A1, A2, A4
	The vegetation structure of the native woodland rehabilitation is similar to that of the Central Hunter Grey Box - Ironbark Woodland and Central Hunter Ironbark - Spotted Gum - Grey Box Forest communities found in the local area.	A1, A2, A4
	Levels of ecosystem function have been established that demonstrate the rehabilitation is self-sustainable.	A1, A2, A4
	Habitat features (e.g. logs, rocks and nest boxes), including structures suitable for native species are incorporated into rehabilitation areas at required densities.	A1, A2, A4
	Habitat corridors are established and consistent with target vegetation community compositions in final rehabilitation.	A1, A2, A4
	Monitoring confirms target native fauna species are recorded utilising rehabilitation areas or habitat suitable for target species is present	A1, A2, A4
Agricultural Revegetation	Approximately 70% (HVO North) and 60-70% (HVO South) of mined land re-established as stable, productive pasture areas.	B1, B2, B3, B4, B7

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Rehabilitation Objective Category	Rehabilitation Objective	Spatial References
	Revegetation is sustainable for the long term and only requires maintenance that is consistent with the intended final land use.	B1, B2, B3, B4, B7
	Land use capability is capable of supporting the target agricultural land use of Class 1.	B4
	Land use capability is capable of supporting the target agricultural land use of Class 2.	B4
	Land use capability is capable of supporting the target agricultural land use of Class 3.	B4
	Land use capability is capable of supporting the target agricultural land use of minimum of Class 6.	B1, B2, B3, B4, B7

4.1.2 | REHABILITATION COMPLETION CRITERIA

The completion criteria are objective target levels or values assigned to a variety of indicators (i.e. slope, species diversity, groundcover etc.), which can be measured to demonstrate progress and ultimate success of rehabilitation. They provide a defined end point, at which point in time rehabilitation can be deemed successful and the lease relinquishment process can proceed.

Completion criteria have been developed considering site specific issues, objectives and regulatory requirements (refer **Section 2.1** |). Proposed completion criteria have been submitted to the Resources Regulator on 7 August 2025. These criteria are reproduced in **Appendix D**.

HVO has chosen to take a staged approach for submission and approval of completion criteria (as outlined in Explanatory Note 1 of the *Rehabilitation Objectives and Rehabilitation Completion Criteria Guideline*) as some criteria, particularly those specific to native woodland outcomes, require further investigation and refinement. HVO will undertake further research and refinement of these criteria over coming years to ensure completion criteria adequately reflect the final land use.

4.2 | REHABILITATION OBJECTIVES AND COMPLETION CRITERIA - STAKEHOLDER CONSULTATION

4.2.1 | REHABILITATION OBJECTIVES AND COMPLETION CRITERIA

The HVO Rehabilitation Objectives outlined in Table 4.2 were developed in consultation with the NSW Resource Regulator. As discussed in **Section 4.2** | HVO has submitted completion criteria to the NSW Resource Regulator for approval in August 2025.

At a site-specific level, rehabilitation and mine closure consultation was also completed for the previous Mine Operations Plan's (MOP) developed for the site, as well as the relevant Environmental Impact Statement and subsequent modifications prepared for HVO North and South.

4.2.2 | RMP

The initial version of this RMP(V1.0) was developed throughout 2022 and included consultation with all relevant government agencies referenced in the development consents at the time as outlined in the table below in **Table 4.3**. Updates completed as part of V1.1-3.0 of the RMP were not sent for consultation due to the administrative nature of these changes.

This version of the RMP (V4.0) was also sent for consultation with Council and The Water Group (previously DPE Water) as required under Schedule 3 condition 32 of DA 450-10-2003 for HVO North and Schedule 3 condition 36 of PA 06_0261 for HVO South. Due to updates to the consent as part of HVO North DA 450-10-2003 Mod 8 consultation on this RMP with DCCEEW, Crown Lands and the CCC is no longer required. A summary of this consultation can be seen below in **Table 4.4**.

Table 4.3- Summary of Consultation on V1.0 of RMP

Date	Government Agency	Summary of Consultation	Actions by HVO
5 July 2022 26 July 2022	DPE Water	Copy of RMP provided to DPE Water via DPE Portal 5 July 2022.	A response was received from DPE Water on the 26 th July 2022. Actions undertaken by HVO can be seen in Appendix F .
5 July 2022	BCD (previously OEH)	Copy of RMP provided to BCD via DPE Portal 5 July 2022.	Nil matters raised by OEH, no response received.
5 July 2022	Council	Copy of RMP provided to Council via DPE Portal 5 July 2022.	Nil matters raised by Council, no response received.
5 July 2022	CCC	Copy of RMP provided to CCC members via email 5 July 2022.	Nil matters raised by CCC.
5 July 2022	CLWD (Crown Lands)	Copy of RMP provided to Crown Lands via DPE Portal 5 July 2022.	Nil matters raised by Crown Lands.
4 August 2022	DPE	HVO South uploaded to NSW Major Projects Planning Portal 4th August 2022 Portal reference: MP06-0261-PA-100. HVO North uploaded to NSW Major Projects Planning Portal 4th August 2022. Portal reference: DA450-10-2003-PA-65.	Plan approved by DPE on 14 June 2023

Table 4.4-Summary of Consultation on V4.0 of RMP

Date	Government Agency	Feedback	Actions by HVO
11 August 2025 25 August 2025	DCCEEW The Water Group (previously DPE Water)	Copy of RMP provided to Council via DPE Portal 11 th August 2025.	Feedback was provided to HVO on 25 August 2025 and can be found in Appendix G . This RMP was updated to reflect feedback received. HVO response to this feedback can be seen in Appendix F .
11 August 2025	Council	Copy of RMP provided to Council via DPE Portal 11 th August 2025.	Nil, no response received from council. Evidence of consultation through the portal can be seen in Appendix G .

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5 | FINAL LANDFORM AND REHABILITATION PLAN

In accordance with *Form and Way Rehabilitation Management Plan for Large Mines (NSW Resource Regulator, 2025)*, HVO submitted a Final Landform Rehabilitation Plan (FLRP) FLRP0001152 for the site in July 2022 and received approval from the NSW Resource Regulator on the 13 August 2024. Following the approval of HVO North Mod 8, the FLRP was revised and resubmitted to the NSW Resource Regulator on 8th August 2025 to include: Incorporation of micro-relief principles for areas that have not yet been reached final landform in HVO North. Areas that were completed prior to the approval of modification 8 have not changed and reflect relevant approvals at the time

- Revised location of the mining footprint and final void locations in HVO North to reflect the estimated location at the expiry of the develop consent on 31 December 2026.
- Update to landform in HVO south to incorporate geomorphic landform design at Riverview and reduce final landform height in Cheshunt.

As required under Schedule 3 Condition 28 of HVO North DA 450-10-2003, HVO has developed a *Final Void Management Plan* which provides further details on the location of final voids an overview of the potential short and long-term impacts of the final voids on groundwater resources and associated receptors.

5.1 | FINAL LANDFORM AND REHABILITATION PLAN – ELECTRONIC COPY

The Final Landform and Rehabilitation Plan 1 and Final Landform and Rehabilitation Plan 2 are provided in **Appendix A** of this document.

6 | REHABILITATION IMPLEMENTATION

6.1 | LIFE OF MINE REHABILITATION SCHEDULE

All areas disturbed as part of the operation will be progressively rehabilitated throughout the life of the mine. Each year HVO prepares an Annual Rehabilitation and Closure Plan (ARCP) which identifies all available rehabilitation and required closure / decommissioning activities.

A development application has been submitted to extend the life of mine at HVO North as part of the HVO Continuation Project. This application, if successful, would extend mining to 2042 in HVO South and 2045 in HVO North. An overarching rehabilitation and mine closure strategy has been developed for HVO as part of the Continuation Project which has a strong focus on progressive rehabilitation.

The proposed rehabilitation schedule for the life of the mine is outlined on **Plans 3 – 9 in Appendix A**: This schedule assumes an average ROM production rate of 21mtpa and an average overburden removal rate of 110,000bcm per year. This schedule is an estimate only and may change due to changes in production/overburden rates, mine geological or geotechnical conditions, coal market requirement, mining methods and mining technology. This schedule is also based of the submitted EIS for the HVO Continuation project and is subject to change pending the approval of the project.

Estimated timings of the construction and decommissioning of key infrastructure proposed to be constructed as part of the HVO Continuation Project can be found in **Table 6.1**. The tailings dam rehabilitation schedule and estimated timings final landform establishment activities are also provided in **Table 6.2** and **Table 6.3** below.

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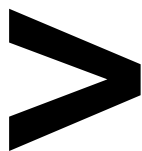


Table 6.1- Key Infrastructure Construction and Decommissioning Schedule

Infrastructure	Status	Construction Date ¹	Decommissioning Date ¹
Cheshunt Levee construction	Proposed	2027	2045
Parnell's Dam enlargement	Proposed	2027-2028	To be retained as part of the final landform.
Lake James Dam enlargement	Proposed	2027-2028	To be retained as part of the final landform.
North Void TSF Levee construction	Proposed	2027-2028	To be retained as part of the final landform.
Realignment of transmission lines	Proposed	2027-2028	TBC
Newdell Train Loading Facility and Stockpile upgrade	Proposed	2027-2029	2048
HVO North MIA upgrade	Proposed	2028	2048
Mitchel Pit Clean Water Diversion Stage 1	Proposed	2028	To be retained as part of the final landform.
Riverview Levee construction	Proposed	2028-2029	2045
HVO North ROM stockpile upgrade	Proposed	2029	2048
Mitchel Pit Clean Water Diversion Stage 2	Proposed	2029-2030	To be retained as part of the final landform.
Carrington West Wing Low Permeability Barrier Wall construction	Proposed	2033	2048
Mitchell East Levee Construction	Proposed	TBC	To be retained as part of the final landform
Carrington West Wing Levee construction	Proposed	TBC	2048

1 – Dates are current estimates and will vary depending upon date of approval and operational requirements.

Table 6.2- Tailings Storage Facility Rehabilitation Schedule

Site	Status	Average Depth (m)	Storage (Mm ³) and Volume (ML)	Start	Finish	Estimated Capping Volume (kBCM)	Capping Source	Estimated Rehabilitation Timeframe
Bob's Dump TSF	Inactive Capping in progress	8	1.84 Mm ³	2001	Dec 2012	1,000	Mitchell and Wilton Pits	Est 2026 ¹
Central TSF	Inactive	12	1.9 Mm ³	2001	Mar 2009	500	Carrington out of pit dump	Est. 2033-2035
Dam 6 TSF (Stage 2)	Inactive (full, consolidating)	24	4.4 Mm ³	Jan 2013	Dec 2021	1,000	Mitchell and Wilton Pits, stockpiled	Est. 2031-2035
North Void TSF	Inactive (consolidation, void filling permitted annually)	26	19.5 Mm ³	Jan 2004	Feb 2019	5,000	Carrington out of pit dump	Est. 2038-2040

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Site	Status	Average Depth (m)	Storage (Mm ³) and Volume (ML)	Start	Finish	Estimated Capping Volume (kBCM)	Capping Source	Estimated Rehabilitation Timeframe
Carrington In-Pit	Active	30	11.83Mm ³	Feb 2019	Mar 2030	4,000	Carrington out of pit dump	Est. 2038-2040
West Pit TSF	Planned	TBC	14.38Mm ³	2027	2045	TBC	Mitchel Pit	Est. 2045-2048
Lidell South Pit	Planned	TBC	TBC	TBC	TBC	TBC	Lidell South Pit	Est. 2045-2048
Lemington 1 TSF (Cell A&B)	Capped and Rehabilitated							
Lemington 4 TSF (Cell A&B)	Capped and Rehabilitated							
Eastern TSF	Capped and Rehabilitated							
Western TSF (Cell A&B)	Capped and Rehabilitated							
Lemington 2	Capped and Rehabilitated							
Lemington 3	Capped and Rehabilitated							
Lemington 5	Capped and Rehabilitated							
Howick TSF	Capped and Rehabilitated							
Pikes Gully TSF	Capped and Rehabilitated							
South East TSF	Capped and Rehabilitated							

¹ Capping of the Bobs Dump TSF will be completed in 2026. Seeding of final land use species will not occur until 2030 once the area has reached final landform height.

Table 6.3- Key Final Landform Establishment Schedule

Feature/Aspects	Status	Completion Date
Completion of mining in Mitchell/Carrington Pit	Ongoing	2045
Completion of Mitchell/Carrington Pit overburden dumping	Ongoing	2045
Stabilisation of Carrington Pit final void	Commences 2046	2048
Completion of mining in HVO South	Ongoing	2042
Completion of mining in HVO South	Ongoing	2042
Stabilisation of HVO South final void	Commences 2043	2045
Backfilling of Lemington South Void	Commences 2035	2041

1 – Dates are current estimates and will vary depending upon date of approval and operational requirements.

6.2 | INVESTIGATIONS TO ADDRESS KNOWLEDGE GAPS

HVO has submitted proposed completion criteria for approval as outlined in **Section 4** |. This submission however did not include indicators and criteria for all rehabilitation objectives as sufficient data is not currently available. Specifically, indicators and criteria relating to native vegetation composition, structure and function have not been included and require further refinement. HVO has been collecting monitoring

data at both rehabilitation and reference sites to assist with this since 2020. It is estimated that a further three years of monitoring will be required to obtain sufficient data to enable accurate and achievable criteria to be developed.

As outlined in **Section 8.3** | HVO undertakes an annual rehabilitation monitoring program to assess performance against rehabilitation completion criteria. Any performance gaps identified through this monitoring are incorporated into the sites rehabilitation maintenance program as outlined in **Section 6.3.6** |.

6.3 | PHASES OF REHABILITATION AND GENERAL METHODOLOGIES

The ultimate rehabilitation objective for HVO is to create stable, non-polluting post mining landforms that are cognisant of site constraints and allow the achievement of the agreed post mining land uses. This will be achieved by demonstrating completion of a series of conceptual phases of rehabilitation which are described as:

1. Active Mining – stripping and salvaging, stockpiling and ongoing management of topsoil resources including testing and characterisation and weed management;
2. Decommissioning – decommissioning of all on-site infrastructure, including the CPP's, administration buildings and train loading facilities; removal of haul road, rail crossings and hard stand areas, the completion of contamination studies for relevant areas and subsequent decontamination where required, removal of hazardous materials;
3. Landform Establishment – incorporates slope, aspect, drainage, substrate material characterisation and morphology;
4. Growth Medium Development – incorporates physical, chemical and biological components of the growing media and ameliorants that are used to optimise the potential of the media to support the preferred vegetative cover;
5. Ecosystem and Land Use Establishment – incorporates revegetating lands, habitat augmentation, species selection, species presence and growth together with weed and pest animal control /management and establishment of flora;
6. Ecosystem and Land Use Sustainability – incorporates components of floristic structure, nutrient cycling recruitment and recovery, community structure and function which are the key elements of a sustainable landscape; and
7. Land Relinquishment – completion criteria for rehabilitation are met and the land is determined to be suitable to be relinquished from the mining tenement.

6.3.1 | ACTIVE MINING

Environmental mitigation and management strategies will be implemented during the active phase of the operation to minimise environmental impacts. A number of activities will be undertaken during the active mining phase which will be specifically aimed at enhancing rehabilitation outcomes. Activities undertaken in this regard are summarised below.

6.3.1.1 | TOPSOIL MANAGEMENT

6.3.1.1.1 | TOPSOIL STRIPPING

Topsoil at HVO is management in accordance with the HVO Topsoil Management Plan. Topsoil will be stripped and salvaged correctly to maximise its value for re-use in rehabilitation. Where possible, the

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topsoil is directly transported from stripping to rehabilitation areas. If this is not possible, topsoil is stockpiled for later reuse. Topsoils are also characterized and stripped and stockpiled separately, where possible, to ensure re-use on appropriate rehabilitation areas (e.g. pasture topsoil is used on pasture rehabilitation).

Areas that are planned to be mined are stripped of soil prior to commence of mining. Excessive advance clearing and soil removal is kept to a minimum to reduce dust generation and potential impacts on fauna species. However, this is balanced with clearing a large enough area to aid flexibility in the scheduling of stripping activities to enable works to occur in favourable conditions and outside of fauna breeding periods. Soil is stripped using appropriately sized earthmoving equipment, generally bulldozers. Prior to stripping of soil, appropriate sediment controls are installed to prevent off-site loss of soil sediments.

6.3.1.1.2 | SOIL MANAGEMENT AND HANDLING

Stripped topsoil and subsoil needs to be managed to prevent erosion and weed infestation, and to ensure that the maximum soil reserves are retained for reuse during rehabilitation works.

Where feasible, soil is transferred directly from stripping to re-spreading operations, eliminating the need for storage. However, mine scheduling dictates that soil storage will be necessary on occasion for extended periods. Where stockpiling is required, the following principles are sought to be adopted:

- stockpiles are preferentially located away from heavily trafficked or active mining areas, watercourses and are placed on areas of flat topography or along the contour to minimise erosion;
- soils are stockpiled separately according to source, nature and history, and characterisation, and records maintained;
- soil stockpiles are identified, volume recorded, and management inspections are undertaken;
- stockpiles are constructed to a height of approximately 3 m, or less;
- where necessary and/or practical, bunding, sediment fencing or other appropriate sediment controls are installed around the base of the stockpile to minimise soil loss;
- stockpiles are sown with cover crop to help maintain topsoil viability and minimise erosion and weed infestation if not being reused for prolonged periods; and
- topsoil stockpiles are scalped, if necessary, prior to re-spreading onto rehabilitation areas to prevent the spread of weed seed into new rehabilitation.

6.3.1.1.3 | SOIL TREATMENT

Where topsoil quality data is not available, soil testing is undertaken to inform if soil treatment is required. Soil ameliorants, such as gypsum, compost, and fertilisers are applied where required to improve soil condition. The ameliorant type and application rate are confirmed by characterisation testing of topsoils at appropriate times during the stripping and reuse cycle and, generally, reference to specialist agronomic advice.

Where appropriate topsoil resources are not available, alternate growth mediums such as subsoils and mine spoil may be used, typically with amelioration and informed by characterisation of the planned growth medium. Organics such as green waste or composted municipal waste materials may be used in place of chemical fertilisers to enhance soil nutrient and organic levels and improve soil or growth medium structure. Revegetation can then be undertaken progressively as surface preparation and amelioration is completed.

6.3.1.2 | FLORA AND FUANA

Management of biodiversity at HVO is conducted in line with the HVO Integrated Biodiversity Management Plan. Clearing protocols are implemented before and during disturbance activities to mitigate impacts and to salvage appropriate resources, namely the Ground Disturbance Permit (GDP) approval process. The GDP process ensure that:

- key stakeholders are notified of work which will disturb land;
- works are assessed for potential impacts (on threatened and non-threatened flora and fauna);
- appropriate controls are identified and implemented, including delineation of disturbance areas; and
- resources that may be useful for rehabilitation (topsoil, seeds, hollow trees, woody debris) are identified and salvaged.

6.3.1.3 | ROCK AND OVERBURDEN EMPLACEMENT

All overburden and interburden material generated from mining operations at HVO is road hauled on current emplacement areas behind the active mining operation. Historical HVO has also direct placed overburden using a dragline in HVO North and South however both these ceased operation in 2023.

All mining waste emplacements will be reshaped as required to construct the approved final landform. The method and height of emplacement areas will be in accordance with the final approved landforms and HVO procedures for dumping. The heights of emplacement at HVO will be generally in accordance with the proposed final landform levels and as shown on **Plan 2: Final Landform Contours**.

6.3.1.4 | WASTE MANAGEMENT

Recycling and disposal of waste at HVO focuses on the correct handling, storage, segregation and reuse of materials. HVO recycles waste wherever possible, to reduce the amount of waste destined for landfill.

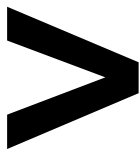
Waste will be managed in accordance with the following waste management hierarchy principles:

- Waste avoidance;
- Waste re-use;
- Waste recycling; and
- Waste removal and disposal.

6.3.1.5 | GEOLOGY AND GOECHEMISTRY

HVO extract coal seams within the Permian aged Jerrys Plains Subgroup of the Hunter Coalfields. The Jerrys Plains Subgroup comprises economic coal seams, along with overburden and interburden consisting of sandstone, siltstone, tuffaceous mudstone and conglomerate. The Permian coal measures are stratified (layered) sequences that have undergone deformation resulting in strata dipping at a shallow angle of 2° to 5° to the south-west at HVO North. Regionally, the stratigraphy dips in a general south-westerly direction, towards the Hunter River from Carrington Pit void.

Overburden material varies in physical and geochemical properties, in accordance with the geology of the area and the extent of exposure to weathering. Chemical analysis of HVO spoil material indicates that, in general, the overburden is slightly sodic and alkaline, but within acceptable ranges for use as a plant growth medium.



Further discussion on the potential impacts of geology and geochemistry on the rehabilitation (spontaneous combustion and acid mine drainage) is provided in the sections below.

6.3.1.6 | MATERIAL PRONE TO SPONTANEOUS COMBUSTION

HVO has procedures for managing spontaneous combustion in mine and rehabilitation areas. The objectives of HVO spontaneous combustion management is to:

- Ensure that spontaneous combustion outbreaks are minimised;
- Endeavour to identify potential areas that may be prone to spontaneous combustion before an outbreak occurs;
- Ensure that all carbonaceous material is placed in such a manner that reduces the possible occurrence of spontaneous combustion; and
- Where longer term spontaneous combustion problems occur, develop and implement a management plan to address until resolved

Any spontaneous combustion will be managed in accordance with the Spontaneous Combustion Principal Hazard Management Plan. The potential for future spontaneous combustion will be addressed by the selective use of pasture species in areas that have underlying carbonaceous material (e.g. former tailings storage facilities) (refer to **Section 6.2.5**).

6.3.1.7 | MATERIAL PRONE TO GENERATING ACID MINE DRAINAGE

The most recent geochemical assessment for HVO was undertaken as part of the EIS for the HVO Continuation Project in 2023 by Environment Geochemical Australia. Results from this assessment indicated that the vast majority of overburden / interburden materials represented by the samples tested are likely to be Non-Acid Forming.

The Archerfield Sandstone, tailings and coarse rejects are materials most likely to present the highest AMD risk and are managed in accordance with the HVO Geochemical Management Plan. In accordance with Schedule 3, Condition 62A of DA 450-10-2003, potentially acid forming interburden material is not emplaced at elevations within the pit shell or out of pit emplacement areas where they may promote acid or sulphate species generation and migration beyond the pit shell or out of pit emplacement areas.

Geochemical sampling is also conducted to improve understanding and description of the geochemical properties of major and high-risk lithological units. This sampling program includes:

- Sampling strategy for waste rock
- Sampling strategy for rejects (coarse, fine and ultra fine)
- Geochemical test and laboratory analysis suites for samples
- Reporting requirements and frequency of reporting.

6.3.1.8 | ORE BENEFICIATION WASTE MANAGEMENT (REJECT AND TAILINGS DISPOSAL)

6.3.1.8.1 | COARSE REJECTS

Coarse reject consists predominantly of fine-grained sedimentary rock types with minimal quantities of carbonaceous material. The reject contains no energy, is of no current commercial use and has low

potential for spontaneous combustion. This material has similar properties to overburden in contact with coal seams and is generally saline and alkaline.

Coarse rejects are transported by truck and buried below the final surface level in overburden emplacements as part of the final landform design. The depth of cover is determined by a suitably qualified engineer in accordance with the approved management plans applicable to the location to ensure that potential acid mine drainage matters or spontaneous combustion are mitigated.

6.3.1.8.2 | TAILINGS

Fine reject (tailings) is thickened into a solid density of approximately 20% to 30% by weight and is predominantly fine rock and clay with some coal and flocculent. The tailings are wet with moderate conductivity.

Tailings are currently transported to the following emplacement areas:

- Carrington In-Pit TSF; and
- Cumnock Void TSF – under an agreement with Glencore (Ravensworth) to utilise 25% of the void capacity.

Intermittent deposition of tailings will occur at North Pit TSF, Dam 6W TSF and Central TSF as part of ongoing management towards decommissioning, subject to approval from the Regulator. TSF locations are shown on **Figure 2**, and **Section 6.1** | provides information on the plans for capping and rehabilitation of TSFs for the life of the operation.

6.3.1.9 | EROSION AND SEDIMENT CONTROL

Erosion and sedimentation at HVO is managed in accordance with the HVO Water Management Plan.

During and following ground disturbance, structures such as sediment dams, sediment fences and catch drains will be utilised as appropriate to manage runoff water and manage erosion and sedimentation. Inspections will be carried out to ensure the effectiveness of erosion and sediment control structures. Additional stabilisation works for these areas may include reshaping, amelioration of dispersive soil, revegetation, fencing and weed control.

6.3.1.10 | ONGOING MANAGEMENT OF BIOLOGICAL RESOURCES FOR USE IN REHABILITATION

All risks and mitigation measures associated with the management of topsoil, seeds and other biological resources are discussed in **Section 6.3.1.1** | and **Section 6.3.1.2** |.

6.3.1.11 | MINE SUBSIDENCE

The former Lemington Underground Mine operated from 1971 to 1992 using bord and pillar mining methods in the Mount Arthur Seam, with areas of longwall extraction. The former Lemington Underground Mine was acquired and merged into HVO South in 2001. The underground workings are located south-east of the current mining areas at HVO South, below the South Lemington Pit 1, and north-west of Warkworth Mine. The Mount Arthur Seam floor in the former workings ranges from approximately 40 metres Australian Height Datum (mAHD) to approximately -205 mAHD, generally dipping from the north-east to the south-west.

In 2022, Mod 7 of PA 06_0261 was approved allowing for the storage of water in the underground workings. There is not expected to be any subsidence impacts on current or future operations or rehabilitation.

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6.3.1.12 | MANAGEMENT OF POTENTIAL CULTURAL AND HERITAGE ISSUES

Aboriginal cultural heritage is managed in accordance with the HVO North Aboriginal Heritage Management Plan and the HVO South Aboriginal Cultural Heritage Management Plan. HVO works closely with the local Aboriginal community on all aspects of cultural heritage management. Regularly community consultation occurs via the HVO Aboriginal Cultural Heritage Working Group on matters pertaining to Aboriginal cultural heritage at HVO.

