Appin Mine Coal Wash Emplacement Area Management Plan

Name	Position
Document Owner	Superintendent Environment
Document Approver	Superintendent Environment

People involved in the review of this plan

Name	Position	Company/Site	Exp (yrs)	Revision
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Vicky Longley	Superintendent Surface Services	ICHPL	18	6.0
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Document Revisions

Revision	Description of Changes	Date
3.0	Document updated to include BSO Project requirements for Stage 4 emplacement.	29/06/2013
3.1	Incorporate comments from OEH.	2/04/2014
4.0	Updated to reflect South32 name and branding. Changes made to emplacement monitoring programs and roles and responsibilities. Approved: - Department – 16 November 2016 - DotEE – 18 August 2017	21/07/2017
5.0	Review of content/format. Revision of closure criteria and commitment to use best endeavours to direct coal wash to beneficial uses. Incorporate comments from regulatory agencies. Approved: - Department – 18 December 2020 - DAWE – 28 January 2021	16/12/2020
5.1	Consultation with Heritage NSW.	October 2021
6.0	Revision of heritage site management, inclusion of revised plans for Stage 3, removal of operational requirements incorporated into site documentation, general update, inclusion of feedback	January 2025

	from stakeholder consultation, inclusion of baseline information, update of biodiversity monitoring methodology, inclusion of post-clearance report. Approved: - Department – 9 April 2025 - DCCEEW – 10 June 2025	

Declaration

EPBC No.	2010/5350
Project Name:	Bulli Seam Operations Expansion (2010/5350)
Proponent:	Illawarra Coal Holdings Pty Ltd
ABN:	69 093 857 286
Approved action:	Bulli Seam Operations Expansion To expand underground mining operations at the existing Appin coal mine and West Cliff Colliery. The proposal is to develop several new underground longwall mining areas, and upgrade the existing West Cliff Washery, including the creation of a new coal wash emplacement (as described in the request to vary proposal to take an action received on 22 December 2011
Location of the Action:	Appin, NSW
Date of preparation of management plan:	January 2025

Declaration of accuracy

In making this declaration, I am aware that section 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (*EPBC Act*) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the *EPBC Act* or the *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth). The offence is punishable on conviction by imprisonment or a fine, or both. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed: 

Full name: Chris Schultz

Organisation: Illawarra Coal Holdings Pty Ltd

Date: 29 January 2025

Table of Contents

1 Introduction

Appin Mine incorporates the underground mining operations, which extract coal from the Bulli Seam, and associated surface activities, including the West Cliff Coal Preparation Plant (WCCPP) and Coal Wash Emplacement Area (CWEA).[1] Appin Mine is located approximately 25 kilometres (km) north-west of Wollongong in New South Wales (See Plan 1. Appin Mine is owned and operated by Endeavour Coal Pty Ltd, a subsidiary of Illawarra Coal Holdings Pty Ltd (ICHPL), which is a wholly owned subsidiary of Gear M Illawarra Met Coal Pty Ltd (trading as GM[3]). The CWEA, WCCPP and Appin North Pit Top were previously referred to as West Cliff Mine.[2]

Appin Mine, Cordeaux Colliery and Dendrobium Mine (and associated facilities) are collectively operated by GM[3].

ICHPL received Project Approval 08_0150[3] (the Project Approval) from the Planning Assessment Commission of NSW under delegation of the Minister for Planning and Infrastructure on 22 December 2011 for current and proposed mining of the Bulli Seam Operations (BSO) for the next 30 years, and production of up to 10.5 million tonnes per annum of run of mine (RoM) coal. This approval incorporates underground mining, transport and coal wash emplacement activities undertaken 24 hours a day, seven days per week.

ICHPL also received approval EPBC No. 2010/5350 (the EPBC Approval) from the Department of the Environment and Energy (DoTEE) under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* in May 2012. The EPBC Approval was varied on 11 June 2021 by the Department of Agriculture, Water and the Environment.[4]

This Coal Wash Emplacement Area Management Plan (CWEAMP) has been prepared to detail the control measures, compliance procedures, monitoring programs, evaluation protocols, notification and communication processes for coal wash management at the CWEA, as well as best endeavours to direct coal wash to beneficial uses. This plan has been prepared to satisfy Condition 17 of Schedule 4 of the Project Approval for the West Cliff Coal Wash Emplacement Area Management Plan and Condition 6 of the EPBC Approval which requires the preparation of a Coal Wash Emplacement Staging and Rehabilitation Plan (Staging Plan).

The CWEA receives coal wash primarily from the WCCPP. Coal wash may also be received from the Dendrobium Coal Preparation Plant (DCPP)[5] if beneficial reuse options are unable to be sourced.

Emplacement of coal wash in Stages 1 and 2 of the CWEA is complete. Coal wash emplacement is currently occurring in Stage 3. Future coal wash emplacement will occur in Stage 4. The Stage 4 CWEA is scheduled to commence in approximately four (4) years,[6] however this timeframe is dependent on how much coal wash is diverted to beneficial reuse.

1.1 Plan Objectives

The objective of the CWEAMP is to establish the standards and procedures for the:

- establishment of pollution control measures;

[1] Also referred to as the Dry Reject Emplacement Area (DREA)

[2] The coal resources associated with West Cliff Mine have been exhausted and all mining is being undertaken in Area 7 of Appin Mine.

[3] As modified.

[4] Variation of Conditions 3, 5, 16, 16A, 16B, 16C, 16D, 16E.

[5] The DCPP washes coal from Dendrobium Mine. Future modifications may be submitted to wash coal from other companies.

[6] Currently expected to be 2029.

- construction of coal wash haul roads;
- construction and management of emplacement drainage and ponds;
- preparation of active emplacement areas;
- coal wash transport and deposition operations;
- vegetation and fauna management;
- revegetation and rehabilitation of finished emplacement areas;
- management of Archaeological sites, including sites of Aboriginal cultural heritage significance;
- ongoing monitoring associated with the emplacement; and
- best endeavours to direct coal wash to beneficial uses.

ICHPL shall implement all reasonable and feasible measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the project in accordance with the requirements of the Consent and EPBC Approval conditions.

1.2 Scope

The scope of the CWEAMP includes all existing and future activities undertaken at the CWEA, as well as best endeavours to direct coal wash to beneficial uses. Emplacement construction and operations will be conducted in accordance with the detailed design plans prepared for each emplacement phase. Detailed final designs are prepared progressively and are therefore not outlined in this plan for Stage 4.

1.3 Environmental Management System

ICHPL has a comprehensive Environmental Management System (EMS) in place to minimise the impact of its operations on the local environment and community. The CWEAMP is a component of the EMS which is certified to ISO 14001.

1.4 Consultation Process

Consultation was undertaken as part of the Version 5.0 review of the CWEAMP with the Environment Protection Authority (EPA), Biodiversity and Conservation Division of the Department of Planning, Industry and Environment (the Department) [7] and the Department of Agriculture, Water and the Environment (DAWE)[8], and again as part of the Version 6.0 review. The comments from these consultation processes have been incorporated into the CWEAMP (Version 6.0). Consultation with Heritage NSW was undertaken as part of the Version 5.1 review, that has been incorporated into Version 6.0.

Appendix 4 outlines comments from the relevant government agencies following consultation and the ICHPL response.

Consultation with agencies as stated in Condition 17 of Schedule 4 will only be undertaken where there is a material change to the management of the CWEA or if

[7] The Department split on 1 January 2024 to include the Department of Climate Change, Energy, the Environment and Water (DCCEEW) and Department of Planning, Housing and Infrastructure (DPHI).

[8] Now Department of Climate Change, Energy, the Environment and Water (DCCEEW).

specifically requested by the Department. Administrative do not constitute a material change.

Consultation was undertaken with the following Registered Aboriginal Parties (RAPs) on 21 March 2024 on the planned management measures for Aboriginal heritage sites in or adjacent to the approved Stage 3 and Stage 4 CWEA footprints as listed below:

- Cubbitch Barta.
- Tharawal Local Aboriginal Land Council.
- Guntawang Aboriginal Resources Incorporated.
- Woronora Plateau Gundungara Elders Council.
- South Coast People Native Title Claimant.
- Kamilaroi Yankuntjatjara Working Group.

During this consultation, the RAPs were advised that the design of Stage 3 has been reviewed to avoid direct impacts to Aboriginal heritage sites within the approved Stage 3 footprint, and that sites within the approved Stage 4 footprint would also be avoided when the conceptual design is reviewed. Each site within the approved footprints for Stage 3 and 4 was reviewed, including proposed management measures for potential indirect impacts. The consultation included a site tour to view some of the sites within the approved Stage 3 footprint and the location of the Stage 4 CWEA.

The feedback from this consultation is provided in Appendix 5.

In addition, a walkover of the footprint for Stage 4 of the CWEA was undertaken with the assistance of nine (9) RAPs on 18, 21, 26 and 27 September 2023 (refer to Section 6.5 for details).

The results from the survey were document in the Aboriginal Cultural Heritage Assessment Report - West Cliff Stage 4 Coal Wash Emplacement (Niche 2024).

The RAPs who attended the survey included:

- Cubbitch Barta.
- Kamilaroi Yankuntjatjara Working Group.
- Thoorga Nura.
- Woronora Plateau Gundungara Elders Council.
- Waawaar Awaa Aboriginal Corporation.
- Corroboree Aboriginal Corporation.
- A1 Indigenous Services.
- Guntawang Aboriginal Resources Incorporated.
- Amanda Hickey Cultural Services.

2 Roles and Responsibilities

Roles and responsibilities associated with environmental management at Appin Mine are defined in the Environmental Management Strategy. Table 1 outlines the roles and responsibilities associated with the implementation and periodic review of the CWEAMP.

Table 1: Roles and Responsibilities

Role	Responsibilities
General Manager Appin Mine	• Legal and statutory requirements for emplacement of coal wash. • Provide the necessary resources and systems to meet the requirements of the CWEAMP.
Superintendent Surface Services	• Emplacing coal wash in approved sites and in accordance with the CWEAMP. • Implementation of the design during construction. • Monitoring of TSF operation through the Tailings Management System (TMS)[9], the construction quality assurance (CQA) Programme,[10] the Operations, Maintenance and Surveillance (OMS) Manual[11] and the monitoring system.
Emplacement Contractor	• Emplacement construction, clearing activities and rehabilitation in accordance with the CWEAMP. • Implementation of the design during construction. • Monitoring of TSF operation through the Tailings Management System (TMS), the construction quality assurance (CQA) Programme, the Operations, Maintenance and Surveillance (OMS) Manual and the monitoring system.
Specialist Environment (or Specialist Consultant)	• Environmental monitoring at the CWEA to meet the CWEAMP, Project Approval, EPBC Approval and Environment Protection Licence requirements. • Review of the CWEAMP. • Monitoring and reporting of the emplacement rehabilitation performance. • Reviewing and issuing Permits to Disturb.[12] • Vegetation and fauna management, including threatened species.
Superintendent Environment	• Liaise with regulators with regard to the CWEAMP. • Review of the CWEAMP.
Superintendent Logistics	• Implement best endeavours to direct coal wash to beneficial uses.

Site personnel will undertake the following training in environmental management and responsibilities:

[9] Internal GM[3] documentation that has been developed in relation to tailings management.

[10] Quality assurance is covered under documents in the TMS.

[11] The purpose of the OMS Manual is to provide the methods for operating, monitoring, inspecting and maintaining the DREA according to the design intent and in accordance with statutory obligations, company requirements, and industry recognised best practice.

[12] The Permit to Disturb is an internal process undertaken to assess proposed vegetation disturbance and appropriate controls to minimise impacts.

- All site personnel will undertake the general induction.
- Personnel working at Appin Mine will undertake a site familiarisation, including emergency response procedures.
- Surface personnel will undertake the on-line Environmental Awareness Training.
- CWEA supervisors and operators will be provided specific awareness training for working within the footprint of the approved CWEA.

3 Legislation and Planning

3.1 Project Approval

3.1.1 Stages 1 and 2

Wollondilly Shire Council (WSC) granted development consent for West Cliff Mine in 1975, which included the deposition of coal wash in Brennans Creek Valley (now known as the Stage 1 CWEA). The consent was conditional on each phase of the emplacement facility complying with legislation administered by relevant Government Authorities.

Approval for Stage 2 of the CWEA comprised of several approvals and various conditions. Approval for commencement of coal wash deposition in Stage 2 was granted in 1999 by the then Department of Mineral Resources.

Emplacement of coal wash in Stage 1 and 2 is complete and these areas are now rehabilitating. Rehabilitation in Stage 1 was completed in 2001 and in Stage 2 in the period from 2007 to 2017.

3.1.2 Stage 3

Approval for Stage 3 of the CWEA was issued by the NSW Minister for Planning on 20 December 2007. The Stage 3 CWEA is located to the north of the Stage 2 CWEA in the Brennans Creek Valley.

The specific approvals required for the Stage 3 CWEA were:

- Further approval from the Minister of Planning pursuant to Condition 2(e) of DA 60-03-2001 (the Dendrobium Mine consent) under the *Environmental Planning and Assessment (EP&A) Act*, 1979.
- Approval under Section 100 of the *Coal Mine Health and Safety Act 2002* No 129 for consent to establish Stage 3 of the emplacement area at West Cliff Colliery (the then Department of Primary Industry).
- Approval under provisions of the *Water Act 1912* No 44 for consent to divert Brennans Creek around the Stage 3 CWEA (the then Department of Water and Energy).
- Approval under Section 90 of the *National Parks and Wildlife Act 1974* No 80 for consent to destroy Aboriginal sites in the Stage 3 CWEA (the then Department of Environment and Climate Change (DECC)).
- Approval under Section 87 of the *National Parks and Wildlife Act 1974* No 80 for permission to excavate Aboriginal objects in the Stage 3 CWEA (the then DECC).

Note: Condition 8 of Schedule 5 of the Dendrobium Mine Development Consent states:

All references in this consent (including conditions 3 – 7 of this schedule and Appendix 3) that have direct application to the West Cliff Coal Wash Emplacement shall cease to have force and effect subsequent to the grant of any project approval under Part 3A of the Environmental Planning & Assessment Act 1979 which includes the West Cliff Colliery and the West Cliff Coal Wash Emplacement Area.

ICHPL received Project Approval 08_0150 under Part 3A of the *EP&A Act* 1979 in 2011 which incorporates any future emplacement activities at the BSO. The Dendrobium Consent no longer has direct application to Stage 3 as emplacement operations are being undertaken in accordance with the Project Approval.

Emplacement of coal wash in this area is ongoing.

3.1.3 Stage 4

The specific approvals in place for Stage 4 are:

- approval under the *EPBC Act 1999* (EPBC Approval 2010/5350); and
- approval under Section 75J of the *EP&A Act* 1979 (the Project Approval).

The requirements of Condition 17 of Schedule 4 of the Project Approval and Condition 6 of the EPBC Approval, and the relevant sections of this Management Plan where these requirements are addressed, are outlined in Appendix 1 and Appendix 2respectively.

3.2 Environment Protection Licence Requirements

Environment Protection Licence (EPL) 2504 applies to Appin Mine and associated activities. A copy of the licence can be accessed on the EPA website: here.

3.3 Relevant Legislation

Key regulatory and coal wash emplacement obligations are managed via an online obligations management database. The obligations are allocated to responsible personnel. This process is detailed in the Environmental Compliance/Conformance Assessment and Reporting Procedure (IMCP0186).

Legislation applicable to coal wash management includes but is not limited to:

- *Protection of the Environment Operations Act 1997 (POEO Act)*;
- *POEO (Waste) Regulation 2014;*
- *EP&A Act;*
- *Water Act 1912;*
- *Water Management Act 2000;*
- *Mining Act 1992;*
- *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act);*
- *National Parks and Wildlife Act 1974;*
- *Biosecurity Act 2015;*
- *Rural Fires Act 1997;*
- *Coal Mine Health and Safety Act 2002;* and
- *Biodiversity Conservation Act 2016*.

3.4 Guidelines and Standards

This CWEAMP has been developed to be consistent with the principles of the following:

- ISO 14001:2015 Environmental Management Systems.
- GM[3] Sustainability Policy.
- GM[3] Tailings Management System.
- Operations, Maintenance and Surveillance Manual Dry Rejects Emplacement Area.
- Construction Quality Assurance System.
- Leading Practice Handbook: Mine Closure and Rehabilitation.
- Environmental Management Plan Guidelines (DCCEEW, 2024).

4 Baseline Assessment

Baseline ecological assessments indicated the following vegetation and threatened flora and fauna were likely to be impacted by the CWEA and their impacts have been managed as detailed in Section 7.

4.1 Flora

Appendix E: Terrestrial Flora Assessment (FloraSearch 2009) of the BSO EA (link) provides a baseline assessment for Stage 4 of the CWEA. A summary is provided below.

The Stage 4 CWEA comprises Exposed Sandstone Scribbly Gum Woodland[13] (Community 2e) and Sandstone Gully Peppermint Forest (Community 4b). The area lies within the West Cliff Colliery surface lease and has been subjected to a number of disturbances including the backwaters of the Brennans Creek Dam, old tracks which are now regenerating, an existing coal wash emplacement and settling ponds for runoff. In addition, the watercourse below the existing coal wash emplacement is lined with a sludge comprising coal fines from the active emplacement area. The area also experiences run-off from table drains beside the Brennans Creek Dam Road. However, apart from the disturbed areas, the native vegetation in the proposed Stage 4 CWEA is in close to pristine condition with no introduced species and high resilience.

Community 2e is the dominant woodland community on gentle upper slopes, ridgetops and plateaux on the Woronora Plateau and encompasses large areas the Stage 4 CWEA. It occurs on low fertility, shallow sandy loam soils derived from Hawkesbury Sandstone, usually with surface and outcrop rock present. In overall composition it is most similar to Dwarf Apple Heath and Sandstone Heath-Woodland (Communities 2b and 2d, respectively) (Keith, 1994). Owing to the large area and broad altitudinal range covered by this community, and the diversity of landscape niches, a high diversity of species was recorded, particularly in the shrub and ground layers. Community 2e forms part of the Coastal Sandstone Ridgetop Woodland community described by Tozer et al. (2006).

The most consistently occurring tree in this community is Red Bloodwood, *Corymbia gummifera*, with Narrow-leaved Scribbly Gum, *Eucalyptus racemosa susbsp. racemosa*; Sandstone Stringybark, *Eucalyptus oblonga* and/or Silvertop Ash, *Eucalyptus sieberi* also common. The most prominent tall shrubs are Sweet Wattle, *Acacia suaveolens*; Flax-leaved Wattle, *Acacia linifolia*; Paperbark Tea Tree, *Leptospermum trinervium*; Old Man

[13] Now Woronora Plateau Scribbly Gum Woodland

Banksia, *Banksia serrata*; Bushy Needlewood, *Hakea sericea*; Broad-leaved Geebung, *Persoonia levis* and Pine-leaved Geebung, *Persoonia pinifolia*.

The low shrubs are especially diverse and commonly include Carrot Tops, *Platysace linearifolia*; Coral Heath, *Epacris microphylla var. microphylla*; Pink Beard-heath, *Leucopogon ericoides*; Prickly Broomheath, *Monotoca scoparia*; Woollsia, *Woollsia pungens*; Variable Bossiaea, *Bossiaea heterophylla*; Spiny Bossiaea, *Bossiaea obcordata*; a Parrot-pea, *Dillwynia phylicoides*; Large Wedge-pea, *Gompholobium grandiflorum*; Heath Phyllota, *Phyllota phylicoides*; a Bush-pea, *Pultenaea tuberculata*; Red-stemmed Wattle, *Acacia myrtifolia*; Prickly Moses, *Acacia ulicifolia*; the creeper Devil's Twine, *Cassytha pubescens*; Thyme Spurge, *Phyllanthus hirtellus*; Silver Banksia, *Banksia marginata*; Hairpin Banksia, *Banksia spinulosa var. spinulosa*; Long-leaf Smoke Bush, *Conospermum longifolium subsp. angustifolium*; Burgundy Grevillea, *Grevillea diffusa subsp. diffusa*; Small Grey Spider Flower, *Grevillea sphacelata*; Broad-leaved Hakea, *Hakea laevipes subsp. laevipes*; Broad-leaf Drumsticks, *Isopogon anemonifolius*; Mountain Devil, *Lambertia formosa*; Crinkle Bush, *Lomatia silaifolia*; Conesticks, *Petrophile sessilis*; Pink Wax Flower, *Eriostemon australasius*; Sour Currant Bush, *Leptomeria acida*; Slender Rice-flower, *Pimelea linifolia subsp. linifolia* and the Grass Tree, *Xanthorrhoea resinosa*.

Ground cover plants are usually less diverse than the shrubs and are sparsely distributed. The most common are Lesser Flannel Flower, *Actinotus minor*; Woolly Xanthosia, *Xanthosia pilosa*; Blue Dampiera, *Dampiera stricta*; Curly Wig, *Caustis flexuosa*; Sheath Sedge, *Cyathochaeta diandra*; Leafy Purple-flag, *Patersonia glabrata*; Pale Mat-rush, *Lomandra glauca*; Twisted Mat-rush, *Lomandra obliqua*; Tall Speargrass, *Austrostipa pubescens* and Scale Rush, *Lepyrodia scariosa*.

Community 4b occurs extensively in the Stage 4 CWEA. It tends to occur in broader and less deeply incised valleys than Community 4a to which it is closely similar. It differs in the absence of Sydney Red Gum, *Angophora costata* and Blueberry Ash, *Elaeocarpus reticulatus*, and the absence or very low frequency of a number of understorey species favouring more sheltered environments, including Gymea Lily, *Doryanthes excelsa*; Rainbow Fern, *Calochlaena dubia*; Graceful Bush-pea, *Pultenaea flexilis* and Green Wattle, *Acacia irrorata subsp. irrorata*. Community 4b forms part of the Hinterland Sandstone Gully Forest described by Tozer et al. (2006).

The dominant trees in Community 4a are Sydney Peppermint, *Eucalyptus piperita*, and Red Bloodwood, *Corymbia gummifera*, with Blue-leaved Stringybark, *Eucalyptus agglomerata*, occurring less frequently. In the study area, where most samples were taken in the Stage 4 CWEA, the main low tree species were Black Sheoak, *Allocasuarina littoralis*; Christmas Bush, *Ceratopetalum gummiferum* and Old Man Banksia, *Banksia serrat*a. The predominant tall shrubs were Sweet Wattle, *Acacia suaveolens*; Tantoon, *Leptospermum polygalifolium subsp. polygalifolium*; Paperbark Tea Tree, *Leptospermum trinervium*; Hairpin Banksia, *Banksia spinulosa var. spinulosa*; Green Spider Flower, *Grevillea mucronulata*; Broad-leaved Hakea, *Hakea laevipes subsp. laevipes*; Bushy Needlewood, *Hakea sericea*; Broad-leaf Drumsticks, *Isopogon anemonifolius*; Crinkle Bush, *Lomatia silaifolia*; Broad-leaved Geebung, *Persoonia levis*; Pine-leaved Geebung, *Persoonia pinifolia*; Conesticks, *Petrophile sessilis*; Woolly Pomaderris, *Pomaderris lanigera*; Pink Wax Flower, *Eriostemon australasius*; Sour Currant Bush, *Leptomeria acida* and Large-leaf Hop-bush, *Dodonaea triquetra*.

Ground cover species found in the Sandstone Gully Peppermint Forest [14] include Common Bracken, *Pteridium esculentum*; Screw Fern, *Lindsaea linearis*; Woolly Xanthosia, *Xanthosia pilosa*; Purple Dampiera, *Dampiera purpurea*; Raspwort,

[14] Now Sydney Coastal Sandstone Gully Forest

Gonocarpus teucrioides; Pomax, *Pomax umbellata*; Black Bog-rush, *Schoenus melanostachys*; Leafy Purple-flag, *Patersonia glabrata*; Spiny-headed Mat-rush, *Lomandra longifolia*; Twisted Mat-rush, *Lomandra obliqua*; Pixie Caps, *Acianthus fornicatus*; Blue Flax Lily, *Dianella caerulea var. producta* and Wiry Panic, *Entolasia stricta*.

Persoonia hirsuta subsp. hirsuta was found only within and around the vicinity of the proposed Stage 4 CWEA. It is confined to broad ridgetops in Community 2e and does not occur in the gullies. The population consists mostly of scattered individuals. Previous work by Biosis (2007c) determined its distribution within and close to the development area. This survey and additional survey by Biosis in 2009 focused on determining the extent to which the population extends away from the development area. The results of the earlier and more recent Biosis work (2007c and 2009) and this study indicate that the population is largely confined to the Brennan's Creek catchment, with the greatest concentration of individuals just within and immediately to the north of the Stage 3 CWEA. The population thins out in all directions away from the central concentration.

The Stage 4 CWEA has been conceptually designed to avoid disturbance to upland swamps and over ninety percent of a population of the endangered Hairy Geebung (*Persoonia hirsuta*) that remains within the Brennans Creek area and immediate surrounds following construction of Stage 3.[15]

4.2 Fauna

Appendix F: Terrestrial Fauna Assessment (Biosphere 2009) of the BSO EA (link) provides a baseline assessment for the BSO Project, without providing a specific assessment for Stage 4 of the CWEA.

Biosphere 2009 does note that one SEPP 44 Schedule 2 Feed Tree Species occurs within the proposed Stage 4 CWEA (i.e. Grey Gum, *Eucalyptus punctata*) (FloraSearch, 2009). However, this species was only recorded in two of 23 samples within the Stage 4 CWEA (an odd occurrence in low numbers) and does not constitute 15% of the upper or lower strata of the tree component. In addition, there are no historic records of koalas in the Stage 4 CWEA (DECC, 2009a) nor were they recorded by the Project surveys. Hence the Stage 4 CWEA does not fall within the definition of either core or potential koala habitat.

The Southern Brown Bandicoot (*Isoodon obesulus obesulus*) was recorded by the Project surveys within and around the Stage 4 CWEA. The Southern Brown Bandicoot is listed as endangered on both the *Threatened Species Conservation (TSC) Act*[16] and *EPBC Act*. The Broad-headed Snake has been previously identified during surveys for the Stage 3 CWEA and is listed as endangered on the *TSC Act* and vulnerable on the *EPBC Act*.[17]

[15] Vegetation was mapped as part of the EA. An upland swamp and *P. hirsuta* plants were identified in the area investigated for the Stage 4 CWEA. The proposed boundary for Stage 4 took into consideration the location of and avoids the upland swamp and the location of the majority of *P. hirsuta* plants. An offset area was established to protect the area where the *P. hirsuta* plants were concentrated.

[16] Replaced by *BC Act*.

[17] Management of the Southern Brown Bandicoot and Broad-headed Snake are covered in more detail in the Broad-headed Snake and Southern Brown Bandicoot Management Plan, discussed in Section 7.4.2.

5 Coal Wash Emplacement Management

5.1 Emplacement Design and Staging

The CWEA has been designed to minimise impacts to sites of Aboriginal cultural significance, threatened flora and fauna species and downstream sensitive receptors. The alignment and location of haul roads, construction roads, drainage works, and emplacement ponds have been designed to avoid threatened flora species, sensitive habitat and Aboriginal sites where possible, and to limit erosion and drainage impact to downstream sensitive receptors (refer to Plan 1).[18]

The maximum design parameter for Stage 3 of the CWEA is:

- no more than 60.5 ha of native vegetation to be cleared.

The maximum design parameters for Stage 4 of the CWEA are:

- volume of 26 Mt;
- height of 331 m AHD;
- footprint that retains the existing Brennans Creek Dam storage capacity and stockpile areas (refer to Plan 1); and
- maximum of 60 ha of native vegetation clearance.

Measures to limit the clearing of native vegetation to no more than 60 ha will include:

- survey and demarcation of the Stage 4 boundary prior to clearing works by a qualified surveyor;
- Stage 4 boundary will be clearly outlined on site plans and plans will be provided to clearance contractors;
- pre-clearing survey will be undertaken by Specialist Environment who will be trained appropriately in survey methodology (training provided by external consultancy) or a Specialist Consultant. The area to be cleared will be clearly demarcated with flagging tape where required.[19] Personnel working in the area will be advised of the approved clearing extent. Boundary markings will be placed in a way to ensure that each marker is within line of sight.

Clearing of native vegetation for emplacement preparatory works in the Stage 4 CWEA is required to be undertaken in line with the staging plan (refer to Plan 5).

