BALRANALD MINERAL SANDS PROJECT, NSW (EPBC 2012/6509)

Commonwealth Biodiversity Management Plan

Iluka Resources Limited

June 2023

DOCUMENT AUTHORISATION			
Document:	Commonwealth Biodiversity Management Plan		
Fusion reference:	MWB00006-H-PLN-0007	**Version:**	5
Document owner:	Dave Wright	**Next review:**	
Author:	Katie Diver		
Authorised by:	Dave Wright	**Date:**	30 June 2023
Signature:			
Related documents:			

DOCUMENT REVISION HISTORY			
Date	**Version**	**Description**	**Author**
14 November 2022	1	Draft	Jennifer Lindsay Katie Diver
18 January 2023	2	Final Draft	Katie Diver
7 February 2023	3	Final	Paul Gibbons
8 March 2023	4	Final for submission	Paul Gibbons
8 May 2023	4.1	Final for submission - addendum	Nick Travers
30 June 2023	5	Updated addressing DCCEEW comments	Nick Travers

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

Nicholas John Travers

Principal – Environmental Approvals NSW

Iluka Resources Limited

30th June 2023

Abbreviations

Term	Definition
APZ	Asset Protection Zone
BMP	Biodiversity Management Plan
Commonwealth Approval	Balranald Mineral Sands Project – EPBC Approval 2012/6509
Consent	Development Consent SSD-5285
DCCEEW	Department of Climate Change, Energy the Environment and Water
DPE	Department of Planning and Environment
DPI	Department of Primary Industries
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EMS	Environmental Management Strategy
EP&A Act	Environmental Planning and Assessment Act 1979
EPA	Environment Protection Authority
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
GPS	Global Positioning System
HMC	Heavy mineral concentrate
HSEC	Health, Safety, Environment and Community
HSECMS	Health, Safety, Environment and Community Monitoring System
Iluka	Iluka Resources Limited
ISO	International Standard Organisation
LLS	Local Land Services
NSW	New South Wales
PIRMP	Pollution Incident Response Management Plan
Project	Balranald Mineral Sands Project
SDP	Site Disturbance Procedure (FRM6126)
WA	Western Australia
WIRES	Wildlife Information, Rescue and Education Service

Contents

Tables

Figures

1. Introduction

1.1. Purpose of this document

This Biodiversity Management Plan (BMP) has been prepared to satisfy the requirements of Condition 2 of the *Commonwealth Environment Protection and Biodiversity Act 1999* (EPBC Act) approval EPBC 2012/6509 for the Iluka Resources Ltd (Iluka) Balranald Mineral Sands Project, New South Wales (herein referred to as 'the Balranald Project' or 'the project').

As per Condition 2 of EPBC 2012/6509, this BMP provides specific measures to avoid and mitigate impacts to Malleefowl (*Leipoa ocellata*) and Corben's Long-eared Bat (*Nyctophilus corbeni*) and has been prepared with due regard to the *Department of the Environment Environmental Management Plan Guidelines* (DoE, 2014) and the Balranald Mineral Sands Project Environmental Impact Statement (EIS) Biodiversity Assessment (Niche, 2016).

Consistent with the above, the objectives of this BMP are to:

- guide those undertaking ground disturbance activities to ensure appropriate management measures, monitoring and evaluation to minimise the impacts to Malleefowl and Corben's Long-eared Bat;
- provide direction on the management and mitigation of Malleefowl and Corben's Long-eared Bat impacts where they are identified and cannot be avoided; and
- to fulfil the project approval requirements as outlined in section 2.

The BMP is applicable to all activities to be undertaken during the construction, operations and rehabilitation phases of the Project.

The conditions of consent to which the BMP relates to and where they are addressed in the BMP are presented in section 2.

1.2. Project description

The Iluka Balranald Project will involve the construction, operation, and rehabilitation of two linear mineral sand deposits, known as the West Balranald and Nepean deposits, located approximately 12 kilometres (km) and 66 km north-west of the town of Balranald (Balranald town), respectively (**Figure 2.1**).

An environmental impact statement (EIS) was prepared and submitted in 2016 to accompany an EIS (EPBC 2012/6509) application under Section 130(1) and 133 of the EPBC Act to construct, operate and rehabilitate a mineral sand mine near Balranald, NSW. Commonwealth EPBC Act Approval 2012/6509 was granted by a delegate of the Commonwealth Minister for the Environment on 6 January 2017 for the mineral sands mine (herein referred to as 'the Commonwealth approval').

A separate EIS was submitted to the NSW Minister for Planning under the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act), with NSW Development Consent (SSD 5285) granted on 5 April 2016. The consent was granted for open cut mining of both deposits but allowed the trial of a novel underground mining methodology within the West Balranald deposit, inclusive the bulk sampling of mineral ore from depth, with initial underground mining trials and bulk sampling completed between 2016 and 2020.

Following successful trials, Iluka sought and were granted a modification of the consent (Modification 1) ('MOD1') (Consolidated Development Consent SSD-5285, herein referred to as 'the consent') to expand the underground mining trial at West Balranald, and an for an additional disturbance at West Balranald to accommodate primary processing infrastructure for the production of heavy mineral concentrate (HMC), with the transport of HMC off-site for secondary processing at Iluka's facilities in Victoria and/or Western Australia (WA).

The project EIS was supported by a Biodiversity Assessment prepared by Niche Environment and Heritage Pty Limited in 2016 (Niche 2016).

The Commonwealth approved Balranald Project was declared a controlled action, with the controlling provisions being impacts on threatened species listed under the EPBC Act, comprising Malleefowl (*Leipoa ocellata*) and Corben's Long-eared Bat (*Nyctophilus corbeni*).

Malleefowl habitat comprises two different plant community types (PCTs) which have been classified as low to very high habitat potential (**Figure 3.1**). Corben's Long-eared Bat comprises six different PCTs and has been classified into areas with low to high tree hollow (i.e. habitat) potential (**Figure 3.2**).

In accordance with Condition 1 of EPBC 2012/6509, no more than 2,544 ha of Malleefowl and 3,143 ha of Corben's Long-eared Bat habitat may be cleared for the Balranald Project, respectively.

1.3. Project status and development schedule

As at the date of this management plan (30 June 2023) site activities have been limited to the preliminary underground mining trials within the West Balranald deposit in accordance with the consent. Three (3) trials were conducted in the period between 2016–2020.

The Balranald Project will have a life of approximately 15 years, including construction, mining, backfilling of all overburden material, rehabilitation and decommissioning. The Project will be developed in stages, commencing with mining operations at the West Balranald deposit, with construction expected to take approximately eighteen (18) months followed by an operational phase (the extended underground mining trial) of approximately six (6) years. The operational phase would include underground mining and associated ore extraction, processing and transport activities, and progressive rehabilitation.

The site will operate 24 hours per day, seven days per week during construction, mining, processing and transport activities. The indicative planned sequencing of activities for the West Balranald Mine is presented in **Figure 1.1.**

Construction of infrastructure at the Nepean mine is proposed to commence in approximately Year 5 of the operational phase, with mining of ore starting in Year 6, and being complete by approximately Year 8.

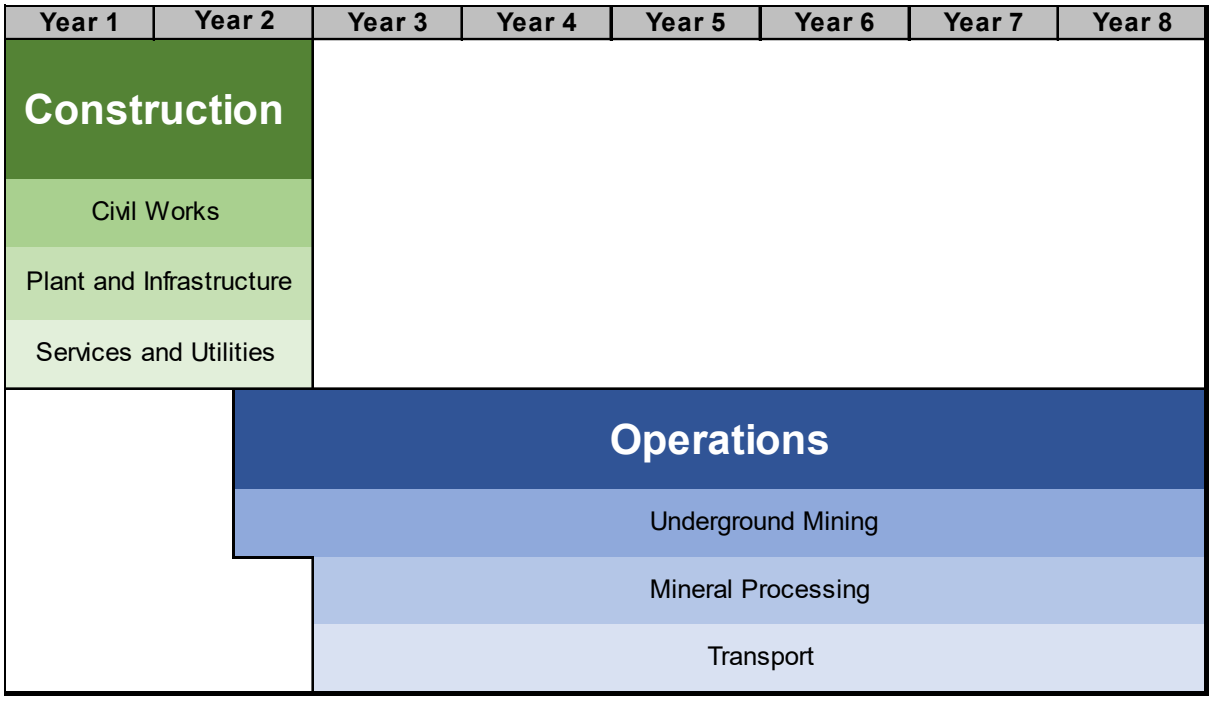


Figure 1.1 – Sequence of site activities

Financial investment approval for the Project was granted by the Iluka Board of Directors on 21 February 2023 (ASX:ILU) to progress construction of the West Balranald Mine. Construction is proposed to commence in August 2023, with underground mining and HMC production to commence in Q1 2025.

2. Commonwealth approval requirements

This BMP has been prepared to fulfil the requirements of Condition 2 of Commonwealth approval EPBC 2012/6509 (as varied), which requires that measures be provided to avoid and minimise impacts on Malleefowl and Corben's Long-eared Bat.

Though the 'controlled action' determination for project under the EPBC Act also concerned the potential for significant to listed migratory species (in particular migratory wetland birds), the Word Heritage values of a declared World Heritage property (the Willandra Lakes Region World Heritage Area) and the heritage values of a National Heritage place (the Willandra Lakes Region), these matters are not addressed within and fall outside the scope of this BMP.

The conditions of EPBC 2012/6509 relevant to this BMP and where they have been addressed are provided in **Table 1**.

The areas to which this BMP applies are shown in **Figure 2.1**.

Table 1 – Conditions of approval reference table

Schedule	Condition requirement	Plan reference	Demonstration of how the plan addresses condition requirements
1.	Within the project area the person taking the action must not clear: a) more than 2,544 hectares of **Malleefowl habitat;** and b) 3,143 ha of **Corben's Long-eared Bat habitat** The person taking the action must not clear outside the project area as part of this approval.	Figure 2.1 Figure 3.1 Figure 3.2 Section 5.3.1	Measures to restrict clearing are provided in this BMP.
2.	The person taking the action must submit a Biodiversity Management Plan (BMP) for the **Minister's** written approval. The BMP must include measures to avoid and mitigate impacts to **Malleefowl** and **Corben's Long-eared Bat**, taking into consideration Chapter 6 of the Biodiversity Assessment for the Environmental Impact Statement (June 2016). The BMP must include but not be limited to:	Section 5	This BMP has been submitted for the Commonwealth Minister's approval. It includes measures to avoid and mitigate impacts on the target species. The assessment of potential impacts considers Chapter 6 of the EIS Biodiversity Assessment (Niche, 2016).
a)	• pre-disturbance surveys supervised by a suitably qualified expert to determine presence of:	Section 5.3.1	Pre-disturbance surveys will be completed by a person(s) with qualifications in environmental science, biology or ecology and demonstrated experience in the management of relevant fauna (Malleefowl and Corben's Long-eared Bat).

Schedule	Condition requirement	Plan reference	Demonstration of how the plan addresses condition requirements
i.	– Malleefowl mounds in areas mapped as moderate, high and very high Malleefowl Habitat Potential;	Figure 3.1 Section 5.3.1.1	Pre-disturbance surveys will be undertaken in the target disturbance areas. Surveys will be in accordance with the *Survey Guidelines for Australia's threatened birds* (DEWHA 2010) between September to March and prior to impact, under direction of a suitably qualified environmental professional.
ii.	– hollow-bearing trees for the Corben's Long-eared Bat in areas mapped as Medium Tree Hollow Density, Medium - High Tree Hollow Density and High Tree Hollow Density;	Figure 3.2 Section 5.3.1.2	Pre-disturbance surveys will be undertaken in the target disturbance areas. Surveys to record all hollows, particularly those in Corben's Long-eared Bat habitat, will be undertaken prior to impact, under direction of a suitably qualified environmental professional.
b)	Revoked	n/a	n/a
c)	• measures to ensure active or potentially active **Malleefowl** mounds located during **pre-disturbance surveys** between September to February (inclusive) are protected until the end of that **Malleefowl** nesting season (end of February);	Section 5.3.2.3	All Malleefowl mounds recorded during pre-disturbance surveys will be protected for the duration of the breeding season, i.e. September to the end of February.
d)	• measures to identify **Malleefowl** nesting activity within **Malleefowl habitat** during the **Malleefowl** nesting season;	Section 5.3.1.1	Pre-disturbance surveys will be completed in accordance with the *Survey Guidelines for Australia's threatened birds* (DEWHA 2010) to identify Malleefowl nesting activity in Malleefowl habitat areas relevant to the disturbance areas during September to the end of February.
e)	• speed limits and warning signs in and near **Malleefowl habitat**;	Section 5.3.5	If an active or potentially active Malleefowl mound is identified within 250 m of the access road, and the normal sign-posted speed limit of the nearby access road is 100 km/h, a reduced speed limit of 60 km/h will be applied for that nearby section of road for the duration of the applicable breeding season.

Schedule	Condition requirement	Plan reference	Demonstration of how the plan addresses condition requirements
f)	• measures to minimise dust and light spill within 200 metres of identified **Malleefowl** mounds;	Section 5.3.7	Dust and light spill will be minimised within 200 m of identified Malleefowl mounds in Malleefowl habitat areas within the Project area.
g)	• no **clearing** of vegetation mapped as Medium Tree Hollow Density, Medium-High Tree Hollow Density and High Tree Hollow Density;	Figure 3.2 Section 5.3.2.4	No clearing of applicable vegetation between May to October (inclusive) in areas containing tree hollows within the disturbance areas.
h)	• retention of all **hollow-bearing trees** identified as **active** within **Corben's Long-eared Bat habitat** in-situ for two nights after the surrounding vegetation has been cleared, prior to being felled;	Section 5.3.2.4	All trees with hollows above 1 m height in Corben's Long-eared Bat habitat within disturbance areas will be retained for two nights after surrounding vegetation has been cleared, prior to being felled.
i)	• fire management measures; and	Section 5.3.3	An *Emergency Control and Response Plan* that incorporates measures for the prevention and management of bushfire has been developed for the site.
j)	• pest, predator and weed management measures.	Section 5.3.4	General measures that would benefit retained Malleefowl and Corben's Long-eared Bat habitat have been prepared to manage pests, predators and weeds relevant to the Project area.
2A	To avoid and mitigate impacts as a result of the action to Malleefowl, prior to undertaking any clearing within areas mapped as moderate, high and very high Malleefowl Habitat Potential, the person taking the action must ensure a suitably qualified expert conducts a pre-disturbance survey to detect and record all Malleefowl mounds. The person taking the action must not undertake any clearing unless:	Figure 3.1 Section 5.3.1	Pre-disturbance surveys will be completed by a person(s) with qualifications in environmental science, biology or ecology and demonstrated experience in the management Malleefowl.
a)	the suitably qualified person has completed a Malleefowl mound pre-disturbance survey for that breeding season;	Figure 3.1 Section 5.3.1.1	Pre-disturbance surveys will be undertaken throughout the life-of-project and at any point that clearing of moderate, high and very high potential Malleefowl habitat is proposed, with surveys to be conducted ahead of the applicable breeding season.

Schedule	Condition requirement	Plan reference	Demonstration of how the plan addresses condition requirements
b)	all Malleefowl mounds, and avoidance areas around each mound, within the project area have been mapped for that breeding season; and	Section 5.3.1.1 Section 5.3.2.3.2	A 200 m circular exclusion area will be established around each active or potentially active Malleefowl mound identified during pre-disturbance surveys and the exclusion area clearly depicted on clearing plans to prevent inadvertent disturbance.
c)	the finalised survey results and associated maps have been submitted electronically to the department.	Section 6.2	Iluka will submit Malleefowl mound pre-disturbance survey results to the Department.
	The person taking the action must ensure that no Malleefowl mound is directly disturbed during any breeding season. The person taking the action must not clear within 200 metres of any Malleefowl mound during any breeding season.	Section 5.3.1.1 Section 5.3.2.3.2	A 200 m circular exclusion area will be established around each active or potentially active Malleefowl mound identified during pre-disturbance surveys and the exclusion area clearly depicted on clearing plans to prevent inadvertent disturbance.
-	The person taking the action must not **commence** the action until the BMP has been approved by the **Minister** in writing. The approved BMP must be implemented by the person taking the action.	-	Iluka will commence the action following Minister's written approval of the BMP.
3.	In order to mitigate impacts to **Malleefowl** and **Corben's Long-eared Bat**, the person taking the action must undertake rehabilitation activities in accordance with NSW approval conditions 32, 33 and 34.	Section 5.4.2	Iluka has prepared a separate Rehabilitation Management Plan in accordance with NSW SSD-5285 approval conditions 32, 33 and 34. This plan can be accessed at https://www.iluka.com/getattachment/community-engagement/balranald
4.	To compensate for the loss of **Malleefowl habitat** and **Corben's Long-eared Bat habitat**, the person taking the action must submit an Offset Management Plan (OMP) for the written approval of the **Minister**. The OMP must be prepared in accordance with the principles of the EPBC Act Environmental Offsets Policy and include: a) details of an offset site(s) required to compensate for the loss of **Malleefowl habitat** and **Corben's Long-eared Bat habitat**, including confirmation that the site can be secured, the actions to progress securing	Section 5.4.1	Potential offset sites have been identified and assessments of suitability, per the requirements of Condition 4, are pending at the time of plan submission. These assessments will inform the Offset Management Plan (OMP) and the appropriate instrument for securing offsets.