HVO has also constructed and maintains Cultural Heritage Databases and a Geographical Information System (GIS) to better manage and protect sites. The GDP system has also been implemented at HVO and must be authorised by cultural heritage staff and completed prior to any disturbance of HVO outside current mining operations.

There are no cultural heritage features associated with the final landform.

There are no listed items of European Heritage in planned rehabilitation areas at HVO and therefore no management measures are required.

6.3.1.13 | EXPLORATION

Exploration drilling will be undertaken within the HVO mining lease areas to obtain further information regarding the resources to be mined as well as define geological and geotechnical information relevant to the mining and construction activities that will be undertaken. Additional drill holes to install groundwater and gas monitoring bores may also be required.

Construction, sealing and abandonment of boreholes will be in accordance with relevant standards and guidelines published by the DPHI-RR and in force at the time. Bores will also be decommissioned in accordance with the Minimum Construction Requirements for Water Bores in Australia (2020).

6.3.2 | DECOMMISSIONING

As part of the mine closure process, infrastructure which is not able to be utilised by subsequent approved land uses will be removed. Soils within and surrounding former infrastructure areas will be assessed for potential contamination. Any contamination present will be remediated, and contaminated material will be treated or appropriately disposed of. As with other disturbed areas, former infrastructure areas will be revegetated unless proposed for other land uses.

As part of the mine closure process, dams forming part of the mine water management system will be removed unless they are to be utilised for habitat purposes, are associated with long-term stability and water management, or are beneficial to subsequent land uses (e.g. stock dams). Removal of sediment from mine water dams will occur as required as part of the closure and rehabilitation processes regardless of the suitability of the dams for other purposes.

A Phase 1 Contamination Assessment has been completed across the operation, with a Phase 2 assessment also completed at the former Lemington CHPP location. The operation, in particular infrastructure areas, will be further assessed prior to decommissioning or demolition.

6.3.2.1 | SITE SECURITY

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

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

6.3.2.2 | INFRASTRUCTURE TO BE REMOVED OR DEMOLISHED

6.3.2.2.1 | BUILDING AND FIXED PLANT

All buildings, fixed plant and other infrastructure that are not required as part of the post-closure land use will be demolished and removed from the site. Where appropriate, the materials recovered during demolition will be sold for reuse or recycled. This includes ROM and product stockpiling and transport infrastructure such as bins and conveyors.

Concrete footings and pads, along with other inert building waste, will be broken up and buried with overburden in the pit area or used in rehabilitation where appropriate. Footings and pads will be removed to a depth of 0.5m below the ground surface and covered with inert material. It is noted that an EPL variation will be required to permit the disposal of this inert waste on site.

Where they do not pose a constraint to the proposed final land use, structures such as footings, underground water pipelines and disconnected power cables may be left in situ. This may include where it is not practical to retrieve the structures or where their removal may lead to environmental damage. These remaining structures will be surveyed and recorded on a plan.

6.3.2.2.2 | EQUIPMENT STORAGE AREAS

Any redundant plant or equipment will either be sold or disposed of at an appropriate landfill facility.

Storage areas will be assessed for potential contamination (e.g. hydrocarbons) and remediation undertaken as required.

6.3.2.2.3 | HARDSTAND AREAS, ROADWAYS AND CAR PARKS

Hardstand areas, roadways and car parks will be removed (unless required for a post mining land use) with inert waste material (e.g. bitumen, concrete) being placed and capped in the tailings/overburden emplacement areas or incorporated into the final voids.

6.3.2.3 | BUILDINGS, STRUCTURES AND FIXED PLANT TO BE RETAINED

At this stage, no buildings, structures or fixed plant are proposed to be retained as part of the final landform. However this will be reviewed during the detailed mine closure planning process which will be undertaken as the operation approaches mine closure.

6.3.2.4 | MANAGEMENT OF CARBONACEOUS / CONTAMINATED MATERIAL

Excess coal material remaining at closure will be scraped up and either reprocessed or disposed of within the tailings/coarse reject emplacement areas on site.

Any remaining carbonaceous material (e.g. coal reject) on the base of the coal stockpile area will be either capped with inert material in accordance with relevant guidelines or scraped up, removed and disposed of with tailings or as coarse reject within the emplacement area.

Where there is potential that contamination may have occurred as a result of site activities (e.g. refuelling areas, workshops, etc), investigations will be undertaken to determine the presence and extent of any contamination. Where identified, contaminated material will be bioremediated on site or disposed of offsite at an authorised waste facility.

If applicable, a suitable qualified contamination expert will be engaged to verify that any contamination has been adequately managed.

6.3.2.5 | HAZARDOUS MATERIAL MANAGEMENT

Hazardous materials and dangerous goods used at HVO include sealed radiation sources, gases for cutting and welding, explosive precursors and diesel fuels. Dangerous goods and explosives are managed in accordance with relevant legislation.

HVO manages hazardous material through the ChemAlert system whereby all chemicals used on site are registered through a central database. The central database contains all information contained in the Safety Data Sheets (SDS) and an inventory of chemicals held onsite.

Radiation sources at the CPP are fully sealed and managed by an appointed radiation safety officer in accordance with radiation licences issued under the Radiation Control Act 1990.

HVO implements procedures and controls to minimise the potential for land and water contamination from the handling, storage and disposal of hazardous substances. These controls include storage within properly sealed containers and controlled areas, banded for medium to long-term storage requirements.

6.3.2.6 | UNDERGROUND INFRASTRUCTURE

There is no underground mining currently undertaken at HVO, or planned to be undertaken, and therefore there is no requirement for the removal or decommissioning of underground infrastructure. HVO has approval for storage of water in the closed Lemington underground workings via boreholes and any existing or planned water infrastructure will be decommissioned, surface infrastructure removed and boreholes rehabilitated.

6.3.3 | LANDFORM ESTABLISHMENT

6.3.3.1 | WATER MANAGEMENT INFRASTRUCTURE

Drainage patterns on rehabilitated areas are designed to be compatible with the surrounding drainage network, and report rehabilitation catchments of similar size to pre-mining catchments to the approximate location of the pre-mining flow lines.

The approach to drainage from rehabilitation areas at HVO can be split into two main categories: traditional drainage and natural drainage. Traditional drainage methods have been used on rehabilitation areas in the West Pit and Carrington Pit areas in accordance with previous approval commitments for these areas. Some older rehabilitation areas within HVO South will also incorporate traditional drainage, where they were constructed before the HVO South PA 06_0261 approval Mod 5. Natural drainage methods will be utilised for all rehabilitation areas constructed in HVO South following this approval and in HVO North following the approval of HVO North DA 450-10-2003 Mod 8.

The traditional drainage approach is achieved using a combination of controls such as graded banks, designed channels and where necessary, water course reinforcement. Diversion drains to collect surface runoff are designed with an approximate slope of 1 – 1.5% to minimise erosion.

The key aspects of the natural drainage design include:

- the drainage density of the final landform is to reflect the nature of the drainage patterns in surrounding landforms;
- steeper slopes are to be located higher in the catchment (where water flows are smallest), with slope gradients flattening out downstream;
- drainage lines will have both channel and floodplain components to provide stability during high rainfall events; and
- gentle flow transitions which emulate natural transitions and maintain a balance between scour risk and sedimentation.

Drainage depressions, attenuation basins, and sedimentation dams are incorporated into the final landform where appropriate to collect water runoff and allow suspended sediment to settle out. At present, base of system sediment basins are generally dewatered to site storages to prevent turbid waters flowing to the offsite environment. However, once an adequate vegetation cover is established and the slope is stable, this water can be released from site following a period of sampling that indicates suitable water quality. Sedimentation dams will be designed in accordance with HVO's approved Water Management plan and consistent with Managing Urban Stormwater: Soils and Construction (Blue Book) design criteria.

Drainage from Carrington rehabilitation will be reinstated to the adjacent Carrington Billabong once the rehabilitation is safe, stable and non-polluting.

The proposed water management infrastructure that will remain at mine closure is outlined on **Plan 1: Final Landform Features**. All dams that will remain post-closure will be appropriately designed and constructed in accordance with the relevant design standard at the time.

6.3.3.2 | FINAL LANDFORM DESIGN

The final landform design for HVO was prepared as part of the EIS for HVO North (ERM 2003) and HVO South (ERM 2008), and subsequent modifications. The proposed final landform has been designed in consideration of the surrounding landscape and includes stable, natural profiles, as shown on **Plan 2: Final Landform Contours**. Most of the landform features slopes flatter than 25 per cent (14°), with steeper gradients confined to the low-wall and high-wall areas adjacent to the final void.

The Final landform was updated to reflect the approval of HVO North Mod 8 in April 2025 which requires the final landform design to incorporate micro relief and be integrated with surrounding natural landforms. Landforms constructed before this approval, and before the approval of HVO South Mod 6 (2017) have been constructed using traditional landforms and slopes in accordance with the approvals applicable at the time.

6.3.3.3 | REJECT EMPLACEMENT AREAS AND TAILINGS DAMS

Tailings and fine rejects at HVO are managed in accordance with the HVO Fine Reject Management Strategy and Operation and Maintenance Manuals. The Strategy is a requirement of the HVO North Development Consent (DA 450-10-2003) and outlines the tailings deposition schedule, status and design parameters of each TSF, estimated capping volumes, rehabilitation methodology and controls associated with potential ground and surface water impacts of each facility.

HVO's current tailings disposal strategy satisfies the predicted HVO tailings storage requirements for the life of the operation. HVO South currently has no active tailings storage facilities as all previously active facilities have been closed, capped and rehabilitated.

The rehabilitation of the South East TSF was completed in 2022. Works have commenced in 2024 on capping the Bobs dump TSF with works expected to be completed by 2026. The placement of tailings at

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the North Void TSF ceased in 2019 and is being managed to limit the size of the decant pond to promote solar drying and consolidation. Capping of this facility will be subject to adequate surface strength being gained. The current proposal to achieve this is via deposition of thin layers of tailings, however, this method is yet to receive approval from the EPA pending satisfactory demonstration of seepage mitigation. In-pit tailings emplacement commenced at Carrington Pit during 2019. Tailings will continue to be emplaced within the Cumnock Void in accordance with a management agreement with Ravensworth Operations to utilise a defined capacity of Cumnock Void as a TSF. Under the agreement, the responsibility to rehabilitate Cumnock Void TSF will lie with Ravensworth Operations.

The main elements of the closure and rehabilitation strategy for TSF's include:

- where possible, reducing tailings deposition rate (towards end of filling) to provide for development of a 5 m thick tailings crust to support closure activities;
- provide supplementary tailings in thin layers to fill areas of settlement within the TSF prior to capping;
- developing a capping and landform design and submission of a High Risk Activity notification;
- placement of layers of capping fill materials, comprising typically mine overburden material, at a minimum of 2 m thick; and
- revegetation to the final land use as shown on **Plan 1: Final Landform Features**.

o assist with desiccation and stabilisation of the TSFs, HVO have adopted a tailings disposal strategy that utilises secondary (or Pipe Head) flocculation for all active storages. Along with beach management and thin layer deposition as the facilities near the end of their capacity, secondary flocculation will assist with the desiccation and consolidation of the tailings to a suitable depth. Upon ceasing to use a TSF, sporadic deposition of tailings may be required to consolidate voids arising from settlement during the drying phase. This will assist to maintain a positive surface drainage underlying the capping material and contribute to the long-term stability of the facility.

Material deemed suitable for capping is identified and, if necessary, stockpiled in proximity to each TSF. Where this has not occurred to date, sufficient material will be identified ahead of the closure of each facility (as part of the capping design) and will be reserved for that use. The volume of capping material takes into account ongoing settlement of the consolidating tailings to provide a free-draining surface. Volumes of material required, and stockpile locations are detailed in the [HVO Fine Reject Management Strategy](#). Sampling of capping materials will be undertaken as part of material selection to ensure adequacy for structural, water management and vegetation aspects.

Existing rehabilitated TSFs are revegetated primarily with pasture species and light woody vegetation. As of 2024, HVO will use a pasture only seed mix for vegetation establishment on rehabilitated TSF's. HVO considers a 2 m thick cap of overburden material to be an adequate growth medium for woodland vegetation without risk of compromising the integrity of the cap and exposing tailings. Long term scientific monitoring of the rehabilitation will provide data to confirm this. HVO will monitor any new research or industry findings that explore capping depth requirements for long-term stability.

Potential water impacts associated with active and capped tailings are managed in accordance with [HVO Water Management Plan](#). Management of potential surface and groundwater impacts associated with TSF's is assessed as part of the EIS process and also summarised in the [HVO Fine Reject Management Strategy](#).

6.3.3.4 | FINAL VOIDS, HIGHWALLS AND LOW WALLS

The proposed final landform for HVO North will include three final voids across West Pit North, West Pit South, and Carrington operating as a mix of evaporative sinks and pit lakes. HVO South will include an evaporative basin in the south-western corner of the Deep Cheshunt Pit (currently Riverview Pit).

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The final voids will be constructed in accordance with the objectives and criteria for voids outlined in **Sections 4.1 | and 4.1.2 |**. Further detailed information will be developed as part of a Detailed Mine Closure Plan for the operation. As outlined in **Section 5 |**, further details on final voids for HVO North is outlined in the *HVO North Final Void Management Plan*.

6.3.3.5 | CREEK / RIVER DIVERSIONS

A number of Creeks have been diverted in sections to enable the passage of mining and siting of infrastructure. These diversions include sections of Parnells Creek, Pikes Creek, Farrells Creek and an unnamed creek in Carrington. The diversions were constructed in accordance with best practice methods at the time. HVO will undertake erosion and geomorphic reviews of the diversion prior to closure to confirm that the diversion meets the closure criteria provided in **Section 4.1.2 |**

It has been common practice in the past to utilise coarse rejects for the development of an initial cap followed by placement of mine overburden. Existing rehabilitated TSF's will likely include a coarse reject layer as part of the 2m cap.

6.3.3.6 | TEMPORARY STABILISATION

Where progression to final rehabilitation is significantly delayed overburden areas may be shaped to an interim or final landform and suitable cover crops or other surface stabilisation applied to minimise dust generation and erosion. Temporary stabilisation may also be undertaken on unshaped overburden dumps and other disturbed areas. Temporary stabilisation of these areas is primarily designed to control fugitive dust emissions however can also improve visual amenity.

Temporary stabilisation by seeding with sterile cover crops may be undertaken on disturbed areas during construction activities or during the staging of construction works.

6.3.4 | GROWTH MEDIUM DEVELOPMENT

Surface preparation activities for rehabilitated areas will commence as soon as practicable following the completion of mining activities and landform establishment. Appropriately sized earthmoving equipment will be used for these processes to avoid unnecessary compaction.

If topsoil characterisation has not previously been undertaken, sampling of the topsoil stockpile to be used for a rehabilitation area will be conducted prior to spreading to determine whether specific amelioration techniques (e.g. addition of gypsum or organic matter) are required (refer to **Section 6.3.1.1 |**).

The general surface preparation activities to be undertaken for rehabilitation areas include:

Install contours or drainage structures in accordance with site standards and project approval conditions;

- Deep rip overburden;
- Rock rake;
- Spread topsoil (topsoil management is detailed further in **Section 6.3.1 |**);
- Spread gypsum and/or other ameliorants at rate determined by soil analysis;
- Spread timber or other habitat features in selected locations;
- Final rock rake; and
- Scarify/light rip, aerate or deep rip of the final surface ahead of sowing

A Quality Control Checklist (**refer to Section 7 |**) has been developed to ensure that appropriate inspections are completed and each step has been completed adequately before progressing.

Where monitoring and inspections indicate that growth medium conditions may be less than ideal, or initial germination is less than expected, additional topsoil analysis may be undertaken to ensure ameliorants have been effective.

6.3.5 | ECOSYSTEM AND LAND USE ESTABLISHMENT

Following ground preparation and growth medium development works, revegetation activities will commence as soon as possible. Where possible, this is scheduled to be during Autumn or early Spring (ideal sowing times). However due to mining and other operational constraints, this is not always possible and seeding may occur outside these periods. Experience at HVO and other Hunter Valley mining operations has indicated satisfactory results can still be achieved when seeding outside of optimum times, especially for native woodland species.

Seeding may however be delayed in the short-term to avoid adverse weather conditions such as prolonged rain, extended drought or high winds. In these instances, operational personnel will review forecast weather conditions and delay final ground preparation (e.g. final ripping or scarification) until an adequate window is available for seeding.

HVO is rehabilitating its lands with a combination of pasture and woodland. The location of pasture and woodland plots has been determined based on their most appropriate location within the landform. Where possible, agricultural / pasture areas have been preferentially located on flat or gently sloping parts of the landform. In particular, former tailings storage facilities established after 2024 will only be seeded with pasture species to reduce the risk of root ingress into tailings material. Woodland corridors are subsequently located mostly on the inner and outer facing slopes. These preferences have been modified where necessary to ensure minimum target areas are met (e.g. 30 or 40 percent woodland) or where legacy rehabilitation areas suit a particular final land use option.

To achieve diversity targets, long-term seed mixes will contain species to achieve the following:

- Plant structure and form (e.g. tree vs. shrub);
- Floristics (e.g. spread over a range of plant genera); and
- Life cycle (e.g. short lived primary coloniser vs. long lived understory shrubs).

Seed will be spread using the most appropriate equipment for the area. This will most often be drill-seeder which can be adjusted to modify the drill depth based on the type of seed being spread.

Seed is supplied by a third party contractor who collects seed from the local area where possible. All supplied seed undergoes best practice treatment and viability testing.

Following the completion of seeding, rehabilitation areas are appropriately delineated to prevent unauthorised access and disturbance. This can include a range of controls including windrows, signage and OCE witches' hats.

6.3.5.1 | PASTURE REHABILITATION

Typical pasture species and rates of application are shown in **Appendix E**. Lightly scattered groups of native trees, shrubs and groundcovers will also be planted in pastures to give shade and shelter for livestock, to provide native forests for wildlife habitat and possible future commercial timber operations. Fertiliser is added based on soil testing results.

6.3.5.2 | NATIVE WOODLAND REHABILITATION

Native woodland rehabilitation within HVO, aimed at enhancing biodiversity, will be promoted by:

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- Using native endemic seeds (to match those already found on the subject site) where possible, for seeding and replanting programmes;
- Rehabilitating groundcover, understorey and canopy species by seeding and planting (planting understorey and tree species will be undertaken where grass competition restricts the use of direct seeding);
- Planting a variety of species as opposed to a monoculture, especially species that flower at different times of the year or that provide foraging resources for affected species;
- Creating a diversity of landforms and habitats such as open woodlands on ridgetops and lower slopes;
- Placement of habitat features such as logs, rocks, drainage depressions, and dams; and
- Linkage of areas rehabilitated with trees with adjacent remnant vegetation to promote regional corridors.

Woodland areas to be seeded during this RMP term will continue to include native understorey species with seed mixes being assembled in accordance with **Appendix E**. This table includes diversity targets for seed mixes with targets set for minimum number of species/genera to be included for the functional groups in each strata of the target vegetation community.

6.3.6 | ECOSYSTEM AND LAND USE DEVELOPMENT

Activities associated with the Ecosystem and Land Use Development Phase of rehabilitation are generally ongoing maintenance and land management activities and rehabilitation monitoring.

The requirement for maintenance works is assessed on an ongoing basis through the rehabilitation monitoring program (refer to **Section 8**) and by routine inspections. Key issues covered by the maintenance program are outlined in the sections below.

6.3.6.1 | WEED AND FERAL ANIMAL CONTROL

Weeds can limit tree growth and out compete emerging native plants, particularly in the early stages after seeding. The rehabilitation process at HVO has been designed to limit the growth of weeds over the longer term, by maximising the number of trees and shrubs in native woodland areas.

Key weed species that have the potential to impact on the longer-term sustainability and relinquishment of rehabilitation at HVO include:

- Acacia Saligna (woodland and pasture areas);
- Galenia (woodland and pasture areas);
- Fireweed (pasture areas); and
- Exotic perennial grasses e.g. Coolatai grass, Rhodes grass, green panic (woodland areas).

Targeted weed control campaigns will be undertaken on an ongoing basis to manage and limit the spread of weeds within rehabilitation areas. The scope of these campaigns will be determined by regular inspections and annual monitoring programmes (refer to **Section 8**). Weed control programs will be prioritised based on the size and severity of the infestation, along with the probability of it spreading to adjacent rehabilitation or remnant vegetation areas. Weed control works in rehabilitation areas will be undertaken by experienced contractors so that there is minimal to no impact on trees, shrubs and other native plants.

Higher priority weed species such as those listed above will be managed strategically across the site, with priority being given to eliminating them from defined areas and working outwards. Management of exotic grasses will be particularly important for woodland rehabilitation, and targeted management of topsoil stockpiles will be completed to prevent their being spread onto woodland areas.

Weed infestations identified during various inspections and monitoring programs will be recorded in GIS so that their location and status can be monitored over time. Similarly, the need for feral animal control programs will be determined by annual monitoring programs. Any targeted shooting, baiting or trapping programs will be conducted by a licensed contractor in consultation with NSW Local Land Services (LLS).

6.3.6.2 | EROSION AND DRAINAGE CONTROLS

Erosion features that are identified during monitoring programs that may require repair include rill and gully erosion, tunnelling, slumping or ponding. Repair methods may include hand seeding (to limit additional disturbance), ripping and re-seeding, re-grading of contour banks or re-construction of failed structures.

Erosion and drainage repairs will be prioritised on the likelihood of the erosion worsening or developing into adjacent rehabilitation areas, and the potential for failures to report to the clean water management system.

6.3.6.3 | RE-SEEDING / RE-PLANTING OF REHABILITATION AREAS

If rehabilitation monitoring programs identify areas of rehabilitation that have failed, or do not contain the required species composition or diversity, re-seeding or re-planting works will be planned and scheduled. These works may include:

- Spraying, ground preparation and re-seeding of a full targeted seed mix
- Hand seeding of specific species that are not represented in the rehabilitation area, either across the whole area or in specific pockets of the rehabilitation;
- Over-sowing of pasture grass species where total biomass or palatable species are lacking to support grazing activities; or
- Planting of tube-stock to increase overall species diversity or to improve species composition.

6.3.6.4 | MAINTENANCE FERTILISING

The need for maintenance fertilising will be assessed during regular rehabilitation monitoring programs, particularly in agricultural final land use areas where grazing is occurring or planned to occur. The application method (e.g. tractor spreader or aerial spreading) will be determined based on the existing vegetation, landform and timing of application.

6.3.6.5 | REPAIR OF FENCE LINES, ACCESS TRACKS AND OTHER GENERAL LAND MANAGEMENT ACTIVITIES

The condition of fence lines, access tracks and other features (e.g. dams, troughs) will be assessed during the Annual Rehabilitation Walkover (**Section 8.2**) and targeted agricultural or pastoral assessments completed as part of grazing activities conducted by leases.

The requirement for fencing, access and water points for future agricultural activities within rehabilitation areas will be assessed as part of HVO's ongoing budget process, and when establishing lease agreements.

6.3.6.6 | ENVIRONMENTAL MONITORING AND MANAGEMENT

HVO maintains an Environmental Management System (EMS) as a means to facilitate compliance with environmental standards and requirements. The EMS provides a framework for managing all environmental and community aspects, impacts and performance of the mining operations. As part of the EMS, management plans, procedures and standards have been developed to meet statutory requirements, manage activities on site to minimise risk to the environment and to continually improve the performance of operations. These management plans and their controls apply to all rehabilitation areas and will continue to apply and be implemented until rehabilitation relinquishment.

6.3.6.7 | REHABILITATION OF AREAS AFFECTED BY SUBSIDENCE

The Lemington Underground Mine operated from 1971 to 1992 using bord and pillar mining methods in the Mount Arthur Seam, with areas of longwall extraction. The former Lemington Underground Mine was acquired and merged into HVO South in 2001. The underground workings are located south-east of the current mining areas at HVO South, below the South Lemington Pit 1.). The Mount Arthur Seam floor in the former workings ranges from approximately 40 metres Australian Height Datum (mAHD) to approximately 205 mAHD, generally dipping from the north east to the south west.

The underground operation was decommissioned and all surface infrastructure rehabilitated. Subsidence occurred during the operation of the mine and the likelihood of further ground movement has been assessed and estimated to be very low.

7 | REHABILITATION QUALITY ASSURANCE PROCESS

HVO will implement a rehabilitation quality assurance process for each phase of rehabilitation. These processes will ensure:

- rehabilitation is being implemented in accordance with the nominated methodologies;
- identification of those responsible for implementation; and
- identified risks to rehabilitation are being adequately addressed at each phase of rehabilitation

The specific processes for each phase are outlined in the sections below.

7.1 | ACTIVE MINING

The quality assurance and documentation processes that will be implemented during the active mining phase include:

- maintenance of up to date mine plans by the sites survey department;
- completion of GDP's, including inspections during and post works, and documentation of pre-clearance surveys;
- maintenance of a topsoil register which includes an inventory of stockpiles and their original location, characterisation results, condition and inspection results;
- surface water monitoring and regular review of trigger levels;
- regular inspections of temporary and permanent erosion and sediment controls;
- regular inspections to identify potential weed infestations;

- documentation of all weed management and eradication programs and follow-up inspections; and
- waste tracking and recording of volumes removed from site.

7.2 | DECOMMISSIONING

Quality assurance processes will be identified during the development of the sites detailed mine closure plan. However, these are likely to include the following as a minimum:

- inspections and demolition reports to confirm all infrastructure has been removed;
- validation testing to ensure any contamination has been appropriately remediated and/or removed;
- updates to mine plans and record tracings; and
- waste tracking to confirm removal of all hazardous wastes from site.

7.3 | LANDFORM ESTABLISHMENT

To facilitate efficient and accurate handover of rehabilitation areas between departments and phases, HVO has developed a *Rehabilitation Design and Bulk Shaping Handover Checklist*. The checklist includes:

- confirmation the landform design complies with approval requirements;
- consideration of drainage requirements; and
- confirmation that bulk shaping has been completed adequately and to design.

The checklist includes a sign-off by relevant departments to certify the work has been completed.

