BHP Mitsubishi Alliance

Part A
Preliminary Documentation

Peak Downs Mine Power Line Realignment Project

EPBC 2024/09983

BHP Mitsubishi Alliance

Preliminary Documentation Report

Peak Downs Mine Power Line Realignment

(EPBC 2024/09983)

Status: Final

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Terms Abbreviations and Acronyms

Term	Definition
ALA	Atlas of Living Australia
BMA	BM Alliance Coal Operations Pty Ltd
Brigalow TEC	Brigalow (*Acacia harpophylla* dominant and co-dominant)
CQCA JV	Central Queensland Coal Associates Joint Venture
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Australian Government)
DETSI	Department of the Environment, Tourism, Science and Innovation
EA	Environmental Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Australian Government)
ESCP	Erosion and Sediment Control Plan
ESD	Ecologically sustainable development
ha	hectares
km	kilometres
km/hr	kilometres per hour
kV	kilovolts
LoO	Likelihood of occurrence
m	metres
ML	Mining Lease
MMP	MNES Management Plan
MNES	Matters of National Environmental Significance
MNES Guidelines	*MNES Significant Impact Guidelines 1.1*
Natural Grasslands TEC	Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin
OAG	Offset Assessment Guide
OMP	Offset Management Plan
OIA	Offset Study Area
PD	Preliminary Documentation
PDM	Peak Downs Mine
PMR	Protected Matters Report
PMST	Protected Matters Search Tool

Term	Definition
Poplar Box TEC	Poplar Box Grassy Woodland on Alluvial Plains
PRCP	Progressive Rehabilitation and Closure Plan
RE	Regional Ecosystem
REDD	Regional Ecosystem Description Database
RFI	Request for Information
TEC	Threatened ecological community
The Koala Recovery Plan	*National recovery plan for the Koala Phascolarctos cinereus combined populations of Queensland, New South Wales and the Australian Capital Territory*
The Project	Peak Downs Mine Power Line Realignment Project
VM Act	*Vegetation Management Act 1999* (Qld)

1 Introduction

This Preliminary Documentation Report has been prepared in support of the environmental approvals under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for the proposed action, the Peak Downs Mine (PDM) Power Line Realignment Project (the Project).

The Project proposes to realign a 66 kilovolt (kV) power line associated with PDM (refer ***Figure 1***). The PDM is owned and operated by BM Alliance Coal Operations Pty Ltd (BMA) on behalf of the Central Queensland Coal Associates Joint Venture (CQCA JV) and is located approximately 22 kilometres (km) southeast of the township of Moranbah in the Bowen Basin, Queensland.

There are currently three existing mine pits at PDM, 7 North, 5 North and 2 North (7N, 5N and 2N, respectively), which are progressing to the east within Mining Lease (ML) 1775 in line with current regulatory authorisations. The existing 7N/5N/2N power lines (all 66 kV) are situated within ML 1775, running in a north-south direction adjacent to the shared mining lease boundary of ML 1775 and ML 70411. The pit progression towards the power lines is approaching exclusion limits to blasting for mining activities.

The relocation of these power lines is necessary to support continued mining activities at PDM. Without relocation of the power lines, existing mining activities would be severely constrained due to a lack of supporting power requirements. As a result, the Project (the proposed action) involves the realignment of the existing 66kV 7N/5N/2N power lines to the east of the current alignment and comprises the following three components:

- 7N power line realignment - entirely outside of a mining lease
- 5N power line realignment - partly within ML 70411, partly outside a mining lease
- 2N power line realignment - entirely within ML 70411

The Project was referred to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) on 30 August 2024 (EPBC 2024/09983) for assessment under the EPBC Act. The delegate of the Minister for Environment determined on 6 November 2024 that the Project was a controlled action for the following controlling provision:

- Listed threatened species and communities (sections 18 & 18A).

The Minister's delegate determined the proposed action will be assessed by Preliminary Documentation. The information required for the Preliminary Documentation assessment was provided by the Minister's delegate and is included in ***Appendix A***.

1.1 Information Request

This Preliminary Documentation report and supporting technical reports provide information for DCCEEW to make an assessment of the potential impacts to Matters of National Environmental Significance (MNES). ***Table 1-1*** identifies where the information requested by the Minister's delegate is contained within this Preliminary Documentation. A detailed cross-reference table is included in ***Appendix B***.

Table 1-1: Preliminary Documentation Cross Reference

Additional Information Requirement	Preliminary Documentation	Supporting Documentation
Description of the Action	***Section 2***	-
Habitat Assessment	***Section 3*** ***Section 6***	***Appendix G***
Impact Assessment	***Section 5*** ***Section 6***	***Appendix C***
Avoidance, Mitigation and Management Measures	***Section 5***	***Appendix E***
Rehabilitation Requirements	***Section 8***	-
Offsets	***Section 6*** ***Section 7***	***Appendix C*** ***Appendix F***
Ecologically Sustainable Development (ESD)	***Section 9***	-
Economic and Social Matters	***Section 10***	-
Environmental Record of the Person Proposing to take the Action	***Section 11***	-

1.2 Publication

The draft Preliminary Documentation Report was made available for public comment in accordance with the requirements of s95A(3) of the EPBC Act.

The documents were made available for public comment from 7th April 2026 to close of business 20th April 2026. BMA received two (2) comments during the public comment period, along with an additional information request from DCCEEW. Both comments on the Project were reviewed and addressed individually. ***Appendix I*** provides each of the submissions received and corresponding responses.

This final Preliminary Document Report includes all updates in response to the public comment period and information request received from DCCEEW.

2 Description of the Action

2.1 Proposed Action

For the purpose of this report, the following definitions are applied throughout (refer ***Figure 1***):

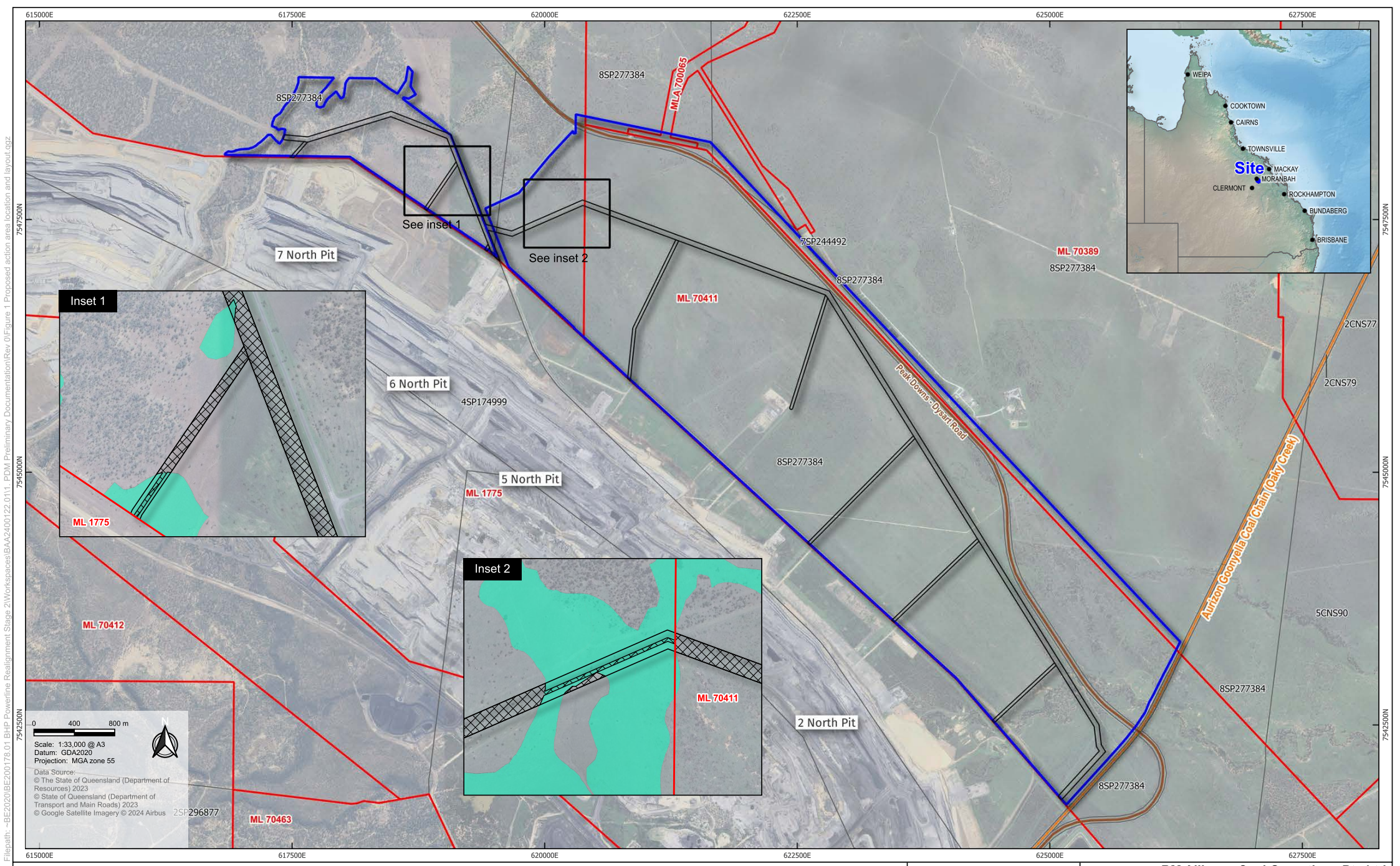
- Proposed action: The Peak Downs Mine Power Line Realignment Project (described throughout ***Section 2***).
- Action area (also referred to as the 'Project area' in some sections of the DCCEEW referral template and guidance documents): The power line realignment corridor, which is 83.55 hectares (ha) in size, including existing hardstand infrastructure and existing roads. The Action area is located adjacent to the northern-eastern side of PDM, approximately 22 km southeast of the township of Moranbah. It lies within land described as Lot 8 on SP277384 and Lot 4 on SP174994, and partly within ML 70411, located within the Isaac Regional Council Local Government Area and the Brigalow Belt North Bioregion.
- Disturbance footprint: The area within the Action area that will be directly impacted by vegetation clearing, which is 79.06 ha.
- Study area: The area assessed by supporting ecological studies, which captures the Action area and nearby surrounding land.

The Proposed action includes the following activities:

- Clearing of woody vegetation for a corridor up to 50 metres (m) wide located along the proposed power line's main axis, extending 12.66 km in length in an approximate northwest to southeast direction. Existing ground cover present in the Action area will be retained (i.e. there will be no topsoil disturbance and the root mass will remain intact), with the exception of the access track addressed below. Outside of the access track, grass slashing may occur in the corridor where required for safe access during construction
- Clearing of woody vegetation along a series of eight stub lines with corridors up to 30 m wide, located perpendicular to the southern side of the power line's main axis. The stub lines vary in length from 160 m to 1,500 m, with an overall length of 7.78 km (i.e. the total Action area length is approximately 20 km). As per the main corridor, ground cover within the stub lines will be retained through slashing only (where necessary), with the exception of the access track addressed below
- Clearing and grubbing of an access track up to 10 m wide along main corridor and stub line corridors to provide access for vehicles, plant and project materials. This will remove the ground cover present potentially including the root mass. On completion of construction this will be allowed to regenerate naturally with groundcover. A permanent formed access track will not be retained for the operation of the power line infrastructure, with only slashing required to maintain the track and ensure safe access
- Existing tracks will be used to cross waterways where practical, and new tracks will be constructed as bed level crossings to avoid barriers to fish passage and impacts to hydrology of the waterway
- Excavating and pouring foundations for the power line towers will be located within the 10 m wide access track area. Power line towers are generally located 165 m apart for the majority of the alignment
- Assembly and erecting the power line steel work including installation of stay anchors
- Stringing electrical cables, conductors and earth wires along the power line towers
- Tensioning of electrical cables to achieve minimum ground clearance
- Connection of conductor bridges and droppers
- Testing, commissioning and connection

The operational phase of the proposed action is anticipated to require little maintenance. Slashing of ground cover within the main corridor and stub line corridors may be carried out when required and the entire area will be subject to continued cattle grazing as occurs currently.

Access to the Proposed action will be provided via the PDM and existing local roads, including the Peak Downs Mine Road. The 10 m wide access track to be established within the Action area, along the main corridor and stub line corridors, will facilitate the transportation of materials and vehicle access during the construction and operation of the Proposed action.



Legend

- Study area
- Action area
- Indicative disturbance footprint proximal to Natural Grassland TEC
- Mining leases
- Cadastre (DCDB)
- **Ground-truthed threatened ecological communities**
  - Natural Grassland TEC
- State controlled roads
- Railways

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Figure 1
Study area and Action area location

2.2 Associated Approvals

2.2.1 State Approvals

State approvals that apply to the Proposed action have been summarised in ***Table 2-1***. No other State approvals are required to be obtained prior to commencement of the Proposed Action.

Table 2-1: Associated Approvals

Approval Description	Applicability to Proposed action and Action area	Assessing Authority	Status
Operational work for clearing native vegetation (development of private electricity works that operates at a standard voltage of 66kV)	Approval for clearing native vegetation as defined in the *Vegetation Management Act 1999* (VM Act) relating to the portion of the Action area that is not on-lease (i.e. within ML 1775 and ML 70411). The proposed impacts in the applicable area were not determined by the assessing authority to result in significant impacts. Those matters addressed within this report were not considered by the State government as they are the subject of assessment under the EPBC Act.	State Assessment and Referral Agency	Approved, subject to conditions (2410-43076 SDA). The clearing must be undertaken in accordance with the Vegetation Management Plan attached to the Operational Work approval, and must not exceed 13.83 ha within that approved area.
Environmental Authority (EA)	The portion of the Action area that occurs on-lease (i.e. within ML 1775 and ML 70411) is authorised under the PDM EA (EPML00318213). No EA amendment is required to facilitate the Proposed action.	Not applicable.	Not applicable.
Progressive rehabilitation and closure plan (PRCP)	Associated with EPML00318213.	Department of the Environment, Tourism, Science and Innovation (DETSI)	Under assessment.
Notification of intention to clear under an accepted development vegetation clearing code	Notification for clearing native vegetation under the *Accepted Development Vegetation Clearing Code – Clearing for Infrastructure*. Relates to the portion of the Action area that is not on a mining lease.	Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development	To be submitted prior to undertaking vegetation clearing. No vegetation clearing can commence until confirmation has been received from Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development.