Schedule	Condition requirement	Plan reference	Demonstration of how the plan addresses condition requirements
	the site, and timeframe to secure the site; b) A report prepared by a **suitably qualified expert** that clearly describes the baseline vegetation quality (prior to any management activities) of the proposed offset site(s); c) the **offset attributes** and a map, including a GIS **shapefile**, that clearly defines the location and boundaries of the offset area; d) details of how the offset site(s) provide connectivity with other relevant habitats and biodiversity corridors; e) a description of the management measures that will be implemented, including a discussion of how the measures outlined take into account relevant **conservation advice** and are consistent with the measures in relevant **recovery plans** and **threat abatement plans**; f) performance indicators, including success, failure and completion criteria, for evaluating the management of the offset site(s), as well as an assessment of the **baseline vegetation quality** consistent with the **Department's offsets assessment guide** and criteria for triggering remedial action (if necessary); g) a program to monitor and report on the effectiveness and success or failure of these measures, and progress against the performance and completion criteria; h) how the offset site will be protected, and ecological benefits maintained, at least until the expiry date of this approval, i) corrective measures and contingency measures		

Schedule	Condition requirement	Plan reference	Demonstration of how the plan addresses condition requirements
	(including evaluation measures) that will be used in the event that performance indicators are not met. The person taking the action must not commence **mining operations** until the OMP has been approved by the **Minister** in writing. The OMP approved by the **Minister** must be implemented at least until the expiry date of this approval.		
5.	To compensate for the loss of **Malleefowl habitat** and **Corben's Long-eared Bat habitat**, the person taking the action must secure an environmental offset site(s) in accordance with the approved OMP required under Condition 4.	Section 5.4.1	Potential offset sites have been identified and assessments of suitability, per the requirements of Condition 4, are pending at the time of plan submission. These assessments will inform the Offset Management Plan (OMP) and the appropriate instrument for securing offsets.
6.	The person taking the action may provide the environmental offset site(s) required in Condition 5 in accordance with the corresponding **project stages**. If the person taking the action elects to do this, the person taking the action must: a) **secure** an environmental offset site(s) to compensate for the first **project stage** within one year of the commencement of **mining operations**; b) provide the **Minister** with the following prior to commencement of the second project stage: i. written evidence demonstrating that an environmental offset consistent with the requirements of Condition 6(a) has been **secured** and that management measures under the approved OMP have been implemented; ii. an updated OMP as required under Condition 4 which includes the offsets for **both project stages**, for written	Section 5.4.1	Potential offset sites have been identified and assessments of suitability, per the requirements of Condition 4, are pending at the time of plan submission. These assessments will inform the Offset Management Plan (OMP) and the appropriate instrument for securing offsets.

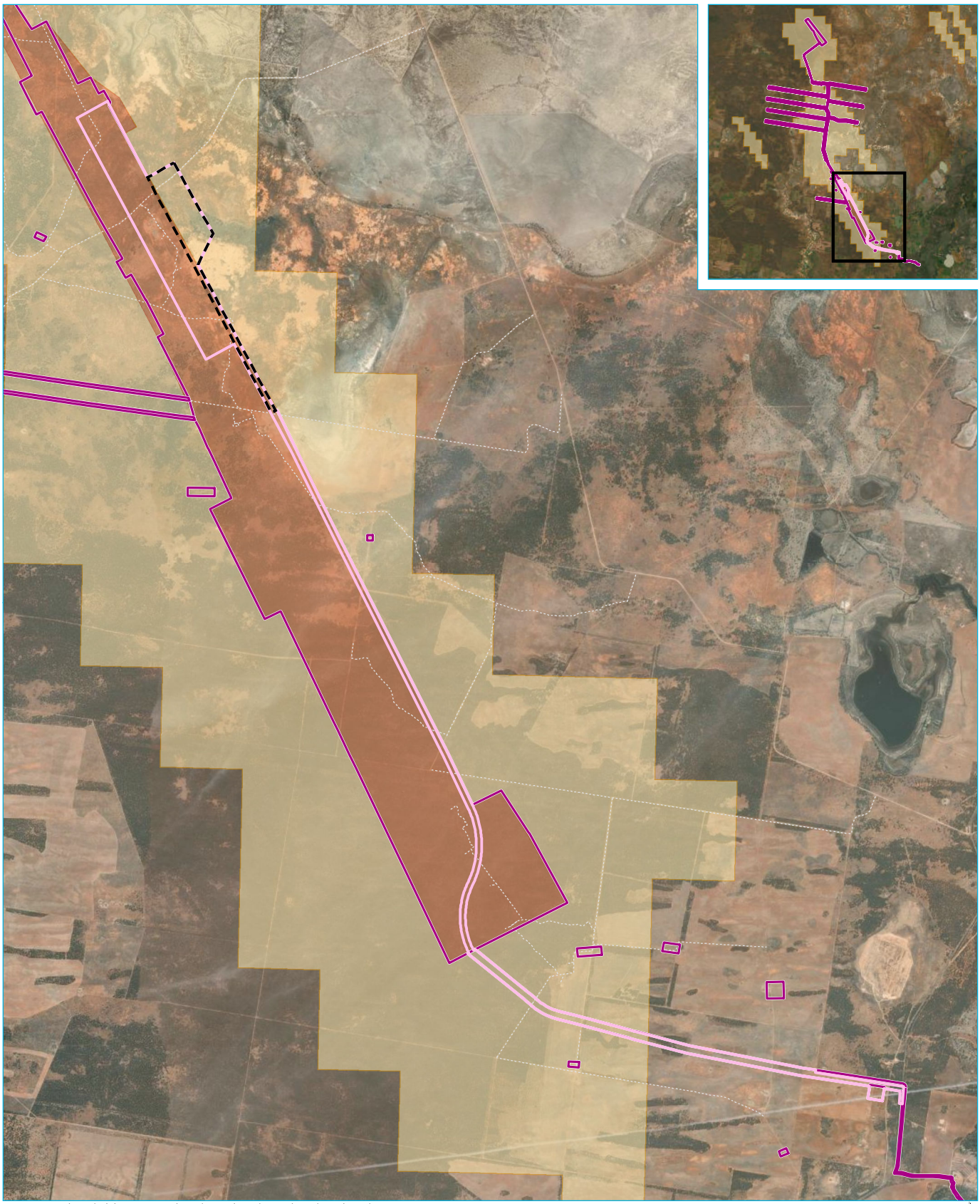
Schedule	Condition requirement	Plan reference	Demonstration of how the plan addresses condition requirements
	approval by the **Minister**. The updated OMP must also demonstrate how the environmental offset(s) for the second project stage consolidates the offset(s) already **secured** for the first **project stage**. The person taking the action must not commence the second project stage until the updated OMP has been approved by the Minister in writing. The updated approved OMP must be implemented. An environmental offset site(s) to compensate for the second project stage must be secured within one year of commencement of the second project stage. If the person taking the action elects not to provide the environmental offset site(s) in accordance with the corresponding project stages, the environmental offset site(s) must be secured within one year of the commencement of mining operations.		

Definitions relevant to all words shown in bold in the conditions of approval referenced in **Table 1** are provided in **Table 2**.

Table 2 – Definitions from EPBC 2012/6509

Term of reference	Definition
Active	Evidence or likelihood that hollow-bearing trees are being utilised as habitat by the Corben's Long-eared Bat.
Clear/clearing	The cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ring barking, uprooting or burning of native vegetation.
Commence	The date that preparatory works are first undertaken, including, but not limited to, the clearing of vegetation, the erection of any onsite temporary structure and the use of heavy-duty equipment for the purpose of breaking ground for fencing, buildings or infrastructure, including any works for the creation of vegetation buffers.
Corben's Long-eared Bat	The species *Nyctophilus corbeni*, listed under the EPBC Act.

Term of reference	Definition
Corben's Long-eared Bat habitat	Habitat for the Corben's Long-eared Bat that is mapped as Spinifex Dune Mallee Woodland, Chenopod Sandplain/Swale Mallee Woodland, Belah – Pearl Bluebush Woodland, Belah – Chenopod Woodland in Figures 7A, 7B, 7C, 7D and 7E in *Biodiversity Assessment for the Environmental lmpact Statement Biodiversity Assessment* (Niche 2016), as shown at Appendix B.
Hollow-bearing trees	Trees with hollows more than one metre above the ground and providing suitable roost habitat for the Corben's Long-eared Bat.
Malleefowl	The species *Leipoa ocellata*, listed under the EPBC Act.
Malleefowl habitat	Habitat for the Malleefowl that is mapped as 'Malleefowl Habitat Potential'.
Minister	The Commonwealth Minister administering the EPBC Act and includes a delegate of the Minister.
Pre-disturbance surveys	Surveys undertaken prior to any activities that would have an impact. Surveys must be in accordance with the Department's relevant survey guidelines in effect at the time of the surveyor other equivalent survey methodology approved by the Department. Surveys must also be undertaken within an appropriate timeframe prior to any activities that would have an impact, as directed by a suitably qualified environmental professional.
Suitably qualified expert	A person(s) with qualifications in environmental science, biology or ecology and demonstrated experience in the management of relevant fauna (Malleefowl and Corben's Long-eared Bat).



Source: EMM (2023); Iluka Resources (2021); ESRI (2021); DFSI (2017); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

N

KEY

- Revised project area
- MOD1
- MOD1 additional disturbance area

Existing environment

- Existing track
- Exploration Licence (EL7450)
- Mining Lease (ML1736)

Regional context of the Balranald Project

Balranald Mineral Sands Mine
Commonwealth Biodiversity Management Plan
Figure 2.1

\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_SBMP\SBMP002_RegionalContext_20230120_03.mxd 20/01/2023

EMM
creating opportunities

3. Species ecology, key threats and recovery actions

Condition 2 of EPBC 2012/6509 requires this BMP to provide measures that avoid and minimise impacts on Malleefowl and Corben's Long-eared Bat with the following section providing background on the species ecology, key threats and recovery actions.

The location and distribution of Malleefowl and Corben's Long-eared Bat habitat within the project area are shown in **Figure 3.1** (sub-maps 1–7) and **Figure 3.2** (sub-maps 1–15), respectively.

3.1. Malleefowl

3.1.1. Species ecology

Malleefowl was listed as vulnerable under the EPBC Act on 16 July 2000. The species occurs in all mainland states excluding Queensland. In NSW the species is found in highest abundance in the area around the Mallee Cliffs National Park and extending east to Balranald (OEH, 2022). Typical habitat comprises semi-arid to arid shrublands and low woodlands, particularly those dominated by mallee and acacias. The species has declined significantly over the past century as a result of clearing and grazing of optimal habitat, predation by feral fox and an increase in intense bushfires.

While the habitat requirements of Malleefowl are poorly understood, the National Recovery Plan for Malleefowl (Benshemesh, 2007) identifies habitat critical to the survival of the species as containing a sandy substrate and an abundance of leaf litter for nest-building. Additionally, densities of Malleefowl are generally greatest in areas receiving higher rainfall (300–450 mm mean annual rainfall) and on fertile soils with denser and more diverse vegetation.

The National Recovery Plan for Malleefowl (Benshemesh, 2007) lists the key known and potential threats to Malleefowl. These threats are discussed in the following sections.

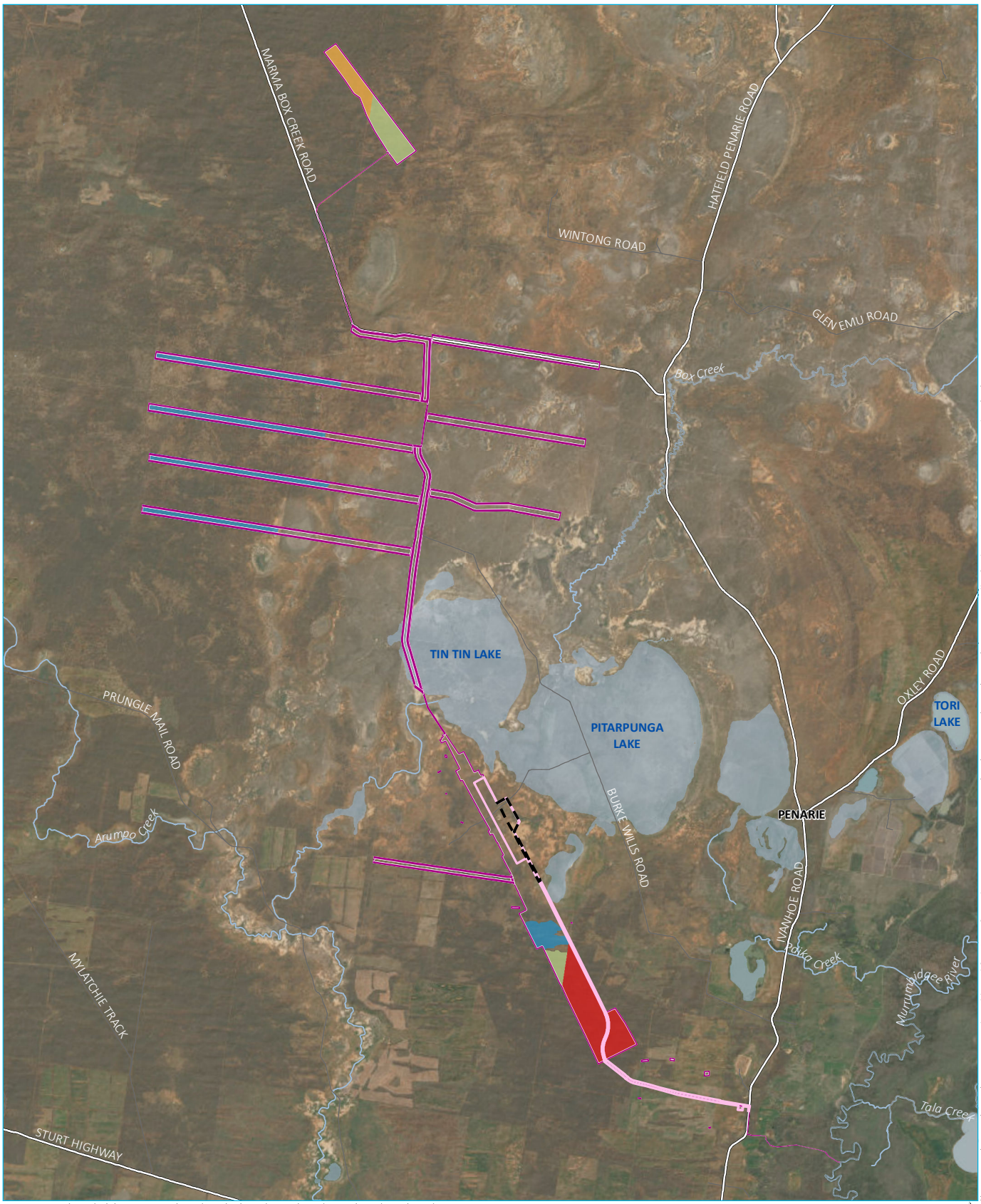
3.1.2. Key threats

3.1.2.1. Habitat loss and grazing

Malleefowl are generalist feeders, relying on a diversity of food shrubs rather than an abundance of a single species. This indicates that different food resources are important at different times and locations, which enables a continuous food supply throughout the year. Clearing of optimal Malleefowl habitat can reduce the availability of food resources throughout the year.

3.1.2.2. Fire

Large-scale fires are a major threat to Malleefowl and many other Mallee-dependant birds. Due to the species predominantly ground-dwelling nature and its inability to fly long distances, populations of Malleefowl can be suddenly eliminated from vast areas that are burnt. Additionally, recovery and recolonisation in burnt areas to pre-burn densities tends to be slow, requiring 30 to 60 years in most instances (Benshemesh, 2007).



Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 5 10 km

GDA 1994 MGA Zone 54

N

\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_BMP\BMP002_MalleefowlOverview_20230120_05.mxd 20/01/2023

KEY

- Revised project area
- MOD1
- MOD1 additional disturbance area

Malleefowl habitat potential

- Very High
- High
- Moderate
- Low

Existing environment

- Major road
- Minor road
- Named watercourse
- Named waterbody

Note: Disturbance area's for the following project elements do not cover the full project area:
West Balranald access road - 60 m wide corridor within the project area;
Nepean access road - 40 - 50 m wide corridor within the project area;
Injection borefields - 100 m wide corridor within the project area; and
Water supply pipeline - 15 m wide corridor within the project area.

Malleefowl habitat across the Balranald Project

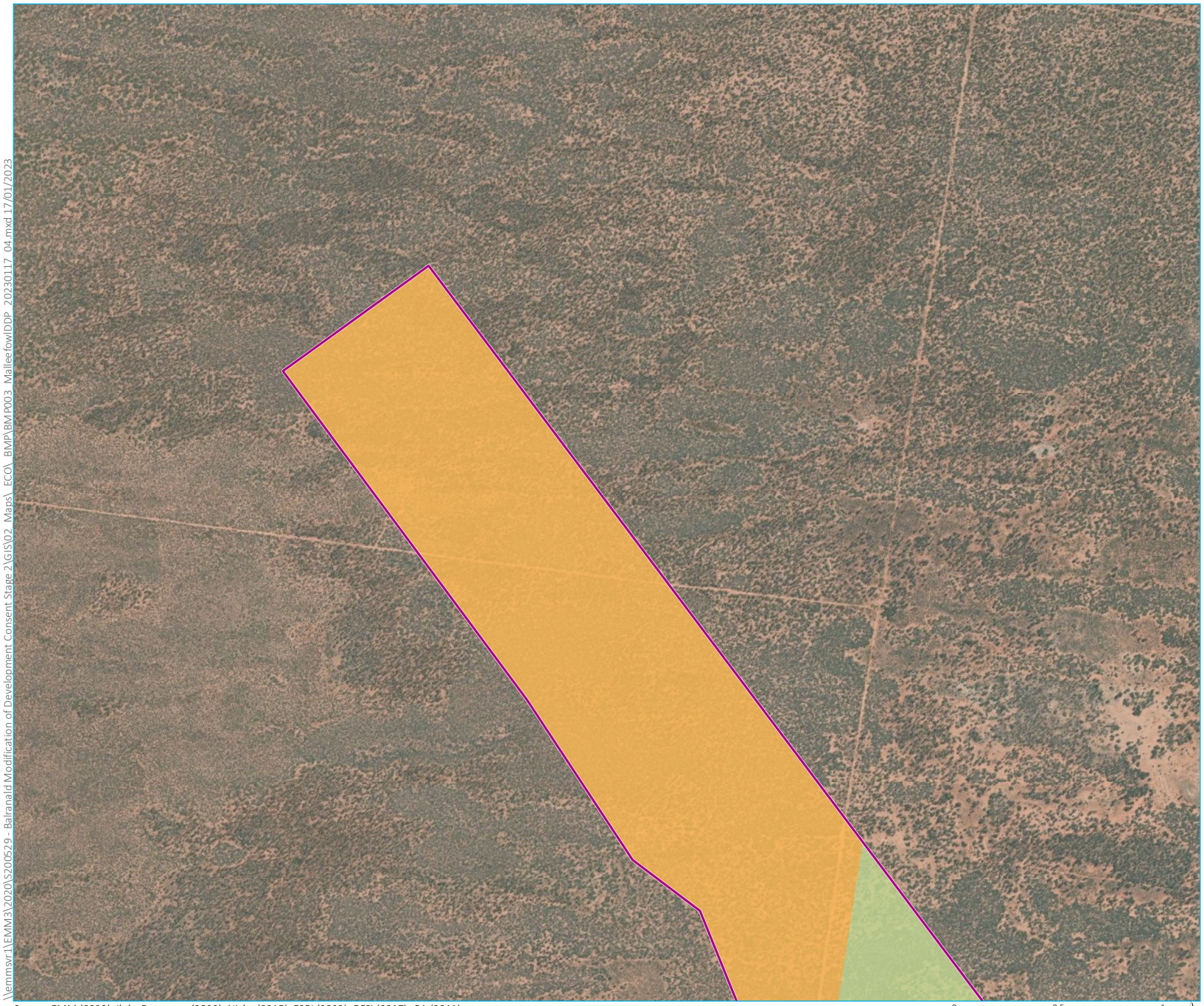
Map 1 of 7

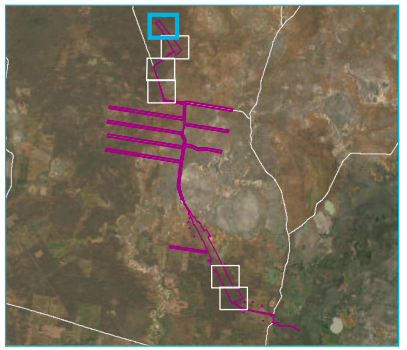
Balranald Mineral Sands Project

Cwth Biodiversity Management Plan

Figure 3.1

EMM creating opportunities





KEY

- Revised project area
- MOD1
- MOD1 additional disturbance area

Existing environment

- Major road

Malleefowl habitat potential

- High
- Moderate

Note: Disturbance area's for the following project elements do not cover the full project area:
West Balranald access road - 60 m wide corridor within the project area;
Nepean access road - 40 - 50 m wide corridor within the project area;
Injection borefields - 100 m wide corridor within the project area; and
Water supply pipeline - 15 m wide corridor within the project area.