The Stage 3 and 4 CWEA is located to the north of the Appin North Pit Top and west of the WCCPP. It is/will be operated as a controlled valley fill. The overall planning concept for the CWEA is to provide a facility that will accept coal wash over an extended period of time. The Stage 3 valley is currently and will continue to be filled in a north westerly direction and Stage 4 from the eastern (or upstream/upslope) boundary and progress in corridors from east to west down the valley, as required by EPBC Approval Condition 6 (d).

Coal wash will be deposited in benches across the valley (in the case of Stage 4 which will be north-south) and progressively down the valley from east to west.

As each section of fill reaches the designed height, it is top soiled and revegetated. The final landform created by the CWEA will be sympathetic with the regional morphology and will be largely masked from public view by the visual screening of existing eucalypt forest.

[18] Aboriginal heritage sites are not shown on Plan 1 at the request of the Registered Aboriginal Parties.

[19] This is not required where the area to be cleared is defined by physical boundaries eg roadways.

CWEA construction and operations will be conducted in accordance with the final detailed engineering drawings prepared for each CWEA. The Stage 3 design and Stage 4 final landform concept designs are illustrated on Plan 3 and Plan 4.

Due to the anticipated life of the Stage 3 CWEA, detailed engineering drawings for Stage 4 are not yet prepared. The engineering drawings for the Stage 4 CWEA will be prepared prior to implementation of the Stage 4 CWEA and these plans will show staging of the emplacement and will comply with Condition 17 (a) and (b) of the Project Approval and Condition 6(b) of the EPBC Approval. Plan 5 shows a preliminary concept staging plan that provides for the progressive staging of the Stage 4 CWEA to keep the minimum 100 m wide habitat corridor to link the *Persoonia hirsuta* core population with habitat north of the Stage 4 CWEA, as required by Condition 6(b) of the EPBC Approval.

The Stage 4 Design Plans will be implemented and remain in place for at least ten (10) years, from the date of last approval of the CWEAMP, unless otherwise agreed to in writing by the Minister of DCCEEW, at which point a revised plan taking into account the monitoring referred to in Section 9 must be submitted to and approved by the Minister (refer to Section 11.3 for more detail on CWEAMP review).

5.2 Emplacement Works

5.2.1 Overview

Works associated with the emplacement area include:

- clearing of vegetation;
- establishment of clean water diversion drains and channels;
- temporary drainage and diversion works;
- construction of coal wash haul roads and construction roads;
- construction of emplacement ponds and treatment systems;
- preparation of active emplacement areas;
- deposition of coal wash in active emplacement areas;
- use of surface gas management drilling and exploration cuttings or imported fill as capping material (if available and approved);
- construction of habitat and erosion controls;
- revegetation of emplacement areas; and
- ongoing maintenance and monitoring of emplacement areas.

The Stage 3 and 4 CWEAs are planned to progress in phases with each phase utilising extended sections of coal wash haul roads, clean water diversion channels, clean water cut-off drains, and phase specific emplacement ponds. The general procedure is outlined in the following sections. Design and operational parameters associated with the CWEA are detailed in the following documents:

a. Operations, Maintenance and Surveillance Manual, Dry Rejects Emplacement Area.

b. Stage 3 Design Report and Basis of Design.

ICHPL shall maintain all plant and equipment used at the site in a proper and efficient condition and operate all plant and equipment in a proper and efficient manner.

5.2.2 Coal Wash Properties

Coal wash is obtained from the processing of raw coal in a coal preparation plant. The coal wash product is a non-coal material from the coal seam and material cut from the seam roof and floor during mining. The coal wash generally consists of a mixture of carbonaceous shale and mudstone with minor proportions of sandstone. Small quantities of low-quality coal can also be present.

Coal wash deposited at the CWEA is sourced from the WCCPP and the DCPP. The WCCPP processes raw coal extracted from Appin Mine and the DCPP processes raw coal from Dendrobium Mine[20]. Coal wash from the DCPP is preferentially used for beneficial purposes (see Section 5.2.12), with any excess coal wash transported to the CWEA via backloaded truck.

The larger particle size coal wash material is mixed in the WCCPP process and delivered to the CWEA as a coarse coal wash product. A finer graded coal wash which generally has higher moisture content is produced from the WCCPP belt press filter equipment. A comparatively small quantity of sediment (coal wash sludge) is also produced when the site dirty water treatment ponds and sumps are periodically cleaned out and taken to the CWEA. These products are separately trucked to the CWEA, the moist fine coal wash and sludge requiring some degree of natural drying before being incorporated into the emplacement fill.

5.2.3 Procedures for Emplacement Works

5.2.3.1 Coal Wash Haul Roads

Haul roads are used to transport coal wash from the WCCPP site or the DCPP coal wash receival point to the CWEA. Construction roads will be used for construction access to emplacement pond sites and drainage works. The erosion and sediment control measures are similar for both construction and operational activities.

5.2.3.2 Construction/Operational Activities

Construction activities for haul and construction roads will include:

- vegetation clearing along road alignment;
- minor earthworks and re-grading of road surfaces;
- construction of road drainage; and
- Installation of road sub-grade and pavement material.

Operational activities at the haul and construction road sites will include:

- use of heavy vehicles for construction access and transportation of site won material/coal wash for dam wall construction; and
- transportation of coal wash for emplacement in Stages 3 and 4.

As the active emplacement area advances down the valley, its shape and surface topography will change. Consequently, haul roads on active emplacement areas will be constantly evolving and changing for accessibility as the CWEA progresses.

[20] Future modifications may be submitted to wash coal from other companies.

5.2.4 Construction of Brennans Creek Diversion Channel

The Brennans Creek Diversion Channel on the south-western side of the CWEA (refer to Plan 1) diverts flows in Brennans Creek around the CWEA. The alignment of the channel has been designed with consideration of environmental, Aboriginal and European cultural heritage constraints to achieve the largest possible emplacement footprint (within the approved footprint) and maintain a suitable drainage grade.

Rehabilitation of the Brennans Creek Diversion Channel was completed in 2010 and was undertaken generally in accordance with the Brennans Creek Bypass Channel Rehabilitation Features – West Cliff Colliery report.

5.2.5 Construction of Clean Water Cut-Off Drains

5.2.5.1 Construction Activities

Construction activities for clean water cutoff/diversion channels has and will include:

- vegetation clearing along the channel alignment;
- excavation of sandstone bedrock to develop channels;
- earthwork trimming to the design surface;
- transportation of excavated material to a suitable onsite location to be stockpiled for later use in emplacement pond dam wall construction, emplacement rehabilitation or other suitable uses; and
- installation of culverts/pipes where necessary.

5.2.5.2 Erosion and Sediment Control Management Measures

The drains are positioned to capture clean water runoff from valley sides and divert it past the emplacement dirty water pond system and into Brennans Creek Dam (BCD).

The drains in Stage 3 are and future drains in Stage 4 will be sized as required for the catchment area. Excavated material will be placed beside the drains to form access tracks in the valley for construction of emplacement ponds and development of the CWEA.

The channels will be modified as necessary during the life of the CWEA to adapt to the changing runoff conditions created by the advancing CWEA.

Sediment from these areas are directed into on-site ponds. Dosing of these ponds may need to be undertaken to reduce suspended solids to improve the water quality in BCD to meet water quality concentration limits under EPL 2504.

5.2.6 Construction of Emplacement Subsoil Drainage Network

Subsurface drains have been installed in Stage 3 and will be installed on the future prepared active CWEA under engineering supervision before coal wash emplacement commences. Construction of the subsurface drains shall be in accordance with detailed engineering drawings.

Subsurface drains will be progressively linked to subsoil drainage from previous sections of the CWEA.

5.2.7 Construction of Emplacement Ponds

5.2.7.1 Description of Works

Emplacement ponds are designed to contain and treat dirty runoff from active emplacement areas prior to ingress to BCD.

5.2.7.2 Construction Activities

Construction activities for emplacement ponds will include:

- topsoil and vegetation clearing;
- earthworks including cut and fill works and excavation of sandstone and/or other appropriate material for dam wall construction;
- transportation of suitable material to dam construction sites from elsewhere on the site;
- temporary stockpiling of dam wall material;
- dam wall construction;
- temporary creek diversion works including construction of small temporary dams and sediment basins and establishment of pumping equipment to divert treated water from upstream emplacement ponds and clean emplacement ground water flows around pond construction areas; and
- establishment of operational monitoring (as detailed in Sections 9.4 and 9.5) and water treatment facilities as required, including but not limited to dosing.

5.2.7.3 Erosion and Sediment Control Management Measures

Each phase of the CWEA is supported by two sequential ponds sited down Brennans Creek Valley. The first (upstream) pond allows passive settling of particles, while the second pond will have the capability to be chemically dosed to remove fine particulates from the water column.

Each pond must be operational prior to commencement of coal wash emplacement in the catchment area for that pond. As each phase approaches completion and filling of the first pond is imminent, a new pond is to be constructed downstream, prior to the CWEA encroaching on the upstream pond. Emplacement pond dam walls will be constructed using coal wash or site won material excavated (sandstone, coal wash or other appropriate material) from prepared active emplacement areas or other suitable areas. Where possible, pond dam wall fill material will be transported directly to construction areas however it may be necessary at times for this material to be temporarily stockpiled in a suitable disturbed location until required.

Clean water cut-off drains will be established prior to construction of ponds and flows in Brennans Creek will be diverted around the construction area via a temporary dam and pump. This will prevent sediment contamination of clean water from surrounding clean water catchment and treated water from upstream emplacement ponds.

5.2.8 Preparation of Active Emplacement Areas

5.2.8.1 Description of Works

Preparation of active emplacement areas will take place progressively as the CWEA advances down Brennans Creek Valley. The process of preparing an active emplacement area consists of vegetation clearing, stripping of topsoil and surface preparation such as removal of soft materials, like clays, from the valley floor.

Clearing of native vegetation for preparatory works in the Stage 4 CWEA is required to be undertaken in line with the staging plan (Plan 5).

The area of land cleared and dedicated as the active emplacement area will be restricted to an operational size of 18 ha (where practical, with a maximum area of 21 ha) in order for the emplacement ponds to effectively treat surface flows.

In general, stripped topsoil will be placed on finished emplacement areas and stripped sandstone/bedrock will be used onsite for emplacement pond dam wall construction. Stage 4 of the CWEA has a design footprint of 59.4 ha as shown in Plan 4.

5.2.8.2 Construction Activities

Construction activities for preparation of active emplacement areas will include:

- removal of vegetation including shrubs, trees and roots;
- mulching of loose vegetation such as tree branches;
- stripping of topsoil;
- proof rolling of other-than-rock areas;
- excavation of sandstone and soil areas;
- transportation of topsoil and mulch material to finished emplacement areas for rehabilitation;
- transportation of sandstone and tree logs / hollows for habitat creation in rehabilitation areas;
- temporary stockpiling of topsoil, cleared vegetation, and sandstone material; and
- installation of emplacement subsurface drainage network.

5.2.8.3 Vegetation and Topsoil Removal

All vegetation including shrubs, trees and roots shall be cleared from the active emplacement area using the two-stage clearing process before coal wash emplacement commences (refer to Section 7 for more detail on vegetation removal). Loose vegetation from site clearing, such as tree branches, shall be used as mulch or brush matting over areas of the CWEA being rehabilitated. Soil will be stripped from areas cleared for coal wash emplacement and where practicable, the seed rich surface layer of topsoil shall be separated from lower level soils. Stripped soil will be applied to a depth of typically 0.5 m (where appropriate) over completed areas of the CWEA as soon as practical. When seed rich topsoil stripped from cleared areas is available it will be spread as the surface layer on emplacement areas being rehabilitated. Seed rich topsoil is to be reused as quickly as possible to maintain viability of seeds.

When the CWEA is progressing to its final stages, particular attention must be paid to stockpiling the necessary volumes of soil to ensure adequate soil cover is achieved during

rehabilitation of the final landform. Where required, suitable material may be sourced from off-site locations to supplement on-site material where deficiencies are identified. [21]

5.2.9 Emplacement of Coal Wash in Active Emplacement

5.2.9.1 Description of Works

In general, emplacement of coal wash will include transportation of coal wash to the active area, deposition, drying, and compaction, and take place in horizontal benches stepping down the valley. Emplacement operations take place on a 24-hour 7 days per week basis and all operations will be confined to designated active areas, haul roads, and access roads.

Active emplacement areas will be revegetated as soon as possible after the final emplacement design level has been reached.

5.2.9.2 Operational Activities

Coal wash emplacement operations take place on the active emplacement area and are permitted on a 24-hour 7 days per week basis. Floodlights (mobile light towers) for night operation of the emplacement illuminates the active emplacement area with minimal light spillage to surrounding areas. Operational activities for emplacement of coal wash in active emplacement areas include:

- transport of coal wash to the emplacement via dump truck;
- tipping of coal wash in benches across the active emplacement area;
- drying of coal wash in temporary drying basins;
- compaction of coal wash by rollers; and
- ongoing construction of surface water channels and sediment controls as the emplacement progresses.

The active emplacement area includes a:

- tipping area;
- drying area; and
- compaction area.

The emplacement activity in each of these areas will be rotated as coal wash is progressively emplaced.

5.2.9.3 Coal Wash Transportation

The following procedures will be implemented with regard to transportation of coal wash associated with the emplacement operations:

- coal wash shall be transported in trucks on the mine site;
- coal wash trucks shall be restricted to designated haul roads on the mine site;
- coal wash haul roads must drain to contaminated water catchments;

[21] An Operational Purpose Deduction (OPD) is required from the EPA for the import of virgin excavated natural materials (VENM) for the purpose of rehabilitation/capping.

- coal wash haul roads must be maintained to minimise airborne dust;
- only dump trucks shall be permitted on the CWEA (semi-trailers shall only be permitted on areas of the CWEA that have been specially prepared for their access); and
- all haul trucks must adhere to site speed limits to maintain operational safety and minimise dust impacts.

Coal wash transport will comply with the safety and operational conditions of the WCCPP Surface Transport Management Plan (Document Number: WCPMP0012), Stockpile and Slope Stability Management Plan (Document Number: WCPMP0001), and the WCCPP Road Maintenance Manual (Document Number: WCPM0004).

5.2.9.4 Coal Wash Tipping

A tipping area is provided on each active coal wash bench for haul trucks to tip their loads onto the bench. There are currently eight different materials which are required to be placed in a controlled manner into the CWEA.

The tipping areas must be set up to handle all eight materials, each of which have different characteristics:

- DCPP coal wash;
- WCCPP coal wash;
- belt press fines from the WCCPP;
- oversize stone from the WCCPP;
- thickener sludge from the WCCPP;
- drilling muds, waters drill cuttings and drill cores from ICHPL exploration and methane drainage programs;
- inert waste (including concrete and soil from within the Premises as defined in EPL 2504) and VENM; and
- sump/dam clean out materials.

The Material Acceptance Form must be completed and approved by the Surface Services Superintendent prior to the transport of any material not generated by the WCCPP or DCPP to the CWEA for use or disposal.

Materials that have the potential to cause harm to the environment through water or land contamination are not permitted to be disposed of in the CWEA. In the event that contamination has occurred, an investigation will be undertaken to determine the cause of the contamination and actions will be implemented to prevent reoccurrence (as per Section 10.2 and 10.3).

5.2.9.5 Coal Wash Drying

If the moisture content of coal wash delivered to the emplacement area is too high for satisfactory compaction it will be left to dry naturally until suitable moisture content for compaction is reached.

Coal wash slimes/fines and drilling muds will be tipped into shallow temporary drying basins (i.e. sludge ponds) constructed with coarse coal wash. Temporary drying basins will be located on the CWEA away from the embankment face and perimeter drains. Surface drainage will be directed away from the temporary drying basin.

5.2.9.6 Compaction

Coal wash will be spread from tipped heaps and where necessary compacted to meet the design.

Compaction and subsequent firmness of the coal wash surface is dependent on several variables including but not limited to coal wash type (DCPP vs WCCPP), volumes delivered to the CWEA, moisture content, fine clay content and sizing. Monitoring of compaction will be managed by the OMS and is the responsibility of the Superintendent Surface Services.

5.2.9.7 Bench Construction

Coal wash emplacement will progress in a series of filled horizontal benches until each active emplacement area reaches its finished height.

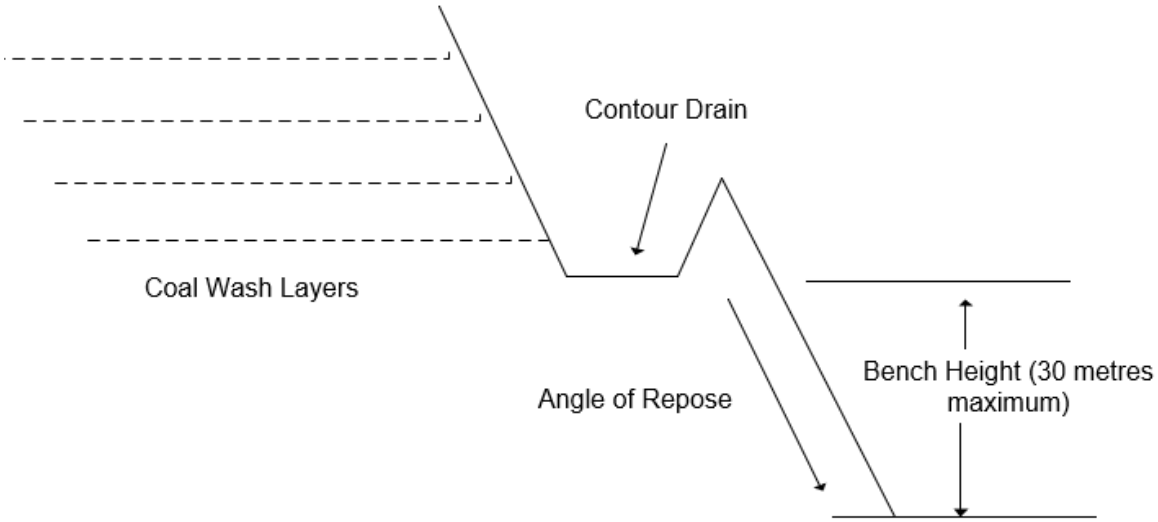


Figure 1: Coal wash emplacement principles

Best practice at the CWEA has limited bench heights to 30 m. This height can only be exceeded following a formal risk assessment which involves suitably qualified personnel other than the contractor or persons normally supervising the work.

The surface shape of the CWEA will be finished to blend with the surrounding landform (as per the approved final landform) and provide for non-eroding table drains to carry surface water runoff to the emplacement perimeter drains. Batter slopes on the finished emplacement will be constructed to non-eroding grades where practical in accordance with the approved finished profile design contours. This profile has been designed to a maximum grade of 1(V):3(H) to minimise erosion and sediment runoff. Suitable erosion control methods will be adapted as necessary.

5.2.10 Emplacement Rehabilitation

Emplacement rehabilitation is explained in detail in Section 7.3.

5.2.11 Underground Emplacement Trial

ICHPL engaged a consultant to develop a conceptual underground emplacement trial. Areas of consideration for the consultant included methods of emplacement used elsewhere within the industry, technical aspects of underground emplacement within a

high productivity mining setting, suitable underground storage areas, equipment suitability and estimates of capital and operating costs.

ICHPL considers the work completed to date, including the assessment by the consultant, along with ICHPL's commitment to undertake best endeavours to direct coal wash to beneficial use in preference to surface emplacement, has fulfilled Condition 20 of Schedule 4 of the Project Approval. ICHPL received advice from the Department on 3 September 2020 that it considers that ICHPL has met the intent of Condition 20 of Schedule 4.

5.2.12 Beneficial Use of Coal Wash

ICHPL has committed to pursuing alternative uses for coal wash as part of the Project Approval and the Dendrobium Mine Development Consent. This commitment is demonstrated from the continuing work in this area, including researching new technologies which would enable beneficial coal wash uses. The Appin Mine CWEAMP addresses these commitments, including consideration of:

- blending coal wash with product coal;
- opportunities for coal wash use within brick making;
- road pavement and capping materials;
- opportunities for using coal wash as a fuel;
- cement manufacture; and
- civil fill applications and site rehabilitation.

ICHPL has made progress in several of the areas outlined above relating to beneficial coal wash use. Redirecting coal wash to beneficial use has substantially reduced the volume of material directed to the CWEA.

Coal wash has been diverted from the emplacement to the following beneficial uses:

- as fill materials for civil engineering and construction projects;
- as fill for rehabilitation projects;
- construction road base;
- a component of soil media;
- cattle herd management e.g. raised walkways;
- capping material;
- cement manufacture; and
- a coal substitute in film making.

Since 2009, ICHPL has diverted approximately 7.5 Mt of coal wash from emplacement to beneficial use.

ICHPL will use its best endeavours to redirect coal wash from emplacement to beneficial use. This will be achieved through:

- prioritising the redirection of coal wash over emplacement and building this into the ICHPL Business Plan;
- setting, tracking and reporting against key performance indicators for beneficial coal wash use;
- providing incentives to potential users of coal wash, where required;

- having dedicated resources managing the beneficial use of coal wash; and
- undertaking and/or funding research and development into alternate uses for coal wash.

The progress of beneficial reuse of coal wash activities will be reported in the Annual Review.

6 Cultural Heritage Management

6.1 Overview

This section describes the process for the ongoing management of the recorded Aboriginal and historical archaeological sites within and in the vicinity of the footprint of the CWEA and addresses Condition 17 (a) and (b) of the Project Approval which requires:

(a) detailed design plans which include options for reducing, avoiding and/or managing impacts on Aboriginal heritage sites in and adjacent to the southwestern fringe of the proposed Stage 4 footprint (including sites 52-2-2228/3617, 52-2-1373, 52-2-3533/3613 and 52-2-3506); and

(b) management strategies to ensure no impacts to Aboriginal heritage site 52-2-3505 other than negligible impacts, including consideration of potential staged development of the emplacement and/or buffer areas.

6.2 Background Information

Several archaeological and cultural heritage assessments have been undertaken within and in the vicinity of the footprint of the CWEA (Sefton 1989; Navin Officer 2000; Biosis Research 2007; Biosis Research 2009, Niche 2024). These archaeological assessments have identified a total of 13 Aboriginal archaeological sites, including three sandstone shelters with Potential Archaeological Deposit (PAD). Two historical archaeological sites have also been identified within the Brennans Creek Valley (Biosis Research 2007). A description of these sites is provided in Appendix 3.

The following sections are based upon the former West Cliff Emplacement Area Cultural Heritage Management Plan (Biosis WCPMP0031) which was developed for the Stage 3 CWEA in consultation with the Tharawal Local Aboriginal Land Council and the Cubbitch Barta Native Title Claimants Aboriginal Corporation, and the then Department of Environment, Climate Change and Water (DECCW).

6.3 Stage 3 Emplacement Section 87 Permits and Associated Study

As part of the Stage 3 Emplacement EA, Biosis Research Pty Ltd (Biosis) recommended that ICHPL apply for Section 87: Preliminary Research Permits at selected sites in order to firstly carry out salvage excavation works at BC2 and BC6 and allow further investigations to be undertaken at BCPAD5 and BCPAD6 to test for potential archaeological deposits.

ICHPL subsequently applied for and received the Section 87 permits from DECCW on 9 April 2008 (Permit Number: 2908).

The Preliminary Excavation study was subsequently undertaken by Biosis during April and May 2008 (Biosis 2008). Representatives from the Tharawal Local Aboriginal Land Council and Cubbitch Barta Native Title Claimants Aboriginal Corporation were involved in the fieldwork component of the study. The outcomes of the study were as follows:

- The archaeological deposits at sites BC2 and BC6 were entirely salvage excavated in accordance with the Preliminary Research Permit #2908. As a result, Biosis, recommended that ICHPL apply for a 'Section 90: Consent to Destroy' for these sites (See Table 3).
- The additional testing undertaken at both BCPAD5 and BCPAD6 confirmed that there were no archaeological deposits contained at either of the sites. These sites will not be discussed any further.

6.4 Stage 3 Emplacement Section 90 Consents

Section 90 Consents were issued under the of the *National Parks and Wildlife Act 1974* in 2008 for impacts to sites within the Stage 3 CWEA footprint as follows:

- Consent 2859 – sites BC5 (52-2-1371), BC7 (52-2-1373), West Cliff 4 (52-2-3507) and D11 (52-2-3533); and
- Consent 2970 - sites BC2 (52-2-1368) and BC6 (52-2-1372).

As noted in Section 3.1, ICHPL received project approval under Part 3A of the *EP&A Act* in 2011 which incorporates any future emplacement activities at the BSO. The Dendrobium Consent no longer has direct application to Stage 3 as emplacement operations are being undertaken in accordance with the Project Approval and the CWEAMP required under Condition 17 of Schedule 4 of the Project Approval.

6.5 Stage 4 Emplacement Impact Assessment

The proposed Stage 4 CWEA has the potential to impact sites either through the burial of the sites under the CWEA, through direct impact by associated works supporting the Stage 4 emplacement area (such as channel diversion drains, settling dams and haul roads) or through secondary impacts (such as dust settling on art panels). The design of the Stage 4 CWEA was amended to avoid three Aboriginal heritage sites, including the only highly significant (both culturally and archaeologically) site (i.e. 52-2-3505) in Stage 4.[22]

Niche Environment and Heritage Pty Ltd (Niche) undertook an Aboriginal Cultural Heritage Assessment (ACHA) for the Stage 4 CWEA in September 2023, including a pedestrian archaeological and cultural heritage survey with Aboriginal parties.

During the course of the survey, all previously recorded AHIMS sites were located. Aboriginal cultural sites West Cliff 3 (AHIMS ID#52-2-3506) and Dendrobium 11 (AHIMS ID#52-2-3616, a duplicate of site 52-2-3533) were ground-truthed using the AHIMS provided locations. The AHIMS location of Aboriginal cultural heritage site Dendrobium 11 (AHIMS ID#52-2-3533) was determined to be a duplicate of AHIMS ID#52-2-3616. Both AHIMS locations were surveyed and it was determined the location listed for AHIMS ID#52-2-3616 is correct. The AHIMS location of Aboriginal cultural heritage site West Cliff 5 (AHIMS ID#52-2-3508) was identified however no artefacts were observed at the location. No additional Aboriginal cultural heritage sites were identified during the survey.

[22] For the sites previously planned to be impacted by Stage 4, which is approved under a Part 3A approval, permits under Section 87 or consent under Section 90 of the National Parks and Wildlife Act 1974 were not required.

6.6 Heritage Management Plan

A Heritage Management Plan (HMP) was prepared in accordance with Condition 24 of Schedule 4 of the Project Approval that covers both Aboriginal and Non-aboriginal heritage. The objectives of the HMP are to:

- outline statutory requirements for Aboriginal and Non-Aboriginal Heritage, including any Project Approval performance measures to be achieved;
- provide an overview of Aboriginal and Non-Aboriginal heritage sites within the study area;
- detail the procedures for ongoing consultation with RAPs and other community stakeholders, including the provision of access to archaeological sites to the Aboriginal community;
- detail the procedures for the preparation and integration of HMPs to be undertaken as part of Extraction Plans;
- detail the procedures for the preparation and integration of Conservation Management Plans (CMPs) to be undertaken for heritage items of State or National Heritage Significance;
- detail the procedures for publishing, lodgement and provision of public access of CMPs;
- detail the procedures for archaeological excavation, archival recording, conservation and subsidence monitoring programs;
- detail management options and procedures for any heritage sites that may be affected due to mining subsidence;
- present contingency plans for the unexpected discovery of Aboriginal objects, sites and human remains; and,
- present contingency plans for the unexpected discovery of historical relics and sites.

Figure 2 shows the link between the HMP and the CWEAMP. The procedures outlined in the HMP will be undertaken when developing the detailed design plans for Stage 4 for inclusion in the CWEAMP as required.