7.4 | GROWTH MEDIUM DEVELOPMENT

In addition to the landform establishment elements described above, the *Rehabilitation Design and Bulk Shaping Handover Checklist* includes the following elements:

- confirmation that drainage structures have been constructed to design;
- confirmation ground preparation elements such as deep ripping and rock removal have been completed; and
- confirmation that topsoil stockpiles have been scalped, topsoil has been placed at the appropriate depth and ameliorants have been applied at the correct rate

7.5 | ECOSYSTEM AND LAND USE ESTABLISHMENT

Documentation of seeding or planting activities is completed in the *Rehabilitation Design and Bulk Shaping Handover Checklist* and includes:

- date of planting;
- seed mix;
- seeding rate (kg/ha) and/or planting rate (tubestock/ha);
- fertiliser or ameliorant rate (kg/ha);

In addition to the above records, rehabilitation monitoring will commence during this phase and will primarily include initial establishment monitoring and an Annual Walkover Inspection which will document rehabilitation condition and maintenance requirements.

7.6 | ECOSYSTEM AND LAND USE DEVELOPMENT

Quality control processes during the ecosystem and land use development phase involve the sites ongoing rehabilitation monitoring program which is detailed in **Section 8** |. Monitoring program results will feed into HVO's rehabilitation maintenance schedule which includes:

- detailed maintenance requirements for each rehabilitation block including weed control, erosion repairs and re-seeding or planting requirements;
- indicative schedules for completion of required maintenance; and
- indicative costs and resources required to complete maintenance activities.

Completion of maintenance activities will be documented by contractors completing the works, and reported in the Annual Rehabilitation Report and Forward Program (ARRFP) and Annual Review.

8 | REHABILITATION MONITORING PROGRAM

HVO has developed a rehabilitation monitoring program to confirm rehabilitation areas are trajecting towards meeting the rehabilitation objectives, and performance and closure criteria. Monitoring will be undertaken in accordance with GCAA's *Completion Criteria and Rehabilitation Monitoring Procedure* (2020) which includes:

- an annual rehabilitation walkover inspection;
- initial establishment monitoring; and
- long term rehabilitation monitoring (including analogue sites).

8.1 | ANALOGUE SITE BASELINE MONITORING

GCAA has developed a shared rehabilitation reference site monitoring program for its NSW operations following advice from University of Queensland's Centre for Mined Land Rehabilitation (CMLR, 2020) and ERR Australia (ERR, 2020). The combined reference program ensures adequate spatial and temporal coverage for each target vegetation community, as well as sufficient replication to enable statistical analysis of monitoring results to ensure completion criteria have been met. In accordance with this program, HVO has established three woodland reference sites which are monitored biennially as per the program schedule.

In addition, HVO has established two permanent pasture reference sites which will be used to develop completion criteria for pasture final land use rehabilitation blocks.

8.2 | REHABILITATION ESTABLISHMENT MONITORING

The *Completion Criteria and Rehabilitation Monitoring Procedure* requires rehabilitation blocks less than three years old to be monitored using the Initial Establishment Monitoring (IEM) method which is a rapid style assessment principally to determine germination success and landform stability. Each monitoring site is assessed twice within the first three years, and includes the following parameters:

- Erosion – presence and depth of erosion gullies or rills;
- Bare ground – visual estimate of bare ground percentage;
- Ground cover – visual estimate of ground cover percentage;
- Weed cover – rapid assessment of High Threat Exotics and Priority Weeds;
- Pasture species composition – foliage cover of desirable pasture species (pasture rehabilitation sites only);
- Native species richness – rapid assessment of native species present; and
- Tree stem density – number of tree stems within plot area.

Once rehabilitation blocks become older than three years, they are amalgamated where possible (i.e. adjacent blocks with the same final land use) and monitoring sites move into the next phase of monitoring.

8.3 | MEASURING PERFORMANCE AGAINST REHABILITATION OBJECTIVES AND REHABILITATION COMPLETION CRITERIA

Rehabilitation blocks that are older than three years are subject to the Long Term Monitoring (LTM) methodology in accordance with the Completion Criteria and Rehabilitation Monitoring Procedure. The LTM methods include more detailed assessments of rehabilitation performance, and are targeted towards evaluating progress of rehabilitation towards fulfilling completion criteria and, ultimately, the targeted post-mining land use.

Rehabilitation monitoring reports include an assessment of results against both the Trigger Action Response Plan (TARP) (**Section 10.2**) and the closure criteria. Where rehabilitation areas are not progressing towards the criteria, recommendations will be made to improve rehabilitation performance.

In addition, each year HVO undertakes an Annual Walkover Inspection of rehabilitated areas to provide a general assessment on rehabilitation health and potential emerging issues that require maintenance (e.g. weeds, erosion, poor growth rates). The walkover inspection does not review rehabilitation areas against the closure criteria, but provides management recommendations to assist the rehabilitation in moving towards the criteria.

9 | REHABILITATION RESEARCH, MODELLING AND TRIALS

9.1 | CURRENT REHABILITATION RESEARCH, MODELLING AND TRIALS

No current rehabilitation research, modelling or trials are currently being undertaken.

9.2 | FUTURE REHABILITATION RESEARCH, MODELLING AND TRIALS

HVO currently has no plans to conduct any rehabilitation research, modelling or trials. HVO will continue to keep abreast of current rehabilitation best practice methods through collaboration with other Hunter Valley sites and through industry forums.

10 | INTERVENTION AND ADAPTIVE MANAGEMENT

Where rehabilitation monitoring indicates that rehabilitation outcomes are not trending toward the nominated completion criteria, HVO will instigate early intervention and adaptive management to minimise the potential for rehabilitation failure. Identification of threats to rehabilitation and the subsequent intervention is discussed in the following sections.

10.1 | THREATS TO REHABILITATION

Threats to rehabilitation may include events such as periods of drought, bushfire events, or pressures from weeds and feral animals. **Table 10.1** provides key threats to rehabilitation that have been identified at HVO.

Table 10.1- Key Threats to Rehabilitation

Threat	Caused by
Erosion and Sediment Control	• Rainfall events • Lack of appropriate vegetation cover • Failure of water management structures
Soil Type(s) and Suitability	• Inadequate topsoil available • Poor topsoil quality • Weed infested topsoil • Poor recovery of topsoil from currently rehabilitated areas
Water	• Saline runoff and erosion resulting in a surface water trend of salinity increase, or pH reduction/increase • Saline seepage of groundwater resulting in localised impacts
Spontaneous Combustion	• Poor management of materials with propensity for spontaneous combustion
Flora	• Not considering requirements in rehabilitation planning • Failure to manage weeds • Pest species / grazing pressures (kangaroos, rabbits, etc.) • Biodiversity targets (offsets), not maintained
Geotechnical	• Geotechnical failure
Acid Mine Drainage	• Poor knowledge of material that may result in AMD • Poor management of the materials that have a propensity to AMD
Geology and Geochemistry	• Poor knowledge of material and its geochemistry • Inappropriate placement of materials
Contaminated Land	• Long term use of the site • Spills, leaks, etc

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Owner: Environment and Community Coordinator

Status: Approved
Version: 4.0

Effective: [Effective Date]

Review: [Planned Review Date]

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Threat	Caused by
Bushfire	• Proximity to state forest • Regional fire • Lightning strike

10.2 | TRIGGER ACTION RESPONSE PLAN

The following TARP for rehabilitation has been developed to identify required management actions in the event of impacts to rehabilitation, or where rehabilitation outcomes are not achieved in an acceptable timeframe. Where necessary, rehabilitation procedures will be amended accordingly with the aim of continually improving rehabilitation standards.

The responses specified within the TARP have been based upon the rehabilitation completion criteria and the rehabilitation monitoring program. Monitoring of the TARP will be undertaken as outlined in the rehabilitation monitoring program (**Section 8**). The monitoring program will trigger response actions as specified in the TARP to ensure that threats to rehabilitation do not become unmanageable.

Following a trigger, the scope and timing of response actions are prioritised and an indicative schedule for implementation is developed. Discrete actions are prioritised and managed on a risk basis within the rehabilitation maintenance program. High risk triggers will be addressed first. Ongoing monitoring of trigger issues occurs to ensure current prioritisation within the maintenance program remains appropriate and issues are escalated as necessary.

The TARP is provided as **Table 10.2** and will continue to be developed as completion criteria are refined and as new threats to rehabilitation are identified.

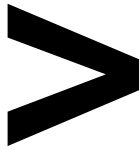
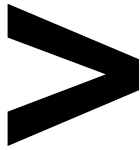
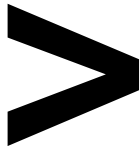


Table 10.2- Trigger Action Response Plan

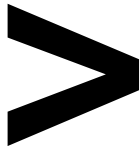
Aspect Category /	Item	Key Element	Monitoring Program	Trigger Response	Condition Green	Condition Amber	Condition Red
Landform stability	1	Slope gradient	Annual Walkover	Trigger	Constructed landform has been constructed no steeper than 3 degrees of design slope gradient	Constructed landform has been constructed no steeper than 5 degrees of design slope gradient	Constructed landform has been constructed steeper than 5 degrees of design slope gradient
			Annual Performance Assessment	Response	No response required. Continue monitoring program.	Undertake a review of the landform design, including survey if required.	Undertake a review of the landform design including survey if required. Undertake regrading and revegetation of the area if required.
			Rehabilitation Checklist				
	2	Erosion control	Annual Walkover IEM LTM	Trigger	No active gully or tunnel erosion. No active rilling present.	Minor active gully or tunnel erosion present and/or active rilling <300 mm deep.	Significant active gully or tunnel erosion present and/or active rilling >300 mm deep.
			Annual Performance Assessment Inspection Program	Response	No response required. Continue monitoring program.	An inspection of the site will be undertaken by a suitably trained person. Investigate opportunities to install water management infrastructure or other controls to address erosion (such as hand-seeding). Remediate as appropriate.	Undertake a review of the drainage of the area and provide recommendations to appropriately remediate the erosion. Remediate as soon as practicable.
	3	Drainage Condition	Annual Walkover	Trigger	Drainage condition is in accordance with the design criteria established within this document.	Landforms exhibiting minor drainage issues but do <u>not</u> threaten to cause rehabilitation failure.	Landforms exhibiting significant drainage issues, threatening or causing rehabilitation failure.



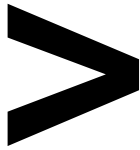
Aspect Category / Item	Key Element	Monitoring Program	Trigger Response	Condition Green	Condition Amber	Condition Red	
			Annual Performance Assessment Inspection Program	Response	No response required. Continue monitoring program.	An inspection of the site will be undertaken by a suitably trained person. Investigate opportunities to address issues. Remediate as appropriate.	Undertake a review of the drainage design and provide recommendations to appropriately remediate the area. Remediate as soon as practicable.
Water Quality	4	Monitoring parameters	Water Monitoring Program	Trigger	Surface water quality of runoff from rehabilitation areas is within criteria.	Water quality exceeds performance criteria but does <u>not</u> indicate a long-term rehabilitation issue.	Water quality exceeds criteria, indicating a long-term rehabilitation liability.
			Inspection Program	Response	No response required. Continue monitoring program.	Review and investigation of water quality monitoring and management where appropriate. Implement relevant remedial measures where required.	Reporting as per relevant statutory reporting requirements. Implement relevant responses and undertake immediate review to determine source of issues and implement remediation measures identified as soon as practicable.
Soil/spoil Quality	5	Monitoring parameters	Annual Walkover Inspection Program	Trigger	No bare ground areas are present that suggest potential soil issues.	Bare ground areas (>400m2 but <1000m2) are present and subsequent soil tests indicate soil properties are not meeting criteria and indication of not being able to support vegetation establishment.	Large bare ground areas (>1000m2) are present and soil properties have not met criteria and are not supporting vegetation establishment.
				Response	No response required. Continue monitoring program.	Conduct investigation and take samples of soil/spoil to determine the need for ameliorants or other management options.	Engage a consultant to assist with recommendations to appropriately remediate soil/spoil quality and depth. Remediate as soon as practicable.



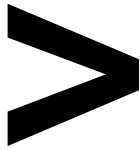
Aspect Category /	Item	Key Element	Monitoring Program	Trigger Response	Condition Green	Condition Amber	Condition Red
Vegetation (Woodland)	6	Surface cover	Annual Walkover	Trigger	Three years following revegetation to woodland, a minimum of 70% total ground cover (vegetation, leaf litter, mulch) is present within rehabilitated areas.	Three years following revegetation to woodland, total ground cover (vegetation, leaf litter, mulch) is a minimum of 60% in rehabilitated areas.	Three years following revegetation to woodland, total ground cover (vegetation, leaf litter, mulch) is less than 60% within rehabilitated areas.
			LTM				
	7	Species richness	LTM	Trigger	Five years following revegetation to woodland, >70% of flora species recorded are native species.	Five years following revegetation to woodland, 50% – 70% of flora species recorded are native species.	Five years following revegetation to woodland, <50% of flora species recorded are native species.
				Response	No response required. Continue monitoring program.	Review rehabilitation procedures where required to increase vegetation cover. Assess opportunities for corrective actions as appropriate.	A suitably trained person to inspect the site. Investigate use of appropriate management options to remediate. Remediate as appropriate.
Vegetation (Pasture)	8	Surface cover	LTM	Trigger	Three years following revegetation to pasture, a minimum of 70% total ground cover (vegetation, leaf litter, mulch) is present within rehabilitated areas.	Three years following revegetation to woodland, ground cover of 50-70% (vegetation, leaf litter, mulch) is present within rehabilitated areas.	Three years following revegetation to woodland, ground cover of <50% (vegetation, leaf litter, mulch) is present within rehabilitated areas.



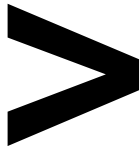
Aspect Category	Item	Key Element	Monitoring Program	Trigger Response	Condition Green	Condition Amber	Condition Red
				Response	No response required. Continue monitoring program.	Review procedures where required to increase vegetation cover.	An inspection of the site will be undertaken by a suitably trained person. Develop an action plan to improve ground cover to required levels.
	9	Species composition	Annual Walkover IEM LTM	Trigger	Three years following revegetation to grassland, >75% of herbage biomass comprises pasture species that are representative of species listed in site Approval documents or otherwise species that are perennial, palatable, and productive	Three years following revegetation to grassland, 50-75% of herbage biomass comprises pasture species that are representative of species listed in site Approval documents or otherwise species that are perennial, palatable, and productive	Three years following revegetation to grassland, <50% of herbage biomass comprises pasture species that are representative of species listed in site Approval documents or otherwise species that are perennial, palatable, and productive
				Response	No response required. Continue monitoring program.	Investigate additional weeding and re-seeding where required and ensure seed mix utilised is consistent with desired species composition.	An inspection of the site will be undertaken by a suitably trained person. Develop an action plan to improve species composition to required levels.
Vegetation (woodland / pasture)	10	Weed presence	Annual Walkover	Trigger	Twelve months following revegetation, cover of HTE and priority weeds is <10%.	Twelve months following revegetation, cover of HTE and priority weeds is 10-20%.	Twelve months following revegetation, cover of HTE and priority weeds is >20%.



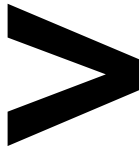
Aspect Category	Item	Key Element	Monitoring Program	Trigger Response	Condition Green	Condition Amber	Condition Red
			IEM	Response	No response required. Continue routine maintenance and monitoring program.	Review monitoring report to identify the nature of the weeds present and recommendations from monitoring report. Undertake weed control to remove HTE and priority weeds if required.	Undertake weed control to remove noxious and problematic weeds from the site as soon as practicable. Investigate management measures to assist native plant establishment including use of ameliorants and implement as appropriate. Review relevant site procedures, if required.
			LTM				
			Inspection Program				
Biodiversity	11	Habitat Corridors	LTM	Trigger	Monitoring indicates corridors are successfully established and consistent with the desired vegetation community composition and are suitable for fauna species movement.	Habitat corridors are successfully established however are <u>not</u> suitable for fauna species movement (size, habitat complexity).	Monitoring indicates that vegetation corridors are not established, have been removed, or are no longer suitable for the movement of fauna species.
				Response	No response required. Continue monitoring program.	Investigate whether sufficient habitat features (rock piles, felled hollow bearing trees, nest boxes etc.) are present. Source and incorporate additional habitat features, if required.	Engage ecologist/rehabilitation specialist to recommend remedial rehabilitation works such as additional planting or seeding, soil amelioration, or weed reduction. Ensure sufficient habitat features are available for fauna.
Topsoil Availability	12	Topsoil Quantity	Annual Walkover	Trigger	Sufficient topsoil identified for rehabilitation over the life of the mine.	Topsoil balance indicates a deficiency in topsoil available for rehabilitation over the life of the mine.	Deficiency significant enough to delay rehabilitation progression during the life of the mine



Aspect Category	Item	Key Element	Monitoring Program	Trigger Response	Condition Green	Condition Amber	Condition Red
			Annual Topsoil Reconciliation	Response	No response required.	Investigate options and alternatives (e.g. organic ameliorants) to meet future topsoil requirements. Trial methods of rehabilitation that are more topsoil efficient i.e. use of compost on overburden.	Source suitable growth medium for use in rehabilitation. Investigate use of alternatives or subsoil in suitable locations.
Bushfire	13	Fuel Load	Annual Walkover	Trigger	Fuel loads are assessed and managed as required (including maintaining fire-breaks) and the Bushfire Management Plan is implemented.	Fuel loads are assessed and deemed to be a high risk and/or Bushfire Management Plan is not being implemented increasing the risk of bushfire impact to rehabilitation	A fire on site damages rehabilitated areas.
			IEM				
			LTM	Response	No response required. Continue monitoring program.	Reduce fuel loads and ensure access tracks are cleared. Inspect water sources and ensure sufficient water is available.	Review and update (if required) the Bushfire Management Plan to ensure monitoring and maintenance is completed for fuel loads and access tracks.
			Inspection Program				
Tailings	14	Inadequate capping	Annual Walkover	Trigger	The capped tailings landform is constructed in accordance with the approved capping design and is free-draining and no ponding is present.	Inspections indicate some temporary ponding on the tailings landform, however settlement is within the range considered in the detailed capping design.	Landform is exhibiting permanent or significant ponding issues.



Aspect Category	Item	Key Element	Monitoring Program	Trigger Response	Condition Green	Condition Amber	Condition Red
			IEM / LTM	Response	No response required. Continue monitoring program.	A suitably trained person to inspect the site. Implement survey program to monitor and/or confirm settlement.	Undertake a review of the capping and drainage design and provide recommendations to appropriately remediate the area. Remediate as soon as practicable.
			Annual Performance Assessment				
			Inspection Program				
Groundwater	15	Void water balance	Water Monitoring Program Annual Groundwater Review	Trigger	Water balance and groundwater monitoring indicate void water balance is in line with predictions	Groundwater monitoring TARP trigger activated in area of void influence and indicates that inflows into the void may be higher than the water balance assumptions which, in combination with high surface runoff, could result in the voids filling higher than predicted.	Groundwater inflows are significantly higher than predicted in the water balance and, in combination with high surface runoff, could result in overtopping of the voids.
				Response	No response required. Continue monitoring program.	Undertake groundwater investigation based upon TARP trigger exceedance.	Engage a qualified groundwater specialist to undertake a risk assessment and develop controls. Assess potential ways to further reduce surface catchment of voids.
Spontaneous Combustion	15	Carbonaceous material near surface	Annual Walkover	Trigger	No spontaneous combustion within rehabilitation area	Localised area of spontaneous combustion within rehabilitation area.	Widespread or multiple areas of spontaneous combustion in rehabilitation areas.



Aspect Category	Item	Key Element	Monitoring Program	Trigger Response	Condition Green	Condition Amber	Condition Red
			Annual Performance Assessment Inspection Program	Response	No response required. Continue with existing carbonaceous material management practices.	Develop and implement risk based monitoring and/or remediation plan with advice from suitably trained person.	Review carbonaceous material management practices. Develop remediation plan based on advice from suitably qualified person.
Feral Animals	16		Annual monitoring & control program	Trigger	Vertebrate pest populations stable. Impacts in rehabilitation areas limited or absent.	Vertebrate pest populations increasing, and increasing presence or impacts in rehabilitation areas.	Vertebrate pest populations significantly impacting in rehabilitation area or areas.
			Inspection Program	Response	No response required. Maintain with existing controls.	Assess opportunities for augmentation of existing controls, or implementation of supplementary controls.	Implement additional targeted controls. Engage with external stakeholders. Review ongoing control framework.

11 | REVIEW, REVISION AND IMPLEMENTATION

11.1 | REVIEW OF THE REHABILITATION MANAGEMENT PLAN

Reviews are conducted to assess the effectiveness of the procedures against the objectives of the RMP. The RMP must be reviewed and, if necessary, revised, within 3 months following the submission of the following:

- annual review;
- incident report;
- audit;
- updated or new Management Plans that are relevant to rehabilitation; or
- any modification to the conditions of the Project Approval.
- Additionally, the RMP may also be revised due to:
 - deficiencies being identified;
 - results from the monitoring and review program;
 - recommendations resulting from the monitoring and review program;
 - changing environmental requirements;
 - improvements in knowledge or technology become available;
 - change in legislation;
 - where a risk assessment identifies the requirement to alter the RMP; and
 - significant change in the activities or operations.
 - Approval of rehabilitation outcomes documents (within 30 days of approval)

Any major amendments to the RMP that affect its application will be undertaken in consultation with the appropriate regulatory authorities and stakeholders. Revised RMP will be submitted within 6 weeks of completing the review.

11.2 | INDEPENDENT ENVIRONMENTAL AUDIT

As required by Schedule 5, Condition 5 of PA 06_0261 and Schedule 5, Condition 10 of DA 450-10-2003, HVO will undertake an Independent Environmental Audit every three years. The audit will include a review of the rehabilitation undertaken during the reporting period, and an assessment of compliance with this RMP.

11.3 | IMPLEMENTATION

Table 11.1 identifies the personnel who are responsible for the monitoring, review and implementation of this RMP.

Table 11.1- Accountabilities for implementation of this RMP

Position	Accountabilities
Mine Production Manager	Implement the procedures referenced in this RMP; Undertake training in relevant Management Plans and procedures as required; Provide adequate resources for the completion of rehabilitation activities; and Construct landforms in accordance with this RMP.
Technical Services Manager	Implement the procedures referenced in this RMP; Undertake training in relevant Management Plans and procedures as required; Provide resources required to implement these procedures; Develop mine plans to allow for progressive rehabilitation of mined land; and Liaise with the Environment and Community Department to ensure that regulatory commitments relating to rehabilitation are considered during mine planning processes.
Manager Environment and Community	Ensure the relevant Management Plans are prepared; Coordinate the development of annual rehabilitation plans to guide rehabilitation activities; Coordinate the development of the site rehabilitation objectives and closure criteria in consultation with key stakeholders; Coordinate the completion of rehabilitation activities in accordance with this document; Coordinate the rehabilitation monitoring program and an annual review of monitoring results to provide a continual improvement process for rehabilitation. Coordinate maintenance as required; Consult with regulatory authorities as required; Ensure all personnel undertaking works in relation to this RMP are trained and competent; Report the progress of rehabilitation in accordance with Development Consent and Clauses 9 and 13 of Schedule 8A to the Mining Regulation 2016
Site Commercial Manager	Ensure that there are adequate provisions available for mine closure by implementing and updating an accrual system over the life of mine.

12 | DOCUMENT INFORMATION

12.1 | CHANGE INFORMATION

Full details of the document history are recorded in the document control register, by version. A summary of the current change is provided in Table 12.1 below.

Table 12.1-Change Summary

Version	Date	Review Team	Details of Change
1.0	July 2022	Tom Scott (ERR Australia), Andrew Speechly (HVO), Greg Peard (HVO)	Original document for DPE review.
1.1	August 2023	Darby O'Sullivan (HVO)	Updated to include summary of consultation and update of rehabilitation objectives to reflect RR feedback.
2.0	September 2024	Darby O'Sullivan (HVO), Tom Scott (ERR)	Update to reflect RR approval of HVO Rehabilitation Objectives and feedback from the RR Revegetation TAP
3.0	December 2024	Darby O'Sullivan (HVO)	Update to reflect review of rehabilitation risk assessment
4.0	November 2025	Darby O'Sullivan (HVO), Tom Scott (ERR)	RMP reviewed and updated to reflect HVO North Mod 8 approval and 24 annual review submission. Also to reflect new FLRP and submitted completion criteria, Water TAP recommendations and review of rehabilitation risk assessment and TARP. RMP submitted for consultation with stakeholders via the planning portal on the 11 August 2025 and updated to reflect this feedback and submitted to DPHI for approval on 14 November 2025.

