



NEWCREST
MINING LIMITED

CADIA

Rehabilitation Strategy

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CONTENTS

1.0	INTRODUCTION.....	2
2.0	PURPOSE.....	2
3.0	STRATEGY RELATIONSHIPS	2
4.0	REHABILITATION REQUIREMENTS.....	3
4.1	Cadia East Project Approval	3
4.2	Mining Lease Conditions.....	6
4.3	Cadia East Environmental Assessment.....	7
4.4	Other Applicable LEGAL REQUIREMENTS	13
4.5	State Environmental Planning Policies.....	13
4.6	Newcrest Environmental Policy.....	13
4.7	Newcrest Biodiversity Policy	14
4.8	Newcrest Environmental Standards.....	14
4.8.1	EN-ST01 – Acid Mine Drainage	14
4.8.2	EN-ST03 Biodiversity	14
4.8.3	EN-ST07 Land Use and Disturbance Management	15
4.9	Environmental Management Plans.....	15
5.0	REHABILITATION STRATEGY	16
5.1	Guiding Principals	16
5.2	Strategy and commitments	17
6.0	KEY DOCUMENTS.....	30
7.0	ROLES AND RESPONSIBILITIES.....	30
8.0	REHABILITATION MONITORING	31
9.0	MINE CLOSURE CRITERIA.....	31
9.1	Rehabilitation	31
9.2	Voids	43
9.3	Site Infrastructure	43
9.4	Water Infrastructure.....	43
10.0	REPORTING.....	44
10.1	Annual Environmental Management Report	44
10.2	Website	44
11.0	REVIEW	44
11.1	Review of Strategy	44
11.2	Consultation	45
11.2.1	Consultation Regarding the Demolition and Remediation of the Blayney Dewatering Facility site	46
11.2.2	Consultation with the NSW Resource Regulator	46
12.0	REFERENCES.....	47

13.0	APPENDIX A – ACID MINE DRAINAGE STANDARD.....	48
14.0	APPENDIX B – BIODIVERSITY STANDARD.....	50
15.0	APPENDIX C LAND USE AND DISTURBANCE MANAGEMENT STANDARD	52
16.0	APPENDIX D – REVISED CADIA DEWATERING FACILITY LANDSCAPE PLAN	54
17.0	APPENDIX E. BLAYNEY DEWATERING FACILITY REMEDIAL ACTION PLAN.....	56

DOCUMENT CONTROL


This plan must not be modified altered or changed unless authorised by the document owner.

Document Owner: Vicki Hood

AMENDMENTS

Rev.	Revision Date	Developed By	Issued to	Approved by	Approval Date
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4					

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1.0 INTRODUCTION

Cadia is a gold/copper mining and processing complex in central west NSW near the town of Orange. The complex comprises the Cadia East mine, minerals processing facilities and associated infrastructure. Mining commenced in 1998, with current approvals taking the project through to 2031. The project mines and processes up to 32Mtpa of ore to produce a copper concentrate and gold Dore'. This document outlines the approach to site rehabilitation and associated activities.

The Rehabilitation Strategy aims to meet all commitments and requirements from the Cadia East Project Approval and describes how rehabilitation of the site links with wider environmental objectives across Newcrest owned land and where relevant on a regional basis. The strategy will provide an overview of the strategic rehabilitation objectives, guiding principles and commitments relating to the rehabilitation of mine disturbed areas.

2.0 PURPOSE

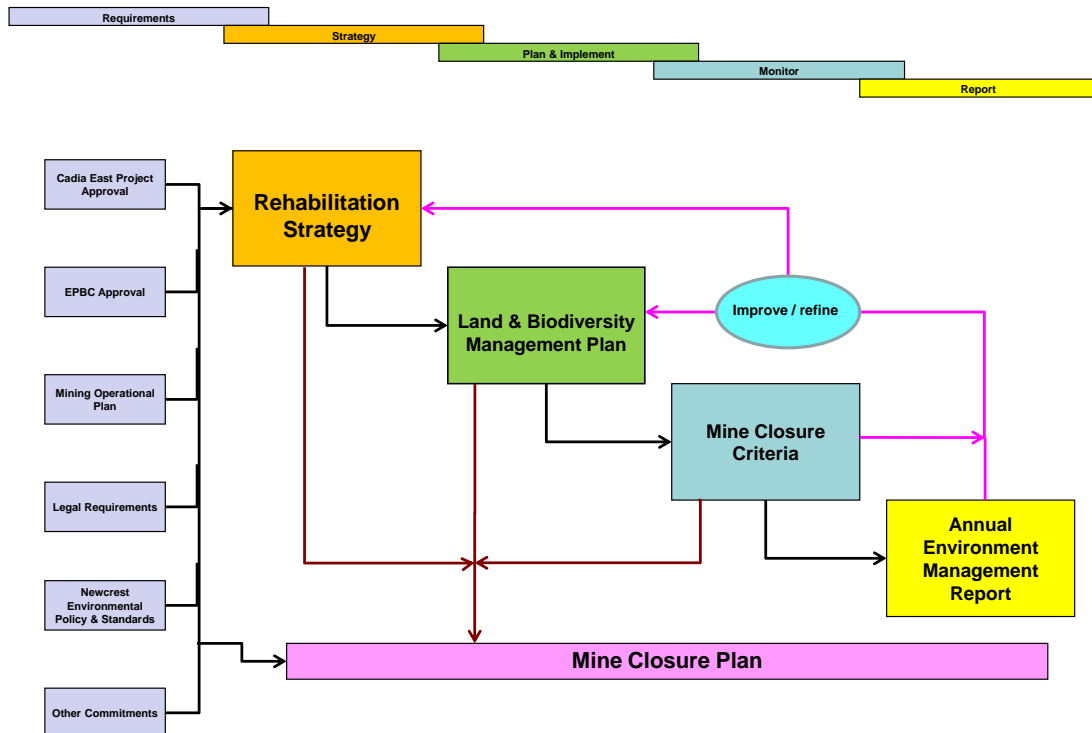
The purpose of this document is to provide an overview of the approach to site rehabilitation at Cadia. The Rehabilitation Strategy has been developed to meet the broad rehabilitation commitments made in the Cadia East Environmental Assessment and the Cadia East Project Approval.

3.0 STRATEGY RELATIONSHIPS

The rehabilitation strategy interprets and applies the rehabilitation concepts, requirements and commitments (from the Cadia East approvals, environment assessment etc) into management commitments which then feed directly into the Land and Biodiversity Management (Landscape) Plan to achieve rehabilitation of the site. The strategy defines the overarching rehabilitation goals, final land-uses and mine closure benchmarks that will be achieved through Cadia's rehabilitation works. The relationship between the Rehabilitation Strategy and other documents is summarised in Figure 1.

Commitments outlined in Section 5.2 of this strategy feed into the Land and Biodiversity Management (Landscape) Plan, where actions are defined and become (in effect) 'an action plan' for implementation. Performance against the Rehabilitation Strategy and the Land and Biodiversity Management (Landscape) Plan are reported through the Annual Environmental Management Report (Annual Review). Areas requiring refining or improvement are identified through this process and fed back through revisions of the Strategy and / or the Land and Biodiversity Management (Landscape) Plan. Refer to Figure 1

Figure 1 Relationship between Rehabilitation Strategy and other documents.



4.0 REHABILITATION REQUIREMENTS

The following sections provide a summary of Cadia's current rehabilitation requirements and commitments. The relevant approvals that relate to CVO include:

- Cadia East Project Approval (including Modifications)
- Cadia East Commitments (as stated in the Cadia East Environmental Assessment)
- Mine Lease Conditions (ML1405, ML1449, ML1472, ML1481, ML1689, ML1690)

4.1 CADIA EAST PROJECT APPROVAL

Project Approval for the Cadia East Project was granted by the NSW Minister for Planning under Part 3A of the *Environmental Planning and Assessment Act, 1979* (EP&A Act) on 6 January 2010. The Cadia East Project is described in Schedule 1 of the Project Approval as including the Cadia East underground mine, the Cadia Hill open cut mine, the Ridgeway underground mine, the Blayney and CVO Dewatering Facilities, and ancillary infrastructure. These components are collectively known as Cadia. The following is a summary of rehabilitation requirements contained in the Cadia East Project Approval (NSW Government, Department of Planning (2010)). Table 4-1 provides a summary of consent conditions, as they relate to the development of this strategy and the relevant section of the Strategy where the requirements are addressed.

Rehabilitation

By the end of 2010, the Proponent shall prepare a Rehabilitation Strategy for the project to the satisfaction of the Secretary. This strategy must:

- be prepared by a team of suitably qualified and experienced experts whose appointment has been endorsed by the Secretary;
- be prepared in consultation with relevant stakeholders, including the RR, DRG, BCD, DPIE Water, Councils and the CCC;
- investigate options for the future use of disturbed areas including voids upon the completion of mining;
- describe and justify the proposed rehabilitation strategy for the site, including the post-mining landform and use;
- define the rehabilitation objectives for the site, as well as the proposed completion criteria for this rehabilitation; and
- be prepared in accordance with the relevant RR Guideline.

Note: The strategy should build on the concept strategy depicted in Appendix 6 (Cadia East Environmental Assessment).

The Proponent shall:

- carry out rehabilitation progressively, that is, as soon as reasonably practicable following disturbance; and
- achieve the rehabilitation objectives in the Rehabilitation Strategy (see condition 36), to the satisfaction of the RR.

Land and Biodiversity Management Plan

The Proponent shall prepare and implement a Land and Biodiversity Management Plan for the project to the satisfaction of the Secretary. This plan must:

- be prepared in consultation with BCD, DPIE Water, RR and the Councils, and be submitted to the Secretary within 18 months of the date of this approval;

include:

- the rehabilitation objectives for the site and offset areas;
- a description of the short, medium, and long term measures that would be implemented to:
 - rehabilitate the site in accordance with the Rehabilitation Strategy (see condition 36);
 - implement the offset strategy; and
 - manage the remnant vegetation and habitat on the site and in the offset areas;
- detailed performance and completion criteria for the site rehabilitation and implementation of the offset strategy;

- *a detailed description of the measures that would be implemented over the next 3 years, including the procedures to be implemented for:*
 - *progressively rehabilitating disturbed areas;*
 - *implementing revegetation and regeneration within the disturbance areas and offset areas, including establishment of canopy, sub-canopy (if relevant), understorey and ground strata;*
 - *investigating ways to salvage and beneficially use resources in areas subject to subsidence (including timber, fauna habitat, seed and soil resources);*
 - *protecting vegetation and soil outside the disturbance areas;*
 - *rehabilitating creeks and drainage lines on the site (both inside and outside the disturbance areas);*
 - *managing potential acid forming material (including ensuring effective isolation of potential acid forming material in rock dumps);*
 - *managing salinity;*
 - *conserving and reusing topsoil;*
 - *undertaking pre-clearance surveys;*
 - *managing impacts on terrestrial and aquatic fauna (including a Squirrel Glider conservation strategy);*
 - *landscaping the site to minimise visual impacts;*
 - *collecting and propagating seed for rehabilitation works;*
 - *salvaging and reusing material from the site for habitat enhancement;*
 - *controlling weeds and feral pests, including terrestrial and aquatic species;*
 - *managing grazing and agriculture on site;*
 - *controlling access;*
 - *bushfire management;*
 - *managing and minimising any potential adverse impacts associated with the final voids; and*
 - *managing and minimising any adverse socio-economic effects associated with mine closure;*
- *a program to monitor the effectiveness of these measures, and progress against the performance and completion criteria;*
- *a description of the potential risks to successful rehabilitation and/or revegetation, and a description of the contingency measures that would be implemented to mitigate these risks;*
- *details of who would be responsible for monitoring, reviewing, and implementing the plan; and*
- *a Threatened Species Management Protocol, which outlines management strategies to protect any threatened flora and fauna species during construction, operation and post-mining.*

4.2 MINING LEASE CONDITIONS

The following requirements are contained in the Mining Lease conditions for CVO and relate to the rehabilitation of the site:

- *Any topsoil that is removed in the course of operations is to be set aside for replacement at a later date. Other soil, rock and residues are to be used to fill abandoned shafts and excavations and are to be covered by topsoil previously removed.*
- *The land over which operations have been carried on:*
 - *Is to be appropriately restored and landscaped, to the satisfaction of the Regional Inspector of Mines, to ensure that the land is properly drained and protected from soil erosion; and*
 - *Is to be planted with vegetation appropriate to the area and at a density acceptable to the Regional Inspector of Mines. Where the agreed final land use is to include native vegetation, indigenous species must be used in all revegetation programs, unless otherwise directed.*
- *The lease holder must comply with any reasonable direction given by the Regional Inspector of Mines regarding the stabilisation and revegetation of any mine residue, tailings or overburden dumps associated with the mining operation.*
- *On completion of operations the lease holder must rehabilitate all areas disturbed as a result of operations having been carried out within the subject area and must ensure that such areas are adequately maintained for such a period as is necessary to satisfy the Minister that long term rehabilitation standards and environmental safeguards have been fulfilled.*
- *The lease holder must observe any instructions given by any responsible authority with a view to the eradication of noxious weeds. The lease holder must make all reasonable efforts to prevent the introduction and establishment of noxious weeds.*
- *Land disturbed must be rehabilitated to a stable and permanent form suitable for a subsequent land use acceptable to the Director General and in accordance with the Mining Operations Plan so that:-*
 - *There is no adverse environmental effect outside the disturbed area and that the land is properly drained and protected from soil erosion.*
 - *The state of the land is compatible with the surrounding land and land use requirements.*
 - *The landforms, soil, hydrology and flora require no greater maintenance than that in the surrounding land.*
 - *In cases where revegetation is required and native vegetation has been removed or damaged, the original species must be re-established with close reference to the flora survey included in the Mining Operations Plan. If the original vegetation was not native, any re-established vegetation must be appropriate to the area and at an acceptable density.*
 - *The land does not pose a threat to public safety.*
- *Any topsoil that is removed must be stored and maintained in a manner acceptable to the Director General.*
- *The lease holder shall prepare a Mine Closure Plan at least two years prior to the cessation of mining operations to the satisfaction of the Director General.*
- *Any disturbance as a result of activities under this lease must be rehabilitated to the satisfaction of the Director General*

Table 4-1 Compliance summary

Consent Condition	Section of Strategy
<i>By the end of 2010, the Proponent shall prepare a Rehabilitation Strategy for the project to the satisfaction of the Secretary. This strategy must:</i>	Version 1 of the Strategy submitted – 17 December 2010
<i>be prepared by a team of suitably qualified and experienced experts whose appointment has been endorsed by the Secretary;</i>	Section 11.2
<i>be prepared in consultation with relevant stakeholders, including the RR, DRG, BCD, DPIE Water, Councils and the CCC;</i>	Section 11.2
<i>investigate options for the future use of disturbed areas including voids upon the completion of mining;</i>	Section 5.2 and 9.0
<i>describe and justify the proposed rehabilitation strategy for the site, including the post-mining landform and use;</i>	Section 5.2
<i>define the rehabilitation objectives for the site, as well as the proposed completion criteria for this rehabilitation; and</i>	Section 5.2 and 9.0
<i>be prepared in accordance with the relevant RR Guideline.</i>	N/A – There are no applicable guidelines.