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

N

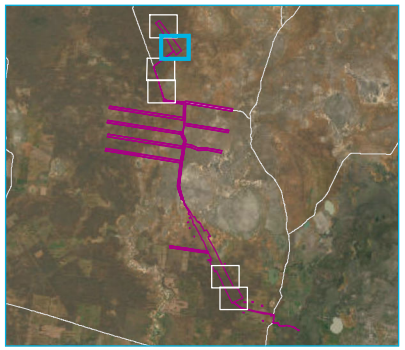
\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_BMP\BMP003_MalleefowlDDP_20230117_04.mxd 17/01/2023

Malleefowl habitat across the Balranald Project

Map 2 of 7

Balranald Mineral Sands Project
Cwth Biodiversity Management Plan
Figure 3.1

EMM
creating opportunities



KEY

- Revised project area
- MOD1
- MOD1 additional disturbance area

Existing environment

- Major road

Malleefowl habitat potential

- High
- Moderate

Note: Disturbance area's for the following project elements do not cover the full project area:
West Balranald access road - 60 m wide corridor within the project area;
Nepean access road - 40 - 50 m wide corridor within the project area;
Injection borefields - 100 m wide corridor within the project area; and
Water supply pipeline - 15 m wide corridor within the project area.

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

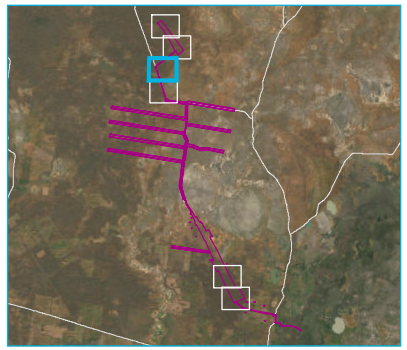
N

\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_BMP\BMP003_MalleefowlDDP_20230117_04.mxd 17/01/2023

Malleefowl habitat across the Balranald Project
Map 3 of 7

Balranald Mineral Sands Project
Cwth Biodiversity Management Plan
Figure 3.1

EMM
creating opportunities



KEY

- Revised project area
- MOD1
- MOD1 additional disturbance area

Existing environment

- Major road
- Watercourse/drainage line

Malleefowl habitat potential

- High
- Moderate

Note: Disturbance area's for the following project elements do not cover the full project area:
West Balranald access road - 60 m wide corridor within the project area;
Nepean access road - 40 - 50 m wide corridor within the project area;
Injection borefields - 100 m wide corridor within the project area; and
Water supply pipeline - 15 m wide corridor within the project area.

Malleefowl habitat across the Balranald Project
Map 4 of 7

Balranald Mineral Sands Project
Cwth Biodiversity Management Plan
Figure 3.1

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

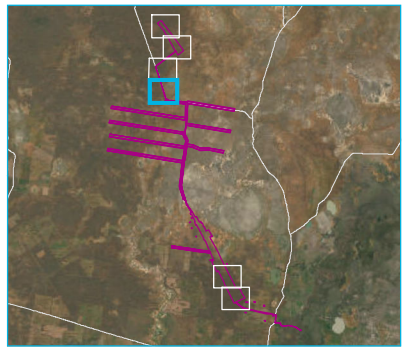
0 0.5 1 km

GDA 1994 MGA Zone 54

N

\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_BMP\BMP003_MalleefowlDDP_20230117_04.mxd 17/01/2023

EMM creating opportunities



KEY

- Revised project area
- MOD1
- MOD1 additional disturbance area

Existing environment

- Major road
- Watercourse/drainage line

Malleefowl habitat potential

- High
- Low

Note: Disturbance area's for the following project elements do not cover the full project area:
West Balranald access road - 60 m wide corridor within the project area;
Nepean access road - 40 - 50 m wide corridor within the project area;
Injection borefields - 100 m wide corridor within the project area; and
Water supply pipeline - 15 m wide corridor within the project area.

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

N

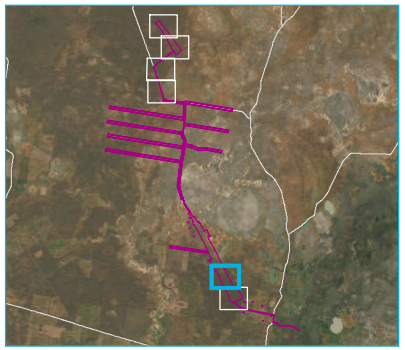
\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_BMP\BMP003_MalleefowlDDP_20230117_04.mxd 17/01/2023

Malleefowl habitat across the Balranald Project

Map 5 of 7

Balranald Mineral Sands Project
Cwth Biodiversity Management Plan
Figure 3.1

EMM
creating opportunities



KEY

- Revised project area
- MOD1
- MOD1 additional disturbance area

Existing environment

- Major road
- Named waterbody

Malleefowl habitat potential

- Very High
- Moderate
- Low

Note: Disturbance area's for the following project elements do not cover the full project area:
West Balranald access road - 60 m wide corridor within the project area;
Nepean access road - 40 - 50 m wide corridor within the project area;
Injection borefields - 100 m wide corridor within the project area; and
Water supply pipeline - 15 m wide corridor within the project area.

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

N

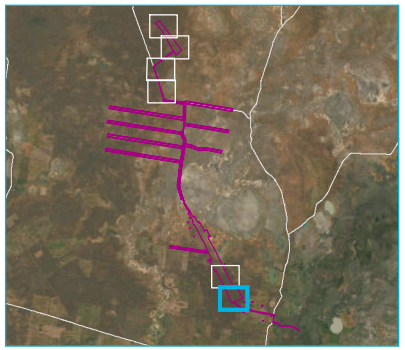
\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_BMP\BMP003_MalleefowlDDP_20230117_04.mxd 17/01/2023

Malleefowl habitat across the Balranald Project

Map 6 of 7

Balranald Mineral Sands Project
Cwth Biodiversity Management Plan
Figure 3.1

EMM
creating opportunities



KEY

- Revised project area
- MOD1
- MOD1 additional disturbance area

Existing environment

- Major road
- Named waterbody

Malleefowl habitat potential

- Very High
- High

Note: Disturbance area's for the following project elements do not cover the full project area:
West Balranald access road - 60 m wide corridor within the project area;
Nepean access road - 40 - 50 m wide corridor within the project area;
Injection borefields - 100 m wide corridor within the project area; and
Water supply pipeline - 15 m wide corridor within the project area.

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

N

Malleefowl habitat across the Balranald Project

Map 7 of 7

Balranald Mineral Sands Project
Cwth Biodiversity Management Plan
Figure 3.1

EMM
creating opportunities

\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_BMP\BMP003_MalleefowlDDP_20230117_04.mxd 17/01/2023

3.2. Corben's Long-eared Bat

3.2.1. Species ecology

Corben's Long-eared Bat was listed as vulnerable under the EPBC Act on 4 April 2001. The species is found in southern central Queensland, central western NSW, north-western Victoria and eastern South Australia. The majority of its range occurs in the Murray Darling Basin, with 50% of the species' known distribution occurring within NSW (TSSC, 2015). The species can be found in a wide range of inland woodland habitats, but within NSW is found more commonly within box, ironbark and/or cypress pine vegetation. The species is more abundant in larger stands of old-growth vegetation with a distinct tree canopy and a dense understorey.

The Conservation Advice for Corben's Long-eared Bat (TSSC, 2015) states that key threats to Corben's Long eared Bat include habitat loss and fragmentation, fire and reduction in hollow availability. These threats are relevant to the Project and are discussed in the following sections.

3.2.2. Key threats

3.2.2.1. Habitat loss

Extensive clearing of woodland and mallee habitat is a significant factor in the decline of Corben's Long eared bat, with an estimated 75% of the species' eastern range within NSW cleared. The majority of clearance is a direct result of agriculture however, extractive industries are increasingly contributing to habitat clearance (TSSC 2015). As the species requires large areas of land, smaller fragments of vegetation are unlikely to provide suitable habitat and increase vulnerability to local extinction.

The Conservation Advice for Corben's Long-eared Bat (TSSC 2015) recommends key actions to prevent habitat loss, including:

- protecting known and potential habitat of key populations from habitat loss;
- undertaking habitat renewal actions where feasible to link known or potential habitat for key populations; and
- retaining hollow-bearing trees and provide for hollow tree recruitment, where possible.

3.2.2.2. Fire

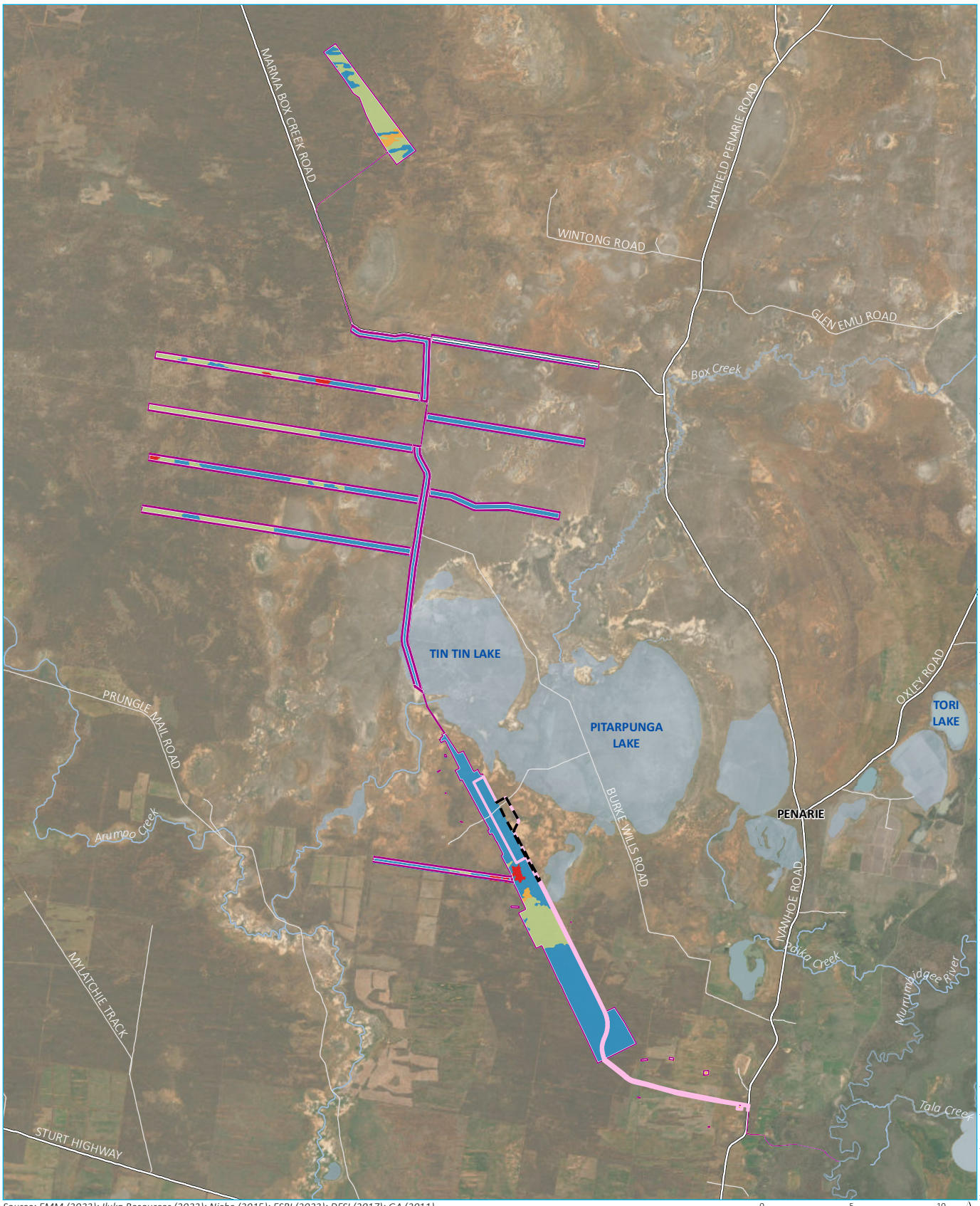
Bushfires in uncleared habitat cause both direct mortality and loss of foraging habitat and roosting sites. Due to the significant habitat loss that Corben's Long-eared bat has already undergone, additional habitat loss from bushfires is more significant now than in the past.

The Conservation Advice for Corben's Long-eared Bat (TSSC 2015) recommends the following actions to reduce the impact of fire:

- mapping areas of old growth mallee within the species range, taking the species' fire regime (i.e. impacts of fire frequency and intensity) into consideration when planning fuel reduction burns; and
- upon completion of fire regime investigations, incorporate the information into fire management plans across the species' range.

3.2.2.3. Reduction in hollow availability

Corben's Long-eared Bat depends upon the availability of suitable roosting habitat for survival. The species mainly roosts in tree hollows, so any reduction in hollow availability (either through clearing of trees or competition with other hollow-dependant species) would put pressure on the species.



Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 5 10 km

GDA 1994 MGA Zone 54

N

\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_BMP\BMP004_CorbensOverview_20230120_05.mxd 20/01/2023

KEY

- Revised project area
- MOD1
- MOD1 additional disturbance area

Tree hollow density

- High
- Medium/High
- Medium
- Low

Existing environment

- Major road
- Minor road
- Named watercourse
- Named waterbody

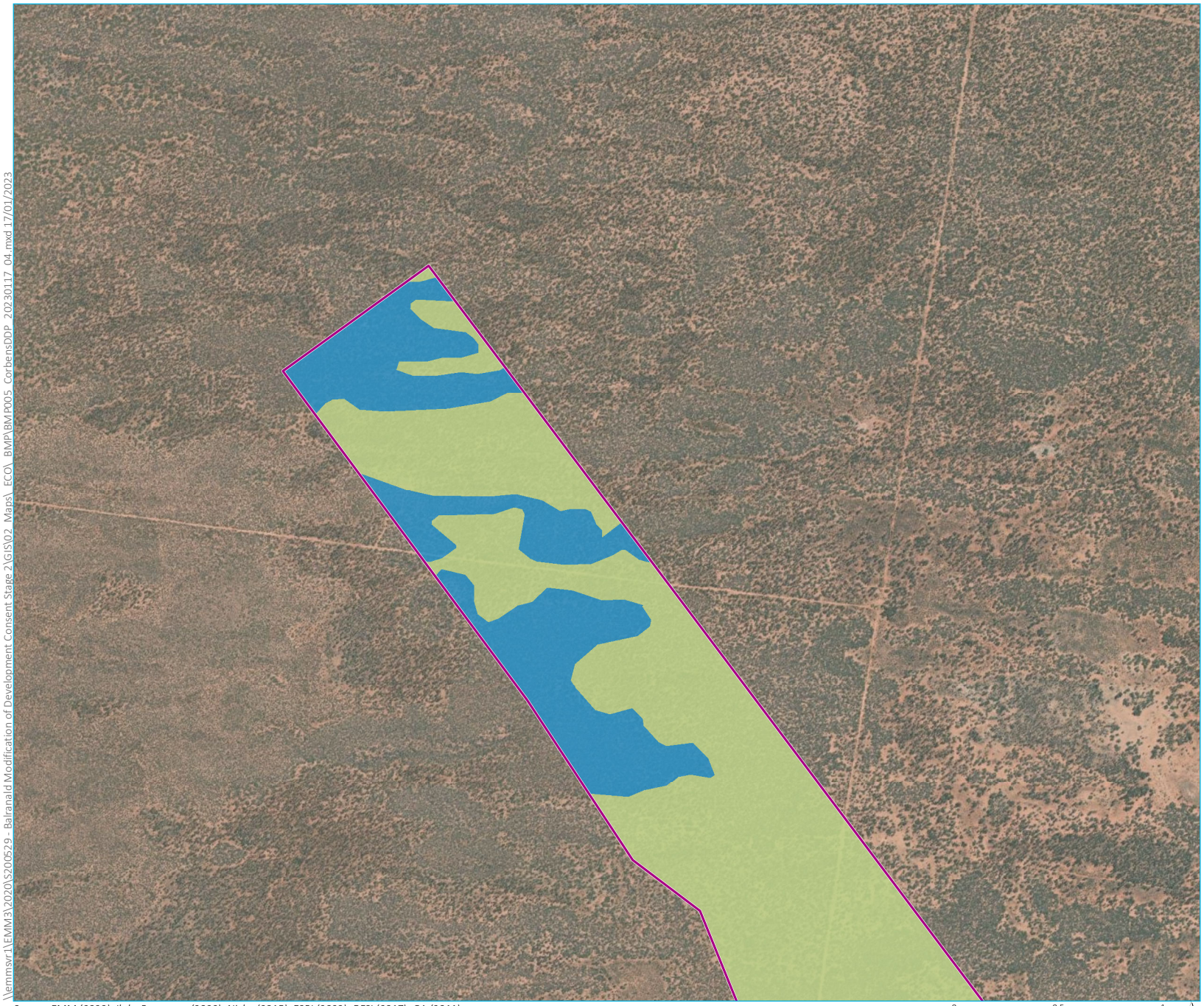
Note: Disturbance area's for the following project elements do not cover the full project area:
West Balranald access road - 60 m wide corridor within the project area;
Nepean access road - 40 - 50 m wide corridor within the project area;
Injection borefields - 100 m wide corridor within the project area; and
Water supply pipeline - 15 m wide corridor within the project area.

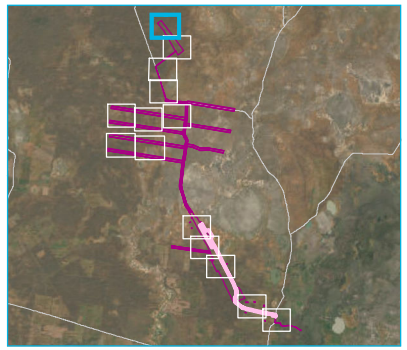
Corben's Long-eared Bat habitat across the Balranald Project

Map 1 of 15

Balranald Mineral Sands Project
Cwth Biodiversity Management Plan
Figure 3.2

EMM
creating opportunities





KEY

- Revised project area
- MOD1

Existing environment

- Major road

Tree hollow density

- Medium
- Low

Note: Disturbance area's for the following project elements do not cover the full project area:
West Balranald access road - 60 m wide corridor within the project area;
Nepean access road - 40 - 50 m wide corridor within the project area;
Injection borefields - 100 m wide corridor within the project area; and
Water supply pipeline - 15 m wide corridor within the project area.