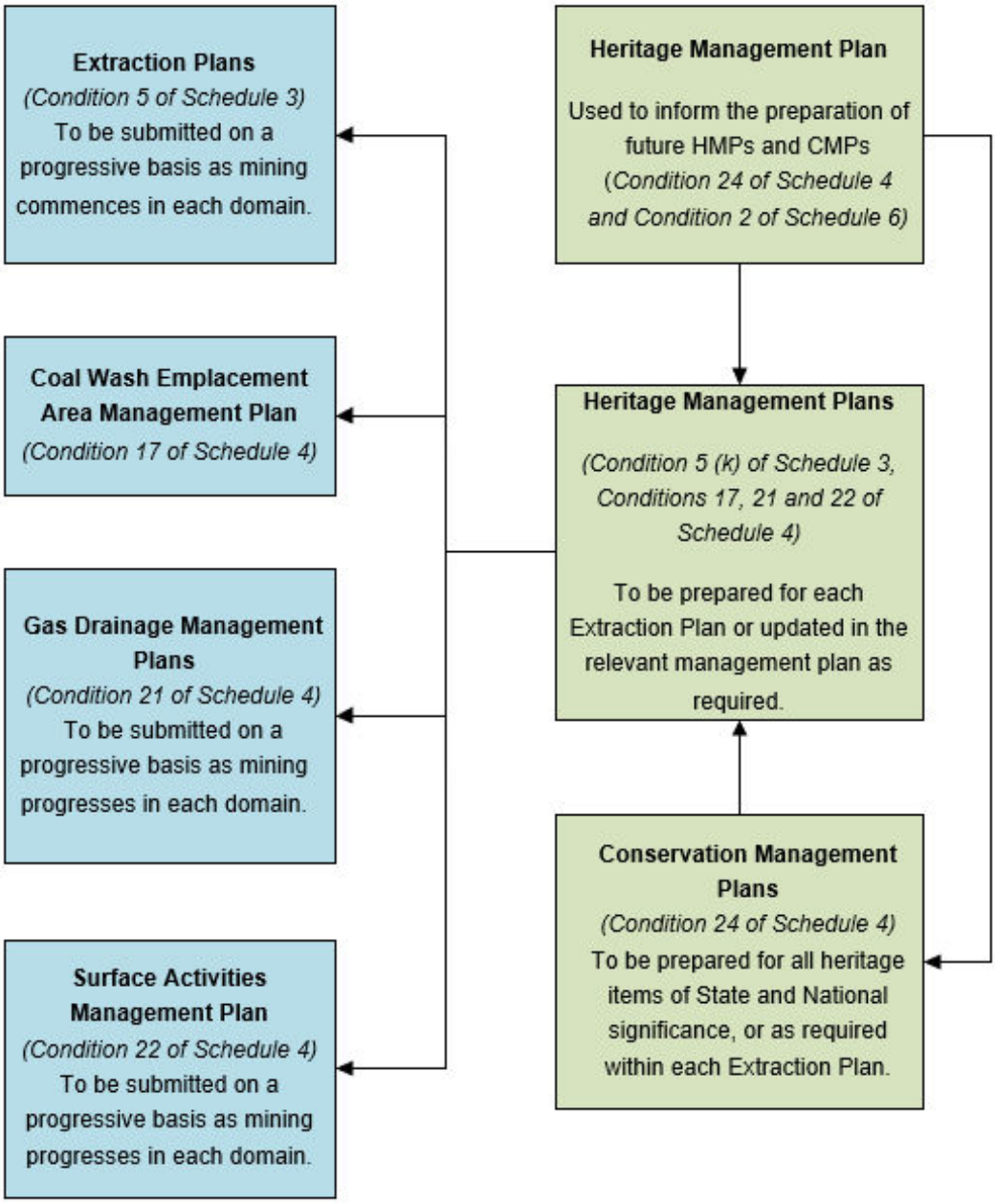


Figure 2: Heritage Management Strategy (from Heritage Management Plan)

6.7 Management and Mitigation

There are 13 heritage sites[23] within the footprint or in close proximity of the CWEA that will require some form of management. In the first instance, mitigation through avoidance has been incorporated into the design of the Stage 3 and proposed Stage 4 CWEA.

The design of the Stage 3 CWEA was reviewed in 2023. A revised design that avoids direct impacts to Aboriginal sites (that have not been previously impacted) has been developed and approved. The revised design is provided in Plan 3.

The design of the proposed Stage 4 CWEA will consider the location of Aboriginal sites and the footprint of the Stage 4 CWEA will be designed to avoid direct impact to known sites.

[23] Two of which have been previously impacted.

For sites avoided by the CWEA footprint, but located in close proximity, proposed management includes conducting detailed recording of the site prior to works in the vicinity (if not already undertaken), demarcation of the site to minimise the potential for accidental impacts from mobile machinery working in the area and management of dust from CWEA operations.

Appendix 3 outlines the management/mitigation measures relating specifically to each heritage site located within or in close proximity to the CWEA.

The detail and scheduling of the management strategies outlined in Appendix 3 will be developed in consultation with the Aboriginal community through the HMP process.

7 Vegetation and Fauna Management

7.1 Pre-Clearing Actions

7.1.1 Pre-Clearance Habitat Survey

The area of vegetation to be cleared will be surveyed by appropriately qualified personnel (suitably trained Specialist Environment or Specialist Consultant) and demarcated. Surveys of each area will involve a walkthrough of the area at 5 – 10 metre spacing to locate, record and mark specific habitat features that are proposed for preservation and redistribution to the emplacement (e.g. rocks and boulders, stags and large hollows). The random meander will be conducted in a way to observe as much ground as possible and will include additional observations around areas that are indicative of potential habitat. This includes, but is not limited to, checking sandstone outcrops for Broad-headed Snake habitat and focusing on mature tree canopy for tree hollows.

The selection process for hollows and hollow bearing trees will be based on the habitat requirements of target fauna [24] and/or to provide a representative sample of specific hollow types that currently occur within remnant vegetation on the site. The following four main hollow types will be selected for relocation where practical:

a) main stem hollows (large hollows);

b) hollows occurring in living or dead crown branches;

c) fire scars at the base of trees; and

d) fissures or cracks in branches on the main stem.

Selected tree hollows must have entrance diameters ranging from a few centimetres to a maximum of 30 cm and have cavities that are suitable for target species. Primary limbs and stags (hollow types a, b or d) will be used to create dead stags on the CWEA where practical.

Prior to any vegetation clearance occurring on site, specific details including the type and number of each habitat feature will be clearly recorded and identified on a pre-clearing checklist. Clearance will only occur following demarcation and survey by appropriately qualified personnel.

The survey will identify appropriate candidate boulders and outcrop rock that could be translocated for habitat creation in revegetated areas. Boulders shall be placed on top of

[24] Target fauna includes but is not limited to Eastern Pygmy Possum, Southern Brown Bandicoot, Koala, Grey-headed Flying Fox, Eastern Bentwing Bat, Heath Monitor, Gang-gang Cockatoo, Eastern Ground Parrot, Broad-headed Snake and Red-crowned Toadlet.

replaced soils (on top of the CWEA, with multiple rocks/boulders used) to recreate habitat for species dependent on rocky outcrops, such as the Broad-headed Snake.

During the pre-clearance survey, habitat features within each area will be inspected in order to identify the need for any relocation of resident fauna species. Relocation of fauna will also involve the identification of capture and release methods and release areas for the relocation of fauna species prior to clearing.

7.1.2 Permit to Disturb

Prior to any vegetation clearance occurring on site, a Permit to Disturb (IMCF0209) is to be issued. Specific details including the type and number of each habitat feature will be clearly recorded and identified on Permits to Disturb prior to issue. Permits to Disturb will only be issued following inspection by the site Specialist Environment or Specialist Consultant.

A post-clearing inspection will be undertaken by the site Specialist Environment or Specialist Consultant to verify the clearing was done in accordance with the Permit to Disturb.

If unapproved clearing goes beyond the CWEA boundary:

- the incident will be reported in accordance with Section 11.2; and
- the disturbed area will be rehabilitated as soon as practicable.

7.2 Clearing Process

7.2.1 Timing

Where possible, the timing of vegetation clearance of important habitat features will be between January and May to avoid the primary breeding and nesting periods of most hollow-dwelling species (Niche, 2011). During this time, most plant reproductive lifecycles have finished and this will allow for improved fertility of translocated soil as most species will have released the current seasons' seed.

Clearing of native vegetation for emplacement preparatory works in the Stage 4 CWEA is required to be undertaken in line with the staging plan.

7.2.2 Two-Stage Clearing

The primary mitigating measure for protection of fauna within the CWEA is two-stage clearing.

Where access to trees by the excavator is safe and practical, clearing of hollow bearing trees will be performed in a two-stage process where surrounding vegetation is cleared separately, before the removal of habitat trees to allow fauna an opportunity to move.

7.2.2.1 Site Operator or Clearance Contractor

The process for two-stage clearing (from Niche, 2011) is:

- Stage 1 - clear all vegetation not marked during the pre-clearance survey and engage the site Specialist Environment or Specialist Consultant to undertake stag watching and spotlighting prior to Stage 2 clearing.
- Stage 2 - following a minimum 24-hour grace period, clear all remaining habitat trees.

Note: During both Stage 1 and Stage 2, the site Specialist Environment or Specialist Consultant is to be engaged to implement fauna recovery procedures as necessary. The procedure for fauna recovery is:

- If any habitat tree is found or suspected (based on fresh tree markings or scats) to contain any threatened species during the clearing operation, leave the tree in place for a minimum of 24-hours and re-inspect prior to felling.
- Mechanically shake or agitate habitat trees prior to felling to encourage any remaining animals to either leave the tree or at least show themselves and possibly be removed (including the removal of the tree hollow), where possible.
- Always keep the contact details of the site Environmental Representative, veterinary care and local animal welfare groups on-site.

7.2.2.2 Site Specialist Environment

The role of the site Specialist Environment is to:

- Identify all potential fauna habitat that should be retained (where safe and practical) prior to Stage 1 clearing. They will attend the site, inspect habitat features (such as hollows and rock outcrops) and map and flag features to be retained until Stage 2 clearing. A map showing the location of all features to be retained will be supplied to the vegetation clearance contractors prior to Stage 1 of vegetation clearing.
- Identify capture and release areas for fauna which may be captured during the vegetation clearing process prior to Stage 2 clearing.
- Undertake a dusk or dawn stag watching exercise following Stage 1 clearing so that any hollows observed to be occupied or used can be identified. These hollows will be afforded special attention during Stage 2 clearing as they are most likely to contain fauna which may be injured during the clearing exercise.
- Relocate all uninjured animals that are rescued to suitable predetermined locations within adjoining bushland. Captured animals will be released immediately or held for the shortest time possible (preferably less than 24 hours).
- Release nocturnal animals captured in the clearing process at dusk. If an animal is reluctant to move away, then it shouldn't be released, and the site Specialist Environment shall contact a fauna welfare group or veterinarian and deliver the animal to that group for care.
- Secure any animals kept for any purpose in an appropriately sized sealed enclosure with air holes, lined with a towel or blanket until its release or for transport to an approved carer. Clearly label any containers containing an animal.
- In general, all species besides reptiles and amphibians should be contained with a warm (not hot) water bottle and kept in a quiet dark place to limit stress on the animal. Light exposure can be limited by placing a towel over the top of any enclosure and should be used for all fauna species. All species have individual care requirements and personnel trained in animal welfare or an animal welfare group (e.g., WIRES) should be contacted to confirm correct handling and care for any captured animals prior to capture. Prepare a record detailing the findings of the survey and relocation efforts. This should include details of any live animals that are sighted, captured, released, injured, shocked, escape or killed as a result of clearing operations and fauna rescue.

- Relocate fauna within suitable habitats that are within Consolidated Coal Lease 724. On this basis, no licensing is required for fauna relocation. If, however, animals are relocated further afield, or outside a species normal home-range, this is likely to trigger biodiversity conservation licencing requirements.

A Specialist Consultant may be utilised where the site Specialist Environment is not available or does not have the specific skills or knowledge for the assessment.

Any translocation proposal may require referral to DCCEEW for any species listed under the *EPBC Act*.

It should be recognised that the above control measures will not always be possible to implement safely, given the presence of uneven ground and structurally unsound trees.

7.2.2.3 Injured and Juvenile Animals

The general practice of dealing with injured or juvenile (dependent young) fauna will be for the site operators to notify the site Specialist Environment or Specialist Consultant who will arrange for fauna rescue or veterinary treatment. If the site Specialist Environment or Specialist Consultant is not present when an injured or juvenile animal is found, the following steps will be implemented:

- Place animal in an appropriately sized sealed carrier (or box), lined with a towel and with sufficient breathing holes for ventilation. If transport is required, ensure that the animal is secure e.g., closed lid, support towel (for birds, koalas or injured animals) or a towel around the animal.
- Keep the animal warm by providing appropriate thermal support (not required for reptiles and amphibians). This can be done by securing a wrapped hot water bottle, filled with hot water from the tap (not boiling), at the base of the carrier. Note that birds should have enough space to move away from the heat source in the enclosure as they can overheat.
- Keep the enclosure warm dark and quiet by placing a towel over the enclosure and by placing it in a quiet dark room.
- When transporting, secure any heating devices in the container and secure the container inside the vehicle with a seat belt. Never place animals in the boot or tray of a vehicle. Clearly label any containers containing an animal.
- Move animal to designated holding area.
- Contact the local animal welfare group or veterinarian as soon as practical.

7.2.3 Stockpiling

Vegetation shall be removed from the area being cleared in stages and stockpiled adjacent to the clearing. Stockpiling of vegetation should be avoided or limited where possible to allow for the retention of seed viability.

Rocks and logs are to be redistributed to the recipient sites (as per the Permit to Disturb). Large boulders and stags which require partial soil cover to be secured in place will be moved to the recipient sites prior to soil translocation.

Where practical, soil stockpiling will be avoided, and stripped soil layers will be immediately redistributed to the donor sites. Soils will not be stockpiled for long periods of time. Soil horizons will not be removed during or immediately following rain to minimise the composting process during stockpiling.

7.2.4 Erosion and Sediment Control

The implementation of erosion and sediment controls will be dependent on the location of the clearing. Where drainage will direct sediment to the onsite pond system used to manage water, additional sediment controls are generally not implemented.

Sediment controls, including berms covered in geotextile, sediment fences, or geotextile lined drains, may be implemented on slopes or where sediment may be transported on to haul roads or into a protected area. These controls will be discussed during the development of the Permit to Disturb.

7.2.5 Stripping of Soil Horizons

Topsoil from the donor site will be stripped from the surface in layers. The most valuable layer is the top 50 mm of soil which contains the majority of soil stored seed and propagules, plant nutrients and beneficial soil microbes. The top 50 mm of soil will be stripped and mixed with the cleared vegetation and stockpiled adjacent to or on the selected and pre-prepared recipient site ready for spreading.

Stripping and stockpiling of subsoil horizons will be undertaken depending on depth of bedrock. Where possible the depth of subsoil removal should exceed 500 mm. Subsoil layers will then be translocated to the recipient sites.

7.2.6 Post Clearing Process

Following the completion of clearing, the area will be inspected to verify that the clearing has been undertaken in accordance with the pre-clearance survey and Permit to Disturb.

The assessment will:

- confirm that clearing was undertaken within the approved boundary;
- confirm that the two-stage clearing process was implemented;
- confirm that the required habitat was salvaged;
- detail whether any animals were injured, translocated or confirmed as deceased, including species and numbers;
- verify that habitat salvage had been undertaken (including rocky outcrops, tree stags, hollow bearing/habitat trees) and translocated;
- quantify the volume/number of habitat features salvaged (estimate);
- quantify the volume of subsoil and topsoil salvaged (estimate) and confirm subsoil was separated from topsoil; and
- confirm that erosion and sediment controls had been installed and functioned effectively.

A post-clearance report will be provided that will be attached to the Permit to Disturb. Any non-conformances will be reported as detailed in Sections 10.2 and 11.2.

7.3 Emplacement Rehabilitation

The emplacement rehabilitation methodology has been adopted from the Stage 2 CWEA program due to its success. Some of the indicators that the methodology used in Stage 2 CWEA has been successful are:

- scores of between 50 and 70 species have been recorded (well above benchmarks for the local vegetation types);

- a good cover of difficult to grow species such as: heaths; some sedges; rushes, and *Persoonia* spp. have been recorded, and two threatened plant species, *Pultenaea aristata* and *Persoonia hirsuta*, have been recorded in the rehabilitation area; and
- many species have seeded multiple times and young germinates are evident. This indicates that the stand will be self-sustaining over time and seed fall will provide insurance if the area is burnt in a bushfire.

7.3.1 Progressive Rehabilitation

Rehabilitation of the CWEA surface will take place progressively as each section of fill reaches the finished level. Completed sections of the CWEA will be trimmed to even grades and spread with approximately 0.5 m of soil (including subsoil and topsoil).

Habitat reinstatement techniques such as transplanting dead stags, addition of habitat logs and woody debris, nest box use, and installation reconstruction of rock outcrops will be undertaken as described in the following sections.

The progressive rehabilitation undertaken age and rehabilitation phase is shown on Plan 2[25].

7.3.2 Landform Design

The surface of the CWEA should be reshaped in order to mimic micro-topographic features. Where possible, more natural concave slope profiles and slope angles will be used to limit the loss of sediment off the slope. The finished surface profile of the CWEA will be generally in accordance with the approved design contours (refer to Plan 3 and Plan 4).

7.3.3 Translocation of Habitat and Soil

7.3.3.1 Respreading Soil Horizons

To facilitate successful long-term plant growth, it is necessary to avoid capillary rise of potential saline seepage from the coal wash. To avoid the potential for saline seepage (which can prevent seed germination and retard plant growth), the emplacement will be fully encapsulated by soil horizons to a depth of typically 0.5 m where appropriate.

Subsoil horizons will first be spread over the allocated recipient sites on the emplacement surface. Finally, the remaining 50 mm (topsoil) will be spread on top.

7.3.3.2 Redistribution of Logs and Rocks on Recipient Sites

All remaining stockpiles of rocks, logs and vegetation will then be redistributed over the recipient site. Avoiding excessive soil compaction is critical to maximise plant establishment and all traffic should be excluded from the translocated soil horizons once all materials have been spread on the surface. Habitat logs and coarse woody debris from the cleared vegetation will provide microhabitat for fauna and protection for emerging seedlings.

[25] As at June 2024.

7.3.3.3 Transplanting Dead Stags

Large hollow bearing trees are present within areas proposed for clearing. Selected large hollow bearing trees within each clearance compartment will be transplanted to areas within the rehabilitating emplacement to become standing dead trees (stags). Provision of these dead stags will provide fauna habitat which may otherwise take decades to form. The quantity of dead stags transplanted to the CWEA will aim to mimic the numbers originally present within the cleared compartments.

7.3.3.4 Reconstruction of Rock Outcrops

To provide suitable habitats for certain fauna species (especially reptiles), relocation of sandstone rock outcrops will be undertaken. The location of rock outcrops will account for the thermoregulatory requirements of reptile fauna by concentrating placement of boulders and exfoliating rocks on westerly aspects of the CWEA.

Artificial habitat (e.g. using pavers) will also be constructed in selected areas. [26]

7.3.4 Seeding

Seed mixes should resemble the local vegetation types Woronora Plateau Scribbly Gum Woodland (previously Exposed Sandstone Scribbly Gum Woodland) and Sydney Coastal Sandstone Gully Forest (previously Sandstone Gully Peppermint Forest) to supplement rehabilitation of the CWEA and associated areas. Seed is harvested by contractors from areas of land within the region and will be spread over areas of the CWEA where final landform design, topsoiling and habitat construction has been completed. Where required (i.e. in areas that remain without any, or poor, natural regeneration for a period longer than six months), supplementary planting of local provenance tubestock will be considered to progressively reinstate vegetation.

A list of suitable plant species for collection, propagation and installation has been derived from the Species Impact Study species list and is included in Table 2.

Table 2: Plant species appropriate for revegetation at the CWEA

Acacia linifolia	*Dianella caerulea var. producta*	*Hardenbergia violacea*
Acacia longifolia	*Dodonaea triquetra*	*Kunzea ambigua*
Acacia myrtifolia	*Eriostemon australasius*	*Lepidosperma laterale*
Acacia suaveolens	*Eucalyptus agglomerata*	*Leptospermum arachnoides*
Acacia terminalis	*Eucalyptus globoidea*	*Leptospermum continentale*
Acacia ulicifolia	*Eucalyptus haemastoma*	*Leptospermum polygalifolium ssp. polygalifolium*
Allocasuarina littoralis	*Eucalyptus oblonga*	*Leptospermum trinervium*
Angophora costata	*Eucalyptus piperita*	*Lomandra longifolia*
Aotus ericoides	*Eucalyptus punctata*	*Notodanthonia longifolia*
Banksia ericifolia ssp. ericifolia	*Eucalyptus sclerophylla*	*Patersonia glabrata*
Banksia marginata	*Eucalyptus sieberi*	*Patersonia sericea*

[26] The installation of artificial habitat is particularly relevant for the Broad-headed Snake and associated prey species. The Broad-headed Snake is listed as Endangered. The DCCEEW conservation advice is available here.

Banksia serrata	*Gonocarpus teucrioides*	*Pomaderris elliptica ssp. Elliptica*
Banksia spinulosa var. spinulosa	*Hakea dactyloides*	*Pultenaea daphnoides*
Callistemon citrinus	*Hakea sericea*	*Pultenaea elliptica*
Corymbia gummifera	*Hakea teretifolia ssp. teretifolia*	

7.3.5 Rehabilitation Maintenance

7.3.5.1 Weed and Pest Management

Weed species present in and adjacent to the CWEA, and the specific control methodology used to control them, are provided in Table 3.

Table 3: Weed species

Common Name	Scientific Name	Control methodology
Spear thistle	*Cirsium vulgare*	Spray, Glyphosate
Fleabane	*Conyza* ssp	Spray, Glyphosate
Cotton Bush	*Gomphocarpus fruticosus*	Spray, Glyphosate
Fire weed	*Senecio madagascariensis*	Spray, Glyphosate
Bridal creeper	*Asparagus asparagoides*	Spray, Glyphosate
Broad leaf privet	*Ligustrum lucidum*	Spray seedlings, cut and paint larger plants, Glyphosate
Bidens	*Bidens pilosa*	Spray, Metsulfuron-methyl
Crofton weed	*Ageratina adenophora*	Spray, Metsulfuron-methyl
African love grass	*Eragrostis curvula*	Spray, Glyphosate
Kikuyu	*Pennisetum clandestinum*	Spray, Glyphosate
Pampas grass	*Cortaderia selloana*	Remove seed heads, reduce plant size then spray, Glyphosate
Pidgeon grass	*Setaria pumila*	Spray, Glyphosate
Paspalum grass	*Paspalum* ssp	Spray, Glyphosate
Lantana	*Lantana camera*	Spray seedlings Metsulfuron-methyl, cut and paint larger plants, Glyphosate
Scarlet pimpernel	*Anagallis arvensis*	Spray Glyphosate
Nut grass	*Cuperus rotundus*	Spray, Glyphosate
Mustard weed	*Brassica* ssp	Spray, Metsulfuron-methyl
Purple top	*Verbena bonareinsis*	Spray, Glyphosate

Vertebrate pest species present in and adjacent to the CWEA are provided in Table 4.

Table 4: Vertebrate pest species

Common Name	Scientific Name
Rusa Deer	*Cervus timorensis*
European Fox	*Vulpes vulpes*
Rabbit	*Oryctolagus cuniculus*

Weeds and vertebrate pests will be managed as detailed in Table 5.

Table 5: Weed and Pest Management Strategy

Aspect	Monitoring	Trigger	Action/Response
Weeds	Annual rehabilitation monitoring program which includes assessment of exotic weed cover within biometric plots.	>20% weed cover in established plots	Implement weed control program to target noxious weeds and perennial weed grasses
	Quarterly observational survey.	Identification of declared noxious weeds (e.g. Pampas Grass)	
Vertebrate Pests	Annual rehabilitation monitoring program (includes camera trap survey) in rehabilitation areas to identify target species and relative abundance of pests.	Significant damage to rehabilitation observed (e.g. erosion caused by rabbits or excessive herbivory of native seedlings).	The following options will be considered (in order of preference): • If regional pest management program is available, participate in association with NPWS or NSW Local Land Services. • If no program is available, engage a pest management contractor to implement shooting and/or baiting program.

7.3.5.2 Bushfire Management

Fire history records covering the surrounding Dharawal State Conservation Area/National Park and Sydney Metropolitan Catchment Area Land are maintained by WaterNSW and the National Parks and Wildlife Service (NPWS). Fire history records in these areas include five major wildfires in 1965/66, 1968/69, 1990/91, 2001/02 and 2005/06 each of which burnt the majority of the area within the reserves (NPWS 2006).

The last major fire at the Appin North site started near the township of Appin on 25 December 2001 and burnt through to Helensburgh in January 2002 (NPWS 2006). A smaller area on the southern side of the site was impacted by bushfire in January 2006. Significant bushfires occurred in the wider area in 2019/2020. A small bushfire occurred adjacent to the Appin East Pit Top as a result of a small plane accident in 2022.

The Appin North site is not currently subject to a hazard reduction burn regime.

The Coal Wash Emplacement Area Bushfire Research Literature Review (Niche, 2023) concluded that the CWEA would not be adversely affected by bushfire for the following reasons:

- The fuel loads on the surface are relatively low (10-12 t/ha), and with the rate of spread (4-5 km/hr) a bushfire on the surface would not provide enough static heat to significantly penetrate downward into the soil layers

- The depth of capping (between 0.3 - 1.0 m) mitigates significant downward heating potential to affect the coal wash material.

- The compaction of the coal wash material prevents a meaningful supply of oxygen to support heating in the subsurface such that the coal wash would not sustain long term smouldering.

Access roads around and through the CWEA are maintained as fire breaks. Firefighting equipment is maintained on the site, and the Rural Fire Service would be engaged to provide assistance.

Wedderburn Road, which runs along the eastern side of the site, would act as a fire break between the Dharawal National Park and the site.

BCD and other water storages on site would be available for firefighting purposes if required.

7.3.6 Rehabilitation Phases, Indicators, Objectives and Completion Criteria

The Appin Mine Rehabilitation Management Plan (available on the GM[3] website here)[27] summarises the rehabilitation processes for all surface facilities and sites associated with Appin Mine. Table 6 outlines the rehabilitation phases, indicators, objectives and completion criteria for the CWEA.

In accordance with the Rehabilitation Management Plan for Large Mines – Form and Way document (NSW Resources Regulator, 2024: link), rehabilitation of completed emplacement areas will include the following stages:

1. Decommissioning – removal of all infrastructure (where applicable);
2. Landform establishment – gradient, drainage, slope and aspect;
3. Growth medium development – topsoil;
4. Ecosystem establishment – establishment of flora and habitat; and
5. Ecosystem development – re-colonisation by key flora and fauna/maintain community structure and function.

[27] Required under the *Mining Regulation 2016* and submitted to the Resources Regulator.

Table 6: Emplacement Rehabilitation Phases, Objectives, Indicators and Completion Criteria [28]

Domains	Rehabilitation Phase [29]	Domain Objective	Indicator	Completion Criteria	Justification/Sources	Complete?
Domain 11: CWEA	Decommissioning	All infrastructure that is not to be used as part of the final land use is removed to ensure the site is safe and free of hazardous materials.	Removal of all footings or removal to a nominal depth of 1.5 metres.	Footings removed and or removed to 1.5 metres (unless otherwise specified) to avoid exposure pathways to subsequent final land use.	Surveyed and marked on the as-constructed final landform plan.	Emplacement Stage 1 and 2 are completed. Stage 3 is being rehabilitated progressively.
Domain 11: CWEA	Decommissioning	All infrastructure that is to remain as part of the final land use is safe, does not pose any hazard to the community.	Potential hazards (e.g. electrical, mechanical) have been effectively isolated and secured.	Hazards isolated and secured.	Statement provided by suitably qualified engineer.	Emplacement Stage 1 and 2 are completed. Stage 3 is being rehabilitated progressively.
Domain 11: CWEA	Decommissioning	All infrastructure that is to remain as part of the final land use benefits from the relevant approvals (e.g. development consent and / or	Where applicable, necessary approvals are in place (e.g. development consent under the Environmental	Permits and approval documents issued.	Copy of any relevant approvals.	Emplacement Stage 1 and 2 are completed. Stage 3 is being rehabilitated progressively.

[28] The completion criteria included are from the previously approved Mining Operations Plan and draft criteria based on the rehabilitation objectives approved by the Resources Regulator in 2023. ICHPL will develop and submit revised completion criteria to the Resources Regulator for approval in accordance with the Rehabilitation Objectives and Rehabilitation Completion Criteria Guideline.