4.3 CADIA EAST ENVIRONMENTAL ASSESSMENT

The following is a brief summary of rehabilitation commitments contained in the Cadia East Environmental Assessment (CHPL 2009). For more information and a full description of rehabilitation concepts refer to the Cadia East Environmental Assessment - Appendix P.

North Waste Rock Dump

- The North Waste Rock Dump would have maximum batter slopes of 1:3, with 15 to 20 metre (m) wide, step-back, reverse graded berms and rock lined drains.
- PAF material contained in the dump would be encapsulated by covering with 0.5 m of clay followed by 2 to 3 m of non-acid forming (NAF) material.
- This would be covered by 20 to 30 centimetres (cm) of topsoil. Drainage control structures would be installed where necessary.
- The North Waste Rock Dump would be revegetated with native woodland plant species

Rehabilitation of the North Waste Rock Dump was completed in 2013

South Waste Rock Dump (SWRD)

- Selective encapsulation of PAF waste rock with a low permeability seal followed by NAF material and topsoil;
- Grading the final surface of the dump to blend in with the natural topography of the area, with an overall outer batter slope of 1:4 comprising 1:3 outer slopes and 15 to 20 m wide, step-back, reverse graded berms;
- Installation of rock lined drains and detention ponds to channel runoff safely to constructed outlet areas; and
- Progressive rehabilitation of outer batters.

SWRD Interaction with the Northern Tailings Storage Facility

- A clay capping layer will be installed along the southern face of the South Waste Rock Dump to minimise the potential for tailings seepage into the SWRD. The clay layer would be keyed into the *in-situ* ground surface at the toe of the dump.

SWRD Water Management

- The top surface of the South Waste Rock Dump would be designed with a slight dish shape that would generally drain towards the north. Rock lined channels would be installed along the northern edge of the top surface to provide a stable means for surface water runoff to drain from the top of the SWRD.
- On the batters of the dump, surface water runoff would flow perpendicularly down the slope to the toe of each batter where it would be re-directed by the 15 to 20 m wide reverse graded berms. The water would gradually flow short distances along the berms to rock lined channels which would be constructed at regular intervals down the faces of the batters. These channels would enable water from one berm to be channelled in a controlled manner down the face of the batter to the next berm and ultimately to the base of the dump.
- Rock lined channels would be used at the base of the dump to direct runoff into natural creek lines, the surface of the NTSF, or the Rodds Creek Water Holding Dam.
- The existing sediment ponds and leachate collection ponds downstream of the dump would be retained until the revegetated surface of the dump is stable and the runoff water quality is acceptable.

Revegetation

- The revegetation objective for the South Waste Rock Dump is to provide scattered trees and pasture on the dump surface, and to provide woodland on the batters.
- The woodland areas on the batters would be linked to other conservation areas in the Cadia Valley through the vegetation corridor programme.
- Trials would be conducted by CHPL on native species, grass species and soil treatments suitable for use on the dump.

Tailings Storage facility

- Each upstream lift would be approximately 4 m in height, constructed at slopes of 1:2 and, following the completion of tailings deposition, would be stabilised with the application of topsoil and direct seeded and/or planted with endemic tree and shrub species and grasses.
- The final surface of the tailings storage facilities would be rehabilitated through the application of topsoil (approximately 20 to 30 cm deep) and/or other growth medium such as biosolids and would be direct seeded and/or planted with a mixture of locally occurring trees, shrubs and/or introduced pasture species.
- A layer of NAF waste rock may be used, if required, to line the decant area to allow access for machinery during rehabilitation. This would be assessed at the time of rehabilitation.
- Drainage channels would be constructed on the surface of the tailings storage facilities to manage runoff and minimise ponding. Each channel would be seeded with a thick band (nominally 100 m wide) of woodland species with a final land use of conservation.
- These bands of vegetation are intended to provide long-term surface stabilisation to drainage lines, a 'filter' for surface water, shelter belts for grazed areas and a link to the regional vegetation corridor programme. The central part of each channel would be rock lined to minimise erosion potential.
- The remainder of the surface of the tailings storage facilities would be seeded with pasture species with a final land use of occasional/opportunistic and controlled grazing.
- Drainage from the top surface of the tailings storage facilities down the batters would be managed via engineered structures. These structures could involve, but are not necessarily restricted to, concrete channels, rock gabions or rock lined channels. The structures would direct the runoff to sediment stilling dams, and possibly through a constructed wetland (if required to achieve appropriate water quality), prior to release.

Ridgeway Subsidence Zone

- The rehabilitation concept involves construction of a bund and fence around the void to restrict stock and human access. The subsidence zone would be partitioned from the remainder of the 'Tunbridge Wells' property and surrounded by planted native woodland to provide visual screening.
- It is predicted that a water body would eventually form at the base of the Ridgeway subsidence zone and it would take approximately 150 years for a water body to reach equilibrium in the subsidence zone.

Cadia East Subsidence Zone

- It is not proposed to clear the native vegetation communities from this area prior to subsidence occurring, although some native seed collection would be undertaken, and fauna habitat resources (such as tree hollows) would be salvaged where practicable for use within rehabilitation areas or other fauna habitat enhancement areas.
- Stripping of soils from the cleared agricultural lands within the subsidence zone would be undertaken if the soils from these areas are suitable, and they are required for rehabilitation of the South Waste Rock Dump or other Project landforms.

- After mining and mine dewatering cease the final void created by the Cadia East subsidence zone would be allowed to fill with water.
- The subsidence zone and zone of influence would not be sufficiently stable to safely allow human or stock access, therefore a bund and fence would be erected around the zone of influence to restrict access.
- A native woodland screen would be planted around the fence to provide a visual barrier and delineation of the zone to assist in future land use planning. Where possible the native woodland screen would be used as a link in the vegetation corridor programme.

Cadia Hill Pit

- After mining the final void created by the Cadia Hill open pit would be filled with tailings to an approved level. The remaining volume within the pit shell will be allowed to fill with water.
- A fence, bund and vegetation screen (native trees and shrubs) would be established around the open pit. The vegetation screen would provide a link as per the vegetation corridor programme.

Cadia Extended Pit

- The waste rock in Cadia Extended would be re-profiled to create a stable final land surface and blend in with the natural topography of the area.
- The final surface would have maximum batter slopes of 1:3, plateau slopes of 1:100 and water management drains, bunds and sediment dams would be constructed. A low permeability cover would be installed to minimise infiltration into the waste rock.
- Following the application of 2 to 3 m of NAF material and topsoil (approximately 20 to 30 cm), the batters would be revegetated with native endemic species while improved pasture would be established on the plateau.

Infrastructure

- Dismantle and remove fixed equipment and infrastructure for removal from site and re-use at another location, if possible, or recycling.
- Non-salvageable/non-recyclable and non-contaminated surface infrastructure would potentially be disposed of in the underground workings, or at suitable off-site disposal areas.
- Once all the equipment and infrastructure components have been removed from an area it would be topsoiled, deep ripped and seeded. Land contamination assessments would be conducted as required and contaminated soil would be remediated in accordance with the relevant guidelines.
- Some concrete hardstands, site access roads, sheds, buildings and sediment dams may be retained for alternate post-mining uses.
- Electricity transmission infrastructure would be retained for future use by landholders unless it is no longer required, in which case it would be decommissioned and removed.

Declines, Portals and Underground Workings

- At the completion of mining, all recyclable and re-usable underground infrastructures would be removed, and the Ridgeway mine dewatering programme would cease operation.
- Portals would be sealed with a concrete plug, the box cut backfilled and shaped to be consistent with natural topography and seeded. Bunding would also be constructed around the portals as described in the Mine Closure Plan.
- Surface ventilation infrastructure (e.g. fans, vents and electrical substations [except the concrete collars]) would be removed.
- The sealing/capping procedure for ventilation rises would be determined in consultation with the relevant regulatory authorities and other stakeholders, but would include appropriate geotechnical investigations, design work, capping and topsoil placement over the cap with the area revegetated with pasture species.

Roads

- Some of the site roads would be retained for use by landholders following the cessation of mining, other roads would be ripped, topsoiled and sown to pasture or woodland species.

Water Management Infrastructure

- In consultation with the regulatory authorities and the community, and considering future regional water infrastructure needs, site water dams (i.e. Rodds Creek Water Holding Dam, Cadiangullong Dam), weirs (i.e. Flyers Creek and Cadia Creek), the Belubula River water pipeline, Blayney concentrate/return water pipelines and the Orange effluent pipeline may be retained for future use.
- If a future use of the Belubula River water pipeline, Blayney concentrate/return water pipeline and the Orange effluent pipeline cannot be established the concentrate pipeline would be flushed clean, all pipes left in place, capped and surface infrastructure removed.
- Sediment dams would remain pending long-term acceptable water quality and may be kept for stock water if suitable.
- The site runoff pond and the process water pond would be cleaned out if necessary and temporary fencing would be installed if required. Once water quality meets regulatory discharge criteria through the process of ongoing water quality monitoring, the dams would be emptied, high-density polyethylene (HDPE) liners removed, contaminated soils removed, clean fill placed, topsoiled and seeded to pasture species.

Heritage Sites

- The long-term future of heritage sites would be decided following consultation with regulatory authorities and the community. Options may include:
 - Transfer of sites to the care and control of heritage conservation bodies such as NSW Department of Environment and Heritage or the National Trust.
 - Care and maintenance agreement with local government (Cabonne or Blayney Shire Councils), or specific interest / conservation groups.

Blayney Dewatering Facility

- Decommissioning of the Blayney Dewatering Facility and CVO Dewatering Facility would involve the removal of tanks, pumps, plant and infrastructure.
- Concentrate and dewatering lines would be flushed with clean water, capped and left *in-situ*. However, consideration would first be given to their possible use within a regional water management scheme as per Cadia Hill Development Consent.
- Following the removal of infrastructure, attempts may be made to sell the site to another industrial user who can make use of the concrete pad and shed. If such a user is not identified, the shed would be demolished, and the concrete pad left in place. The decision would be made in consultation with the regulatory authorities and stakeholders.
- A final land contamination assessment would be undertaken, and amelioration measures implemented if required.

Note: Section 5.2, Page 24 provides updated and current information regarding the closure, demolition and remediation of the Blayney Dewatering Facility.

Plant Species Selection

- Suitable endemic plant species for revegetation of mine landforms and disturbance areas would be determined in consultation with the regulatory authorities and landholders.
- Species would be selected on a site by site basis depending on nearby remnant vegetation associations, soil types, aspect and site conditions.
- Species selection for revegetation would also be based on vegetation lists obtained from the Cadia Hill and Ridgeway EISs, Off-site Rehabilitation Plan, species recorded within the Project area and surrounds (Appendix B of the EA) and results from relevant trials and studies.
- Unless otherwise required (e.g. tall trees for screening purposes) all areas would attempt to maximise habitat value by considering structural and species diversity.
- At suitable locations (and where available), regionally significant species and communities would be incorporated into revegetation activities.
- Under some circumstances, non-endemic native species may be selected to allow the revegetation and stabilisation of site gardens and difficult landforms.
- Where the agreed final land use for an area includes improved pasture (grazing), non-native pasture species may be planted / sown.
- In consultation with regulatory authorities and landholders, additional species may be included over time as rehabilitation progresses and the results of ongoing rehabilitation trials become available.

4.4 OTHER APPLICABLE LEGAL REQUIREMENTS

The following Acts and associated regulations may be applicable to the rehabilitation of the Project:

- *Mining Act 1992*
- *Environmental Planning and Assessment Act 1979*
- *Protection of the Environment Operations Act 1997 (and associated regulations)*
- *NSW Biodiversity Conservation Act 2016 (and associated regulations)*
- *NSW Fisheries Management Act 1994*
- *NSW Local Land Services Act 2013 (and associated regulations)*
- *NSW Biosecurity Act 2015*
- *Contaminated Lands Management Act 1997*
- *National Parks and Wildlife Act 1974*
- *Rural Fires Act 1997*
- *The Commonwealth Environment Protection and Biodiversity Conservation Act 1999.*

4.5 STATE ENVIRONMENTAL PLANNING POLICIES

The following State Environmental Planning Policies (SEPPs) are relevant to the Project:

- SEPP - *Major Projects (2005)*;
- SEPP - *Mining, Petroleum Production and Extractive Industries (2007)*;
- SEPP *Koala Habitat Protection (2019)* , and
- SEPP 55 - *Remediation of Land*.

4.6 NEWCREST ENVIRONMENTAL POLICY

The Newcrest Environmental Policy (NML 2017) states the intentions and principles for environmental performance across all of its operations including Cadia. The policy states;

“Newcrest is committed to excellence in environmental performance to maintain and enhance our licence to operate”.

From a rehabilitation perspective, the policy also states that;

Newcrest will:

- *Comply with applicable environmental laws, regulations and voluntary commitments to which the organisation subscribes, as a minimum*
- *Ensure that integrated approaches to land use planning and environmental management are implemented in areas where we operate and/or manage that contribute to the conservation of biodiversity;*
- *Integrate mine closure and progressive rehabilitation into the life-cycle of our operations to minimise our environmental legacies;*

4.7 NEWCREST BIODIVERSITY POLICY

The Newcrest Biodiversity Policy (NML 2019) states the intentions and principles for managing biodiversity values across the organisation including Cadia. The policy states;

“Newcrest is committed to protecting and managing biodiversity values”.

Newcrest commits to the protection and management of biodiversity values and across the organisation, Newcrest will:

- *Not explore and mine in areas designated as World Heritage Sites*
- *Respect the requirements of legally designated protected areas*
- *Apply the mitigation hierarchy to reduce impacts of new projects on biodiversity and ecosystem service values through assessment of biodiversity risks, avoidance, mitigation and offsetting (if required)*
- *Assess and manage critical habitats and natural habitats on land under our control or influence*
- *Achieve no-net-loss of biodiversity values in relation to impacts to natural habitats and critical habitats following application of the mitigation hierarchy for new projects*
- *Assess and maintain ecosystem services for new projects*
- *Comply with relevant laws and apply best practices when assessing and managing biodiversity across our operations*
- *Adopt practical biodiversity management practices that integrate biodiversity management and development for all our operations*
- *Prepare Biodiversity Action Plans (BAPs) for all operations that impact biodiversity values*
- *Raise awareness of employees of the importance of protecting and managing biodiversity*
- *Work with local communities and key stakeholders to assess, manage and restore biodiversity values on land under our control or influence*

4.8 NEWCREST ENVIRONMENTAL STANDARDS

A number of Newcrest Environmental Standards have been developed to guide the site's approach to managing key environmental risks. A summary of the key requirements, as they apply to the rehabilitation of the site are presented below.

4.8.1 EN-ST01 – Acid Mine Drainage

The closure of facilities with potential AMD risk must ensure geotechnical and geochemical stability, the control of infiltration and seepage and eliminate where possible the need for ongoing treatment and management.