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

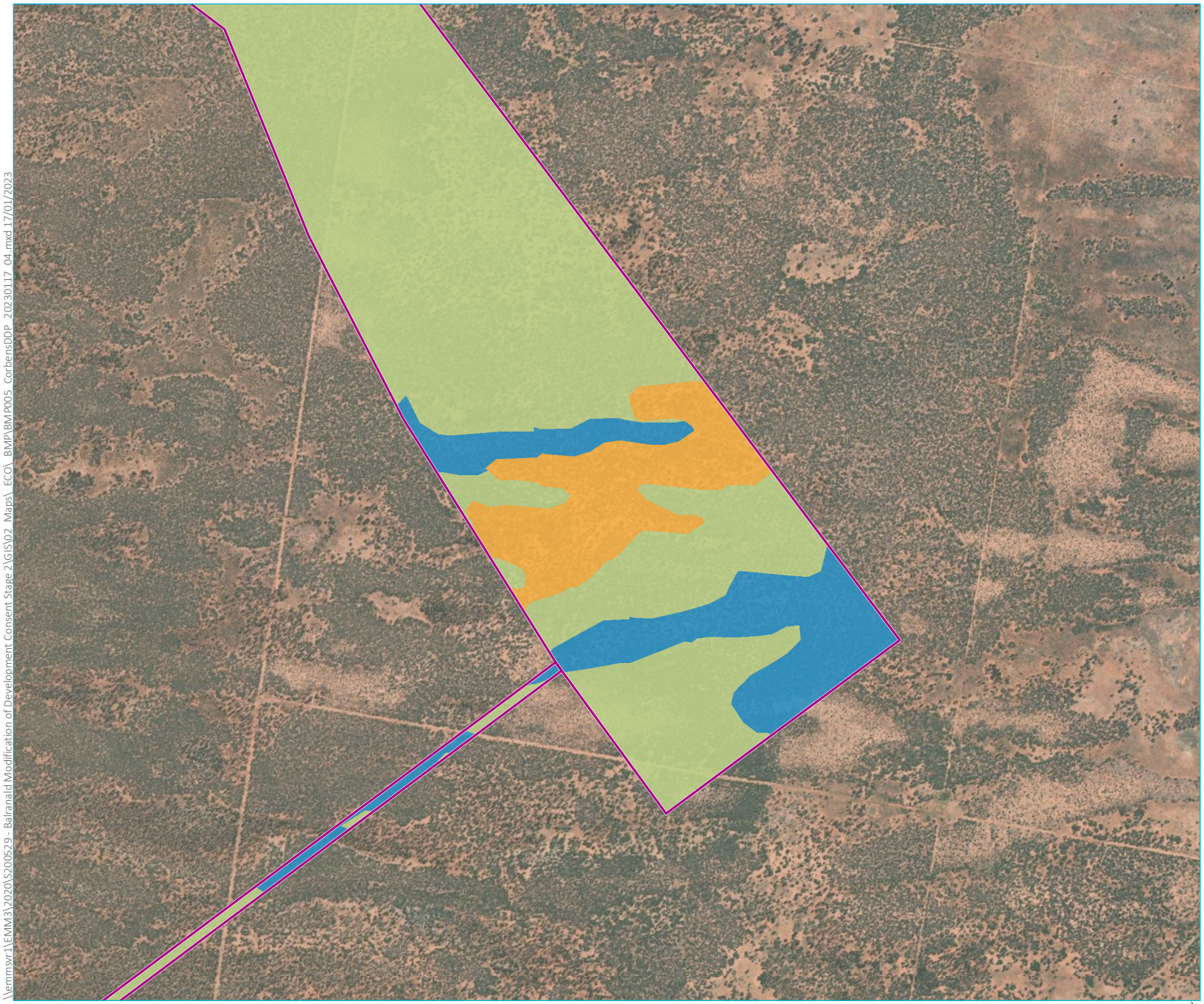
N

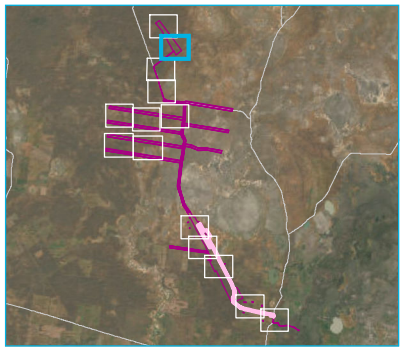
\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_BMP\BMP005_CorbensDDP_20230117_04.mxd 17/01/2023

Corben's Long-eared Bat habitat across the Balranald Project
Map 2 of 15

Balranald Mineral Sands Project
Cwth Biodiversity Management Plan
Figure 3.2

EMM
creating opportunities





KEY

- Revised project area
- MOD1

Existing environment

- Major road

Tree hollow density

- Medium/High
- Medium
- Low

Note: Disturbance area's for the following project elements do not cover the full project area:
West Balranald access road - 60 m wide corridor within the project area;
Nepean access road - 40 - 50 m wide corridor within the project area;
Injection borefields - 100 m wide corridor within the project area; and
Water supply pipeline - 15 m wide corridor within the project area.

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

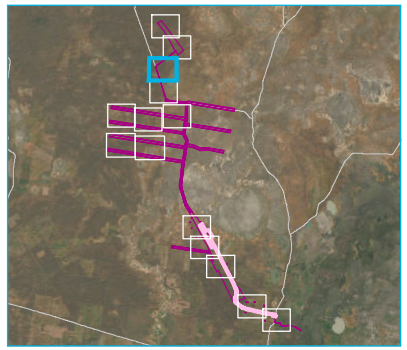
N

\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_BMP\BMP005_CorbensDDP_20230117_04.mxd 17/01/2023

Corben's Long-eared Bat habitat across the Balranald Project
Map 3 of 15

Balranald Mineral Sands Project
Cwth Biodiversity Management Plan
Figure 3.2

EMM
creating opportunities



KEY

- Revised project area
- MOD1

Existing environment

- Major road
- Watercourse/drainage line

Tree hollow density

- Medium
- Low

Note: Disturbance area's for the following project elements do not cover the full project area:
West Balranald access road - 60 m wide corridor within the project area;
Nepean access road - 40 - 50 m wide corridor within the project area;
Injection borefields - 100 m wide corridor within the project area; and
Water supply pipeline - 15 m wide corridor within the project area.

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

N

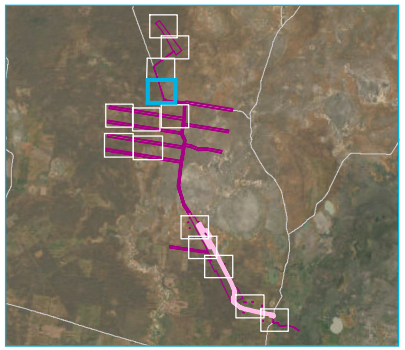
\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_BMP\BMP005_CorbensDDP_20230117_04.mxd 17/01/2023

Corben's Long-eared Bat habitat across the Balranald Project

Map 4 of 15

Balranald Mineral Sands Project
Cwth Biodiversity Management Plan
Figure 3.2

EMM
creating opportunities



KEY

- Revised project area
- MOD1

Existing environment

- Major road
- Watercourse/drainage line

Tree hollow density

- Medium/High
- Medium
- Low

Note: Disturbance area's for the following project elements do not cover the full project area:
West Balranald access road - 60 m wide corridor within the project area;
Nepean access road - 40 - 50 m wide corridor within the project area;
Injection borefields - 100 m wide corridor within the project area; and
Water supply pipeline - 15 m wide corridor within the project area.

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

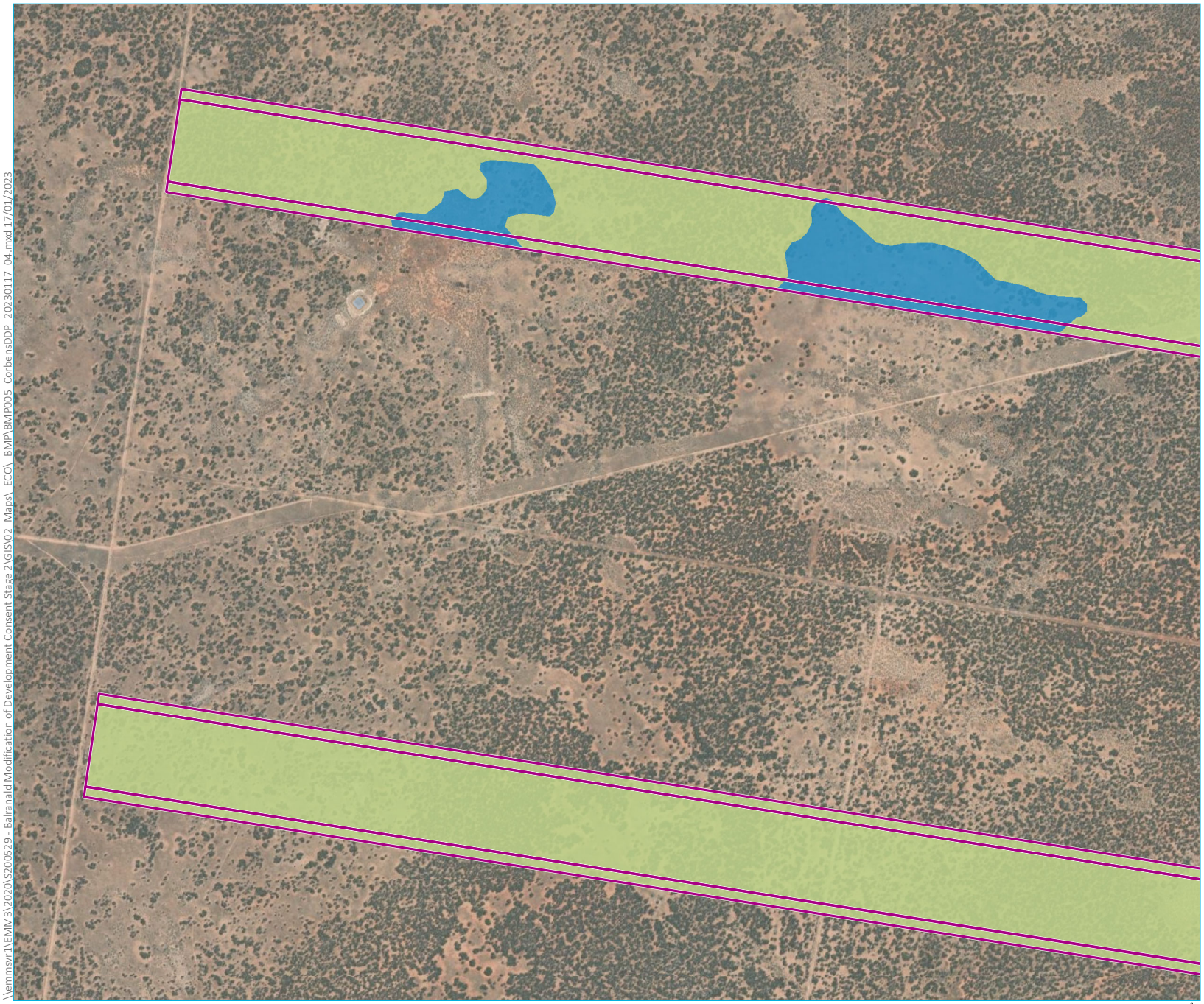
N

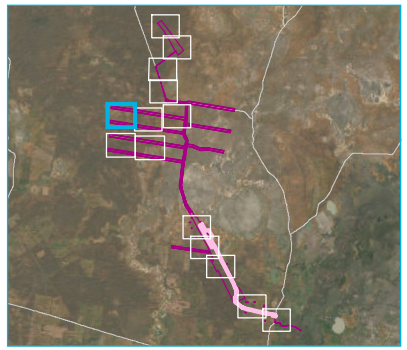
\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_BMP\BMP005_CorbensDDP_20230117_04.mxd 17/01/2023

Corben's Long-eared Bat habitat across the Balranald Project
Map 5 of 15

Balranald Mineral Sands Project
Cwth Biodiversity Management Plan
Figure 3.2

EMM
creating opportunities





KEY

- Revised project area
- MOD1

Existing environment

- Major road

Tree hollow density

- Medium
- Low

Note: Disturbance area's for the following project elements do not cover the full project area:
West Balranald access road - 60 m wide corridor within the project area;
Nepean access road - 40 - 50 m wide corridor within the project area;
Injection borefields - 100 m wide corridor within the project area; and
Water supply pipeline - 15 m wide corridor within the project area.

Corben's Long-eared Bat habitat across the Balranald Project
Map 6 of 15

Balranald Mineral Sands Project
Cwth Biodiversity Management Plan
Figure 3.2

\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_BMP\BMP005_CorbensDDP_20230117_04.mxd 17/01/2023

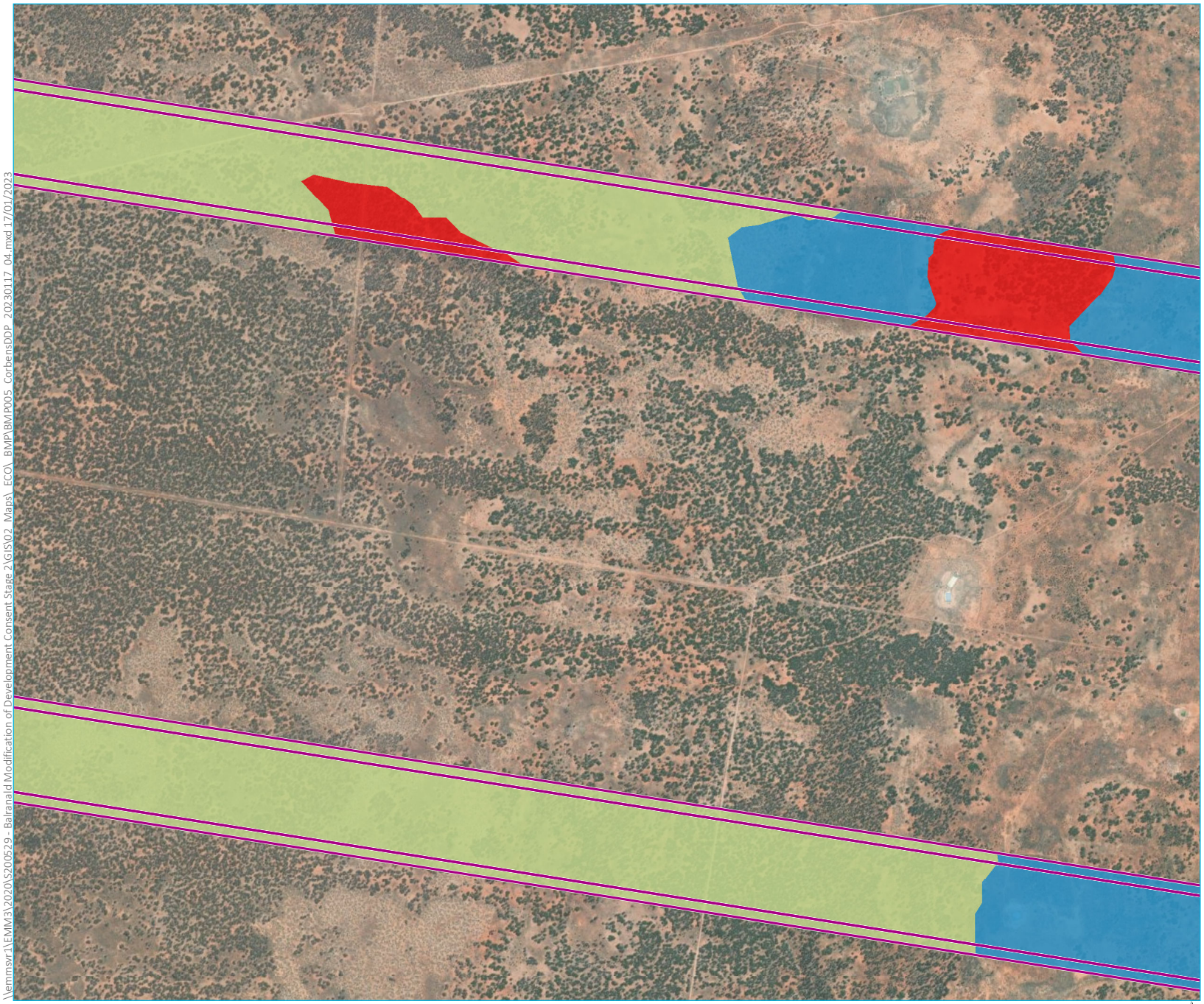
Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

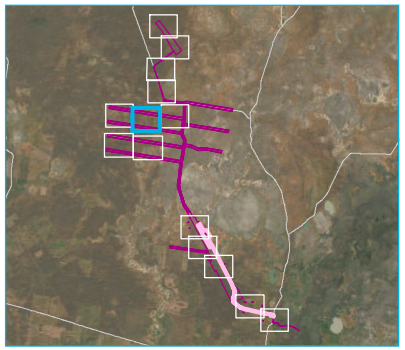
0 0.5 1 km

GDA 1994 MGA Zone 54

N

EMM
creating opportunities





KEY

- Revised project area
- MOD1

Existing environment

- Major road
- Named waterbody

Tree hollow density

- High
- Medium
- Low

Note: Disturbance area's for the following project elements do not cover the full project area:
West Balranald access road - 60 m wide corridor within the project area;
Nepean access road - 40 - 50 m wide corridor within the project area;
Injection borefields - 100 m wide corridor within the project area; and
Water supply pipeline - 15 m wide corridor within the project area.

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

N

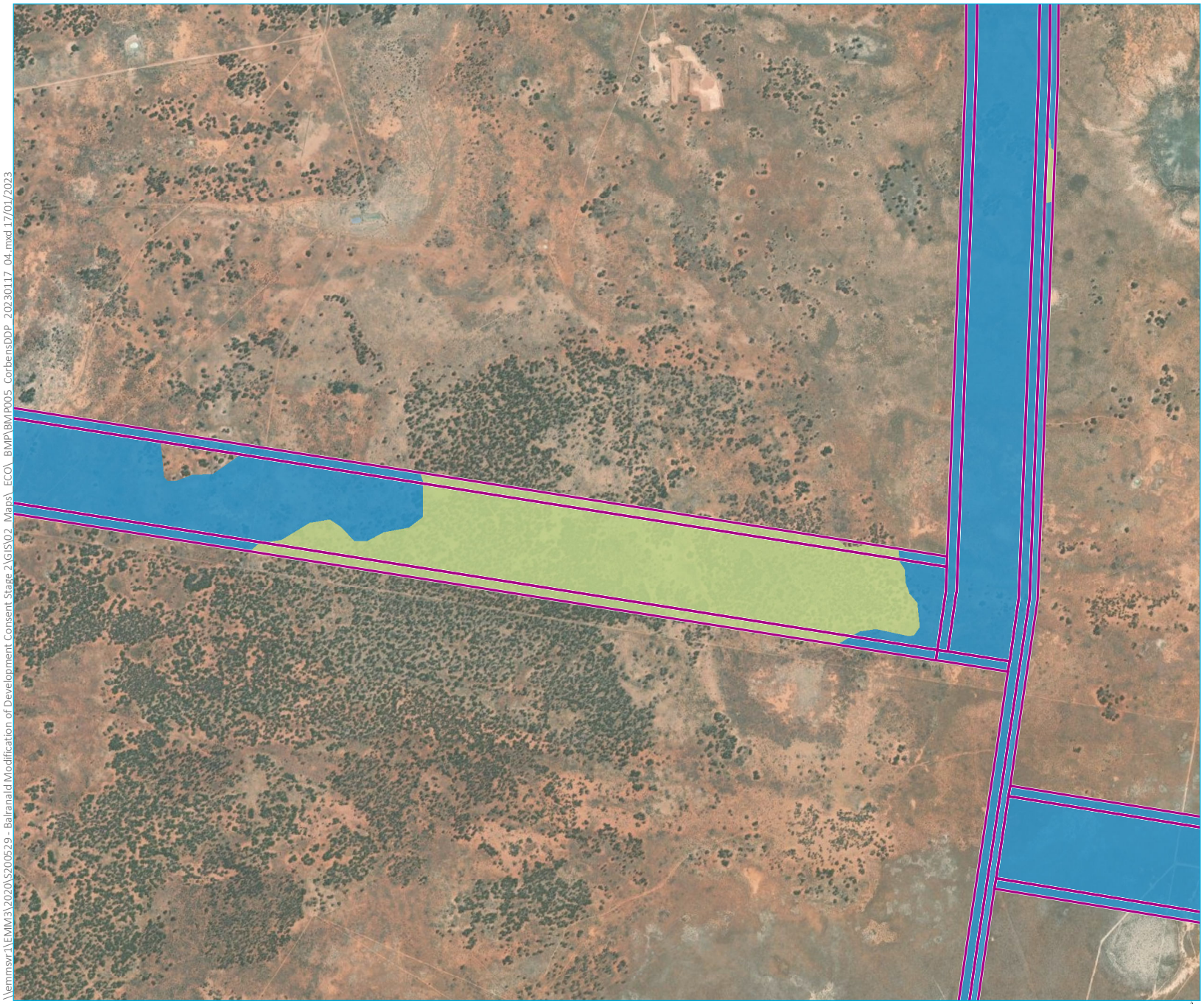
\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_BMP\BMP005_CorbensDDP_20230117_04.mxd 17/01/2023

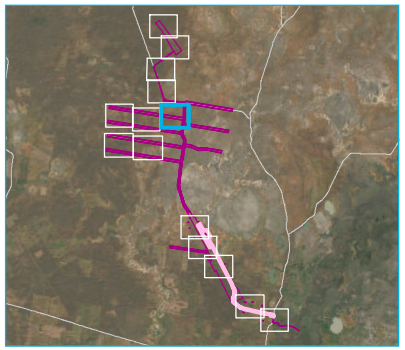
Corben's Long-eared Bat habitat across the Balranald Project

Map 7 of 15

Balranald Mineral Sands Project
Cwth Biodiversity Management Plan
Figure 3.2

EMM
creating opportunities





KEY

- Revised project area
- MOD1

Existing environment

- Major road

Tree hollow density

- Medium
- Low

Note: Disturbance area's for the following project elements do not cover the full project area:
West Balranald access road - 60 m wide corridor within the project area;
Nepean access road - 40 - 50 m wide corridor within the project area;
Injection borefields - 100 m wide corridor within the project area; and
Water supply pipeline - 15 m wide corridor within the project area.