Number: HVOOC-1797567310-5041
Owner: Environment and Community Coordinator

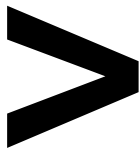
Status: Approved
Version: 4.0

Effective: [Effective Date]

Review: [Planned Review Date]

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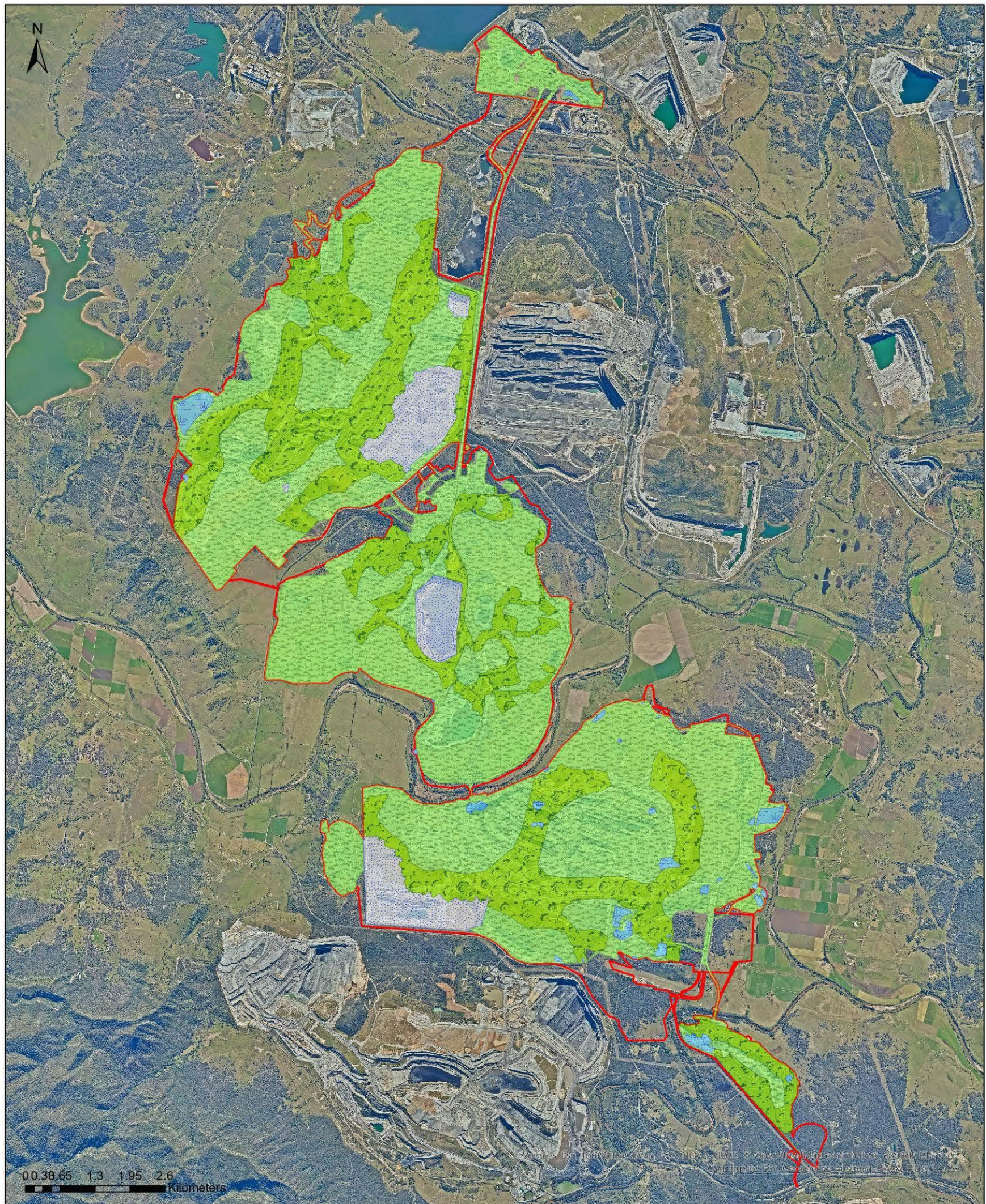
APPENDIX A: PLANS



Hunter Valley Operations

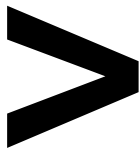
Plan 1: Final Landform Features

HUNTER VALLEY OPERATIONS



Legend

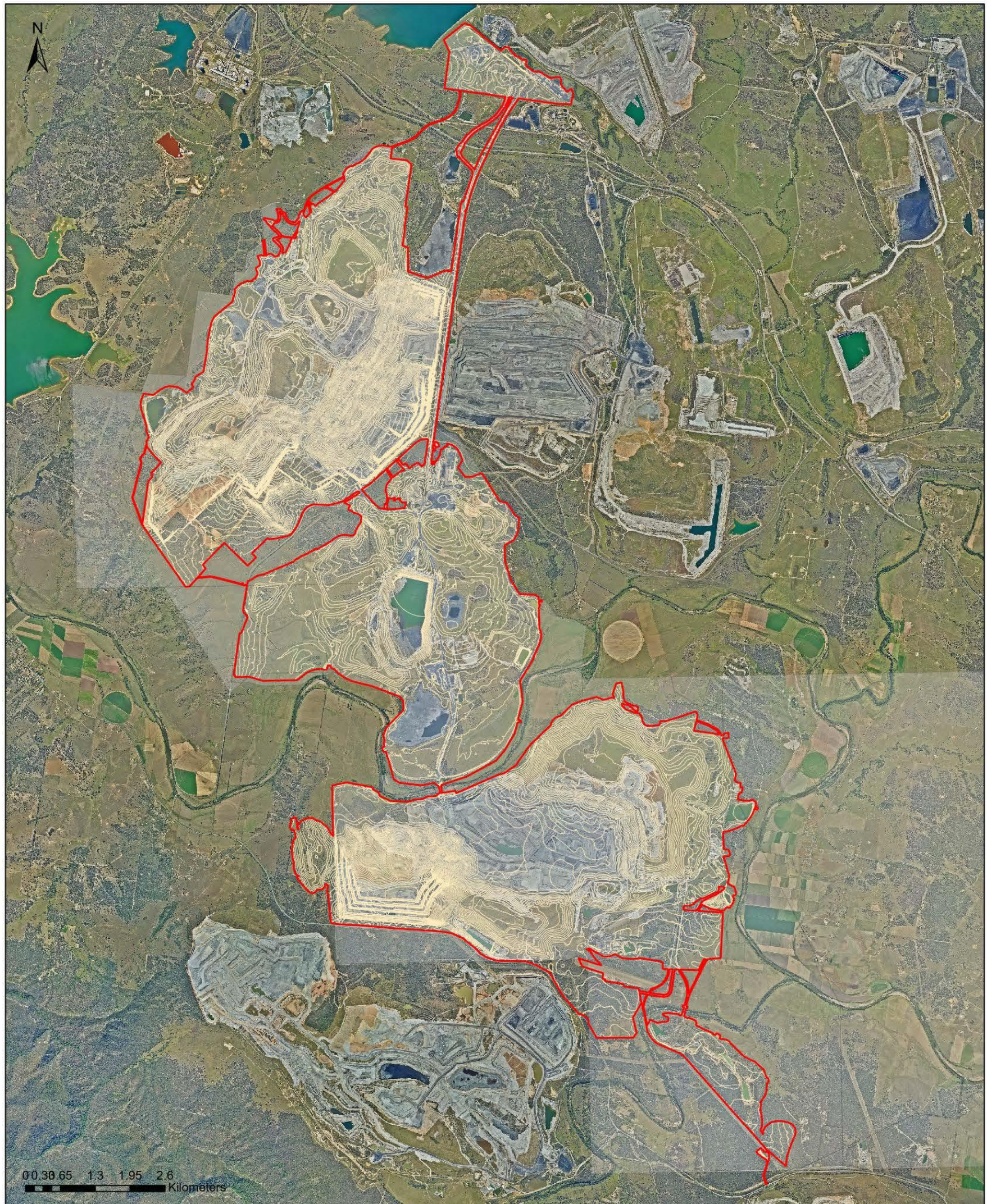
- | | |
|-------------------------------|------------------------|
| Approved Disturbance Boundary | Native Ecosystem |
| Agricultural - Grazing | Water Management Areas |
| Final Void | |



Hunter Valley Operations

Plan 2: Final Landform Contours

HUNTER VALLEY OPERATIONS



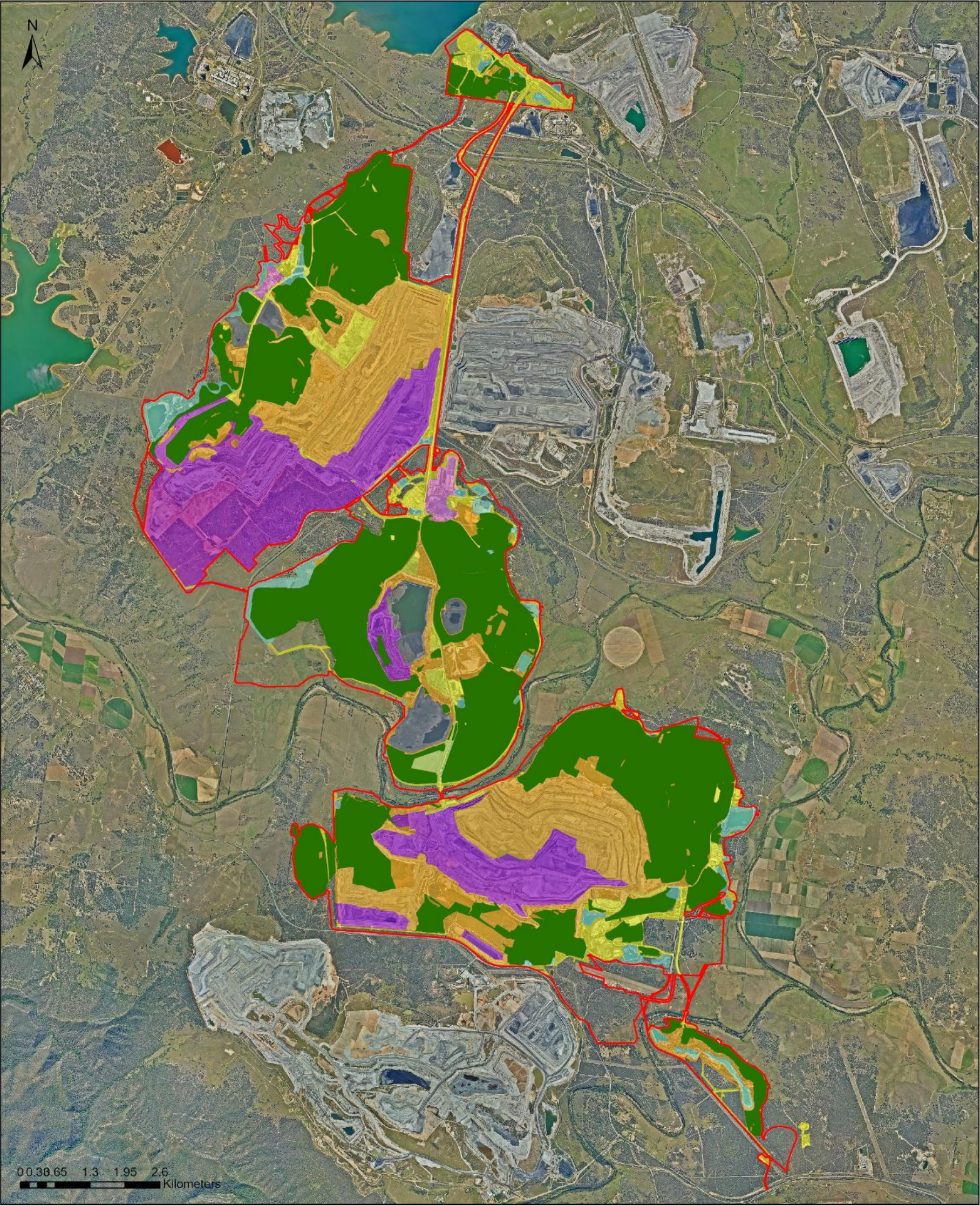
Legend

- Approved Disturbance Boundary
- Coal Titles
- Final Landform Contours

Hunter Valley Operations

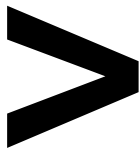
Plan 3: Rehabilitation Schedule 2025

**HUNTER VALLEY
OPERATIONS**



Legend

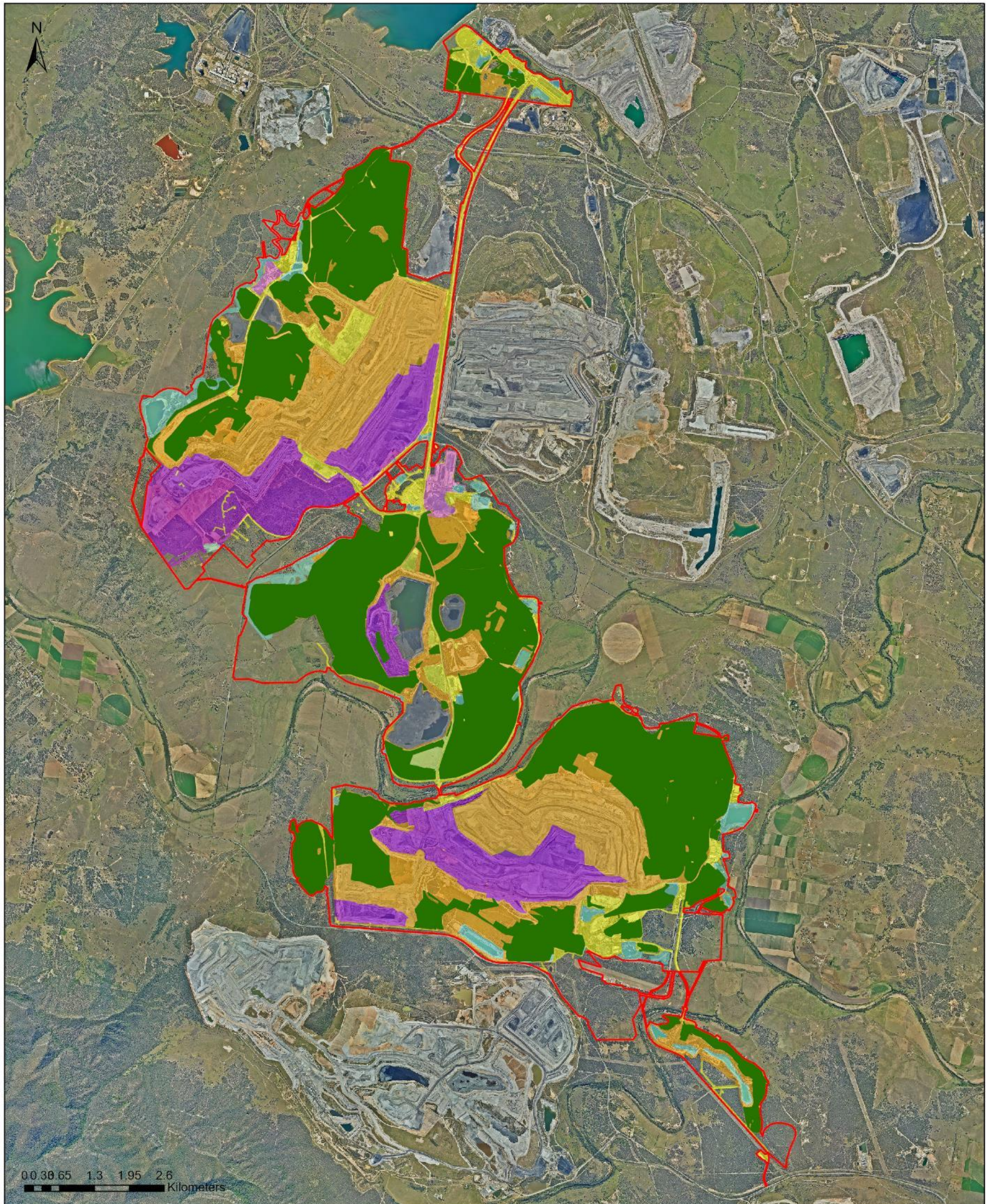
- | | |
|------------------------------------|-----------------------------|
| Approved Disturbance Boundary | Other |
| Rehabilitation | Overburden Emplacement Area |
| Active Mining Area (Open cut void) | Tailings Storage Facility |
| Beneficiation Facility | Water Management Area |
| Infrastructure Area | |



Hunter Valley Operations

Plan 4: Rehabilitation Schedule 2026

HUNTER VALLEY OPERATIONS



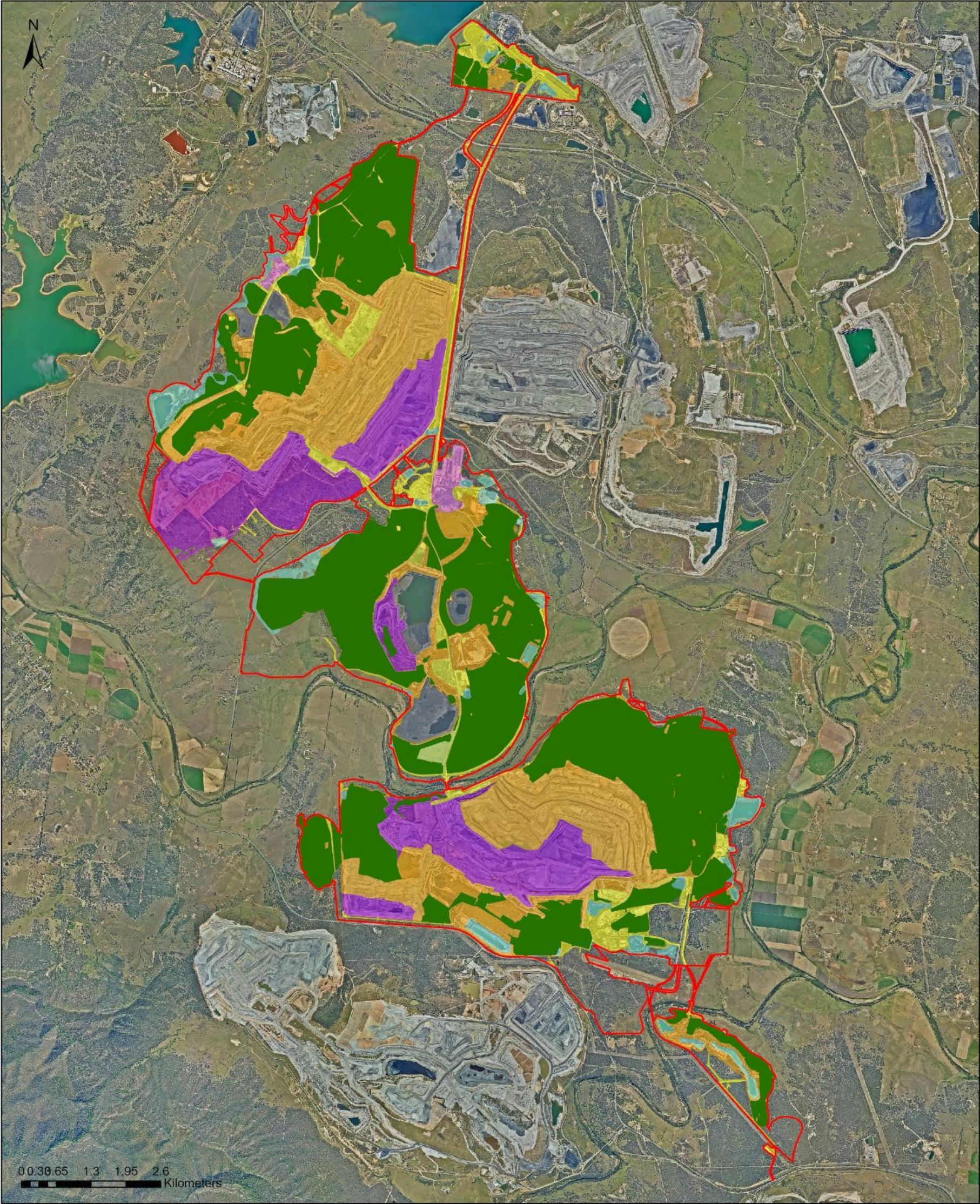
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- | | |
|------------------------------------|-----------------------------|
| Approved Disturbance Boundary | Other |
| Rehabilitation | Overburden Emplacement Area |
| Active Mining Area (Open cut void) | Tailings Storage Facility |
| Beneficiation Facility | Water Management Area |
| Infrastructure Area | |

Hunter Valley Operations

Plan 5: Rehabilitation Schedule 2027

HUNTER VALLEY
OPERATIONS



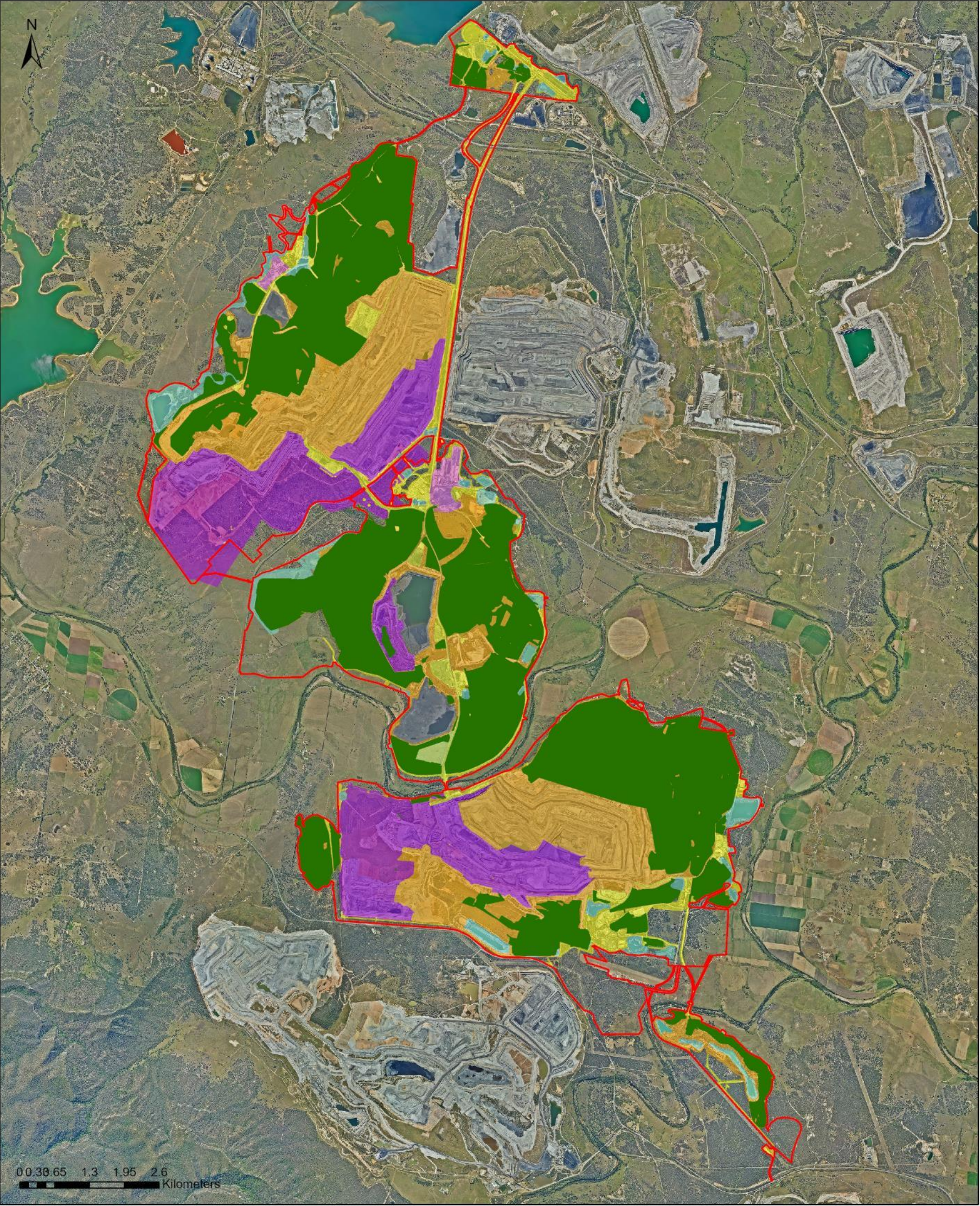
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- Approved Disturbance Boundary
- Rehabilitation
- Active Mining Area (Open cut void)
- Beneficiation Facility
- Infrastructure Area
- Other
- Overburden Emplacement Area
- Tailings Storage Facility
- Water Management Area

Hunter Valley Operations

Plan 6: Rehabilitation Schedule 2030

**HUNTER VALLEY
OPERATIONS**



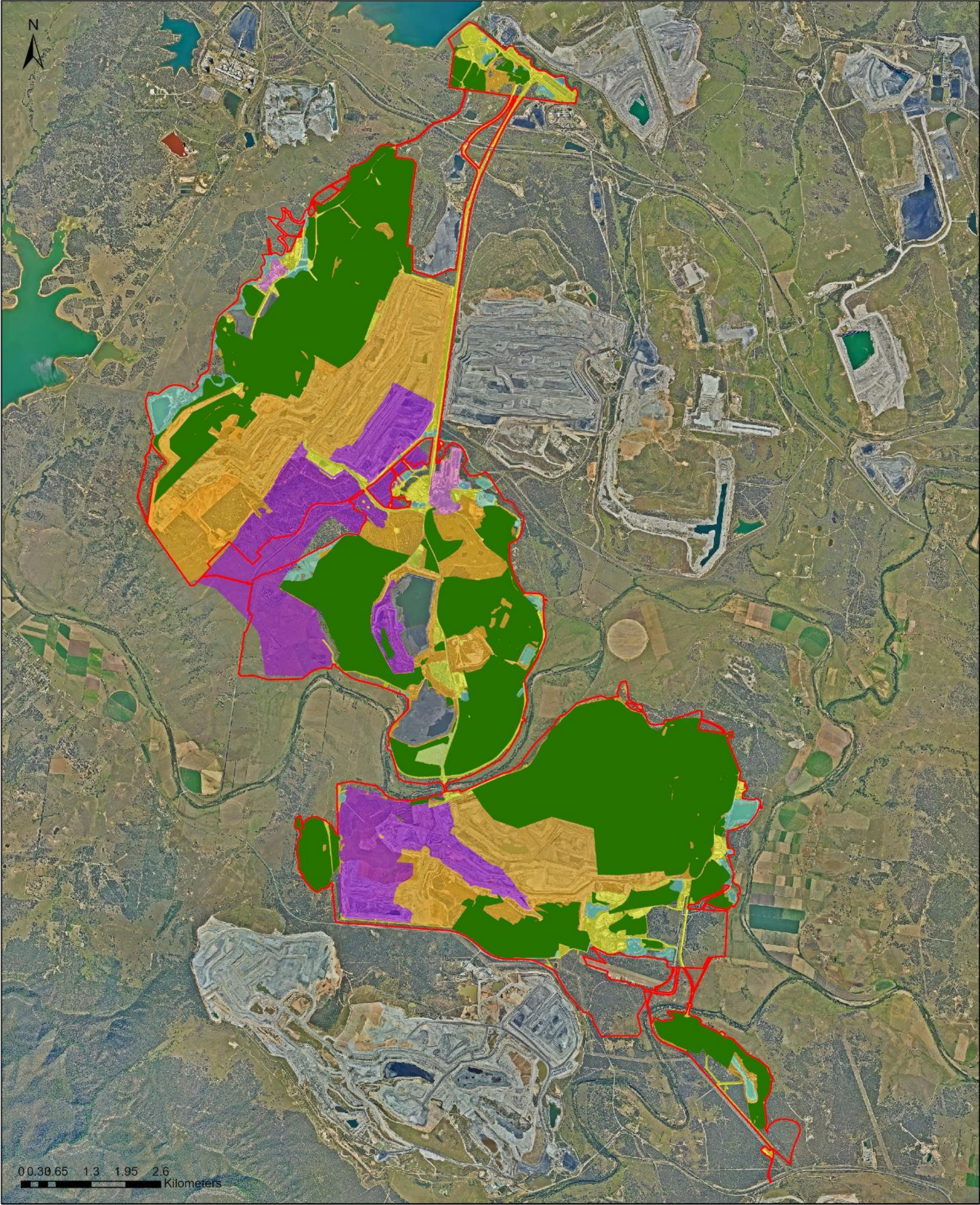
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- | | |
|------------------------------------|-----------------------------|
| Approved Disturbance Boundary | Other |
| Rehabilitation | Overburden Emplacement Area |
| Active Mining Area (Open cut void) | Tailings Storage Facility |
| Beneficiation Facility | Water Management Area |
| Infrastructure Area | |