2.2.2 Local Government Approvals

No development approval is required under the *Isaac Regional Council Planning Scheme 2021*. This is because the Proposed action meets the definition of private electricity works under Schedule 6 Section 26(5) of the *Planning Regulation 2017*, which describes development that a local categorising instrument is prohibited from stating is assessable development. The relevant section is provided below for completeness.

Section 26 Development for infrastructure activities

(5) Development for a supply network or for private electricity works that form an extension of, or provide service connections to, properties from the network, if the network operates at standard voltages up to and including 66kV, other than development for—

(a) a new zone substation or bulk supply substation; or

(b) the augmentation of a zone substation or bulk supply substation that significantly increases the input or output standard voltage.

2.3 Changes from Referral

No changes have been made to the Proposed action since submission of the referral.

A typographical error was identified in the referral documentation where the Action area was mistakenly described as 83.39 ha. This has been corrected in this report to be 83.55 ha, which has been calculated from the spatial data submitted to DCCEEW as a part of the referral package. The 0.16 ha difference is due to an area that is cleared for an existing road easement (MSP312986) that is an access road, and therefore this error does not change the calculated areas of MNES within the Action area, and does not change the conclusions regarding significant residual impacts to MNES.

2.4 Relationship with the Peak Downs Mine Continuation Project

The Proposed action proposes relocation of existing power lines associated with the PDM. Relocation of these power lines is necessary to support continued mining activities at PDM. Without relocation of the power lines, existing mining activities would be severely constrained due to a lack of supporting power requirements.

It is noted that the Proposed action is situated partly within an area (ML 70411) that is already subject to assessment under the EPBC Act. This is the ‘Peak Downs Mine Continuation Project’ (EPBC ref 2022/09350), which is not related to the Proposed action presented herein. For clarity the Proposed action, the subject of this PD report (Peak Downs Mine Power Line Realignment Project), facilitates existing mining activities at PDM.

3 Description of the Environment and MNES

3.1 General

The Proposed action is situated within the Brigalow Belt North Bioregion, specifically within the Northern Bowen Basin subregion. The Proposed action occurs in a predominantly disturbed landscape impacted by cattle grazing and existing mining-related activities. Vegetation communities within the Action area include remnant vegetation, woody regrowth, and non-remnant/cleared lands. To the west and southwest, the landscape is dominated by mining operations associated with the PDM and more broadly other existing mining operations. The land to the north and east is primarily utilised for cattle grazing. Much of the landscape associated with the Action area has been heavily impacted by tree clearing for cattle grazing purposes.

3.1.1 Topography, Soil and Geology

The elevation within the Action area ranges from approximately 200 metres (m) to 245 m Australian Height Datum. The topography of the Study area is flat comprising alluvial areas along drainage lines and adjacent floodplain woodlands. With reference to the Atlas of Australian Soils (Bureau of Rural Sciences 2009), the soils across the majority of the Study area are generally characterised as grey self-mulching finely cracking clay soils on moderately undulating lands. The far western extent of the Study area is characterised by hard pedal mottled-yellow duplex soils on gently undulating plains.

There are no outstanding natural features or unique values within the Action area.

3.1.2 Surface Water

The Action area intersects four minor drainage lines, including one stream order 2 and three stream order 1. All of the drainage lines within the Action area are considered highly ephemeral in nature, draining to the north from the PDM. As a result, there is very little catchment draining through the Action area and any flows would be minor in extent and short-lived. The nearest major watercourses are Harrow Creek, located to the west outside of the Action area, Cherwell Creek, approximately 3 km to the north-west, and the Isaac River, approximately 11 km to the north.

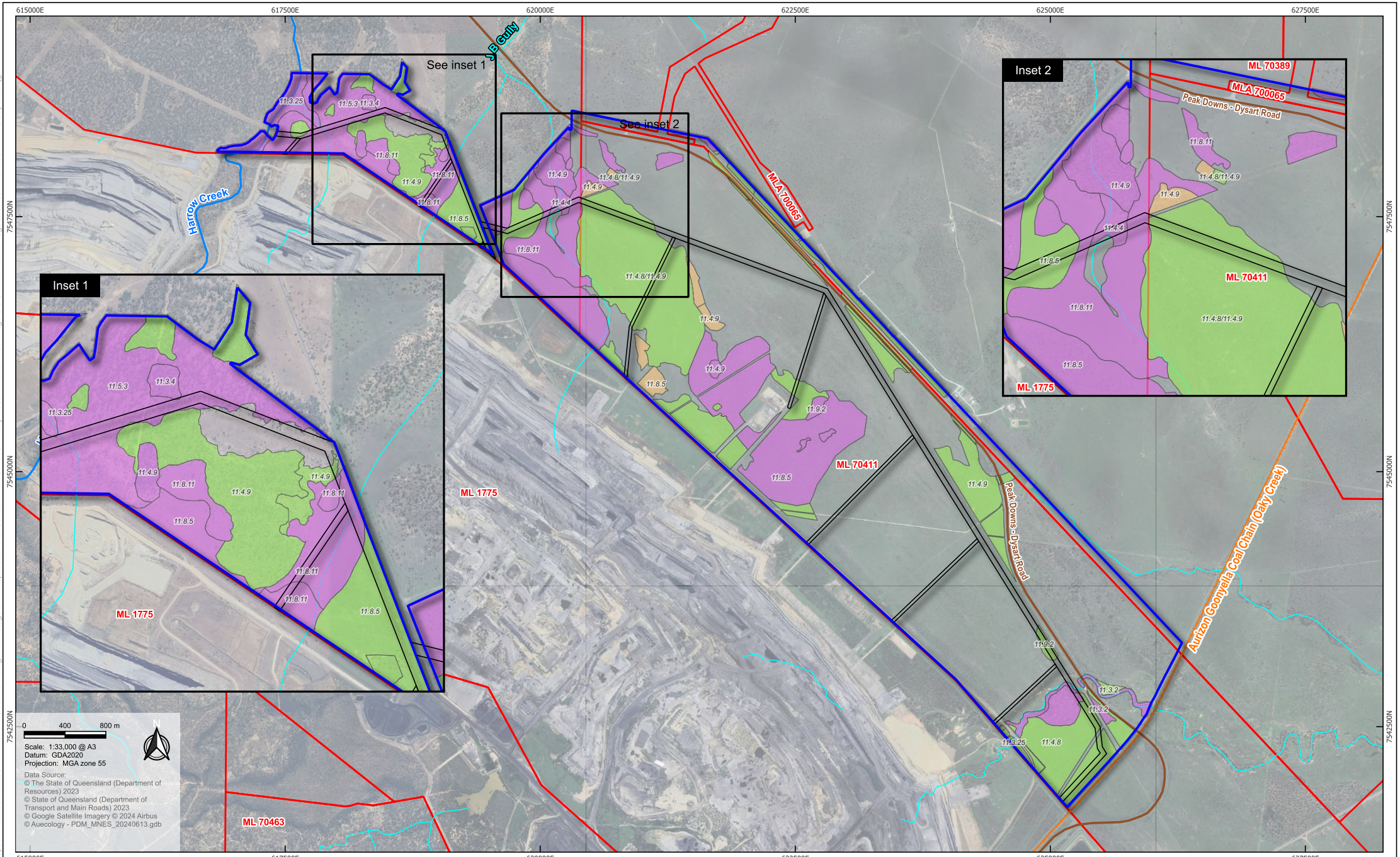
3.1.3 Regional Ecosystems

A total of ten REs have been field-verified (Ausecology 2024a, 2024b) across the Study area as described in ***Table 3-1*** and illustrated in ***Figure 2***. The table also provides the extent of REs within the Action area.

Table 3-1: Verified Regional Ecosystems recorded within the Action area

RE	VM Act Status	Description	Extent within the Study area (ha)	Extent within Action area (ha)
Remnant				
11.3.2	Of concern	*Eucalyptus populnea woodland on alluvial plains*	1.93	0
11.3.4	Of concern	*Eucalyptus tereticornis* woodland to open forest on Cainozoic alluvial plains and terraces	1.87	0.01
11.3.25	Least concern	*Eucalyptus tereticornis* woodland to open forest on fringing levees and banks of major rivers and drainage lines	27.40	0.34
11.4.4	Least concern	*Dichanthium* spp. +/- *Astrebla* spp. tussock grassland on flat to gently undulating clay plains	3.80	0.89
11.4.9	Endangered	*Acacia harpophylla* woodland to open forest on level to gently undulating Cainozoic plains	21.66	0
11.5.3	Least concern	*Eucalyptus populnea* woodland +/- other eucalypts on flat to gently undulating plains formed from Cainozoic sediments	70.08	6.83

RE	VM Act Status	Description	Extent within the Study area (ha)	Extent within Action area (ha)
11.8.5	Least concern	*Eucalyptus orgadophila* open woodland on undulating plains, rises, low hills or sometimes flat tablelands	175.35	0.92
11.8.11	Of concern	Grassland dominated by *Dichanthium sericeum*, *Aristida* spp., *Astrebla* spp. and *Panicum decompositum* on moderately shallow to deep cracking clay soils	68.73	4.17
11.9.2	Least concern	*Eucalyptus melanophloia* and/or *E. orgadophila* woodland to open woodland on undulating plains with cracking clay or texture contrast soils	2.45	0
		Total remnant	**373.27**	**13.16**
High-value regrowth				
11.4.9	Endangered	*Acacia harpophylla* woodland to open forest on level to gently undulating Cainozoic plains	5.59	0
11.8.5	Least concern	*Eucalyptus orgadophila* open woodland on undulating plains, rises, low hills or sometimes flat tablelands	11.50	0
		Total high-value regrowth	**17.08**	**0**
Regrowth and non-remnant vegetation				
11.3.2	Of concern	*Eucalyptus populnea woodland on alluvial plains*	1.80	0
11.3.25	Least concern	*Eucalyptus tereticornis* woodland to open forest on fringing levees and banks of major rivers and drainage lines	0.73	0
11.4.8	-	*Eucalyptus cambageana* and *Acacia harpophylla* woodland to open forest on level to gently undulating Cainozoic plains	34.51	1.68
11.4.8/11.4.9	Endangered	See above and below	216.33	10.52
11.4.9	Endangered	*Acacia harpophylla* woodland to open forest on level to gently undulating Cainozoic plains	71.47	0.82
11.8.5	Least concern	*Eucalyptus orgadophila* open woodland on undulating plains, rises, low hills or sometimes flat tablelands	49.35	7.10
11.9.2	Least concern	*Eucalyptus melanophloia* and/or *E. orgadophila* woodland to open woodland on undulating plains with cracking clay or texture contrast soils	3.07	1.71
-	-	Non-remnant	1,053.73	48.56
		Total regrowth and non-remnant	**1,430.99**	**70.39**
		Total	**1,821.34**	**83.55**



Filepath: -BE2020\BE200178.01 BHP Powerline Realignment Stage 2\Workspaces\BAA2400122.011_PDM Preliminary Documentation\Rev 0\Figure 2 Ground-truthed vegetation communities within Study area.ggz

Legend

- Study area
- Mining leases
- Action area
- Railways
- State controlled roads

Vegetation management watercourses and drainage features v7.0

- Major
- Minor

Ground-truthed regional ecosystems

- Remnant
- High-value regrowth
- Regrowth
- Non-remnant

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Figure 2
Ground-truthed vegetation communities within Action area

3.2 Threatened Species and TECs

3.2.1 Assessment Methodology

The assessment was based on contemporary ecology surveys carried out by Ausecology in 2019, 2021, 2022, 2023 and 2024, as well as studies carried out by Aurecon (2013), Eco Logical (2016 and 2020), AECOM (2020) and ERM (2021). These studies are outlined in the *7N5N2N Power line alignment MNES ecological report* (Ausecology 2024a) (***Appendix C***). The purpose of these surveys was to document the existing ecological values of the Study area and surrounds (refer ***Figure 1***) and to inform the potential impact of the proposed action.

The Ausecology (2024a) report details the methods used for the surveys for the Proposed action and how the survey effort relates to Commonwealth survey guidelines (where these apply).

The surveys are described in detail in ***Appendix D*** including:

- Flora survey effort (Section 2.8.1 of ***Appendix D***)
- Fauna survey effort (Section 2.8.2, Table 2-6 of ***Appendix D***)
- Fauna species survey guidelines and Ausecology Study area survey (Section 2.8.2, Table 2-7 of ***Appendix D***)

The assessment included an updated desktop review of publicly available information to ensure all ecological values of conservation significance (listed MNES) considered currently relevant to the Study area were identified. This included species and vegetation communities of conservation significance that have potential to occur within the Study area and/or surrounds.

Publicly available information sources accessed for the assessment included the following:

- DCCEEW Protected Matters Search Tool (PMST) area search with a 10 km buffer placed around the Study area
- Species Profile and Threats Database administered by DCCEEW
- Queensland Government Wildlife Online (Wildnet) database with a 25 km buffer placed around the central coordinates: -22.1912 Latitude, 148.1874 Longitude.
- The Atlas of Living Australia (ALA) species database is a web-based search tool that is a partnership between CSIRO, Australian museums, herbaria and other biological collections, and the Australian Government

Results of desktop searches are presented in Appendix A of ***Appendix C***.

The Protected Matters Report (PMR) has been updated to respond to the PD RFI. The PMR was generated using a 10 km buffer from the Study area to inform the significant impact assessment for the Proposed action.

The updated PMR identified three categories of MNES potentially present within the Study area or surrounds (listed in ***Table 3-2***). The relevance of the MNES to the Proposed action is detailed within the following subsections.