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

N

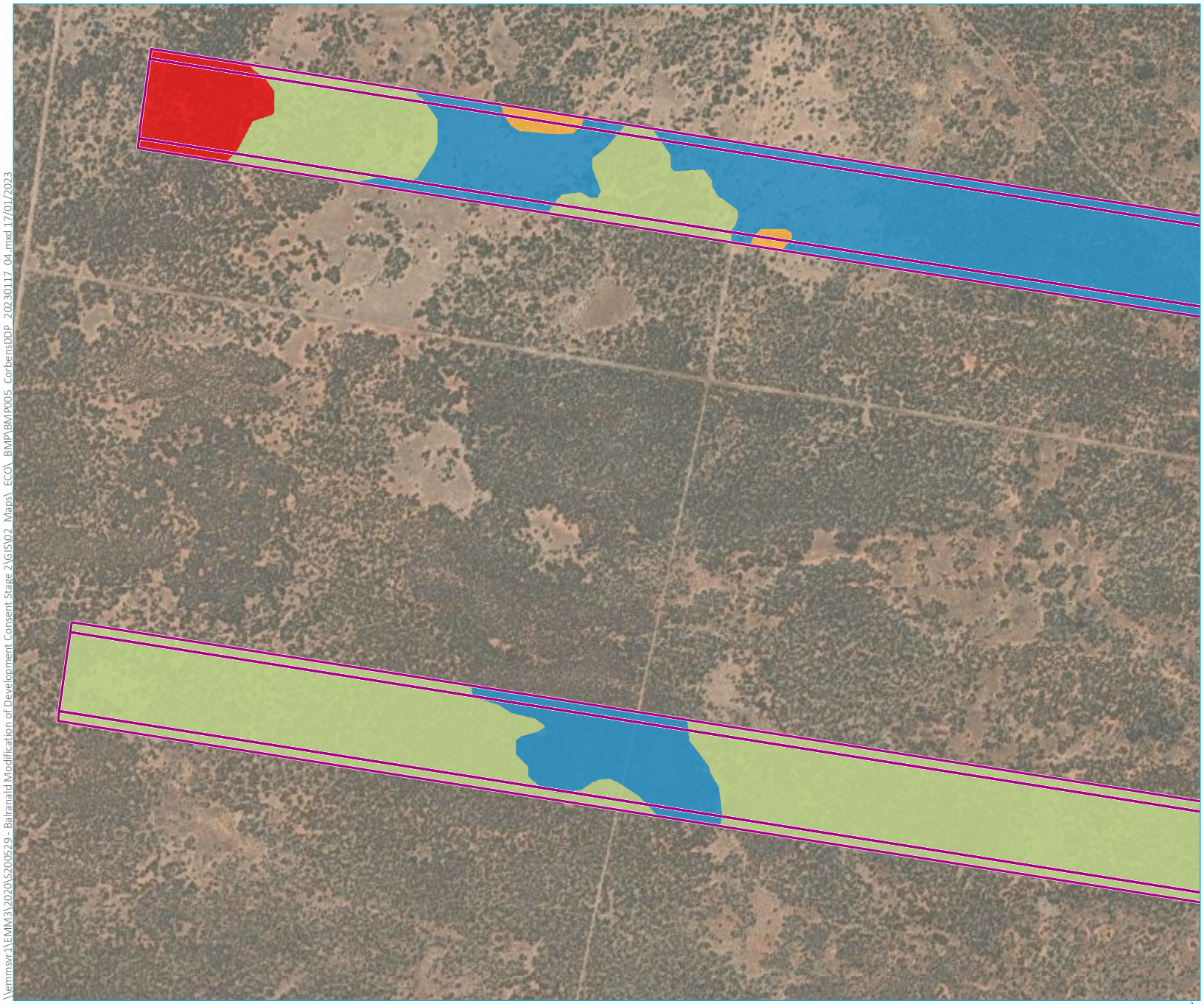
\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_BMP\BMP005_CorbensDDP_20230117_04.mxd 17/01/2023

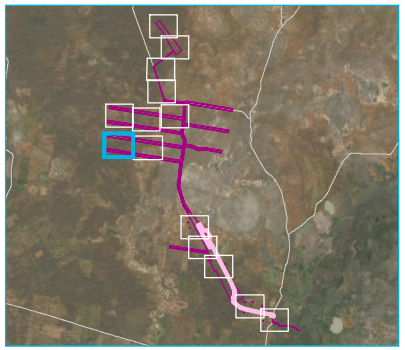
Corben's Long-eared Bat habitat across the Balranald Project

Map 8 of 15

Balranald Mineral Sands Project
Cwth Biodiversity Management Plan
Figure 3.2

EMM
creating opportunities





KEY

- Revised project area
- MOD1

Existing environment

- Major road

Tree hollow density

- High
- Medium/High
- Medium
- Low

Note: Disturbance area's for the following project elements do not cover the full project area:
West Balranald access road - 60 m wide corridor within the project area;
Nepean access road - 40 - 50 m wide corridor within the project area;
Injection borefields - 100 m wide corridor within the project area; and
Water supply pipeline - 15 m wide corridor within the project area.

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

N

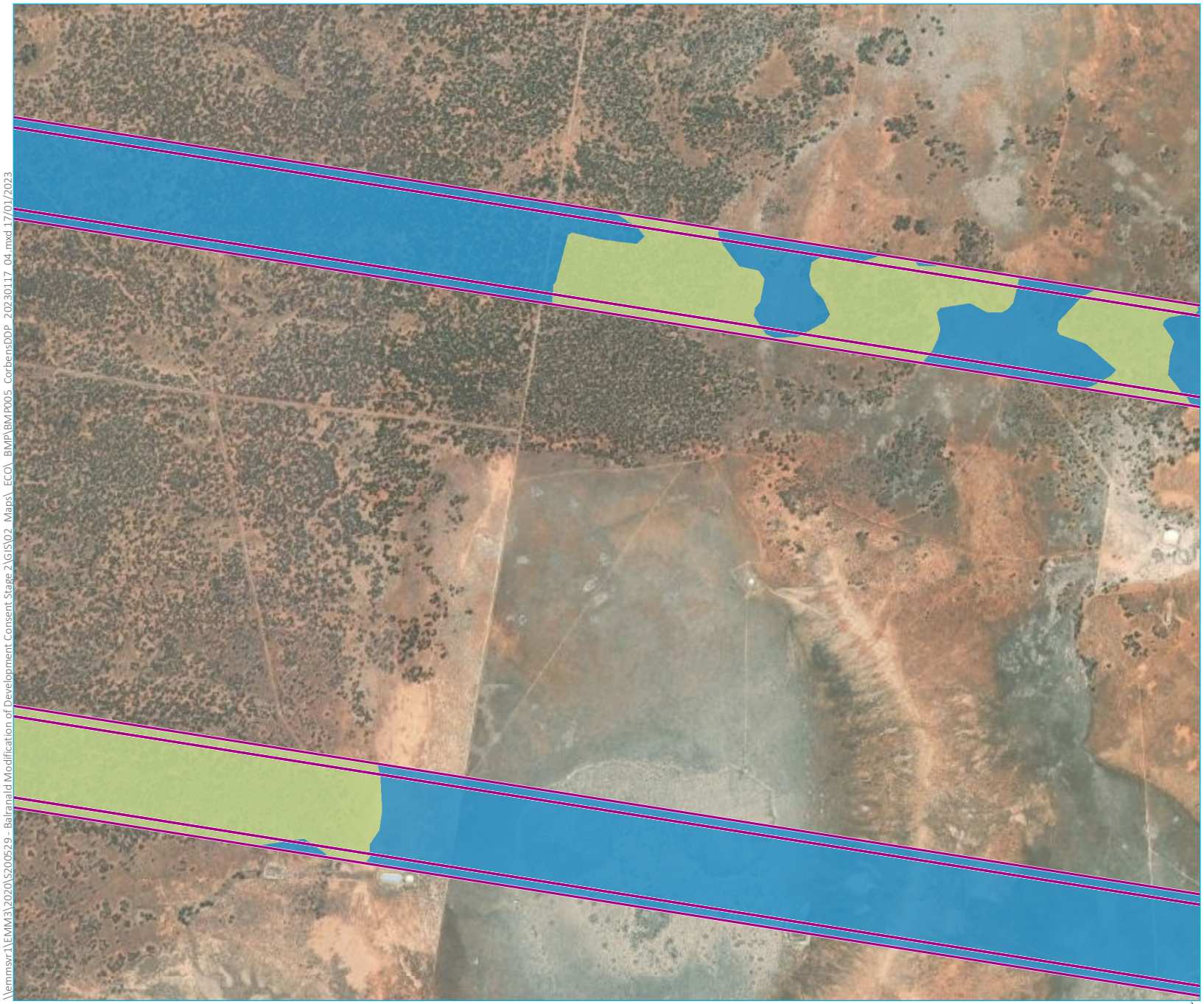
\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_BMP\BMP005_CorbensDDP_20230117_04.mxd 17/01/2023

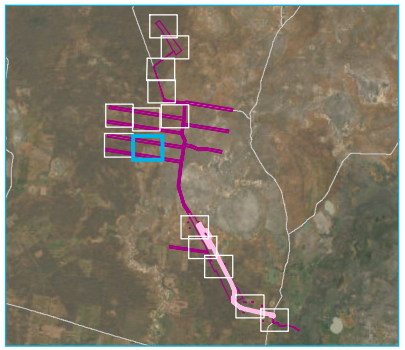
Corben's Long-eared Bat habitat across the Balranald Project

Map 9 of 15

Balranald Mineral Sands Project
Cwth Biodiversity Management Plan
Figure 3.2

EMM
creating opportunities





KEY

- Revised project area
- MOD1

Existing environment

- Major road

Tree hollow density

- Medium
- Low

Note: Disturbance area's for the following project elements do not cover the full project area:
West Balranald access road - 60 m wide corridor within the project area;
Nepean access road - 40 - 50 m wide corridor within the project area;
Injection borefields - 100 m wide corridor within the project area; and
Water supply pipeline - 15 m wide corridor within the project area.

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 0.5 1 Km

GDA 1994 MGA Zone 54

N

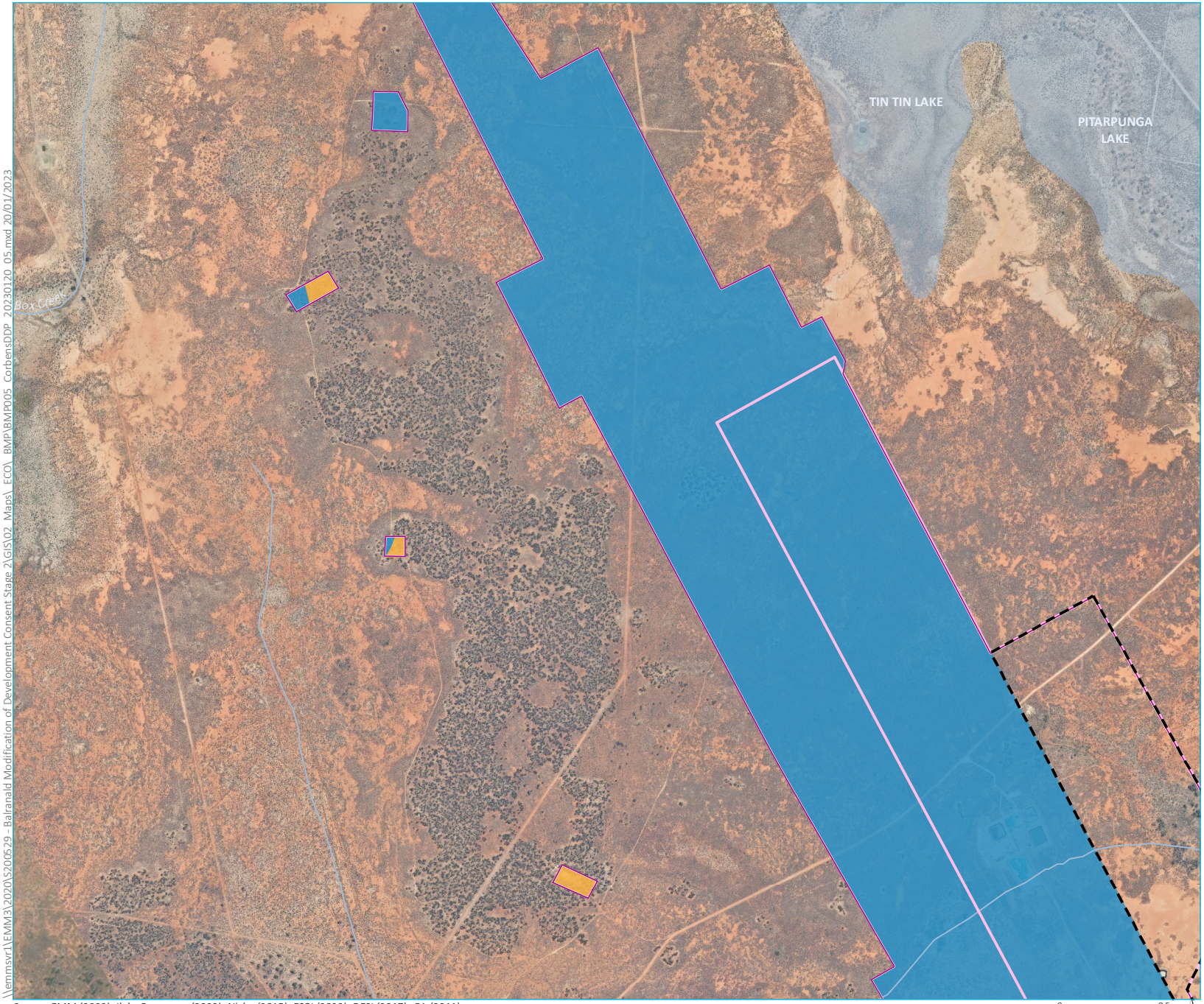
\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_BMP\BMP005_CorbensDDP_20230117_04.mxd 17/01/2023

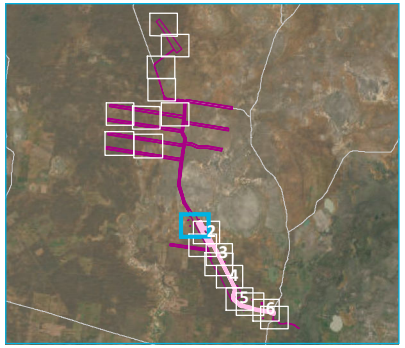
Corben's Long-eared Bat habitat across the Balranald Project

Map 10 of 15

Balranald Mineral Sands Project
Cwth Biodiversity Management Plan
Figure 3.2

EMM
creating opportunities





KEY

- Revised project area
- MOD1
- MOD1 additional disturbance area

Existing environment

- Major road
- Watercourse/drainage line
- Named waterbody

Tree hollow density

- Medium/High
- Low

Note: Disturbance area's for the following project elements do not cover the full project area:
West Balranald access road - 60 m wide corridor within the project area;
Nepean access road - 40 - 50 m wide corridor within the project area;
Injection borefields - 100 m wide corridor within the project area; and
Water supply pipeline - 15 m wide corridor within the project area.

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

N

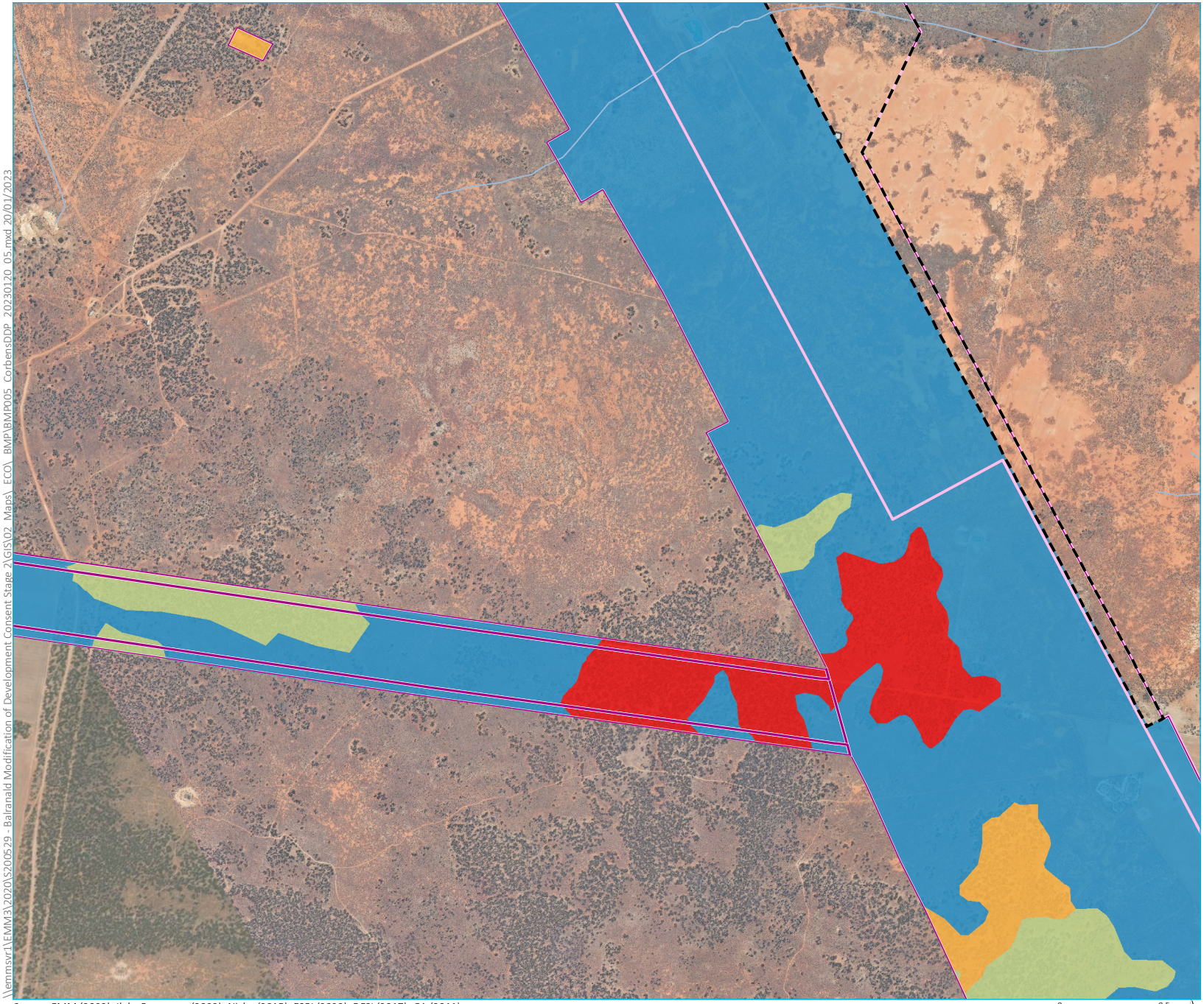
Corben's Long-eared Bat habitat across the Balranald Project

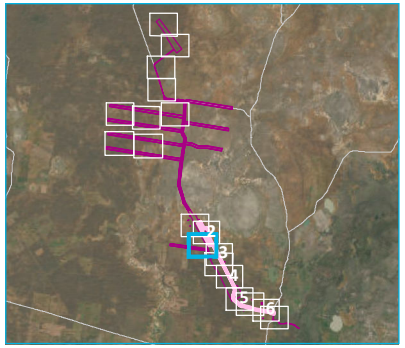
Map 11 of 15

Balranald Mineral Sands Project
Cwth Biodiversity Management Plan
Figure 3.2

EMM creating opportunities

\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_BMP\BMP005_CorbensDDP_20230120_05.mxd 20/01/2023





KEY

- Revised project area
- MOD1
- MOD1 additional disturbance area

Existing environment

- Major road
- Watercourse/drainage line

Tree hollow density

- High
- Medium/High
- Medium
- Low

Note: Disturbance area's for the following project elements do not cover the full project area:
West Balranald access road - 60 m wide corridor within the project area;
Nepean access road - 40 - 50 m wide corridor within the project area;
Injection borefields - 100 m wide corridor within the project area; and
Water supply pipeline - 15 m wide corridor within the project area.