Hunter Valley Operations

Plan 7: Rehabilitation Schedule 2035

HUNTER VALLEY
OPERATIONS



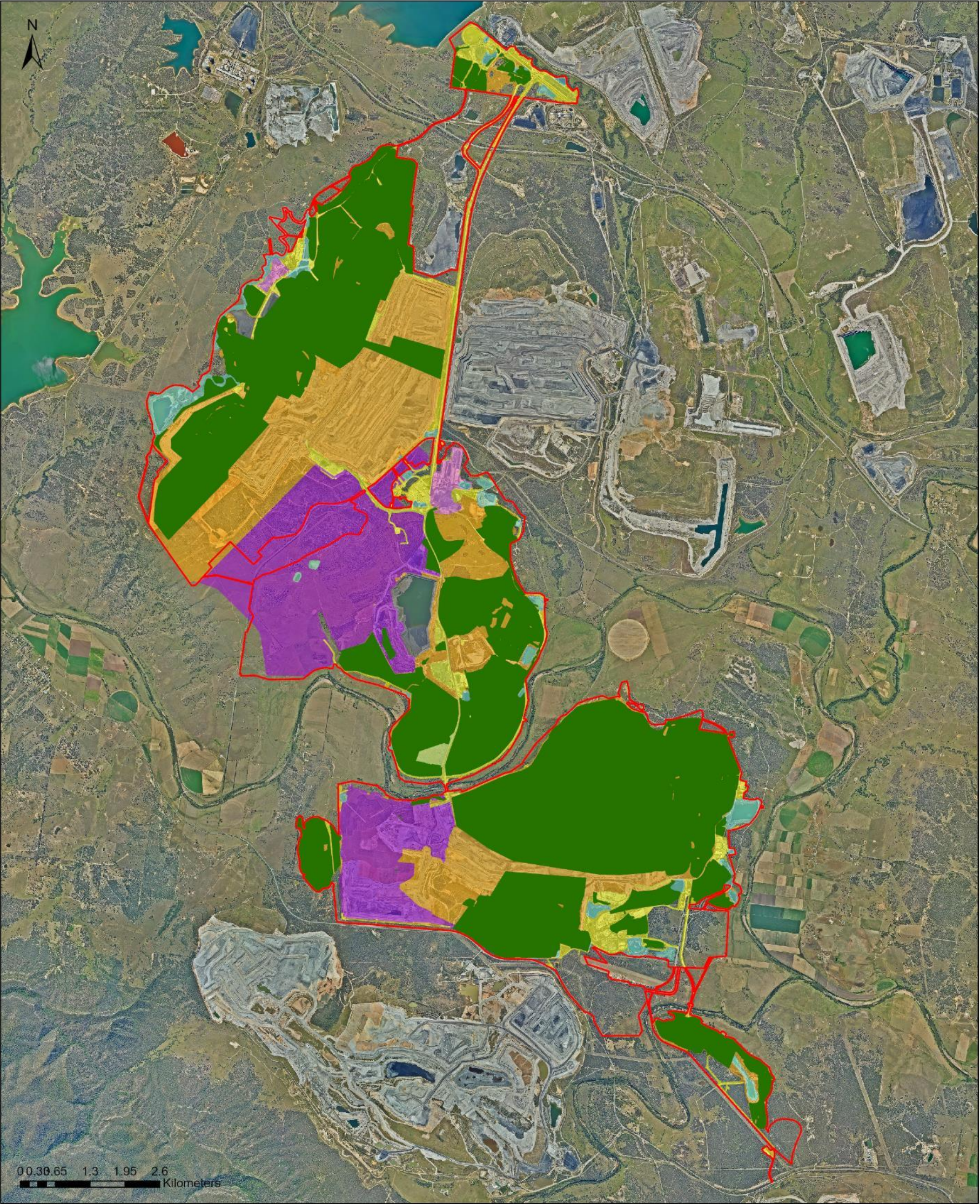
Legend

- Approved Disturbance Boundary
- Rehabilitation
- Active Mining Area (Open cut void)
- Beneficiation Facility
- Infrastructure Area
- Other
- Overburden Emplacement Area
- Tailings Storage Facility
- Water Management Area

Hunter Valley Operations

Plan 8: Rehabilitation Schedule 2040

HUNTER VALLEY
OPERATIONS



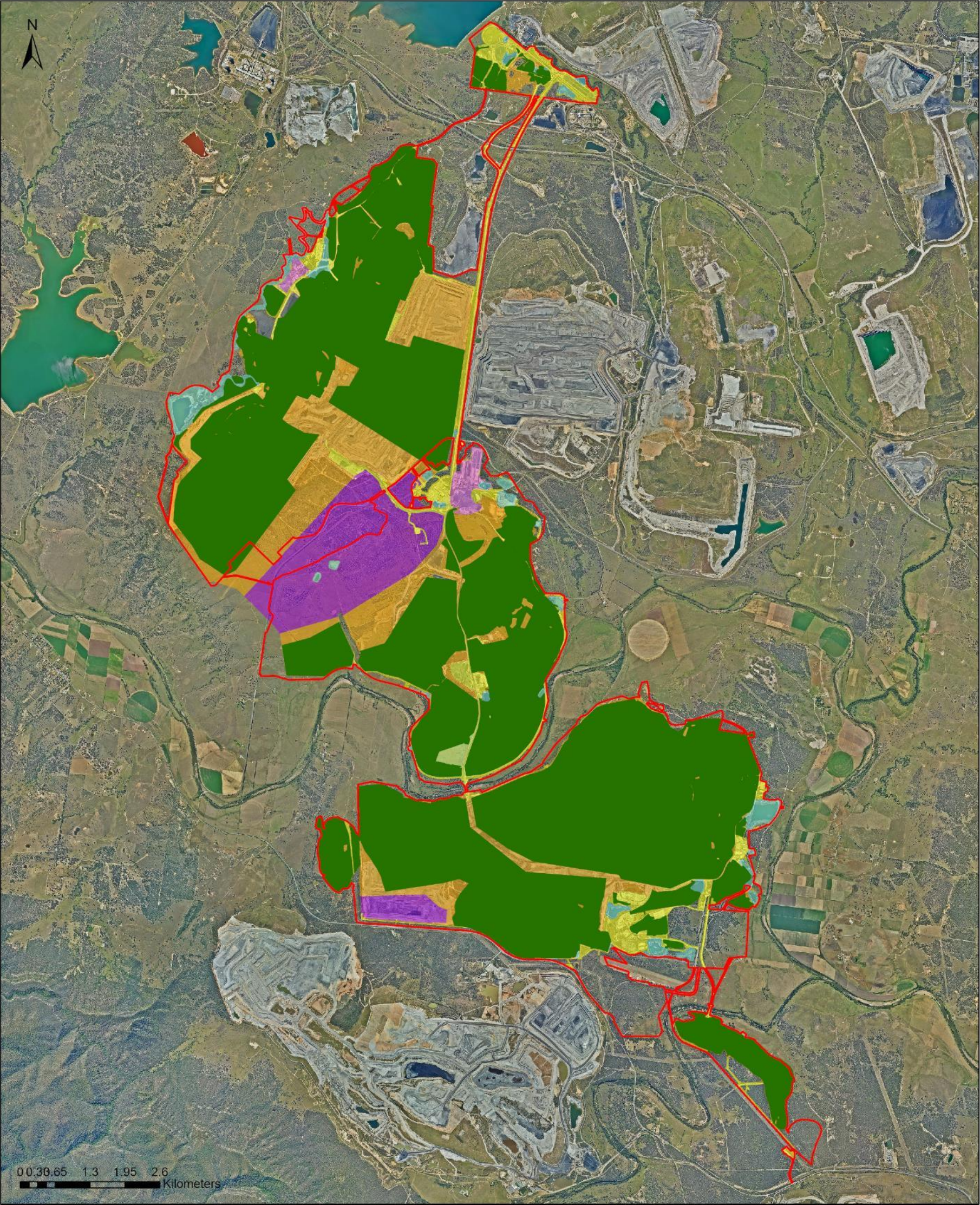
Legend

- Approved Disturbance Boundary
- Rehabilitation
- Active Mining Area (Open cut void)
- Beneficiation Facility
- Infrastructure Area
- Other
- Overburden Emplacement Area
- Tailings Storage Facility
- Water Management Area

Hunter Valley Operations

Plan 9: Rehabilitation Schedule 2045

HUNTER VALLEY
OPERATIONS



- Legend
- Approved Disturbance Boundary

Rehabilitation

Active Mining Area (Open cut void)

Beneficiation Facility

Infrastructure Area

Other

Overburden Emplacement Area

Tailings Storage Facility

Water Management Area

APPENDIX B: LAND OWNERSHIP SCHEDULE

HVO South

Lot//DP	Owner
3//3005	ES BOWMAN
4//3005	ES BOWMAN
5//3005	ES BOWMAN
6//3005	RUSSELL JOHN & JANELLE SUSAN WENHAM
7//3005	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
8//3005	GREGORY JOHN ERNST
9//3005	GREGORY JOHN ERNST
10//3005	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//48394	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//48591	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//48592	COAL & ALLIED OPERATIONS PTY LIMITED
1//48646	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
2//48646	Coal & Allied Operations Pty Ltd
3//48646	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//66331	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//70857	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
2//90052	Telstra Corporation Limited
1//90727	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
7001//93632	The State of New South Wales
1//105943	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//111381	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
2//111381	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
3//111381	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
2//113342	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
3//113342	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
4//113342	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//113343	WAMBO COAL PTY LIMITED
2//113343	WAMBO MINING CORPORATION PTY. LIMITED
3//113343	WAMBO MINING CORPORATION PTY. LIMITED
4//113343	WAMBO MINING CORPORATION PTY. LIMITED
5//113343	WAMBO MINING CORPORATION PTY. LIMITED
10//113343	WAMBO MINING CORPORATION PTY LIMITED
1//114966	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
2//114966	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//123374	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//129808	COAL & ALLIED OPERATIONS PTY LIMITED
1//129811	Warkworth Mining Limited
2//129811	Warkworth Mining Limited
3//129811	Warkworth Mining Limited
1//182139	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//191982	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//195523	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//246201	Warkworth Mining Limited
5//247239	CONSTRUCTION, FORESTRY, MINING & ENERGY UNION
6//247239	Anthony John Maher and Andrew William Vickers
7//247239	Anthony John Maher and Andrew William Vickers
8//247239	Anthony John Maher and Andrew William Vickers
10//247239	HUNTER VALLEY GLIDING CLUB CO-OPERATIVE LIMITED
12//247239	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
13//247239	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
14//247239	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
15//247239	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
16//247239	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//249327	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
5//251617	COAL & ALLIED OPERATIONS PTY LTD (61.447%) and HVO RESOURCES PTY LTD (29.454%) & GREGORY JOHN ERNST (9.099%)
1//251877	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
202//257063	WAMBO COAL PTY LIMITED
2//300150	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
2//306421	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
A//386100	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
B//386100	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//532623	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
134//566275	Anthony John Maher and Andrew William Vickers
2//583524	WAMBO COAL PTY LIMITED

Number: HVOOC-1797567310-5041

Owner: Environment and Community Coordinator

Status: Approved

Version: 4.0

Uncontrolled when printed

Effective: [Effective Date]

Review: [Planned Review Date]

1420//586339	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1421//586339	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
11//586639	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
12//586639	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
102//588247	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//592598	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
745//597317	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
300//597726	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
31//610878	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
32//610878	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
33//610878	United Collieries Pty Limited & Wambo Coal Pty Limited
2//617852	Anthony John Maher and Andrew William Vickers
1//619309	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
2//619309	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//633717	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
2//633717	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
3//635392	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
4//635392	Anthony John Maher and Andrew William Vickers
1//657394	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//659810	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
152//704486	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
153//704486	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
154//704486	THE STATE OF NEW SOUTH WALES
155//705446	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//710088	THE STATE OF NEW SOUTH WALES
2//710088	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//719879	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
2//719879	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
5//720643	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//723248	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
2//723248	COAL & ALLIED OPERATIONS PTY LIMITED
1//723249	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//729048	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
164//729960	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
165//729961	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
166//729962	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
167//729963	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//729984	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//729985	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
91//733895	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
92//733895	HUNTER VALLEY GLIDING CLUB CO-OPERATIVE LIMITED
1//737796	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//737880	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
2//737880	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//738657	WAMBO COAL PTY LIMITED
2//738657	WAMBO COAL PTY LIMITED
10//740183	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//741544	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
17//752481	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
18//752481	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
21//752481	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
22//752481	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
89//752481	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
98//752481	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
117//752481	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
118//752481	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
119//752481	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
120//752481	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
121//752481	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
122//752481	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
123//752481	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
124//752481	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
125//752481	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
126//752481	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
127//752481	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
164//752481	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
170//752481	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
171//752481	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
12//753792	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%

13//753792	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
14//753792	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
15//753792	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
16//753792	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
19//753792	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
20//753792	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
21//753792	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
22//753792	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
23//753792	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
24//753792	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
25//753792	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
26//753792	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
27//753792	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
28//753792	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
29//753792	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
30//753792	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
31//753792	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
75//753792	Unable to verify ownership in Info Track as says "could not be verified". Narrow residual lot/road inbetween 300//597726 and Crown road
86//753792	WAMBO COAL PTY LIMITED
87//753792	WAMBO COAL PTY LIMITED
88//753792	WAMBO COAL PTY LIMITED
89//753792	WAMBO COAL PTY LIMITED
115//753792	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
120//753792	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
121//753792	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
122//753792	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
130//753792	THE STATE OF NEW SOUTH WALES
140//753792	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
141//753792	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
147//753792	United Collieries Pty Ltd
151//753792	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
2//755267	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
14//755267	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
40//755267	GLENCORE COAL (NSW) PTY LIMITED
41//755267	GLENCORE COAL (NSW) PTY LIMITED
43//755267	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
86//755267	WAMBO COAL TERMINAL PTY LTD
88//755267	WAMBO COAL TERMINAL PTY LTD
108//755267	COAL & ALLIED OPERATIONS PTY LIMITED
112//755267	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
114//755267	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
118//755267	COAL & ALLIED OPERATIONS PTY LIMITED
119//755267	COAL & ALLIED OPERATIONS PTY LIMITED
121//755267	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
122//755267	COAL & ALLIED OPERATIONS PTY LIMITED
123//755267	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
128//755267	COAL & ALLIED OPERATIONS PTY LIMITED
135//755267	COAL & ALLIED OPERATIONS PTY LIMITED
142//755267	COAL & ALLIED OPERATIONS PTY LIMITED
143//755267	COAL & ALLIED OPERATIONS PTY LIMITED
145//755267	COAL & ALLIED OPERATIONS PTY LIMITED
171//755267	WAMBO COAL TERMINAL PTY LTD
174//755267	WAMBO COAL TERMINAL PTY LTD
186//755267	GLENCORE COAL (NSW) PTY LIMITED
193//755267	Singleton Council Road
194//755267	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
195//755267	COAL & ALLIED OPERATIONS PTY LIMITED
199//755267	WAMBO MINING CORPORATION PTY. LIMITED
1/1/759053	WAMBO COAL PTY LIMITED
½/759053	WAMBO COAL PTY LIMITED
¼/759053	WAMBO MINING CORPORATION PTY. LIMITED
1/5/759053	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1/6/759053	Singleton Shire Council
1/16/759053	WAMBO MINING CORPORATION PTY. LIMITED
1/17/759053	WAMBO MINING CORPORATION PTY. LIMITED
1/21/759053	WAMBO MINING CORPORATION PTY. LIMITED
1/25/759053	Wanaruah Local Aboriginal Land Council
2/1/759053	WAMBO COAL PTY LIMITED

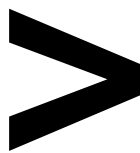
2/2/759053	WAMBO COAL PTY LIMITED
2/4/759053	WAMBO MINING CORPORATION PTY. LIMITED
2/5/759053	The State of New South Wales
2/6/759053	Singleton Shire Council
2/16/759053	WAMBO COAL PTY LIMITED
2/17/759053	WAMBO MINING CORPORATION PTY. LIMITED
2/21/759053	WAMBO MINING CORPORATION PTY. LIMITED
2/25/759053	Wanaruah Local Aboriginal Land Council
3/1/759053	WAMBO COAL PTY LIMITED
3/2/759053	WAMBO COAL PTY LIMITED
3/4/759053	The State of New South Wales
3/5/759053	The State of New South Wales
3/16/759053	WAMBO COAL PTY LIMITED
3/21/759053	WAMBO MINING CORPORATION PTY. LIMITED
4/1/759053	WAMBO COAL PTY LIMITED
4/2/759053	WAMBO COAL PTY LIMITED
4/3/759053	WAMBO COAL PTY LIMITED
4/4/759053	The State of New South Wales
4/21/759053	WAMBO COAL PTY LIMITED
5/1/759053	WAMBO COAL PTY LIMITED
5/2/759053	WAMBO COAL PTY LIMITED
5/3/759053	WAMBO COAL PTY LIMITED
5/4/759053	The State of New South Wales
5/21/759053	WAMBO COAL PTY LIMITED
6/1/759053	WAMBO COAL PTY LIMITED
6/2/759053	WAMBO COAL PTY LIMITED
6/3/759053	WAMBO COAL PTY LIMITED
6/4/759053	The State of New South Wales
7/1/759053	WAMBO COAL PTY LIMITED
7/2/759053	WAMBO COAL PTY LIMITED
7/3/759053	WAMBO COAL PTY LIMITED
7/4/759053	WAMBO MINING CORPORATION PTY. LIMITED
8/1/759053	WAMBO COAL PTY LIMITED
8/2/759053	WAMBO COAL PTY LIMITED
8/3/759053	WAMBO COAL PTY LIMITED
8/4/759053	WAMBO MINING CORPORATION PTY. LIMITED
9/1/759053	WAMBO COAL PTY LIMITED
9/2/759053	WAMBO COAL PTY LIMITED
9/3/759053	WAMBO COAL PTY LIMITED
9/4/759053	WAMBO MINING CORPORATION PTY. LIMITED
10/1/759053	WAMBO COAL PTY LIMITED
10/2/759053	WAMBO COAL PTY LIMITED
10/3/759053	WAMBO COAL PTY LIMITED
10/4/759053	WAMBO MINING CORPORATION PTY. LIMITED
11/2/759053	WAMBO COAL PTY LIMITED
11/3/759053	WAMBO COAL PTY LIMITED
11/4/759053	WAMBO MINING CORPORATION PTY. LIMITED
12/2/759053	WAMBO COAL PTY LIMITED
12/3/759053	WAMBO COAL PTY LIMITED
12/4/759053	WAMBO MINING CORPORATION PTY. LIMITED
13/2/759053	WAMBO COAL PTY LIMITED
13/3/759053	WAMBO COAL PTY LIMITED
13/4/759053	WAMBO MINING CORPORATION PTY. LIMITED
14/3/759053	WAMBO COAL PTY LIMITED
14/4/759053	WAMBO MINING CORPORATION PTY. LIMITED
15/3/759053	WAMBO COAL PTY LIMITED
15/4/759053	WAMBO MINING CORPORATION PTY. LIMITED
16/3/759053	WAMBO COAL PTY LIMITED
16/4/759053	WAMBO MINING CORPORATION PTY. LIMITED
17/3/759053	WAMBO COAL PTY LIMITED
17/4/759053	WAMBO MINING CORPORATION PTY. LIMITED
18/3/759053	WAMBO COAL PTY LIMITED
18/4/759053	WAMBO MINING CORPORATION PTY. LIMITED
19/3/759053	WAMBO COAL PTY LIMITED
19/4/759053	WAMBO MINING CORPORATION PTY. LIMITED
20/3/759053	WAMBO COAL PTY LIMITED
20/4/759053	WAMBO MINING CORPORATION PTY. LIMITED
21/4/759053	WAMBO MINING CORPORATION PTY. LIMITED
22/4/759053	WAMBO MINING CORPORATION PTY. LIMITED

23/4/759053	WAMBO MINING CORPORATION PTY. LIMITED
24/4/759053	WAMBO MINING CORPORATION PTY. LIMITED
25/4/759053	WAMBO MINING CORPORATION PTY. LIMITED
26/4/759053	WAMBO MINING CORPORATION PTY. LIMITED
1//770904	GLENCORE COAL (NSW) PTY LIMITED
2//770904	GLENCORE COAL (NSW) PTY LIMITED
3//770904	GLENCORE COAL (NSW) PTY LIMITED
4//770904	GLENCORE COAL (NSW) PTY LIMITED
5//770904	GLENCORE COAL (NSW) PTY LIMITED
6//770904	Edward John & Carol Lesley Anne Burley
7//770904	GLENCORE COAL (NSW) PTY LIMITED
1//770905	GLENCORE COAL (NSW) PTY LIMITED
1//782299	Glencore COAL PTY LIMITED
1//783484	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
2//783484	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
3//783484	COAL & ALLIED OPERATIONS PTY LIMITED
4//783484	COAL & ALLIED OPERATIONS PTY LIMITED
5//783484	COAL & ALLIED OPERATIONS PTY LIMITED
1001//785197	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1002//785197	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//794506	WAMBO COAL PTY LIMITED
2//794506	WAMBO COAL PTY LIMITED
3//794506	WAMBO COAL PTY LIMITED
1//797721	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
2//808301	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
204//821040	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//821123	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//821127	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//822177	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//823767	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
170//823775	The State of NSW
172//823775	The State of NSW
173//823775 / CL586318	The State of NSW – Access Licence 586318
175//823775	The State of NSW (TSR)
176//823775	Singleton Shire Council
179//823775	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
180//823775	Singleton Shire Council
182//823775	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
2//835812	Anthony John Maher and Andrew William Vickers
3//835812	Anthony John Maher and Andrew William Vickers
4//835812	Anthony John Maher and Andrew William Vickers
9//835812	Anthony John Maher and Andrew William Vickers
11//843432	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
12//843432	TELSTRA CORPORATION LIMITED
50//848334	WAMBO COAL PTY LIMITED
1//857021	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//876447	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
2//876447	COAL & ALLIED OPERATIONS PTY LIMITED
1//901179	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//947886	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//963714	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
146//970755	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//997228	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//998117	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
2//998117	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
854//1000822	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//1041635	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//1043120	GLENCORE COAL (NSW) PTY LIMITED
3//1085145	Wambo Coal Pty Ltd
4//1085145	Wambo Coal Pty Ltd
5//1085145	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
20//1085391	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//1088908	WAMBO COAL TERMINAL PTY LTD
2//1088908	WAMBO COAL TERMINAL PTY LTD
1//1090601	WAMBO COAL PTY LIMITED
1//1102213	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//1103396	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
21//1109631	Warkworth Hall Community Centre Incorporated

84//1124139	Warkworth Mining Limited
33//1125285	AZSA PASTORAL HOLDINGS PTY LIMITED
34//1125285	AZSA PASTORAL HOLDINGS PTY LIMITED
1//1126528	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
350//1135536	Warkworth Mining Limited
360//1135647	Warkworth Mining Limited
2011//1137289	The State of New South Wales
73//1137954	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
2//1153480	WAMBO COAL TERMINAL PTY LTD
1000//1153575	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//1156393	Singleton Shire Council
11//1262456	Trustee of Church Property for the Diocese of Newcastle
12//1262456	Trustee of Church Property for the Diocese of Newcastle
13//1262456	Trustee of Church Property for the Diocese of Newcastle
3//1171764	Trustee of Church Property for the Diocese of Newcastle
1//1177768	Anthony John Maher and Andrew William Vickers
1//1217808	Janelle Susan Wenham
EP 51200	EP (assume to Coal and Allied Operations Pty Limited)
CL 565353	THE STATE OF NEW SOUTH WALES
Crown Licence 175936	Crown (Coal & Allied Operations Pty Limited) Licence 175936
Various crown and council road reserves	
Bed and banks of the Hunter River	
Bed and banks of Wollombi Brook	

HVO North

Lot//DP	Owner
1//48165	Her most gracious majesty Queen Elizabeth the second
2//48165	Crown
3//48165	Her most gracious majesty Queen Elizabeth the second
4//48165	Crown
5//48165	Her most gracious majesty Queen Elizabeth the second
6//48165	Crown (Lemington Road)
7//48165	Road
8//48165	Her most gracious majesty Queen Elizabeth the second
9//48165	Her most gracious majesty Queen Elizabeth the second
2//48555	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
3//48555	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
4//48555	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
5//48555	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
7//48555	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//90727	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
7001//93617	THE STATE OF NEW SOUTH WALES
1//110662	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//114966	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
2//114966	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//125406	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
2//125406	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
3//125406	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
4//125406	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
5//125406	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
6//125406	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
7//125406	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
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10//125406	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
11//125406	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
4//130831	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//135459	State Rail Authority of NSW
1//191982	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//211043	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
3//252530	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
4//252530	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
5//252530	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
8//252530	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
201//544091	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//574166	AGL MACQUARIE PTY LTD
2//574166	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
300//597726	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%



1//659810	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
100//700429	ALPHA DISTRIBUTION MINISTERIAL HOLDING CORPORATION (Ausgrid)
1//727260	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//729048	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//737796	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
10//740183	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
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159//752468	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
89//752470	TBC
17//752481	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
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171//752481	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
200//752481	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//776382	Crown Road
4//776382	Crown lands - water course Bayswater Creek
1//779625	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
21//786904	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
22//786904	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//794836	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
2//808301	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//808431	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
2//808431	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//823767	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
16//848095	Cumnock No 1 Colliery Pty Limited, ICRA CUMNOCK PTY LIMITED
300//856881	Cumnock No 1 Colliery Pty Limited, ICRA CUMNOCK PTY LIMITED
11//858172	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
304//868175	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
22//869399	Resource Pacific Ltd, Cumnock No.1 Colliery Pty Ltd, Muswellbrook Coal Company Ltd, ICRA Cumnock Pty Ltd
380//869839	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%