The full standard can be found in Appendix A

4.8.2 EN-ST03 Biodiversity

Biodiversity aspects shall be managed to ensure compliance with relevant regulatory permits and approvals and any voluntary standards or codes of which Newcrest is a signatory. Where risk assessment identifies significant sensitive environmental biodiversity receptors that are not adequately protected by regulatory permit conditions, site based monitoring and environmental management systems shall be applied to complement regulatory requirements.

Integrate Biodiversity Management into project planning and decision making through the complete project life-cycle, facilitating the design projects that avoid potential significant impacts on Biodiversity and identify opportunities to protect and enhance Biodiversity.

The full standard can be found in Appendix B

4.8.3 EN-ST07 Land Use and Disturbance Management

Land use and disturbance must be managed in accordance with relevant regulatory requirements and permit conditions. Where risk assessment identifies significant sensitive environmental receptors that are not adequately protected by regulatory permit conditions, site based monitoring and environmental management systems shall be applied to complement regulatory requirements.

Map land use domains across the operation that define the permitted land use and constraints in each area. Ensure land use domains have been developed with regard to the interests of key stakeholders and rehabilitation and closure objectives.

Develop, implement and maintain a Land Use Management Plan that must include as a minimum:

- Protected areas or limitations on land use;
- Objectives and targets relating to use and management of land which are consistent with the closure plan including annual targets for progressive rehabilitation

Develop and implement operational procedures for land management including inspections and monitoring programs for the following areas:

- Land clearance and vegetation removal authorisation;
- Sediment and erosion control;
- Top soil management;
- Land access and stakeholder engagement;
- Management of soil contamination and remediation

The full standard can be found in Appendix C

4.9 ENVIRONMENTAL MANAGEMENT PLANS

At the time of revising this strategy, there were two primary documents that relate to rehabilitation and closure of the mine site. Both documents are fully aligned with this overarching Rehabilitation Strategy:

1. Mining Operations Plan (MOP). The MOP is a requirement of Cadia's Mine lease Conditions and is consistent with both the Rehabilitation Strategy and the Land and Biodiversity Management Plan (LBMP). The plan contains duplicate information to the Rehabilitation Strategy including; the overarching rehabilitation strategy, final landform description, final land-use descriptions, mine closure criteria etc. The plan is developed in consultation with and approved by Resource Regulator and is also consistent with the Cadia East Environment Assessment. Following Mod 13, the MOP was updated and approved in March 2020.
2. The Land and Biodiversity Management Plan (LBMP) is a requirement of the Cadia East Project Approval and is consistent with this strategy, the Mining Operations Plan and the Cadia East Environment Assessment. The plan provides specific information and detailed actions for the implementation of the Rehabilitation Strategy. The LBMP is currently under review and will be submitted for approval prior to the end of the 2020 calendar year.

5.0 REHABILITATION STRATEGY

The overall rehabilitation goal is to generate enduring land value, including both ecological value (e.g. biological diversity and other environmental values) and agricultural value (i.e. the ability to produce agricultural goods).

Rehabilitation activities at the Cadia Valley Operations would aim to generate safe and sustainable landforms at the mine site, CHPL-owned land and the region as a whole by rehabilitating mine disturbed lands to:

- add value to the current vegetation corridor programme (ecological value);
- allow for the future land use of grazing where appropriate and sustainable (agricultural value);
- retain areas that may be important for future industry and infrastructure needs; and
- provide safe and stable landforms and minimise any adverse potential impacts so that there is no future liability for Newcrest or the community.

CHPL would aim to provide a balanced rehabilitation outcome, recognising the alternative land uses that exist in the region and aiming to establish a combination of grazing land and indigenous woodland on final landforms.

Rehabilitation programmes would be adjusted over the life of the Project as necessary, based on the outcomes of research trials, community and regulatory consultation, regional infrastructure requirements and industry knowledge.

Progressive rehabilitation would be undertaken throughout the life of the Project, where practicable.

5.1 GUIDING PRINCIPALS

- The vision of how Cadia will fit into the regional landscape should drive the site rehabilitation concepts and actions.
- Accommodate social, ecological and economic values while minimising Cadia's risk exposure in the future.
- Future land uses are to be based on an assessment of landscape capabilities in terms of social and ecological values.
- Ultimate rehabilitation outcomes should be to optimise social, production and nature conservation objectives within Cadia owned lands.
- Allow for future industrial use of site infrastructure and resources where appropriate – based on social and community needs.
- Wherever possible restoration strategies should seek to create sustainable ecological and if applicable, production ecosystems.
- There is a need to distinguish between amenity landscapes (eg shelter belt plantings, narrow linear corridors) in contrast to recreating sustainable native woodlands ecosystems.
- The agricultural capability of rehabilitated lands needs to be rigorously assessed. Mine disturbed areas with a future land use for agriculture / grazing need to be sustainable and not expose the landscape to degradation (such as erosion, weed invasion etc). Future rehabilitation therefore may need to focus more on conservation outcomes in much of the disturbance footprint.
- Riparian system restoration and incorporation of 'chain of ponds' concepts should be a high priority.

- There may be better long term outcomes and prospects for the on-selling of agricultural land (with the consequent relinquishment of management responsibility) with greater emphasis on ecological restoration (Carbon, biodiversity credits, Bush Heritage etc)
- Undertake a broader comprehensive biodiversity study of all CVO properties (flora, fauna and aquatic species) to assist landscape planning and management objectives. It is imperative to determine what vegetation communities, habitats, species/viable populations are present, as well as their status and condition, across the agricultural landscape (outside mine disturbed areas) (eg 60% of non-threatened vertebrate species have been identified as being regionally endangered in the Lachlan and Central West Catchments and are not formally recognised under state and federal legislation. The evidence of the continuing decline of the woodland birds is testament to the need for intervention at an earlier time).
- Consider alternate land uses as community needs and expectations change.
- As one of the largest landholders in the Central West, CVO has the opportunity to create a production and conservation landscape on a scale presently unobtainable in such highly modified landscapes.

5.2 STRATEGY AND COMMITMENTS

The following strategy and commitments (Table 5-1) have been developed by the approved expert panel (refer to Section 11) to provide overarching direction for the rehabilitation and closure of the site. Each of the commitments outlined in column 3 are expanded into actions in the Land and Biodiversity (Landscape) Management Plan to essentially form an 'implementation plan'. Performance indicators have been suggested and will be reported against in the AEMR.

For the major mine landforms, a description of the final landform and final land use have been stated. These are consistent with the Mining Operations Plan and the Cadia East Environmental Assessment. A visual representation of the final land-uses is shown in Figure 2 and is generally consistent with Appendix 6 of the Project Approval.

The process of determining the final land-uses for major landforms has involved the following:

- Development of final land-uses as part of the Cadia East Environmental Assessment. Information was drawn from the Cadia Hill EIS and the Ridgeway EIS as well as input from staff to propose a balance between pre-mining land-uses (pasture agriculture vs woodland/ bushland / conservation).
- This has been further refined by the expert panel who have proposed additional areas be returned to woodland / bushland / conservation as it was considered to provide the most stable and sustainable landform in the long term. These conservation areas also add to the biodiversity assets of the region and contribute to the vegetation corridor program which is consistent with the goals of this strategy.
- The expert panel have considered the future industrial uses of the site as well as the potential use of CVO's water management infrastructure within a regional context. As the future needs of the region and community are likely to change (over the next 20 years) the panel have made suggestions (based on current knowledge) as to the potential use of the site and infrastructure and the eventual fate of Newcrest owned land, however they have suggested detailed consultation with stakeholders is required closer to mine closure to fully define the final closure scenario for these areas. As such the strategy for these areas has been left reasonably flexible pending further consultation closer to mine closure. As further information is gathered, the strategy will be updated accordingly.

Table 5-1 Site Rehabilitation

Landform	Strategy	Commitment	Performance Indicators	Supporting info
Subsidence zones (Ridgeway, Cadia East)	<p>Retain subsidence voids for future water storage.</p> <p><u>Final Landform</u> Subsidence zone – deeply incised edges of a deep open void.</p> <p><u>Final Land use</u> Water Body Total exclusion</p>	<p>Maximise the recovery and use of habitat resources from remnant areas to be cleared.</p> <p>Identify and consider the relocation / replanting or regionally uncommon species from within remnant areas to be cleared (complete).</p> <p>Select areas (based on clearing and subsidence profiles / schedules) where additional topsoil and timber resources can be recovered and utilised.</p> <p>Relocate Cadia East waste rock to the southern waste rock dump (complete).</p> <p>Construct human proof fencing and bunds within ‘safe’ distance around the subsidence voids (initial fencing complete, a wider exclusion fence is now being constructed). Fence to allow for animal escape from the zone.</p> <p>Plant native trees and shrubs to provide a visual screen that will assist the area to blend in with surrounding vegetation and provide additional biodiversity outcomes.</p> <p>Develop a water quality monitoring program for open voids (pending safe access).</p>	<p>Site effectively excludes humans, allows animal escape and poses no risk or harm into the future</p> <p>Water quality monitoring (if safe access is available) (5 years post closure)</p> <p>5 years prior to mine closure – undertake assessment as to whether any future industrial and / or water uses of subsidence voids is possible.</p> <p><u>Closure Criteria</u> 100% human exclusion Water quality consistent with modelling. Compliance with detailed criteria (Section 9)</p>	<p>Cadia East Project Environmental Assessment (CHPL April 2009)</p> <p>Ridgeway Environmental Impact Statement (CHPL 2000).</p>
Cadia Hill Open pit void	<p>Use the Cadia Hill pit void as a tailings storage facility to an approved height (to be determined via respective approval processes).</p> <p>Remainder of void allowed to fill with water / water storage.</p> <p><u>Final Landform</u> Open void (pit shell) – filled with tailings under a lens of saline water</p> <p><u>Final Land use</u> Tailings storage / upper level water body for possible future industrial / regional use.</p> <p>Total exclusion</p>	<p>Construct human proof fencing and bunds within ‘safe’ distance around the open voids, controlled entry points for water sampling access.</p> <p>Plant native trees and shrubs to provide a visual screen that will assist the area to blend in with surrounding vegetation and provide additional biodiversity outcomes.</p> <p>Develop a water quality monitoring program for open voids (pending safe access).</p>	<p>Site effectively excludes humans and poses no risk or harm into the future</p> <p>Monitor water quality (if safe access is available) (5 years post closure)</p> <p><u>Closure Criteria</u> 5 years prior to mine closure – undertake assessment as to whether any future industrial uses of pit water is possible.</p> <p>100% exclusion (with the exception of water quality sampling)</p> <p>5 years prior to mine closure undertake a detailed hydrogeological analysis and risk assessment.</p> <p>Water quality suitable for industrial / regional use.</p> <p>Potentially part of regional water supply network</p> <p>Compliance with detailed criteria (Section 9)</p>	<p>Cadia East Project Environmental Assessment (CHPL April 2009)</p> <p>Cadia Hill Environmental Impact Statement (CHPL 1995)</p>

Table 5-1 Site Rehabilitation (Continued)

Landform	Strategy	Commitment	Performance Indicators	Supporting info
Northern and Southern Tailings Dams	<p>Rehabilitate with <i>E. albens</i> – <i>E. melliodora</i> – <i>E. blakelyi</i> – <i>E. bridgesiana</i> woodland communities (1a, 2a, 2b)</p> <p><u>Final Landform</u> Large flat expanses of woodland with formal stabilised drainage channels throughout.</p> <p><u>Final Landuse</u> Woodland Conservation (subjected to occasional strategic grazing (short term periodic) for management purposes and biodiversity outcomes pending the outcomes of the land capability assessments).</p>	<p>Repair NTSF Embankment.</p> <p>Recover topsoil and clay prior to inundation by tailings</p> <p>Respread native topsoil immediately onto new designated revegetation areas (where practicable).</p> <p>Investigate methods for altering the physical and chemical properties of tailings material prior to release within the tailings dam (final deposition layer prior to rehabilitation).</p> <p>Continue to undertake rehabilitation trials (scaled up version if possible). Understand any long term ore body geochemical changes that may alter / affect proven rehabilitation methods (proven as part of completed research)</p> <p>Confirm detailed drainage and rehabilitation plans</p> <p>Create desired landform via selective placement of tailings</p> <p>Install erosion control structures</p> <p>Construct chains-of-ponds (wetlands) to assist clean water drainage from the area and increase habitat and ecological function</p> <p>Prepare appropriate substrate using topsoil or other suitable growth medium (as per outcomes of the trials)</p> <p>Undertake rehabilitation of woodland and native grassland communities (as per outcomes of the trials)</p> <p>Revegetation using locally collected seed of similar forest community species including grasses and other native forbs and appropriate local native wetland plants</p> <p>Creation of additional habitat using cleared trees from areas (described above) and the installation of nesting boxes and salvaged hollows, targeting threatened and declining woodland species</p> <p>Retain existing install sediment ponds until water quality is acceptable.</p> <p>During operational phases, consistent with the Cadia Environment Protection Licence (EPL5590), the tailings dams may be used for the disposal of liquid / slurry wastes such as drill cuttings from Newcrest's exploration activities.</p>	<p>The function, structure and composition of the site is comparable with or trending towards that of the local remnant vegetation (reference sites) of similar community composition and final land use (refer to section 9).</p> <p>Annual monitoring and comparison against closure criteria for the first 5 years followed by every three years until closure criteria have been met.</p> <p>Conduct fauna surveys (Birds, bats, reptiles, mammals etc) at periodic intervals.</p> <p>Undertake periodic water quality testing (5 years post closure) within wetland systems to ensure water quality is acceptable for release (ANZECC livestock guidelines).</p> <p><u>Closure Criteria</u> Woodland criteria (refer to section 9).</p> <p>Progress reported in AEMR / Annual Review (once rehabilitation commenced)</p>	<p>Rehabilitation monitoring methodology and determination of completion criteria (DnA Environmental 2008).</p> <p>Cadia East Project Environmental Assessment (CHPL April 2009)</p>
North Waste Rock Dump	<p>Rehabilitate with <i>E. macrorhyncha</i> – <i>E. goniocalyx</i> – <i>E. polyanthemos</i> Woodland community (3a, 3b)</p> <p><u>Final Landform</u> Flat plateaus intersected by 3:1 batters and reverse graded berms. Formal stabilised drainage channels throughout.</p> <p><u>Final Landuse</u> Woodland Conservation</p>	<p>Re-profiling of dump surface (complete)</p> <p>Placement of clay / HDPE low permeability cover (complete)</p> <p>Placement of NAF material cover (complete)</p> <p>Construction of chains-of-ponds (wetlands) in the south west area to assist clean water drainage from the area and increase habitat and ecological function</p> <p>Revegetation using locally collected seed of similar forest community species including grasses and other native forbs and appropriate local native wetland plants (complete)</p> <p>Creation of additional habitat using cleared trees from areas (described above) and the installation of nesting boxes and salvaged hollows, targeting threatened species and declining woodland species</p> <p>Undertake additional rehabilitation works should performance indicators not be met, such as ripping, re-seeding, supplementary planting, erosion control etc.</p>	<p>The function, structure and composition of the site is comparable with or trending towards that of the local remnant vegetation of similar community composition and final land use. (refer to section 9).</p> <p>Annual monitoring and comparison against closure criteria for the first 5 years followed by every three years until closure criteria have been met</p> <p>Conduct fauna surveys (Birds, bats, reptiles, mammals etc) at periodic intervals.</p> <p>Undertake periodic water quality testing (5 years post closure) within wetland systems to ensure water quality is acceptable for release. (ANZECC livestock guidelines).</p> <p><u>Closure Criteria</u> Woodland criteria (refer to section 9). Progress reported in AEMR</p>	<p>Rehabilitation monitoring methodology and determination of completion criteria (DnA Environmental 2008).</p> <p>Cadia East Project Environmental Assessment (CHPL April 2009)</p> <p>North Waste Rock Dump Rehabilitation Plan</p> <p>2011 - 2013 Mining Operations Plan (CHPL 2011)</p>