[29] The phases of progressive rehabilitation as at June 2024 are shown on Plan 2.

		licence/lease/binding agreement, etc).	Planning and Assessment Act 1979) where buildings and infrastructure are to be retained as part of final land use.			
Domain 11: CWEA	Landform establishment	There is no residual soil contamination on site that is incompatible with the final land use or that poses a threat of environmental harm.	Waste material and/or visible contamination areas on site surface.	There are no visible signs of contamination following the removal of plant, equipment and materials.	Statement provided and before/after photos.	Emplacement Stage 1 and 2 are completed. Stage 3 is being rehabilitated progressively.
Domain 11: CWEA	Landform establishment	Residual waste materials stored on site (e.g. coarse rejects and other wastes) will be appropriately contained / encapsulated so it does not pose any hazards or constraints for intended final land use.	Visual – capping material placement, type across emplacement	Visual – verification that capping, type and placement consistent with design	Photos, rehabilitation monitoring reports, as constructed surveys, quality assurance records for construction, erosion surveys, independent geotechnical reports (where required), groundwater/surface water monitoring reports. The structural integrity of the infrastructure and capping has been inspected by a suitably qualified engineer and	Emplacement Stage 1 and 2 are completed. Stage 3 is being rehabilitated progressively.

					determined to be suitable and safe as part of the intended final land use and water material adequately contained.	
Domain 11: CWEA	Landform establishment	Landform that is commensurate with surrounding natural landform and where appropriate, incorporates geomorphic design principles.	Final landform design.	Site reprofiled as per final landform design (where applicable). Note Stages One and Two emplacements were reprofiled to the standard of the day.	Section 5.1 – Landform construction - Mine Rehabilitation Leading Practice Sustainable Development Program for the Mining Industry (2016).	Emplacement Stage One and Two are completed. Stage Three is being rehabilitated progressively.
Domain 11: CWEA (Stage Two and Three emplacements only)			Compaction testing (For CWEA stages two & three only).	>95% compaction achieved as evidenced by compaction test reports. Note Stages One and Two emplacements were constructed to the standard of the day.	CWEAMP – Section 5.2.9.6. - Emplacement Compaction.	
Domain 11: CWEA (all emplacement stages)			Combustion testing.	Coal wash ignition testing results within acceptable range (using the Coal Washery Rejects Order 2014 as a guide unless otherwise determined by the regulatory authority).	Coal Washery Rejects Order 2014.	
Domain 11: CWEA	Growth medium development.	Establish plant growth medium.	CWEA Capping.	No coal wash is left exposed (Stage One emplacement).	Wollondilly Shire Council Development Consent (1975).	Emplacement Stage 1 and 2 are completed. Stage 3 is being rehabilitated progressively.
Domain 11: CWEA			Topsoil/ capping depth.	Bare or stripped areas topsoiled/capped – Depth will be governed by factors such as desired vegetation, quantity and quality of the surface and subsoil	For CWEA, CWEAMP – Section 6 - Vegetation and Fauna Management.	Emplacement Stage 1 and 2 are completed.

				available and the nature of underlying material. Generally, >50 mm depth required for seed germination. Combined topsoil and capping depth min requirement for the CWEA is 0.5 m (Stages Two and Three).		Stage 3 is being rehabilitated progressively.
Domain 11: CWEA (Stage Two and Three)	Ecosystem and land use establishment	The final landform is stable for the long-term and does not present a risk of environmental harm downstream / downslope of the site or a safety risk to the public/stock/native fauna	Translocated habitat (rocks and logs).	Rocks and logs spread across the surface of the rehabilitating emplacement in accordance with the CWEAMP. Broad-headed Snake habitat incorporated into Stage Three and Four rehabilitation areas.	CWEAMP – Section 7- Vegetation and Fauna Management.	Landform established, and site preparation works are largely completed within Stages 1 and 2; however, some minor areas require further habitat placement, planting and weeding (for example, Stage 2 lookout point).
Domain 11: CWEA			Site preparation and seeding/ planting with appropriate species.	Area ripped (if required) and seeded/planted using the appropriate method.	Section 5.3 (Establishment of a Plant Growth Medium) - Mine Rehabilitation Leading Practice Sustainable Development Program for the Mining Industry (2016).	
			Plant establishment and growth.	50% combined vegetative cover achieved and sustained for a period of two years.	Target was determined based on past experience and taking into consideration: Observational evidence from the CWEA rehabilitation program. Vegetation types and climate of the area. Local Benchmarks as determined in the CWEA rehabilitation monitoring program.	

			Weed cover.	Regular weed control undertaken.	Project Approval Condition 17 (f). *NSW Biosecurity Act 2015*.	
Domain 11: CWEA	Ecosystem and land use development	The vegetation composition of the rehabilitation contains species that are commensurate with PCT 3598 found in the local area. The vegetation structure of the rehabilitation is similar to that of PCT 3598 found in the local area. Levels of ecosystem function have been established that demonstrate the rehabilitation is self sustainable.	Succession.	Rehabilitation report indicates plants in rehabilitated areas show evidence of seed setting and seed germination.	CWEAMP Section 9.1.1.1 – Performance Criteria. Also applies to other domains due to similar vegetation community.	Rehabilitation works in some sections of Emplacement Stage 1 and 2 are complete. Stage 1 was rehabilitated to the standard of the day.
			Weed cover.	Weed cover is no greater than 20% (at the time of relinquishment) as determined by relevant survey method.	Target is defined in Section 9.1.1.1 – Performance Criteria. Also applies to other domains due to similar vegetation community.	
Domain 11: CWEA			Bushfire resilience.	Rehabilitation can withstand a bushfire. Germination is observed and evidence of recovery after a test burn (subject to approval under the *Rural Fires Act 1997*).	Following a site inspection with the Resources Regulator, this area was determined as being an area prone to wildfire.	
Domain 11: CWEA (Stages One and Two)			Floristic structure, species composition.	Trajectory analysis indicates selected biometric indicators (species richness and vegetation cover) are on track to achieve like that of pre-determined reference benchmarks. For example, a statistical test indicates biometric indicators show a year on year improvement and on-track to achieve (or exceed) the reference benchmarks.	CWEAMP – Section 7.3 - Emplacement Rehabilitation which outlines the monitoring program and benchmarks. Also applies to other domains due to similar vegetation community.	

Domain 11: CWEA	Ecosystem and land use development	The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as part of rehabilitation.	Appropriate bushfire hazard controls (where required) have been implemented on the advice from the NSW Rural Fire Service.	Bushfire controls implemented.	Statement provided and before/after photos.	Firebreaks are maintained around the CWEA.
Domain 11: CWEA	Ecosystem and land use development	Runoff water quality from mine site meets the requirements of the development consent / Environment Protection Licence and does not present a risk of environmental harm.	Water quality parameters selected from Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000 and or Environment Protection Licence.	Water quality discharged from rehabilitated mining operation meet specifications in Environment Protection Licence and/or ANZECC guidelines for specific environment.	Water quality monitoring reports. Environment Protection Licence relinquished by Environment Protection Authority. Independent hydrological assessment report. Depending on the nature, scale and risks associated with a specific site, achievement of criteria may need to be evaluated over a number of years (e.g. 5 years to 15+ years)	Runoff from established and establishing CWEAs is directed to BCD.
Domain 11: CWEA	Ecosystem and land use development	Groundwater quality meets the requirements of the development consent/Environment Protection	Water quality parameters selected from Australian and New Zealand Guidelines for Fresh and	Water quality discharged from rehabilitated mining operation meet specifications in Environment Protection Licence and/or ANZECC guidelines for specific environment.	Independent hydrological assessment report. Depending on the nature, scale and risks associated with a specific site, achievement of criteria may need to be	Nil.

		Licence and does not present a risk of environmental harm.	Marine Water Quality 2000 and or Environment Protection Licence.		evaluated over a number of years (e.g. 5 years to 15+ years).	
Domain 11: CWEA	Ecosystem and land use development	Impacts to groundwater regime are within range as per the development consent/pre-mining environmental assessment.	Groundwater quality both on and off a mining lease represent an acceptable level of change from a defined reference condition.	Groundwater levels, groundwater flow.	Water quality monitoring reports. Environment Protection Licence relinquished by EPA. Independent hydrological assessment report. Depending on the nature, scale and risks associated with a specific site, achievement of criteria may need to be evaluated over a number of years (e.g. 5 years to 15+ years).	Nil
All domains	Relinquished lands.	Stakeholders satisfied.	Regulator and/or landholder satisfied.	Formal Regulator and/or landholder sign-off.		Nil.

7.4 Threats to matters protected under the EPBC Act

CWEA operations have the potential to impact on nationally threatened species and ecological communities, which is a matter of national environmental significance.

The three (3) species that may be impacted by CWEA operations include:

- *Persoonia hirsuta*;
- Broad-headed Snake; and
- Southern Brown Bandicoot.

These species are all listed as endangered under the *EPBC Act*.

Management of these species is specifically covered in the respective management plan and are not replicated in the CWEAMP.

7.4.1 *Persoonia hirsuta* Management Strategies

Details of management strategies for the protection and conservation of *Persoonia hirsuta* are addressed in the *Persoonia hirsuta* Offset Management Plan[30], available on the GM[3] website here.

The Stage 4 conceptual staging plan will facilitate pollination vectors for *Persoonia hirsuta* across remnant bushland for Corridors 1 through 4 as shown in Plan 5. Areas of vegetation will be retained in advance of the clearing required for the CWEA (the CWEA will be constructed from east to west). Previous rehabilitation experience indicates that once the rehabilitating CWEA reaches the Ecosystem and Land Use Establishment Phase, the area will have the required vegetation density and diversity to facilitate movement of pollination vectors for *Persoonia hirsuta* as required by EPBC Approval Condition 6 (c). Previous experience indicates that this can be achieved in three to five years. Rehabilitation of the corridors will occur progressively when the final landform design has been achieved for each area.

In addition, the findings from the research being conducted on *Persoonia hirsuta* pollination (overview provided in the *Persoonia hirsuta* Offset Management Plan) will be used to improve Stage 4 rehabilitation methods to facilitate the movement of pollination vectors for *Persoonia hirsuta* while Corridor 4 is being emplaced.

7.4.2 Broad-headed Snake and Southern Brown Bandicoot Management Strategies

Details of management strategies for the protection and conservation of Broad-headed Snake and Southern Brown Bandicoot are addressed in the Broad-headed Snake and Southern Brown Bandicoot Management Plan (approved under Condition 7 of the EPBC 2010/5350 Approval).

The approved Broad-headed Snake and Southern Brown Bandicoot Management Plan is available on the GM[3] website link.

8 Pollution Control Measures

Water, air quality and noise are managed in accordance with the following approved management plans available on the GM[3] website (link):

- Appin Mine Air Quality and Greenhouse Gas Management Plan;

[30] Approved by DAWE on 18 May 2022. Currently under review.

- Appin Mine Water Management Plan; and
- Appin Mine Noise Management Plan.

8.1 Water

The water management system at the CWEA consists of onsite drains, treatment systems, and surface water storage/treatment ponds. The infrastructure is used to store and treat all site dirty surface runoff from coal stockpile areas, haul roads and active CWEAs.

The segregation of clean and dirty water is an important feature of the site water management system as it minimises the clean catchment area draining to the active emplacement catchment and avoids overloading of the CWEA water management system.

Stormwater runoff from emplacement areas with established landform (with vegetation spread) is considered to be clean runoff and is directed to the clean water diversion system to minimise the load entering the CWEA water management system. Runoff from the active emplacement areas (or areas where the vegetation has not yet been spread) is directed to the emplacement water management system (i.e. Ponds P4A, EP2 and EP3 as shown on Plan 1) for treatment (if required) prior to being gravity fed to BCD.

As the CWEA construction progresses, a subsurface drainage system is installed in the base of the cleared area. Emplacement under-drainage flows are generally clean. The under-drainage is pumped to the clean water diversion channel for release into BCD. If required (i.e. if the water is 50 NTU or greater), the underdrainage can be directed into the CWEA dirty water system, as detailed in the Appin Mine Water Management Plan. Overflow from the under-drainage system feeds directly to the CWEA water treatment system. Additionally, a controlled portion of water from the under-drainage is directed to the Appin North Water Treatment Plant to be treated prior to direct discharge into Brennans Creek. The volume of water that can be treated is dependent on the capacity of the Water Treatment Plant to accept the under-drainage waters, as it can only be treated on a 30:70 ratio with underground feed water.[31]

It is considered that the current management practices are sufficient for controlling any potential groundwater contamination or downstream effects. The coal wash resulting from the washing of the Bulli Seam and Wongawilli Seam coal is classified by the EPA as inert waste. Extensive long-term experience with large scale emplacements of Southern Coalfield coal wash shows that the most significant water related issues associated with coal wash are:

- suspended fines in runoff;
- leaching of low concentrations of soluble organic nitrogen compounds (i.e. filterable Total Kjeldahl Nitrogen (TKN) and ammonia from Nitrogen (NH_3-N)); and
- leaching of low concentrations of arsenic, copper, nickel and zinc.

Groundwater impacts resulting from emplacement of coal wash are considered unlikely, given the above elements are managed by a dedicated dirty water treatment system.

[31] Further details on water management is available in the Appin Mine Water Management Plan, available on the GM[3] website here.

8.2 Dust Control

Dust impacts from emplacement operations will be mitigated by the coal wash material containing moisture from coal washing processes and being compacted once emplaced. Active emplacement areas will be vegetated as soon as is practical after emplacement and revegetated emplacement is typically stable.

The following measures are in place to reduce dust emissions associated with emplacement operations:

- regular inspections are undertaken to identify the presence of dry windy conditions and appropriate dust suppression is implemented as necessary;
- early warning weather alerts are received that predict adverse weather conditions and pre-emptive dust controls are implemented where required. A water cart is maintained on site and is used when the surface of the emplacement is dry and airborne dust can be created;
- vehicle speed limits are followed to reduce the risk of dust emissions from unsealed roads due to vehicle movements; and
- water carts are used to suppress dust on haul roads and active emplacement areas.

Air quality around the CWEA will be monitored by:

- inspections and visual assessments by site personnel;
- use of a real-time air quality monitor (on Wedderburn Road); and
- dust emission spot checks using hand-held photometers (as required).

8.3 Noise Control

Noise generated on the CWEA is from coal wash haul trucks and earthmoving equipment. The noise impact from these operations is deemed to be minimal as noise is naturally mitigated by the CWEA being located in a valley and at a distance of 1.5 km to 2.5 km from the nearest residential development in Appin. This is confirmed by the quarterly noise monitoring program (site AE-NS4) and the lack of community complaints about noise from the site.

The CWEA will continue to develop down the valley and therefore operations will gradually move closer to the residential fringes of Appin.

Noise complaints will continue to be recorded and if a notable increase is identified, ICHPL will undertake further investigations.

8.4 Visual Impact

The visual impact of the emplacement was assessed as part of the BSO Project EA. The following measures will be undertaken to minimise impacts on visual amenity due to emplacement operations:

- the finished level of the CWEA will be in accordance with approval conditions;
- the land area dedicated to active emplacement operations will be kept to a minimum (typically 18 ha, maximum 21 ha);
- the finished surface of the emplacement will be of a shape which complements and blends, as much as possible, with the surrounding natural landform, as per the approved final landform plans; and

- completed sections of the CWEA will be revegetated as soon as possible.

9 Monitoring Program

9.1 Emplacement Rehabilitation Monitoring Program

9.1.1 Aim

The aim of the emplacement rehabilitation monitoring program is to measure over time the success of the rehabilitation of the CWEA, particularly the regeneration of natural vegetation, direct placement of capping material and topsoil, and placement of specific habitat features including rocks, stags and logs.

This will be achieved through monitoring of biometric attributes, fixed photo points and threatened plant meander surveys as well as measuring the presence/absence of fauna within the various rehabilitation sites of varying age.

9.1.1.1 Performance Criteria

The monitoring program is designed to monitor the success according to the criteria in Table 6. The RMP is available on the GM³ website: link.

9.1.1.2 Biometric Vegetation Assessment

This assessment includes the collection of BioBanking plot attribute data as well as the Biodiversity Assessment Method (BAM) (DPIE 2020). The BioBanking plot methodology has been historically used within the CWEA rehabilitation Stages 1-3. However, in 2017 the BAM was developed as the new industry standard in association with the *Biodiversity Conservation Act 2016* (BC Act). BAM plots have replaced the BioBanking plots as the standard method of collecting attribute data. Both methodologies were used in the FY24 monitoring period for all control plots and plots in Stages 1 and 2 (exc. A2e-001 and A2e-002) of the rehabilitation area. Both methodologies were used to maintain consistency with the results of the older rehabilitation areas. In the more recent areas, only BAM methodologies will be used (a2e-001/2 and a3a-001/2) to collect data consistent with updated methodologies and PCTs. The BAM will utilise the same plot locations and control sites as previously used in the BioBanking plot methodology.

BioBanking Plot Methodology

This assessment utilises the NSW Biobanking Assessment Method (OEH 2014). This methodology is a vegetation condition assessment, incorporating parameters (known as site attributes) that reflect changes in condition over time against benchmarks. Furthermore, the methodology allowed for the calculation of local benchmark data, thereby providing an accurate picture of the condition of the suitable vegetation types locally. As discussed above, this method will no longer be used following the FY24 monitoring period and will be replaced by the BAM, the current government standard monitoring method.

Vegetation plots (50 x 20 metres) were established within each of the monitoring zones and data for the following site attributes was collected:

- native plant species richness;
- native overstorey cover;

- native midstorey cover;
- native groundcover (grasses);
- native groundcover (shrubs);
- native groundcover (other);
- exotic plant cover; and
- total length of fallen logs.

Biodiversity Assessment Method (BAM)

The BAM is the current industry standard that establishes a consistent approach to assessing the biodiversity values on a subject land whilst incorporating comparison with local benchmarks. Attributes used to measure the composition (richness), structure (foliage cover including all attached plant material) and function of each vegetation zone are shown below. These 3 primary attributes of biodiversity will each receive an observed score that is then weighted with local benchmarks to give a vegetation integrity score.

To assess composition and structure, 20 m x 20 m plots of the following growth form groups are established:

- tree;
- shrub;
- grass and grass-like;
- forb;
- fern; and
- other (including exotic and high threat weed cover).

Function attributes are assessed in 20 m x 50 m plots and only include living trees (except for fallen logs) and the largest stem of multi-stemmed trees. The attributes used to assess function are:

- number of large trees;
- tree regeneration;
- tree stem size;
- total length of fallen logs;
- litter cover (5 x 1 m^2 plots); and
- hollow-bearing trees.

Control Sites

Six (6) locations have been chosen as control sites. Monitoring the controls sites will:

- allow the measurement of the success of rehabilitation within the CWEA through the comparison of a range of site condition attributes with local benchmark conditions;
- provide long term data regarding the condition of local vegetation types and the targets for rehabilitation; and
- account for any stochastic variability within the local ecosystems (e.g. bushfire, climate, etc.) and allow for the consideration of such variability in relation to the outcomes on the site.

The plant community types (PCTs) present in the area include:

- 3595: Sydney Coastal Sandstone Gully Forest

- 3598: Woronora Plateau Scribbly Gum Woodland
- 3615: Sydney Hinterland Grey Gum Transition Forest
- 3924: Sydney Coastal Upland Swamp Heath
- 3619: Sydney Hinterland Enriched Sandstone Bloodwood Forest

The dominant PCT is 3598: Woronora Plateau Scribbly Gum Woodland.

The control sites were nominated as either PCT 3598 or PCT 3595. It is considered that the CWEA is likely to regenerate to a state that is an artificial combination of both PCTs.

Monitoring Sites

Stratification of the monitoring sites, within the CWEA, occurred according to their treatment histories, age and the respective areas they occupied in hectares. Accordingly, 11 monitoring sites were chosen across three different treatment types in 2011. This was expanded to 15 plots across four (4) separate treatments in 2014, 17 plots across five (5) treatments in 2017 and 19 plots in 2019.[32]

Local Benchmarks

Local benchmark data is collected at six control sites. The BioBanking Local Benchmark Calculator has previously been used to calculate the benchmark levels and the range of values for each of the collected attributes. From FY24 the BAM will be used to calculate benchmarks to update the monitoring methods to current industry standard, replacing the biobanking plot methodology. Benchmarks are recalculated every three (3) years.

Photo Point Vegetation Monitoring

Permanent photographic points have been established at each of the biometric vegetation plots. These are monitored on an annual basis.

9.1.1.3 Threatened Plant Random Meander

A random meander for threatened plants (Cropper 1993) is conducted through the CWEA. This method is the most appropriate and accurate for the purposes of the monitoring survey.[33] Two people, approximately five (5) to ten (10) metres apart (dependent on vegetation type), traverse the CWEA. Targeted species included those known to exist locally (some within the Appin North surface lease-area) and include *Acacia bynoeana, Epacris purpurascens var. purpurascens, Grevillea parviflora ssp. parviflora, Melaleuca deanei, Persoonia hirsuta, Persoonia nutans* and *Pultenaea aristata*.

9.1.1.4 Camera Trap Surveys

Camera traps are the preferred survey method over traditional cage traps or hair tubes to sample the small and medium size mammals using the rehabilitation as they are more

[32] New plots will be added as required.

[33] The document Surveying threatened plants and their habitats NSW survey guide for the Biodiversity Assessment Method published by the Department in 2020 indicates that the preferred methodology is a parallel field traverse, however in consultation with our specialist consultants it has been determined that a random meander is more appropriate due to vegetation density in the area. The random meander generally follows a parallel traverse.

efficient, less labour intensive and non-invasive.[34] The method is well documented for monitoring small to medium sized mammals.

Camera traps are deployed to the rehabilitating areas, using a passive survey approach (i.e. non-baited). The sites target specific habitat features i.e. logs, log hollows and rock crevasses/overhangs to determine occupation. The camera traps are distributed over the area of rehabilitation that is being monitored to get representation of different ages of rehabilitation.

The cameras used are infra-red type and are placed approximately 20-30 cm above the ground and the distance from the feature is no more than 2 - 3 m. Camera traps are deployed for approximately two (2) to four (4) weeks.

9.1.1.5 Timing

Monitoring is preferably undertaken in spring to note flowering, seed production, seedling growth and establishment.

The monitoring program is summarised in Table 7.

Table 7: Emplacement Rehabilitation Monitoring Program

Type	Who	Aspects monitoring	Output
Quarterly Inspection	Specialist Environment	Identification of issues with weeds or sediment and erosion control. Fixed photo points throughout the CWEA.	Inspection report (internal).
Annual Inspection (See notes below)	Qualified ecologists or suitably trained Specialist Environment	Fixed photo points throughout the CWEA at each biometric vegetation plot**. Quadrat monitoring in rehabilitation and surrounding areas* Random meander transects (every three years) in rehabilitated areas*** Fauna Monitoring****	Report (internal). Outcomes from monitoring summarised in the Appin Mine Annual Review. Monitoring Report appended to the Appin Mine Annual Review.

*Biometric assessments are required annually, starting at one (1) year after soil translocation. Surveys at control sites only required once every three (3) years and the benchmarks as calculated remain so for the ensuing three (3) year period.

**Photo point monitoring is required annually and done in conjunction with the above.

***Meanders for threatened plants are undertaken every three (3) years.

****Fauna monitoring using camera traps is required annually, starting five (5) years after translocation or as deemed appropriate depending on the maturity of the revegetation.

[34] Specialist consultant knowledge and experience has indicated that this is the best methodology to capture and identify a broad range of species.

9.2 Emplacement Height

Permanent survey control benchmarks are established on stable ground outside the perimeter of the CWEA from which the monitoring stations can be surveyed. Survey heights are taken regularly to determine the appropriate design heights (as shown on Plan 3).

9.3 Emplacement Compaction

Compaction is tested as detailed in the OMS.

9.4 Emplacement Run-off and Subsurface Drainage

Runoff from active emplacement areas or areas where vegetation is not established is directed to the CWEA water management system (i.e. Ponds P4A, EP2 and EP3) for treatment prior to being diverted to BCD. Emplacement under-drainage flows are generally clean but have the potential to be dirty during the first-flush period of a rainfall event, especially after a prolonged dry period. Any first flush flows that are dirty are directed to the CWEA water treatment system (i.e. Ponds P4A, EP2, and EP3, as shown on Plan 1). During clean subsurface flows, or once the dirty first flush flows have cleared, emplacement under-drainage is pumped to the clean water diversion channel for release into BCD. The water management system is explained in more detail in the Appin Mine Water Management Plan.

Monthly water samples are taken to monitor the quality of the CWEA subsurface drainage. If changes in water chemistry are identified through the monitoring, an investigation will be undertaken to determine the cause and corrective actions, as appropriate, will be implemented.[35]

Surface water quality monitoring is undertaken in accordance with the EPL 2504 conditions and the Appin Mine Water Management Plan.

Inspections of the site and water infrastructure are conducted daily/weekly by site personnel to check pumps, pipelines and other water infrastructure, and nominally monthly by the Specialist Environment i.e. to identify abnormal operation or erosion and changes in water quality. Water discharge from BCD is monitored continuously for pH, EC and turbidity. Discharge from BCD will cease if water quality concentration limits for these parameters are exceeded.

9.5 Emplacement Erosion and Sediment Control

Erosion and sediment control structures will be regularly inspected to check they are operating satisfactorily and to perform any maintenance work and repairs that may be required. Regular maintenance will include:

- sediment removal from drains and sediment basins;
- installation, proper operation and routine maintenance of any flocculant dosing equipment;
- replacement and or repair of sediment control structures as required; and
- repair of areas that become unstable following periods of high flow.

[35] Note that there are no water quality limits for this monitoring location.

More detail on erosion and sediment control at Appin Mine is provided in the approved Water Management Plan.

10 Complaints and Non-compliance Management

10.1 Complaints and Dispute Resolution

ICHPL has a 24 hour, free community call line (1800 102 210) and email address (community@gm3.au) which is displayed at ICHPL Projects and Mine Sites, and included in newsletters, letters and other correspondence. The call line and email address are for all complaints and general enquiries regarding environmental or community issues associated with ICHPL's operations.

Community complaints and enquiries may also be received in person by any employee of GM^3, with details to be immediately shared with the responsible site or project personnel for investigation. All CWEA complaints received in relation to Appin Mine will be managed in accordance with the Community Complaints Procedure.

Upon receipt of a community complaint, preliminary investigations will commence as soon as practicable to determine the likely cause of the complaint. The complainant will receive an acknowledgement of their complaint within 24-hours of its submission. A follow up response being provided as soon as practicable once a more detailed investigation is complete.

A summary of all complaints received during the reporting year will be provided as part of the Annual Review. A log of complaints is also maintained on the GM^3 website here.

10.2 Events, Non-Compliance, Corrective Action and Preventative Action

Events, non-compliances, corrective actions and preventative actions are managed in accordance with the Reporting and Investigation Standard and Environmental Compliance/Conformance Assessment and Reporting Procedure. These procedures, which relate to all ICHPL operations, detail the processes to be utilised with respect to event and hazard reporting, investigation and corrective action identification. The key elements of the process include:

- identification of events, non-conformances and/or non-compliances:
- recording of the event, non-conformance and/or non-compliance in the event management system (GM360);
- investigation/evaluation of the event, non-conformance and/or non-compliance to determine specific corrective and preventative actions;
- assigning corrective and preventative actions to responsible persons in GM360; and
- review of corrective actions to verify the status and effectiveness of the actions.

Exceedances of or non-compliances with relevant criteria will be reported to all relevant agencies via the Annual Review and EPL Annual Return or notified in accordance with Section 11.2.

The Emergency Response Control Plan (APNMP0005) will be activated in an emergency. The plan includes contact details and duty cards for site personnel.

The Pollution Incident Response Management Plan (PIRMP), available on the GM³ website here, will be activated where a pollution incident occurs that causes of threatens material harm to the environment. The PIRMP includes internal and external contact details.

Any environmental incidents are required to be notified to the site Specialist Environment.

10.3 Adaptive Management/Contingency Planning

Where any exceedance of the criteria and/or performance measures has occurred, the Proponent must, at the earliest opportunity:

a) take all reasonable and feasible steps to ensure the exceedance ceases and does not recur;

b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing these options and any preferred remediation measures or other course of action; and

c) implement remediation measures as directed by the Planning Secretary to the satisfaction of the Planning Secretary.

Consistent with the requirements of this approval, the Planning Secretary may make written directions to ICHPL in relation to:

a) the content of any strategy, study, system, plan, program, review, audit, notification, report or correspondence submitted under or otherwise made in relation to this approval, including those that are required to be, and have been, approved by the Planning Secretary; and

b) the implementation of any actions or measures contained in any such document referred to in condition 4(a).

11 Reporting and Review

11.1 Reporting

11.1.1 Annual Review

ICHPL will report on the performance of the CWEAMP in the Annual Review.

The Annual Review is prepared in accordance with Condition 4 of Schedule 6 of the Project Approval and is submitted to relevant agencies in September each year. Annual Reviews are made available to the general public via the GM³ website.

The Annual Review will include:

- complaints relating to the CWEA operations and management/mitigation measures undertaken;
- management/mitigation measures undertaken in the event of any confirmed exceedance of performance criteria;
- a progress update on the beneficial reuse of coal wash activities;

- review of the performance of management/mitigation measures and the monitoring program; and
- a summary of rehabilitation undertaken over the reporting period.