Table 3-2: MNES relevant to the Study area as identified by the PMR

MNES	Relevance to the Study area
Listed threatened ecological communities (TECs)	Three ecological communities listed as threatened predicted to be present (refer ***Section 3.2.2***)
Listed threatened species	Twenty-eight threatened species including four flora and 24 fauna species listed as threatened predicted to be present (refer ***Section 3.2.3.1*** and ***3.2.3.2***)

3.2.2 Threatened Ecological Communities

The PMR identifies the following three TECs as possibly present with the Study area:

- Brigalow (*Acacia harpophylla* dominant and co-dominant) (Brigalow TEC)

- Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin (Natural Grasslands TEC)
- Poplar Box Grassy Woodland on Alluvial Plains (Poplar Box TEC)

Two of the three TECs were identified as present within the Study area during ground-truthing surveys:

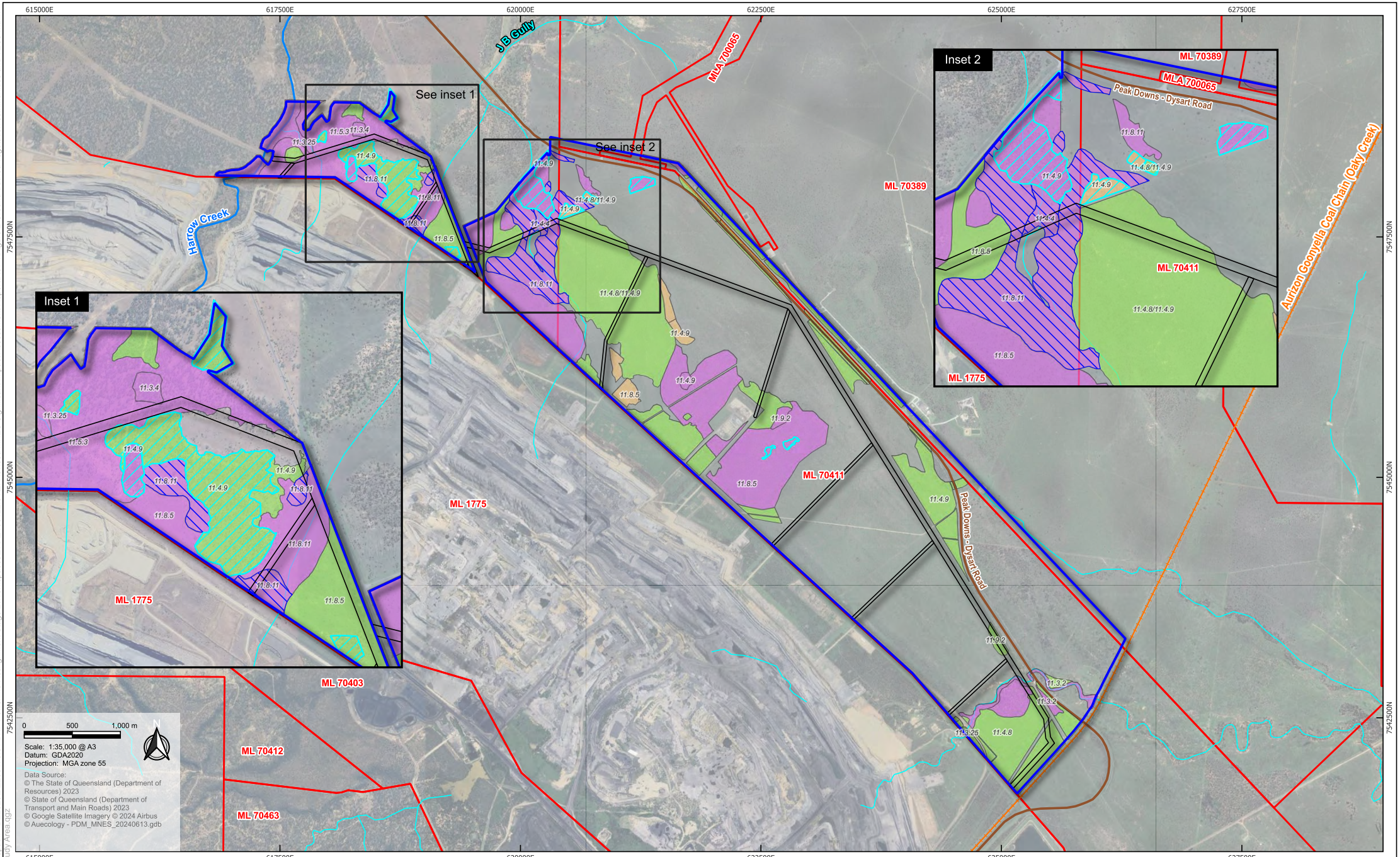
- Brigalow TEC – Brigalow occurs as remnant, but more commonly regrowth communities (RE 11.4.8 and 11.4.9) in the eastern and north-western portions of the Study area. Assessments of these communities were carried out with regard to the diagnostic criteria and condition thresholds in the Approved Conservation Advice for the TEC (DoE 2013b). The assessments confirmed the presence of Brigalow TEC in the western and central portions of the Study area (***Plate 1***).
- Natural Grasslands TEC – native grassland communities (RE 11.4.4 and 11.8.11) occur as large patches in the western portion of the Study area. Assessments of these communities were carried out with regard to the description and condition thresholds in the Commonwealth listing advice for the TEC (TSSC 2009). The assessments confirmed the presence of Natural Grasslands TEC only in portions of the overall extent of mapped grassland areas (***Plate 2***). These comprised patches considered to meet 'best quality' or 'good quality' condition class as defined by TSSC (2009).

The Poplar Box TEC was not found in the Study area.

Further detail on the extent and condition of the Brigalow TEC and Natural Grasslands TEC vegetation present is provided in Section 3.2.1 of ***Appendix C***. The extent of the ground-truthed TECs present is depicted in ***Figure 3***.

Plate 1: Example of Brigalow TEC (RE 11.4.9) within the northern portion of the Study area

Plate 2: Example of Natural Grassland TEC (RE 11.4.4) from the Study area



Filepath: -BE2020\BE200178.01 BHP Powerline Realignment Stage 2\Workspaces\BAA2400122.0112_Revised MNES Significant Impact Assessment Report\Rev 4\Figure 2 Ground-truthed vegetation communities and TECs within Study Area.qgz

Legend

- Study area
- Action area
- Mining leases
- State controlled roads
- Railways

Vegetation management watercourses and drainage features v7.0

- Major
- Minor

Threatened ecological communities

- Brigalow TEC
- Natural Grasslands TEC

Ground-truthed regional ecosystems

- Remnant
- High-value regrowth
- Regrowth
- Non-remnant

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Figure 3
Ground-truthed vegetation communities and TECs within Study Area

3.2.3 Threatened Species

A likelihood of occurrence assessment to understand the potential for threatened fauna, flora and/or migratory species has been completed utilising the PMR and relevant database searches. The complete assessment is provided in Section 3.2.2 of ***Appendix C***.

The potential for species to occur were categorised as follows:

- **Known to occur** - the species or population has been observed within the Study area.
- **Likely to occur** - the Study area is within the species' known distribution, suitable habitat occurs within the area and the species is known to occur in the region. Species not confirmed as occurring in the Study area.
- **Potential to occur** - the Study area is within the species' known distribution, marginal habitat occurs within the area and the species is known to occur in the region. Species not confirmed as occurring within 10 km but recorded within 50 km of the Study area.
- **Unlikely to occur** - low probability that the species will occur as it is outside the species known distribution, low quality habitat occurs within the Study area or the species is not known to occur within the region. No confirmed species records within 50 km of the Study area.

Threatened species records from the desktop searches are shown in ***Figure 4***, and the records of species observed during surveys within and surrounding the Study area are shown in ***Figure 5***.

3.2.3.1 Threatened Flora

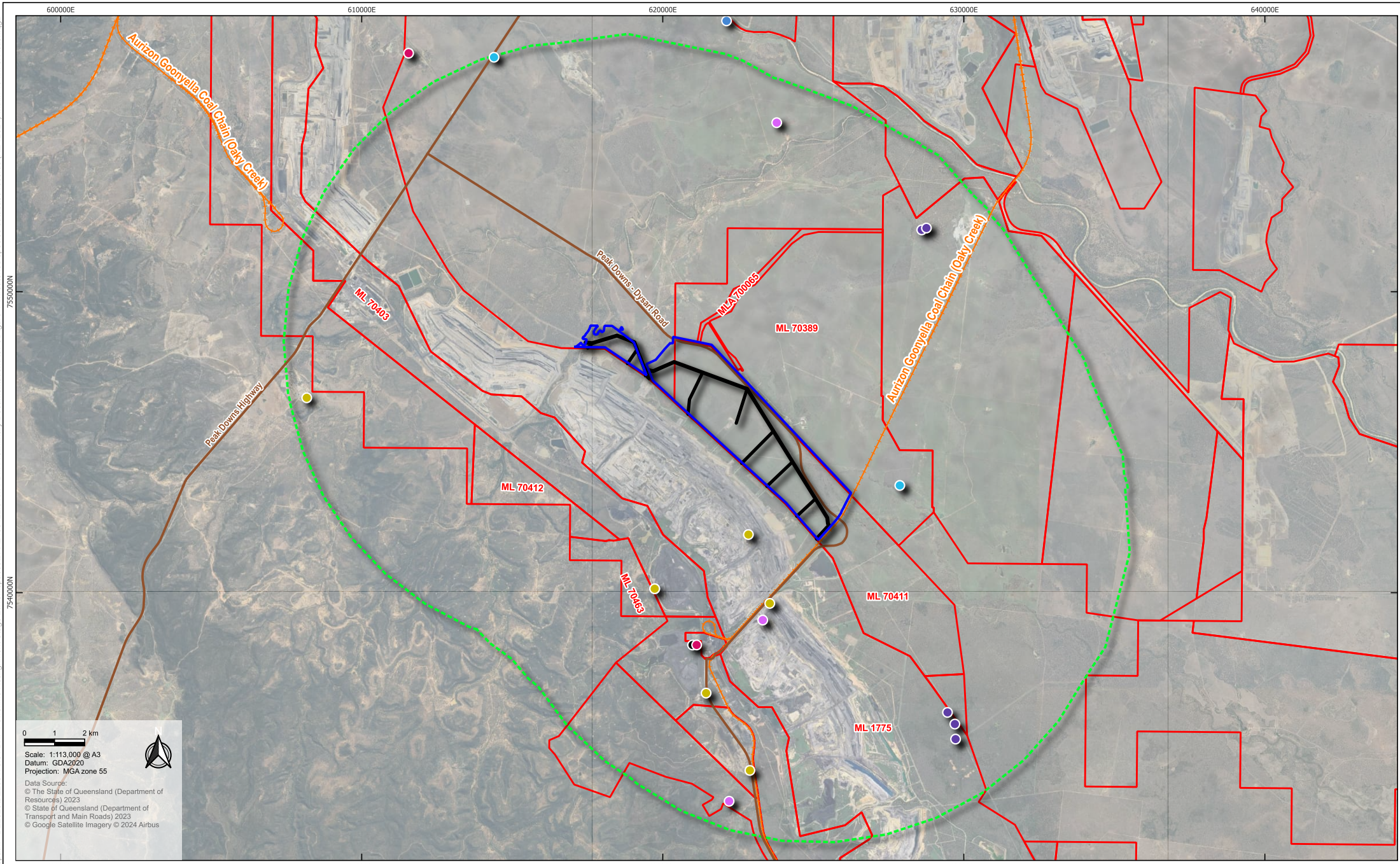
No threatened flora listed under the EPBC Act were recorded within the Action area or Study area during the surveys conducted by Ausecology (2019-2024), nor during other surveys conducted in the surrounding area (AECOM 2020, Aurecon 2013, E2M 2021). Four threatened (MNES) flora species were identified as potentially present in the updated PMR. Two MNES flora species were identified as previously recorded in the wider area (within 25 km) from the Wildnet database search, including one species not identified in the PMR.

The assessment identified one of the MNES species as a potential occurrence within the Action area or immediate surrounds, *Dichanthium queenslandicum*. There is a recent record (2022) located 1.5 km east of the southeastern portion of the Study area, and several records in the wider area (ALA 2024) (***Figure 4***). Potential habitat is present (associated with the natural grasslands), however the grasslands in the Study area were generally observed as severely impacted by cattle grazing. The species is considered as 'potential to occur' only in areas identified as the Natural Grasslands TEC (refer ***Figure 3*** and ***Table 3-3***).

The second threatened flora species identified in the Wildnet search has only recently been listed under the EPBC Act: *Ptilotus uncinellus*. The assessment found the species is unlikely to occur as the Study area is outside of the species identified extent of occurrence (TSSC 2024) and there is a lack of potential habitat present. All other species are considered as 'unlikely to occur'.

Table 3-3: Threatened flora considered as occurring or potentially occurring in the Study area

Species	EPBC Act status	Likelihood of occurrence notes
King Blue-grass (*Dichanthium queenslandicum*)	Endangered	**Potential.** Not recorded within the Study area during surveys despite targeted searches. There is a 2022 WildNet record located 1.5 km to the east of the Study area (***Figure 4***). Scattered records to the north (particularly around Moranbah) and to the southwest (ALA 2025). There is suitable habitat present in the native grassland habitats onsite (RE 11.8.11 and 11.4.4).