Table 5-1 Site Rehabilitation (Continued)

Landform	Strategy	Commitment	Performance Indicators	Supporting info
South Waste Rock Dump (SWRD)	<p>Rehabilitate a with <i>E. albens</i> – <i>E. melliodora</i> – <i>E. blakelyi</i> – <i>E. bridgesiana</i> woodland communities (1a, 2a, 2b)</p> <p><u>Final Landform</u> Flat plateaus intersected by 3:1 batters and reverse graded berms. Formal stabilised drainage channels throughout.</p> <p><u>Final Landuse</u> Woodland Conservation (subjected to occasional strategic grazing for management purposes and biodiversity outcomes)</p>	<p>Re-profiling of dump surface</p> <p>Encapsulate PAF materials</p> <p>Placement of NAF material cover</p> <p>Clay capping and rock armouring at the toe of the NTSF interface</p> <p>Topsoil placement using appropriate topsoil (few introduced species)</p> <p>Consider ways to improve soil organic matter if required.</p> <p>Construction of chains-of-ponds (wetlands) to assist clean water drainage from the area and increase habitat and ecological function</p> <p>Revegetation using locally collected seed of similar woodland community species including grasses and other native forbs and appropriate local wetland plants.</p> <p>Creation of habitat using trees and logs cleared from other areas and the installation of nesting boxes and salvaged hollows, targeting threatened species and declining woodland species</p> <p>Undertake a series of rehabilitation trials focussing on methods of revegetating the native grassy understorey component.</p> <p>Retain existing sediment ponds until water quality is acceptable.</p> <p>Undertake additional rehabilitation works should performance indicators not be met, such as ripping, re-seeding, supplementary planting, erosion control etc.</p> <p>Consistent with the Cadia Environment Protection Licence (EPL5590), during operational and closure phases of the mine site, the SWRD will be utilised for the disposal of benign waste products such as general demolition, construction and building waste, contaminated soil, damaged equipment, waste concrete, rubber lined steel pipe, untreated timber, heavy vehicle tyres and geological wastes where there is no viable recycling alternative.</p>	<p>The function, structure and composition of the site is comparable with or trending towards that of the local remnant vegetation of similar community composition and final land use. (refer to section 9).</p> <p>Annual monitoring and comparison against closure criteria for the first 5 years followed by every three years until closure criteria have been met</p> <p>Conduct fauna surveys (Birds, bats, reptiles, mammals etc) at periodic intervals.</p> <p>Undertake periodic water quality testing (5 years post closure) within wetland systems to ensure water quality is acceptable for release (ANZECC livestock guidelines).</p> <p><u>Closure Criteria</u> Woodland criteria (refer to section 9).</p> <p>Progress reported in AEMR.</p>	<p>Rehabilitation monitoring methodology and determination of completion criteria (DnA Environmental 2008).</p> <p>Cadia East Project Environmental Assessment (CHPL April 2009)</p> <p>2011-2013 Mining Operations Plan (CHPL 2011)</p> <p>2016-2019 Mining Operations Plan (CHPL 2016)</p>
Waste Rock Cadia: extended open pit	<p>Rehabilitate with <i>E. macrorhyncha</i> – <i>E. goniocalyx</i> – <i>E. polyanthemos</i> Woodland community (3a, 3b)</p> <p><u>Final Landform</u> Tie in with existing headland, 3:1 batters leading to a floodplain adjacent to Cadiangullong Creek. Formal stabilised drainage channels throughout.</p> <p><u>Final Landuse</u> Woodland Conservation</p>	<p>Re-profiling of in-situ material / surface area</p> <p>Placement of NAF material cover to achieve final landform to blend into eastern slopes / floodplain (pending assessment of standing water level within the pit shell)</p> <p>Topsoil placement using appropriate topsoil (few introduced species) and from similar bushland community (3b)</p> <p>Consider ways to improve soil organic matter if required.</p> <p>Construction of chains-of-ponds (wetlands) in the south west area to assist clean water drainage from the area and increase habitat and ecological function</p> <p>Revegetation using locally collected seed of similar forest community species including grasses and other native forbs and appropriate local wetland plants</p> <p>Creation of habitat using cleared trees from areas (described above) and the installation of nesting boxes or salvaged tree hollows, targeting threatened species and declining woodland species</p>	<p>The function, structure and composition of the site is comparable with or trending towards that of the local remnant vegetation of similar community composition and final land use.</p> <p>Annual monitoring and comparison against closure criteria for the first 5 years followed by every three years until closure criteria have been met.</p> <p>Conduct fauna surveys (Birds, bats, reptiles, mammals etc) at periodic intervals.</p> <p>Undertake periodic water quality testing (5 years post closure) within wetland systems to ensure water quality is acceptable for release (ANZECC livestock guidelines).</p> <p><u>Closure Criteria</u> Woodland criteria (refer to section 9).</p> <p>Progress reported in AEMR.</p>	<p>Rehabilitation monitoring methodology and determination of completion criteria (DnA Environmental 2008).</p> <p>Cadia East Project Environmental Assessment (CHPL April 2009)</p> <p>Cadia Extended Rehabilitation Plan (CHPL 2009c)</p>
Declines portals and underground workings	<p>Retained but excluded from access</p> <p><u>Final Landform</u> Blend in with natural adjacent topography.</p> <p><u>Final Landuse</u> Pasture Conservative grazing</p>	<p>Sealed with a concrete plug</p> <p>Boxcut backfilled, bunded and shaped</p> <p>Seeded with native vegetation or introduced pastures</p> <p>During closure phases of the mine, underground workings may be utilised for the disposal of benign waste products such as general demolition, construction and building waste, conveyor belt, damaged equipment, waste concrete etc where there is no viable recycling alternative.</p>	<p>Site effectively excludes humans and animals and poses no risk or harm into the future.</p> <p><u>Closure Criteria</u> Pasture criteria (refer to section 9).</p> <p>Progress reported in AEMR.</p> <p>100% secure – no access</p> <p>Minimal leakage of groundwater from portal.</p>	<p>Cadia East Project Environmental Assessment (CHPL April 2009)</p> <p>Ridgeway Environmental Impact Statement (CHPL 2000).</p>

Table 5-1 Site Rehabilitation (Continued)

Landform	Strategy	Commitment	Performance Indicators	Supporting info
Surface infrastructure (based at the Cadia site)	<p>Possible future industrial use of the site</p> <p>Otherwise dismantle & remove all services, fixed infrastructure and concrete foundations.</p> <p><u>Final Landform</u> Undulating slopes similar to underlying topography.</p> <p><u>Final Landuse</u> Possible future industrial use Pasture Conservative grazing</p>	<p>Possible future industrial use of the site and retention of infrastructure as required.</p> <p>Re-use, recycle where possible</p> <p>Possible disposal of other material (non- contaminated) in U/G workings or suitable off-site facility</p> <p>Undertake contaminated land assessment and remediation as required.</p> <p>Seeded with native vegetation or introduced pastures</p>	<p>5 years prior to the completion of mining, commence consultation with local, state and federal authorities and industries regarding potential future industrial uses of the site.</p> <p>To have in place by 30 June 2031 an agreement with relevant regulatory agencies and industry for the future industrial use of the site</p> <p>Should no future industrial use be identified The function, structure and composition of the site is comparable with or trending towards that of the local remnant vegetation of similar community composition and final land use.</p> <p>Annual monitoring and comparison against closure criteria for the first 5 years followed by every three years until closure criteria have been met</p> <p>Conduct fauna surveys (Birds, bats, reptiles, mammals etc) at periodic intervals.</p> <p><u>Closure Criteria</u> Pasture criteria (refer to section 9).</p> <p>Progress reported in AEMR.</p> <p>Site safe and free of hazards and residual contamination.</p>	Cadia East Project Environmental Assessment (CHPL April 2009)
Heritage sites Cadia engine house and chimney Relocated Cadia cemetery Old school yard	<p>Retain as sites of heritage significance</p> <p><u>Final Landuse</u> Heritage conservation</p>	<p>As per Cadia East Project Environmental Assessment (CHPL April 2009)</p> <p>Transfer management and control to a suitable conservation management agency.</p>	As per Cadia East Project Environmental Assessment (CHPL April 2009)	Cadia East Project Environmental Assessment (CHPL April 2009)

Table 5-1 Hydrology

Objective	Strategy	Commitment	Performance Indicators	Supporting info
<p>To have in place at the end of current approval (2031) a surface water management system that will:</p> <ul style="list-style-type: none"> effectively manage the movement of surface water through and off the CVO site to ensure the land is properly drained and protected from erosion; and ensure the quality of surface water moving through and off the CVO site is fit for agricultural purposes. 	<p>Effective placement and encapsulation of potential acid forming (PAF) material in the North Waste Rock Dump (NWRD) and South Waste Rock Dump (SWRD).</p>	<p>Waste rock placement in accordance with the Mining Operations Plan (MOP) and EA commitments.</p> <p>PAF material encapsulated by covering with 0.5 m of clay followed by 2 metres of non-acid forming (NAF) material.</p> <p>Cover NAF with 20 to 30 cm of topsoil and revegetate with native woodland and grass species.</p> <p>Installation of drainage control structures to maintain integrity of waste rock cover.</p> <p>Inspection and maintenance of surface water drainage systems.</p> <p>Progressive rehabilitation of outside batters.</p> <p>Installation of a clay capping layer on the southern face of the SWRD to minimise potential for tailings seepage into the SWRD.</p> <p>Surface water monitoring.</p>	<p>Adherence with the MOP for waste rock placement.</p> <p>Waste rock dump capping stable and not eroding.</p> <p>Surface water systems effective and non-scouring.</p> <p>Effective vegetation establishment (as per closure criteria section 9).</p> <p>Water quality monitoring confirms drainage from waste rock dumps meets ANZECC (2000) guidelines for agricultural purposes (livestock drinking water, short and long term irrigation).</p> <p>Water sampling 5 years post closure</p>	<p>ANZECC (2000) <i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality</i>.</p> <p>CVO Mining Operations Plan.</p> <p>Cadia East Project Environmental Assessment (CHPL April 2009).</p>
	<p>Effective surface water management on waste rock dumps.</p>	<p>Waste rock placement in accordance with the Mining Operations Plan and EA commitments.</p> <p>Construct waste rock dumps with maximum batter slopes of 1:3, with 15 to 20 m wide step-back, reverse graded berms, to provide an overall outer batter slope of 1:4.</p> <p>Installation of rock lined drains to safely convey water from the top of the waste rock dump to stable outlet points.</p> <p>Discharge of surface water to sediment ponds downstream of the waste rock dumps.</p> <p>Progressive rehabilitation of outside batters.</p> <p>Final rehabilitation in accordance with revegetation strategy.</p> <p>Inspection and maintenance of surface water systems.</p> <p>Surface water monitoring.</p>	<p>Adherence with the MOP for waste rock placement.</p> <p>Waste rock dump capping stable and not eroding.</p> <p>Surface water systems effective and non-scouring.</p> <p>Effective vegetation establishment. (as per closure criteria section 9).</p> <p>Water quality monitoring confirms drainage from waste rock dumps meets ANZECC (2000) guidelines for agricultural purposes (livestock drinking water, short and long term irrigation).</p> <p>Water sampling 5 years post closure</p>	<p>CVO Mining Operations Plan.</p> <p>Cadia East Project Environmental Assessment (CHPL April 2009).</p>

Table 5-1 Hydrology (Continued)

Objective	Strategy	Commitment	Performance Indicators	Supporting info
<p>To have in place at the end of current approval (2031) a surface water management system that will:</p> <ul style="list-style-type: none"> effectively manage the movement of surface water through and off the CVO site to ensure the land is properly drained and protected from erosion; and ensure the quality of surface water moving through and off the CVO site is fit for agricultural purposes. 	<p>Effective surface water management on the tailings storage facilities.</p>	<p>Tailings placement in accordance with the Mining Operations Plan and EA commitments.</p> <p>Adoption and design of a final surface water management strategy (i.e. adoption of either Option 1 or Option 2 as presented in the EA).</p> <p>Construction of drainage channels across the surface of the tailings storage facilities to manage runoff and minimise ponding.</p> <p>Revegetation of the tailings storage facilities in accordance with revegetation strategies and EA commitments or as determined through on-site trials.</p> <p>Design and construction of engineered structures to transfer surface water from the surface of the tailings storage facilities to stable discharge points.</p> <p>Design and construction of surface water management ponds (sediment basins, constructed wetlands) to manage surface water from the tailings storage facilities prior to off-site discharge.</p> <p>Surface water monitoring.</p>	<p>Adherence with the MOP for tailings placement.</p> <p>Surface of the tailings storage facility stable and not eroding.</p> <p>Surface water systems effective and non-scouring.</p> <p>Minimal ponding on rehabilitated surface.</p> <p>Effective vegetation establishment. (as per closure criteria section 9).</p> <p>Water quality monitoring confirms drainage from tailings storage facilities meets ANZECC (2000) guidelines for agricultural purposes (livestock drinking water, short and long term irrigation).</p> <p>Water sampling 5 years post closure</p>	<p>ANZECC (2000) <i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality</i>.</p> <p>CVO Mining Operations Plan.</p> <p>Cadia East Project Environmental Assessment (CHPL April 2009)</p>
	<p>Retain sediment dams and water management ponds to provide on-site water resources for future agricultural activities.</p>	<p>Inspect and maintain all sediment dams and ponds throughout the mine operation to ensure structural integrity and capacity are maintained.</p> <p>At the end of the current approval (2031) remove all sediment from sediment basins.</p> <p>At the end of the current approval (2031) rehabilitate the site runoff pond and process water pond in accordance with EA commitments.</p> <p>Undertake analysis of sediment removed from all sediment dams and water management ponds to determine appropriate disposal technique.</p>	<p>Remediation of dams/contaminated sites so that they are fit for agricultural / conservation purposes.</p> <p>Site remediation in accordance with relevant guidelines made or approved by the NSW DEH / EPA and relevant national standards such as the National Environment Protection Measures (NEPM) (site contamination). These documents are typically revised on a 5 to 10 year cycle. Those current at the time should be used.</p> <p>Sediment managed and disposed of in accordance with contaminant grading.</p> <p>All retained dams and ponds stable and revegetated.</p> <p>Water quality monitoring confirms stored water meets ANZECC (2000) guidelines for agricultural purposes (livestock drinking water, short and long term irrigation).</p> <p>Water sampling 5 years post closure</p>	<p>ANZECC (2000) <i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality</i>.</p> <p>Relevant DECCW and NEPM guidelines for site contamination assessment.</p>
	<p>Use constructed 'natural' systems where possible to improve water quality prior to off-site discharge.</p>	<p>Undertake trials to investigate the effectiveness of wetlands for pollutant uptake from waste rock leachate drainage.</p> <p>Incorporate findings of the wetland trial into the final design of the surface water management system.</p> <p>Incorporate riparian planting along drainage lines to act as filter strips.</p> <p>Design surface water systems to take advantage of natural topography and existing drainage patterns as much as possible.</p>	<p>Water quality monitoring confirms drainage from waste rock dumps meets ANZECC (2000) guidelines for agricultural purposes (livestock drinking water, short and long term irrigation).</p> <p>Wetland research undertaken and reported through AEMR.</p> <p>Water sampling 5 years post closure</p>	<p>ANZECC (2000) <i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality</i>.</p>