Corben's Long-eared Bat habitat across the Balranald Project
Map 12 of 15

Balranald Mineral Sands Project
Cwth Biodiversity Management Plan
Figure 3.2

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

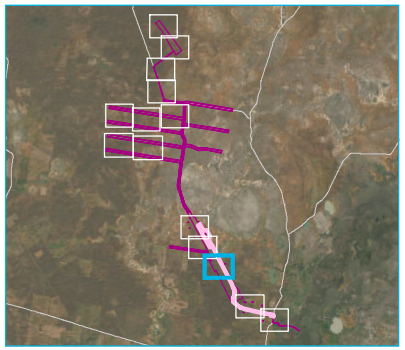
0 0.5 1 km

GDA 1994 MGA Zone 54

N

EMM creating opportunities

\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_BMP\BMP005_CorbensDDP_20230120_05.mxd 20/01/2023



KEY

- Revised project area
- MOD1

Existing environment

- Major road
- Named waterbody

Tree hollow density

- Medium/High
- Medium
- Low

Note: Disturbance area's for the following project elements do not cover the full project area:
West Balranald access road - 60 m wide corridor within the project area;
Nepean access road - 40 - 50 m wide corridor within the project area;
Injection borefields - 100 m wide corridor within the project area; and
Water supply pipeline - 15 m wide corridor within the project area.

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

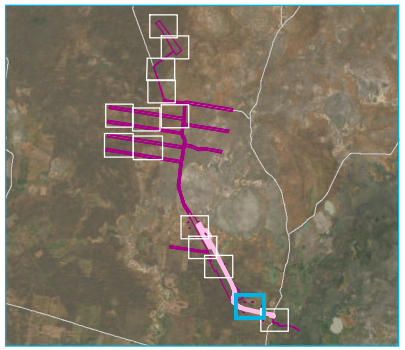
N

\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_BMP\BMP005_CorbensDDP_20230117_04.mxd 17/01/2023

Corben's Long-eared Bat habitat across the Balranald Project
Map 13 of 15

Balranald Mineral Sands Project
Cwth Biodiversity Management Plan
Figure 3.2

EMM
creating opportunities



KEY

- Revised project area
- MOD1

Existing environment

- Major road
- Named waterbody

Tree hollow density

- Medium/High
- Medium
- Low

Note: Disturbance area's for the following project elements do not cover the full project area:
West Balranald access road - 60 m wide corridor within the project area;
Nepean access road - 40 - 50 m wide corridor within the project area;
Injection borefields - 100 m wide corridor within the project area; and
Water supply pipeline - 15 m wide corridor within the project area.

Corben's Long-eared Bat habitat across the Balranald Project
Map 14 of 15

Balranald Mineral Sands Project
Cwth Biodiversity Management Plan
Figure 3.2

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

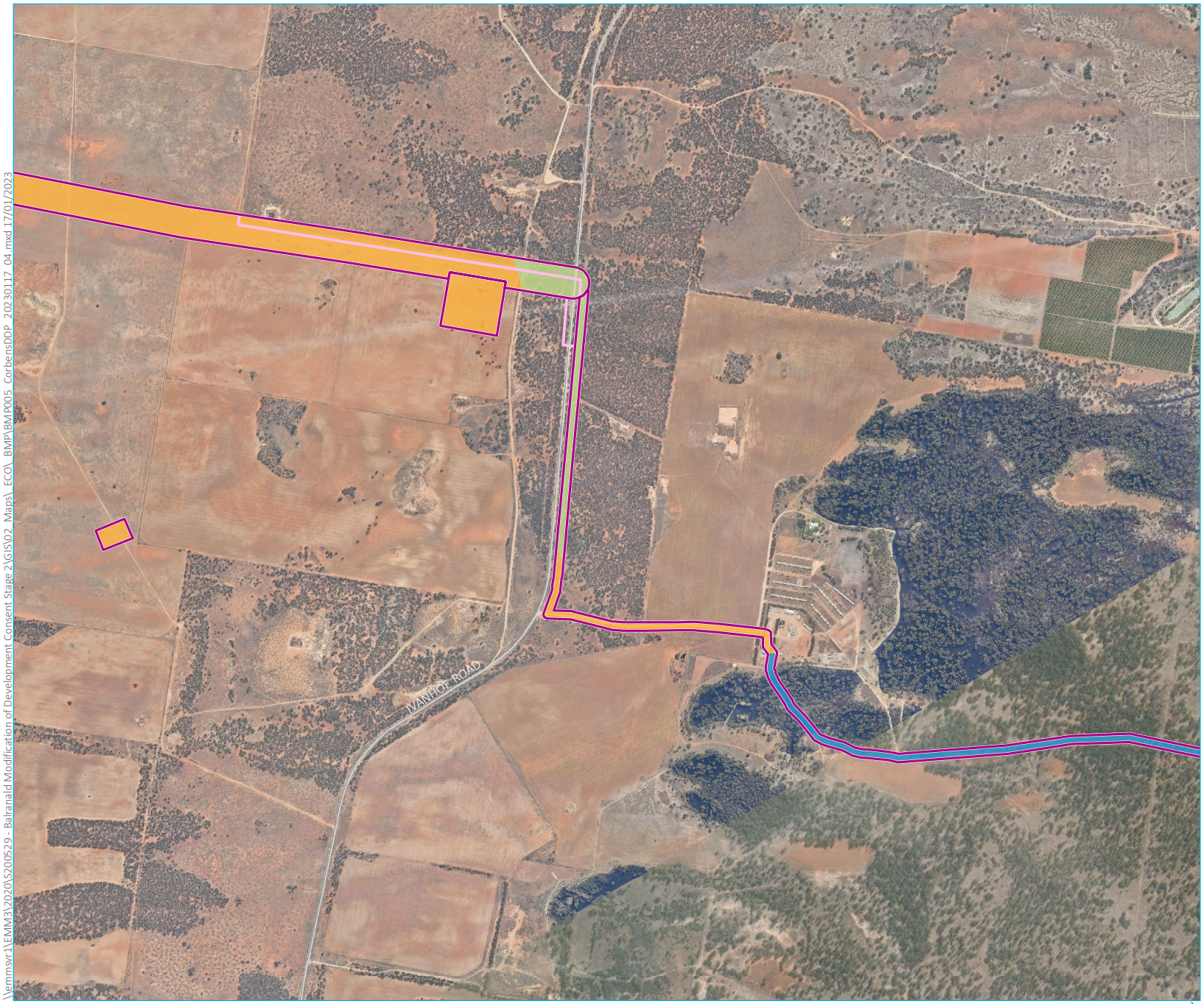
0 0.5 1 km

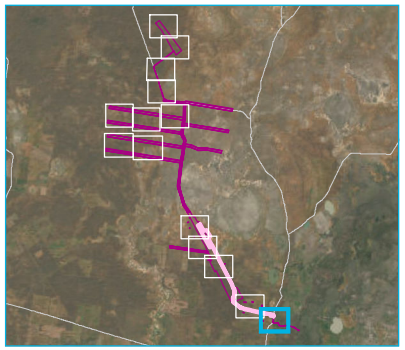
GDA 1994 MGA Zone 54

N

\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_BMP\BMP005_CorbensDDP_20230117_04.mxd 17/01/2023

EMM creating opportunities





KEY

- Revised project area
- MOD1

Existing environment

- Major road
- Watercourse/drainage line
- Named waterbody

Tree hollow density

- Medium/High
- Medium
- Low

Note: Disturbance area's for the following project elements do not cover the full project area:
West Balranald access road - 60 m wide corridor within the project area;
Nepean access road - 40 - 50 m wide corridor within the project area;
Injection borefields - 100 m wide corridor within the project area; and
Water supply pipeline - 15 m wide corridor within the project area.

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

N

\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_BMP\BMP005_CorbensDDP_20230117_04.mxd 17/01/2023

Corben's Long-eared Bat habitat across the Balranald Project

Map 15 of 15

Balranald Mineral Sands Project
Cwth Biodiversity Management Plan
Figure 3.2

EMM
creating opportunities

4. Potential project impacts and risks

4.1. Direct and indirect impacts

Direct impacts on Malleefowl and Corben's Long-eared resulting from the project include:

- permanent loss of habitat from native vegetation clearing;
- removal of breeding and shelter habitat;
- injury or fatality of individuals during clearing;
- vehicle strike from plant or vehicle collision; and
- habitat fragmentation.

The Balranald Project will directly impact 2,544 ha of Malleefowl and 3,143 ha of Corben's Long-eared Bat habitat (**Figure 3.1** and **Figure 3.2**).

Indirect impacts are predicted in retained habitat adjacent to the approved project area during mine construction and operation. Such impacts will largely operate on a short to medium timeframe (i.e. the life of the mine) and will be minimised through the implementation of management measures (section 5).

Predicted indirect impacts during construction and operation may comprise:

- disruption to the breeding cycle of both species through increased noise, dust and light;
- degradation of retained habitat adjoining construction and operational areas through erosion, sedimentation and increased edge-effects (e.g. weed invasion); and
- changes in vegetation composition and structure in retained habitat due to increased bushfire risk.

4.2. Risk assessment

A pre-management risk assessment of the potential Malleefowl and Corben's Long-eared Bat impacts identified in section 4.1, applying the risk criteria in in **Figure 4.1** (risk matrix), is presented in **Table 3** and **Table 4**, respectively.

The purpose of the risk assessment is to:

- provide management measures specific to the type and level of risk on Malleefowl and Corben's Long-eared Bat; and
- minimise the likelihood of the risk occurring, thereby reducing consequences to acceptable levels.

The pre-management risk level has informed the development of the environmental management measures for the species presented in section 5.

Risk Ranking	Consequence	Negligible (NE)	Minor (MI)	Moderate (MO)	Significant (SI)	Major (MA)
Likelihood	Injury / Illness	No first aid treatment required	First aid treatment with no disability	Medical treatment with no disability	Permanent disabling or lost time injury / illness	Fatality or severe permanent disabling injury / illness
	Environmental	Limited damaged to minimal area of low significance	Minor effects on biological or physical environment	Moderate short term effects but not effecting ecosystem function.	Serious medium term environmental effects	Very serious long term environmental impairment of the ecosystem system function
	Stakeholder	Low level repairable damage to common place structures	Minor medium term social impacts on local population. Most repairable.	Ongoing social issues. Permanent damage to items of cultural significance.	Ongoing serious social issues. Permanent damage to items of cultural significance	Very serious widespread social impacts. Irreparable damage to highly values items
	Business or Production	<$100K	$100K - $1M	$1M - $10M	$10M - $100M	>$10M
Almost Certain (A)	Event is expected to occur in most circumstance at least once per month	M	H	VH	E	E
Likely (B)	Event will probably occur in most circumstance at least once a year	M	H	H	VH	E
Possible (C)	Event should occur at some time at least once in 5 years	L	M	H	H	VH
Unlikely (D)	Event could occur at some time at least once in 25 years	L	M	M	H	H
Rare (E)	Event may occur only in exceptional circumstances less than once in 25 years	L	L	L	M	M

Figure 4.1 – Risk matrix

Table 3 – Risk assessment for Malleefowl

Potential impact	Nature of impact	Likelihood	Consequence	Pre-management risk level	Management measures
Permanent loss of habitat from native vegetation clearing.	Direct	Almost certain. Malleefowl habitat will be removed.	Significant. Permanent loss cannot be reversed.	Extreme	Section 5.3.1
Removal of breeding and shelter habitat.	Direct	Almost certain. Disturbance area contains Malleefowl breeding and shelter habitat that will be removed.	Significant. Malleefowl are sedentary species and therefore removal of breeding habitat may lead to a decrease in population size in the locality.	Extreme	Section 5.3.1 Section 5.3.2
Injury or fatality of individuals during clearing.	Direct	Possible. Individuals of Malleefowl are known to be present in areas of identified habitat.	Significant. Malleefowl may be injured or suffer fatality during clearing operations.	High	Section 5.3.2
Vehicle strike from plant or vehicle collision.	Direct	Possible. Construction traffic will traverse known Malleefowl habitat.	Significant. Malleefowl may be injured or suffer fatality during clearing operations.	High	Section 5.3.5
Habitat fragmentation.	Direct	Likely. Disturbance area is mostly linear in shape and will bisect a large area of contiguous native vegetation.	Moderate. Malleefowl are sedentary species and therefore the disturbance is likely to lead to localised fragmentation effects for individuals in this area.	High	Section 5.3.1 Section 5.3.2
Disruption to the breeding cycle through increased noise, dust and light.	Indirect	Possible. Increased noise, dust and light can lead to behavioural avoidance of breeding areas in birds (Hockin et al., 1992; Kleist et al., 2017).	Moderate. Behavioural avoidance of breeding areas by adult breeding pairs could decrease breeding success of Malleefowl given the length of the egg laying and incubation period, whereby an egg is laid every 5–7 days from mid to late summer, and typical incubation is 60 days (Benshemesh, 2007).	High	Section 5.3.7

Potential impact	Nature of impact	Likelihood	Consequence	Pre-management risk level	Management measures
Degradation of retained habitat adjoining construction and operational areas through erosion, sedimentation and increased edge-effects.	Indirect	Possible. If Malleefowl mounds are present in adjacent areas to disturbance area without management erosion, sedimentation and weed invasion could damage mounds and surrounding habitat.	Minor. Damage to adjacent mounds during breeding season could reduce Malleefowl breeding success.	Medium	Section 5.3.6
Changes in vegetation composition and structure in retained habitat due to increased bushfire risk.	Indirect	Possible. There is a risk of increased bushfire during construction and operation of the project.	Significant. Populations of Malleefowl may suddenly be eliminated from areas that are burnt, and even if there are nearby sources of recolonisation, recovery in the burnt area to densities that occurred before the fire appears to be very slow, requiring 30 to 60 years (Benshemesh 2007).	High	Section 5.3.3

Table 4 – Risk assessment for Corben's Long-eared Bat

Potential impact	Nature of impact	Likelihood	Consequence	Pre-management risk level	Management measures
Permanent loss of habitat from native vegetation clearing.	Direct	Almost certain. Corben's Long-eared Bat habitat will be removed.	Significant. Permanent loss cannot be reversed.	Extreme	Section 5.3.1
Removal of breeding and shelter habitat.	Direct	Almost certain. The disturbance area contains Corben's Long-eared Bat breeding and shelter habitat that will be removed.	Significant. Removal of hollows can lead to loss of breeding sites and increased competition for hollows in retained areas, which can decrease population size.	Extreme	Section 5.3.1 Section 5.3.2
Injury or fatality of individuals during clearing.	Direct	Likely. Individuals of Corben's Long-eared Bat are known to be present in areas of identified habitat.	Significant. Corben's Long-eared Bat may be injured or suffer fatality during clearing operations.	Very High	Section 5.3.2
Vehicle strike from plant or vehicle collision.	Direct	Possible. Construction traffic will traverse known Corben's Long-eared Bat habitat and *Nyctophilus spp.* is known to forage on the ground when hunting grasshoppers and crickets but also gleans insects from the tree canopy in flight (Schulz and Lumsden, 2010).	Minor. Some Corben's Long-eared Bats may be injured or suffer fatality as a result of plant or vehicle collision.	Medium	Section 5.3.5
Habitat fragmentation.	Direct	Likely. Disturbance area is mostly linear in shape and will bisect a large area of contiguous native vegetation.	Moderate. The species requires large tracts of contiguous vegetation to persist (Woinarski et al., 2014). Fragmentation can leave bats more vulnerable to local extinction and reductions in fitness (Schulz and Lumsden 2010). Fragmentation of habitat may also exacerbate other threats to the species.	High	Section 5.3.1 Section 5.3.2

Potential impact	Nature of impact	Likelihood	Consequence	Pre-management risk level	Management measures
Disruption to the breeding cycle through increased noise, dust and light.	Indirect	Possible. Artificial light is known to cause behavioural avoidance of habitat areas by *Nyctophilus spp.* (Threlfall et al., 2013). There is no specific data for the taxon on noise and dust impacts, although it is conservatively assumed that these could disrupt breeding success.	Moderate. Behavioural avoidance of breeding areas could lead to a reduction in breeding success.	High	Section 5.3.7
Degradation of retained habitat adjoining construction and operational areas through erosion, sedimentation and increased edge-effects.	Indirect	Possible. Without management, erosion, sedimentation and increased edge effects could lead to changes in habitat quality and reduce shrub density.	Minor. A reduction in shrub density could reduce habitat quality and may affect feeding and breeding success.	Medium	Section 5.3.6
Changes in vegetation composition and structure in retained habitat due to increased bushfire risk.	Indirect	Possible. There is a risk of increased bushfire during construction and operation of the project.	Significant. Bushfires in uncleared habitat cause both direct mortality and loss of foraging habitat and roosting sites. Due to the significant habitat loss that Corben's Long-eared bat has already undergone, additional habitat loss from bushfires is more significant now than in the past (TSSC, 2015).	High	Section 5.3.3

5. Environmental management measures

This chapter describes the avoidance and management measures that have been and will be adopted to mitigate potential impacts and risks on Malleefowl and Corben's Long-eared Bat (section 4), including:

- measures already undertaken at project design stage; and
- for unavoidable impacts, the short- and longer-term management measures to be implemented.

5.1. Project design

Though the site selection of the Balranald Project was largely dictated by the location of the mineral sands resource, impact avoidance measures were achieved at the project design stage through initial site selection (avoidance of vegetated areas as far as practicable) and design iteration (adjustments to avoid identified sensitive ecological constraints identified by the EIS Biodiversity Assessment (Niche, 2016)).

Additional design strategies to avoid and minimise impacts on Malleefowl and Corben's Long-eared Bat also include the co-location of services infrastructure (e.g. power and water) within existing road corridors, and the use of existing cleared areas, including fence lines and/or property boundaries (which include existing fire break clearing lines) for mining-related infrastructure as far as practicable.

5.2. Management measures for unavoidable impacts

Where impacts to Malleefowl and Corben's Long-eared Bat cannot be avoided, short- and longer-term strategies to minimise impact will be adopted.

Short-term management measures involve mine planning/scheduling and ground-level monitoring and management activities. These include:

- pre-disturbance surveys;
- clearing procedures, including timing restrictions, clearing limits, staged clearing of breeding habitats and clearing supervision by a suitably qualified expert;
- bushfire (fire) management;
- pest, predator and weed management;
- speed limit restrictions; and
- erosion, dust and light spill management.

Performance targets, monitoring measures, corrective actions, timing and responsibility for these environmental management measures is provided in section 5.5 (Table 5).

Longer-term management measures include mine rehabilitation and the establishment of biodiversity offsets to reinstate habitat areas and ensure no net biodiversity loss, respectively. Ongoing measures such as pest species control, bushfire management and monitoring programmes would also continue.

With regard to mine rehabilitation, the objective will be to provide a safe, stable and non-polluting landform. Nominated post-mining land uses (PMLUs) for the Balranald Project are defined in the separate Rehabilitation Management Plan prepared in accordance with NSW Development Consent (SSD-5285). It is intended that biodiversity management is integrated to the greatest extent practicable within the rehabilitation of the site.

Specific detail on the short- and longer-term controls outlined above are provided in section 5.3 and section 5.4, respectively.