Filepath: -BE2020\BE200178.01 BHP Powerline Realignment Stage 2\Workspaces\BAA2400122.011_PDM Preliminary Documentation\Rev 0\Figure 4 Threatened species database records (ALA 2024) within 10 km of Action.qgz

Legend

- Study area
- Action area
- Mining leases
- Study area buffer (10km)
- Railways
- State controlled roads

Atlas of Living Australia database records

- King Bluegrass *(Dichanthium queensladicum)*
- Koala *(Phascolarctos cinereus)*
- Ornamental Snake *(Denisonia maculata)*
- Squatter Pigeon *(Geophaps scripta scripta)*
- Sharp-tailed Sandpiper *(Calidris acuminata)*
- Common Greenshank *(Tringa nebularia)*
- Southern Greater Glider *(Petauroides volans)*

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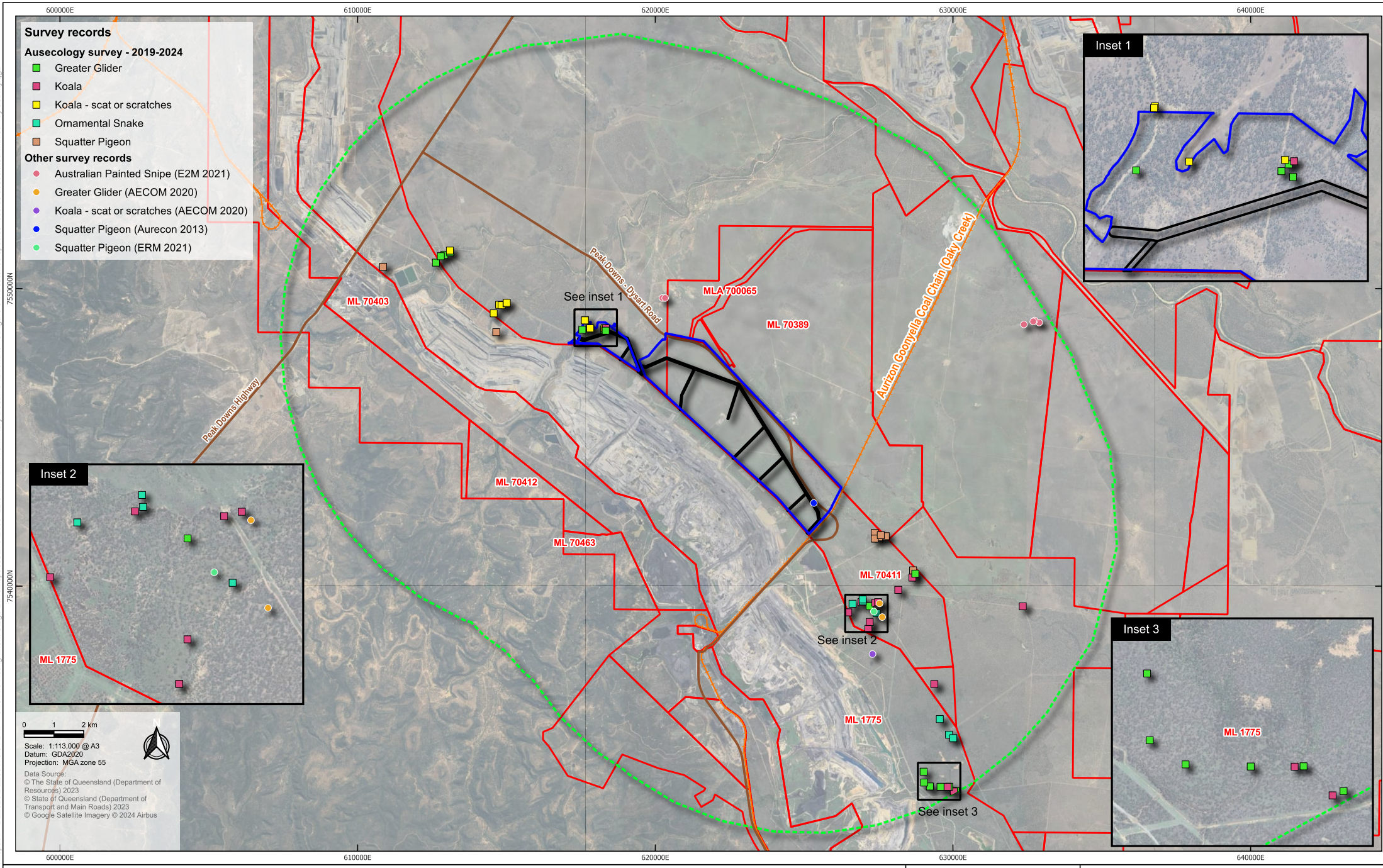
Figure 4
Threatened species database records (ALA 2024) within 10 km of Action area



Filepath: -BE2020\BE200178.01 BHP Powerline Realignment Stage 2\Workspaces\BAA2400122.011 PDM Preliminary Documentation\Rev 0\Figure 5 Threatened species records associated with survey activity.qgz

Legend

- Study area
- Action area
- Mining leases
- Study area buffer (10km)
- State controlled roads
- Railways

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Figure 5
Threatened species records associated with survey activity

3.2.3.2 Threatened Fauna

Twenty-four threatened (MNES) fauna species were identified as potentially present in the PMR. Six of the species identified have been previously recorded in the wider area from the Wildnet database search, all of which were also identified in the PMR. Five of the species have been previously recorded within 10 km of the Action area (ALA 2025) (***Figure 4***).

Five threatened species have been recorded within the Study area and/or surrounds during surveys for the Proposed action from 2019-2024 (***Figure 5***). An updated likelihood of occurrence assessment for the threatened fauna species identified in the updated PMR was carried out (Table 3 in ***Appendix C***). The assessment identified six threatened fauna species as known, likely, or potentially occurring within the Action area. These species are summarised in ***Table 3-4*** and addressed in detail in ***Appendix C***.

Suitable habitat for threatened species was mapped for the Study area based on the habitat definitions in *Habitat descriptions for 12 threatened species specific to central Queensland Version 5* (Kerswell et al 2020; as described in Section 3.6 of ***Appendix D***), and where relevant, DCCEEW threatened species information (e.g. recovery plans or approved conservation advice). The derived habitat mapping forms the basis for the impact assessment in ***Section 6***.

Table 3-4: Threatened fauna considered as occurring or potentially occurring in the Study area

Species	EPBC Act status	Likelihood of occurrence notes
Squatter Pigeon (southern) (*Geophaps scripta scripta*)	Vulnerable	**Known to occur**. Species recorded 2 km east of the southern extent and 2 km west of the northern extent of the Study area during field survey effort for the Project in 2022 (***Figure 5***). Not recorded within Study area since survey work reported in Aurecon (2013). Suitable (although degraded) foraging habitat is present in scattered patches throughout the Study area (refer ***Figure 11*** in ***Section 6.4.4***).
Australian Painted Snipe (*Rostratula australis*)	Endangered	**Potential to occur**. No records from surveys undertaken for the Proposed action. Recently recorded by E2M (2021) in wider area from two sites associated with man-made wetlands (dams) located 2 km and 10 km north and east of the Action area, respectively (***Figure 5***). Sparse records in the surrounding region with most recent in 2017 located 35 km southeast (ALA 2025). Possible habitat for the species associated with the Action area is restricted to a small man-made wetland adjacent to existing mining infrastructure (***Figure 6***). Breeding habitat will not be present. The species occurrence in the area will be occasional at best. Previously considered likely to be present (Ausecology 2024a) but revised to potential based on lack of suitable habitat present within or in close proximity to Action area.
Sharp-tailed Sandpiper (*Calidris acuminata*)	Vulnerable, Migratory	**Potential to occur**. Not recorded during surveys for the project or other surveys in the Study area and surrounds. The nearest Sharp-tailed Sandpiper record is from 2001 and located 5 km south of the Action area (***Figure 4***). No other records within 60 km of the Action area (ALA 2025). Possible habitat for the species associated with the Proposed action is restricted to a small man-made wetland adjacent to existing mining infrastructure (***Figure 6***). The species occurrence in the area will be occasional at best.
White-throated Needletail (*Hirundapus caudacutus*)	Vulnerable, Migratory	**Potential to occur.** Not recorded during project surveys or in the current desktop review but included in previous assessment (Ausecology 2024a). Closest record is from 2012 and located 35 km northwest of the Action area. Sparsely scattered records in surrounding region but no others within 50 km (ALA 2025). Species occurs widely across eastern and northern Australia in the summer months and may occur over almost any habitat, although prefers wooded areas. Previously considered likely to be present (Ausecology 2024a), but revised to potential based on few records and general lack of preferred wooded habitat present across Study area and Action area.
Koala (*Phascolarctos cinereus*)	Endangered	**Known to occur.** An individual and signs of presence were recorded adjacent to the Action area in the western portion of the Study area. Also recorded approximately 3 km northwest and 3 km southeast of the Action area during surveys for the Proposed action in 2021 and 2022 by Ausecology (2024a) (***Figure 5***). Suitable eucalypt habitat for foraging is

Species	EPBC Act status	Likelihood of occurrence notes
		present in scattered patches throughout the Action area (***Figure 8*** in ***Section 6.4.2***).
Greater Glider (*Petauroides volans*)	Endangered	**Known to occur.** Individuals recorded in the Study area including in relatively close proximity (within 100 m) to the Action area. Also recorded approximately 6 km northwest and 3 km southeast of the Study area during survey activity in 2021 and 2022 by Ausecology (2024a) (***Figure 5***). Suitable eucalypt woodland habitat occurs in the western portion of the Action area (***Figure 9*** in ***Section 6.4.3***).
Ornamental Snake (*Denisonia maculata*)	Vulnerable	**Likely to occur.** Not recorded within the Study area during surveys despite targeted survey effort but recorded 2.6 km and 7.5 km southeast of the Action area during survey activity in 2021, 2022 and 2023 by Ausecology (2024a) (***Figure 5***). These records appear to have been collected in remnant Brigalow communities. Scattered records in the wider area including 2012 records located 8 km northeast and 2010 records 7 km south (ALA 2025) (***Figure 4***). Habitat within the Study area itself is heavily disturbed and generally quite marginal for the species. Limited habitat present (***Figure 7*** in ***Section 6.1.2***).

4 Proposed Action Impacts

The Proposed action's potential to directly and/or indirectly impact MNES, including TECs and habitat for threatened flora and fauna, is described in the following subsections.

The Disturbance footprint (where direct impacts are limited to) is 79.06 ha and occurs within the Action area (***Figure 1***). Given the relatively benign nature of the Proposed action's operation phase, most impacts (if not all) are expected to occur during the construction phase as described in ***Section 2.1***.

These impacts are discussed in detail in the following subsections.

4.1 Direct Impacts

4.1.1 Vegetation Clearing

The clearing of woody vegetation is a direct impact of the Proposed action on the ecological values of the Action area. Land clearance is listed as a key threatening process under the EPBC Act. The removal of habitat may reduce the size of local populations of flora and fauna dependent on that habitat. These impacts are immediate and may be significant in the short-term for species that may use the impacted area.

The Disturbance footprint encompasses a total of 79.06 ha, of which 48.56 ha is identified as modified non-remnant lands with little value to MNES (***Plate 3***). The Proposed action will impact 8.10 ha of woody vegetation in remnant vegetation communities and a further 21.83 ha of immature and low-growing woody regrowth. Much of this has been impacted by previous clearing to some degree and some communities (such as RE 11.8.5) provide a very sparse open woodland canopy cover (***Plate 4***). The woody regrowth present within the Disturbance footprint is considered to be of 'non-remnant' status under State vegetation mapping definitions (e.g. Neldner et al. 2017). Regrowth vegetation within the Disturbance footprint provides limited value for MNES. For example, very little of the regrowth Brigalow communities present are of a condition that's characterised as the Brigalow TEC (as defined in Ausecology 2024a).

Plate 3: Non-remnant lands in south of Action area

Plate 4: E. orgadophila open woodland (RE 11.8.5) in north of Action area

The Disturbance footprint has been designed to avoid sensitive ecological values as much as is feasible, and during the design phase the location and configuration was subject to several revisions in order to avoid identified higher value habitats. Through this process, the impact on Brigalow TEC has been largely avoided, where 0.04 ha will be unavoidably impacted.

Impacts on the Natural Grasslands TEC and habitat for *D. queenslandicum* have been substantially reduced through the elimination of 'clearing and grubbing' works through the majority of the Action area where this community occurs. Instead, the Disturbance footprint has been designed to be limited to a 10 m wide track that will be grubbed and graded for construction (thereby removing root mass of grasses), outside of this area grassland will only be slashed. The disturbance associated with footings (minor earthworks and concreting) for the poles will also be located within the 10 m wide access track. Overall, this will disturb 0.57 ha of Natural

Grasslands TEC. The access track will not be actively rehabilitated on completion of construction but will be allowed to regenerate naturally with groundcover (grasses), where slashing will be undertaken to maintain safe access.

The Disturbance footprint is therefore up to 50 m wide within REs that contain woody vegetation and reduces to only the 10 m wide access track within grassland REs (i.e., only slashing, rather than clearing and grubbing, will occur outside the access track in grassland).

Post construction, the Action area will be subject to maintenance slashing (when required) and will remain subject to cattle grazing (as is currently the case).

Regrowth vegetation within the Disturbance footprint provides limited value for MNES. For example, very little of the regrowth Brigalow communities present are of a condition that would be characterised as the Brigalow TEC. Habitat for Greater Glider has been characterised by the presence of foraging habitat within or adjacent to large hollow-bearing trees which generally do not occur in regrowth areas. The characteristics of habitat types used to describe the habitat present within the Study area are detailed in Section 3.6 of ***Appendix D***. Koala habitat mapping has been revised based on habitat descriptions outlined in DAWE (2022a). The extent of MNES values identified within the Disturbance footprint that are assessed for potential impacts is provided in ***Table 4-1*** and depicted in the habitat mapping figures in ***Figures 6-11***. The significance of these impacts is assessed in ***Section 6***.

Table 4-1: Proposed Action Habitat Clearing Extents Relating to MNES

MNES values	Temporary impact extent (ha)	Permanent impact extent (ha)[1]
TECs		
Natural Grassland TEC	0.57	-
Brigalow TEC	-	0.04
Threatened species habitat		
D. queenslandicum	0.57	-
Squatter Pigeon	22.73[2]	-
Koala	17.57[2]	-
Greater Glider	-	7.22[2]
Ornamental Snake	0.19[2]	-

[1] It is noted that the impact extents overlap for many of these MNES, and the areas are not intended for a cumulative total calculation.

[2] Impact extent is calculated based on impacts to all habitat types (preferred, suitable and marginal).

4.1.2 Fragmentation, Connectivity and Edge Effects

Highly fragmented habitats support fewer species than connected blocks of habitat of the same size. This is because fragmentation restricts dispersal of fauna and plant seeds between available habitat. The impacts of habitat fragmentation depend on the degree to which dispersal is inhibited by habitat gaps, the size of the remaining habitat fragments, and ecological attributes of the species.