Table 5-1 Linkages with Surrounding Areas

Landform	Strategy	Commitment	Performance Indicators	Supporting info
Vegetation corridor enhancement areas	<p>Increase connectivity and linkages across the landscape</p> <p>Increase the area and quality of flora and fauna habitat</p> <p>Improve movement of genetic material between flora and fauna populations</p> <p>Increase the sustainability and biodiversity of CHPL owned property</p> <p>Sustain and enhance the agricultural value of the land</p>	<p>Ensure revegetation areas are of sufficient size (>5ha and/or > 100m wide) where possible to maximise sustainability and biodiversity outcomes;</p> <p>Improve functionality of drainage lines and riparian ecosystems</p> <p>Ensure sustainable grazing management practices are maintained which aim to increase organic matter, diversity and perenniality (ie. function);</p> <p>Manage areas of native grasslands for future seed harvesting;</p> <p>Increase the condition and extent of EEC box gum woodlands via best practice revegetation/rehabilitation where possible;</p> <p>Increase habitat via introduction of nesting boxes, logs, rock and wetlands etc into areas where possible, targeting threatened and declining woodland species habitat requirements.</p> <p>Investigate and where possible work with neighbours, landcare groups etc to extend vegetation corridors beyond Newcrest owned land to provide regional linkages / ecological benefits.</p>	<p>The function, structure and composition of the site is comparable with or trending towards that of the local remnant vegetation of similar community composition and final land use. . (as per closure criteria section 9).</p> <p>Annual monitoring and comparison against closure criteria for the first 5 years followed by every three years until closure criteria have been met</p> <p>Native grass seed harvesting for rehabilitation commenced.</p> <p>Conduct fauna surveys (Birds, bats, reptiles, insects and soil macro organisms) at periodic intervals.</p> <p>Undertake periodic water quality testing within wetland systems to ensure water quality is acceptable for release. Water sampling 5 years post closure</p>	<p>Rehabilitation monitoring methodology and determination of completion criteria (DnA Environmental 2008).</p> <p>Cadia East Project Environmental Assessment (CHPL April 2009)</p>
Roads	Retain some roads for use by local landholders after consultation	Consider the future needs of the community	5 years prior to mine closure – roads that are to remain are identified in consultation with stakeholders.	Cadia East Project Environmental Assessment (CHPL April 2009)

Table 5-1 Future Industrial Use

Landform	Strategy	Commitment	Performance Indicators	Supporting info
<p>Blayney Dewatering Facility. (Leased)</p>	<p>Removal of all buildings and concrete foundations.</p> <p>Return to landholder in a suitable and accepted condition for future industrial use.</p> <p>Termination of lease.</p> <p>Minimal residual liability from contamination.</p>	<p>Closure and remediation of the site will occur in two distinct phases:</p> <p><u>Phase 1 – Demolition</u></p> <p>Following the full transfer of return water pumping capabilities to the new Cadia Dewatering Facility (CDWF) on Newbridge Road, Blayney the following will occur:</p> <ul style="list-style-type: none"> • Residual concentrate (and contaminated waters) transported (trucked) to Cadia for disposal. • Pressure cleaning the entire building / plant to remove and capture any contaminants. Waters captured in existing containment systems and pumped or transported to Cadia. • Termination and isolation of services including water, return water systems, communications (including fibre optic), electricity, fire water, sewage, Blayney Shire Council treated effluent etc. • Hazardous materials will be formally identified (such as asbestos, radiation devices, etc.) and removed in accordance with industry standards prior to handing over the site to the successful demolition tenderer. • The area will be fenced to prevent any unauthorised entry. • Any remaining concentrate, return water and liquids will be removed (by vacuum truck) and transported to Cadia or the CDWF and blended with existing materials (Note: written approval from DPIE to transport concentrate by truck). • Surface infrastructure will be carefully demolished in a controlled and safe manner by a professional and experienced demolition contractor in accordance with AS 2601-2001. • The successful tenderer will: <ul style="list-style-type: none"> ○ Remove all materials and maximise the salvage, re-use and recycling of materials; all materials will be pressure cleaned and inspected (by an independent person) prior to leaving site. ○ Excavate all concrete slabs and foundations, materials will be crushed on site and stockpiled for base fill material following remediation works. • Buried pipelines will be flushed with clean water, cut off below ground (nominally >900mm depth) capped and left in situ. Exact location of termination to be surveyed. <p><u>Phase 2 – Remediation</u></p> <p>A detailed contamination assessment has been completed, identifying copper contamination in the vicinity of the plant, asphalt apron, drainage lines and Abattoir Creek (sediments). The remediation process is as followed:</p> <ul style="list-style-type: none"> • Complete a detailed Remediation Action Plan, suitable to guide the successful tenderer / contractor (complete (GHD 2020) attached as Appendix E). • Identify buried services in the proposed excavation areas. Isolate / obtain the necessary approvals to excavate. • Remove / excavate contaminated material and transport to Cadia for encapsulation in the South Waste Rock Dump (PAF Cell). • Undertake progressing testing to ensure contamination established thresholds are achieved (NEPM, SEPP55) • Complete a validation report, verifying that contamination materials have been thoroughly and successfully removed and that no residual liability remains (above established thresholds). • Import clean fill material, sourced from a local quarry or equivalent source that meets definitions of VENM (Virgin Excavated Natural Material) or ENM (Excavated Natural Material) as accepted by the land owner, Pacific National. • Compact, shape and 'finish' the material suitable for post occupation land uses as accepted by the land owner, Pacific National • Provide remediation action plans and validation reports to stakeholders as required. • Relinquish Lease <p>The following environment and community risks have been identified. Proposed controls are</p>	<p>Demolition and removal of infrastructure, site left in a suitable condition for future industrial use and accepted by the landowner.</p> <p>Contamination assessments conducted in accordance with SEPP55 and regulatory guidelines. Any contaminated soils or material is excavated and removed from the site. Site is tested and confirmed to meet future industrial land use guidelines. Condition of site accepted by landowner.</p> <p>No community complaints</p> <p>No exceedances of Cadia East Project Approval Criteria.</p> <p>Consultation undertaken prior and during works with key stakeholders (local residents, Blayney Shire Council and Regulatory Authorities)</p>	<p>Cadia East Project Environmental Assessment (CHPL April 2009)</p> <p>SEPP 55 – Remediation of Land</p> <p>NEPM Guidelines.</p> <p>Australian Standard 2601-2001 The Demolition of Structures.</p> <p>Contaminated Land Management Act 1997</p> <p>Environment Protection Licence 5590</p> <p>EPA Waste Classification Guidelines</p> <p>Protection of the Environment Operations Act and Associated Regulations</p> <p>Envirowest Consulting 2017. Contamination Investigation – Blayney Dewatering Facility</p> <p>GHD 2020. Blayney Dewatering Facility Remedial Action Plan.</p> <p>GHD 2017. Abattoir Creek Aquatic Ecology Survey.</p>

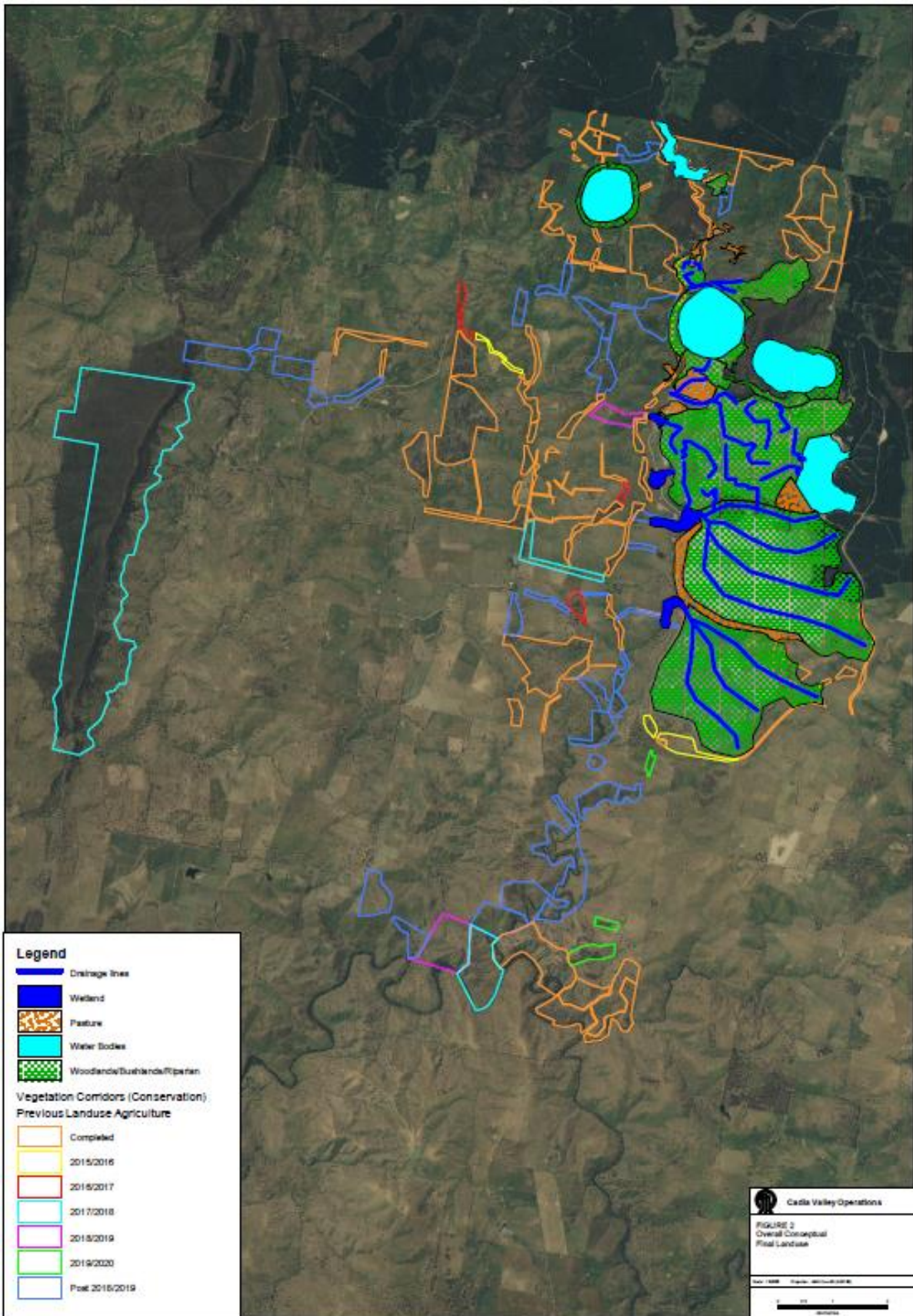
Landform	Strategy	Commitment	Performance Indicators	Supporting info
		<p>also listed:</p> <p><u>Stakeholder Consultation.</u> A stakeholder engagement plan has been completed and guides the initial and ongoing consultation with key stakeholder including local residents, Blayney Shire Council, Pacific National, LinFox, EPA, CCC etc. Consultation with Blayney Shire Council, CCC, Pacific National, LinFox and EPA has commenced. Stakeholders will be provided with Cadia's Community Complaints Hotline number to raise any concerns during the proposed works.</p> <p><u>Noise.</u> All demolition and remediation works will be conducted during "day time construction hours" as defined by the Cadia East Project Approval. Periodic noise monitoring (attended) will be conducted to ensure noise criteria (as defined by the Cadia East Project Approval and EPL5590) are being met.</p> <p><u>Air Quality.</u> Dust emissions from the site will be controlled and managed via the use of sprayers during demolition and concrete slab excavation in accordance with industry practices. Dust gauges will be installed prior to demolition works and remain in place until the completion of works.</p> <p><u>Waste.</u> All materials removed from site will be pressure cleaned and inspected prior to leaving site. Contaminated soils will be transported to Cadia for encapsulation in the South Waste Rock Dump. Other waste materials will be disposed of in a licenced waste facility suitable and appropriately licenced for that material.</p> <p><u>Traffic.</u> All traffic movement to and from the facility will occur via the Blayney Industrial area (Marshalls Lane and Gerty Street). Heavy vehicle movements will be strictly restricted to "day time construction hours" as defined by the Cadia East Project Approval. Noise generated by loading and unloading of heavy vehicles will be monitored on a periodic basis by Cadia Staff as described above.</p> <p><u>Water Resources.</u> Prior to the commencement of works, the successful tenderer(s) will be required to submit an erosion and sediment control plan to be reviewed and approved by Cadia personnel after checking for consistency with relevant approvals. At all times during demolition and remediation, containment will be in place aimed at containing a 1:20 ARI rainfall event to prevent sediment and contaminated materials from exiting the site. Following any rainfall events, accumulated water will be removed by vacuum truck and transported to the Cadia Dewatering Facility and blended with other contained waters which will be pumped to Cadia for re-use.</p> <p>As part of the initial contamination sampling, several groundwater wells were installed these will be sampled prior and monthly for the duration of the works program. Any identified contamination of groundwater will be reported to regulatory bodies in accordance with current practices.</p> <p><u>Post closure monitoring.</u> Post closure monitoring will include : Abattoir Creek water quality (as per the approved Water Management Plan), groundwater sampling and assessment of the installed piezometers, visual inspection of the post closure landform.</p>		
Cadia Dewatering Facility (CDWF)	Retain for future regional water network / industrial use.	<p>Consultation with Council, community groups or future industrial user groups</p> <p>Update of the approved landscape plan during 2019 to allow the completion of drainage improvement works (As described in the Water Management Plan and the CDWF Environmental Management Plan). Works due to commence during September 2019. Revised landscape plan attached – Appendix D</p> <p>Actions may include the removal of tanks, Flushing pipelines, pumps, surface infrastructure, concrete foundations etc (pending negotiations with potential buyers of the property) Contamination assessment and remediation Sale of land</p> <p>Should there be no future industrial use identified, full demolition of all surface infrastructure, concrete foundations and ancillary infrastructure (town water supplies, electricity services)</p>	5 years prior to mine closure – agreed post mining use of these facilities is agreed in consultation with stakeholders.	Cadia East Project Environmental Assessment (CHPL April 2009)