5.3. Short-term management measures

5.3.1. Pre-disturbance surveys

To minimise the risk of removal of breeding and shelter habitat, pre-disturbance surveys will be completed by a suitably qualified environmental professional (a person with qualifications in environmental science, biology or ecology, and with demonstrated experience in the management of relevant fauna, (i.e. Malleefowl and Corben's Long-eared Bat).

5.3.1.1. Malleefowl

Prior to any impact, pre-disturbance surveys for Malleefowl mounds will be conducted by a suitably qualified environmental professional in accordance with *Survey Guidelines for Australia's threatened birds* (DEWHA, 2010) in the disturbance areas mapped as '*moderate, high and very high Malleefowl habitat potential*' (**Figure 3.1**).

Pre-disturbance surveys for Malleefowl mounds will be completed throughout the life of project and ahead of the breeding season within which clearing is proposed.

The guidelines require area searches for mounds for a minimum of 10 hours per 50 ha survey area unit, or 30 hours of walked transects by 5,000 ha about 1 km apart in suitable habitat.

The following will be recorded during pre-disturbance surveys:

- Malleefowl individuals;
- Malleefowl footprints; and
- Malleefowl mounds.

A differential GPS will be used to accurately record the location of Malleefowl mounds. Each mound will be given a unique number to be installed on a numbered metal star picket, installed 5 m away from the mound. The unique numbering will be used to support monitoring and reporting during the construction and operation period.

Where Malleefowl mounds are recorded, they will be assessed to determine if they are active or potentially active. Nesting activity will be assessed, including:

- nest construction by a breeding pair; and
- nest maintenance (e.g. mounding of sand and replacement of leaf litter) by a male Malleefowl.

Exclusion areas will be established around each active or potentially active Malleefowl mound identified during pre-clearance surveys. The exclusion areas will comprise a 200 m circular buffer around the mound, and will be clearly depicted on clearing plans to prevent inadvertent disturbance. Clearing areas outside the no-go area will be clearly demarcated on the ground (e.g. survey pegs and flagging tape). Each individual mound will be checked by a suitably qualified environmental professional at the end of breeding season (February) to confirm that breeding has concluded.

5.3.1.2. Corben's Long-eared Bat

Pre-disturbance surveys for Corben's Long-eared Bat will be conducted by a suitably qualified environmental professional in the disturbance areas with a mapped tree hollow density of medium, medium-high, and high. Trapping surveys will not be conducted as the species is known to be present and would not provide reliable information regarding the location of the species during construction to minimise risks.

Rather, pre-disturbance surveys will record all trees with suitable hollows above 1 m height ('hollow bearing trees') within areas of medium to high hollow density in Corben's Long-eared Bat habitat (**Figure 3.2**) with a differential GPS. In addition, the following data will be recorded during pre-disturbance surveys:

- the number of hollows;
- size of hollows;
- height of hollow from the ground; and
- opportunistic sightings of individuals.

All hollow-bearing trees will be uniquely identified to create a database of the hollows cleared for reporting purposes.

Pre-disturbance surveys for Corben's Long-eared Bat hollow bearing trees will be completed throughout the life of project and ahead of the breeding season within which clearing is proposed.

5.3.2. Clearing procedures

5.3.2.1. Clearing limits

To prevent inadvertent clearing or disturbance, all site disturbance activities will be undertaken in accordance with Iluka's *FRM6126: Site Disturbance Clearance Procedure* (SDCP). The objective of the procedure is to ensure that site disturbance is kept to a minimum and all vegetation removal information is recorded. Site disturbance may only proceed once an Iluka Land Disturbance Permit has been completed and signed by the relevant Iluka personnel.

5.3.2.2. Clearing supervision

To minimise the risk of injury or fatality of Malleefowl and Corben's Long-eared Bat individuals during clearing, the following measures will be implemented:

- a person with qualifications in environmental science, biology or ecology and demonstrated experience in Malleefowl management will be present prior to clearing activities in areas identified as '*moderate, high or very high Malleefowl habitat potential*' (**Figure 3.1**). The qualified person will confirm that breeding at Malleefowl mounds has has concluded prior to the commencement of mound clearing;
- the qualified person (or their delegate) will contact the local veterinarian or WIRES for treatment and care in the event that an animal is injured or juvenile.
- Records will be kept of the fate of any Malleefowl or Corben's Long-eared Bat encountered (e.g. released, injured and taken to vet for care, juvenile taken to the Wildlife Information, Rescue and Education Service (WIRES) for care, deceased).

5.3.2.3. Malleefowl

5.3.2.3.1. Timing restrictions on clearing

To minimise the risk of adverse impacts on Malleefowl breeding success, active and potentially active Malleefowl mounds identified during pre-disturbance surveys will be protected (see section 5.3.1.1 and section 5.3.2.3.2) for the duration of the breeding season (i.e. September to the end of February). Clearing of active or potentially active Malleefowl mounds will be permissible following completion of the breeding season (i.e. March to August).

5.3.2.3.2. Staged clearing of breeding habitat

To minimise the risk of injury or fatality on Malleefowl during clearing, the following measures will be implemented:

- Malleefowl mounds identified as active or potentially active during pre-clearance surveys will be protected during clearing activities through an exclusion 'no-go' 200 m circular buffer around the mound;

- each individual mound will be checked by a suitably qualified environmental professional at the end of breeding season (February) to confirm that breeding has concluded; and

- clearing of mounds and the 200 m buffer can occur following confirmation that breeding has concluded at all identified active and potentially active mounds, by a suitably qualified environmental professional.

Following completion of pre-clearance surveys and identification of 200 m buffers around active or potentially active Malleefowl mounds, clearing of Malleefowl habitat outside the 200 m buffer areas can occur, even during the breeding season.

5.3.2.4. Corben's Long-eared Bat

5.3.2.4.1. Timing restrictions on clearing

To minimise the risk of adverse impacts on Corben's Long-eared Bat breeding success, vegetation clearing in areas mapped as '*medium, medium-high or high tree hollow density*' (**Figure 3.2**) will be restricted to the months of November to April (inclusive).

5.3.2.4.2. Staged clearing of hollow-bearing trees

To minimise the risk of injury or fatality on Corben's Long-eared Bat during clearing, the following measures will be implemented:

- all non-hollow trees and trees with hollows below 1 m height within Corben's Long-eared Bat habitat will be cleared first;

- all trees with suitable hollows above 1 m height in Corben's Long-eared Bat habitat will be retained for two nights after surrounding vegetation has been cleared, prior to being felled; and

- all felled hollow-bearing timber will be left in situ for 24 hours to allow hollow-dependent fauna to self-relocate or inspected by a suitably qualified environmental professional.

5.3.3. Bushfire management

Iluka has implement a separate Emergency Control and Response Plan (ECRP) for the site which incorporates the measures for the prevention and mitigation of bushfire (e.g. minimum asset protection zones, fire response equipment, maintenance of site access roads and boundaries, restrictions on hot works and vegetation clearing during days of extreme or catastrophic fire danger rating).

5.3.4. Pest, predator and weed management

Iluka will implement the following measures to manage pest, predators and weeds during construction and operation:

- management protocols for feral animals such as foxes, goats, pigs and cats within the rehabilitation area; and

- management protocols for the identification of noxious or important environmental weeds within areas to be cleared (to avoid transporting the weeds to the rehabilitation area) and also within the rehabilitation area.

These measures are detailed in sections 5.3.4.1 and 5.3.4.2 below.

5.3.4.1. Feral animals and predators

Rabbit warrens have been identified within the project area, and other feral animals such as goats, foxes and pigs are known to occur within the locality.

The following techniques will be employed and undertaken by suitably qualified and licensed operator(s):

- baiting and fumigation of rabbit burrows;
- mustering, trapping at water and shooting of goats; and
- baiting for foxes and other feral predators (i.e. cats and pigs).

5.3.4.2. Weeds

Several high threat weeds that are known to occur within the vicinity of the Balranald Project including:

- African Boxthorn (*Lycium ferocissimum*);
- Ward's Weed (*Carrichtera annua*);
- Khaki Weed (*Alternanthera pungens*);
- Innocent Weed (*Cenchrus longispinus*);
- Common Pear (*Opuntia stricta*);
- Boneseed (*Chrysanthemoides monilifera subsp. monilifera*);
- Rope Pear (*Cylindropuntia imbricata*); and
- Bridal Creeper (*Asparagus asparagoides*).

Of the above-listed species, African Boxthorn, Common Pear, Boneseed and Bridal Creeper are identified by Weeds Australia as Weeds of National Significance (Centre for Invasive Species Solutions, 2022).

Weeds will be managed as follows:

- inspection of vehicles and mobile plant on site entry and exit, with appropriate wash down and containment of sediment if required;
- inspections for declared weeds will be undertaken each year and weeds will be controlled via scalping or chemical spraying;
- herbicide will be applied in accordance with industry best practice;
- records will be maintained of weed infestations and control measures undertaken;
- weed control will be undertaken in a manner that will minimise soil disturbance; and
- weeds will be managed in consultation with Western Local Land Services (LLS), Balranald Shire Council and NSW Department of Primary Industries (DPI) Agriculture.

In the event of new infestations of high threat weeds as a result of construction activities, the relevant control authority will be notified as per the *Biosecurity Act 2015* (NSW) and Biosecurity Regulation 2017.

5.3.5. Speed limit restrictions

The normal sign-posted speed limit for the site access road is 100 km/h, other than low speed zones near the intersection with Ivanhoe Rd and point of entry into the fixed plant precinct.

During the life-of-project (including construction and operations) Iluka will implement the following measures to restrict vehicle speeds in Malleefowl habitat:

- safety measures for Malleefowl will be discussed during each staff and contractor induction session;
- if during annual Malleefowl mound surveys (refer section 5.3.1.1) an active or potentially active Malleefowl mound is identified within 250 m of the access road disturbance boundary, then:
    - if the normal sign-posted speed limit of the access road at the nearest point is 100 km/h, a temporary speed limit reduction to 60 km/h will be introduced:
        - for a distance of 500 m either side of that mound, as measured from the nearest point between the mound and access road; and
        - remain in place until the end of February for that breeding season.
    - if the normal sign-posted speed limit of the access road at the nearest point is ≤60 km/h, no temporary speed limit reduction is required.

  A reduced speed zone will be applied over a longer distance where multiple active mounds are located within 250 m of the access road and overlapping speed limit restrictions applies.

  If an active or potentially active mound is located >250 m from the access road disturbance boundary, then no temporary speed limit reduction is required (i.e. the above mitigation measure is not required);
- warning signs will be installed on access roads in or near Malleefowl habitat;
- if Malleefowl are injured by vehicle or plant, they will be taken to a local veterinarian and/or WIRES for care. Records will be kept of any Malleefowl injuries or mortalities resulting from vehicle or plant collision; and
- if more than two incidences of Malleefowl plant or vehicle strike are recorded within a 12 month period, a review will be conducted into the efficacy of the above controls and consideration of adaptive management measures.

5.3.6. Erosion and sedimentation management

Iluka will implement the following measures during construction and operation to minimise erosion and sedimentation adjacent to the Project area:

- designate a 200 m buffer around each identified Malleefowl mound;
- identify all Corben's Long-eared Bat habitat; and
- implement erosion and sediment control measures in accordance with the separate *Water Management Plan* within and surrounding the buffer and retained habitats, as required.

5.3.7. Light spill and dust management

Iluka will implement the following measures to minimise light spill and dust impacts within 200 m of identified active Malleefowl mounds:

- designate a 200 m buffer around each identified Malleefowl mound(s);
- minimise the use of artificial lighting in the 200 m buffer;
- where artificial lighting is required within the 200 m buffer, directional lighting facing away from the Malleefowl mound(s) will be used if safe to do so; and
- implement erosion and sediment control measures in accordance with the separate *Water Management Plan* within and surrounding the buffer and retained habitats, as required.

5.4. Longer-term management measures

5.4.1. Biodiversity offsets

Biodiversity offsets for the project – satisfying Conditions 4–6 of the Commonwealth Approval – will be established through the NSW Biodiversity Offset Scheme in accordance with Condition 16, Schedule 3 of Consolidated Development Consent (SSD-5285).

The offsets are intended to compensate for the loss of Malleefowl habitat and Corben's Long-eared Bat habitat and provide long-term security of habitat for these species. Per Condition 4, an Offset Management Plan (OMP) will be prepared in in accordance with the EPBC Act Environmental Offsets Policy for the approval of the Minister.

Offsets will be satisfied through the retirement of biodiversity credits in accordance with the *Biodiversity Offsets Scheme* of the *NSW Biodiversity Conservation Act 2016* (NSW) and aligned with the retirement of biodiversity credits separately required under the Consolidated Development Consent (SSD-5285).

Offsets will be retired in stages aligned to the staged development of the project in accordance with Condition 6 of the approval, as follows:

- Stage 1 – West Balranald mine: offsets to be secured within one (1) year of commencement of mining operations.
- Stage 2 – Nepean mine: offsets to be secured within one (1) year of commencement.

The OMP will be updated and submitted for review and approval of the Minister prior to the commencement of Stage 1, and again prior to the commencement of Stage 2.

As of the date of this plan, several sites in proximity of the project have been identified as potential offset sites and assessments of suitability and offset potential is in progress.

5.4.2. Rehabilitation

Rehabilitation will be undertaken in accordance with the Balranald Mineral Sands *Rehabilitation Management Plan*. The following general strategies and methods are proposed to be implemented in order to facilitate an effective rehabilitation program:

- seed collection from local provenance for use in rehabilitation, where available. Monitoring to inform the success of natural regeneration from soil seed bank and any necessary revegetation works;
- surface soil stripping, stockpiling, and management, comprising topsoil and vegetation stockpiling; overburden would be maintained in separate stockpile categories (including

recording soil type, quality, location, PCT, weeds present (if any), removal date, storage location and dust suppression treatment (if any));

- disturbance areas would be stripped progressively (i.e. only as required); and
- rehabilitation of disturbed areas would be undertaken as soon as practicable after the areas are no longer required (progressive rehabilitation) and with due regard to geotechnical stability risks.

As noted in section 5.2, the objective will be to provide a safe, stable and non-polluting landform. Nominated post-mining land uses (PMLUs) for the Balranald Project are defined in the separate *Rehabilitation Management Plan* prepared in accordance with NSW Development Consent (SSD-5285). It is intended that biodiversity management is integrated to the greatest extent practicable within the rehabilitation of the site.

Rehabilitation performance and monitoring targets are addressed within the separate *Rehabilitation Management Plan* and are outside the scope of this BMP.

5.5. Environmental management activities, controls and performance targets

Proposed environmental management activities, controls, performance targets, monitoring measures, timing and responsibility in relation to short-term management measures are provided in Table 5.

Table 5 – Environmental management activities, measures and performance targets

Environmental management measure		Monitoring	Performance target	Potential corrective actions	Timing	Responsibility
Potential impact: Permanent loss of habitat from native vegetation clearing						
Pre-disturbance surveys	Pre-disturbance surveys conducted by a suitably qualified environmental professional in accordance with section 5.3.1	Survey for Malleefowl and Corben's Long-eared Bat will be undertaken prior to any disturbance activities.	All active and potentially active Malleefowl mounds identified and recorded prior to any disturbance. All hollow-bearing trees identified and recorded prior to disturbance. Information disseminated to staff and contractors during inductions and onboarding.	N/A	Pre-construction	Environmental Superintendent – Balranald, Environmental Advisor, Suitably Qualified Environmental Professional
Clearing limits	Clear delineation of vegetation clearing limits on the ground (e.g. helicopter tape, 'exclusion no-go' signage) prior to clearing.	Delineation of clearing limits to be documented in SDCP.	No clearing occurs outside designated areas.	Clearing should immediately cease in the relevant clearing front and the incident reported.	Prior to and during construction	Manager Environment, Environmental Superintendent – Balranald, Environmental Advisor, Employees and Contractors
	Restriction of vehicles and plant to designated roads and tracks.	Roads and tracks to be documented in SDCP.	Driving impacts are restricted to access roads and tracks.	Review inadvertent damage and report incident.		

Environmental management measure		Monitoring	Performance target	Potential corrective actions	Timing	Responsibility
Clearing limits *(continued)*	Designated areas for stockpiling of cleared vegetation and topsoil.	Stockpile locations be documented in SDCP.	No stockpiling outside of clearing limits or within 200 m Malleefowl mound buffer.	Review inadvertent damage and report incident.	Prior to and during construction	Manager Environment, Environmental Superintendent – Balranald, Environmental Advisor, Employees and Contractors
	Awareness and education during the Iluka induction process.	Induction records will be maintained.	All staff and contractors are given an environmental induction relevant to this BMP.	N/A		
Potential impact: Removal of breeding and shelter habitat						
Timing restrictions on clearing	Malleefowl mounds identified during pre-disturbance surveys will be protected for the duration of that breeding season (September to end of February).	A suitably qualified environmental professional will inspect each active and potentially active Malleefowl mound at the end of that breeding season (February) to confirm that breeding has concluded.	All active and potentially active Malleefowl mounds are protected for the duration of that breeding season.	Clearing should immediately cease in the 200 m buffer area and the incident reported.	Pre-construction and construction	Manager Environment, Environmental Superintendent – Balranald, Environmental Advisor, Suitably Qualified Environmental Professional
	Vegetation clearing in medium, medium-high or high tree hollow density is restricted to November to April (inclusive).	Timing restrictions on clearing in Corben's Long-eared Bat habitat will be incorporated into the SDCP.	No hollow-bearing trees are cleared in medium, medium-high or high tree hollow density areas during May to October (inclusive).	Clearing should immediately cease in the relevant clearing front and the incident reported.	Construction	Environmental Superintendent – Balranald, Environmental Advisor

Environmental management measure		Monitoring	Performance target	Potential corrective actions	Timing	Responsibility
Staged clearing of breeding habitat and active roosts	'Exclusion no-go' signage will be installed at each active or potentially active Malleefowl mound identified during pre-disturbance surveys (section 5.3.1.1). The no-go area will comprise a 200 m circular 'no go' exclusion buffer around the mound.	Malleefowl mound and buffer locations will be documented in SDCP. The Environmental Advisor will confirm that the no-go area has been clearly demarcated on the ground prior to any clearing in the area.	No active or potentially active Malleefowl mounds are cleared during breeding season.	Clearing should immediately cease in the relevant clearing front and the incident reported.	Construction	Manager Environment, Environmental Superintendent – Balranald, Environmental Advisor, Employees and Contractors
	Each individual Malleefowl mound will be inspected by a suitably qualified environmental professional at the end of breeding season (February) to confirm that breeding has concluded.	The suitably qualified environmental professional will prepare a brief Malleefowl pre-disturbance inspection report that confirms (or otherwise) that breeding has concluded.	As above	As above	Pre-construction	Environmental Superintendent – Balranald, Environmental Advisor
	Clearing of Malleefowl mounds and the 200 m buffer can occur following confirmation from a suitably qualified environmental professional that breeding has concluded at all identified active and potentially active mounds.	As above	As above	As above	Construction Pre-construction	Environmental Superintendent – Balranald, Environmental Advisor
	All trees with hollows above 1 m height in Corben's Long-eared Bat habitat (Figure 3.2 **–**) will be marked with a unique identifier prior clearing.	A pre-clearance inspection of hollow-bearing trees will be completed as part of SDCP in each clearing area.	All hollow-bearing trees are retained for two nights after surrounding vegetation has been cleared, prior to being felled.	Clearing should immediately cease in the relevant clearing front and the incident reported.	Pre-construction	Environmental Superintendent – Balranald, Environmental Advisor