Much of the landscape associated with the Disturbance footprint has been heavily impacted by previous tree clearing for cattle grazing purposes. A number of extant communities are either grasslands (RE 11.4.4 and 11.8.11) or comprise a very open canopy (RE 11.8.5). Infrastructure for the Proposed action has been situated in areas already cleared of vegetation wherever possible. There will be minor clearing of remnant woody vegetation required. This impact will be linear and up to 50 m in width. Most of the MNES species with potential to be present are mobile species that will not be impacted by the Proposed action. There will be little and largely temporary impact to landscape connectivity and habitat fragmentation as a result of the Proposed action for these species. However, there is potential for Greater Glider to be impacted where the species habitat is intersected by the north-western section of the Disturbance footprint (refer ***Section 6.4.3*** for further discussion).

The habitats that remain extant in the Study area are already subject to the potential for edge effects caused by increased exposure to wind and sun (caused by previous tree clearing and thinning practices) as well as substantial weed invasion observed in the ground cover. As noted above, some of the vegetation communities present are already very open in structure, and hence are unlikely to be subject to edge effects as a result of

the Proposed action. The Proposed action is proposing to clear a relatively minor extent of wooded habitat in an already disturbed landscape and is considered to have a negligible impact on increasing the impact of edge effects within the local area.

Refer to ***Sections 6.4.2*** and ***6.4.3*** for detailed discussion on fragmentation and ongoing connectivity opportunities for Koala and Greater Glider, respectively.

4.1.3 Fauna Mortality

Clearing of vegetation for the Proposed action construction presents a risk of direct mortality or injury to fauna. Fauna of low mobility are at risk of injury or death from tree felling and heavy machinery/vehicular movements during the construction of the Proposed action.

The operational phase is unlikely to add to this impact due to the benign nature of the Proposed action's operation phase. There will be occasional vehicle movements associated with maintenance access where required. As such, potential injury or mortality from vehicle movements is considered to be a very low risk during operations.

4.1.4 Weeds and Pest animals

Introduced weeds have the potential to impact on terrestrial ecological values as native flora can become displaced through competition with weed species and adversely affected by browsing and soil trampling caused by feral herbivores. Native fauna populations, particularly small to medium sized species, may be impacted by predation from introduced carnivores, such as feral cats. Wild dog and feral cats were recorded onsite and Red Fox is also likely present. These are indirect impacts which are already present and likely have been exacerbated by existing cattle grazing activities within and near the Action area.

The Disturbance footprint (and broader Study area) is often dominated by Buffel Grass in the ground layer throughout and Parthenium was observed to be common. Both are invasive species and Parthenium is listed as a Weed of National Significance under the EPBC Act.

The following activities associated with the Proposed action have the potential to promote the proliferation of weeds and pests within the Disturbance footprint (and Study area), or introduce new weeds and pests from surrounding areas:

- The use of construction machinery, plant and materials sourced from outside the region and increased vehicular traffic in general may introduce and spread weed seeds if biosecurity hygiene measures are not in place.
- Land clearance favours the establishment of weeds due to increased light and soil disturbance.
- Inappropriate disposal and storage of putrescible wastes may attract feral animals.

Clearing of ground cover within the Disturbance footprint is restricted to the 10 m wide access track. This will minimise the potential for weeds to establish within the Action area (where they do not already occur). The main threat is the introduction of new weeds to the area via contaminated vehicles or soils.

4.2 Indirect impacts

4.2.1 Airborne Dust and Noise

Earthworks and vehicular traffic can generate dust, particularly during dry weather (Field et al. 2010). Dust can have both a physical and chemical impact on plants, either through the smothering of leaves, whereupon the rate of deposition is important, or through chemical changes to the soil or directly to the plant surface.

The clearing of ground cover during construction will be minimal and restricted to the 10 m wide access track. This will minimise the extent of exposed soils potentially subject to dust entrainment during dry and windy weather. The proposed access track will be allowed to regenerate naturally on completion of construction. Therefore, the impact of dust settlement from the Proposed action is considered temporary (construction phase) and negligible at worst.

Understanding of the impacts of noise on fauna is limited. There are no current government policies or guidelines that recommend noise thresholds or limits for development activities to mitigate potential harm to fauna. Noise may affect wildlife through a variety of impacts such as:

- Interfering with communication calls
- Interfering with foraging/defence through cloaking the sound of predators and prey
- Causing general stress or avoidance reactions
- Changes in reproductive or nesting behaviours.

Excessive noise may lead some species to avoid noisy areas, which could result in the localised fragmentation of habitat at the species or individual territory level. Overall, noise impacts from the Proposed action to the surrounding habitat will be almost entirely restricted to that emitted during construction activities. Given the Proposed action is located close to PDM operations, which already generates noise impacts, the potential additional impacts from the Proposed action are considered temporary (construction phase) and negligible at worst.

4.2.2 Bushfire

The Disturbance footprint is located within largely cleared grazing lands with tracts of sclerophyll woodlands mainly in the west. The woodland areas have potential to be impacted by accidental fires caused by Proposed action activities. Fire hazard mapping for Queensland indicates the mapped woodlands within the Study area as having a 'medium potential bushfire intensity'. Fire is noted as a threatening process on the Brigalow TEC which occurs within the Disturbance footprint (and broader Study area). It is unlikely the Proposed action will further exacerbate bushfire risk.

4.2.3 Water quality

The Proposed action only requires minor excavation works (for power pole footings) and will have no impact on groundwaters. Clearing requiring disturbance of topsoil has also been minimised to the 10 m wide access track. The Proposed action will require clearing along four minor drainage lines including three stream order 1 and one stream order 2. Power line poles will be located outside of drainage lines. Only two of these currently retain woody vegetation cover. All of the creeks are considered highly ephemeral in nature and all drain north from PDM itself (i.e. there is very little catchment draining through the Disturbance footprint and any flows would be minor in extent and short-lived).

The Proposed action has potential to impact surface water and associated aquatic ecology values through a variety of processes:

- During construction disturbance, uncontrolled sedimentation of watercourses (particularly during and following heavy rainfall events) can impact aquatic values by smothering stream beds with fine material, and decreasing bed roughness and reducing habitat diversity.
- Similarly, uncontrolled sedimentation movements associated with construction disturbance may lead to localised increased turbidity and suspended solids which may negatively impact fish and macroinvertebrates (through reduced respiratory and feeding efficiency), and adversely affect submerged aquatic plants as light penetration (required for photosynthesis) is reduced.
- Poorly designed and constructed waterway crossings may create waterway barriers that prevent or impede movements of aquatic fauna.
- Waterway crossings may cause bank instability if remediation works are not adequately designed and implemented. This may lead to bank erosion (causing impacts to instream sedimentation and turbidity) and adverse impacts to riparian vegetation.

5 Avoidance, Mitigation and Management Measures

BMA has implemented the hierarchy of management principles in the planning for and development of the Proposed action. These principles and the order in which they have been applied is as follows.

- Avoidance: Avoiding direct and indirect adverse impacts where possible through design.
- Mitigate: Mitigating direct and indirect adverse impacts where impacts cannot be avoided through actions to reduce likelihood or severity of impacts occurring such as modifying design (e.g. employing specialist clearing and construction methods, reducing vehicle speed limits).
- Manage: Implement management actions to prevent or reduce impacts occurring such as weed and feral animal control, fire management. These actions are often over a longer timeframe.

5.1 Avoidance Measures

The avoidance and minimisation of impacts to environmental values and potential MNES habitat have been a major consideration during the planning of the Proposed action. During the design phase, the Disturbance footprint went through a design refinement process which included the relocation and refinement of the power line to avoid or minimise impacts to ground-truthed MNES wherever possible. The original disturbance impact included a corridor up to 60 m wide for both the main lines and the stub lines. The width of the main line has been reduced by 10 m (now 50 m wide) while the width of the stub lines has been reduced by 30 m (now 30 m wide). The main line width is required to remain at 50 m and could not be reduced any further due to safety and design requirements which are managed under BMA's internal procedure policies for a 66 kV power line.

Significant design changes occurred to avoid fragmenting patches of potential habitat through shifting the alignment to the edges of these patches where possible. This includes shifting the alignment to almost completely avoid impacting on the Natural Grassland TEC, and avoid the clearing of mature trees as much as practical to minimise potential impact to Greater Glider and Koala, should the species occur. Further, where necessary clearing could not avoid ground-truthed MNES potential habitat, proposed disturbance has been limited to marginal habitat as much as practicable.

To minimise the proposed vegetation clearing impacts, activities involving grubbing and topsoil removal will be restricted to the construction access track situated within the power line corridor (i.e., located within the above-nominated widths for main lines and stub lines), which will be up to 10 m wide. Topsoil and natural grassland will remain intact within the remaining width of the corridor, with only trees and shrubs required to be removed to reduce the fire hazard and maintain safe operational clearance for the power lines. Regarding the Natural Grassland TEC, this results in a significantly reduced permanent impact, where the original extent to be impacted was 2.55 ha, which through the avoidance process has been reduced to 0.57 ha.

Importantly, the 10 m wide construction access track will not be formalised as a gravel access track which would typically result in preventing the vegetation regrowth. Instead, it will be allowed to regenerate naturally with groundcover following completion of construction of the power lines, and will be subject to weed management to support the regeneration of the natural grassland. During the operational life of the power line, the entire area will be managed through slashing and grazing to keep fuel loads controlled in the corridor and to allow continued maintenance access.

Overall, the refinement of the Disturbance footprint has minimised the direct impact to vegetation communities that have been ground-truthed as potential habitat for MNES.

5.2 Mitigation and Management Measures

An MNES Management Plan (MMP) has been developed in accordance with the Department's Environmental Management Plan Guidelines and is provided in ***Appendix D***. The MMP describes the proposed avoidance, mitigation and management measures to be implemented for the potential impacts identified in ***Section 4***.

The main objectives of this MMP are to:

- No unauthorised clearing of vegetation including identified TECs and MNES species.
- No fauna mortality during vegetation clearing or vehicle movements.
- No incursion of a novel weed species or proliferation of existing weed species.

- No uncontrolled bushfires resulting from Proposed action.
- No unauthorised impacts to terrestrial or aquatic habitat.

To achieve these management objectives, the proposed avoidance, mitigation and management measures for each potential impact will be implemented are summarised in ***Table 5-1***.

The Proposed action will work under the project specific MMP (***Appendix E***), as well as existing BMA operational management plans and procedures, including bushfire management, weed and feral animal management, and erosion and sediment control.

The Proposed action includes extensive avoidance and mitigation strategies to minimise impacts on critical habitats and threatened species, aligning with Australia's commitments under the Biodiversity Convention. Furthermore, the Apia Convention and CITES are not considered relevant to the Proposed action, as it does not entail international wildlife trade or cross boundary ecological impacts.

Recovery plans for the relevant species have been considered in the impact assessment in ***Section 6.4***.

Table 5-1: Proposed mitigation measures for impacts resulting from Proposed action

Impact	Key mitigation measures/controls	Timing for Implementation	Responsibility	Monitoring for Effectiveness	KPI and Corrective actions
Vegetation clearing impacting MNES habitat	Minimise: Employees and contractors will be made aware of environmental obligations and compliance requirements, including MNES, prior to commencing disturbance activities.	Daily pre-start meeting to occur throughout construction period.	Construction Supervisor (or delegated pre-start meeting leader)	Weekly check of pre-start records by Environment Team.	KPI: All pre-start meetings address environmental requirements, including MNES compliance. Corrective Actions: Environment Team review and provide input to pre-start meeting agenda to correct. If determined by Environment Team that additional focus is required, training and awareness package will be implemented to all employees and contractors prior to individuals' involvement in any disturbance activities associated with MNES habitat.
	Avoid: Vegetation/habitat clearing extents will be clearly demarcated and no clearing to occur outside the delineated boundaries.	Demarcation to be installed immediately prior to disturbance activities and to remain in place for the duration of the construction period.	Construction Supervisor	Weekly visual inspection of demarcation for intactness during construction period. Daily monitoring of clearing works completed during the construction period to confirm disturbance is in accordance with demarcation requirements.	KPI: No clearing of identified TECs and MNES species habitat outside authorised boundaries. Corrective Action: In the event demarcation effectiveness is compromised, the Construction Supervisor will repair immediately. Clearing in immediately adjacent areas will be paused while repair occurs. Corrective Action: In the event of unauthorised clearing, action will be taken immediately to avoid further unauthorised clearing. An incident investigation by the Environment Team will commence within 48hrs of being made aware of the event, and will: 1. identify and describe any potential harm to MNES and 2. evaluate actions that led to the incident occurring. Through the investigation process, corrective actions will be identified within one month of the event that commensurate with the cause identified and scale of harm. Specific corrective actions will be dependent on the nature of an incident and specialists subject matter expert input may be required (for example qualified Ecologists). Examples include:
	Avoid and Minimise: Disturbance to groundcover and topsoil will be restricted to a clearly demarcated 10 m wide access track. All other disturbance within the Action Area will be limited to woody vegetation removal and slashing (and not disturbance to groundcover and topsoil).				

Impact	Key mitigation measures/controls	Timing for Implementation	Responsibility	Monitoring for Effectiveness	KPI and Corrective actions
					• Consider if impact to MNES values requires provision of an offset. • Remediation works. • Revise demarcation procedures or techniques (e.g., implementation of alternative demarcation tools). The outcomes of the investigation will document the impact to MNES and identify the required corrective actions, responsibility and timeframes for completion. Reporting to the relevant Regulators may be required.
Fauna mortality	Avoid: Licensed Fauna Spotter Catcher/s (FSC) will conduct pre-clearance surveys where vegetation clearing is to occur (including in MNES habitat areas) to detect habitat features and individuals that may require relocation. Note: FSC will be licenced under the *Nature Conservation Act 1992* (Qld) and have the appropriate fauna handling and relocation permits and equipment to manage the FSC process. The length of surveys and exact timing will be determined on-ground by the FSC.	Within 24hrs prior to clearing activities, an FSC will complete the pre-clearance survey on-ground across the area where vegetation clearing is to occur.	FSC engaged by the Construction Supervisor	Confirmation of pre-clearance survey in pre-start meeting prior to clearing.	KPI: No clearing works undertaken without a pre-clearance assessment completed by an FSC. Corrective Action: No clearing activities to be undertaken (stop work) where no pre-clearance survey found to have taken place. Construction Supervisor to arrange for survey to be completed prior to commencement of vegetation clearing activities.
	Avoid and Minimise: Licensed FSC/s will actively monitor the clearing front during vegetation clearing activities. During clearing, the FSC is responsible for physical relocation of fauna or encouragement of individuals to self-relocate. Habitat features (hollow	During all vegetation clearing activities for the duration of the Construction period.	FSC	Confirmation at daily pre-start meeting that an FSC is present for any planned vegetation clearing activities. During the progression of clearing works, monitoring of the	KPI: No fauna mortality during the construction period (vegetation clearing activities or Construction period vehicle movements). Corrective Action: Environment Team and FSC to review processes and confirm all reasonable measures were undertaken. If deemed additional processes are required, these are to be implemented before clearing activities recommence.