11.1.2 Annual Emplacement Rehabilitation Monitoring Report

The Emplacement Rehabilitation Monitoring Report is included as an appendix in the Annual Review. The report provides an analysis of the results from the rehabilitation monitoring in Section 9.1.

11.1.3 Annual Rehabilitation Report

ICHPL submits an Annual Rehabilitation Report to the Resources Regulator in accordance with Condition 13(2) of Schedule 8a of the *Mining Regulation 2016*.

The Annual Rehabilitation Report includes:

- a listing of complaints relating to rehabilitation overt the reporting period;
- details of stakeholder consultation;
- surface disturbance and rehabilitation activities undertaken during the reporting period;
- disturbance and rehabilitation statistics; and
- rehabilitation monitoring and research findings.

ICHPL publishes the Annual Rehabilitation Report on the GM[3] website.

11.1.4 Public Reporting of Results (via website)

A summary of the CWEA monitoring results (where applicable), including details of exceedances and non-compliances (as determined in accordance with Section 10.2 of the CWEAMP), will be provided on the GM[3] website in the 14-day report at: link.

11.1.5 Annual Compliance Report

In accordance with Condition 14 of the EPBC Approval, a Compliance Report is required to be submitted within three (3) months of every 12-month anniversary of the commencement of the action. The report is required to address compliance with each of the conditions of the EPBC Approval, including implementation of any management plans as specified in the conditions. The date of submission is by 15 August of each year.

A copy of the Compliance Report is also attached to the Annual Review.

The Compliance Report is published to the GM[3] website.

11.2 Incident, Non-compliance and Exceedance Notifications

11.2.1 Notification of incidents – Government Agencies

In accordance with Condition 7 of Schedule 6 of the Project Approval, the Planning Secretary is to be notified in writing via the Major Projects website within 24 hours after becoming aware of an incident [36]. In accordance with Condition 7AA of Schedule 6, reports are to be provided in accordance with the requirements set out in Appendix 7 of

[36] The definition of an incident in the Project Approval is "A set of circumstances that causes or threatens to cause material harm to the environment; and/or breaches or exceeds the limits or performance measures/criteria in this approval"

the Project Approval. Notification to the EPA will also be undertaken in accordance with the reporting requirements of the Pollution Incident Response Management Plan (if applicable) or via email/phone.

Incidents or non-compliances relevant to the EPBC Approval will be reported to DCCEEW.

11.2.2 Notification of Non-compliances – Government Agencies

In accordance with Condition 7A of Schedule 6 of the Project Approval, the Planning Secretary must be notified in writing via the Major Projects website within seven (7) days after becoming aware of a non-compliance[37].

The EPA is also to be notified of the non-compliance (via email).

11.2.3 Notification of Exceedances – Other Stakeholders

In accordance with Condition 1 of Schedule 5 of the Project Approval, where an exceedance of criteria due to operational activities has been confirmed, the affected landowners will be notified in writing of the exceedance as soon as practicable and no longer than seven (7) days following confirmation of the exceedance. Notifications of exceedances is to be undertaken prior to inclusion in the 14-day Report.

Regular monitoring results will be provided to each affected landowner until compliance with criteria is achieved.

The Appin Mine Community Consultative Committee will also be advised of exceedances of criteria at the next available meeting.

11.3 Review of CWEAMP

In accordance with Condition 5 of Schedule 6 of the Project Approval, the CWEAMP will be reviewed, and if necessary revised, within three (3) months, of:

- the submission of an Annual Review;
- the submission of an incident report;
- the submission of an Independent Environmental Audit (IEA) report; and
- any modification to the conditions of the Project Approval (unless the conditions require otherwise); or
- a direction of the Planning Secretary under Condition 4 of Schedule 2.

Review of the CWEAMP will also be undertaken:

- following significant environment incidents;
- when there is a need to improve performance in an area of environmental impact; and
- periodically to maintain CWEAMP currency.

Outcomes from each review will be documented in the Management Plan Review Log (unless the CWEAMP is being updated as part of the review). The CWEAMP will only be revised where a material change to site operations or environmental management has

[37] A non-compliance that has been notified as an incident does not need to also be notified as a non-compliance.

occurred, or in accordance with the review period on the CWEAMP. Administrative changes do not constitute a material change.

Where a review triggers a revision of the CWEAMP, the CWEAMP will be revised and submitted to the Planning Secretary for approval. Once approved, the CWEAMP will be uploaded to the GM[3] website.

The approved CWEAMP will be implemented.

Condition 6 g) of the EPBC Approval requires the Staging Plan to be implemented and remain implemented for a minimum period of 10 years, at which point a revised plan taking into account the monitoring required under Condition 6 f) must be submitted to and approved by the Minister, unless otherwise agreed to in writing. As the CWEAMP is required to be reviewed as detailed above, consultation with DCCEEW will be undertaken as noted in Section 1.4. Pending approval of the revised CWEAMP by the Minister, this will be considered to meet the requirements of this condition.

A revised CWEAMP will be submitted to DCCEEW for approval once the elements of the Staging Plan for Stage 4 of the CWEA have been finalised and prior to commencement of emplacement activities in Stage 4.

The Superintendent Environment is responsible for coordinating reviews of the CWEAMP.

11.4 Audits

11.4.1 Independent Environmental Audit

In accordance with Condition 9 of Schedule 6 of the Project Approval, an IEA shall be commissioned every three (3) years, that will include a review of the CWEAMP. The report, together with the response to any recommendations contained in the audit report, and a timetable for the implementation of the recommendations, is required to be submitted to the Secretary within six (6) weeks of completion of the IEA, in accordance with Condition 10 of Schedule 6.

The IEA is also undertaken to comply with Condition 18 of EPBC Approval 2010/5350. A copy of the report is also submitted to DCCEEW to satisfy Condition 18 (g).

IEAs have been conducted in 2013, 2016/17, 2019 and 2022, with the next IEA to be conducted in 2025. Recommendations from the IEA will be incorporated into the CWEAMP where appropriate.

11.4.2 ISO 14001

As part of the ISO 14001 certification, ICHPL maintains an environmental auditing and governance program across all of its operational sites. The program, which includes the use of competent internal personnel and accredited external auditors, is an integral part of maintaining certification under the ISO 14001 standard.

External surveillance audits are undertaken on an annual basis, with recertification audits undertaken every three years.

Internal Governance Reviews of the CWEAMP are nominally undertaken on an annual basis.

12 Summary of Commitments

Commitment	Section in CWEAMP
ICHPL will provide personnel and resources to implement the CWEAMP.	Section 2
ICHPL will comply with the conditions of the approvals and relevant legislation.	Section 3
ICHPL will implement a monitoring program to assess the success of rehabilitation and potential impacts on the environment from coal wash emplacement.	Section 9
ICHPL will construct and maintain infrastructure for water diversion, storage, pumping, treatment, discharge and monitoring.	Section 5.2.4, 5.2.5, 5.2.6, 5.2.7, 8.1 and 9.4
ICHPL will conduct regular inspections of the site and water infrastructure to ensure the water management system is functioning effectively.	Section 9.4
ICHPL will implement and maintain erosion and sediment controls to reduce the risk of water contamination.	Section 5.2.5.2, 5.2.7.3 and 9.5
ICHPL will implement controls to minimise dust emissions from the CWEA.	Section 8.2
ICHPL will implement plans to reduce, avoid and/or manage impacts on Aboriginal Heritage sites, and obtain required approvals.	Section 6
ICHPL will implement management strategies for the protection and conservation of *Persoonia hirsuta*, the Broad-headed Snake and the Southern Brown Bandicoot.	Section 7.4
ICHPL will progressively rehabilitate completed areas of the emplacement, maximising opportunities for natural regeneration.	Section 7.3.1
ICHPL will maintain the active emplacement area at 18 hectares.	Section 5.2.8.1 and 8.4
ICHPL will construct Stage 4 of the emplacement progressively down the valley from east to west.	Section 5.1
ICHPL will limit the area of clearing for Stage 3 at 60.5 hectares and Stage 4 of the emplacement to 60 hectares.	Section 5.1
ICHPL will limit the volume of the Stage 4 CWEA to 26 million tonnes and the height to 331 m AHD.	Section 5.1
ICHPL will survey and demarcate the boundaries of clearing for Stage 4 and include on detailed plans prior to the commencement of clearing.	Section 5.1
ICHPL will prepare new emplacement areas by vegetation clearing, stripping of topsoil, removal of subsoils and mulching of vegetation, and preferentially directly place these materials on emplacement areas available for rehabilitation or store appropriately.	Section 5.2
ICHPL will undertake pre-clearing surveys to identify habitat trees, hollows, boulders and outcrop rocks and use a two-stage clearing process.	Section 5.1 and 7.1
ICHPL will relocate any animals impacts by the clearing process and organise care for injured animals.	Section 7.2.2.3

ICHPL will complete a Permit to Disturb prior to undertaking any clearing of vegetation for the emplacement.	Section 7.1.2
ICHPL will implement weed and pest control strategies.	Section 7.3.5.1
ICHPL will use seed collected within the regional locality and supplementary planting of local provenance tubestock will be considered where required.	Section 7.3.4
ICHPL will construct the emplacement to meet design criteria.	Section 5.1
ICHPL will report and investigate complaints, incidents, exceedances of limits and non-compliances as required, and identify and implement corrective actions.	Section 10
ICHPL will undertake reporting as required, including performance against rehabilitation completion criteria.	Section 11
ICHPL will review the CWEAMP and undertake consultation with relevant stakeholders as required.	Section 11.3
A revised CWEAMP will be submitted to DCCEEW for approval once the elements of the Staging Plan for Stage 4 of the CWEA have been finalised and prior to commencement of emplacement activities in Stage 4.	Section 11.3
ICHPL will undertake inspections and audits as required.	Section 5.2.9.4, 7.1.2, 8.2, 9.1.1.5, 9.4 and 11.4
ICHPL will use its best endeavours to redirect coal wash to beneficial uses.	Section 5.2.12

13 Acronyms

Term	Definition
ACHA	Aboriginal Cultural Heritage Assessment
BAM	Biodiversity Assessment Method
BCD	Brennans Creek Dam
BSO	Bulli Seam Operations
CMP	Conservation Management Plan
CQA	Construction Quality Assurance Programme
CWEA	Coal Wash Emplacement Area
CWEAMP	Coal Wash Emplacement Area Management Plan
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Commonwealth), formerly • Department of Agriculture, Water and Environment (DAWE) • Department of the Environment and Energy (DotEE)
DCPP	Dendrobium Coal Preparation Plant
Department	Department of Planning, Housing and Infrastructure (formerly the: • Department of Planning and Environment (DPE) • Department of Planning, Infrastructure and Environment (DPIE) • Department of Planning (DoP)
DECC(W)	Department of Environment and Climate Change (and Water) (now EPA)
DMS	Dam Management Standard
DREA	Dry Reject Emplacement Area
EA	Environmental Assessment
EMS	Environmental Management System
EPA	Environment Protection Authority
EPBC	Environmental Protection and Biodiversity Conservation
EP&A Act	*Environmental Planning and Assessment Act*
EPL	Environment Protection Licence
FY	Financial Year

GM360	Event reporting system
ha	hectares
HMP	Heritage Management Plan
ICHPL	Illawarra Coal Holdings Pty Ltd
IEA	Independent Environmental Audit
LDP	Licence Discharge Point
mAHD	Metres Australian Height Datum
Mt	Million tonnes
NPWS	National Parks and Wildlife Service
NSW	New South Wales
OEH	Office of Environment and Heritage
OMS	Operations, Management and Surveillance Manual
OPD	Operational Purpose Deduction
PIRMP	Pollution Incident Response Management Plan
POEO	Protection of the Environment Operations
RAP	Registered Aboriginal Party
ROM	Run of mine
SMDD	Standard Maximum Dry Density
TARP	Trigger Action Response Plan
TMS	Tailings Management System
VENM	Virgin excavated natural material
WCCPP	West Cliff Coal Preparation Plant
WSC	Wollondilly Shire Council

14 Referenced Documents

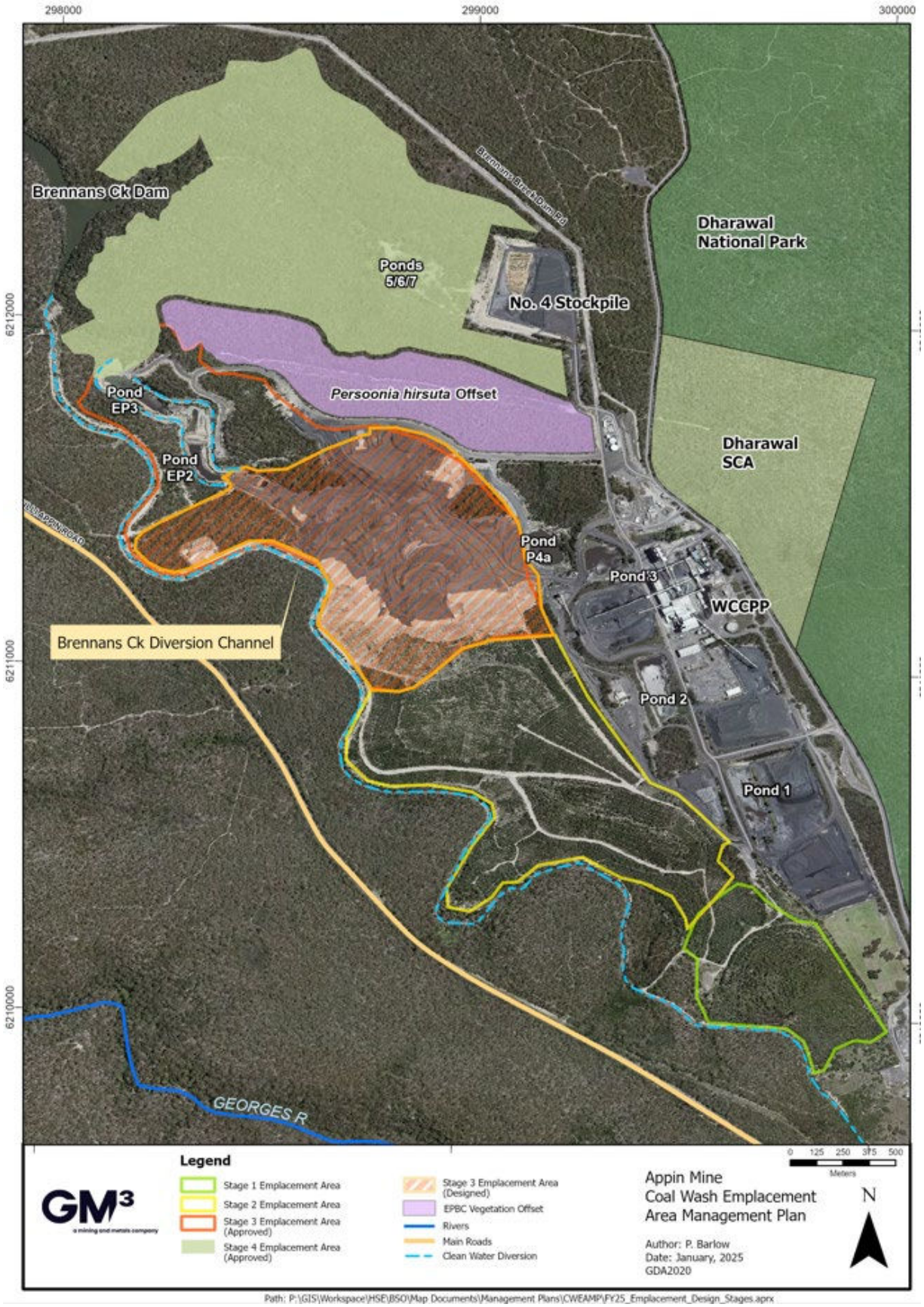
Document Number	Title
-	Biosis Research (2007), West Cliff Colliery Stage 3 Coal Wash Emplacement Archaeological and Cultural Heritage Assessment
-	Biosis Research (2007), Vegetation and Fauna Management Plan
-	West Cliff Colliery and Stage 3 Coal Wash Emplacement
-	Biosis Research (2007), Broad-headed Snake Management Plan for West Cliff Colliery - Stage 3 Coal Wash Emplacement Area
-	Biosis Research 2008. West Cliff Colliery Stage 3 Coal Wash Emplacement Area. Archaeological Research and Study Design for Section 87 (1) Preliminary Research Permit and Section 90 Consent. Report for BHP Billiton Illawarra Coal.
-	Biosphere Environmental Consultants (2009). Bulli Seam Operations Terrestrial Fauna Assessment prepared for Illawarra Coal Holdings Pty Ltd July 2009.
	Biodiversity Conservation Act 2016 (BC Act)
-	Cardno Forbes Rigby (2007) West Cliff Mine Closure Plan
-	Cardno Forbes Rigby (2009) Brennans Creek Bypass Channel Rehabilitation Features -West Cliff Colliery Report 001, June 2009
-	Department of Planning (2011). Project Approval – Bulli Seam Operations Project.
-	Department of Climate Change, Energy, the Environment and Water (2024). Environmental Management Plan Guidelines.
-	DITR 2006, Mine Rehabilitation - Leading Practice Sustainable Development Program for the Mining Industry, Commonwealth Government Department of Industry Tourism and Resources
-	Department of Planning, Industry and Environment (DPIE) 2020. Biodiversity Assessment Method.
-	Environment Protection Licence 2504
-	FloraSearch (2009). Illawarra Coal Bulli Seam Operations Project Terrestrial Flora Assessment prepared for Illawarra Coal Holdings Pty Ltd July 2009.
-	Niche (2011). Stage 3 Pre-clearing Assessment. Report prepared for Illawarra Coal.
-	Niche (2023). Coal Wash Emplacement Area Bushfire Research Literature Review. Dated 20 April 2023.
-	Niche (2023). West Cliff Stage 4 Coal Wash Emplacement Post Survey Letter Report – (Niche Ref: #7755).
-	Niche (2024). Aboriginal Cultural Heritage Assessment Report West Cliff Stage 4 Coal Wash Emplacement dated 18 March 2024.
-	NSW Resources Regulator. Rehabilitation Management Plan for Large Mines – Form and Way. July 2021 link
-	OEH (2014). BioBanking Assessment Method.
-	Resource Strategies (2011) Bulli Seam Operations - Environmental Assessment. Report prepared for BHPBIC.
-	Department of Planning, Industry and Environment (2020) Surveying threatened plants and their habitats: NSW survey guide for the Biodiversity Assessment Method.

15 Supporting Documents

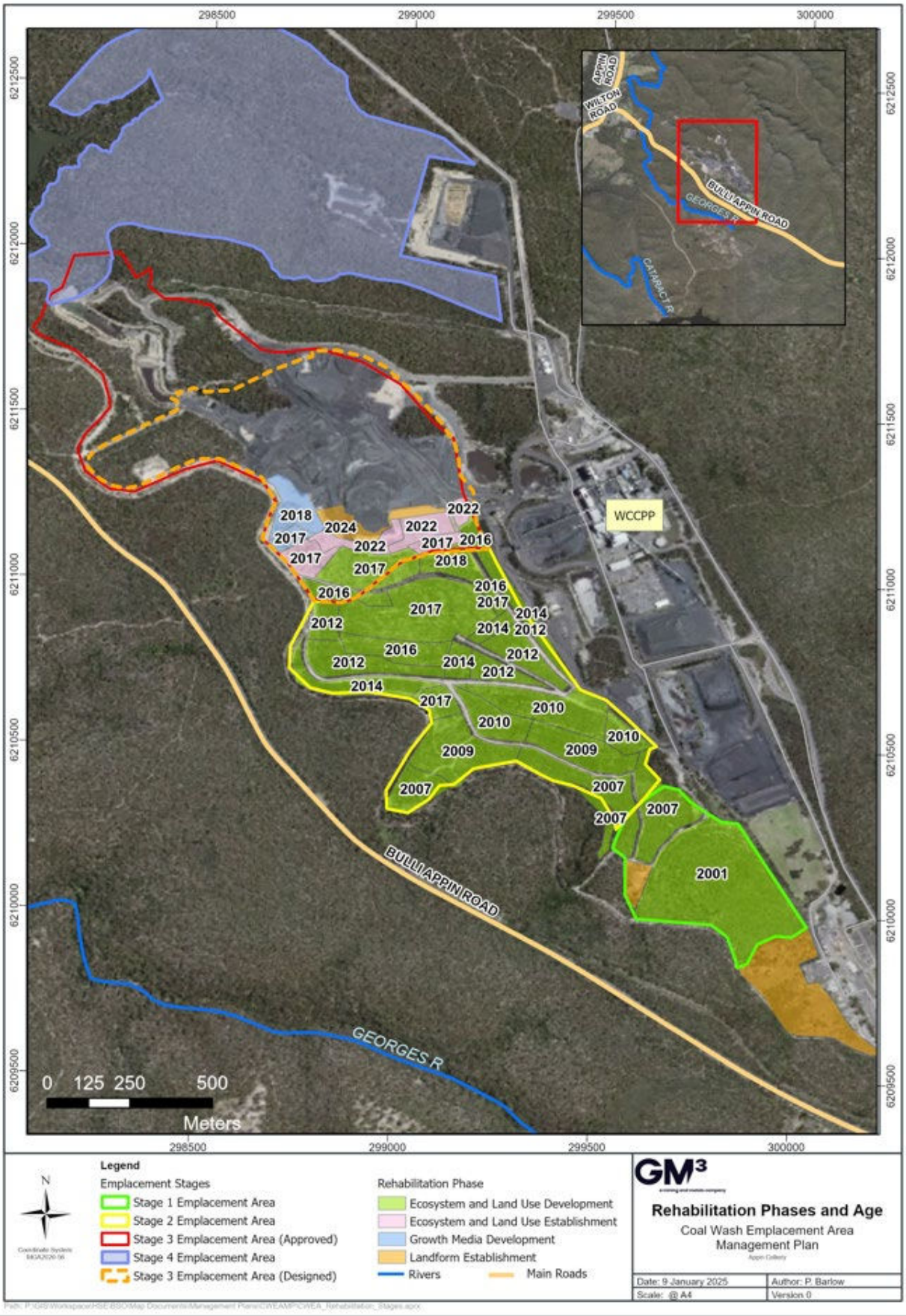
Document Number	Title
APNMP0119	Appin Mine Heritage Management Plan
APNMP0127	Appin Mine Rehabilitation Management Plan
APNMP0121	Appin Mine Water Management Plan
APNMP0112	Appin Mine Air Quality and Greenhouse Gas Management Plan
APNMP0113	Appin Mine Noise Management Plan
APNMP0122	*Persoonia hirsuta* Offset Management Plan
APNMP0111	Broad-headed Snake and Southern Brown Bandicoot Management Plan
APNMP0115	Appin Mine Biodiversity Management Plan
WCPM0004	Road Maintenance Manual
WCPMP0001	Stockpile and Slope Stability Management Plan
APNMP0135	Appin Mine Adaptive Management Plan for Water Sensitive EPBC Act Listed Species
WCPMP0012	Roads or Other Vehicle Operating Areas Principal Hazard Management Plan West Cliff Coal Preparation Plant
IMCF0209	Permit to Disturb
IMCP0207	Permit to Disturb Procedure
IMCP0186	Environmental Compliance/Conformance Assessment and Reporting
IMCSTD0069	Reporting and Investigation Standard
WCPF0663	Material Acceptance Form
IMCSTD0069	Reporting and Investigation Standard
IMCP0112	Handling Community Complaints, Enquiries and Disputes Procedure
APNMP0108	Appin Mine Bushfire Management Plan
APNMP0005	Appin Mine Emergency Response Control Plan
APNMP0124	Pollution Incident Response Management Plan
WCPM0025	Operations, Maintenance and Surveillance Manual Dry Rejects Emplacement Area

16 Plans

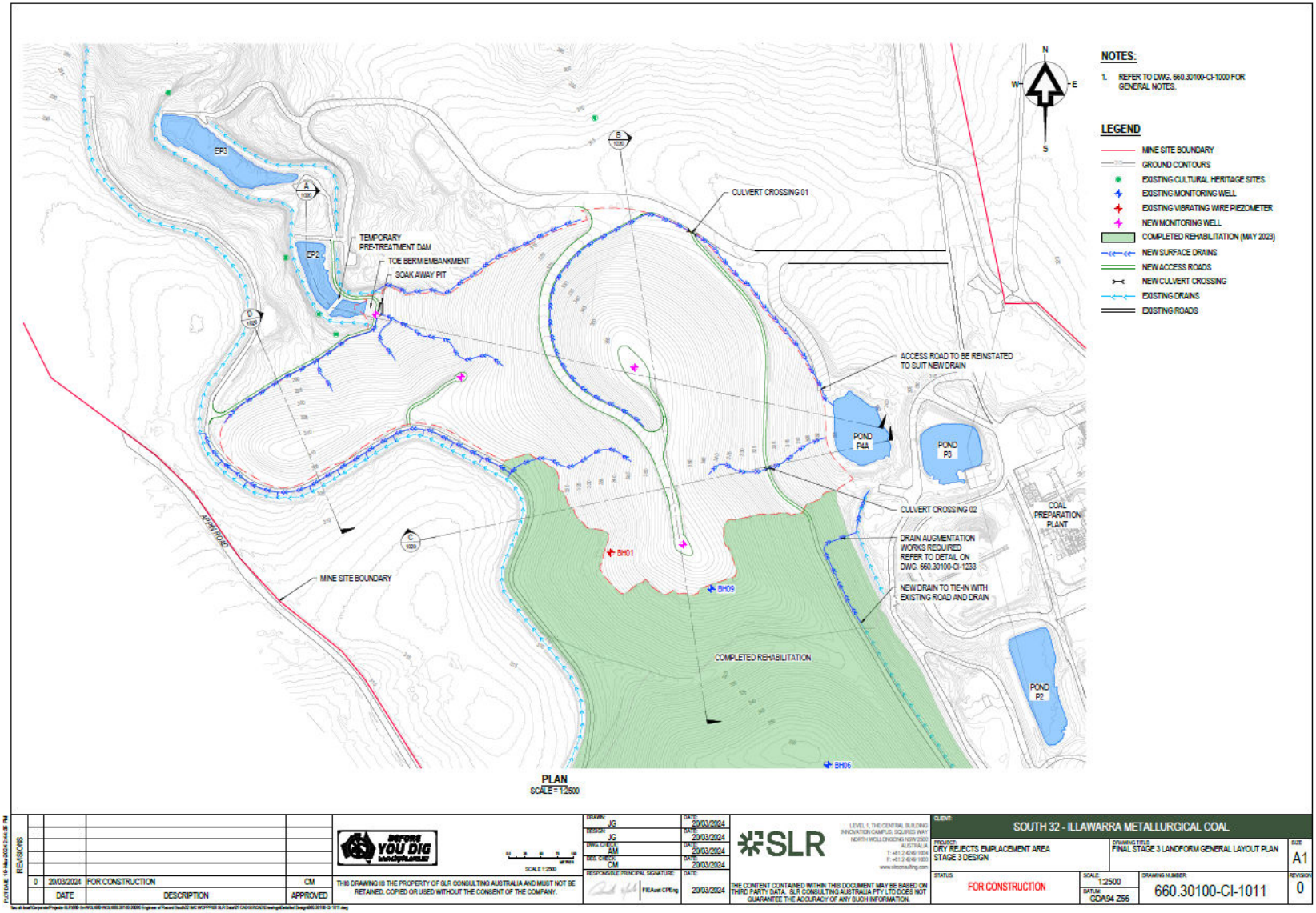
Plan 1: Emplacement Outline and Location Plan