Environmental management measure		Monitoring	Performance target	Potential corrective actions	Timing	Responsibility
Staged clearing of breeding habitat and active roosts *(continued)*	All non-hollow trees and trees with hollows below 1 m height within Corben's Long-eared Bat habitat (Figure 3.2 –) will be cleared first.	A clearing report will be prepared by the Environmental Advisor for each clearing front within Corben's Long-eared Bat habitat, which will document the dates when non-hollow and hollow-bearing trees were cleared.	As above	As above	Construction	Manager Environment, Environmental Superintendent – Balranald, Environmental Advisor, Employees and Contractors
	All trees with hollows above 1 m height in Corben's Long-eared Bat habitat will be retained for two nights after surrounding vegetation has been cleared, prior to being felled.	As above	As above	As above	Construction	Manager Environment, Environmental Superintendent – Balranald, Environmental Advisor, Employees and Contractors
Clearing supervision	A person with qualifications in environmental science, biology or ecology and demonstrated experience in Malleefowl management will be present prior to clearing activities in areas identified as '*moderate, high or very high Malleefowl habitat potential*' (Figure 3.1 –) to confirm that breeding has concluded at all Malleefowl mounds prior to the commencement of mound clearing.	The suitably qualified environmental professional will prepare a Malleefowl pre-disturbance inspection report that confirms (or otherwise) that breeding has concluded.	All active and potentially active Malleefowl mounds are protected for the duration of the breeding season.	Clearing should immediately cease in the 200 m buffer area and the incident reported.	Pre-construction and construction	Manager Environment, Environmental Superintendent – Balranald, Environmental Advisor, Suitably Qualified Environmental Professional

Environmental management measure		Monitoring	Performance target	Potential corrective actions	Timing	Responsibility
Clearing supervision *(continued)*	All felled hollow-bearing timber will be left in-situ for 24 hours to allow hollow-dependent fauna to self-relocate or inspection by a suitably qualified environmental professional.	Records will be kept of the fate of any Corben's Long-eared Bat encountered (e.g. released, injured and taken to vet for care, juvenile taken to the Wildlife Information, Rescue and Education Service (WIRES) for care, deceased).	Any Corben's Long-eared Bat encountered is safely released or taken into care.	Clearing should immediately cease in the relevant clearing front and the incident reported. The suitably qualified environmental professional (or their delegate) will contact the local veterinarian or WIRES for treatment and care in the event that an animal is injured or juvenile.	Construction	Environmental Superintendent – Balranald Environmental Advisor, Suitably Qualified Environmental Professional
Potential impact: Changes in vegetation composition and structure in retained habitat due to increased bushfire risk.						
Fire management	Bushfire mitigation will be in accordance with the *Emergency Control and Response Plan* and section 5.3.3 of this BMP.	As per monitoring measures in Emergency Control and Response Plan.	As per performance targets in Control and Response Plan.	As per corrective actions in Emergency Control and Response Plan.	Construction and operation	Manager Environment, Environmental Superintendent – Balranald, Environmental Advisor, Employees and Contractors

Environmental management measure		Monitoring	Performance target	Potential corrective actions	Timing	Responsibility
Potential impact: Degradation of retained habitat, changes in vegetation composition.						
Pest, predator and weed management	Weeds will be managed as follows: • inspection of vehicles and mobile plant on site entry and exit. Appropriate wash down and containment of sediment if required; • inspections for declared weeds will be undertaken bi-annually and weeds will be controlled via scalping or chemical spraying; • herbicide will be applied in accordance with industry best practice; • weed control will be undertaken in a manner that will minimise soil disturbance; and • weeds will be managed in consultation with Western Local Land Services (LLS), Balranald Shire Council and NSW Department of Primary Industries (DPI) Agriculture.	Records will be maintained of weed infestations and control measures undertaken	Washdown bay is maintained regularly. Existing and new declared weed infestations are controlled at the boundary of the construction area and retained habitats.	If weed control is unsuccessful, consider carrying out follow-up weed control or an alternative control method.	Construction and operation	Manager Environment, Environmental Superintendent – Balranald, Environmental Advisor, Employees and Contractors
	The following techniques will be employed by a suitably qualified and licensed contractor/s: • baiting and fumigation of rabbit burrows; • mustering, trapping at water and shooting of goats; and • baiting for foxes and other feral predators (i.e. cats and pigs).	Pest and predator monitoring will be conducted by a suitably qualified pest control contractor every three years.	Reduced density of feral pests and predators in retained habitats.	Increase in control frequency or change of control techniques.	As above	As above

Environmental management measure		Monitoring	Performance target	Potential corrective actions	Timing	Responsibility
Potential impact: Degradation of retained habitat adjoining construction and operational areas through erosion, sedimentation and increased edge-effects						
Erosion and sediment management	Implement best practice erosion and sediment control measures within and surrounding the buffer and retained habitats.	As per monitoring measures to be outlined in the separate *Water Management Plan*.	As per performance targets to be outlined in the separate *Water Management Plan*.	As per corrective actions to be outlined in the separate *Water Management Plan*.	Construction and Operation	Manager Environment, Environmental Superintendent – Balranald, Environmental Advisor, Employees and Contractors
Potential impact: Injury or fatality of individuals during clearing and operation						
Speed limit restrictions	If an active or potentially active Malleefowl mound is identified within 250 m of the access road, and the normal sign-posted speed limit of the nearby access road is 100 km/h, a reduced speed limit of 60 km/h will be applied for that nearby section of road for the duration of the applicable breeding season.	Records will be kept of any Malleefowl injuries or mortalities resulting from vehicle or plant collision and reviewed during environmental auditing.	No Malleefowl are struck by vehicles or plant.	Review speed limit in area where collision/s are occurring and reduce if appropriate. If Malleefowl are injured by vehicle or plant, they will be taken to a local veterinarian and/or WIRES for care. Records will be kept of any Malleefowl injuries or mortalities resulting from vehicle or plant collision.	Construction and operation	Group Manager Environment and Communities, Environmental and Communities Superintendent – Balranald, Environmental Advisor, Employees and Contractors

Environmental management measure		Monitoring	Performance target	Potential corrective actions	Timing	Responsibility
Potential impact: Disruption of breeding cycles through increased dust and light						
Dust and light spill management	A 200 m buffer will be designated around each identified Malleefowl mound will be identified.	Malleefowl mound and buffer locations will be documented in SDCP. The Environmental Advisor will confirm that the no-go area has been clearly demarcated on the ground prior to any clearing in the area.	200 m 'no go' exclusion buffer designated	N/A	Construction and operation	Manager Environment, Environmental Superintendent – Balranald, Environmental Advisor, Employees and Contractors
	Minimise the use of artificial lighting in the 200 m Malleefowl buffer.	Inspections of artificial lighting is conducted for the 200 m buffer areas.	Artificial lighting use is minimised as far as practicable.	The need for and use of artificial lighting use regularly reviewed and revised, as appropriate.	As above	As above
	Where artificial lighting is required within the buffer, directional lighting facing away from the Malleefowl mound(s) and retained habitats will be used if safe to do so.	As above	Directional lighting is used when artificial lighting is required within buffer areas and near retained habitats if safe to do so.	As above	As above	As above

6. Environmental management system

6.1. Roles and responsibilities

Roles and responsibilities, accountable actions and their frequency, relevant to the environmental management under this BMP are outlined in Table 6.

Table 6 – Roles and responsibilities

Role	Accountabilities
Operations Manager	• Develop business plans that align with wider sustainability objectives and targets. • Promote a culture of accountability and risk awareness, ensuring corrective and preventive actions are completed. • Promote active participation in Environment & Community matters in general. • Provide effective resources to implement the management system within the operation / function. • Ensure overall compliance to the EMS & HSECMS within the operation / function.
Environment, Rehabilitation and Community Relations (ERCR) Superintendent	• Provide advice/support to the environmental team for achievement of ongoing environmental compliance. • Inform and provide advice for environmental issues, non-compliances and incidents to the Operations Manager. • Support the preparation of environmental reports in compliance with corporate and regulatory requirements. • Support the review and oversee the implementation of the EMS, EMPs and procedures in accordance with corporate and regulatory requirements. • Investigate environmental incidents and endorse corrective actions in consultation with the Operations Manager. • Facilitate and review environmental risk assessments with team members and other stakeholders as required. • Oversee rehabilitation planning and implementation. • Respond to and report on community complaints in consultation with the Operations Manager. • Conduct internal compliance audits of applicable regulatory approvals, licences and other legislation for the project. • Liaise with government regulators and other stakeholders on environment and community matters.

Role	Accountabilities
Suitably qualified environmental professional	• Conduct pre-clearance surveys for Malleefowl in accordance with Survey Guidelines for Australia's threatened birds (DEWHA, 2010) • Conduct inspection of active or potentially active Malleefowl mounds at the end of breeding season (February) to confirm that breeding has concluded. • Conduct pre-clearance surveys of Corben's Long-eared Bat habitat and identify all suitable hollow-bearing trees more than 1 m above the ground to create a database of the hollows cleared for reporting purposes. • Conduct inspection of all felled hollow-bearing timber. • Prepare a clearing report for each clearing front within Corben's Long-eared Bat habitat, which will document the dates when non hollow trees, trees with hollows below 1 m height and trees with hollows above 1 m height were cleared. • Prepare a clearing report to document all raptor and Malleefowl nests destroyed during clearing activities. For all Malleefowl nests cleared the document will use the National Malleefowl Monitoring System and provide the data to the National Malleefowl Monitoring Database. • Conduct pest and predator monitoring every three years.
Environmental Specialist	• Manage the environmental monitoring database. • Collate data and prepare written reports for environmental and community performance reporting. • Implement and review the EMS, EMPs and procedures in accordance with corporate and regulatory requirements. • Assist and provide advice to the Environmental Technician in collection of environmental monitoring data. • Develop procedures required for effective environmental management of the site. • Review and update management plans and procedures. • Conduct site environmental inspections and audits to identify issues and report findings to the ERCR Superintendent. • Assist in achieving compliance with regulatory requirements related to environmental management as required by the ERCR Superintendent. • Participate in the review and development of environmental risk assessments. • Conduct internal compliance audits of applicable regulatory approvals, licences and other legislation for the project and advise the ERCR Superintendent of any non-compliances.
Environmental Technician	• Conduct the environmental monitoring required by the approved EMPs for the project. • Follow procedures for environmental monitoring accurately and consistently. • Collect and record raw data accurately and consistently for all compliance monitoring. • Maintain calibration records of all equipment and ensure within manufacturers specifications. • Conduct site environmental inspections and report issues identified to ERCR Superintendent. • Assist with on ground environmental improvement works.

Role	Accountabilities
Rehabilitation Specialist	• Coordinate the planning and implementation of the rehabilitation in accordance with the Rehabilitation Management Plan and applicable procedures. • Coordinate the rehabilitation monitoring programs including engagement of specialised consultants. • Ensure that rehabilitation resources are managed effectively to ensure the success of the rehabilitation. • Prepare rehabilitation related documents and maintain the spatial data required under the Mining Act 1992. • Liaise with government regulators and other stakeholders on all rehabilitation matters.
Site Employees and Contractors	• Understand and comply with the Iluka EMS, HSEC policy and supporting standards. • Accept accountability to ensure personal safety and the health and safety of others and protect the environment. • Identify, assess and control risks prior to undertaking any activity. • Actively challenge or refuse to work in unsafe conditions or where unacceptable impact to the environment or community may occur. • Intervene to prevent incidents. • Actively participate in HSEC meetings, initiatives, risk assessments and monitoring programs. • Report all incidents and near hits immediately. • Correct or isolate hazardous situations in the workplace. • Understand and follow the local emergency procedures. • Comply with and suggest improvements to site documentation, processes and procedures.

6.2. Reporting

Iluka's reporting requirements pursuant to Conditions of EPBC 2012/6509 (as varied) are summarised in Table 7.

Table 7 – Reporting requirements

EPBC 2012/6509 Condition(s)	Description	Purpose and content	Trigger for reporting	Distribution	Document control procedures
Annual compliance reporting					
10 11H 11I 11J	Annual EPBC compliance report	Report addressing and including: • accurate and complete details of compliance and any non-compliance with the conditions and the plans, and any incidents. • GIS shapefile(s) showing all clearing of protected matters, and/or their habitat, undertaken within the 12-month period at the end of which that compliance report is prepared. • a schedule of all plans in existence in relation to these conditions and accurate and complete details of how each plan is being implemented. Report to be prepared in accordance with the *Annual Compliance Report Guidelines*, Commonwealth of Australia 2014.	Within 3 months of every 12-month anniversary of the commencement of the action	DCCEEW Iluka corporate website	Document version control page that includes details of version number, date, persons responsible and reasons for changes
Survey results and records					
2A(c)	Malleefowl mound pre-disturbance survey results	Provision of Malleefowl mound pre-disturbance finalised survey results and associated maps submitted electronically to the Department.	As required (i.e. when pre-disturbance surveys are conducted)	DCCEEW	Document version control page that includes details of version number, date, persons responsible

EPBC 2012/6509 Condition(s)	Description	Purpose and content	Trigger for reporting	Distribution	Document control procedures
Non-compliance reporting					
11K 11L	Initial non-compliance reporting	Initial notification to the department in writing, within 2 business days of becoming aware of: • any incident; • potential non-compliance; and/or • actual non-compliance with the conditions or commitments made in a plan. Information to include: • any condition or commitment made in a plan which has been or may have been breached. • a short description of the incident and/or potential non-compliance and/or actual non-compliance. • the location (including co-ordinates), date and time of the incident and/or potential non-compliance and/or actual non-compliance.	Actual or potential non-compliance with any condition or plan Initial reporting within 2 days of issue being identified	DCCEEW	Document version control page that includes details of version number, date, persons responsible
11M	Follow-up non-compliance reporting	Written notification within 12 business days of becoming aware of any incident and/or potential non-compliance and/or actual non-compliance, the details of that incident and/or potential non-compliance and/or actual non-compliance with the conditions or commitments made in a plan. Information to include: • any corrective action or investigation already taken. • the potential impacts of the incident and/or non-compliance. • the method and timing of any corrective action that will be undertaken.	Actual or potential non-compliance with any condition or plan	DCCEEW	Document version control page that includes details of version number, date, persons responsible

EPBC 2012/6509 Condition(s)	Description	Purpose and content	Trigger for reporting	Distribution	Document control procedures
Independent audit reporting					
12 12A 12B	Independent audit reports	**If requested in writing by the Minister**, provision of an independent audit report of compliance with the conditions of approval. Independent audit reports to be: • Submitted to the Department for approval within the timeframe specified and approved in writing by the Department. • Published on the Iluka corporate website within 15 business days of the date of the department's approval of the audit report. • Retained on file and on the corporate website until this approval expires. Each audit report must be completed to the satisfaction of the Minister and be consistent with the *EPBC Act Independent Audit and Audit Report Guidelines*, Commonwealth of Australia 2019.	At the written request of the Minister	DCCEEW Iluka corporate website	Document version control page that includes details of version number, date, persons responsible and reasons for changes

6.3. Environmental training

Iluka have a standard for training and awareness (Standard 3: Training and Awareness) to ensure employees and contractors are appropriately trained and are competent to perform their work.

During these inductions, key points of environmental management will be identified all measures relevant to the conditions of approval (EPBC 2012/6509) for the protection of Malleefowl and Corben's Long-eared Bat during construction and operation will be presented.

The Iluka induction and a Project-specific induction shall be undertaken prior to commencement of works. Inductions (excluding visitor induction) shall be undertaken every two years or more frequently as required.

Processes are developed and implemented by sites, operations, projects or functions to identify, prioritise and plan the fulfilment of training needs commensurate with HSEC risks. Processes shall include (at a minimum):

- development of a training needs analysis, including the identification of training needs for all employees and contractors within the area, operations, Project or function;
- delivery of training and maintaining currency;
- methods and criteria for the determination of competency; considering training, education, skills and experience; and
- evaluation of the effectiveness of training processes and programs.

Training attendance, inductions and competency shall be recorded. Employee and contractor records shall be maintained, and attendance recorded in the Iluka Training Management System.

6.4. Emergency contacts and procedures

Iluka will maintain a Pollution Incident Response Management Plan (PIRMP) in accordance with Condition R1.1 of Environment Protection Licence 20795. The PIRMP outlines the process for responding to environmental emergencies in a timely and effective manner and adopting appropriate measures for the control and recovery from emergencies. Where appropriate, environmental emergency response procedures will be integrated with the Emergency Control and Response Plan.

Preparedness for emergencies by staff, personnel, contractors and service providers will be undertaken in accordance with on-site training requirements whereby personnel will be appropriately trained in the use of emergency response equipment and procedures and will be made aware of their responsibilities should such an event occur. A list of external agencies that may be required in the event of an emergency is presented in Table 8.

On detection of an actual or potential environmental incident which may endanger personnel, property or the environment the observer shall:

- alert the Iluka area supervisor to the location and nature of the emergency (who will assume the role of Chief Warden);
- control and/or contain any release to the environment if safe to do so;
- evacuate all personnel to the nearest muster point if there is threat to human health (i.e. radiation incident, chemical spill, fuel spill, etc) and ensure all personnel are accounted for;
- ensure the emergency is responded to, commensurate with the skills and qualifications of the response team;

- notify the Emergency Services as required;
- handover control to Emergency Services on arrival and assist as directed;
- initiate clean up and recovery; and
- hold an emergency response debrief.

Table 8 – External agency contact details

Name	Contact	Location
Police	000 (03) 5898 4980	Balranald, NSW
Ambulance	000	Balranald, NSW
NSW Rural Fire Service	000	Balranald, NSW
Fire and Rescue NSW	000	Balranald, NSW
Hospitals	(03) 5071 9800	Balranald Multi-Purpose Health Service
	(03) 5033 9300	Swan Hill District Hospital (emergency)
	(03) 5022 3333	Mildura Base Hospital (emergency)
NSW State Emergency Service	13 25 00	www.ses.nsw.gov.au
NSW Poisons Information Centre	13 11 26 (24-hour hotline)	www.poisonsinfo.nsw.gov.au
NSW Environment Protection Authority (EPA)	13 15 55	www.epa.nsw.gov.au
NSW Resources and Energy – Resources Regulator	1300 814 609	www.resourcesregulator.gov.au
SafeWork NSW	13 10 50	www.safework.nsw.gov.au
Balranald Shire Council	(03) 5020 1300	Balranald, NSW

7. Audit and review

7.1. Environmental auditing

Conditions 12, 12A and 12B of EPBC 2012/6509 (as varied) requires the person taking the action to request an independent audit of the conditions of approval, upon direction of the Minister. If an audit is required by the Minister:

- the independent auditor will be approved by the Minister prior to commencement of the audit;
- audit criteria will be agreed to by the Minister; and
- the audit report must address the criteria to the satisfaction of the Minister.

7.2. Review of the BMP

In accordance with Condition 14 of EPBC 2012/6509, Iluka may choose to revise the approved BMP without submitting it for re-approval, if the revisions are not likely to result in a new or increased impact. In the event that the BMP is revised, Iluka will:

- notify the Department in writing and provide an updated electronic copy;

- implement the revised BMP from the date the plan is submitted to the Department; and
- for the life of EPBC 2012/6509, maintain a record of the reasons the revised plan is not likely to result in a new or increased impact.

8. References

Benshemesh, J. 2007. National Recovery Plan for Malleefowl, Department for Environment and Heritage, South Australia.

DEWHA 2010. Survey Guidelines for Australia's Threatened Birds: Guidelines for detecting birds listed as threatened under the EPBC Act, Department of the Environment, Water, Heritage and the Arts, Canberra.

DoE 2014, Environmental Management Plan Guidelines, Commonwealth of Australia, Canberra.

Centre for Invasive Species Solutions. (2022). Weeds Australia. viewed at https://weeds.org.au/weeds-profiles.

DPIE. (2020). Biodiversity Assessment Method. Sydney: Deparment of Planning, Industry & Environment.

Schulz M and Lumsden L. (2010). Draft national recovery plan for the south-eastern long-eared bat. Melbourne: Victorian Government Department of Sustainability and Environment.

Niche 2016. Balranald Mineral Sands Project – Biodiversity Assessment for the Environmental Impact Statement, prepared for Iluka Limited by Niche Environment and Heritage Pty Limited.

NSW RFS 2019, Planning for Bush Fire Protection, NSW Rural Fire Service, Sydney.

OEH 2022. Malleefowl Threatened Species Profile. Accessed November 2022, https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10459

TSSC 2015. Conservation Advice Nyctophilus corbeni south-eastern long-eared bat, Department of the Environment, Canberra.