Impact	Key mitigation measures/controls	Timing for Implementation	Responsibility	Monitoring for Effectiveness	KPI and Corrective actions
	logs/limbs, coarse woody debris) within identified MNES habitat can also be relocated to suitable habitat outside of the Action Area. In the event an individual threatened species is encountered within an area proposed for clearing (e.g. Koala, Greater Glider), the FSC is to direct all on-site personnel (i.e. provide instructions) to manage the individual and minimise harm.			clearing front will be included in daily environmental inspections. Daily report from FSC provided to Construction Supervisor.	Reporting to the relevant Regulators may be required.
	Minimise: In the event injured fauna are encountered during clearing activities, the FSC will be responsible for the management of the individual/s. Management will be in accordance with the *Code of Practice: Care of Sick, Injured or Orphaned Protected Animals in Queensland* (approved under the *Nature Conservation Act 1992* (Qld)).	Procedures to be defined and in place prior to commencement of clearing activities and available for implementation for the duration of the Construction period.	FSC	Daily report from FSC provided to Construction Supervisor.	KPI: Daily reports capture details of any injured MNES and include record of actions taken to manage the individual/s. Corrective Action: In the event the FSC is not fulfilling the requirement, a new FSC will be engaged to be present during the remainder of the Construction period.
	Minimise: Speed reduction measures (e.g., 30 km/hr) will be established to limit the potential for vehicle collision with wildlife on corridor access track. Construction personnel will be made aware of speed limits during site inductions. Personnel will be required to report any vehicle-wildlife collisions to Construction Supervisor.	Speed limits to be defined (and sign-posted) prior to the commencement of Construction and maintained for the life of the Project.	Construction Supervisor (during construction period). Operations manager (at completion of the Construction period).	Weekly checks of signage by Construction Supervisor during the Construction period. Construction Supervisor to collate all reports of collision and Environment Team to maintain in a register.	KPI: No reports of vehicle-wildlife collision during the Construction period. Corrective Action: Construction Supervisor and Environment Team to review location and type of collision to identify any high-risk areas for further speed reduction and make changes to locations of implementation within one month of KPI not being met. Other corrective measures will be specific to the location and type of event such as increased signage or increased awareness education for Construction personnel.
Weeds and pests	Minimise: The existing BMA Weed and Feral Animal Management procedure will be implemented to manage invasive	Implementation of the procedures to commence immediately prior to disturbance activities and to	Construction Supervisor	As per BMA Weed and Feral Animal Management procedure. Weekly	KPI: No incursion of a novel weed species. No proliferation of existing weed species.

Impact	Key mitigation measures/controls	Timing for Implementation	Responsibility	Monitoring for Effectiveness	KPI and Corrective actions
	species. Measures will be in line with current best management practices associated with PDM.	remain in place for the duration of the Construction period.		inspections to monitor weeds will occur during the Construction period.	Corrective Actions: Appropriate corrective actions will be identified within one month of being aware of the KPI not being met, and will be commensurate with the type of incursion and specific requirements of the relevant weed species. This will be as per BMA Weed and Feral Animal Management procedure. This will include additional targeted weed treatment using the following methods (method will be selected based on type of weed species being targeted): • Manual /hand removal (small scale infestations). • Mechanical (to control competitive weeds between trees using chainsaws, brush cutters, slashers, mowers, ploughing etc.). • Chemical (application using appropriate herbicide via foliar spraying, basal barking, stem injection or cut and paint, drill and fill, cut stump, wick applicator). • Biological (per Biosecurity Queensland's website guided by the conclusions from their most recent research projects).
	Avoid: Vehicle wash-downs will be required for all vehicles new to the site (including earthmoving and other construction machinery) entering the Disturbance footprint, in accordance with BMA Weed and Feral Animal Management procedure.	Implementation of the procedures to commence immediately prior to disturbance activities and to remain in place for the duration of the Construction period.	Construction Supervisor	Evidence of wash-downs of any vehicles new to the site provided to Construction Supervisor upon entry to Construction area.	KPI: All new vehicles complete wash-downs in accordance with the procedure prior to entry to the Construction area. Corrective Actions: Vehicles without evidence to be refused entry until appropriate evidence can be provided to the Construction Supervisor.
	Manage: In the area of Grassland TEC where disturbance for 10 m wide access track is required, the corridor will be allowed to naturally regenerate and will be subject to ongoing weed management and maintenance activities.	To commence immediately following completion of Construction at the Grassland TEC location.	Environment Team	Inspection of Grassland TEC areas within the Disturbance footprint weekly to detect weed invasion until native groundcover is established.	KPI: Area of disturbed Grassland TEC naturally regenerates to condition directly adjacent. Corrective Actions: Where inspections detect weed invasion targeted weed management will be undertaken within one month. The management approach will be dependent on the type of weed (and recommended species-specific management approaches) and scale of invasion.

Impact	Key mitigation measures/controls	Timing for Implementation	Responsibility	Monitoring for Effectiveness	KPI and Corrective actions
Bushfire	Avoid: The existing BMA Site Bushfire Management Plan will be implemented for the Proposed action.	Implementation of the plan immediately prior to disturbance activities and to remain in place for the duration of the Construction period.	Construction Supervisor	As per BMA Site Bushfire Management Plan.	KPI: No uncontrolled fire caused by the Action that compromises the MNES values within the Action area. Corrective Actions: In the event a fire is caused by the activities of the Action and compromises the MNES values of the Action area, an incident investigation will commence by the Environment Team within 48hrs of being made aware of the event to: 1. identify and describe any potential harm to MNES and 2. evaluate actions that led to the incident occurring. Through the investigation process, corrective actions will be identified within one month of the event that commensurate with the cause identified and scale of harm. Specific corrective actions will be dependent on the nature of an incident and specialist subject matter expert input may be required (for example qualified ecologists). Examples include: • Consider if impact to MNES values requires provision of an offset • Remediation works • Revision of bushfire management approaches The outcomes of the investigation will document the impact to MNES and identify the required corrective actions, responsibility and timeframes for completion. Reporting to the relevant Regulators may be required.
	Minimise: Monitor weather conditions to identify potential for increased bushfire hazard. Delay of work considered where high-risk fire conditions identified.	Implementation of the plan to commence immediately prior to disturbance activities and to remain in place for the duration of the Construction period.	Construction Supervisor	Daily check by site Construction Supervisor prior to commencing activities.	
	Minimise: Work sites will include designated smoking areas.	Designations to be defined to personnel immediately prior to disturbance activities and to remain in place for the duration of the Construction period.	Construction Supervisor	Daily visual housekeeping inspections by Construction Supervisor. Site personnel encouraged to report unsafe practices.	
Surface water	Avoid: Erosion and sediment controls for the Disturbance footprint will be implemented in line with PDM's Erosion and Sediment Control Plan (ESCP). Minimise: Wherever possible, works within a watercourse will be conducted in the following order of preference:	Implementation of the plan to commence immediately prior to disturbance activities and to remain in place for the duration of the Construction period.	Construction Supervisor	As per PDM ESCP.	KPI: Erosion or sediment controls are in place and maintained for the duration of the Construction period and manage impacts to MNES values. Corrective Action: Ineffective controls identified to be immediately repaired or replaced with appropriate measures. Environment Team to commence investigation within 48hrs of being made aware of the event to: 1. identify and describe any potential harm to MNES and

Impact	Key mitigation measures/controls	Timing for Implementation	Responsibility	Monitoring for Effectiveness	KPI and Corrective actions
	1. Conducting works when no water is present 2. Conducting works in times of no flow				2. evaluate actions that led to the incident occurring. Through the investigation process, corrective actions will be identified within one month that commensurate with the cause identified and scale of harm (if harm confirmed). Specific corrective actions will be dependent on the nature of an incident and specialist subject matter expert input may be required (for example qualified ecologists, contaminated land specialists). Examples include: • Consider if impact to MNES values requires provision of an offset • Remediation works • Revision of containment or other procedures
	Avoid: Applicable materials/chemicals for the Proposed action will be stored within storage/bunded sites in the PDM mine infrastructure area.	Infrastructure to be established prior to commencing the Action and remain in place for the duration of the Construction period.	Construction Supervisor	Weekly environmental inspection by Construction Supervisor.	KPI: No chemical spills outside designated areas. Corrective Action: Spills to be immediately contained and managed in accordance with Spills Response Procedure. Environment Team to commence investigation within 48hrs of being made aware of the event to: 1. identify and describe any potential harm to MNES and 2. evaluate actions that led to the incident occurring. Through the investigation process, corrective actions will be identified within one month that commensurate with the cause identified and scale of harm (if harm confirmed). Specific corrective actions will be dependent on the nature of an incident and specialists subject matter expert input may be required (for example qualified ecologists, contaminated land specialists). Examples include: • Consider if impact to MNES values requires provision of an offset • Remediation works • Revision of containment or other procedures
	Avoid: Washdowns and refuelling will be carried out within designated areas, away from watercourses.				

6 Impact Assessment

Based on desktop and field survey observations a number of MNES were considered when assessing the Proposed action's impacts. This comprised two TECs and eight species listed as threatened under the EPBC Act (***Table 6-1***).

Of the MNES listed in ***Table 6-1***, five were identified as requiring additional assessment to understand the significance of proposed impacts to the TEC, species and/or species habitat. Significant impact assessments have been undertaken in accordance with the *MNES Significant Impact Guidelines 1.1* (MNES Guidelines) (DoE 2013a) and are provided in Section 5 of ***Appendix C***, and are summarised in ***Sections 6.2, 6.3*** and ***6.4***.

Section 6.1 identifies and provides justification for why some MNES are considered to not require further assessment of the significance of the proposed impacts.

Table 6-1: MNES with the potential, likely or known likelihood of occurrence

MNES values	EPBC Act status	Likelihood of occurrence
TECs		
Natural Grassland TEC	Endangered	Known
Brigalow TEC	Endangered	Known
Threatened species		
Squatter Pigeon (southern)	Vulnerable	Known
Koala	Endangered	Known
Greater Glider	Endangered	Known
Ornamental Snake	Vulnerable	Likely
Australian Painted Snipe	Endangered	Potential
Sharp-tailed Sandpiper	Vulnerable, Migratory	Potential
White-throated Needletail	Vulnerable, Migratory	Potential
D. queenslandicum	Endangered	Potential

6.1 MNES Not Subject to Significant Impact Assessment

The proposed impacts identified and described in ***Section 4*** are not considered to be of a magnitude that is likely to significantly impact the MNES detailed in the following subsections. Therefore, a significant impact assessment has not been undertaken for these MNES.

6.1.1 Brigalow TEC

The Proposed action occurs in a highly disturbed landscape impacted by cattle grazing activity and Brigalow has been subject to substantial impact from past clearing as a result. The Disturbance footprint (and broader Study area) also suffers from infestation of invasive weeds including Buffel Grass (*Cenchrus ciliaris*), *Harrisia martinii* and *Parthenium hysterophorus* (Ausecology 2024a). The Disturbance footprint has been substantially revised during the design process and has minimised impact on occurrences of Brigalow TEC where possible. The Disturbance footprint will impact approximately 380 m^2 (~0.04 ha) of Brigalow TEC located along 60 m of the edge of a much larger patch (29.10 ha) (***Figure 6***). The patch comprises Brigalow regrowth with varying infestations of weedy ground cover (Ausecology 2024a). The clearing of woody vegetation within the easement will be maintained over the life of the Proposed action, although groundcover (such as grasses) will be allowed to regenerate.

Ground cover will be retained throughout the Disturbance footprint except for the temporary ground cover removal along a 10 m wide access track. This disturbance will be allowed to naturally regenerate following completion of construction. The clearing within the small area of the TEC will not cause fragmentation of a larger patch. The Proposed action does not require landform earthworks that may influence abiotic factors (such as

groundwater levels or changes to surface water flows). Other potential threats to the TEC such as the impact of fire and weed invasion are considered a low to negligible risk and will be managed under BMA's MMP or company-wide bushfire management plan. The main impact from the Proposed action will be during construction and is therefore considered temporary in nature. The proposed clearing is very minor in extent and is unlikely to have a significant impact on Brigalow TEC, and is therefore not referred to further in this assessment.

6.1.2 Ornamental Snake

The Disturbance footprint and broader Study area are mapped as occurring within the known/likely distribution of the Ornamental Snake (DCCEEW 2026). The species was not recorded within the Study area during surveys for the Proposed action. However, individuals were recorded by Ausecology approximately 3 km southeast of the Study area (***Figure 5***). The Disturbance footprint will impact 0.19 ha of marginal habitat for the species as per the habitat definitions of Kerswell et al. (2020) (Ausecology 2024a). Marginal habitat is described as "*areas currently or previously dominated by brigalow or coolibah communities where gilgais or soil cracks are infrequent or are shallow or non-remnant areas where threats are high (high abundance of weed incursion and cattle compacting soils) but the species still have potential to occur*." No preferred or suitable habitat was observed within the Disturbance footprint (***Figure 7***).