182//975271	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
183//975271	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
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193//975271	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
211//975271	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
212//975271	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
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221//975271	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
101//1017998	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
601//1019325	AGL MACQUARIE PTY LTD
111//1059007	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//1078618	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
20//1085391	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
102//1103268	LIDDELL TENEMENTS PTY LIMITED, MITSUI MATSUSHIMA AUSTRALIA PTY LIMITED, ENEX LIDDELL PTY LIMITED
103//1103268	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//1113789	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
2//1113789	Singleton Shire Council
3//1113789	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
4//1113789	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
5//1113789	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
6//1113789	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
7//1113789	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1481//1129164	THE STATE OF NEW SOUTH WALES
3000//1132357	Cumnock No 1 Colliery Pty Limited, ICRA CUMNOCK PTY LIMITED
1//1152619	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
2//1152619	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
3//1152619	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
4//1152619	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1000//1153575	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
1//1155775	AGL MACQUARIE PTY LTD
1//1158958	Transport for NSW
2//1167986	AGL MACQUARIE PTY LTD
120//1174907	AGL MACQUARIE PTY LTD
121//1174907	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
122//1174907	Coal & Allied Operations Pty Ltd 51% and Anotero Pty Limited 49%
2//1193186	RAVENSWORTH OPERATIONS PTY LIMITED
Part Crown (Coal & Allied Operations Pty Limited) Licence 175936	
Crown land - Closed road - north side 7001//93617	
Part Crown land South Bank Hunter River	
Old Highway Rd	
Lemington Road	
Liddell Station Rd	
NEW ENGLAND HWY New England HWY	
Railway - Newdell Rail Spur	
Various Crown and Council Roads	
Bed and banks of Hunter River	
Bed and banks of Bayswater Creek	

APPENDIX C: REHABILITATION RISK ASSESSMENT SUMMARY

Risk Ref.	Steps of process	Risk Event Description (Risk of....)	Cause (Due to...)	Consequence (Resulting in..)	Risk Owner	Potential Maximum Consequence (PMC)		Existing Controls	Risk Control Effectiveness	Current Risk with Existing Controls		Risk Treatment/Actions		
						Consequence Categories	PMC			Consequence Categories	Highest Consequence	Likelihood	Residual Risk Rating	Risk Treatment/ Actions
1	1. General	Insufficient skills and experience of rehab personnel.	LTA training & education Failure to follow Protocols, Plans, Procedures and Permits	Poor quality rehabilitation / failure to meet closure criteria	Ben de Somer	Environment	2	Long term contract for ground prep and revegetation works Rehabilitation & Disturbance Procedure General Hunter Valley rehab contractor experience	Satisfactory	Environment	1	D	2	
2	1. General	Lack of defined responsibilities.	LTA training & education	Poor quality rehabilitation / failure to meet closure criteria	Ben de Somer	Environment	1	HVO Organisation Chart Rehabilitation Management Plan Rehabilitation & Disturbance Procedure ARCP	Satisfactory	Environment	1	D	2	
3	1. General	Insufficient funding for or prioritisation of rehabilitation activities	Current designs do not adequately mitigate a specific landform / feature / contaminated site risk Exact scope of works unknown Insufficient skill & experience to complete task LTA engagement with relevant stakeholders LTA identification of risks and opportunities to support closure objectives Monitoring, Reconciliation and Management LTA Planning parameters LTA Unresolved / unclear completion criteria and data requirements for relinquishment approval	Failure to meet closure criteria	Ben de Somer	Environment	3	LOM Process Budget process ARCP	Satisfactory	Environment	1	D	2	
4	2. Active Mining Phase	Poor biological resource salvage and maintenance (soil, vegetation, seeds, habitat resources)	Failure to follow Protocols, Plans, Procedures and Permits Geographical location Inherent weed prevalence in topsoil LTA operating budget Mine Plan design LTA Monitoring, Reconciliation and Management LTA Planning & execution LTA Skilled Contractors Availability LTA	Insufficient material for rehabilitation	Ben de Somer	Environment	2	Rehabilitation & Disturbance Procedure Topsoil Management Plan Vegetation Clearance Plan GDP Process ARCP Topsoil balance	Satisfactory	Environment	1	C	4	

5	2. Active Mining Phase	Failure to identify topsoil types when salvaging / stockpiling (e.g. pasture vs woodland)	Failure to follow Protocols, Plans, Procedures and Permits LTA operating budget Mine Plan design LTA Monitoring, Reconciliation and Management LTA Planning & execution LTA Skilled Contractors Availability LTA	Topsoil use on inappropriate areas (e.g. pasture on woodland)	Ben de Somer	Environment	3	Topsoil Management Plan GDP Process Project Specific Topsoil Plan ARCP	Satisfactory	Environment	3	C	13	Update Rehabilitation and Disturbance Procedure to include system for selecting topsoil sources for specific rehabilitation types (e.g woodland). Develop a process in the mine planning system to communicate topsoil types and appropriate usages for inclusion in budget etc.
6	2. Active Mining Phase	Limited biological resources for salvage (soil, vegetation, seeds, habitat resources)	Failure to follow Protocols, Plans, Procedures and Permits Geographical location Inherent weed prevalence in topsoil LTA operating budget Mine Plan design LTA Monitoring, Reconciliation and Management LTA Planning & execution LTA Skilled Contractors Availability LTA	Insufficient material for rehabilitation	Ben de Somer	Environment	3	Rehabilitation & Disturbance Procedure Topsoil Management Plan and Topsoil Balance Vegetation Clearance Plan GDP Process Topsoil balance	Satisfactory	Environment	2	B	12	Update Rehabilitation and Disturbance Procedure to include system for selecting topsoil sources for specific rehabilitation types (e.g woodland). Review Continuation Project soil assessment to identify options for reducing topsoil deficit.
7	2. Active Mining Phase	Clearing in adverse seasonal and weather conditions when salvaging biological resources	Failure to follow Protocols, Plans, Procedures and Permits Geographical location LTA operating budget Mine Plan design LTA Monitoring, Reconciliation and Management LTA Planning & execution LTA	Poor quality rehabilitation / failure to meet closure criteria	Ben de Somer	Environment	1	Rehabilitation & Disturbance Procedure Topsoil Management Plan Vegetation Clearance Plan GDP Process Budget planning ARCP	Satisfactory	Environment	1	D	2	
8	2. Active Mining Phase	Adverse geochemical/chemical composition of materials (overburden, soils)	Failure to follow Protocols, Plans, Procedures and Permits Geographical location LTA operating budget Mine Plan design LTA Monitoring, Reconciliation and Management LTA Planning & execution LTA	Poor quality rehabilitation / failure to meet closure criteria	Ben de Somer	Environment	3	Rehabilitation & Disturbance Procedure Topsoil Management Plan Geochemical Management Plan Geochemical Sampling Procedure Archerfield Sandstone / Reactive Ground Handling Procedure Dig and dump checklists (management of ARD/carbonaceous material) Spon Com Management Plan	Satisfactory	Environment	1	C	4	
9	2. Active Mining Phase	Poor handling and containment of geochemical and geotechnically unsuitable tailings and reject materials	Failure to follow Protocols, Plans, Procedures and Permits LTA training & education Maintenance Regime LTA Planning & execution LTA LTA identification of hazardous properties and quantities of hazardous materials or potential effects of hazardous materials	Poor quality rehabilitation / failure to meet closure criteria	Ben de Somer	Financial	4	Fine Rejects Management Strategy / Dam Management Plans Geochemical Management Plan Geochemical Sampling Procedure Continuation Project Geochem sampling Rehabilitation monitoring program Capping designs completed by suitably qualified engineer	Satisfactory	Financial	3	D	9	

10	2. Active Mining Phase	Overtipping from active dumps on establishing rehabilitation areas	Failure to follow Protocols, Plans, Procedures and Permits Geographical location LTA operating budget Mine Plan design LTA Monitoring, Reconciliation and Management LTA Planning & execution LTA	Poor quality rehabilitation / failure to meet closure criteria	Ben de Somer	Financial	1	Dig and dump checklists Windrows Rehabilitation bulk shaping checklist Survey and conformance to design checks GPS design in dump dozer / survey pegs	Satisfactory	Financial	1	C	4	
11	2. Active Mining Phase	Adverse surface and groundwater quality and quantity (outside of expected projections)	Current designs do not adequately mitigate a specific landform / feature / contaminated site risk Exact scope of works unknown Insufficient skill & experience to complete task LTA engagement with relevant stakeholders LTA identification of risks and opportunities to support closure objectives Monitoring, Reconciliation and Management LTA Planning parameters LTA Unresolved / unclear completion criteria and data requirements for relinquishment approval	Failure to meet closure criteria	Ben de Somer	Environment	2	Rehabilitation & Disturbance Procedure Topsoil Management Plan Water Management Plan Water Monitoring Program Rehabilitation Monitoring	Satisfactory	Environment	2	D	5	
12	3. Decommissioning Phase	Poor management of material and waste products from demolition activities	Failure to follow Protocols, Plans, Procedures and Permits LTA training & education Planning & execution LTA Poor management practices LTA identification of hazardous properties and quantities of hazardous materials or potential effects of hazardous materials	Increased / additional costs. Failure to meet closure criteria	Ben de Somer	Environment	2	Operational Closure Plan EMS - compliance/assurance program Glencore Project Standard	Satisfactory	Environment	1	D	2	
13	3. Decommissioning Phase	Poor management of retained infrastructure (infrastructure not required or dilapidated)	LTA engagement with relevant stakeholders Failure to follow Protocols, Plans, Procedures and Permits LTA training & education Maintenance Regime LTA Poor management practices LTA site access control ie fencing, gates, boundaries	Increased / additional costs. Failure to meet closure criteria	Ben de Somer	Environment	2	Operational Closure Plan (project management process and monitoring) Budget process	Satisfactory	Environment	1	D	2	
14	3. Decommissioning Phase	Inadequate identification and/or management of contaminated material	LTA identification of hazardous properties and quantities of hazardous materials or potential effects of hazardous materials Failure to follow Protocols, Plans, Procedures and Permits	Increased / additional costs. Failure to meet closure criteria	Ben de Somer	Environment	3	Monthly inspections Surface and groundwater monitoring programs Phase 1 & 2 assessments Operational closure plan GDP process / project topsoil plan Bioremediation Procedure	Satisfactory	Environment	1	C	4	

15	4. Landform establishment phase of rehabilitation	Unstable landform due to erosion and/or mass movement associated with inappropriate design and/or quality assurance during landform construction	Current designs do not adequately mitigate a specific landform / feature / contaminated site risk Exact scope of works unknown Insufficient skill & experience to complete task LTA engagement with relevant stakeholders LTA identification of risks and opportunities to support closure objectives Monitoring, Reconciliation and Management LTA Planning parameters LTA Unresolved / unclear completion criteria and data requirements for relinquishment approval	Failure to meet closure criteria	Ben de Somer	Environment	3	Approved / Conceptual final landform Landform design process Expert consultant input / erosion modelling as required. Rehab and Disturbance Procedure Bulk shaping and rehab checklist GPS control in shaping dozers	Satisfactory	Environment	1	D	2	
16	4. Landform establishment phase of rehabilitation	Lack of availability of suitable materials for capping of adverse materials	LTA engagement with relevant stakeholders Failure to follow Protocols, Plans, Procedures and Permits Mine Plan design LTA Current designs do not adequately mitigate a specific landform / feature / contaminated site risk Mine Plan design Non compliance Unexpected or early mine closure	Increased / additional costs. Failure to meet closure criteria	Ben de Somer	Environment	3	Capping material identified as part of LOM process Closure Risk Assessment Fine Reject Management Strategy Existing capping stockpile for Carrington Pit area Dig and dump process / dig design checklist Spon Com PHMP Bulk shaping and rehab checklist	Satisfactory	Environment	2	D	5	Update Dam Management Plan to include minimum capping depth / reference Fine Reject MP.
17	4. Landform establishment phase of rehabilitation	Final landform unsuitable for final land use (e.g. large rocks affecting cultivation)	Current designs do not adequately mitigate a specific landform / feature / contaminated site risk Exact scope of works unknown Insufficient skill & experience to complete task LTA engagement with relevant stakeholders LTA identification of risks and opportunities to support closure objectives Monitoring, Reconciliation and Management LTA Planning parameters LTA Unresolved / unclear completion criteria and data requirements for relinquishment approval	Failure to meet closure criteria	Ben de Somer	Environment	3	Rehabilitation Management Plan ARCP Rehab and Disturbance Procedure Bulk shaping and rehab checklist Rehabilitation Monitoring	Satisfactory	Environment	1	D	2	
18	4. Landform establishment phase of rehabilitation	Landform aspect not suitable for intended target plant species	Failure to follow Protocols, Plans, Procedures and Permits Geographical location Inherent weed prevalence in topsoil LTA operating budget Mine Plan design LTA Monitoring, Reconciliation and Management LTA Planning & execution LTA Skilled Contractors Availability LTA	Poor quality rehabilitation / failure to meet closure criteria	Ben de Somer	Environment	1	Rehabilitation Management Plan ARCP Rehab and Disturbance Procedure FLRP	Satisfactory	Financial	1	E	1	

19	4. Landform establishment phase of rehabilitation	Long term settlement and ponding of water on dumps	Failure to follow Protocols, Plans, Procedures and Permits Weather conditions Mine Plan design LTA Planning & execution LTA Current designs do not adequately mitigate a specific landform / feature / contaminated site risk Mine Plan design Non compliance	Increased / additional costs for maintenance or rework Failure to meet closure criteria	Ben de Somer	Financial	1	Detailed landform design Survey and conformance to plan checks Rehab and bulk shaping checklist Annual Walkover and ecological monitoring program ARCP	Satisfactory	Financial	1	C	4	
20	4. Landform establishment phase of rehabilitation	Discharge of water from mine voids to the Alluvial Lands / Hunter River	LTA modelling of groundwater and surface water regimes post-closure Changes to climatic conditions	Contamination of external alluvial water sources with saline water from voids.	Ben de Somer	Environment	4	HVO Continuation Project Water Assessment - future final voids Final Void Management Plan Existing groundwater monitoring network 3 Yearly Groundwater Review Annual Groundwater Review (Annual Review) Levees and Barrier Walls Project future levees as part of Continuation Project Operational Water Management Plan (inspections, monitoring) Water Monitoring Program	Requires improvement	Environment	4	C	18	Existing action- 2246748- Installation of piezometers between Dam 21N and Hunter River to inform management and closure of Dam 21N (pending WMP approval). Existing Action 2120960 :Install new Monitoring bores at Lemington South in accordance with Umwelt recommendations
21	5. Growth medium development	Poor / unsuitable physical and structural properties of soils	Failure to follow Protocols, Plans, Procedures and Permits Geographical location LTA operating budget Mine Plan design LTA Monitoring, Reconciliation and Management LTA Planning & execution LTA	Poor quality rehabilitation / failure to meet closure criteria	Ben de Somer	Environment	3	Rehabilitation & Disturbance Procedure Topsoil Management Plan (soil testing) GDP Process Walkover inspection nad rehabilitation monitoring	Satisfactory	Environment	1	D	2	
22	5. Growth medium development	Soil (topsoil and/or subsoil) deficit for rehabilitation activities	Failure to follow Protocols, Plans, Procedures and Permits LTA training & education Planning & execution LTA Poor management practices	Increased / additional costs. Failure to meet closure criteria	Ben de Somer	Environment	3	Topsoil Management Plan (lists options for making up deficit) Topsoil balance Rehab and Disturbance Procedure	Satisfactory	Environment	2	B	12	Update Rehabilitation and Disturbance Procedure to include system for selecting topsoil sources for specific rehabilitation types (e.g woodland).
23	5. Growth medium development	Soils inadequate to support revegetation or agricultural land capability (e.g. lack of organic matter, nutrient deficiency, adverse chemical properties, weed seed bank)	Failure to follow Protocols, Plans, Procedures and Permits Geographical location LTA operating budget Mine Plan design LTA Monitoring, Reconciliation and Management LTA Planning & execution LTA	Poor quality rehabilitation / failure to meet closure criteria	Ben de Somer	Environment	3	Rehabilitation & Disturbance Procedure Topsoil Management Plan ARCP (maintenance) Rehabilitation Monitoring Agricultural land capability review	Satisfactory	Environment	2	B	12	
24	5. Growth medium development	Degradation of soil quality due to lack of stockpile maintenance.	Failure to follow Protocols, Plans, Procedures and Permits Geographical location LTA operating budget Mine Plan design LTA Monitoring, Reconciliation and Management LTA Planning & execution LTA	Poor quality rehabilitation / failure to meet closure criteria	Ben de Somer	Financial	2	Topsoil Management Plan Annual topsoil inspections ARCP / Maintenance plan	Satisfactory	Financial	1	C	4	

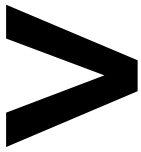
25	6. Ecosystem and land use establishment	Lack of availability and quantity of target seed resources	Failure to follow Protocols, Plans, Procedures and Permits Geographical location LTA operating budget Mine Plan design LTA Monitoring, Reconciliation and Management LTA Planning & execution LTA	Poor quality rehabilitation / failure to meet closure criteria	Ben de Somer	Financial	1	Established suppliers for seed purchases Seed list designed to allow flexibility based on availability Seed species common across Hunter Valley Majority of rehab in the future is pasture - less reliance on woodland species.	Satisfactory	Financial	1	D	2	
26	6. Ecosystem and land use establishment	Poor seed viability	Failure to follow Protocols, Plans, Procedures and Permits Geographical location Inherent weed prevalence in topsoil LTA operating budget Mine Plan design LTA Monitoring, Reconciliation and Management LTA Planning & execution LTA Skilled Contractors Availability LTA	Poor quality rehabilitation / failure to meet closure criteria	Ben de Somer	Environment	2	Established seed suppliers with viability and quality benchmarks Reputable suppliers in Hunter Valley All viability data is stored on seed portal Monitoring program to identify issues	Satisfactory	Environment	1	D	2	Existing action 2251734-Review seed storage and develop a register for managing seed stored for longer periods of time. Consider potential viability testing for seed stored longer periods of time.
27	6. Ecosystem and land use establishment	Insect and/or plant disease impacting vegetation (particularly early establishment)	Failure to follow Protocols, Plans, Procedures and Permits Geographical location Inherent weed prevalence in topsoil LTA operating budget Mine Plan design LTA Monitoring, Reconciliation and Management LTA Planning & execution LTA Skilled Contractors Availability LTA	Poor quality rehabilitation / failure to meet closure criteria	Ben de Somer	Environment	1	Long term seed contract with seed treatment specifications Rehabilitation Monitoring Rehab maintenance schedule Vegetation Clearance Plan (managing plant disease)	Satisfactory	Environment	1	D	2	
28	6. Ecosystem and land use establishment	Lack of availability, or poor quality of tubestock for supplementary planting	Failure to follow Protocols, Plans, Procedures and Permits Geographical location Inherent weed prevalence in topsoil LTA operating budget Mine Plan design LTA Monitoring, Reconciliation and Management LTA Planning & execution LTA Skilled Contractors Availability LTA	Poor quality rehabilitation / failure to meet closure criteria	Ben de Somer	Environment	2	ARCP Budget process Rehabilitation Monitoring Rehab and disturbance procedure Experienced suppliers / nurseries within Hunter Valley	Satisfactory	Environment	1	D	2	
29	6. Ecosystem and land use establishment	Unseasonal / adverse weather conditions at the time of seeding	Failure to follow Protocols, Plans, Procedures and Permits Geographical location LTA operating budget Mine Plan design LTA Monitoring, Reconciliation and Management LTA Planning & execution LTA	Poor quality rehabilitation / failure to meet closure criteria	Ben de Somer	Financial	1	Native seed mix consists of drought tolerant species Adequate on-site seed storage	Satisfactory	Financial	1	C	4	

30	6. Ecosystem and land use establishment	Weed infestation limiting target species/community (general)	Failure to follow Protocols, Plans, Procedures and Permits Geographical location Inherent weed prevalence in topsoil LTA operating budget Mine Plan design LTA Monitoring, Reconciliation and Management LTA Planning & execution LTA Skilled Contractors Availability LTA	Poor quality rehabilitation / failure to meet closure criteria	Ben de Somer	Environment	3	Rehabilitation Monitoring Reports Annual Walkover assessment Detailed Maintenance Plans ARCP Budget process Topsoil Management Plan Rehab and disturbance Procedure	Satisfactory	Financial	2	B	12	
31	6. Ecosystem and land use establishment	Acacia saligna infestations limiting target species/community	Failure to follow Protocols, Plans, Procedures and Permits Geographical location Inherent weed prevalence in topsoil LTA operating budget Mine Plan design LTA Monitoring, Reconciliation and Management LTA Planning & execution LTA Skilled Contractors Availability LTA	Poor quality rehabilitation / failure to meet closure criteria	Ben de Somer	Financial	3	Annual walkover and ecological monitoring ARCP / detailed maintenance plan Specific budget item Topsoil Management Plan / maintenance Targeted/specific equipment used on site	Satisfactory	Financial	1	B	7	
32	6. Ecosystem and land use establishment	Use of inappropriate or inadequate rehabilitation techniques, including equipment fleet	Failure to follow Protocols, Plans, Procedures and Permits Geographical location LTA operating budget Mine Plan design LTA Monitoring, Reconciliation and Management LTA Planning & execution LTA	Poor quality rehabilitation / failure to meet closure criteria	Ben de Somer	Environment	2	Rehabilitation & Disturbance Procedure Rehabilitation / Revegetation works contract Rehabilitation Design Handover Checklist Supervision	Satisfactory	Environment	1	D	2	
33	6. Ecosystem and land use establishment	Inappropriate revegetation species mix for targeted final land use	Failure to follow Protocols, Plans, Procedures and Permits Geographical location LTA operating budget Mine Plan design LTA Monitoring, Reconciliation and Management LTA Planning & execution LTA	Poor quality rehabilitation / failure to meet closure criteria	Ben de Somer	Environment	3	Rehabilitation Monitoring Reports Annual Walkover assessment Specific rehab seed mixes (recently updated)	Satisfactory	Environment	1	D	2	
34	6. Ecosystem and land use establishment	Trees and/or deep rooting shrubs establish on tailings capping rehabilitation areas	Failure to follow Protocols, Plans, Procedures and Permits LTA training & education Maintenance Regime LTA Planning & execution LTA Poor management practices	Exposure of underlying tailings to water/oxygen etc.	Ben de Somer	Financial	1	Final Land Use and Rehabilitation Plan (pasture only on future tailings dams) Pasture seed mix Rehabilitation Monitoring and Annual Walkover Capping design - capping at least 2m Geochemical management plan - period testing	Satisfactory	Financial	1	D	2	Existing action 2241736- Document strategy for maintenance of tailings/pasture areas. Existing action -2251737- Complete a review of historical tailings dams with rehabilitation over them (West TSF/ Lemington)
35	6. Ecosystem and land use establishment	Weather and climatic influences (drought, flood) during initial establishment	Failure to follow Protocols, Plans, Procedures and Permits Geographical location LTA operating budget Mine Plan design LTA Monitoring, Reconciliation and Management LTA Planning & execution LTA	Poor quality rehabilitation / failure to meet closure criteria	Ben de Somer	Environment	3	Rehabilitation & Disturbance Procedure (ground prep methods) Native seed mix consists of drought tolerant species Annual Rehab Monitoring Annual walkover assessment	Satisfactory	Environment	2	C	8	

36	6. Ecosystem and land use establishment	Availability of areas for revegetation in optimal seasonal conditions (seeding)	Failure to follow Protocols, Plans, Procedures and Permits Geographical location LTA operating budget Mine Plan design LTA Monitoring, Reconciliation and Management LTA Planning & execution LTA	Poor quality rehabilitation / failure to meet closure criteria	Ben de Somer	Environment	2	Budget process ARCP Rehabilitation & Disturbance Procedure (ground prep methods) Native seed mix consists of drought tolerant species	Satisfactory	Environment	1	D	2	
37	7. Ecosystem and land use development	Weather and climatic influences (drought, flood, bushfire) impacting vegetation long term survival	Failure to follow Protocols, Plans, Procedures and Permits Geographical location LTA operating budget Mine Plan design LTA Monitoring, Reconciliation and Management LTA Planning & execution LTA	Poor quality rehabilitation / failure to meet closure criteria	Ben de Somer	Environment	3	Rehabilitation Monitoring Reports Annual Walkover assessment Bushfire Management Plan Native seed mix consists of locally sourced and drought tolerant species	Satisfactory	Environment	1	C	4	
38	7. Ecosystem and land use development	Long term water quality and quantity issues outside of projections (e.g. acid-drainage, high salinity)	Current designs do not adequately mitigate a specific landform / feature / contaminated site risk Exact scope of works unknown Insufficient skill & experience to complete task LTA engagement with relevant stakeholders LTA identification of risks and opportunities to support closure objectives Monitoring, Reconciliation and Management LTA Planning parameters LTA Unresolved / unclear completion criteria and data requirements for relinquishment approval	Failure to meet closure criteria	Ben de Somer	Environment	3	Rehabilitation & Disturbance Procedure Topsoil Management Plan Water Management Plan Water Monitoring Program including sampling of sediment dams Rehabilitation Monitoring	Satisfactory	Environment	2	D	5	
39	7. Ecosystem and land use development	Lack of consideration towards licencing of runoff water from rehabilitation areas (water take)	Failure to follow Protocols, Plans, Procedures and Permits Adequate licencing not in place	Fine / prosecution	Ben de Somer	Legal	1	Licensing not required until water becomes 'clean' Water Management Plan Rehabilitation dam sampling plan GCAA Mine Closure Standard Mine Closure Plan Current water licensing is sufficient	Satisfactory	Legal	1	C	4	
40	7. Ecosystem and land use development	Unauthorised damage to rehabilitation (fauna, stock, vandalism, vehicles, unauthorised clearing)	Failure to follow Protocols, Plans, Procedures and Permits LTA training & education LTA site access control ie fencing, gates, boundaries	Increased / additional costs. Failure to meet closure criteria	Ben de Somer	Environment	3	Rehabilitation Management Plan Vertebrate Pest Control Program Rehabilitation areas fenced off from stock Lease agreements (stock areas) GDP Process Monthly inspections Rehabilitation Monitoring Rehab maintenance/budget ARCP	Satisfactory	Environment	1	C	4	