Landform	Strategy	Commitment	Performance Indicators	Supporting info
		and fibre optics may be fully retained, or at least to the property boundary) . Underground pipelines will be disconnected, flushed clean and capped. Contamination assessment and remediation Sale of land		
Retain major water infrastructure (Cadiangullong Dam, Rodds Creek Water Holding Dam, Flyers Creek weir, Cadia Creek weir, the Belubula River pipeline, Blayney concentrate/return water pipeline and Orange effluent pipeline) to ensure that at the end of current approval (2031) it could be available for potential regional water solutions.	Maintain ongoing liaison with local water authorities and relevant regulatory agencies. Retain on site sediment ponds and farm dams for agricultural and conservation purposes Optimise shore lines of Cadiangullong and Rodds Creek for water birds and waders.	Consider the future needs of the community Participate in 5 year reviews of Orange City Council's Integrated Water Cycle Management Strategy. Participate in reviews of the CENTROC regional water security study as required. Commence consultation with local water authorities and relevant regulatory agencies five (5) years prior to the end of the current approval to identify the role of major water infrastructure for regional water solutions. Prepare a water infrastructure strategy that identifies key infrastructure to be retained. Remediate and rehabilitate onsite water storages and sedimentation ponds/dams. Determine water quality within voids / subsidence zones and potential use within regional water management network or alternate (industrial) use.	To have in place by 30 June 2031 an agreement with relevant regulatory agencies and local water authorities for the use of the major water infrastructure. Water sampling 5 years post closure Shore lines of Cadiangullong and Rodds Creek rehabilitated and meeting requirements of 'riparian closure criteria (Section 9)	Orange City Council's Integrated Water Cycle Management Strategy (currently being finalised). CENTROC Water Security Study. Cadia East Project Environmental Assessment (CHPL April 2009)
Retain key industrial infrastructure (including but not limited to access roads, power supply, sheds/concrete pads, hard stand areas) to ensure that at the end of current approval (2031) it could be available for industrial purposes.	Liaise with local planning authorities with regards to demand for industrial land and potential uses for the site.	Participate in 5 year reviews of the Councils of Blayney, Cabonne and Orange City Sub-Regional Rural and Industrial Land Use Strategy. Commence consultation with local planning authorities five (5) years prior to the end of the current approval to identify possible industrial uses for the site. Prepare an industrial land use strategy that identifies key infrastructure to be retained.	To have in place by 30 June 2031 an industrial land use strategy prepared in consultation with local planning authorities and other stakeholders.	Councils of Blayney, Cabonne and Orange City Sub-Regional Rural and Industrial Land Use Strategy (GHD, 2008). Cadia East Project Environmental Assessment (CHPL April 2009)
	Ensure all industrial areas to be retained are fit for purpose.	At the end of the current approval (2031) complete land contamination assessment and remediation (as required) to ensure sites are fit for purpose.	Site remediation in accordance with relevant guidelines made or approved by the NSW DECCW and relevant national standards such as the National Environment Protection Measures (NEPM) (site contamination). These documents are typically revised on a 5 to 10 year cycle. Those current at the time should be used.	Relevant DEH / EPA and NEPM guidelines for site contamination assessment. Cadia East Project Environmental Assessment (CHPL April 2009)

Table 5-1 Future Non-industrial Land Use Options

Landform	Strategy	Commitment	Performance Indicators	Supporting info
Surface infrastructure	<i>Due to the longevity of the mine operation, several additional strategies have been proposed. These have taken into account potential changing community needs, future resource requirements and NRM expectations</i>	Retain discussions with Council, community groups or future user groups re possible future land use options	5 years prior to mine closure – consultation is undertaken with stakeholders regarding final land uses and mine closure options.	Cadia East Project rehabilitation and landscape management Plan (CHPL April 2009)
	Strategy 1 Potential rural residential area (eg. “Cadia Heights” Camping reserve; Community study centre.	Retain structures of future heritage significance (ie crusher foundations, primary access roads, main power supply) Rehabilitate into native woodland and/or grazing pastures. Retain and/or rehabilitate water storages (sediment ponds, farm dams) Incorporate amenity and aesthetic values (ie amenity) plantings Retain discussions with Council, community groups or future user groups re possible future land use options	To be determined	
	Strategy 2 Conservation reserve developed into a broader conservation reserve that encompasses CVO LMP across the landscape. Some buildings, access roads, power could be retained for ongoing management	Removal of all buildings and structure other than those needed for ongoing management Investigate potential project partners or managers for the long term. Investigate other options for transfer of ownership that ensure the conservation objectives are met	To be determined.	

Figure 2 Conceptual Final land uses



6.0 KEY DOCUMENTS

Key Environment Management System documents are controlled on the Newcrest intranet site (Cadia Document Management System) so they are electronically distributed and readily accessible across the organisation. The key documents relating to site rehabilitation will include:

- Cadia East Project Approval
- Cadia East Environmental Assessment
- Newcrest Environmental Policy and Standards.
- Rehabilitation Strategy
- Environmental Management Strategy
- Land and Biodiversity Management Plan
- Mine Closure Plan
- Mining Operations Plan
- Annual Environmental Management Report

7.0 ROLES AND RESPONSIBILITIES

The General Manager is responsible for the overall environmental performance of Cadia. The Operational Managers have direct environmental responsibility for their areas of control. The Environment Department provides direction and advice to ensure site environmental compliance is maintained.

Several operational managers hold a key role with the implementation of rehabilitation plans, these are outlined below:

Manager Responsible for Cadia Hill Pit / Waste Rock Dumps

Responsible for:

- Planning and implementation of bulk earthworks (as per MOP schedule) during mining including:
 - Shaping of waste rock dumps to the approved profile and other areas as planned
 - Encapsulation of PAF waste rock
 - Spreading of topsoil
 - Major drainage works

Manager Responsible for Tailings Storage Facilities

Responsible for:

- Tailings deposition to achieve a final surface profile requiring minimal earthworks.

Manager Responsible for Environment

Responsible for:

- Preparation of rehabilitation plans, mine closure plan, mine closure estimates etc
- Final surface drainage, seeding, maintenance and monitoring of rehabilitated landforms
- Quality control of rehabilitation outcomes
- Mine closure co-ordination, planning and implementation

Manager Responsible for Projects

Responsible for:

- Planning and executing the demolition and remediation of the Blayney Dewatering Facility.

8.0 REHABILITATION MONITORING

Rehabilitation monitoring is undertaken on an annual basis by an independent qualified ecologist. Results from rehabilitation monitoring are compared against closure criteria, which are based on compatible final land uses and have been developed from a series of reference sites (see Section 9.0).

Reporting of rehabilitation results and comparison against closure criteria is undertaken through the Annual Environmental Management Report (AEMR) and is produced on an annual (financial year) basis.

Ongoing monitoring and maintenance of rehabilitation would be conducted to assess:

- progression of rehabilitated land (against closure criteria); and
- effectiveness of rehabilitation techniques used (including soil erosion controls, water quality within and outside the mining lease areas and revegetation methods).

9.0 MINE CLOSURE CRITERIA

9.1 REHABILITATION

Since 2007-08 Cadia have been developing and assessing rehabilitation monitoring outcomes against mine closure criteria. The methodology adopted by Cadia involves the selection and monitoring of a series of reference sites that reflect the final end land uses proposed for site rehabilitation (such as pasture / grazing, woodland / conservation etc). Rehabilitation monitoring is then compared against the reference sites with the compatible final end land use. For example, a rehabilitation site with a proposed final end land use of pasture is compared against pasture reference sites. A detailed methodology for monitoring against closure criteria is contained in the 2007-08 AEMR (CHPL 2008a)

The monitoring techniques and parameters for reference sites and rehabilitation sites is identical allowing the robust and repeatable comparison of rehabilitation success against closure criteria. Reference sites and rehabilitation sites are both assessed annually at the same time of the year to allow for seasonal influences.

Selecting suitable reference sites is essential as it will ultimately set the benchmark for rehabilitation targets and the criteria to be met for closure. Reference sites chosen for Cadia essentially include the best that could be found within the local context, and as such are a true representation of the pre-mining landscape. The reference sites were spread out where possible to maximise the spatial distribution and subsequent variations in community composition across the local landscape and are not necessarily located on Cadia property. It is acknowledged that reference sites chosen, while they are the best that could be found in a local context are still subject to impact and change due to (for example) occasional grazing, fire, drought, physical disturbance etc. The location of current reference and monitoring sites is contained in Figure 3.

Reference sites have been selected based on the following final land uses:

- Woodland / conservation (currently 3 reference sites are monitored)
- Riparian / conservation (currently 2 reference sites are monitored)

- Pasture / grazing (currently 2 reference sites established)

Parameters measured are identical for reference and rehabilitation sites and represent 5 steps of ecological succession.



Rehabilitation closure criteria (as at 2019) are presented in the following table (Table 9-1). Each parameter measured has a desirable range (based on the minimum and maximum determined from reference sites). Rehabilitation sites have met the closure criteria parameter if the measurement falls within or exceeds this range.

Closure criteria are dynamic and will change from year to year based on annual monitoring, therefore the relevant closure criteria at any time will be contained in the most recent AEMR.

**Within the following tables no/area refers to the following :*

- *Woodland sites – number / 20 x 50m quadrat*
- *Riparian Sites -- number / 20 x 50m quadrat*
- *Pasture sites – number / 20 x 50m quadrat*

Figure 3 Location of reference and monitoring sites (as at July 2019)



Table 9-1 Summary of Mine Closure Criteria

Rehabilitation Phase	Aspect or ecosystem component	Completion criteria	Performance Indicators	Description of performance indicators	Unit of measurement	2019 Woodland ecosystem range		2019 Riparian ecosystem range		2009 Pasture ecosystem range	
						Lower KPI	Upper KPI	Lower KPI	Upper KPI	Lower KPI	Upper KPI
<i>Performance indicators are quantified by the range of values obtained from replicated reference sites assessed in 2015</i>											
Phase 2: Landform establishment and stability	Landform slope, gradient	Landform suitable for final land use and generally compatible with surrounding topography	Slope	Landform is generally compatible within the context of the local topography and final landform design.	< Degrees (18°)	10	14	10	14	9	10
			Active erosion	Areas of active erosion are limited	No. Rills/Gullies	Provides an assessment of the number of gullies or rills occurring in a 50m transect and that these are limited and stabilising	No.	0	0	0	0
	Cross-sectional area of rills	Provides an assessment of the extent of soil loss due to gully and rill erosion and that it is limited and/or is stabilising			m2	0	0	0	0	0	0
Phase 3: Growth medium development	Soil chemical, physical properties and amelioration	Soil properties are suitable for the establishment and maintenance of selected vegetation species	pH	pH is typical of that of the surrounding landscape or falls within desirable ranges provided by the agricultural industry	pH (5.6-7.3)	5.7	6.6	6.2	6.5		
			EC	Electrical Conductivity is typical of that of the surrounding landscape or fall within desirable ranges provided by the agricultural industry	< dS/m (<0.150)	0.039	0.109	0.060	0.055		
			Organic Matter	Organic Carbon levels are typical of that of the surrounding landscape, increasing or fall within desirable ranges provided by the agricultural industry	% (>4.5)	4.9	8.8	5.0	6.0		
			Phosphorous	Available Phosphorus is typical of that of the surrounding landscape or fall within desirable ranges provided by the agricultural industry	mg/kg (50)	17.4	45.3	16.7	18.7		
			Nitrate	Nitrate levels are typical of that of the surrounding landscape or fall within desirable ranges provided by the agricultural industry	mg/kg (>12.5)	6.6	15.5	7.4	4.9		

Rehabilitation Phase	Aspect or ecosystem component	Completion criteria	Performance Indicators	Description of performance indicators	Unit of measurement	2019 Woodland ecosystem range		2019 Riparian ecosystem range		2009 Pasture ecosystem range	
						Lower KPI	Upper KPI	Lower KPI	Upper KPI	Lower KPI	Upper KPI
<i>Performance indicators are quantified by the range of values obtained from replicated reference sites assessed in 2015</i>											
			CEC	Cation Exchange Capacity is typical of that of the surrounding landscape or fall within desirable ranges provided by the agricultural industry	Cmol+/kg (>14)	7.7	25.1	12.5	20.1		
			ESP	Exchangeable Sodium Percentage (a measure of sodicity) is typical of that of the surrounding landscape or fall within desirable ranges provided by the agricultural industry	% (<5)	0.3	1.0	0.9	0.2		
Phase 4: Ecosystem & Landuse Establishment	Landscape Function Analysis (LFA): Landform stability and organisation	Landform is stable and performing as it was designed to do	LFA Stability	Based on key physical, biological and chemical characteristics the LFA stability index provides an indication of the sites stability and that it is comparable to or trending towards that of the local remnant vegetation	%	66.1	73.8	75.8	76	63.9	68.4
			LFA Landscape organisation	The Landscape Organisation Index provides a measure of the ability of the site to retain resources and that it is comparable to that of the local remnant vegetation	%	91	100	95	100	100	100
	Vegetation diversity	Vegetation contains a diversity of species comparable to that of the local remnant vegetation	Diversity of shrubs and juvenile trees	The diversity of shrubs and juvenile trees with a stem diameter less than 5cm is comparable to that of the local remnant vegetation.	species/area	0	6	5	7		
				The percentage of shrubs and juvenile trees with a stem diameter less than 5cm dbh which are local endemic species and these percentages are comparable to the local remnant vegetation	% population	0	100	46	46		
			Total species richness	The total number of live plant species provides an indication of the floristic diversity of the site and is comparable to the local remnant vegetation	No./area	21	44	45	56		

Rehabilitation Phase	Aspect or ecosystem component	Completion criteria	Performance Indicators	Description of performance indicators	Unit of measurement	2019 Woodland ecosystem range		2019 Riparian ecosystem range		2009 Pasture ecosystem range	
						Lower KPI	Upper KPI	Lower KPI	Upper KPI	Lower KPI	Upper KPI
<i>Performance indicators are quantified by the range of values obtained from replicated reference sites assessed in 2015</i>											
			Native species richness	The total number of live native plant species provides an indication of the native plant diversity of the site and that it is greater than or comparable to the local remnant vegetation	>No./area	8	34	14	31	0.1	1.5
			Exotic species richness	The total number of live exotic plant species provides an indication of the exotic plant diversity of the site and that it is less than or comparable to the local remnant vegetation	<No./area	10	13	25	31	3.8	7.6
			Ratio of native to exotic species	The ratio of live native species compared to live exotic plant species provides an indication of the relative native species richness of the site and that it is more than or comparable to the local remnant vegetation	>	0.6	3.4	0.5	1		
	Vegetation density	Vegetation contains a density of species comparable to that of the local remnant vegetation	Density of shrubs and juvenile trees	The density of shrubs or juvenile trees with a stem diameter < 5cm is comparable to that of the local remnant vegetation	No./area	1	100	6	135	N/A	N/A
	Ecosystem composition	The vegetation is comprised by a range of growth forms comparable to that of the local remnant vegetation	Trees	The number of tree species regardless of age comprising the vegetation community is comparable to that of the local remnant vegetation	No./area	1	4	3	6	0	0.7
			Shrubs	The number of shrub species regardless of age comprising the vegetation community is comparable to that of the local remnant vegetation	No./area	0	6	6	8	0	0.3