There are no identified important populations or definitions of habitat critical to the survival of Ornamental Snake. The *Draft referral guidelines for the nationally listed Brigalow Belt reptiles* (Referral guidelines) (DCCEEW 2023b) considers the presence of important habitat for this species a surrogate for an important population. The Referral guidelines describe important habitat as 'gilgai depressions and mounds'. The Disturbance footprint only intersects habitat mapped as marginal for the species. As such, important habitat is not considered to occur.

The Referral guidelines note that clearing of two or more hectares of important habitat may comprise a high risk of a significant impact on the species. Clearing one hectare or less is considered a low risk of significant impact on the species. The Proposed action is proposing to clear 0.19 ha of marginal habitat for Ornamental Snake. Other known threats to the species include feral Pigs (*Sus scrofa*) and Cane Toad (*Rhinella marina*) ingestion (DE 2014). Both species have been recorded regularly in the Study area and surrounds during surveys for the Proposed action from 2021 to 2024 (Ausecology 2024a). The Proposed action will not feasibly increase the abundance of either species in the area. A significant impact is considered very unlikely to occur and the species is not referred to further hereafter.

6.1.3 Glossy Ibis, Australian Painted Snipe, Caspian Tern, Australian Tern and Sharp-tailed Sandpiper

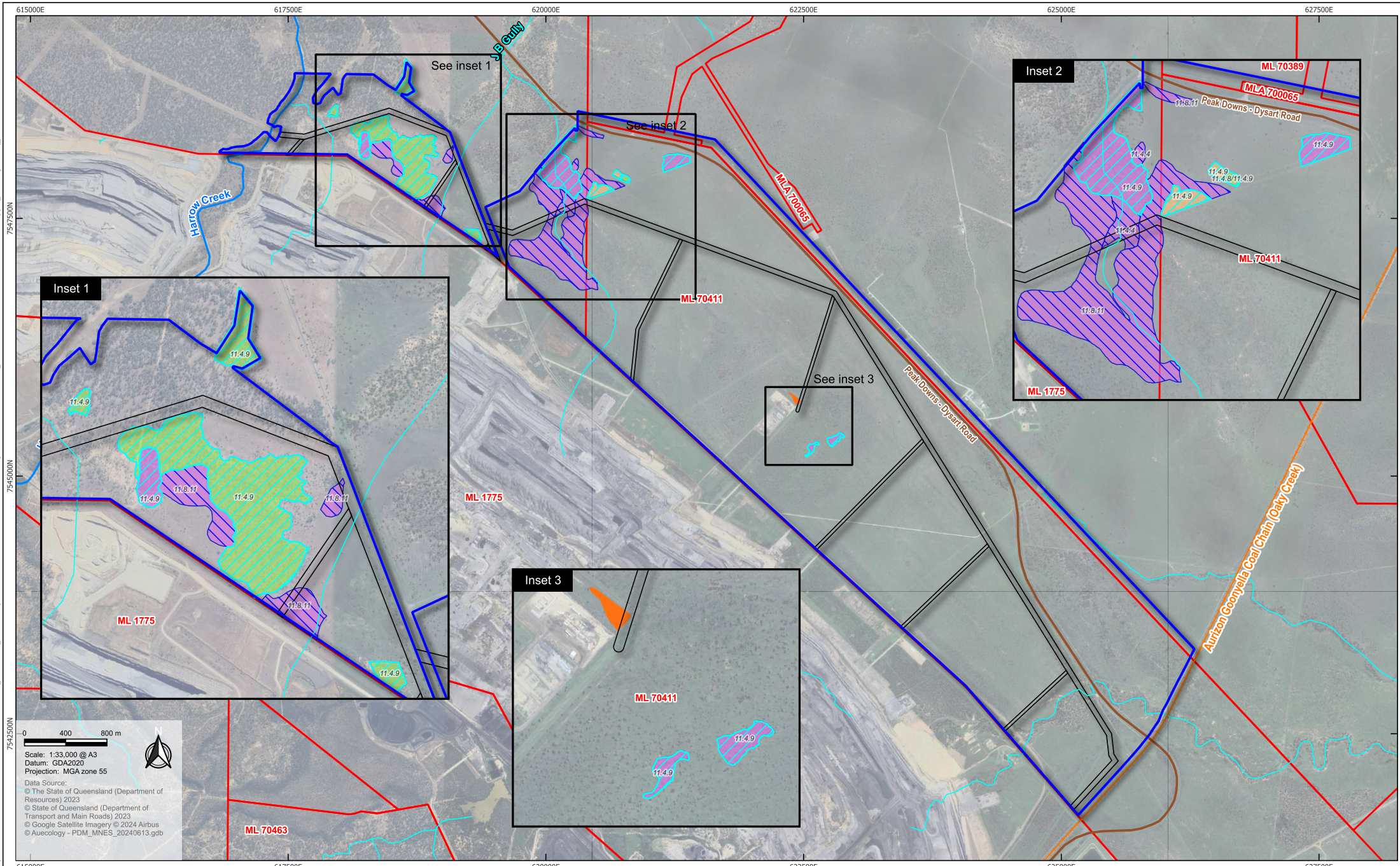
Glossy Ibis, Australian Painted Snipe, Caspian Tern, Australian Tern and Sharp-tailed Sandpiper are all considered a possible occurrence as associated with the Disturbance footprint. Caspian Tern and Australian Tern have been recorded to the south in association with a large dam, but habitat within the Study area itself appears minor with suitable habitat becoming temporarily available only after significant rainfall events. Potential wetland habitat for these species is generally limited within the Study area to a single artificial and ephemeral wetland area located adjacent to mining infrastructure (***Figure 6***). This area is relatively small and would be considered only as occasional foraging habitat for Australian Painted Snipe (suitable habitat features for breeding are not present) (Ausecology 2024a). Other potential ephemeral wetlands comprising gilgais are not intersected by the Action area.

It is noted the mapped wetland area has been reduced from that presented previously (refer Appendix A-10 in Ausecology 2024a) which encompassed a much broader area including lands that are very unlikely to be subject to inundation (including the adjacent industrial yard).

The waterbody is located within 30 m of existing industrial disturbance (explosives yard). A single 30 m wide stub line intersects the edge of the wetland area. No power line footings are located within the wetland area. Clearing for the 10 m wide access track will be located outside (east of) the waterbody. While there may be a temporary disturbance to wetland bird species (should any be present), following construction of the power line there will be no more disturbance on the wetland area from the Proposed action. There is no other suitable habitat located within the Study area. There are no other potential threats; a significant impact is not considered possible for any of these species, and therefore, they are not addressed further in this assessment.

6.1.4 Aerial Foraging Bird Species

Fork-tailed Swift and White-throated Needletail are almost entirely aerial in their foraging and resting habits when in Australia (i.e. they are rarely recorded roosting). They may be found over a variety of habitats, including open areas, modified lands and the ocean but are most often observed over wooded areas (Higgins 1999). The airspace above the Disturbance footprint will only comprise ephemeral foraging habitat. The Proposed action requires negligible clearing of woody vegetation and there is abundant woodland habitat in the wider area surrounding the Disturbance footprint. The Proposed action will have negligible (if any) impact on the availability of potential foraging habitat for this species.



Legend

- Study area
- Action area
- Mining leases
- Wetland
- Railways
- State controlled roads

Vegetation management watercourses and drainage features v7.0

- Major
- Minor

Ground-truthed regional ecosystems

- Remnant
- High-value regrowth
- Regrowth

Ground-truthed threatened ecological communities

- Brigalow TEC
- Natural Grasslands TEC

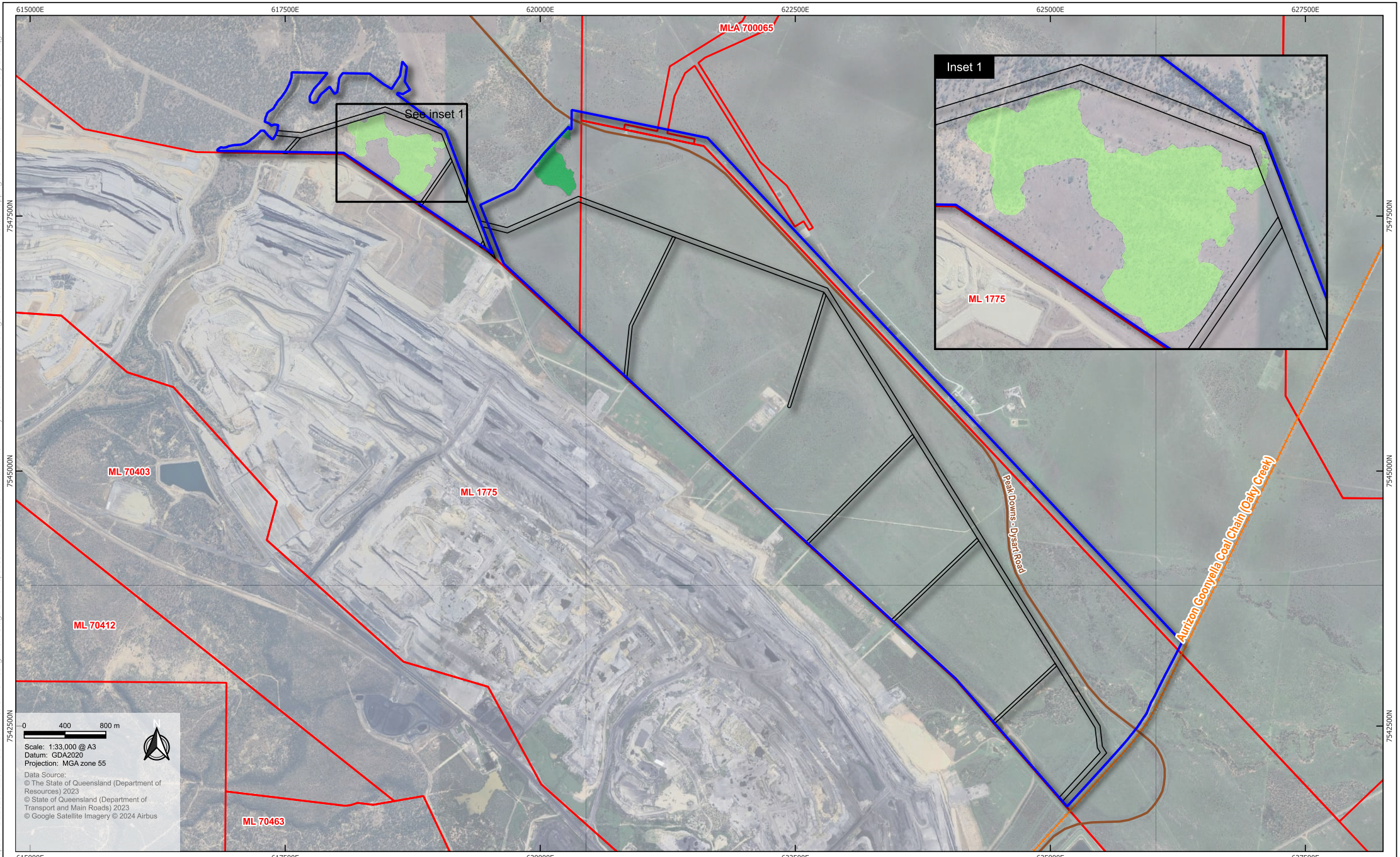
epic A Montrose Environmental Company

BMA BHP Mitsubishi Alliance

BM Alliance Coal Operations Pty Ltd
Peak Downs Power Line Realignment
PDM Preliminary Documentation

Figure 6
Ground-truthed TEC and wetland mapping – Study area

Filepath: ...\BE2020\BE200178.01 BHP Powerline Realignment Stage 2\Workspaces\BAA2400122.0111 PDM Preliminary Documentation\Rev 0\Figure 6 Ground-truthed TEC and wetland mapping – Study area.qgz



Legend

- Study area
- Action area
- Mining leases
- State controlled roads
- Railways

Ornamental Snake habitat

- Preferred
- Marginal

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Peak Downs Power Line Realignment
PDM Preliminary Documentation

Figure 7
Ground-truthed habitat mapping for Ornamental Snake – Study area

Filepath: -BE2020\BE200178.01 BHP Powerline Realignment Stage 2\Workspaces\BAA2400122.01\1. PDM Preliminary Documentation\Rev 0\Figure 7 Ground-truthed habitat mapping for Ornamental Snake – Study area.qgz

6.2 Summary of Significant Impact Assessment

In general, impacts resulting from the Disturbance footprint will be minor and likely only restricted to the construction phase. Impacts from the operational phase are likely to be benign and restricted to occasional slashing of grasses within the corridors and maintenance activities. Proposed action infrastructure has been located away from MNES values as much as is feasible.

The extent of ground-truthed habitat for MNES values identified within the Disturbance footprint are provided in ***Table 6-2***. The habitat type/category used to describe the habitat present within the Study area is detailed in Ausecology (2024a) and summarised under the relevant species below.

Table 6-2: Extent of ground-truthed habitat for MNES within Disturbance Footprint

MNES values	Associated Habitat Type / Category	Proposed action impact extent (ha)[1]	Significant Impact Likelihood
TECs			
Natural Grassland TEC	N/A	0.57	Unlikely
Threatened species habitat			
D. queenslandicum	N/A	0.57	Unlikely
Squatter Pigeon	Suitable	19.81	Unlikely
	Marginal	2.92	Unlikely
Koala	Preferred & suitable	7.18	Potential
	Marginal	10.4	Unlikely
Greater Glider	Preferred & suitable	6.42	Potential
	Marginal	0.8	Unlikely
Ornamental Snake	Marginal	0.19	Unlikely

[1] It is noted that the impact extents overlap for many of these MNES, and the areas are not intended for a cumulative total calculation

Section 5 of ***Appendix C*** provides the supporting technical significant impact assessment for the MNES identified to be at risk of potential significant impacts from the Proposed action, which was completed in accordance with the MNES Guidelines. The following subsections provide a summary of the significant impact assessments and the findings.

The significant impact assessments for the Natural Grasslands TEC, *Dichanthium queenslandicum,* Squatter Pigeon and Ornamental Snake identified that significant impacts were unlikely to occur as a result of the Proposed action.