41	7. Ecosystem and land use development	Re-disturbance of established rehabilitation areas	Mine Plan design LTA Planning & execution LTA Unresolved / unclear completion criteria and data requirements for relinquishment approval LTA identification of risks and opportunities to support closure objectives	Increased / additional costs	Ben de Somer	Environment	2	LOM / Budget planning process ARCP GDP Process Rehab and disturbance procedure Topsoil Management Plan	Satisfactory	Environment	1	D	2	
42	7. Ecosystem and land use development	Insufficient establishment of target species and limited species diversity	Current designs do not adequately mitigate a specific landform / feature / contaminated site risk Exact scope of works unknown Insufficient skill & experience to complete task LTA engagement with relevant stakeholders LTA identification of risks and opportunities to support closure objectives Monitoring, Reconciliation and Management LTA Planning parameters LTA Unresolved / unclear completion criteria and data requirements for relinquishment approval	Failure to meet closure criteria	Ben de Somer	Environment	3	Rehabilitation Management Plan Rehabilitation & Disturbance Procedure Detailed / extensive seed mixes Rehabilitation Monitoring Annual Walkover assessment Detailed Maintenance Plans Draft closure criteria	Satisfactory	Environment	2	C	8	
43	7. Ecosystem and land use development	Limited vegetation structural development and habitat for fauna species	Current designs do not adequately mitigate a specific landform / feature / contaminated site risk Exact scope of works unknown Insufficient skill & experience to complete task LTA engagement with relevant stakeholders LTA identification of risks and opportunities to support closure objectives Monitoring, Reconciliation and Management LTA Planning parameters LTA Unresolved / unclear completion criteria and data requirements for relinquishment approval	Failure to meet closure criteria	Ben de Somer	Environment	2	Rehabilitation Management Plan Rehabilitation & Disturbance Procedure Detailed / extensive seed mixes Rehabilitation Monitoring Annual Walkover assessment Detailed Maintenance Plans	Satisfactory	Environment	1	D	2	
44	7. Ecosystem and land use development	Erosion and failure of landforms or structures (contours, drop structures, dams)	Extreme weather event Maintenance Regime LTA Planning & execution LTA Water Infrastructure LTA Failure of erosion and sediment controls Current designs do not adequately mitigate a specific landform / feature / contaminated site risk Mine Plan design Non compliance	Increased / additional costs. Failure to meet closure criteria	Ben de Somer	Environment	3	Rehabilitation Management Plan Rehabilitation & Disturbance Procedure Rehabilitation Monitoring Annual Walkover assessment Detailed Maintenance Plans Rehab Report Card Landform Design long term modelling (geofluv) Drainage design for contours and compliance check Bulk shaping and rehab checklist	Satisfactory	Environment	1	C	4	

45	7. Ecosystem and land use development	Lack of infrastructure to support intended final land use (e.g. stock dams, fences)	Planning & execution LTA LTA identification of risks and opportunities to support closure objectives Unresolved / unclear completion criteria and data requirements for relinquishment approval Closure planning required further detail Unexpected or early mine closure	Increased / additional costs. Failure to meet closure criteria	Ben de Somer	Environment	2	Rehabilitation Management Plan ARCP FLRP - access to all pasture areas Lease agreements for grazing areas (existing fencing/water)	Satisfactory	Environment	1	D	2	
46	7. Ecosystem and land use development	Insufficient productivity in Alluvial Lands or other Class 1, 2, 3 final land use areas	Maintenance Regime LTA Inherent weed prevalence in topsoil LTA identification of risks and opportunities to support closure objectives Unresolved / unclear completion criteria and data requirements for relinquishment approval Unexpected or early mine closure	Resulting in rehab failure / failure to meet closure criteria	Ben de Somer	Financial	2	Alluvial Lands Land Capability Assessment Rehabilitation monitoring Lease agreements on current areas Alluvial lands cropping study (mid-2000s) Agricultural Land Reinstatement Management Plan Water Management Plan	Satisfactory	Financial	1	D	2	Alluvial lands drainage improvement existing action.2139643
47	8. Mine subsidence affected areas	Unplanned or greater than predicted subsidence impacts (Cheshunt / Newdell)	Historical data LTA Maintenance Regime LTA LTA identification of risks and opportunities to support closure objectives	Resulting in rehab failure / failure to meet closure criteria	Ben de Somer	Environment	1	Geotech report of subsidence risks for Lemington Geotech PHMP Rehabilitation Monitoring Rehabilitation Maintenance Plans ARCP Planned closure costings	Satisfactory	Environment	1	D	2	
48	8. Mine subsidence affected areas	Unplanned seepage of groundwater from the Lemington underground workings to the Hunter River alluvium	LTA understanding of mine workings and groundwater regime.	Potential saline contamination of the alluvium	Ben de Somer	Environment	4	Treatment plan in place to install monitoring network to fill knowledge gap Water Monitoring Program (sampling downstream in HR) Groundwater Model	Requires improvement	Environment	4	C	18	Existing Action 2120960 to Install new Monitoring bores at Lemington South in accordance with Umwelt recommendations



APPENDIX D: PROPOSED COMPLETION CRITERIA

Rehabilitation Objective Category	Rehabilitation Objective	Spatial References	Indicator	Completion Criteria	Validation Method
Removal of Infrastructure	All infrastructure that is not required as part of the final land use will be removed.	A1, B1, F1	Removal of all services (power, water, communications) that have been connected on the site as part of the operation.	Services and utility infrastructure removed.	Statement provided. Independent field verification.
			Removal of all buildings and other infrastructure, unless there is a written agreement with the RR for infrastructure to remain in situ	Infrastructure removed.	Statement provided. Independent field verification.
			Removal of all plant, equipment and associated infrastructure including processing facilities, stockpile areas, rail infrastructure and loading facilities, underground hydrocarbon storage tanks, office complex, portable offices, exploration core samples, camp facilities, storage racks, samples.	Infrastructure removed.	Statement provided. Demolition records from certified contractor
			Removal of all footings or removal to a certain depth (0.5 metres) OR equivalent depth of cover that is suitable for the final land use.	Infrastructure removed.	Demolition records from certified contractor. Surveyed and marked on the as-constructed final landform plan.
			Removal of all water management infrastructure (including pumps, pipes and power).	Infrastructure removed.	Statement provided. Independent field verification.
			All drill cores have been removed and either taken to authorised storage or disposal location.	Cores removed.	Statement provided. Independent field verification.
			All drill holes, excavations, and groundwater monitoring bores (where locatable) are decommissioned and sealed in accordance with RR requirements, excluding those being retained for monitoring purposes.	Sealing complete.	Engineering report/statement, plug and abandonment log, photos, as-constructed drawings etc.
			Heritage obligations (e.g. development consent under the Environmental Planning and Assessment Act 1979, approvals under the Heritage Act 1977, etc.) have been met (e.g. archival recording, building retention or building demolition with footings preserved)	Permits and approval documents issued; archival reports (where required) complete and submitted.	Copy of any relevant approval documentation.
Retention of Infrastructure	All infrastructure that is to remain as part of the final land use is safe and has relevant approvals in place.	A1, B1, F1	Where applicable, necessary approvals are in place (e.g. development consent under the Environmental Planning and Assessment Act 1979) where buildings and infrastructure are to be retained as part of final land use	Permits and approval documents issued	Copy of any relevant approval documentation.
			Potential hazards (e.g. electrical, mechanical) have been effectively isolated.	Hazards isolated.	Statement provided. Independent field verification.

Rehabilitation Objective Category	Rehabilitation Objective	Spatial References	Indicator	Completion Criteria	Validation Method
			Access tracks that are to remain are in a trafficable condition that is suitable for their intended purposes.	Any required repairs or upgrades complete.	Copy of any relevant plans, photos etc.
			Heritage obligations as required under the Environmental Planning and Assessment Act 1979, Heritage Act 1977, etc. have been met (e.g. archival recording, building retention and restoration).	Permits and approval documents issued; archival reports (where required) complete and submitted.	Copy of any relevant approval documentation.
			The structural integrity of the infrastructure has been inspected by a suitably qualified engineer and determined to be suitable and safe as part of the intended final land use.	Structural integrity reports received and confirm structures are safe	Engineering report/statement, photos etc.
				Remnant in-situ pipelines are below 0.5m depth as determined to be suitable for the intended final land use. The location of the infrastructure has been marked on a plan and registered with the relevant local authority (e.g. local Council) and Dial Before You Dig where this is required by the Council or the relevant Authority. All potential hazards associated with the retention of pipelines (e.g. residual gas) have been removed.	Surveyed and marked on the as-constructed final landform plan. Copy of notification to or correspondence with local Council and Dial Before You Dig Hazards associated with in-situ pipelines have been validated by a suitably qualified person.
Land Contamination	There is no residual soil contamination on site that is incompatible with the final land use or that poses a threat of environmental harm.	A1, A2, A4, B1, B2, B3, B4, B7, F1, F3, F4, F5, J2, J5	Waste material and/or visible contamination areas on site surface.	There are no visible signs of contamination following the removal of plant, equipment and materials. All rubbish/ waste materials removed from site.	Statement provided and before/after photos.
			Monitoring records verify that there is no evidence of spontaneous combustion.	Monitoring records verify that there is no evidence of spontaneous combustion.	Ariel surveys Inspections Rehabilitation monitoring reports
			There is no soil contamination above levels not compatible with the final land use.	Contamination will be appropriately remediated so that appropriate guidelines for land use are met, e.g. Health Investigation Level of the National Environment Protection (Assessment of Site Contamination) Measure (1999).	Contamination Remediation Report
		A2, B2, J2	Material capped. The structural integrity of the infrastructure has been inspected by a suitably qualified engineer and determined to be suitable and safe as part of the intended final land use and does not pose threat of environmental harm.	Residual waste materials stored on site (e.g. tailings dams, carbonaceous materials etc.) will be appropriately contained / encapsulated and free draining so it doesn't pose any threat of environmental harm or constrain the intended final land use	Photos, rehabilitation monitoring reports, as constructed surveys, quality assurance records for construction, erosion surveys, independent geotechnical reports (where required),

Rehabilitation Objective Category	Rehabilitation Objective	Spatial References	Indicator	Completion Criteria	Validation Method
Landform Stability	The final landform is stable and does not present a risk of environmental harm downstream/downslope of the site or a safety risk to the public/stock/native fauna.	A1, A2, A4, B1, B2, B3, B4, B7, F1, F3, F4, F5, J2, J5	Survey of rehabilitated landform to verify final landform construction in accordance with Final Landform and Rehabilitation Plan	Survey verifies final landform complies with final landform construction in accordance with Final Landform and Rehabilitation Plan.	As constructed surveys.
			Landforms are assessed to be geotechnically stable and free draining to local watercourses	Geotech reports received and confirm landforms are stable	As constructed surveys, independent geotechnical reports.
			Minimal erosion that would not require moderate to significant ongoing care and maintenance works. Any areas of active erosion are within the parameters for safe and stable landform. Discharge points from rehabilitated landform to natural channels are stable.	The final landform has been constructed in accordance with the approved Final Landform & Rehabilitation Plan . Signs of erosion and or land instability are recorded, measured and assessed. The average annual soil loss from the final landform at completion is to be equal or less than that specified by the Revised Universal Sediment Loss Equation (or equivalent) for the approved land use. Spillway (where required) of final void and any remaining dams has been constructed in accordance with hydrological design.	Before and after photos Rehabilitation monitoring reports As-constructed surveys Erosion surveys Independent reports that demonstrate long term stability of rehabilitated landform. Depending on the nature, scale and risks associated with a specific site, stability will need to be evaluated over a number of years (e.g. 5 years).
		F1, F3, F4, F5	Creek diversions are assessed to be stable as defined by the CSIRO Ephemeral Stream Assessment	Creek diversions are assessed to be stable as defined by the CSIRO Ephemeral Stream Assessment	Channel assessment reports.
		J2, J5	A safety berm and/or security fence is constructed at the void crest (highwalls and endwalls) that provides an adequate engineered barrier for vehicles.	Berm constructed	Survey records Photos
Bushfire	The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as part of rehabilitation.	A1, A2, A4, B1, B2, B3, B4, B7, F1, F3, F4, F5, J2, J5	Bushfire controls implemented appropriate to the final land use.	Appropriate bushfire hazard controls (where required) have been implemented on the advice from the NSW Rural Fire Service, such as the location and design of retained bushfire trails as depicted in the Final Landform and Rehabilitation Plan	Statement provided and before/after photos.
Surface Water	Runoff water quality is similar to, or better than the pre-mining disturbance runoff water quality.	A1, A2, A4, B1, B2, B3, B4, B7, F1, F3, F4, F5, J2, J5	Runoff water quality from rehabilitation areas represent an acceptable level of change from a background condition (baseline study).	Assessment of runoff water quality against local background water quality including: - EC - TSS - pH - Metals	Independent surface water assessment report Water quality monitoring reports.

Rehabilitation Objective Category	Rehabilitation Objective	Spatial References	Indicator	Completion Criteria	Validation Method
				- Biological health in accordance with Australian River Assessment System (AUSRIVAS) or equivalent	Depending on the nature, scale and risks associated with a specific site, achievement of criteria may need to be evaluated over a number of years (e.g. 5 years to 15 years).
		A4, B4	Water quality in all storages left on site (other than final voids) is suitable for the approved final land use	Assessment of water quality against guidelines for the final land use (e.g. agricultural, industrial, recreational)	Independent surface water assessment report Water quality monitoring reports. Depending on the nature, scale and risks associated with a specific site, achievement of criteria may need to be evaluated over a number of years (e.g. 5 years to 15 years).
		J2, J5	Water quality in any approved final voids does not pose a risk to the final land use.	Final void study completed, which includes predicted water quality and assessment of toxicity.	Independent surface water assessment report Water quality monitoring reports. Depending on the nature, scale and risks associated with a specific site, achievement of criteria may need to be evaluated over a number of years (e.g. 5 years to 15 years).
Groundwater	Groundwater quality and groundwater regime are within range as predicted in environmental assessment and Water Management Plan. The risk to important groundwater assets (GDE's, Alluvial Aquifers, Landholder bores) has been addressed by the rehabilitation.	A1, A2, A4, B1, B2, B3, B4, B7, F1, F3, F4, F5, J2, J5	Groundwater quality and groundwater regime are within range as predicted in environmental assessments and in accordance with water sharing plans and water allocations held by the site.	The measured water quality at important groundwater assets meets predictions. Modelled drawdown and water take is within predictions.	Independent hydro-geological assessment report Monitoring reports Depending on the nature, scale and risks associated with a specific site, achievement of criteria may need to be evaluated over a number of years (e.g. 5 years to 15 years).
Water Approvals	Structures that take water are appropriately licensed.	A1, A2, A4, B1, B2, B3, B4, B7, F1, F3, F4, F5, J2, J5	Hydrological and hydro-geological assessments are undertaken to determine water take at completion from the relevant water sources to confirm that sufficient allocations are held.	Licenses held, where required.	Confirmation from relevant Government Agency (e.g. DPI Water) that licences are held.
Ecological Rehabilitation	Approximately 30% (HVO North) and 30-40% (HVO South) of mined land re-established as woodland areas.	A1, A2, A4	Approximately 30% of mined land re-established as woodland areas in HVO North. Approximately 30-40 % of mined land re-established as woodland areas in HVO South.	GIS records and rehabilitation monitoring reports indicate minimum percentages have been attained.	Rehabilitation monitoring reports GIS records
	Establish a minimum of 4ha of Central Hunter Grey Box Ironbark Woodland and 0.14ha of Swamp Oak Floodplain Forest.	A1, A2, A4	Revegetate an area of at least 0.14 ha using trees representative of the Swamp Oak Floodplain Forest community on land that adjoins existing riparian vegetation and is suitable for the establishment of this community.	GIS records and rehabilitation monitoring reports indicate minimum areas have been attained.	Rehabilitation monitoring reports GIS records

Rehabilitation Objective Category	Rehabilitation Objective	Spatial References	Indicator	Completion Criteria	Validation Method
			Revegetate an area of at least 4 ha using trees representative of the Central Hunter Grey Box Ironbark Woodland community		
	The vegetation composition of the rehabilitation is recognisable as, or is trending towards Swamp Oak Floodplain Forest.	A1	Native plant species are characteristic of the Swamp Oak Floodplain Forest community.	Further refinement of this rehabilitation completion criteria is required before an amended rehabilitation completion criteria statement can be approved.	Rehabilitation monitoring reports, Monitoring in accordance with NSW OEH BAM Methodology.
	The vegetation composition of the rehabilitation is recognisable as, or is trending towards Central Hunter Grey Box Ironbark Woodland.	A1, A2, A4	Native plant species are characteristic of the Central Hunter Grey Box Ironbark Woodland community.	Further refinement of this rehabilitation completion criteria is required before an amended rehabilitation completion criteria statement can be approved.	Rehabilitation monitoring reports, Monitoring in accordance with NSW OEH BAM Methodology.
	The vegetation structure of the rehabilitation is recognisable as, or is trending towards Swamp Oak Floodplain Forest.	A1	Cover and abundance of plant growth forms are characteristic of the Swamp Oak Floodplain Forest, or an ongoing trend toward becoming characteristic is evident from the monitoring data.	Further refinement of this rehabilitation completion criteria is required before an amended rehabilitation completion criteria statement can be approved.	Rehabilitation monitoring reports, Monitoring in accordance with NSW OEH BAM Methodology.
	The vegetation structure of the rehabilitation is recognisable as, or is trending towards Central Hunter Grey Box Ironbark Woodland.	A1, A2, A4	Cover and abundance of plant growth forms are characteristic of the Central Hunter Grey Box Ironbark Woodland, or an ongoing trend toward becoming characteristic is evident from the monitoring data.	Further refinement of this rehabilitation completion criteria is required before an amended rehabilitation completion criteria statement can be approved.	Rehabilitation monitoring reports, Monitoring in accordance with NSW OEH BAM Methodology.
	Levels of ecosystem function have been established that demonstrate the rehabilitation is self-sustainable (Swamp Oak Floodplain Forest).	A1	Indicators of nutrient cycling are suitable for sustaining the target vegetation community (Swamp Oak Floodplains Forest)	Further refinement of this rehabilitation completion criteria is required before an amended rehabilitation completion criteria statement can be approved.	Rehabilitation monitoring reports, Monitoring in accordance with NSW OEH BAM Methodology.
			Evidence of plant regeneration from fixed monitoring plots or a walk over of the ecological rehabilitation area	Further refinement of this rehabilitation completion criteria is required before an amended rehabilitation completion criteria statement can be approved.	Rehabilitation monitoring reports, Monitoring in accordance with NSW OEH BAM Methodology.
			Foliage cover of 'high threat exotic' (HTE) weeds is within 10th-90th percentile variation range of reference sites/data or at a level that does not cause significant risk to rehabilitation.	Further refinement of this rehabilitation completion criteria is required before an amended rehabilitation completion criteria statement can be approved.	Rehabilitation monitoring reports, Monitoring in accordance with NSW OEH BAM Methodology.
	Levels of ecosystem function have been established that demonstrate the rehabilitation is self-sustainable (Central Hunter Grey Box Ironbark Woodland).	A1, A2, A4	Indicators of nutrient cycling are suitable for sustaining the target vegetation community (Central Hunter Grey Box Ironbark Woodland)	Further refinement of this rehabilitation completion criteria is required before an amended rehabilitation completion criteria statement can be approved.	Rehabilitation monitoring reports, Monitoring in accordance with NSW OEH BAM Methodology.
			Evidence of plant regeneration from fixed monitoring plots or a walk over of the ecological rehabilitation area	Further refinement of this rehabilitation completion criteria is required before an amended rehabilitation completion criteria statement can be approved.	Rehabilitation monitoring reports, Monitoring in accordance with NSW OEH BAM Methodology.

Rehabilitation Objective Category	Rehabilitation Objective	Spatial References	Indicator	Completion Criteria	Validation Method
			Foliage cover of 'high threat exotic' (HTE) weeds is within 10th-90th percentile variation range of reference sites/data or at a level that does not cause significant risk to rehabilitation.	Further refinement of this rehabilitation completion criteria is required before an amended rehabilitation completion criteria statement can be approved.	Rehabilitation monitoring reports, Monitoring in accordance with NSW OEH BAM Methodology.
	The vegetation composition of the native woodland rehabilitation contains species that are commensurate with the Central Hunter Grey Box - Ironbark Woodland and Central Hunter Ironbark - Spotted Gum - Grey Box Forest communities found in the local area.	A1, A2, A4	Rehabilitation areas contain flora species assemblages characteristic of each growth form for the Central Hunter Grey Box - Ironbark Woodland and Central Hunter Ironbark - Spotted Gum - Grey Box Forest vegetation communities.	Further refinement of this rehabilitation completion criteria is required before an amended rehabilitation completion criteria statement can be approved.	Rehabilitation monitoring reports GIS records
	The vegetation structure of the native woodland rehabilitation is similar to that of the Central Hunter Grey Box - Ironbark Woodland and Central Hunter Ironbark - Spotted Gum - Grey Box Forest communities found in the local area.	A1, A2, A4	Cover, abundance and height range of native plant growth forms are characteristic of, or trending towards those of the Central Hunter Grey Box - Ironbark Woodland and Central Hunter Ironbark - Spotted Gum - Grey Box Forest vegetation communities.	Further refinement of this rehabilitation completion criteria is required before an amended rehabilitation completion criteria statement can be approved.	Rehabilitation monitoring reports GIS records
	Levels of ecosystem function have been established that demonstrate the rehabilitation is self-sustainable.	A1, A2, A4	Total groundcover (vegetation, leaf litter, mulch, rock) is comparable to that of analogue sites for the Central Hunter Grey Box - Ironbark Woodland and Central Hunter Ironbark - Spotted Gum - Grey Box Forest vegetation communities.	Ground cover (vegetation, leaf litter, mulch, rock) is greater than 60%.	Rehabilitation monitoring reports GIS records
			Weed presence is within range found analogue sites and does not present a risk to the establishment and ongoing health of native species.	Further refinement of this rehabilitation completion criteria is required before an amended rehabilitation completion criteria statement can be approved.	Rehabilitation monitoring reports GIS records
			Evidence of flowering and seeds or second generation juveniles for trees and shrubs or likely to be, based on comparable older rehabilitation sites.	Evidence of second generation juveniles and/or evidence of flowers and seeds.	Rehabilitation monitoring reports GIS records
			Feral animal species do not pose a threat to final land uses	Feral animals are not impacting on vegetation establishment or health	Rehabilitation monitoring reports GIS records
	Habitat features (e.g. logs, rocks and nest boxes), including structures suitable for native species are incorporated into rehabilitation areas at required densities.	A1, A2, A4	Habitat features (e.g. logs, rocks and nest boxes), including structures suitable for target species are incorporated into rehabilitation areas. Native rehabilitation areas provide a range of structural features (e.g. trees, shrubs, ground cover, developing litter layer etc.).	Habitat and structural features recorded.	Rehabilitation monitoring reports GIS records
	Habitat corridors are established and consistent with target vegetation community compositions in final rehabilitation.	A1, A2, A4	Habitat corridors are established and consistent with target vegetation community compositions, as required by Approvals.	Habitat corridors recorded	Rehabilitation monitoring reports GIS records
Agricultural Revegetation	Approximately 70% (HVO North) and 60-70% (HVO South) of mined land re-established as stable, productive pasture areas.	B1, B2, B3, B4, B7	70% of disturbed HVO North mining areas returned to productive pasture areas.	GIS records and pasture monitoring reports indicate minimum percentages have been attained.	Rehabilitation monitoring reports GIS records

Rehabilitation Objective Category	Rehabilitation Objective	Spatial References	Indicator	Completion Criteria	Validation Method
			60-70% of disturbed HVO South mining areas returned to productive pasture areas.		
	Revegetation is sustainable for the long term and only requires maintenance that is consistent with the intended final land use.	B1, B2, B3, B4, B7	Rehabilitation areas comprise palatable grasses and legumes appropriate to the district and suitable for cattle grazing.	>50% of herbage biomass comprises pasture species that are representative of species listed in site Approval documents or otherwise species that are perennial, palatable, and productive.	Rehabilitation monitoring reports, specialist agronomist reports.
			Priority or High Threat weed presence cover	Less than 20% cover of High Threat Exotic and Priority Weeds.	Rehabilitation monitoring reports, specialist agronomist reports.
			Cropping / Pasture establishment is in good health and provides adequate cover.	Ground cover (vegetation, leaf litter, mulch) is greater than 70%.	Rehabilitation monitoring reports, specialist agronomist reports.
			Cropping yields from rehabilitated pasture areas is similar to adjacent cropping land.	Biomass >1500kg DM/ha (Green Dry Matter).	Rehabilitation monitoring reports, specialist agronomist reports.
			Appropriate and reliable access to water for livestock.	Location and density of dams or other watering points appropriate for the intended final land use.	Rehabilitation monitoring reports, specialist agronomist reports, photos.
			Appropriate shade and shelter for livestock (i.e. wooded/treed areas) during extreme weather conditions.	Location and availability of shade and shelter for livestock appropriate for the intended final land use.	
	Land use capability is capable of supporting the target agricultural land use of Class 1.	B4	Land and Soil Capability classification or Agricultural Land Classification criteria met as per approval commitments.	Land and Soil Capability classification demonstrated to be a minimum of Class 1 (as per Rural Land Capability Classification)	Rehabilitation monitoring reports, specialist agronomist reports, photos.
	Land use capability is capable of supporting the target agricultural land use of Class 2.	B4	Land and Soil Capability classification or Agricultural Land Classification criteria met as per approval commitments.	Land and Soil Capability classification demonstrated to be a minimum of Class 2 (as per Rural Land Capability Classification)	Rehabilitation monitoring reports, specialist agronomist reports, photos.
	Land use capability is capable of supporting the target agricultural land use of Class 3.	B4	Land and Soil Capability classification or Agricultural Land Classification criteria met as per approval commitments.	Land and Soil Capability classification demonstrated to be a minimum of Class 3 (as per Rural Land Capability Classification)	Rehabilitation monitoring reports, specialist agronomist reports, photos.
	Land use capability is capable of supporting the target agricultural land use of minimum of Class 6.	B1, B2, B3, B4, B7	Land and Soil Capability classification or Agricultural Land Classification criteria met as per approval commitments.	Land and Soil Capability classification demonstrated to be a minimum of Class 6 (as per Rural Land Capability Classification)	Rehabilitation monitoring reports, specialist agronomist reports, photos.