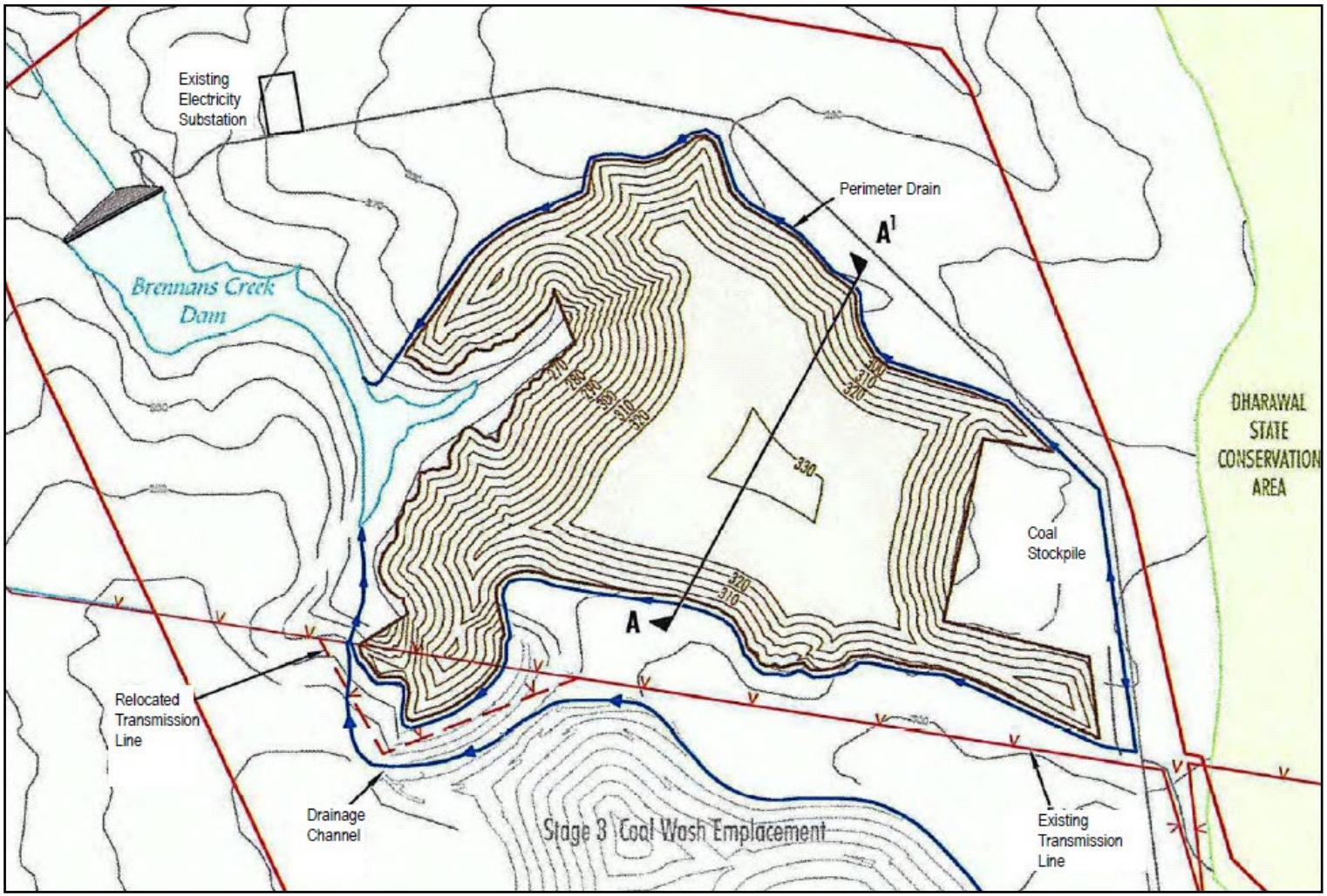
Plan 2: CWEA Rehabilitation Phases and Age of Rehabilitation



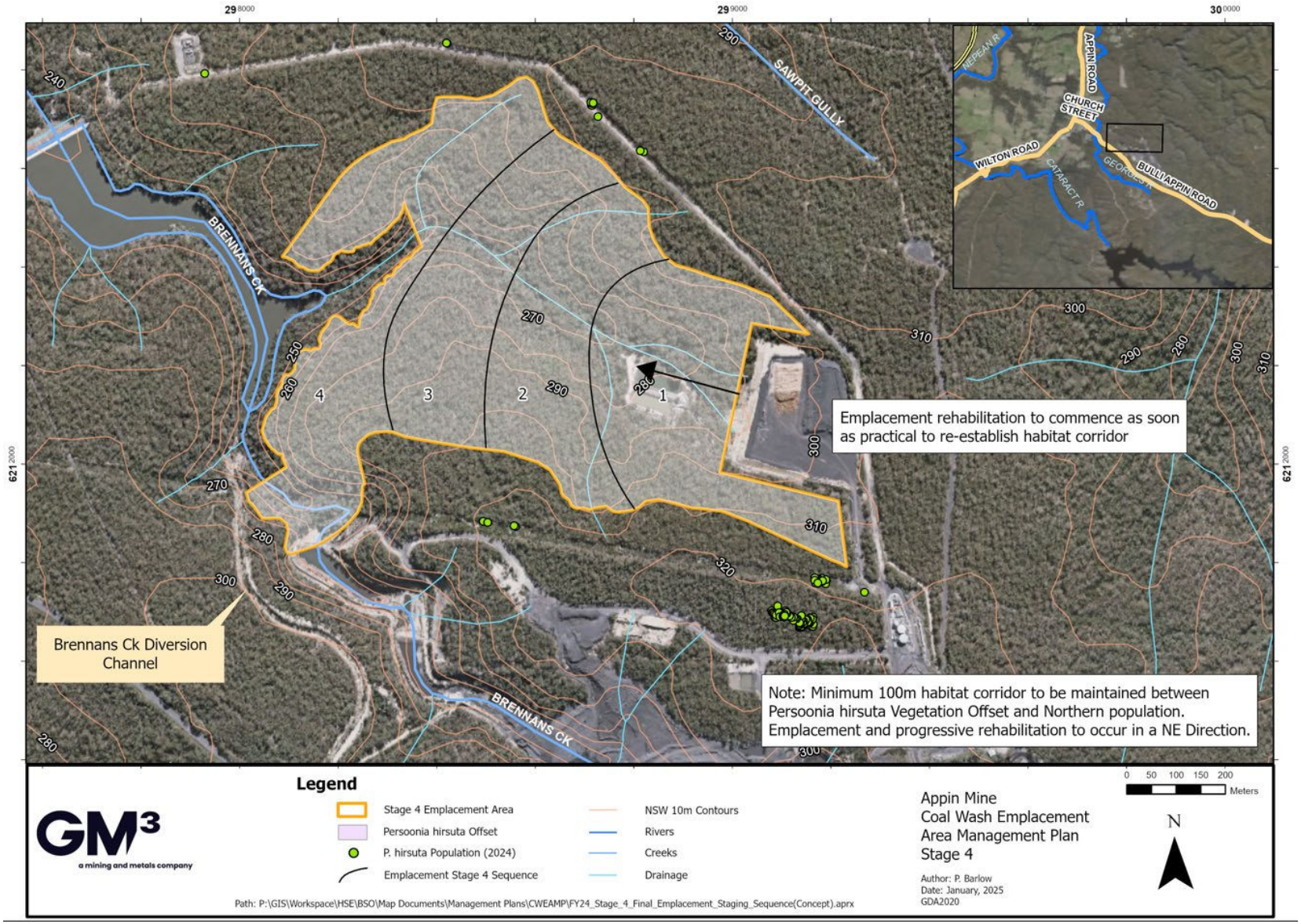
Plan 3: Stage 3 Final Emplacement Design



Plan 4: Stage 4 Final Emplacement Design (Concept)



Plan 5: Stage 4 Final Emplacement Staging Sequence (Concept)



Plan 6: Cultural Heritage Plan [38]

Plan has been removed at request of RAPs. Please contact GM³ at 1800 102 210 or community@gm3.au if you require a copy.

[38] Plan 5 has been redacted in CWEAMP publicly available on GM³ website at request from RAPs.

17 Appendices

Appendix 1: Project Approval Conditions and Statement of Commitments: Coal Wash Management

Condition	Requirement	Section
Condition 1 of Schedule 2	**Obligation to minimise harm to the environment** In addition to meeting the specific performance criteria established under this approval, the Proponent shall implement all reasonable and feasible measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the project.	Section 1.1
Condition 2 of Schedule 2	**Terms of Approval** The Proponent must carry out the project: (a) generally in accordance with the EA, Statement of Commitments and PPR; (b) in accordance with the conditions of this approval; and (c) in accordance with any written directions of the Planning Secretary.	Section 3.1
Condition 4 of Schedule 2	Consistent with the requirements of this approval, the Planning Secretary may make written directions to the Proponent in relation to: (a) the content of any strategy, study, system, plan, program, review, audit, notification, report or correspondence submitted under or otherwise made in relation to this approval, including those that are required to be, and have been, approved by the Planning Secretary; and (b) the implementation of any actions or measures contained in any such document referred to in condition 4(a).	Section 10.3
Condition 12 of Schedule 2	**Operation of Plant and Equipment** The Proponent shall ensure that all plant and equipment used at the site is: (a) maintained in a proper and efficient condition; and (b) operated in a proper and efficient manner.	Section 5.2
Condition 17 of Schedule 4	**West Cliff Coal Wash Emplacement Area Management Plan** The Proponent shall prepare a West Cliff Emplacement Area Management Plan for the project to the satisfaction of the Planning Secretary. This plan must be prepared in consultation with BCD and be submitted to the Planning Secretary for approval by the end of June 2013. This plan must include:	This Plan. Plan was initially submitted by due date.
	a) detailed design plans which include options for reducing, avoiding and/or managing impacts on Aboriginal heritage sites in and adjacent to the south-western fringe of the proposed	Section 6

Condition	Requirement	Section
	Stage 4 footprint (including sites: 52-2-2228/3617, 52-2-1373, 52-2-3533/3613 and 52-2-3506).	
	(b) management strategies to ensure no impacts to Aboriginal heritage site 52-2-3505 other than negligible impacts, including consideration of potential staged development of the emplacement and/or buffer areas;	Section 6
	(c) management strategies for the protection and conservation of *Persoonia hirsuta*;	Section 7.4.1 and *Persoonia hirsuta* Offset Management Plan
	(d) management strategies for the protection and conservation of the Broad-headed Snake and the Southern Brown Bandicoot;	Section 7.4.2 and Broad-headed Snake and Southern Brown Bandicoot Management Plan
	(e) a comprehensive water monitoring program for the emplacement;	Section 9.4 and 9.5 and Appin Mine Water Management Plan.
	(f) provide for progressive rehabilitation of the emplacement area, including through: • maximising opportunities for natural regeneration; • maximising retention of suitable habitat species; • appropriate weed and pest control strategies; and • planting only endemic species in habitat mixes appropriate for soil, slope and aspect.	Section 7.3
Condition 17A of Schedule 4	The Proponent must implement the West Cliff Coal Wash Emplacement Area Management Plan approved by the Planning Secretary.	Section 11.3
Condition 18 of Schedule 4	**West Cliff Coal Wash Emplacement Area Biodiversity Offset Strategy** The proponent shall provide a suitable biodiversity offset strategy to compensate for the impacts of Stage 4 of the West Cliff Coal Wash Emplacement Area, to the satisfaction of the Secretary. This offset strategy must: • be prepared in consultation with BCD; • be submitted to the Planning Secretary for approval by the end of December 2012, or as otherwise agreed by the Planning Secretary; and • fulfil "maintain or improve" and seek to fulfil "like for like or better" conservation outcomes for the vegetation	*Persoonia hirsuta* Offset Management Plan

Condition	Requirement	Section
	associations and the Persoonia hirsute impacted by clearing.	
Condition 19 of Schedule 4	The Proponent shall make suitable arrangements to provide appropriate long-term security for the offset areas by 31 December 2012, or other date agreed by the Planning Secretary, to the satisfaction of the Planning Secretary.	*Persoonia hirsuta* Offset Management Plan
Condition 20 of Schedule 4	**Underground Coal Wash Emplacement Trial** The Proponent shall prepare and undertake an Underground Coal Wash Emplacement Trial for the project to the satisfaction of the Planning Secretary. The design of the trial must: • be undertaken in consultation with BCD; • be submitted to the Secretary for approval by the end of December 2012; • contain a two year program to undertake both pilot scale and demonstration scale trials of underground coal wash disposal; • include commitments for ongoing development and/or implementation of underground emplacement options following this two-year trial; and • include 6 monthly progress reporting to the Department and BCD.	Section 5.2.11
Condition 24 of Schedule 4	**Heritage Management Plan** The Proponent shall prepare a Heritage Management Plan for the project to the satisfaction of the Planning Secretary. *Note: This plan must be suitably integrated with Heritage Management Plans that form part of Extraction Plans, and the West Cliff Coal Wash Emplacement Area Management Plan.*	Appin Mine Heritage Management Plan
Condition 24A of Schedule 4	The Proponent must implement the Heritage Management Plan approved by the Planning Secretary.	Appin Mine Heritage Management Plan
Condition 2 of Schedule 6	**Management Plan Requirements** The Proponent shall ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include:	
	a) detailed baseline data;	Section 4 and 6
	b) a description of: • the relevant statutory requirements (including any relevant approval, licence or lease conditions; • any relevant limits or performance measures/criteria; • the specific performance indicators that are proposed to be used to judge the performance of, or guide the	Section 3 Section 5.1 Section 5.1

Condition	Requirement	Section
	implementation of, the project or any measurements measures;	
	c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits of performances measures / criteria;	Section 5, 6, 7 and 8
	d) a program to monitor and report on the: • impacts and environmental performance of the project; effectiveness of any management measures (see c above)	Section 9
	e) a contingency plan to manage unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 10.3
	f) a program to investigate and implement ways to improve the environmental performance of the project over time;	Section 11
	g) a protocol for managing and reporting any: • incidents; • complaints; • non-compliances with statutory requirements; and • exceedances of the impact assessment criteria and / or performance criteria; and	Section 10 Section 11.2
	h) a protocol for periodic review of the plan. *Note: The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.*	Section 11.3
Condition 3 of Schedule 6	**Adaptive Management** The Proponent must assess and manage project-related risks to ensure that there are no exceedances of the criteria and/or performance measures in Schedules 3 and 4. Any exceedance of these criteria and/or performance measures constitutes a breach of this approval and may be subject to penalty or offence provisions under the *EP&A Act* or *EP&A Regulation*. Where any exceedance of the criteria and/or performance measures has occurred, the Proponent must, at the earliest opportunity: a) take all reasonable and feasible steps to ensure the exceedance ceases and does not recur; b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing these options and any preferred remediation measures or other course of action; and c) implement remediation measures as directed by the Planning Secretary to the satisfaction of the Planning Secretary.	Section 10.3
	Annual Review	

Condition	Requirement	Section
Condition 4 of Schedule 6	By 30 September 2012, and annually thereafter, the Proponent shall review the environmental performance of the project to the satisfaction of the Planning Secretary. This review must: (a) describe the development (including any rehabilitation) that was carried out in the past financial year, and the development that is proposed to be carried out over the next year; (b) include a comprehensive review of the monitoring results and complaints records of the project over the past financial year, which includes a comparison of these results against the: •relevant statutory requirements, limits or performance measures/criteria; • requirements of any plan or program required under this approval; • monitoring results of previous years; and • relevant predictions in the EA; (c) identify any non-compliance over the past financial year, and describe what actions were (or are being) taken to ensure compliance; (d) identify any trends in the monitoring data over the life of the project; (e) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and (f) describe what measures will be implemented over the current financial year to improve the environmental performance of the project.	Section 11.1.1
Condition 5 of Schedule 6	**Revision of Strategies, Plans and Programs** Within 3 months of: (a) the submission of an annual review under Condition 4 above; (b) the submission of an incident report under Condition 7 below; (c) the submission of an audit report under Condition 9 below; and (d) any modification to the conditions of this approval, (unless the conditions require otherwise); or (e) a direction of the Planning Secretary under Condition 4 of Schedule 2; the Proponent shall review, and if necessary revise, the strategies, plans, and programs required under this approval to the satisfaction of the Planning Secretary.	Section 11.3
Condition 7 of Schedule 6	**Incident Notification, Reporting and Response** The Planning Secretary must be notified in writing via the Major Projects website immediately after the Proponent becomes aware of an incident. The notification must identify the project (including the development application number and the name	Section 11.2

Condition	Requirement	Section
	of the development if it has one) and set out the location and nature of the incident. Subsequent notification requirements must be given, and reports submitted in accordance with the requirements set out in Appendix 7.	
Condition 7A of Schedule 6	**Non-compliance Notification** The Secretary must be notified in writing via the Major Projects website within seven days after the Proponent becomes aware of any non-compliance. A non-compliance notification must identify the project and the application number for it, set out the condition of approval that the project is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance. Note: A non-compliance which has been notified as an incident does not need to also be notified as a noncompliance.	Section 11.2
Condition 8 of Schedule 6	**Regular Reporting** The Proponent shall provide regular reporting on the environmental performance of the project on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this approval.	Section 11.1
Condition 9 of Schedule 6	**Independent Environmental Audit** By the end of December 2013, and every 3 years thereafter, unless the Planning Secretary directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the project. This audit must: (a) be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Planning Secretary; (b) include consultation with the relevant agencies; (c) assess the environmental performance of the project and assess whether it is complying with the requirements in this approval and any relevant EPL or Mining Lease (including any assessment, plan or program required under these approvals); (d) review the adequacy of strategies, plans or programs required under the abovementioned approvals; and (e) recommend appropriate measures or actions to improve the environmental performance of the project, and/or any assessment, plan or program required under the abovementioned approvals. Note: This audit team must be led by a suitably qualified auditor and include experts in any field specified by the Planning Secretary	Section 11.4.1

Condition	Requirement	Section
Condition 10 of Schedule 6	Within 6 weeks of the completion of this audit, or as otherwise agreed by the Planning Secretary, the Proponent shall submit a copy of the audit report to the Planning Secretary, together with its response to any recommendations contained in the audit report.	Section 11.4.1
Condition 11 of Schedule 6	**Access to Information** From 30 June 2012, the Proponent shall: (a) make copies of the following publicly available on its website: • the documents referred to in Condition 2 of Schedule 2; • all current statutory approvals for the project; • all approved strategies, plans and programs required under the conditions of this approval; • a comprehensive summary of the monitoring results of the project, reported in accordance with the specifications in any conditions of this approval, or any approved plans and programs; • a complaints register, updated on a monthly basis; • minutes of CCC meetings; • the annual reviews of the project; • any independent environmental audit of the project, and the Proponent's response to the recommendations in any audit; • any other matter required by the Planning Secretary; and (b) keep this information up-to-date, to the satisfaction of the Planning Secretary	Section 3.1 Section 11.1 Section 10.1 Section 11.4.1
SOC1	The provision of a compensatory land package for the Stage 4 Coal Wash Emplacement.	*Persoonia hirsuta* Offset Management Plan
	The management of the Hairy Geebung (*Persoonia hirsuta*) in the vicinity of the West Cliff Stage 4 Coal Wash Emplacement.	*Persoonia hirsuta* Offset Management Plan
	The management of the Southern-Brown Bandicoot (*Isoodon obesulus obesulus*) in the vicinity of the West Cliff Stage 4 Coal Wash Emplacement.	Broad-headed Snake and Southern Brown Bandicoot Management Plan

Appendix 2: EPBC Approval Conditions: Coal Wash Management

Condition	Requirement	Section
Condition 6	**Coal Wash Emplacement Staging and Rehabilitation Plan** The person taking the action must provide a Coal Wash Emplacement Staging and Rehabilitation Plan (the Staging Plan) for the stage 4 coal wash emplacement area to the Minister for approval. Clearing of vegetation for stage 4 coal wash area must not occur until the Staging Plan has been approved by the Minister. The Staging Plan must include, but not be limited to:	This Plan
	a) measures to limit the clearing of native vegetation to no more than 60 hectares;	Section 5.1
	b) provision for the progressive staging of coal wash emplacement to ensure at all times a minimum 100 m wide habitat corridor is maintained linking the *Persoonia hirsuta* core population with habitat adjacent to the Stage 4 coal wash emplacement area;	Section 5.1 and 7.4
	c) measures to ensure that, if the corridor is to include land previously used as emplacement areas (either in whole or part), native re-vegetation is established to the extent that it facilitates the movement of pollination vectors for *Persoonia hirsuta*;	Section 7.4
	d) staging of emplacement from east to west;	Section 5.1
	e) provision for progressive rehabilitation of the emplacement area, including through: i. staged clearing of native vegetation within the stage 4 coal wash emplacement area; ii. maximising opportunities for natural regeneration, including through salvage, storage and re-use of site top soil and maximising the retention time of suitable habitat species within the stage 4 coal wash emplacement area adjacent to active emplacement areas to assist re-colonisation of native species to rehabilitated areas; iii. key performance objectives for site rehabilitation, including indicative timelines, performance measures, management actions and responsibilities and accountabilities; iv. planting only endemic species in habitat mixes appropriate for the local surrounding environment, soil, slope and aspect, in accordance with relevant published guidelines; and v. appropriate weed and pest control strategies.	Section 5.1 and 7.2.2 Section 7.2.3 and 7.3.3 Table 6 Section 7.3.4 Section 7.3.5.1
	f) monitoring and rehabilitation actions including but not limited to, measures to assess the success of management actions, natural regeneration and revegetation. The reporting of monitoring results must be submitted to the department within	Section 9 and 11

	30 days of every 12-month anniversary of the implementation date of the Staging Plan; and	
	g) unless otherwise agreed to in writing by the Minister, the Staging Plan must be implemented and remain implemented for a minimum period of 10 years at which point a revised plan taking into account the monitoring referred to above must be submitted to and approved by the Minister.	Section 11.3
Condition 2	***Persoonia hirsuta* (Hairy Geebung)** The person taking the action must provide a plan for the management of the *Persoonia hirsuta* offset to the Minister for approval no later than 31 December 2012… …The approved *Persoonia hirsuta* Offset Management Plan must be implemented. Clearing of native vegetation for the stage 4 coal wash emplacement area must not occur until the *Persoonia hirsuta* Offset Management Plan has been approved by the Minister.	*Persoonia hirsuta* Offset Management Plan
Condition 7	**Southern Brown Bandicoot and Broad Headed Snake Management Plan or Plans** Within one year of the date of this approval the person taking the actin must provide for the Minister's approval a Southern Brown Bandicoot and Broad Headed Snake conservation plan or plans… …The approved plan or plans must be implemented within 2 years of the date of this approval. The clearing of native vegetation for the stage 4 coal wash emplacement cannot occur until the approved plan or plans have been implemented.	Broad-headed Snake and Southern Brown Bandicoot Management Plan
Condition 8	**Surface and Ground Water Quality Monitoring and Adaptive Management Plan** The person taking the action must provide a Surface and Ground Water Quality Monitoring and Adaptive Management Plan (the Water Plan) to the Minister for approval by 30 September 2012. Clearing of native vegetation for the stage 4 coal wash emplacement area and new mining activities beneath water courses containing habitat for EPBC listed species cannot occur until or unless the Water Plan has been approved and implemented.	Adaptive Management Plan for Water Sensitive EPBC Species
Condition 14	**Compliance Report** Within three months of every 12 month anniversary of the commencement of the action, the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the department at the same time as the compliance report is published.	Section 11.1.5

Appendix 3: CWEA Cultural Heritage Site Summary Table

Emplacement Area	Site Name and No.	Site Description	GPS Location[39]	Archaeological or Scientific Significance	Potential / Planned Impact	Timeframe	Management/Mitigation Measures	Proposed Monitoring & Reporting Methods
Stage 3	BC2 (52-2-1368)	Shelter with surface artefacts		Low	Buried by emplacement landform	Site was buried in 2016.	The following actions were completed: • Detailed recording – including scale photographic recording of the art and the sandstone overhang (art recoding will be undertaken using methods that do not involve touching the art surface) - see baseline report, Biosis 2011. • Facilitating the agreed Aboriginal Community Enhancement Program with the Tharawal LALC which included funding for: 3D imaging and recording of the landscape; research and sponsorship; and training and employment. • Excavation – The archaeological deposits at BC2 have been entirely salvage excavated as per the Preliminary Research	Progress against Management / Mitigation measures reported in Annual Review.

[39] GPS locations has been redacted in CWEAMP publicly available on GM[3] website at request from RAPs.

Emplacement Area	Site Name and No.	Site Description	GPS Location[39]	Archaeological or Scientific Significance	Potential / Planned Impact	Timeframe	Management/Mitigation Measures	Proposed Monitoring & Reporting Methods
							Permit #2908. See excavation report, Biosis 2008. • Protection of site using geo-textile and clean sand fill prior to emplacement. The following activities are planned: • Signage and appropriate interpretation on the final emplacement landform indicating the location of the site below the emplacement.	
Stage 3	BC 5 (52-2-1371)	Single grinding groove		Low	No direct impact	N/A	The following actions have been completed: • Detailed recording of the site location and detailed photographic record - see Biosis 2011.	CWEA progress to be reported in Annual Review.
Stage 3	BC6 (52-2-1372)	Shelter with art[40]		Moderate	Possible impacts from dust	N/A	The following actions have been completed: • Detailed recording – including scale photographic recording of the art and the sandstone overhang (art recoding will	CWEA progress to be reported in Annual Review.

[40] Recorded in Biosis (2011) Report as Site Type: Singular grinding grooves.

Emplacement Area	Site Name and No.	Site Description	GPS Location[39]	Archaeological or Scientific Significance	Potential / Planned Impact	Timeframe	Management/Mitigation Measures	Proposed Monitoring & Reporting Methods
							be undertaken using methods that do not involve touching the art surface) - see Biosis 2011. • Facilitating the agreed Aboriginal Community Enhancement Program with the Tharawal LALC which included funding for: 3D imaging and recording of the landscape; research and sponsorship; and training and employment. • Excavation – The archaeological deposits at BC6 have been entirely salvage excavated as per the Preliminary Research Permit #2908. See excavation report, Biosis 2008. The following activities are planned: • Dust mitigation will be implemented on the CWEA as detailed in Section 8.2	
Stage 4	BC 7 (52-2-1373)	Shelter with art		Moderate	Possible impacts from dust	Timing will be determined by progress of CWEA.	The following actions have been completed: • Detailed recording – including scale photographic recording of	CWEA progress to be reported in Annual Review.

Emplacement Area	Site Name and No.	Site Description	GPS Location[39]	Archaeological or Scientific Significance	Potential / Planned Impact	Timeframe	Management/Mitigation Measures	Proposed Monitoring & Reporting Methods
						Planned management and mitigation activities will be conducted at least 6 months prior to construction.	the art and the sandstone overhang (art recoding will be undertaken using methods that do not involve touching the art surface) - see Biosis 2011. Archaeological salvage is not considered appropriate for this site given the characteristics of the site. The following activities are planned: • The site will be marked on plans to protect it from impact during construction. • Dust mitigation will be implemented on the CWEA as detailed in Section 8.2. • Review requirement for any protection for the shelter and associated art work when Stage 4 CWEA works approach the site.	
Stage 4	D10 (52-2-3617)	Sandstone shelter with deposit only		Low	No direct impact		The following activities are planned: • The site will be marked on plans to protect it from impact during construction.	Progress against Management / Mitigation measures reported in Annual Review.

Emplacement Area	Site Name and No.	Site Description	GPS Location[39]	Archaeological or Scientific Significance	Potential / Planned Impact	Timeframe	Management/Mitigation Measures	Proposed Monitoring & Reporting Methods
Stage 4	D11 (52-2-3533/52-2-3616[41])	Sandstone shelter with deposit only		Moderate	No direct impact		The following activities are planned: • The site will be marked on plans to protect it from impact during construction.	Progress against Management / Mitigation measures reported in Annual Review.
Stage 4	WEST CLIFF 1 (52-2-3504)	Shelter with art and deposit		Moderate	Possible impacts from dust		The following activities are planned: • The site will be marked on plans to protect it from impact during construction. • Dust mitigation will be implemented on the CWEA as detailed in Section 8.2.	Visual monitoring throughout the emplacement operation for potential impacts on art from dust and vibration. Progress against Management / Mitigation measures reported in Annual Review.
Stage 4	WEST CLIFF 2 (52-2-3505)	Shelter with art		High	Possible impacts from dust		The following has been completed: • Detailed recording – including scale photographic recording of the art and the sandstone overhang (art recoding will be undertaken using	Visual monitoring throughout the emplacement operation for potential impacts on art from dust and vibration.

[41] Incorrectly referenced in Project Approval as 52-2-3613.

Emplacement Area	Site Name and No.	Site Description	GPS Location[39]	Archaeological or Scientific Significance	Potential / Planned Impact	Timeframe	Management/Mitigation Measures	Proposed Monitoring & Reporting Methods
							methods that do not involve touching the art surface). The following work is planned: • The site will be marked on plans to protect it from impact during construction. • Dust mitigation will be implemented on the CWEA as detailed in Section 8.2..	Progress against Management / Mitigation measures reported in Annual Review.
Stage 3/4	WEST CLIFF 3 (52-2-3506)	Shelter with deposit		PAD	No direct impact		The following work is planned: • The site will be marked on plans to protect it from impact during construction.	CWEA progress to be reported in Annual Review.
Stage 3	WEST CLIFF 4 (52-2-3507)	Shelter with art		Low	Possible impacts from dust	Timing will be determined by operational needs. Planned management and mitigation activities will be conducted at least 6 months prior to planned burial.	The following actions have been completed: • Detailed recording – including scale photographic recording of the art and the sandstone overhang (art recoding will be undertaken using methods that do not involve touching the art surface) - see baseline report, Biosis 2011. • Facilitating the agreed Aboriginal Community	Progress against Management / Mitigation measures reported in Annual Review.