Rehabilitation Phase	Aspect or ecosystem component	Completion criteria	Performance Indicators	Description of performance indicators	Unit of measurement	2019 Woodland ecosystem range		2019 Riparian ecosystem range		2009 Pasture ecosystem range	
						Lower KPI	Upper KPI	Lower KPI	Upper KPI	Lower KPI	Upper KPI
<i>Performance indicators are quantified by the range of values obtained from replicated reference sites assessed in 2015</i>											
			Sub-shrubs	The number of sub-shrub species comprising the vegetation community is comparable to that of the local remnant vegetation	No./area	0	0	0	1		
			Herbs	The number of herbs or forb species comprising the vegetation community is comparable to that of the local remnant vegetation	No./area	11	25	22	31	10.7	21
			Grasses	The number of grass species comprising the vegetation community is comparable to that of the local remnant vegetation	No./area	4	8	10	12	6.3	11.7
			Reeds	The number of reed, sedge or rush species comprising the vegetation community is comparable to that of the local remnant vegetation	No./area	1	2	1	3	0.3	0.7
			Vines	The number of vines or climbing species comprising the vegetation community is comparable to that of the local remnant vegetation	No./area	0	0	0	1	0	0
			Ferns	The number of ferns comprising the vegetation community is comparable to that of the local remnant vegetation	No./area	0	0	0	1	0	0
			Aquatic	The number of ferns comprising the vegetation community is comparable to that of the local remnant vegetation	No./area	0	0	0	0	0	0
Phase 5: Ecosystem & Landuse Development	Landscape Function Analysis (LFA): Landform function and ecological performance	Landform is ecologically functional and performing as it was designed to do	LFA Infiltration	Based on key physical, biological and chemical characteristics the LFA infiltration index provides an indication of the sites infiltration capacity and that it is comparable to or trending towards that of the local remnant vegetation	%	57.3	63.9	55.4	61.2	41.7	47.2

Rehabilitation Phase	Aspect or ecosystem component	Completion criteria	Performance Indicators	Description of performance indicators	Unit of measurement	2019 Woodland ecosystem range		2019 Riparian ecosystem range		2009 Pasture ecosystem range	
						Lower KPI	Upper KPI	Lower KPI	Upper KPI	Lower KPI	Upper KPI
<i>Performance indicators are quantified by the range of values obtained from replicated reference sites assessed in 2015</i>											
	Protective ground cover	Ground layer contains protective ground cover and habitat structure comparable with the local remnant vegetation	LFA Nutrient recycling	Based on key physical, biological and chemical characteristics the LFA nutrient recycling index provides an indication of the sites ability to recycle nutrient and that it is comparable to or trending towards that of the local remnant vegetation	%	52.8	61.2	51.4	59.8	35.5	43.6
			Litter cover	Percent ground cover provided by dead plant material is comparable to that of the local remnant vegetation	%	55.5	90.0	46	54.5	47	67.2
			Annual plants	Percent ground cover provided by live annual plants is comparable to that of the local remnant vegetation	<%	0	12.5	1	4		
			Cryptogam cover	Percent ground cover provided by cryptogams (eg mosses, lichens) is comparable to that of the local remnant vegetation	%	0	0	0	0.5	0	0
			Rock	Percent ground cover provided by stones or rocks (> 5cm diameter) is comparable to that of the local remnant vegetation	%	0	1.5	0.5	5.5	0.2	13
			Log	Percent ground cover provided by fallen branches and logs (>5cm) is comparable to that of the local remnant vegetation	%	0	1.5	0	11		
			Bare ground	Percentage of bare ground is less than or comparable to that of the local remnant vegetation	< %	0.5	5	1.5	6	0	1.2
			Perennial plant cover (< 0.5m)	Percent ground cover provided by live perennial vegetation (less than 50cm in height) is comparable to that of the local remnant vegetation	%	2.5	22	28.5	41	23	51
Total Ground Cover	Total groundcover is the sum of protective ground cover components (as described above) and that it is comparable to that of the local remnant vegetation	%	95	99.5	94	98.5	43.7	97			

Rehabilitation Phase	Aspect or ecosystem component	Completion criteria	Performance Indicators	Description of performance indicators	Unit of measurement	2019 Woodland ecosystem range		2019 Riparian ecosystem range		2009 Pasture ecosystem range	
						Lower KPI	Upper KPI	Lower KPI	Upper KPI	Lower KPI	Upper KPI
<i>Performance indicators are quantified by the range of values obtained from replicated reference sites assessed in 2015</i>											
	Ground cover diversity	Vegetation contains a diversity of species per square meter comparable to that of the local remnant vegetation	Native understorey abundance	The abundance of native species per square metre averaged across the site provides an indication of the heterogeneity of the site and that it is has more than or an equal number of native species as the local remnant vegetation	> species/m ²	0.2	4	1.0	6.2	4	8
			Exotic understorey abundance	The abundance of exotic species per square metre averaged across the site provides an indication of the heterogeneity of the site and that it is has less than or an equal number of native species as the local remnant vegetation	< species/m ²	1.2	2.8	1.6	4.8	13	23
	Native ground cover abundance	Native ground cover abundance is comparable to that of the local remnant vegetation	Percent ground cover provided by native vegetation <0.5m tall	The percent ground cover abundance of native species (<0.5m) compared to exotic species is comparable to that of the local remnant vegetation	%	3.2	77.4	18.3	83.6		
	Ecosystem growth and natural recruitment	The vegetation is maturing and/or natural recruitment is occurring at rates similar to those of the local remnant vegetation	shrubs and juvenile trees 0 - 0.5m in height	The number of shrubs or juvenile trees less than 0.5m in height provides an indication of establishment success and/or natural ecosystem recruitment and that it is comparable to that of the local remnant vegetation	No./area	0	105	5	231	n/a	n/a
			shrubs and juvenile trees 0.5 - 1m in height	The number of shrubs or juvenile trees 0.5-1m in height provides an indication of establishment success, growth and/or natural ecosystem recruitment and that it is comparable to that of the local remnant vegetation	No./area	0	4	5	62	n/a	n/a
			shrubs and juvenile trees 1 - 1.5m in height	The number of shrubs or juvenile trees 1-1.5m in height provides an indication of establishment success, growth and/or natural ecosystem recruitment and that it is comparable to that of the local remnant vegetation	No./area	0	0	0	0	n/a	n/a

Rehabilitation Phase	Aspect or ecosystem component	Completion criteria	Performance Indicators	Description of performance indicators	Unit of measurement	2019 Woodland ecosystem range		2019 Riparian ecosystem range		2009 Pasture ecosystem range		
						Lower KPI	Upper KPI	Lower KPI	Upper KPI	Lower KPI	Upper KPI	
<i>Performance indicators are quantified by the range of values obtained from replicated reference sites assessed in 2015</i>												
			shrubs and juvenile trees 1.5 - 2m in height	The number of shrubs or juvenile trees less than 1.5-2m in height provides an indication of establishment success, growth and/or natural ecosystem recruitment and that it is comparable to that of the local remnant vegetation	No./area	0	0	0	1	n/a	n/a	
			shrubs and juvenile trees >2m in height	The number of shrubs or juvenile trees less than 2m in height provides an indication of establishment success, growth and/or natural ecosystem recruitment and that it is comparable to that of the local remnant vegetation	No./area	0	1	0	3	n/a	n/a	
	Ecosystem structure	The vegetation is developing in structure and complexity comparable to that of the local remnant vegetation	Foliage cover 0.5 - 2 m	Projected foliage cover provided by perennial plants in the 0.5 - 2m vertical height stratum indicates the community structure is comparable to that of the local remnant vegetation	% cover	0	0	0	0	0	0	
			Foliage cover 2 - 4m	Projected foliage cover provided by perennial plants in the 2 - 4m vertical height stratum indicates the community structure is comparable to that of the local remnant vegetation	% cover	0	0	0	6	0	2.3*	
			Foliage cover 4 - 6m	Projected foliage cover provided by perennial plants in the 4 -6m vertical height stratum indicates the community structure is comparable to that of the local remnant vegetation	% cover	5	7	9	22	0	0	
			Foliage cover >6m	Projected foliage cover provided by perennial plants greater than 6m vertical height stratum indicates the community structure is comparable to that of the local remnant vegetation	% cover	43	52	47	49	0	0	
	Rehabilitation Phase	Aspect or ecosystem component	Completion criteria	Performance Indicators	Description of performance indicators	Unit of measurement	2019 Woodland ecosystem range		2019 Riparian ecosystem range		2009 Pasture ecosystem range	

<i>Performance indicators are quantified by the range of values obtained from replicated reference sites assessed in 2015</i>					Lower KPI	Upper KPI	Lower KPI	Upper KPI	Lower KPI	Upper KPI	
	Tree diversity	Vegetation contains a diversity of maturing tree and shrubs species comparable to that of the local remnant vegetation	Tree diversity	The diversity of trees or shrubs with a stem diameter greater than 5cm is comparable to the local remnant vegetation	species/area	1	5	4	5		
				The percentage of maturing trees and shrubs with a stem diameter greater than 5cm dbh which are local endemic species and these percentages are comparable to the local remnant vegetation	%	100	100	100	100		
	Tree density	Vegetation contains a density of maturing tree and shrubs species comparable to that of the local remnant vegetation	Tree density	The density of shrubs or trees with a stem diameter > 5cm is comparable to that of the local remnant vegetation	No./area	9	48	8	28		
			Average dbh	Average tree diameter of the tree population provides a measure of age, (height) and growth rate and that it is trending towards that of the local remnant vegetation.	cm	25	68	32	62	n/a	n/a
	Ecosystem health	The vegetation is in a condition comparable to that of the local remnant vegetation.	Live trees	The percentage of the tree population which are live individuals and that the percentage is comparable to the local remnant vegetation	% population	88.9	95.8	86	88	n/a	n/a
			Healthy trees	The percentage of the tree population which are in healthy condition and that the percentage is comparable to the local remnant vegetation	% population	16.7	62.5	25	32	n/a	n/a
			Medium health	The percentage of the tree population which are in a medium health condition and that the percentage is comparable to the local remnant vegetation	% population	25	50	46	63	n/a	n/a
			Advanced dieback	The percentage of the tree population which are in a state of advanced dieback and that the percentage is comparable to the local remnant vegetation	% population	0	22.9	0	7	n/a	n/a

Rehabilitation Phase	Aspect or ecosystem component	Completion criteria	Performance Indicators	Description of performance indicators	Unit of measurement	2019 Woodland ecosystem range	2019 Riparian ecosystem range	2009 Pasture ecosystem range
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<i>Performance indicators are quantified by the range of values obtained from replicated reference sites assessed in 2015</i>					Lower KPI	Upper KPI	Lower KPI	Upper KPI	Lower KPI	Upper KPI	
			Dead Trees	The percentage of the tree population which are dead (stags) and that the percentage is comparable to the local remnant vegetation	% population	4.2	11.1	13	14	n/a	n/a
			Mistletoe	The percentage of the tree population which have mistletoe provides an indication of community health and habitat value and that the percentage is comparable to the local remnant vegetation	% population	0	0	0	0		
			Flowers/fruit: Trees	The presence of reproductive structures such as buds, flowers or fruit provides evidence that the ecosystem is maturing, capable of recruitment and can provide habitat resources comparable to that of the local remnant vegetation	% population	41.7	88.9	50	54		
			Hollows	The presence of hollows provides evidence that the ecosystem is maturing, and can provide habitat resources comparable to that of the local remnant vegetation	% population	0	44.4	4	25		

9.2 VOIDS

The following broad criteria have been developed for the closure of the Ridgeway and Cadia East subsidence zones and the upper remaining portion of the Cadia Hill Pit.

- Voids are safe with minimal risk to the public, native fauna and livestock.
- 100% Access is restricted to subsidence zone areas
- Access is restricted to the Cadia Hill Pit, with the exception of undertaking water sampling (if safely accessible)
- Water quality is consistent with modelling predictions
- Undertake hydro geochemistry assessment of Cadia Hill Pit water body to determine long term risks.
- There is no impact on wider groundwater quality.
- 5 years from mine closure investigate future possible industrial use of the void and / or water from the Cadia Hill Pit or the role of the water body in a regional water use scheme.
- Water quality is suitable for industrial use or use within a regional water management scheme.
- Undertake water sampling (access pending) 5 years post closure.

9.3 SITE INFRASTRUCTURE

The following broad criteria have been developed for the closure and rehabilitation of surface infrastructure areas (excluding revegetation which is addressed in section 9.1)

- 5 years prior to the completion of mining, commence consultation with local, state and federal authorities and industries regarding potential future industrial uses of the site.
- To have in place by 30 June 2031 an agreement with relevant regulatory agencies and industry for the future industrial use of the site
- Should no future industrial use be identified, demolish and remove site surface infrastructure and rehabilitate to pasture (refer to closure criteria for pasture section 9.1)
- Some selected infrastructure may be retained for future 'general land use' such as electricity services, water services, sheds.
- The area is safe with minimal risk to the public, native fauna and livestock
- There is no adverse environmental effect outside the disturbed area and that the area is properly drained and protected from erosion.
- There is no residual soil contamination in the area,
- There is minimal risk to surface and groundwater quality
- Undertake water sampling (access pending) 5 years post closure.

9.4 WATER INFRASTRUCTURE

The following broad criteria have been developed for the closure and rehabilitation of water infrastructure assets

- 5 years prior to the completion of mining, commence consultation with local, state and federal authorities and industries regarding potential future uses of water management assets at the site.
- To have in place by 30 June 2031 an agreement with relevant regulatory agencies and local water authorities for the use of the major water infrastructure.

- Remediation of dams/contaminated sites so that they are fit for agricultural / conservation purposes.
- The area is safe with minimal risk to the public, native fauna and livestock
- There is no adverse environmental effect outside the disturbed area and that the area is properly drained and protected from erosion.
- There is no residual soil contamination in the area,
- There is minimal risk to surface and groundwater quality
- Water quality monitoring confirms stored water meets ANZECC (2000) guidelines for agricultural purposes (livestock drinking water, short and long term irrigation).
- Water sampling 5 years post closure

10.0 REPORTING

10.1 ANNUAL ENVIRONMENTAL MANAGEMENT REPORT

CVO will prepare an Annual Environmental Report (AEMR) to:

- Fulfil the requirements of the Cadia East project Approval, Environment Protection Licence 5590, Mine Lease Conditions and the requirements of the Environment Protection and Biodiversity Conservation Act Approval
- Report on the status of approvals, leases, licences, environmental risk management and environmental control strategies.
- Provide a summary of community relations and liaison, mine development and rehabilitation in relation to the Mine Operations Plan (MOP).
- Outline any proposed improvements in relation to environmental monitoring and management systems and environmental performance.
- Specify environmental and rehabilitation targets to be achieved during the ensuing 12 month period.

10.2 WEBSITE

Information is available through the Cadia Valley Operations website www.cadiavalley.com.au.