APPENDIX E: SEED MIXES

Woodland

Categories and Species Options	Preferred Seed Mix		
	Species % of category	Sowing rate (kg/ha)	Species Count
Dominant Trees			
<i>Angophora floribunda</i>	20%	0.050	1
<i>Corymbia maculata</i>	0%	0.000	
<i>Eucalyptus albens</i>	0%	0.000	
<i>Eucalyptus blakelyi</i>	0%	0.000	
<i>Eucalyptus crebra</i>	40%	0.100	1
<i>Eucalyptus dawsonii</i>	0%	0.000	
<i>Eucalyptus fibrosa</i>	0%	0.000	
<i>Eucalyptus glaucina</i>	0%	0.000	
<i>Eucalyptus moluccana</i>	40%	0.100	1
<i>Eucalyptus punctata</i>	0%	0.000	
<i>Eucalyptus tereticornis</i>	0%	0.000	
Total - Dominant Trees	100%	0.250	3
Sub-Dominant Trees			
<i>Acacia decurrens</i>	0%	0.000	
<i>Acacia implexa</i>	33%	0.050	1
<i>Acacia lineariifolia</i>	0%	0.000	
<i>Acacia parvipinnula</i>	0%	0.000	
<i>Acacia salicina</i>	67%	0.100	1

<i>Allocasuarina gymnanthera</i>	0%	0.000	
<i>Allocasuarina leuhmanii</i>	0%	0.000	
<i>Allocasuarina verticillata</i>	0%	0.000	
<i>Brachychiton populneus</i>	0%	0.000	
<i>Bursaria spinosa</i>	0%	0.000	
<i>Callitris endlicheri</i>	0%	0.000	
<i>Notelaea microcarpa</i>	0%	0.000	
Total - Sub-Dominant Trees	100%	0.150	2
Shrubs- Acacias			
<i>Acacia amblygona</i>	40%	0.200	1
<i>Acacia brownii</i>	0%	0.000	
<i>Acacia crassa</i>	0%	0.000	
<i>Acacia cultriformis</i>	0%	0.000	
<i>Acacia decora</i>	20%	0.100	1
<i>Acacia elongata</i>	0%	0.000	
<i>Acacia falcata</i>	40%	0.200	1
<i>Acacia paradoxa</i>	0%	0.000	
<i>Acacia spectabilis</i>	0%	0.000	
Total - Shrubs - Acacias	100%	0.500	3
Shrubs- Fabaceaea			
<i>Daviesia genistifolia</i>	0%	0.000	
<i>Daviesia ulicifolia</i>	0%	0.000	
<i>Daviesia ulicifolia subsp. Stenophylla</i>	0%	0.000	
<i>Hardenbergia violacea</i>	0%	0.000	

<i>Indigofera australis</i>	0%	0.000	
<i>Jacksonia scoparia</i>	0%	0.000	
<i>Podolobium ilicifolium</i>	0%	0.000	
<i>Pultenaea microphylla</i>	0%	0.000	
<i>Pultenaea spinosa</i>	0%	0.000	
Total - Shrubs- Fabaceae	100%	0.000	0
Non-Nitrogen Fixing Shrubs			
<i>Cassinia aculeata</i>	0%	0.000	
<i>Cassinia arcuata</i>	0%	0.000	
<i>Cassinia quinquefaria</i>	0%	0.000	
<i>Dodonaea viscosa subsp cuneata</i>	100%	0.200	1
<i>EreRMPhila deserti</i>	0%	0.000	
<i>Hakea sericea</i>	0%	0.000	
<i>Kunzea ambigua</i>	0%	0.000	
<i>Melaleuca decora</i>	0%	0.000	
<i>Melaleuca nodosa</i>	0%	0.000	
<i>Melichrus urceolatus</i>	0%	0.000	
<i>Myoporum montanum</i>	0%	0.000	
<i>Olearia elliptica</i>	0%	0.000	
<i>Ozothamnus diosmifolius</i>	0%	0.000	
<i>Pandorea pandorana</i>	0%	0.000	
<i>Senna artemesioides subsp. zygophylla</i>	0%	0.000	
Total - Non-Nitrogen Fixing Shrubs	100%	0.200	1
Forbs and Subshrubs			

<i>Ajuga australis</i>	4%	0.010	1
<i>Atriplex semibaccata</i>	0%	0.000	
<i>Calocephalus critreus</i>	0%	0.000	
<i>Calotis cuneifolia</i>	0%	0.000	
<i>Calotis lappulacea</i>	8%	0.020	1
<i>Chrysocephalum apiculatum</i>	8%	0.020	1
<i>Desmodium brachypodum</i>	0%	0.000	
<i>Einadia hastata</i>	0%	0.000	
<i>Einadia nutans</i>	20%	0.050	1
<i>Einadia polygonoides</i>	0%	0.000	
<i>Einadia trigonos</i>	20%	0.050	1
<i>Enchylaena tomentosa</i>	0%	0.000	
<i>EreRMPPhila debilis</i>	0%	0.000	
<i>Glycine clandestina</i>	0%	0.000	
<i>Glycine latifolia</i>	0%	0.000	
<i>Glycine tabacina</i>	0%	0.000	
<i>Haloragis heterophylla</i>	0%	0.000	
<i>Hibbertia obtusifolia</i>	0%	0.000	
<i>Hypericum gramineum</i>	0%	0.000	
<i>Mentha satureoides</i>	0%	0.000	
<i>Maireana microphylla</i>	20%	0.050	1
<i>Neptunia gracilis</i>	0%	0.000	
<i>Podolepis neglecta</i>	0%	0.000	
<i>Pomax umbellata</i>	0%	0.000	
<i>Spartothamnella juncea</i>	0%	0.000	

<i>Solanum cinereum</i>	0%	0.000	
<i>Spartothamnella juncea</i>	0%	0.000	
<i>Swainsona galegifolia</i>	0%	0.000	
<i>Vittadinia spp.</i>	20%	0.050	1
<i>Wahlenbergia spp.</i>	0%	0.000	
Total - Forbs and Subshrubs	100%	0.250	7
Grasses - Primary Colonising			
<i>Austrostipa scabra</i>	20%	0.500	1
<i>Bothriochloa biloba</i>	10%	0.250	1
<i>Bothriochloa decipiens</i>	20%	0.500	1
<i>Bothriochloa macra</i>	10%	0.250	1
<i>Chloris truncata</i>	20%	0.500	1
<i>Digitaria spp.</i>	8%	0.200	1
<i>Enteropogon acicularis</i>	8%	0.200	1
<i>Panicum spp.</i>	4%	0.100	1
Total Grasses - Primary Colonising	100%	2.500	8
Grasses - Long Term understorey			
<i>Aristida spp.</i>	13%	0.500	1
<i>Austrodanthonia spp.</i>	13%	0.500	1
<i>Austrostipa aristiglumis</i>	5%	0.200	1
<i>Capillipedium spicigerum</i>	7%	0.250	1
<i>Chloris ventricosa</i>	13%	0.500	1
<i>Dicanthium sericeum</i>	13%	0.500	1
<i>Elymus scaber</i>	0%	0.000	

<i>Eragrostis spp.</i>	7%	0.250	1
<i>Eulalia aurea</i>	0%	0.000	
<i>Heteropogon contortus</i>	0%	0.000	
<i>Paspalidium distans</i>	7%	0.250	1
<i>Sporobolus creber</i>	3%	0.100	1
<i>Themeda avenacea</i>	7%	0.250	1
<i>Themeda triandra</i>	13%	0.500	1
Total Grasses - Long Term Understorey	100%	3.800	11
Grasses - Shade tolerant			
<i>Austrostipa ramosissima</i>	0%	0.000	
<i>Austrostipa verticillata</i>	21%	0.300	1
<i>Cymbopogon refractus</i>	14%	0.200	1
<i>Dichelachne crinita</i>	0%	0.000	
<i>Imperata cylindrica</i>	14%	0.200	1
<i>Microleana stipoides</i>	36%	0.500	1
<i>Poa labillardieri</i>	14%	0.200	1
Total Grasses - shade tolerant	100%	1.400	5
Total - Native Grasses		7.700	24
TOTAL ALL CATEGORIES		9.050	40

Pasture Light Woody

Categories and Species Options	Preferred Seed Mix		
	Species % of category	Sowing rate (kg/ha)	Species Count
Dominant Trees			

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<i>Angophora floribunda</i>	11%	0.100	1
<i>Corymbia maculata</i>	11%	0.100	1
<i>Eucalyptus albens</i>	0%	0.000	
<i>Eucalyptus blakelyi</i>	9%	0.080	1
<i>Eucalyptus crebra</i>	33%	0.300	1
<i>Eucalyptus dawsonii</i>	0%	0.000	
<i>Eucalyptus fibrosa</i>	2%	0.020	1
<i>Eucalyptus glaucina</i>	0%	0.000	
<i>Eucalyptus moluccana</i>	33%	0.300	1
<i>Eucalyptus punctata</i>	0%	0.000	
<i>Eucalyptus tereticornis</i>	0%	0.000	
Total - Dominant Trees	100%	0.900	6
Sub-Dominant Trees			
<i>Acacia decurrens</i>	33%	0.300	1
<i>Acacia implexa</i>	11%	0.100	1
<i>Acacia lineariifolia</i>	0%	0.000	
<i>Acacia parvipinnula</i>	22%	0.200	1
<i>Acacia salicina</i>	22%	0.200	1
<i>Allocasuarina gymnanthera</i>	0%	0.000	
<i>Allocasuarina leuhmanii</i>	11%	0.100	1
<i>Allocasuarina verticillata</i>	0%	0.000	
<i>Brachychiton populneus</i>	0%	0.000	
<i>Bursaria spinosa</i>	0%	0.000	
<i>Callitris endlicheri</i>	0%	0.000	
<i>Notelaea microcarpa</i>	0%	0.000	

Total - Sub-Dominant Trees	100%	0.900	5
Shrubs- Acacias			
<i>Acacia amblygona</i>	17%	0.200	1
<i>Acacia brownii</i>	0%	0.000	
<i>Acacia crassa</i>	0%	0.000	
<i>Acacia cultriformis</i>	17%	0.200	1
<i>Acacia decora</i>	25%	0.300	1
<i>Acacia elongata</i>	8%	0.100	1
<i>Acacia falcata</i>	25%	0.300	1
<i>Acacia paradoxa</i>	8%	0.100	1
<i>Acacia spectabilis</i>	0%	0.000	
Total - Shrubs - Acacias	100%	1.200	6
Shrubs- Fabaceaea			
<i>Daviesia genistifolia</i>	29%	0.150	1
<i>Daviesia ulicifolia</i>	0%	0.000	
<i>Daviesia ulicifolia subsp. Stenophylla</i>	29%	0.150	1
<i>Hardenbergia violacea</i>	19%	0.100	1
<i>Indigofera australis</i>	10%	0.050	1
<i>Jacksonia scoparia</i>	10%	0.050	1
<i>Podolobium ilicifolium</i>	0%	0.000	
<i>Pultenaea microphylla</i>	0%	0.000	
<i>Pultenaea spinosa</i>	4%	0.020	1
Total - Shrubs- Fabaceae	100%	0.520	6
Non-Nitrogen Fixing Shrubs			

<i>Cassinia aculeata</i>	0%	0.000	
<i>Cassinia arcuata</i>	17%	0.100	1
<i>Cassinia quinquefaria</i>	17%	0.100	1
<i>Dodonaea viscosa subsp cuneata</i>	33%	0.200	1
<i>EreRMPhila deserti</i>	0%	0.000	
<i>Hakea sericea</i>	0%	0.000	
<i>Kunzea ambigua</i>	0%	0.000	
<i>Melaleuca decora</i>	0%	0.000	
<i>Melaleuca nodosa</i>	0%	0.000	
<i>Melichrus urceolatus</i>	0%	0.000	
<i>Myoporum montanum</i>	8%	0.050	1
<i>Olearia elliptica</i>	8%	0.050	1
<i>Ozothamnus diosmifolius</i>	8%	0.050	1
<i>Pandorea pandorana</i>	0%	0.000	
<i>Senna artemesioides subsp. zygophylla</i>	8%	0.050	1
Total - Non-Nitrogen Fixing Shrubs	100%	0.600	7
Forbs and Subshrubs			
<i>Ajuga australis</i>	3%	0.020	1
<i>Atriplex semibaccata</i>	3%	0.020	1
<i>Calocephalus critreus</i>	0%	0.000	
<i>Calotis cuneifolia</i>	0%	0.000	
<i>Calotis lappulacea</i>	5%	0.040	1
<i>Chrysocephalum apiculatum</i>	7%	0.050	1
<i>Desmodium brachypodum</i>	0%	0.000	

<i>Einadia hastata</i>	13%	0.100	1
<i>Einadia nutans</i>	7%	0.050	1
<i>Einadia polygonoides</i>	0%	0.000	
<i>Einadia trigonos</i>	7%	0.050	1
<i>Enchylaena tomentosa</i>	11%	0.080	1
<i>EreRMPPhila debilis</i>	7%	0.050	1
<i>Glycine clandestina</i>	0%	0.000	
<i>Glycine latifolia</i>	0%	0.000	
<i>Glycine tabacina</i>	5%	0.040	1
<i>Haloragis heterophylla</i>	0%	0.000	
<i>Hibbertia obtusifolia</i>	0%	0.000	
<i>Hypericum gramineum</i>	0%	0.000	
<i>Mentha saturoides</i>	0%	0.000	
<i>Maireana microphylla</i>	7%	0.050	1
<i>Neptunia gracilis</i>	0%	0.000	
<i>Podolepis neglecta</i>	0%	0.000	
<i>Pomax umbellata</i>	0%	0.000	
<i>Rhagodia parabolica</i>	0%	0.000	
<i>Solanum cinereum</i>	3%	0.020	1
<i>Spartothamnella juncea</i>	7%	0.050	1
<i>Swainsona galegifolia</i>	7%	0.050	1
<i>Vittadinia spp.</i>	11%	0.080	1
<i>Wahlenbergia spp.</i>	0%	0.000	
Total - Forbs and Subshrubs	100%	0.750	15
Grasses			

<i>Aristida spp.</i>	11%	0.500	1
<i>Austrodanthonia spp.</i>	2%	0.100	1
<i>Austrostipa aristiglumis</i>	0%	0.000	
<i>Austrostipa ramosissima</i>	0%	0.000	
<i>Austrostipa scabra</i>	9%	0.400	1
<i>Austrostipa verticillata</i>	5%	0.200	1
<i>Bothriochloa biloba</i>	5%	0.200	1
<i>Bothriochloa decipiens</i>	9%	0.400	1
<i>Bothriochloa macra</i>	5%	0.200	1
<i>Capillipedium spicigerum</i>	2%	0.080	1
<i>Chloris truncata</i>	9%	0.400	1
<i>Chloris ventricosa</i>	9%	0.400	1
<i>Cymbopogon refractus</i>	2%	0.100	1
<i>Dicanthium sericeum</i>	9%	0.400	1
<i>Dichelachne crinita</i>	0%	0.000	
<i>Digitaria spp.</i>	2%	0.100	1
<i>Elymus scaber</i>	0%	0.000	
<i>Enteropogon acicularis</i>	2%	0.100	1
<i>Eragrostis spp.</i>	2%	0.100	1
<i>Eulalia aurea</i>	0%	0.000	
<i>Heteropogon contortus</i>	0%	0.000	
<i>Imperata cylindrica</i>	0%	0.000	
<i>Microleana stipoides</i>	0%	0.000	
<i>Panicum spp.</i>	2%	0.100	1
<i>Paspalidium distans</i>	2%	0.100	1

<i>Poa labillardieri</i>	0%	0.000	
<i>Sporobolus creber</i>	2%	0.100	1
<i>Themeda avenacea</i>	0%	0.000	
<i>Themeda triandra</i>	9%	0.400	1
Total - Grasses	100%	4.380	19
TOTAL ALL CATEGORIES		9.250	64
Cover Crop			
Oats / Millet		5.00	
Couch		2.00	
Rye		1.00	
Bulking Agent		6.00	
Total - Cover Crop		14.00	

Pasture

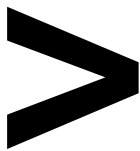
PASTURE		Sowing Rate (kg/ha)	
Species	Variety Options	Spring/Summer	Autumn/Winter
Japanese Millet	<i>Shirohie, Rebound</i>	5	0
Oats	<i>Yarran, Coolabah e</i>	0	15
Kikuyu*	<i>Whittet, Noonan</i>	5	4
Digit Grass	<i>Premier</i>	5	3
Setaria	<i>Solander, Narok</i>	3	2
Paspalum	<i>Common</i>	3	2
Couch	<i>Hulled</i>	4	3
Tall Fescue	<i>Quantum, Fortune, Tower, Demeter</i>	2	5
Cocksfoot	<i>Porto, Uplands, Drover</i>		3
Ryegrass	<i>Wimmera, Tetila</i>	2	5
Lucerne	<i>Aurora, Titan 5 etc</i>	6	8
White Clover	<i>Haifa</i>	2	3

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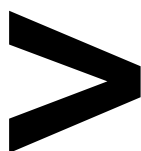


Barrel Medic	<i>Sephi, Jester etc</i>	2	5
Arrowleaf Clover	<i>Zulu, Cefalu</i>	3	4
Woolly Pod Vetch	<i>Namoi, Capello</i>		4
Chicory	<i>Puna, Command, Choice</i>	2	2
Plantain	<i>Tonic, Ecotain</i>	1	2
TOTAL		40	55

* Not used in areas adjacent to young woodland rehabilitation

APPENDIX F: REGULATOR CONSULTATION

Date	Government Agency	Feedback	Actions by HVO
26/07/2022	DPE Water	Final RMP to be made publicly available on external website.	The final RMP will be made electronically available on the HVO website as per previous versions.
		Ongoing water take is quantified and complies with relevant licensing.	Water take / discharge and sharing is detailed within HVO's currently approved Water Management Plan dated 27 July 2018. This plan also details the site's water management system.
		Aquifer interference and groundwater impacts are minimised.	Groundwater monitoring is completed as per the site's current Groundwater Management Plan which details any impacts on groundwater or private groundwater bores.
		Monitoring and review program is completed to ensure rehabilitation outcomes are met.	Monitoring and review program is completed to ensure rehabilitation outcomes are met.
25/08/2025	DCCEEW	Sharing of water must protect the water source, its dependent ecosystems and basic landholder rights.	HVO manages water take in accordance with water sharing plans and water allocations held by the site. Further information can be sourced in the HVO Water Management Plan.
25/08/2025	DCCEEW	Water sources, floodplains and dependent ecosystems are protected and restored.	Impacts to these aspects were assessed under the Environmental Assessments for HVO North DA-450-2003 and HVO South PA 06-0261. The rehabilitation plan presented within the RMP is consistent with DA obligations and commitments.
25/08/2025	DCCEEW	Activities within a water source should avoid or minimise land degradation, including soil erosion, compaction, geomorphic instability, contamination, and where possible land should be rehabilitated.	Clearing at HVO is managed in accordance with the HVO Ground Disturbance Procedure which includes an sediment and erosion assessment. HVO also has a number of creek diversions and further information on rehabilitation requirements for these can be found in Section 6.3.3.5 of this RMP.
25/08/2025	DCCEEW	The final Rehabilitation Management Plan is made electronically available on a public accessible website.	This RMP(V4.0) has been published on the HVO public website.



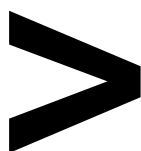
Date	Government Agency	Feedback	Actions by HVO
25/08/2025	DCCEEW	A conceptual model/diagram clearly presents how the groundwater and surface water systems interact with the final landform. This is to be informed by recent environmental assessments/modelling reviews.	In accordance with DA-450-2003 and PA-06-0261 HVO maintains a groundwater model to assess seepage/leachate from the final voids. This model is validated and calibrated every three years. Further information can be found in the <u>HVO Water Management Plan</u> .
25/08/2025	DCCEEW	The final design and location of surface drainage features achieves a stable landform and maintains or improves riparian corridor functioning. This is to be completed with reference to industry guidelines such as: "Rehabilitation Manual for Australian Streams (LWRRDC 2000)", "Guideline: Works that interfere with water in a watercourse for a resource activity (DNRME 2019)" and "Guidelines for Controlled Activities on Waterfront Land (DPE 2022)" or their latest versions.	Surface drainage features are suitably designed and assessed to be stable. Details on final landform water management can be found in Section 6.3.3.1 and details on creek diversion can be found in Section 6.3.3.5 . Surface drainage features and creek diversions will be rehabilitated in accordance with the completion criteria outlined in Appendix D of this RMP.
25/08/2025	DCCEEW	Dirty runoff catchment areas are rehabilitated, and the conveyance of clean surface runoff downstream is maximised.	Section 6.3.6.2 of this RMP covers the erosion and sediment controls required during the active phase of operations to contain dirty water onsite, including the diversion of clean water where possible. Further details are provided in the <u>HVO Water Management Plan</u> .
25/08/2025	DCCEEW	Decommissioning of groundwater boreholes is in accordance with the "Minimum Construction Requirements for Water Bores in Australia (2020)".	Reference to this requirement has been included in Section 6.3.1.13 of this RMP.
25/08/2025	DCCEEW	Ongoing water take by the final landform via interception, storage or diversion is quantified and complies with relevant approvals and licences under the Water Management Act 2000 or a relevant exemption. Please note exemptions from the requirement to hold approvals under s.90 and 91 of the Water Management Act 2000 for approved SSD/SSI projects will not apply once the project approval ceases. Therefore, any relevant water management works that are to be retained will need to obtain an approval prior to the development consent lapsing.	A summary of the WAL's for each water sharing plan held by HVO to account for groundwater. An estimate of the volume of groundwater intercepted by HVO mine operation is undertaken annually and reported in the Annual Environment Report. This includes direct take from Permian sources and indirect take from streams and alluvium. The proposed completion criteria submitted by HVO (Section 4.2.2 of this RMP) include the requirement to obtain relevant water licences.
25/08/2025	DCCEEW	Aquifer interference activities are designed to minimise ongoing water take and water quality impacts and meet the requirements of the NSW Aquifer Interference Policy	Information on how HVO addresses the requirements of the NSW Aquifer Interference Policy can be found in the <u>HVO Water Management Plan</u> .

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Date	Government Agency	Feedback	Actions by HVO
25/08/2025	DCCEW	Final voids do not present a risk to important groundwater ecosystems and assets (groundwater dependent ecosystems, alluvial aquifers, and landholder bores).	Final voids will be constructed in accordance with the objectives and criteria for voids outlined in Section 4.1 and Section 4.2 of this RMP. A assessment of the risks to Groundwater dependent ecosystems and assets by the planned final voids was completed as part of the EIS for the HVO Continuation Project which found that he proposed final voids will have no significant impacts these sensitive receptors.
25/08/2025	DCCEW	Final voids are designed to be sinks or to flow through the local groundwater system and need to be confirmed by a post-mining groundwater model.	Final voids will be constructed in accordance with the objectives and criteria for voids outlined in Section 4.1 and Section 4.2 of this RMP. Groundwater modelling of the predicted final void equilibrium levels was completed as part of the HVO Continuation Project EIS which confirmed that the planned final voids will act as groundwater sinks.
25/08/2025	DCCEW	Residual risk to water sources is clearly understood and minimised. This is to include relevant assessment documentation and updated risk assessments to meet the requirements of the NSW Aquifer Interference Policy. Further detail can be found in Fact Sheet 5 in Appendix C of the "Guidelines for Groundwater Documentation for SSD!SS/ Projects. Technical guideline (DPE 2022)".	An assessment against the requirements of the NSW Aquifer Interference Policy was completed as part of the Environmental Assessments for HVO North and South. An assessment has also been completed as part of the EIS for the HVO Continuation Project.
25/08/2025	DCCEW	A monitoring and review program is included to ensure the rehabilitation outcomes are met.	Section 8 of this RMP outlines the rehabilitation monitoring program in place to ensure rehabilitation outcomes are achieved.

APPENDIX G: CONSULTATION EVIDENCE



NSW Department of Climate Change, Energy, the Environment and Water

Our ref: OUT25/10325

Hunter Valley Operations

Email: environmentalandcommunity@hvo.com.au

25 August 2025

Subject: HVO North – West Pit consent 2003 – HVO Rehabilitation Management Plan (DA450-1-2003-PA-104) Rehabilitation Management Plan

Dear Hunter Valley Operations,

I refer to your request seeking advice from the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) Water Group on the HVO Rehabilitation Management Plan. It is understood this consultation is in accordance with conditions of approval for the project.

NSW DCCEEW Water Group requests the plan be considered further to ensure relevant water legislation, policy and management requirements are addressed. NSW DCCEEW Water Group has defined a range of outcomes relevant to assist in the preparation of Rehabilitation Management Plans and these are detailed in Attachment A.

Should you have any further queries in relation to this submission please do not hesitate to contact NSW DCCEEW Water Assessments at water.assessments@dpie.nsw.gov.au

Yours sincerely,



Tim Baker
Senior Project Officer
Water Assessments
NSW Department of Climate Change, Energy, the Environment and Water



HVO North - West Pit Consent 2003

Lodge

Post Approval (DA450-10-2003-PA-104)

Evidence of Consultation

Actions



Attach Evidence

Below is a list of any consultation you have initiated through the portal. Once the public authority responds it will be automatically attached as evidence. Once each of the public authorities has responded, click "Continue". Please attach any other evidence of consultation not captured by the portal by attaching it below.

Public Authority Response Summary

NSW DCCEEW Water Group (PAE-90589707)

Status

Closed

Due Date

Monday, 25 August 2025

Singleton Council (PAE-90589710)

Status

Pending Advice

Due Date

Monday, 25 August 2025

No response received

Singleton Council (PAE-90599707)

Status

Pending Advice

Due Date

Monday, 25 August 2025

No response received

NSW DCCEEW Water Group (PAE-90599710)

Status

Closed

Due Date

Monday, 25 August 2025