Emplacement Area	Site Name and No.	Site Description	GPS Location[39]	Archaeological or Scientific Significance	Potential / Planned Impact	Timeframe	Management/Mitigation Measures	Proposed Monitoring & Reporting Methods
							Enhancement Program with the Tharawal LALC which included funding for: 3D imaging and recording of the landscape; research and sponsorship; and training and employment. The following work is planned: • The site will be marked on plans to protect it from impact during construction. • Dust mitigation will be implemented on the CWEA as detailed in Section 8.2.	
Stage 4	WEST CLIFF 5 (52-2-3508)	Stone artefact(s)		Low	Possible impacts from road	N/A	The artefacts that were found in the 2007 survey were not found during the 2009 or 2023 survey. It is likely that material had washed off the track prior to 2009. The location is marked on site plans and signage has been installed to protect it from any impacts.	CWEA progress to be reported in Annual Review.
Historic Heritage Sites								
Stage 3	WCHS1	Stone retaining		Local	No direct impact	Timing will be determined by	The following work is planned:	CWEA progress to be reported in Annual Review.

Emplacement Area	Site Name and No.	Site Description	GPS Location[39]	Archaeological or Scientific Significance	Potential / Planned Impact	Timeframe	Management/Mitigation Measures	Proposed Monitoring & Reporting Methods
		wall structure				progress of CWEA.	• The site will be marked on plans to protect it from impact during construction.	
Stage 3	WCHS2	Transient occupation site		Local	Buried by emplacement landform	Already consumed by emplacement	The following has been completed: Detailed mapping and photography – See Archival Record report, Niche 2011.	N/A – already complete

Appendix 4: Agency Consultation

Agency Comments	ICHPL Response
Environment Protection Authority	
Response received 12 November 2020 The Environment Protection Authority (EPA) refers to Endeavour Coal's request for comments on the Appin Colliery Coal Wash Emplacement Area Management Plan, version 5.0. The EPA has reviewed the updated management plan and has no comments to provide.	Noted
Biodiversity and Conservation Division	
Response received 23 November 2020 One of the primary concerns with the CWEAMP is in regard to the water (rainfall, runoff and on-site water) management within the site and water quality flowing to Brennans Creek Dam and then to the Georges River. In summary, the proposed strategies outlined in the CWEAMP do not adequately demonstrate sufficient control and management of water quality, prior to delivery into Brennans Creek Dam. Adequate control of the quality of water being delivered to Brennans Creek Dam is considered critical since South32 have recently identified that they will not be able to meet the current licence deadline for the installation of the water treatment plant at Appin North (by 31 March 2021). Furthermore, no timeline has been provided for when the Appin North Treatment Plant will be delivered.	Site water management, including at the CWEA, is covered in the Appin Mine Water Management Plan. It is noted that a Water Treatment Plant is being constructed at Appin North that will utilise the underdrainage water and this will result in improved water quality in BCD. *Update January 2025 – The Water Treatment Plant has been constructed and has been operational since April 2023.*
BCD supports the appropriate management of surface infrastructure and storage areas for the CWEA and the diversion of 'clean' water around the coal storage and processing areas. However, the CWEAMP contains no evidence of any groundwater monitoring program to demonstrate that current management practices are sufficient for controlling any potential groundwater contamination or downstream effects. Indeed, monitoring associated with Brennans Creek Dam discharges by both the company and (earlier) OEH clearly demonstrate that there are significant	An underdrainage collection pond is in place. Any seepage/infiltration through the CWEA is captured in the underdrainage which flows to this pond which is sampled and monitored monthly. The Georges River Aquatic Health Monitoring Program is in place that has been approved by the EPA and endorsed by the Georges River Stakeholder Group.

downstream effects from the operation of (and discharge from) the West Cliff site. A major component of this is potentially rainfall, runoff and on-site water from the CWEA.	
In addition, South32 have not provided any evidence, report or data to support/demonstrate that underground emplacement is not a viable option to reduce both the area required for coal waste emplacement or the generating area for poor quality water which subsequently flows to Brennans Creek Dam.	Refer to Section 4.2.11
It is recommended that South32 consider rewriting the CWEAMP to define the term 'clean'.	Clean is not contaminated with coal fines.
demonstrate that stormwater runoff from emplacement areas with established landform (with vegetation spread) is 'clean'.	Inspections of the CWEA after rainfall confirm that run-off from the CWEA is clean.
describe the quality of 'treated water' being gravity fed to Brennans Creek Dam.	The quality of water in BCD is monitored on a continuous basis, which includes turbidity, pH and electrical conductivity. BCD discharge is automated to respond to changes in water quality. Treated water means flocculant has been added or water filtered to remove suspended solids.
define the term 'generally clean'.	Coal wash acts as a filter and generally the underdrainage flows are clear. Generally clean describes that after heavy rainfall during the first flush event, the flows may have a higher turbidity.
describe the quality of emplacement under-drainage flows and demonstrate that they are 'generally clean' before being pumped to the clean water diversion channel for release into BCD	Underdrainage flows are monitored on a monthly basis at Point 16. These results are provided in the 14 day report available on the GM^3 website: link.
provide details on what quality of water will trigger underdrainage to be directed into the CWEA dirty water system.	Underdrainage water would be directed to the dirty water system if the water is observed to be turbid or has a measured higher turbidity.
provide details on the quality of 'coal wash' waste water	Underdrainage flows are monitored on a monthly basis at Point 16. These results

	are provided in the 14 day report available on the GM[3] website.
define the term 'trace amounts'	Trace amounts relates to low concentrations. This has been amended in the text.
discuss the long-term experience with discharges from Brennans Creek Dam at West Cliff identifying salinity and, in particular bicarbonate, as potential additional significant water related issues for coal wash waters.	The history of water quality issues has been detailed in the Environment Improvement Program that was approved by the EPA. This has now been replaced by the Georges River Aquatic Health Monitoring Program. Detail of this program is provided in the Water Management Plan.
provide details on any groundwater monitoring program for the CWEA demonstrate contaminants from coal wash or the 'dirty water' system are not making their way into local groundwater aquifers. ensure that current management practices are sufficient for controlling any potential groundwater contamination or downstream effects.	Refer to Section 7.1
<u>Response received 21 May 2024</u>	
Review table: Ideally this section would have a document version control so version/revision is clear and why the changes were made ie due to change in legislation, increased footprint or 5 year review? When was it first commissioned and what is the purpose of updating it?	The review history of the document is provided on Page 2.
Section 1: The EPBC referral says the most recent variation in 2021 was issued by the Department of Agriculture Water and the Environment. Might need to update the EPBC referral history and what has changed between variations.	Details of variation included in text and footnote.
Section 1: When was the original [CWEAMP] prepared? Was it in 2012?	As noted in Section 18 the CWEAMP was submitted by the due date (June 2013). The CWEAMP was originally developed in 2010, however Version 3 was the version submitted under the Project Approval (in 2013).

Section 1: Why is this update being done? Maybe include a section to state why or how often updates are required	The review history of the document is provided on Page 2. The review requirements under the Project Approval and general updates are included in Section 11.3.
Section 1: What are the Stages, further on in the document it mentions Stage 3 and Stage 4, what stage is it at and how many stages are there? It would help if the introduction explained this.	Additional text has been provided from Section 1.2 in Section 1. *Emplacement of coal wash in Stages 1 and 2 of the CWEA is complete. Coal wash emplacement is currently occurring in Stage 3. Future coal wash emplacement will occur in Stage 4. The Stage 4 CWEA is scheduled to commence in approximately five (5) years, however this timeframe is dependent on how much coal wash is diverted to beneficial reuse.*
Section 1.2: Life expectancy of CWEA?	Stage 4 is expected to commence in approximately 5 years. Text has been provided in Section 1.
Section 1.3: Would be good to have a link to this document/plan [CWEAMP], and a citation to the references.	The document reviewed is the CWEAMP. It is not practical to have a link in this document to the document.
Section 1.4: How will this be brought into line with NSW and Commonwealth approvals and conditions? Was any additional assessment required?	There is no change to NSW and Commonwealth approvals required and no further assessment. The GISTM requirements are over and above the requirements of these approvals. Note that this section has been removed.
Section 1.5: When [was consultation undertaken with the regulatory agencies]	As noted in Appendix 4, the last consultation was undertaken in 2020.
Section 1.5: [are comments incorporated into] this version?	Comments received from the Version 5.0 review were incorporated into the CWEAMP. Comments associated with this review (Version 6.0) have also been incorporated. The wording in this section has been revised to reflect this.
Section 1.5: When [was consultation undertaken with Heritage NSW]?	As noted in Appendix 4, the consultation was undertaken in 2021.
Section 1.5: Citation needed to reference these comments from these other documents.	Feedback from consultation with regulatory agencies and how they have been addressed are provided in Appendix 4.
Section 3.1.1: Maybe refer to this section earlier when there is mention of staging in the introduction. Or maybe this information should be in the introduction to give context.	Additional text was provided in Section 1 to address this comment.

Section 3.1.1: Are their progress reports that can be cited here? Where is the reporting documentation to show these areas are rehabilitating as intended?	Monitoring is undertaken annually. The Monitoring Reports are attached as an appendix in the Annual Review. The Annual Review is published to the GM[3] website.
Section 3.1.1: When were they completed and how long have they been rehabilitating?	The following text has been included: *Rehabilitation in Stage 1 was completed in 2001 and in Stage 2 in the period from 2007 to 2017.*
Section 3.2: Does this system [online obligations management database] have a name? Or is it a standard excel/project management software?	The current system used is Tickit. A generic term is used in the management plan rather than being software specific.
Section 3.2: [Environmental Compliance/Conformance Assessment and Reporting Procedure] Which is where? In this document? Citation and references would be useful.	This is an ICHPL document (IMCP0186). The document number has been included in the text.
Section 3.2: Why would this [Legislation which may be applicable] be maybe? It is or it isn't. All relevant legislation should be listed.	The words 'which may be' have been removed.
Section 4: This section needs context eg … baseline ecological assessments indicated the following vegetation and threatened flora and fauna were likely to be impacted by the CWEA and their impacts have been managed as follows, or as detailed in section XX, etc.	Wording as suggested has been included.
Section 4.1: Reference to a map showing this area [run off from Table drains along Brennans Creek Dam Road] and vegetation is recommended.	Refer to Plan 1. This information is provided as a summary and a detailed description of the vegetation communities and distribution is provided in Appendix E: Terrestrial Flora Assessment (FloraSearch 2009).
Section 4.1: Need to explain - is all the flora summarised above proposed to impacted? Will stage 4 works result in the loss of this biodiversity? What protection/offsets are proposed/required?	The Stage 4 area of the CWEA has been approved and the area will be cleared. This sentence has been included to clarify that the approved Stage 4 footprint was established to avoid 90% of the Hairy Geebung population. The *Persoonia hirsuta* Offset has been established adjacent to stage 4.
Section 4.2: What is BSOP?	Bulli Seam Operations Project.
Section 4.2: [Hence the Stage 4 CWEA does not fall within the definition of either core or potential koala habitat] This is important because?	It is simply a statement to indicate that koala usage of the area is limited and therefore the effect of Stage 4 on koalas will be limited.
Section 5.1: Reference to a figure or another [for location of haul roads, construction roads,	Reference to Plan 1 included.

drainage works, and emplacement ponds have been designed to avoid threatened flora species, sensitive habitat and Aboriginal sites where possible]	
Section 5.1: specialist ecologist? [as opposed to Specialist Environment]	The Specialist Environment is a site based role. Clarification has been provided that a Specialist Consultant may also be utilised if required.
Section 5.1: Flagging tape may not be sufficient. Education of all staff working in the area should be provided to ensure veg clearing boundaries are understood.	Additional text has been included as suggested.
Section 5.1: Reference required? [staging plan]	Reference to Plan 4 added.
Section 5.1: If commenced, advise on progress [The Stage 3 valley will be filled in a north westerly direction].	Text amended to '*is currently and will continue to be*'.
Section 5.1: Include link to EPBC approval/s and details of approval number?	EPBC Approval was defined earlier in the document. It refers to EPBC Approval 2010/5350.
Section 5.1: Is this correct at current date? [detailed engineering drawings for Stage 4 are not yet prepared]	Yes. That is correct. They are in the early stages of development.
Section 5.1: Referred to where? [at which point a revised plan taking into account the monitoring referred to above]	Reference changed to Section 9.
Section 5.2: Is this section for all stages or specific to Stage 4? If Stage 3 is current, refer in present tense. Stage 4 is future, refer in future tense.	Stage 3 is current and future. Stage 4 is future. The same principles apply to both stages.
Section 5.2: In accordance with EPBC approval conditions? [clearing of vegetation]	The clearing of vegetation will be undertaken in accordance with procedures outlined in the CWEAMP.
Section 5.2.1: Reference to docs?	These are internal documents and do not have a specific reference.
Section 5.2.3.2: Provide some explanation why (and how?). To ensure safety? Accessibility? [Consequently, haul roads on active emplacement areas will be constantly evolving and changing as the CWEA progresses]	The text '*for accessibility*' has been included.
Section 5.2.4: Not clear - include plan to illustrate. [The Brennans Creek Diversion Channel on the south-western side of the CWEA diverts flows in Brennans Creek around the CWEA]	Reference to Plan 1 has been included.
Section 5.2.4: Not sure what this means? Why 'the largest possible emplacement footprint'?	The text *(within the approved footprint)* has been added. The objective is to emplace as much coal as possible within

	the approved footprint area and design constraints.
Section 5.2.4: When completed? [Rehabilitation of the Brennans Creek Diversion Channel was undertaken]	Work was completed in 2010. This has been included in the text.
Section 5.2.5: Has location of drains be decided? If so, show on a plan.	Clean water drains for Stage 3 have been shown on Plan 1. Clean water drains for Stage 4 have not yet been established.
Section 5.2.5.2: Or will be? [The drains are positioned]	Drains are in place for Stage 3. Drains in Stage 4 have not yet been established.
Section 5.2.5.2: If not built, more information on locating them should be provided [The drains are to be sized]	Information on drains for Stage 4 can be provided when detailed design is complete.
Section 5.2.6: For Stage 4? [Subsurface drains will be installed].	Text has been updated to clarify that they have been installed in Stage 3 and will be installed in future areas.
Section 5.2.6: Stages? [drainage from previous sections]	It is not necessarily a link to a previous stage, rather it may be a link to a section within a stage.
Section 5.2.7.3: Stage? [Each phase of the CWEA]	There may be multiple 'phases' in a 'stage'.
Section 5.2.7.3: Pond dam walls? [dam wall fill material]	Word 'pond' added.
Section 5.2.7.3: How will this stockpiling be managed? Outside conservation areas presumably.	The text '*in a suitable disturbed location*' has been added.
Section 5.2.8.1: Include reference to staging plan?	The staging plan is not a separate document. Plan 5 shows the staging plan.
Section 5.2.8.2: For future rehabilitated areas? Where will this material be temporarily placed? [transportation of sandstone and tree logs / hollows for habitat creation]	Text 'in rehabilitation areas' added. The material will be preferentially directly placed in areas available for rehabilitation or will be stockpiled in a suitable location on-site.
Section 5.2.9.3: Links to documents? Where are they located?	These are internal documents that are available through the document management system.
Section 5.2.9.4: Environment Protection Licence? Provide link to licence or reference.	Section 3.2 has been added defining the EPL.
Section 5.2.9.4: By who? [Material Acceptance Form must be completed and approved]	Text '*the Surfaces Services Superintendent*' has been added.
Section 5.2.9.5: Show location/s on a Plan [Temporary drying basins will be located on the CWEA]	The location of the temporary drying basins will change as areas of the CWEA are filled. It is not practical to include the location on a plan as it will be out-dated.

Section 5.2.9.7: Maximum finished height of 30 metres?	The finished height will vary according to the design.
Section 5.2.9.7: Recommend this sentence be retained. [This height can only be exceeded following a formal risk assessment which involves suitably qualified personnel other than the contractor or persons normally supervising the work]	The design has changed in this review of the CWEAMP and this sentence has been deleted intentionally. The detailed operational requirements for the CWEA are provided in this document: Operations, Maintenance and Surveillance Manual, Dry Rejects Emplacement Area.
Section 5.2.9.7: Approved in the consent? If not, where? [approved final landform]	The design is not approved in the Project Approval. The design is approved by ICHPL and included in the CWEAMP, that is approved by the Department.
Section 5.2.9.7: What determines this - some equivalent of the Blue Book? [Suitable erosion control methods will be installed as necessary]	The Blue Book would be utilised as a guide.
Section 5.2.12: Link and/or reference? [The progress of beneficial reuse of coal wash activities will be reported in the Annual Review].	The Annual Reviews, as required by the Project Approval, are available on the GM^3 website.
Section 6.7: What groups are currently being engaged?	This paragraph has been removed due to the sale of ICHPL. The policy of the buyer is not yet known and will be incorporated in a future review.
Section 7.1.1: A random meander would not achieve this. You would need to cover the entire area for clearance.	The distance between transects is nominally 5 - 10 metres, and therefore the random meander provides sufficient coverage. The areas do not normally exceed three hectares. Text amended to *'walkthrough of the area at 5 – 10 metre spacing'*.
Section 7.1.1: Is this documented as part of a pre clearance plan? What is the plan if a Broad-headed Snake is found? They are poisonous and pre clearance works should be done by a highly trained and experienced professional. [checking sandstone outcrops for Broad-headed Snake habitat and focusing on mature tree canopy for tree hollows]	The steps within the CWEAMP describe the methodology for pre-clearance surveys. Should Broad-headed Snake habitat be observed, or a Broad-headed Snake found, the specific steps within the Broad-headed Snake and Southern Brown Bandicoot Management Plan would be followed. Relocation of Broad-headed Snake would be undertaken by an experienced professional.
Section 7.1.1: The ecological assessment should dictate the fauna and required hollow. Hollows for Broad-headed Snake would be helpful, assuming they are going to be reinstated on existing trees rather than put on the ground. But also Eastern Pygmy Possum could utilise hollows and logs on the ground.	Footnote included with target species. The Pre-Clearance Survey report details whether habitat of these species was observed, in particular hollows.

	It is noted that hollows will develop with progression of the rehabilitation on the CWEA.
Section 7.1.1: Target species should be listed or if there is a pre clearance plan then it should list the species and that would dictate size, placement and numbers for each target species.	Footnote included with target species. The Pre-Clearance Survey report details whether habitat of these species was observed, in particular hollows.
Section 7.1.1: Broad-headed Snake require rock on rock habitat, not rock on soil.	Multiple boulders/rocks are utilised to reestablish habitat, so rocks on soil as well as rocks on rocks. Additional text '*with multiple rocks/boulders used*' added.
Section 7.1.1: There should be a plan that governs the amount of vegetation clearance to ensure all animals and suitable habitat are salvaged. This plan would also guide treatment/care for injured animals or dependent young and the release of fauna at the right time, day and location.	This is covered in Section 7.2.2.
Section 7.1.2: By who? [Permit to Disturb (IMCF0209) is to be issued]	The Permit to Disturb is issued by the Specialist Environment. This is noted in the same paragraph.
Section 7.1.2: Inspection should be undertaken by a professional fauna spotter catcher/ecologist.	The site Specialist Environment is trained in this process. A *Specialist Consultant* has also been added as an option.
Section 7.1.2: Should also be reported as a breach of consent and/or permit conditions. [If unapproved clearing goes beyond the CWEA boundary].	Reference to procedure has been removed and reference provided to Section 11.2. Whether such an incident is classified as a non-compliance would need to be assessed on a case by case basis.
Section 7.2.1: Should aim to clear when target fauna would not be breeding. This is dependent on hollow sizes present as to what types of fauna are likely to be present when clearing occurs. Some parrots will still breed in January. Broad-headed Snake will use hollows in summer as refuge when the rocks are too hot (Jan-Feb, maybe March).	It is acknowledged that some species may still be using hollows in this period, however this is noted to be the preferred time over other times of the year to undertake clearing. It is noted that clearing is approved under the Project Approval. The pre-clearance survey generally occurs between January and February, with the clearing generally occurring closer to May.
Section 7.2.1: Assumptions - what is evidence for this? [most plant reproductive lifecycles have finished and this will allow for improved fertility of translocated soil as most species will have released the current seasons' seed]	This is based on advice from specialist consultants.

Section 7.2.2.1: Should be a trained and experienced professional ecologist or fauna spotter catcher. Veterinary support and wildlife rescue support also required in case of injury animal or dependent young are found.	The site Specialist Environment is trained in this process. A *Specialist Consultant* has also been added as an option.
Section 7.2.2.1: A stand alone pre clearance checklist and strategy is recommended to ensure fauna are appropriately protected.	The pre-clearance survey report addresses these points and a copy of the report is provided to the contractor undertaking the work.
Section 7.2.2.2: This person should be an Ecologist or specialised fauna spotter catcher.	The site Specialist Environment is trained in this process. A *Specialist Consultant* has also been added as an option.
Section 7.2.2.2: Pre clearance and clearance activities should be formally documented in a stand alone plan.	The pre-clearance survey report addresses these points.
Section 7.2.2.2: Depends on time of year. There are different enclosures required for different species. [All species besides reptiles and amphibians should be contained with a warm (not hot) water bottle and kept in a quiet dark place to limit stress on the animal. Light exposure can be limited by placing a towel over the top of any enclosure and should be used for all fauna species].	'*In general*' added to text. These species can be transported as described, however as noted there are individual requirements for different species that will be determined in consultation with a person trained in animal welfare (eg WIRES).
Section 7.2.2.2: Supervising staff should have these skills/knowledge. If the Specialist Environment does not have these skills/knowledge then an external experienced, qualified ecological consultant should be engaged.	The site Specialist Environment is trained in this process.
Section 7.2.2.3: The person supervising pre clearance should be present at all time.	The Specialist Env or consultant is available to respond at all times during pre-clearance.
Section 7.2.2.3: Depends on time of year - they can over heat if wrapped to closely. An experienced person should decide what is needed.	As noted, there are individual requirements for different species that will be determined in consultation with a person trained in animal welfare (eg WIRES).
Section 7.2.2.3: This is not appropriate advice as it is not specific to different animals. [Keep the animal warm by providing appropriate thermal support (not required for reptiles and amphibians). This can be done by securing a wrapped hot water bottle, filled with hot water from the tap (not boiling), at the base of the carrier. Note that birds should have enough space to move away from the heat source in the enclosure as they can overheat.]	These species can be transported as described, however as noted there are individual requirements for different species that will be determined in consultation with a person trained in animal welfare (eg WIRES).

Section 7.2.2.3: Animal containers should be well labelled so that gear/equipment is not placed on top (or that people do not inadvertently sit on animals).	The text '*Clearly label any containers containing an animal*' has been added.
Section 7.2.2.3: If it is dependent young, a previously arranged carer should be contacted. Any healthy and uninjured, not requiring warming or support should be released when appropriate.	This section is dealing with injured animals. Healthy/adult animals are covered in Section 7.2.2.2.
Section 7.3.1: What does this involve? [transplanting dead stags]	It involves relocating tree stumps from cleared areas and standing them up in the area being rehabilitated to provide an elevated perching location.
Section 7.3.3.4: Need to consider the value for Broad-headed Snake in doing this. They need rock on rock habitat. Not sure this is practical to create, unless it has been achieved in previous emplacement areas using salvaged rock and the process can be repeated. [Artificial habitat (e.g. using pavers) will also be constructed in selected areas]	Multiple boulders/rocks are utilised to reestablish habitat, so rocks on soil as well as rocks on rocks. Artificial habitat is established based on specialist advice. Artificial habitat for all sites is rock on rock.
Section 7.3.5.1 Table 3: This section should include the types of weeds and pests present with details on the methods/programs used to control them. This is important to ensure compliance (unless there is a stand alone pest/weed management plan).	Tables 3 and 4 have been included.
Section 7.3.5.1 Table 3: This section doesn't really have enough information on pest management. A detailed feral animal control program should be developed (and implemented) in and around disturbance areas (or in areas not already being controlled by a regional program).	There are no specific vertebrate pest/feral animal programs in place. Support of regional programs has been suitable to manage feral animals.
Section 7.3.5.2: This section is inadequate considering the likely high bush fire risk. Include additional information, especially on hazard reduction requirements, fire breaks, access and actions when a bush fire occurs in the locality.	Additional text has been included: *Access roads around and through the CWEA are maintained as fire breaks. Firefighting equipment is maintained on the site, and the Rural Fire Service would be engaged to provide assistance.* *Wedderburn Road, which runs along the eastern side of the site, would act as a fire break between the Dharawal National Park and the site.* *BCD and other water storages on site would be available for firefighting purposes if required.*
Section 7.3.5.2: Is this before or after rehabilitation? [The fuel loads on the surface are relatively low (10-12 t/ha), and with the rate of	The assessment was for after rehabilitation.

spread (4-5 km/hr) a bushfire on the surface would not provide enough static heat to significantly penetrate downward into the soil layers]	
Section 7.3.6 Table 4: Include map/link or reference to show/explain/get further information on location of Domain 11 and objectives.	Domain 11 is the CWEA that is shown on Plan 1.
Section 7.3.6 Table 4: Decommissioning of what?	The rehabilitation phase as defined by the Resources Regulator is Decommissioning. For the CWEA, this would include decommissioning of any structures and /or associated infrastructure not required post rehabilitation (e.g. pumps).
Section 7.3.6 Table 4: Reference the approved final landform plan (assuming one exists).	As noted in Footnote 14, *The completion criteria included are from the previously approved Mining Operations Plan and draft criteria based on the rehabilitation objectives approved by the Resources Regulator in 2023. ICHPL will develop and submit revised completion criteria to the Resources Regulator for approval in accordance with the Rehabilitation Objectives and Rehabilitation Completion Criteria Guideline*. Comments provided by BCS on information provided in Table 4 will be reviewed as part of this process for approval by the Resources Regulator.
Section 7.3.6 Table 4: Hollows, tree stags, rock on rock habitat [rocks and logs]	
Section 7.3.6 Table 4: Additional completion criteria should be included eg trees/shrubs/groundcover seeded/planted per hectare.	
Section 7.3.6 Table 4: What is the targeted vegetative cover? And how is this measured?	
Section 7.3.6 Table 4: Poor criteria - weed cover completion criteria should be defined objectively eg less than X% of weed cover across Y area.	
Section 7.3.6 Table 4: How will this be measured? [seed germination] Regrowth present, how much is suitable? It should have recruitment of all appropriate species planted.	
Section 7.3.6 Table 4: An example should not be an indicator. We need to establish a cover and abundance measure based on baseline plots that are conducted regularly (annually?). Is there a Rehabilitation Plan that details monitoring criteria?	
Section 7.3.6 Table 4: Firebreaks are not considered in 7.3.5.2 Bushfire Management	
Section 7.3.6 Table 4: Annually? What does EPL require? Does it depend on which stage is being emplaced? [Water quality monitoring reports.]	
Section 7.3.6 Table 4: What is the 'acceptable' criteria - provide link/reference.	
Section 7.4: This is not clear in Plan 4 - corridors 1 to 3 and associated references as areas that facilitate pollinators to travel between the	There will be corridors to the west of the advancing CWEA that have not been cleared to provide movement of

conservation area and persoonia situated near Appin Rd need to be labelled. Does this mean that when each corridor is rehabilitated the next corridor cannot be cleared until the first corridor is rehabilitated enough to support pollinators? What does this actually look like. Include information from Persoonia MP (if available).	pollinators, until the rehabilitation of the previous corridors has progressed to enable pollinator movement. Previous experience indicates that this can be achieved in 3 – 5 years. There will be progressive rehabilitation. The disturbance will not occur across the entire footprint as shown on the plan at the same time, and rehabilitation will be progressive as the final landform is progressively constructed. Corridors will enable pollinators to move to and from the *Persoonia* offset. There will then be linkage to the rehabilitation in Stage 3. Additional context has been provided in the text.
Section 7.4: Where is this defined? [Ecosystem Establishment Phase]	This is defined in the *Rehabilitation Objectives and Rehabilitation Completion Criteria Guideline*.
Section 9: If this CWEAMP is the only place monitoring is detailed then this section needs more work. If there is a separate Monitoring Plan then detail the justifications and methods in that document. This is either too much detail for an over view or does not contain enough details to justify the methods chosen and the survey effort proposed. No maps or plans are included that help to understand if the number of plots or number of cameras is sufficient to meet a suitable survey guideline.	Detailed monitoring methodologies are included in the Emplacement Monitoring Reports. These are used as a baseline for future monitoring and any additional monitoring will be included in these reports as required. Maps and plans are included in the Emplacement Rehabilitation Monitoring Report. These reports are appended to the respective Annual Review, which are available on the GM^3 website.
Section 9.1.1: Dead stags, soil and hollows are proposed to be salvaged. Include all potential habitat that would be salvaged and placed in rehabilitation areas.	Text has been amended to include *direct placement of capping material and topsoil* and *stags*.
Section 9.1.1: Is there a plan that details this further in map or text form? [This will be achieved through monitoring of biometric attributes, fixed photo points and threatened plant meander surveys as well as measuring the	Plans are included in the Emplacement Rehabilitation Monitoring Report.