The website contains:

- Cadia East Environmental Assessment;
- Cadia East Project Approval and other statutory requirements;
- Current Management Plans, Monitoring Programs and Performance Reports
- Key environmental performance indicators;
- Details of complaints

11.0 REVIEW

11.1 REVIEW OF STRATEGY

This Rehabilitation Strategy will be reviewed every five years, or as required, to ensure the currency and usefulness of the document. The review will include an assessment of the effectiveness of the established systems and its performance against the objectives and targets.

11.2 CONSULTATION

As per project approval requirements, CVO has consulted with an approved* expert panel during the preparation of this strategy. The expert panel comprised the following members:

- Dr David Goldney
- Dr Donna Johnston
- Martin Haege
- Dr Guy Fitzhardinge

In addition, CVO has consulted with the members of the Community Consultative Committee (CCC) which contains a range of members including representatives of local government and residents. Summary of feedback received is contained in the following table (Table 11-1). The CCC is chaired by an independent chair-person and meets on a quarterly basis. The CCC will also be consulted following any reviews of this strategy.

* The expert panel was approved by the Director General – NSW Department of Planning and Infrastructure on the 28th of October 2010

Table 11-1 Summary of comments received through consultation and CVO's response

Issue Raised	Response
Why can't the pit, subsidence depressions, underground roads and infrastructure be interconnected into a water storage system.	Strategy allows for this under "future potential industrial use of site"
There is mention of wildlife corridors being developed but are these being co-ordinated with surrounding landholders and Land care Groups.	Strategy was modified to include this initiative under "vegetation corridor enhancement areas"
Pest species, weeds, bushfire concerns	Discussion had with CCC member explaining high level of strategy and further detail will be provided in the Land and Biodiversity Management Plan regarding these issues.
Consideration of use of tailings storage facilities for forage crops (like Lucerne)	Expert panel considered high risk (erosion / degradation) and not sustainable in the long term. Also offering little biodiversity benefit.
Use of voids for waste disposal	Strategy allows for this under "future potential industrial use of site"
Rehabilitation of historic mining disturbance in State Listed Heritage Area	Discussion had with CCC member explaining high level of strategy and further detail will be provided in the Land and Biodiversity Management Plan. Heritage Act issues and restrictions may affect ability to undertake suggested works.
Caution regarding the rehabilitation of mine disturbed areas and the balance of conservation vs agriculture.	Expert panel considered returning mine disturbed landscapes back to agriculture high risk (erosion / degradation) and not sustainable in the long term.

11.2.1 Consultation Regarding the Demolition and Remediation of the Blayney Dewatering Facility site

Revision 2 of the Rehabilitation Strategy included detailed information on the demolition of the Blayney Dewatering Facility and the remediation of the site including the removal of contaminated soils, import of clean fill material and relinquishment of the lease. Prior to the commencement of demolition works in early 2020, detailed consultation was undertaken both with the Environment Protection Authority (EPA) and Blayney Shire Council (BSC). The following table (Table 11-2) provides a summary of consultation undertaken.

Table 11-2 Summary consultation for the demolition of the Blayney Dewatering Facility

Date	Consulted	Consultation
31/8/2017	EPA	Provision of contamination assessment report
15/9/2017	BSC (Mayor, General Manager, Director - Planning and Environmental Services)	Presentation of initial contamination assessment findings
3/11/17	EPA	Provision of Abattoir Creek Ecological Assessment Report
13/11/17	BSC and CCC	Overview Update provided at CCC Meeting
12/12/17	EPA & BSC	Overview Update provided at AEMR Meeting
12/2/18	BSC and CCC	Overview Update provided at CCC Meeting
18/8/2018	BSC (Mayor, Councillors, General Manager and Directors)	Presentation of contamination assessment findings and remedial plans
11/12/18	EPA & BSC	Overview Update provided at AEMR Meeting
25/3/19	EPA	Cadia site meeting and update on demolition and remedial plans. Hard copy of remedial Action Plan provided
21/1/2020	BSC (Director - Planning and Environmental Services)	Update on commencement of demolition works and remedial plans.
1/6/20	EPA	Provided final Remedial Action Plan as part of EPL variation application.

11.2.2 Consultation with the NSW Resource Regulator

As stated in Section 4.9, the Mining Operations Plan (required by Mine Lease Conditions) is consistent with the content of this Rehabilitation Strategy and contains identical information on the overarching rehabilitation strategy, final landforms, final land-uses and mine closure criteria etc. The MOP is reviewed and assessed (against MOP guidelines) and approved by the NSW Resource Regulator. The MOP has recently been updated and approved by the Resource Regulator in March 2020.

12.0 REFERENCES

- Cadia Holdings Pty Limited (1995) *Cadia Project Environmental Impact Statement*. Report prepared by Woodward Clyde.
- Cadia Holdings Pty Limited (2000) *Ridgeway Project Environmental Impact Statement*. Report prepared by Resource Strategies.
- Cadia Holdings Pty Limited (CHPL) (2006) *Cadia Valley Operations Off-Site Rehabilitation Management Plan*.
- Cadia Holdings Pty Limited (CHPL) (2008) North waste Rock Dump Rehabilitation Plan.
- Cadia Holdings Pty Limited (CHPL) (2008a) 2007-08 Annual Environmental Management Report (September 2008)
- Cadia Holdings Pty Limited (CHPL) (2009) *Cadia East Environmental Assessment*. Prepared by Resource Strategies for Cadia Holdings Pty. Ltd.
- Cadia Holdings Pty Limited (CHPL) (2009a) *Cadia Valley Operations Land Management Plan*.
- Cadia Holdings Pty Limited (CHPL) (2009c) Cadia Extended Rehabilitation Plan.
- Cadia Holdings Pty Limited (CHPL) DRAFT (2010) *Cadia Valley Operations - Rehabilitation Strategy*.
- Cadia Holdings Pty Limited (CHPL) DRAFT (2010a) *Environmental Strategy*.
- Cadia Holdings Pty Limited (CHPL) (2010b) *Mine Closure Plan*.
- Cadia Holdings Pty Limited (CHPL) (2010c) *Mining Operations Plan (Addendum to 2008-10 Mining Operations Plan)*.
- Cadia Holdings Pty Limited (CHPL) (2010d) *2009-10 Annual Environmental Management Report*.
- Cadia Holdings Pty Limited (CHPL) DRAFT (2010e) *Historical Heritage Management Plan*.
- Cadia Holdings Pty Limited (CHPL) (2011) *2011-2013 Mining Operations Plan*
- Cadia Holdings Pty Limited (CHPL) (2011a) *2010-11 Annual Environmental Management Report*.
- Cadia Holdings Pty Ltd (CHPL 2011) 2011 - 2013 Mining Operations Plan
- Cadia Holdings Pty Ltd (CHPL 2016) 2016 - 2019 Mining Operations Plan
- Envirowest Consulting 2017. Contamination Investigation – Blayney Dewatering Facility
- GHD 2017. Abattoir Creek Aquatic Ecology Survey.
- GHD 2020. Blayney Dewatering Facility Remedial Action Plan. Newcrest Mining Limited (NML) (2002) Group Environmental Standard – Mine Closure.
- Newcrest Mining Limited (NML) (2009) *Newcrest Environmental Policy*.
- NSW Government, Department of Planning (2010) *Cadia East Project Approval Part 3A of the EP&A Act 1979*.

13.0 APPENDIX A – ACID MINE DRAINAGE STANDARD

EN ST01	Acid and Metalliferous Drainage Management	Standard
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1. INTENT

- 1.1. This Standard details the requirements for management of acid and metalliferous drainage (AMD) at Newcrest operations.

2. APPLICATION

- 2.1. This standard shall apply to all managed Newcrest sites throughout the entire lifecycle, including exploration, construction, development and closure.
- 2.2. The standard shall apply to all Newcrest employees, contractors, sub-contractors and visitors.
- 2.3. No work shall be performed by any employee, contractor, sub-contractor or visitor unless they are trained, verified as competent and authorised to start that work by an authorised Newcrest person.

3. PERFORMANCE REQUIREMENTS**3.1. Planning**

- 3.1.1. Acid and metalliferous drainage must have clear accountability and be managed in compliance with relevant permits and regulatory requirements. Where risk assessment identifies significant sensitive environmental receptors that are not adequately protected by regulatory permit conditions, site based monitoring and environmental management systems shall be applied to complement regulatory requirements.
- 3.1.2. Baseline characterisation and sampling must be undertaken which identifies and documents the geological setting and the potential for acid and metalliferous drainage
- 3.1.3. Prepare and maintain risk assessments relating to acid and metalliferous drainage and apply controls to manage risks. Update risks assessments prior to significant operational or project changes relevant to AMD management.

3.2. Implement and Operate

- 3.2.1. All sites and projects with potential to generate AMD must develop, implement and maintain an AMD Management Plan to manage potential releases and environmental impacts.
- 3.2.2. Maintain an inventory specifying the quantity, location and characteristics of materials with potential to generate or mitigate AMD.
- 3.2.3. Develop and implement operational procedures to manage and mitigate risks relating to AMD.

EN ST01	Acid and Metalliferous Drainage Management	Standard
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- 3.2.4. All facilities with potential AMD risk shall be closed in accordance with the Mine Closure Plan to mitigate risks.
- 3.2.5. The closure of facilities with potential AMD risk must ensure geotechnical and geochemical stability, the control of infiltration and seepage and eliminate where possible the need for ongoing treatment and management.

4. PERFORMANCE MEASURES

- 4.1. Monitor
 - 4.1.1. Each site with potential AMD risk shall maintain a monitoring program appropriate to the potential for AMD impacts.

14.0 APPENDIX B – BIODIVERSITY STANDARD

EN ST03	Biodiversity Management	Standard
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1. INTENT

- 1.1. This Standard details the requirements for management of biodiversity influenced by Newcrest activities.

2. APPLICATION

- 2.1. This standard shall apply to all managed Newcrest sites throughout the entire lifecycle, including exploration, construction, development and closure.
- 2.2. The standard shall apply to all Newcrest employees, contractors, sub-contractors and visitors.
- 2.3. No work shall be performed by any employee, contractor, sub-contractor or visitor unless they are trained, verified as competent and authorised to start that work by an authorised Newcrest person.

3. PERFORMANCE REQUIREMENTS

3.1. Planning

- 3.1.1. Biodiversity aspects shall be managed to ensure compliance with relevant regulatory permits and approvals and any voluntary standards or codes of which Newcrest is a signatory. Where risk assessment identifies significant sensitive environmental biodiversity receptors that are not adequately protected by regulatory permit conditions, site based monitoring and environmental management systems shall be applied to complement regulatory requirements.
- 3.1.2. A documented knowledge base must be developed and maintained of regional biodiversity features and their significance.
- 3.1.3. The risks and potential impacts to biodiversity due to Newcrest activities shall be identified and assessed prior to disturbance of new land areas.
- 3.1.4. Integrate Biodiversity Management into project planning and decision making through the complete project life-cycle, facilitating the design projects that avoid potential significant impacts on Biodiversity and identify opportunities to protect and enhance Biodiversity.

3.2. Implement and Operate

- 3.2.1. Develop and maintain a Biodiversity Management Plan that will include the following as a minimum:

EN ST03	Biodiversity Management	Standard
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- 3.2.1.1. An overview of the knowledge base;
- 3.2.1.2. A summary of the biodiversity values assessment;
- 3.2.1.3. Legal obligations and commitments relating to biodiversity protection;
- 3.2.1.4. The application of a mitigation hierarchy of avoid, minimize, mitigate and offset for potential impacts in agreement with regulatory bodies; and,
- 3.2.1.5. Improvement objectives, targets and actions for integration into relevant mine or project plans e.g. Environmental Management Plan, Land Use Management Plan and Closure Plan.

4. PERFORMANCE MEASURES

4.1. Monitor

- 4.1.1. Develop and implement processes to track implementation of the Biodiversity Management Plan objectives including monitoring in accordance with the Plan or as required by regulatory conditions.

15.0 APPENDIX C LAND USE AND DISTURBANCE MANAGEMENT STANDARD

EN ST07	Land Use and Disturbance Management	Standard
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1. INTENT

- 1.1. This Standard details the requirements for management of Land Use and Disturbance associated with Newcrest activities.

2. APPLICATION

- 2.1. This standard shall apply to all managed Newcrest sites throughout the entire lifecycle, including exploration, construction, development and closure.
- 2.2. The standard shall apply to all Newcrest employees, contractors, sub-contractors and visitors.
- 2.3. No work shall be performed by any employee, contractor, sub-contractor or visitor unless they are trained, verified as competent and authorised to start that work by an authorised Newcrest person

3. PERFORMANCE REQUIREMENTS**3.1. Planning**

- 3.1.1. Land use and disturbance must be managed in accordance with relevant regulatory requirements and permit conditions. Where risk assessment identifies significant sensitive environmental receptors that are not adequately protected by regulatory permit conditions, site based monitoring and environmental management systems shall be applied to complement regulatory requirements.
- 3.1.2. Document and maintain risk assessments relating to land management including identified controls for significant risks.
- 3.1.3. A register of tenure information must be maintained for all land where Newcrest activities are undertaken.
- 3.1.4. Map land use domains across the operation that define the permitted land use and constraints in each area. Ensure land use domains have been developed with regard to the interests of key stakeholders and rehabilitation and closure objectives.

3.2. Implement and Operate

- 3.2.1. Develop, implement and maintain a Land Use Management Plan that must include as a minimum:
 - 3.2.1.1. A summary of the tenure, customary/traditional land ownership, physical and social setting;
 - 3.2.1.2. Protected areas or limitations on land use;
 - 3.2.1.3. Objectives and targets relating to use and management of land

EN ST07	Land Use and Disturbance Management	Standard
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which are consistent with the closure plan including annual targets for progressive rehabilitation;

- 3.2.1.4. Responsibilities and accountabilities for land-use management;
- 3.2.1.5. Obligations and commitments related to land use management;
- 3.2.1.6. Stakeholder engagement processes relating to land management and land access;
- 3.2.1.7. A summary of the risk assessment and key controls;
- 3.2.1.8. A register of contaminated sites with coordinates and remediation plans;
- 3.2.1.9. Procedures for monitoring and maintenance; and
- 3.2.1.10. Emergency preparedness and response measures for land related events.
- 3.2.2. Develop and implement operational procedures for land management including inspections and monitoring programs for the following areas:
 - 3.2.2.1. Land clearance and vegetation removal authorisation;
 - 3.2.2.2. Sediment and erosion control;
 - 3.2.2.3. Top soil management;
 - 3.2.2.4. Land access and stakeholder engagement;
 - 3.2.2.5. Management of soil contamination and remediation.

4. PERFORMANCE MEASURES

4.1. Monitor

- 4.1.1. The coordinates of all disturbed land shall be recorded in a land disturbance register or equivalent system.

16.0 APPENDIX D – REVISED CADIA DEWATERING FACILITY LANDSCAPE PLAN

To be inserted as pdf

17.0 APPENDIX E. BLAYNEY DEWATERING FACILITY REMEDIAL ACTION PLAN

To be inserted as pdf