presence/absence of fauna within the various rehabilitation sites of varying age].	
Section 9.1.1.1: Issues with Table 4 raised above need to addressed.	As noted in Footnote 14, *The completion criteria included are from the previously approved Mining Operations Plan and draft criteria based on the rehabilitation objectives approved by the Resources Regulator in 2023. ICHPL will develop and submit revised completion criteria to the Resources Regulator for approval in accordance with the Rehabilitation Objectives and Rehabilitation Completion Criteria Guideline*. Comments provided by BCS on information provided in Table 4 will be reviewed as part of this process for approval by the Resources Regulator.
Section 9.1.1.2.3: Why would this measure soil translocation success? Is there a research project associated with testing a hypothesis?	*'Soil translocation'* changed to *'rehabilitation'*.
Section 9.1.1.2.3: All of the PCTs?	Additional text has been added: *'The control sites were nominated as either PCT 3598 or PCT 3595. It is considered that the CWEA is likely to regenerate to a state that is an artificial combination of both PCTs*'.
Section 9.1.1.3: Random meander is not in line with the survey guidelines for threatened plants. This level of detail is good for a specific Persoonia MP or Rehabilitation and Monitoring Plan but if this is just an overview then this methodology is not needed. If a methodology is included make sure it is appropriate or justified.	Text has been amended to reflect a distance of 5 - 10 metres apart, dependent on vegetation type.
Section 9.1.1.4: For what? Justification of a method is not required. Recommend stating the purpose of the Camera Trap Surveys and why they suit the project.	As noted, the camera traps are utilised for small and medium size mammals. The text has been amended to include the purpose: *to sample the small to medium size mammals using the rehabilitation*. Camera traps target specific habitat features that may be used by these species.
Section 9.1.1.4: What are these? [rehabilitation compartment]. Are they labelled on any map or figure? Recommend advising on the number of camera traps per number of rehabilitation units or whatever compartment means.	The text has been modified to '*The camera traps are distributed over the area of rehabilitation that is being monitored to get representation of different ages of rehabilitation*'.
Section 9.1.1.4: This level of detail is not required (also how do you aim the camera at an animal?). It	Part of sentence removed.

is assumed this section is a summary of another document that dictates monitoring in more detail. If not then this needs more work. [The cameras used are infra-red type and are placed to aim the lens at the core body zone of the animal]	
Section 9.1.1.4: Don't justify as this probably isn't enough. Just state the method and how it is designed to capture the target species. What is the target species? [The recommended minimum deployment time is 12 nights]	Reference removed and text modified to state '*Camera traps are deployed for approximately two to four weeks*'.
Section 9.1.1.5: What criteria? Delete this line, unless there is more context. This section is about the timing of all monitoring actions - this should be discussed eg BAM plots are best done in Spring or at time when the PCT has the most flowering and/or plants with identifying features such as seeds, fruits or flowers, recommend a time of year in this section. Surveys for threatened plants are recommended for the following windows in accordance with the Threatened Biodiversity Database collection with states the survey window for threatened flora and fauna. Recommend a time of year to guide whoever is doing these surveys. [Criteria can be measured most easily in spring by noting flowering, seed production, seedling growth and establishment].	Text amended to '*Monitoring is preferably undertaken*'.
Section 9.1.1.5 Table 5: Should be a qualified and experienced ecologist or accompanied by a qualified and experienced ecologist.	The site Specialist Environment is trained in this process.
Section 9.1.1.5: What was translocated? Or is this referring to after habitat salvage? If so, there should be a timetable of fauna surveys depending on when the salvage and placement of habitat was undertaken for each Stage/Corridor?	Text amended to include '*soil'*.
Section 9.2: In accordance with Plan X showing planned finish elevations [design heights].	Elevations are provided on Plan 2. Reference to Plan 2 provided.
Section 9.3: How is this [compaction] being monitored? When, by who and what are the success criteria?	This level of detail is provided in the Operations, Maintenance and Surveillance Manual.
Section 9.4: As shown on Plan X [Ponds P4A, EP2, and EP3]	Reference to Plan 1 provided.
Section 9.4: Provide link of reference details [Appin Mine Water Management Plan].	The Appin Mine Water Management Plan is available on the GM[3] website.
Section 9.4: How often, who does it, what are the success or failure criteria? [regular inspections]	Text amended to '*Inspections of the site and water infrastructure are conducted daily/weekly by site personnel to check*

	pumps, pipelines and other water infrastructure, and nominally monthly by the Specialist Environment to identify abnormal operation or erosion and changes in water quality. Water discharge from BCD is monitored continuously for pH, EC and turbidity'.
Section 9.5: This section is very general eg it doesn't detail what structures will be put in place to prevent sediment and erosion. Is this provided in the WMP?	Erosion and sediment control is also covered in Sections 5.2.5.2 and 5.2.7.3. As noted, additional detail is also included in the Appin Mine Water Management Plan.
Section 11.1.1: Table 4 shows completion criteria and doesn't have the performance criteria that demonstrates adherence to conditions or guidelines. This section could include a table showing all the things that are being monitored and when and what the criteria for success looks like - is this something that could be extracted from the Annual Emplacement Rehabilitation Monitoring Report?	As noted in Footnote 14, *The completion criteria included are from the previously approved Mining Operations Plan and draft criteria based on the rehabilitation objectives approved by the Resources Regulator in 2023. ICHPL will develop and submit revised completion criteria to the Resources Regulator for approval in accordance with the Rehabilitation Objectives and Rehabilitation Completion Criteria Guideline*. Comments provided by BCS on information provided in Table 4 will be reviewed as part of this process for approval by the Resources Regulator.
Section 11.1.3: How is this different to the Annual Emplacement Rehabilitation Monitoring Report? Does the Annual Rehabilitation Report contain the results of the ecological monitoring program? Details on the content of the Annual Rehabilitation Report should be provided.	As noted, the Annual Rehabilitation Report is a requirement under Condition 13(2) of Schedule 8a of the *Mining Regulation 2016* and covers the whole of Appin Mine. It is different to the annual Emplacement Rehabilitation Monitoring Report. Dot points listing what is included in the Annual Rehabilitation Report has been added.
Section 11.2.1: Recommend this definition also be included in the Terms and Definitions section. This is the first time 'incident' has been defined in the document.	There is only one reference to incident prior to this section and it references this section. It is appropriate for the definition to be included here.
Section 11.2.3: What is the ACCC? What is the referenced meeting?	It refers to the Appin Mine Community Consultative Committee. This has now been spelled out.
Section 11.3: Are these [Annual Reviews] due by 30 September? Include date.	The date the Annual Review is due is included in Section 11.1.1 and further reference is not required here.
Section 11.3: Should use term from consent - 'material harm to the environment' and reference definition.	The use of 'material' is not referring to material environmental harm. It is being used in the context of 'significant' or 'important'.

Section 11.3: Include link to document or reference. [Staging Plan]	This is defined in Section 1. It is noted that the CWEAMP has been developed to meet the requirement of the Staging Plan as defined in the EPBC Approval.
Plan 2: Include outline of Stage 3.	An outline of Stage 3 has been provided on Plan 2.
Section 17: Separate author and reviewers (from page 2).	Noted. Reviewers have been listed on Page 2.
Department	
<u>Response received 14 December 2020</u> • Section 4.2.12 – Please include a commitment within Section 4.2.12 that Bulli Seam Operations will report on the progress of beneficial use in the Annual Review. • Condition 17 (c and d) of Schedule 4 – Section 6.4 and 6.5 of the CWEAMP briefly describes the management of the flora and two fauna species. Due to the limited detail in Section 6.4 and 6.5 could you please provide further detail of append a copy of the two management plans to the CWEAMP. • Condition 17 (e) of Schedule 4 – Section 8.4 and 8.5 of the CWEAMP briefly describes the management of water at the coal wash emplacement areas. Please update this section with further detail on how the operation is planning to conduct water monitoring or append the Water Management Plan to this document. • Update Section 10.3 to clarify that the management plan will only be revised then submitted and approved by the secretary in accordance with the requirements of the conditions of approval. • General comment – please outline where the reader can find the latest copy of the approved management plans that relate to this management plan.	Commitment has been included in this section. Link to GM³ website has been provided in text where approved plans are available that contain additional detail. Link to GM³ website has been provided in text where approved plans are available that contain additional detail. Section has been updated as requested. Link to GM³ website has been provided in relevant section where approved plans are available that contain additional detail.
<u>Response received 14 March 2022</u> I refer to West Cliff Coal Wash Emplacement Area Management Plan (CWEAMP) submitted in accordance with Condition 17 of Schedule 4 of the Bulli Seam Operations project approval (08_0150). After careful consideration, the Department is requesting that you provide additional information.	Noted.

The Department notes the comments from Heritage NSW dated 7 October 2021, advising that consultation with the Aboriginal community on the revised CWEAMP has not been undertaken.	Noted.
As such, the Department requests that you consult with the Aboriginal community on the revised CWEAMP to discuss the changes in site impacts and proposed mitigation measures.	Refer to Section 1.5 and Appendix 3.
The Department notes that the CWEAMP is integrated with the Heritage Management Plan for 08_0150 (HMP) and therefore consultation should be undertaken in accordance with the HMP.	Noted.
Following consultation, an updated CWEAMP must be provided, which includes evidence of consultation with the Aboriginal community and considers the Heritage NSW comments.	Noted.
Response received 23/01/2025	
Ownership of the project appears to have changed in 2024. Action: Update plan to reflect current ownership of the operations if necessary.	Document has been updated.
The Plan notes that IMC will develop and submit revised completion criteria to the Resources Regulator for approval in accordance with the Rehabilitation Objectives and Rehabilitation Completion Criteria Guideline. Action: Future versions of the plan must be updated to reflect any changes to the Rehabilitation Management Plan (RMP), approved by the Resource Regulator.	Document will be resubmitted when rehabilitation objectives and criteria have been finalised.
Query typo - Location 52-2-3506 appears to be shown as 52-2-3406 in Appendix 3: Cultural Heritage Site Summary Table. Action: Check and/or update reference to item West Cliff 3, 52-2-3506, in Appendix 3: Cultural Heritage Site Summary Table.	Typo corrected.
Section 4.1, update reference to Appendix E: Terrestrial Flora Assessment. Action: Please attach or revise referencing.	The words ‘of the BSO EA’ have been included.
Section 4.2, update references Appendix F Terrestrial Fauna Assessment. Action: Please attach or revise referencing.	The words ‘of the BSO EA’ have been included.
Section 5.1, last bullet should read ‘line of sight’. Action: Update text	Typo corrected.

Section 9.1.1.1 – update refence to Criteria Table (6) and include a link to the revised or approved RMP. Action: Update text	Text has been updated.
Section 9.1.1.5 – timing. Update refence to Table (7). Action: Update text	Text has been updated.
Department of Agriculture, Water and Environment	
<u>Response received 3 November 2020</u> Condition 6e(i): This condition needs to be addressed more clearly. It is clear that emplacement and rehabilitation will occur progressively in stages, and the conclusion can be reached that vegetation clearing will follow emplacement schedules as part of the site preparation, however it is recommended that the plan include a commitment that native vegetation in the stage 4 CWEA will only be cleared as part of preparatory works, in line with the staging plan. This could be a minor addition to section 4.1, 4.2.8 and/or 6.2.	The following text has been provided in Sections 4.1, 4.2.8 and 6.2.1: *Clearing of native vegetation for emplacement preparatory works in the Stage 4 CWEA is required to be undertaken in line with the staging plan.*
Due to the extended period of time before commencement of stage 4, the plan understandably does not include details/commitments in some areas. To address this, it is recommended that a commitment be included within the plan to submit a revised plan for approval prior to the commencement of emplacement as relevant to project stage 4, once elements such as the staging plan are finalized.	The following text has been provided in Section 11.3 and in Statement of Commitments: *A revised CWEAMP will be submitted to DAWE for approval once the elements of the Staging Plan for Stage 4 of the CWEA have been finalised and prior to commencement of emplacement activities in Stage 4.*
Department of Climate Change, Energy, the Environment and Water	
<u>Comments received 27 June 2024</u> As this is a revised plan, please mention the revisions, approval dates and approving authorities in the revision table, leading up to the current revision. Also the expertise of the team revising it needs to be mentioned on a separate page.	The revisions are provided on Page 2. The experience of the team reviewing the document is provided in the table on Page 2.
It appears to be a revision with material changes and therefore it has not been submitted under the revised management plan condition. Please confirm that is the case.	This is not the case – the plan is being submitted under Condition 16A. The changes to this plan are not material and do not indicate any new or increased impact associated with the approved

	action. In fact, one of the main reasons for the revision is the redesign of Stage 3 of the CWEA to avoid direct impacts to Aboriginal sites that were otherwise going to be impacted.
Since the original plan was written, there has been an update in the requirements of the departmental guidelines for management plans. The plans submitted currently, are expected to meet the requirements of the environmental management plan guidelines available at: Environmental Management Plan Guidelines (dcceew.gov.au). Please provide a table as an appendix to this revised plan demonstrating how this revised plan meets the requirements of these guidelines.	Table provided as Appendix 6.
A compliance table on the requirements of the conditions including which section and with some narrative on why the plan is revised and how the revised plan meets the requirements would be helpful.	Appendix 2 of the plan provides a cross reference between the requirements of Conditions 2, 6, 7 and 8 of EPBC Approval 2010/5350 and where these requirements have been addressed in the plan. It is noted that the CWEAMP is required under Condition 6.
If this revised plan has been also submitted to NSW regulatory authority, please provide details about that.	The plan has also been submitted to the Department of Planning, Housing and Infrastructure in accordance with Condition 17 of Schedule 4 of Project Approval 08_0150. The plan has been submitted concurrently due to the current anticipated timeframes for document approval.
Comment received 24/01/2025 Comments were received as comments within the track changes document. It was noted that responses to the comments could be provided within this attached version of the plan and sent back.	Comments were provided against comments in the plan and are not replicated in this table.
Heritage NSW	
Response received 23 April 2021 Heritage NSW understands the reason for the CWEAMP revision is due to two Section 90 consents to destroy issued under the National Parks and Wildlife Act 1974, which originally approved impact to several Aboriginal cultural heritage sites, are now considered superseded by the Bulli Seam Operations (BSO) Project Approval (08_0150). The Department of Planning, Industry	Noted.

and Environment confirmed on 9 April 2021 that consent under the NPW Act is no longer required.	
Prior to this clarification of the project approval pathway Heritage NSW had intended to refuse two Section 90 variation applications due to the age of the consents.	Noted.
We note Heritage NSW was not provided the opportunity to comment on the CWEAMP during a previous round of agency consultation in 2020. We request that all future agency correspondence in relation to Aboriginal cultural heritage matters within the BSO consent area is provided to Heritage NSW for comment.	Noted. It is not clear in Condition 17 of Schedule 4 of the Project Approval that consultation with Heritage NSW is required. This will be undertaken for future reviews of the document.
On review of the CWEAMP we note the interaction between it and the Appin Mine Heritage Management Plan (HMP). In order to adequately consider the measures outlined in the CWEAMP, Heritage NSW would appreciate the opportunity to review the HMP as it relates to both the Stage 3 and 4 Coal Wash Emplacement Works. As such the comments below are preliminary. In preparing our advice we have reviewed the following documents: • Appin Mine Coal Wash Emplacement Area Management Plan (CWEAMP) Version 5.1 Doc ID WCPMP0019 (dated 7 April 2021) Project Approval 08_0150 conditions	The Appin Mine Heritage Management Plan provided to Heritage NSW for review on 19 August 2021. Feedback was received from Heritage NSW on 7 October 2021, including additional comment on the CWEAMP.
<u>Previously Recorded Sites</u> • Based on a search of the Aboriginal Heritage Information Management System (AHIMS) undertaken by Heritage NSW on 20 April 2021 there appears to be several incorrectly located sites and duplicate recordings of AHIMS sites within the Coal Wash Emplacement Area. These errors need to be resolved and the CWEAMP updated to reflect the correct locations of sites and duplicate AHIMS numbers prior to any works commencing in the area. • Updated mapping should be included in the CWEAMP to reflect this.	
<u>Heritage Management Plan</u> • Based upon the interaction between the CWEAMP and the Appin Mine HMP outlined in Section 5.6, the HMP also needs to be revised to reflect the recent revisions to the CWEAMP.	The Appin Mine Heritage Management Plan was updated in November 2021 and approved by the Department on 15 November 2021. The HMP will be revised again following approval of the CWEAMP.
<u>Aboriginal Community Consultation</u> • As a result of the approval pathway changes and revisions to the CWEAMP, consultation with the	

Registered Aboriginal Parties (RAPs) needs to occur. Correspondence regarding the update to the CWEAMP and the additional impact to sites outside of an Aboriginal Heritage Impact Permit process needs to be clearly articulated to the RAPs and opportunities for avoidance or further mitigation presented. • We recommend the CWEAMP include a summary table of trigger points and timeframes for undertaking consultation with the RAPs.	Refer to Section 1.5.
Timeframes • The CWEAMP would benefit from the inclusion of timeframes where possible, such as: o When will the planned works be most likely to result in impact to sites? o How long will the planned actions take? • All mitigation strategies need to be included in all relevant work plans with triggers in place to ensure all commitments are met prior to impact.	Direct impact to sites has been avoided through review of CWEA design. Refer to Appendix 3.
Based on our review, we recommend the CWEAMP be revised and further consultation with the Registered Aboriginal Parties and Heritage NSW undertaken. While the CWEAMP needs to be finalised before the start of any actions that may result in impact to Aboriginal Cultural Heritage sites, we anticipate further comments may need to be provided upon receipt of the Appin Mine HMP.	CWEAMP has been revised (Version 6.0). Comments were received on the HMP and incorporated into Version 1 (approved 15/11/2021).
While the comments above would assist to improve the CWEAMP, Heritage NSW considers that impact to Aboriginal Cultural Heritage Sites as a result of the Stage 3 Coal Wash Emplacement Area is not in line with contemporary heritage management practices. The revision of both Management Plans provides the opportunity to reassess the impacts and mitigation measures proposed to date. We would like to work with South32 to achieve the best possible outcome for Aboriginal Cultural Heritage.	Noted.
Heritage NSW – Aboriginal Heritage	
Response received 7 October 2021	
Whole of plan Issue/Comment No Aboriginal consultation has been undertaken. Recommended action At a minimum, undertake consultation with the Aboriginal parties identified in the original s90s	

regarding the impact to sites, proposed mitigation measures, and whether a Care Agreement will be sought.	Refer to Section 1.5.
Coal Wash Emplacement Area Management Plan Appendix 3 v5.1 - sites 52-2-1371 and 52-2-1372 Issue/Comment Mitigation measures for single grinding grooves (sites 52-2-1371 and 52-2- 1372) are different. Recommended action 2. Heritage NSW does not support removal of grinding groove from their original context. This is not in keeping with contemporary heritage management practices. 3. Clarify why the mitigation measures are different for these sites. 4. Provide evidence that Tharawal LALC support the removal of site 52-2-1371 and have agreed to store it in a keeping place. 5. Advise whether a Care Agreement will be applied for.	Impact to these sites is no longer planned.
Coal Wash Emplacement Area Management Plan v5.1 Appendix 3 - site 52-2-3505 Issue/Comment Potential impacts from dust have been identified. Recommended action Implement proactive rather than reactive mitigation measures to ensure dust and water drainage do not negatively impact the site.	There will be no changes to drainage at this site. Text has been amended. Dust will be managed on the CWEA through measures as outlined in Section 8.2. Given the distance of the site from operational activities, dust impacts are considered unlikely.
Response received 17 April 2024 Thank you for your referral seeking advice on the Coal Wash Emplacement Area Management Plan dated 7 April 2024 for the above State Significant Development. Thank you for the continued opportunity to comment on the project. It is understood that the management plan has been submitted in accordance with the MP08_0150 Approval and provides the Aboriginal Cultural Heritage management strategies for the Coal Wash Emplacement Area in accordance with the overarching Appin Mine Heritage Management Plan. Heritage NSW has no further comments on the aspects of the management plan relating to Aboriginal cultural heritage.	Noted.

Appendix 5: Feedback from RAP consultation

Site Name and No.	Feedback received from the RAPs (21 March 2024)
BC 5 (52-2-1371)	No direct impact on this site. No further actions required.
BC 6 (52-2-1372)	Artefacts removed from the shelter and currently in possession to the Tharawal Local Aboriginal Land Council. It was suggested that the artefacts should be returned to the original location in the shelter as no further impacts are expected. During the visit to the sites, in particular WC4, it was acknowledged by the RAPs that operations would not be close enough to the sites to reasonably have an impact on the art.
BC 7 (52-2-1373)	The RAPs suggested that the site could be protected from potential dust impacts by covering the area while operational activities are being undertaken in the vicinity of the site, as dust could have the potential to damage the art. During the visit to the sites, in particular WC4, it was acknowledged by the RAPs that operations would not be close enough to the sites to reasonably have an impact on the art It was discussed that this could be revisited in the future based on the final design for Stage 4, at which point additional consultation with the RAPs would be undertaken.
D10 (52-2-3617)	No impact on this site. No further actions required.
D11 (52-2-3533)	No impact on this site. No further actions required.
WEST CLIFF 1 (52-2-3504)	The RAPs suggested that the site could be protected from potential dust impacts by covering the area while operational activities are being undertaken in the vicinity of the site, as dust could have the potential to damage the art. During the visit to the sites, in particular WC4, it was acknowledged by the RAPs that operations would not be close enough to the sites to reasonably have an impact on the art It was discussed that this could be revisited in the future based on the final design for Stage 4, at which point additional consultation with the RAPs would be undertaken.

WEST CLIFF 2 (52-2-3505)	The RAPs suggested that the site could be protected from potential dust impacts by covering the area while operational activities are being undertaken in the vicinity of the site, as dust could have the potential to damage the art. During the visit to the sites, in particular WC4, it was acknowledged by the RAPs that operations would not be close enough to the sites to reasonably have an impact on the art. It was discussed that this could be revisited in the future based on the final design for Stage 4, at which point additional consultation with the RAPs would be undertaken.
WEST CLIFF 3 (52-2-3506)	No impact on this site. No further actions required.
WEST CLIFF 4 (52-2-3507)	The RAPs suggested that the site could be protected from potential dust impacts by covering the area while operational activities are being undertaken in the vicinity of the site, as dust could have the potential to damage the art. During the visit to the site, it was acknowledged by the RAPs that operations would not be close enough to the site to reasonably have an impact on the art.
WEST CLIFF 5 (52-2-3508)	No feedback.
General feedback received: • RAPs requested ICHPL do not display coordinates or maps showing locations of the heritage sites in publicly available plans, including the website. • Avoidance of direct impacts to Aboriginal heritage sites through the review of the Stage 3 design was acknowledged as a good outcome by the RAPs.	

Appendix 6: Assessment: Requirements of Environmental Management Plan Guidelines

Requirement	Page/Section
Cover page and declaration of accuracy	Page 3
Document version control	Page 2
Table of Contents	Page 4
Executive summary or introduction	Section 1
Conditions of approval reference table	Appendix 2
Project description	Section 1
Objectives	Section 1.1
Environmental management roles and responsibilities	Section 2
Reporting	Section 11.1
Environmental training	Section 2
Emergency contacts and procedures	Section 10.2
Potential environmental impacts and risks	-
• Threats to matters protected under the *EPBC Act*	Section 7.4
• Potential Impacts	Section 7.4
• Risk assessment	Section 7.4
Environmental management measures	-
• Environmental management activities, controls and performance targets	Sections 6, 7 and 8
• Environmental management maps and diagrams	Section 16
• Environmental monitoring	Section 9
• Corrective actions	Section 10.2
Audit and review	-
• Environmental auditing	Section 11.4
• Environmental management plan review	Section 11.3
Glossary	Section 13

Appendix 7: Management Plan Approval – Department

Department of Planning, Housing and Infrastructure

Our ref: MP08_0150 PA-134 & PA-135

Chris Schultz
Superintendent Environment
Illawarra Coal Holdings Pty. Ltd.
PO Box 514
Unanderra, NSW 2526

09/04/2025

Subject: Appin Mine Coal Wash Emplacement Management Plan and Broad-headed Snake and Southern Brown Bandicoot Management Strategy

Dear Chris,

I refer to the Appin Mine Coal Wash Emplacement Management Plan (MP08_0150-PA-134) and management strategy for the Broad-headed Snake and Southern Brown Bandicoot (MP08_0150-PA-135), submitted in accordance with Condition 17, Schedule 4 of the consent for the Bulli Seam Operations Project (MP08_0150).

The Department has carefully reviewed the documents and is satisfied that they meet the requirements of the conditions of consent. The Department also note that due to internal document management system updates at Illawarra Coal Holdings Pty. Ltd., that there are inconsistencies in the document version numbers.

Accordingly, the Department approves the Appin Mine Coal Wash Emplacement Area Management Plan (Version 6, January 2025) and the Broad Headed Snake and Southern Brown Bandicoot management strategy (Version 2, January 2025).

Please ensure you make the documents publicly available on the project website at the earliest convenience. You are reminded that if there are any inconsistencies between the Plan or Strategy and the conditions of approval, the conditions prevail.

If you wish to discuss the matter further, please contact [redacted] on [redacted].

Yours sincerely

JEvans

Jessie Evans
Director, Resource Assessments
Resource Assessments

4 Parramatta Square, 12 Darcy Street, Parramatta NSW 2150 www.dphi.nsw.gov.au 1
Locked Bag 5022, Parramatta NSW 2124

Appendix 8: Management Plan Approval – DCCEEW

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Australian Government
Department of Climate Change, Energy, the Environment and Water

EPBC 2010/5350

Chris Schultz
Superintendent Environment
Illawarra Coal Holdings Pty Ltd
PO Box 514
Unanderra NSW 2526

Approval of Revised Environmental Management Plans for Bulli Seam Operations Expansion, Bulli, NSW

Dear Mr Schultz

Thank you for your email dated 26 June 2024 to the Department of Climate Change, Energy, the Environment and Water (the department), seeking approval of the revised Environmental Management Plans, in accordance with condition 16 of the above project under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Officers of the department have advised me on the revised Environmental Management Plans and the requirements of the conditions of the approval for this project. On this basis, and as a delegate of the Minister for the Environment and Water (the Minister), I have decided to approve:

- Appin Mine Coal Wash Emplacement Area Management Plan, version 6.0, January 2025; and
- Broad Headed Snake and Southern Brown Bandicoot Management Plan, version 2.0, January 2025.

Now these revised approved plans must be implemented. The approved plan must also be published in accordance with your conditions of approval.

Approval condition 16 A to 16 E for this project allows you (under certain circumstances) to implement revised plans without seeking approval from the Minister. If you require any advice on whether to submit a revised plan for approval, please contact the officer below. When submitting any revised plan to the Minister, please provide a 'tracked changes' version of the plan. I also attach a fact sheet providing guidance on new or increased impact relating to changes to approved management plans under the EPBC Act.

DCCEEW.gov.au
John Gorton Building - King Edward Terrace, Parkes ACT 2600 Australia
GPO Box 3090 Canberra ACT 2601 ABN: 63 573 932 849
LET 510 v3.5

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As you are aware, the department has an active monitoring program which includes monitoring inspections, desk top document reviews and audits. Please ensure that you maintain accurate records of all activities associated with, or relevant to, the conditions of approval so that they can be made available to the department on request. Should you require any further information please contact [redacted] on [redacted] or by email to PostApproval@dcceew.gov.au.

Yours sincerely

Rachael Short
Branch Head
Environment Assessment (Vic, Tas) and Post Approvals

10 June 2025

Attachment:

- New or Increased Impact factsheet at: Guidance on 'new or increased impact' relating to changes to approved management plans under EPBC Act environmental approvals - DCCEEW