The significant impact assessment results indicate there is potential for a significant impact to occur on 7.18 ha of habitat for Koala and 6.42 ha of habitat for Greater Glider. The summary of the significant impact assessments for Koala and Greater Glider are provided in ***Sections 6.4.2*** and ***6.4.3***, respectively (see Table 11 and Table 12, respectively, in ***Appendix C*** for detailed assessments).

6.3 Threatened Ecological Communities Significant Impact Assessment

6.3.1 Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin – Endangered

The Natural Grassland TEC occurs as three separate patches comprising RE 11.8.11 and RE 11.4.4 which are intersected by the western portion of the Disturbance footprint. On-ground classification of the native grassland habitat considered these patches to be of ‘best quality’ or ‘good quality’ (Ausecology 2024a) under the condition classes described in the Approved conservation advice for the Natural Grassland TEC (TSSC 2009).

There is 57.46 ha of Natural Grassland TEC located within the overall Study area. The Disturbance footprint has been refined to minimise impacts and as a result proposes a temporary impact to an overall maximum area of 0.57 ha of the TEC spread across the four RE patches (***Figure 6***). The direct impact will be restricted to a 10 m wide access track which will be cleared and grubbed. The power line poles will be constructed within the access track to minimise direct impacts on the TEC. The cleared track will be allowed to regenerate naturally on the completion of construction of the Proposed action and will be subject to ongoing weed management in line with activities at PDM. The remainder of the Disturbance footprint will be subject to slashing (where necessary) which will not remove the grass species currently present.

Apart from vegetation clearing, other known threats to the TEC include livestock grazing and associated pasture improvement, weeds and pest animals (TSSC 2009). The Disturbance footprint and broader Study area are currently subject to cattle grazing and this will continue upon completion of construction works. Buffel Grass (*Cenchrus ciliaris*) is present and abundant, often dominating the ground layer through large portions of the Study area (Ausecology 2024a). The intrusion of Buffel Grass in areas of the TEC where Buffel Grass is not already present will be subject to monitoring and management as part of the MMP for the Proposed action (refer ***Appendix E***).

Significant Impact Assessment

Table 9 in ***Appendix C*** provides the significant impact assessment for the Natural Grassland TEC based on the Disturbance footprint in accordance with the MNES Guidelines. The assessment considers a significant residual impact to the Natural Grassland TEC is unlikely to occur as a result of the Proposed action.

6.4 Threatened Species Significant Impact Assessment

6.4.1 *Dichanthium queenslandicum* – Endangered

Ecology

Dichanthium queenslandicum (King Blue-grass) is a perennial grass species that occurs in association with other blue grass species (*Dichanthium* and *Bothriochloa* species) on black cracking clay soils. It is generally confined to native blue grass grassland communities on black clays (derived from basalt) on undulating plains. Associated species include: *Aristida leptopoda*, *Bothriochloa erianthoides*, *Dichanthium sericeum*, *Digitaria brownii*, *Digitaria divaricatissima*, *Ipomoea lonchophylla*, *Iseilema vaginiflorum*, *Panicum decompositum*, *Panicum queenslandicum* and *Paspalidium globoideum* (TSSC 2013; DETSI 2025).

The species occurs in three widely separated regions including the Dalby area in southern Queensland, the Central Highlands from Glenden south to Rolleston and west to Clermont, and isolated records north of Hughenden and Charters Towers. The Central Highlands region is the main stronghold for the species (TSSC 2013; ALA 2025).

Association with the Study Area

The species was not recorded during surveys for the Proposed action, despite targeted searches. There is a 2022 record located 2.5 km east of the eastern extent of the Disturbance footprint. There is also a 2012 record located 10 km north and a 2011 record located 12 km north-west of the western extent of the Disturbance footprint (ALA 2024).

Although potential habitat is identified as occurring within the Disturbance footprint it was observed that much of the area has been severely impacted by cattle grazing. Introduced species are also common including Buffel Grass and Parthenium (Ausecology 2024a). As such, the species is only considered as *potentially* present in the Disturbance footprint and broader Study area (rather than likely to occur) within occurrences of the Natural Grasslands TEC where the ground cover retains native grass species.

DCCEEW Approved Species Documents

There is no approved recovery plan or threat abatement plan adopted for the species under the EPBC Act.

The *Approved conservation advice for Dichanthium queenslandicum (King blue-grass)* (DSEWPC 2013) identifies the following threats to the species:

- Clearing of habitat for agriculture, mining, road infrastructure and other development.
- Cropping impact.
- Livestock grazing impact (the species does not tolerate continual heavy stocking rates).

- Weed invasion by species including Parthenium, Buffel Grass and Zinnia (*Zinnia peruviana*) threatens the species habitat values (Butler 2007).

There is no definition of critical habitat for the species in the available literature. There is 57.46 ha of potential habitat (i.e. Natural Grassland TEC) located within the overall Study area. Buffel Grass dominates the ground layer across extensive portions of the Study area (Ausecology 2024a) and Parthenium is present. Cattle grazing occurs throughout (Ausecology 2024a). These are all considered threats to the species. Critical habitat is considered unlikely to be present. Both are considered threats to the species. The Disturbance footprint will temporarily impact a maximum area of 0.57 ha of suitable habitat for *Dichanthium queenslandicum* (i.e. Natural Grassland TEC) (***Figure 6***).

Within potential habitat for *Dichanthium queenslandicum*, the direct impact will be restricted to a 10 m wide access track which will be cleared and grubbed. The power line poles will be constructed within the access track to minimise direct impacts on the TEC. The cleared track will be allowed to regenerate naturally once construction is completed. The remainder of the Action area outside of the Disturbance footprint, will be subject to slashing (where necessary) which will not remove the grass species currently present. It is noted the Study area is currently subject to cattle grazing which will continue on completion of construction works.

Significant Impact Assessment

Table 10 in ***Appendix C*** provides the significant impact assessment for the *Dichanthium queenslandicum* based on the Proposed action in accordance with the MNES Guidelines. The assessment considers it is highly unlikely a significant impact to *Dichanthium queenslandicum* will occur as a result of the Proposed action.

6.4.2 Koala – Endangered

Ecology

Koalas have a distinct association with eucalypt woodland and forest habitats comprising suitable food trees, mainly of the following genus: *Eucalyptus, Corymbia, Angophora* and *Melaleuca* (Moore & Foley, 2000; Martin et al. 2008). They are not necessarily restricted to bushland areas and are known to occur and breed where suitable tree species occur within farmland and the urban environment (Dique et al. 2004). Similarly, movement is not confined to vegetated corridors, as they also move across cleared rural land and through suburbs (Martin et al. 2008). They may use a variety of trees, including many non-eucalypts, for feeding, shelter and breeding purposes (Dique et al. 2004; Martin et al. 2008).

They are known to have localised and variable preferences throughout their range, favouring some tree species over others (Pahl & Hume 1990). At the local level they are known to prefer individual trees. It has been suggested this could be a response to a number of factors such as high leaf moisture and/or nitrogen content, and low levels of toxic chemical compounds which are expressed by eucalypts as a result of herbivory (Pahl & Hume 1990; Hume & Esson 1993; Moore & Foley 2000).

Breeding occurs in spring / summer when males become territorial. Young permanently leave the pouch after seven months but may continue to ride on the mothers back until approximately 12 months. After this time adolescent females may remain in the natal habitat. Males generally disperse to new territories from one to three years of age (Dique et al. 2003; Martin et al. 2008).

Association with the Study Area

At least one Koala individual and signs of presence (scats or tree scratches) have been recorded close (approximately 100 m) to the Action area. This was within a wooded area in the northern extent of the Study area in Queensland Blue Gum open forest (RE 11.3.4) and Poplar Box dominated woodland (RE 11.5.3). Other evidence of presence has been recorded proximal to the Study area (mainly to the south) during the surveys by Ausecology (from 2019 to 2024) and other consultants (***Figure 5***).

Queensland Blue Gum and Poplar Box are considered 'locally important' trees for Koala in the Brigalow Belt (Youngentob et al. 2021) and are present in the Disturbance footprint.

Habitat mapping for the Proposed action has been provided (***Figure 8***) as per the habitat definitions described in Kerswell et al. (2020). The habitat categories encompass the habitat use requirements for Koala as outlined in the *National recovery plan for the Koala Phascolarctos cinereus combined populations of Queensland, New South Wales and the Australian Capital Territory* (the Koala Recovery Plan) (DAWE 2022a) with regard to foraging, shelter and dispersal habitat. The mapping for the Study area indicates the Proposed action will intersect up to 17.57 ha of Koala habitat comprising the following habitat areas:

- 6.73 ha of preferred habitat comprising eucalypt woodlands with possible connection to groundwater and frequent palatable food trees (RE 11.3.25, 11.3.4 and 11.5.3) possibly considered as critical habitat for Koala. This habitat provides breeding, foraging, shelter and dispersal opportunities for Koala. The likely higher moisture and nutrient content of eucalypt leaves, due to the habitat's proximity to waterways or occurrence within riparian zones, may further enhance its suitability for raising young, as well provide leafy/shady vegetation for quality shelter sites and use as a dispersal corridor.
- 0.45 ha of suitable habitat comprising other eucalypt woodlands connected to preferred habitat and at least one palatable food tree present (RE 11.5.3). This habitat also provides breeding, foraging, shelter and dispersal opportunities for Koala, mainly due to its proximity to better quality preferred habitat.
- 10.4 ha of marginal habitat comprising fragmented and sparse woodlands with some food trees and subject to water stress and/or periodic high intensity fires (remnant and non-remnant sparse *E. orgadophila* woodland - RE 11.8.5). These areas are sparsely wooded as shown in ***Plate 5***.

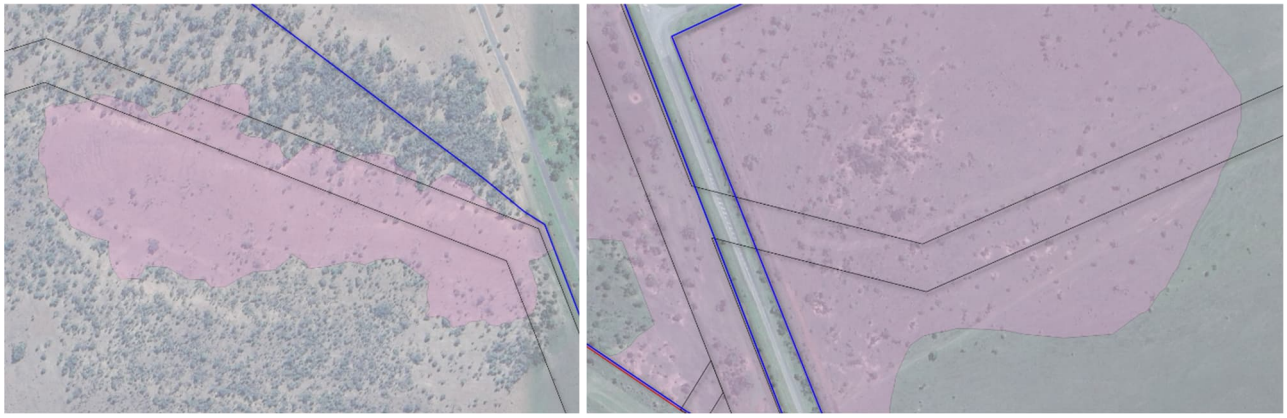


Plate 5: Examples of sparsely wooded habitat mapped as marginal value (pink areas) for Koala associated with the Project alignment

The severity of impacts to marginal habitat for Koala are considered low due to the limited value and role these areas play in supporting these species. The sparse nature of the woody vegetation in these areas (refer ***Plate 5***) will not support the species. They are more likely to be used for dispersal purposes with trees used as temporary shelter/forage sites during transit between suitable and preferred habitat areas (rather than as preferred sites). At its widest, the Project will require clearing of a 50 m wide corridor. Koalas may avoid habitat areas during construction disturbance. Tree clearing along the alignment will be sequential in manner, thereby restricting the extent of disturbed area at any one time. The clearing of marginal habitat areas is not considered to impair the ability for Koalas to disperse across the local landscape once the Project construction is complete.

Clearing is expected to achieve a rate of 2 hectares per day in a sequential manner, across a total of 3 months. A fauna spotter catcher will be present during clearing activities to manage wildlife interaction. The ability for Koala to disperse across the landscape will only be reduced where the active clearing is occurring (i.e., 2ha a day). Hence, 2ha of area per any one day will not be available for Koala dispersal during the 3 months of clearing – this will not prevent Koala from utilising the balance of the alignment to move throughout the environment. The construction of the power lines is expected to take approximately 1 year. Once construction is completed, Koalas will be able to move across the landscape between habitat patches and there will be no barrier to dispersal as a result of the Project (i.e., no fencing will be erected around the alignment).

Therefore, the assessment of significant impacts has been undertaken only for preferred and suitable habitat values. The significant impact assessment assessed impacts associated with the Proposed action for 6.73 ha of preferred habitat and 0.45 ha of suitable habitat.

DCCEEW Approved Species Documents

The Koala Recovery Plan (DAWE 2022a) was approved on 8th April 2022. The Koala Recovery Plan notes the following threats to the species:

- Habitat loss, fragmentation and modification including the impact of native forestry activities
- Drought, extreme heat events including associated with climate change

- Altered fire regimes
- Mortality from dog attack and vehicle collisions
- Diseases including Chlamydia and Koala retrovirus
- Plant pathogens impacting Koala habitat such as Myrtle Rust

The *Conservation Advice for Phascolarctos cinereus (Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory* (DAWE 2022b) notes (with relevance to Queensland) the priority management actions associated with the south-east Queensland population and that sub-populations on the western edge of the species range may be 'climate-sensitive' and comprise genes adapted to environmental extremes which may prove critical to populations elsewhere in the future through translocation programs.

The Koala Recovery plan does not specifically identify any areas comprising 'valued populations' of Koala but does note an imperative to conserve populations:

- That may act as source populations to adjacent areas
- Occur in areas of climatic refugia (specifically from droughts and heat waves)
- Genetically diverse
- Contain adaptive genes to potential environmental stressors or
- Are geographical or environmental outliers

Koalas and signs of presence have been observed close to the Study area in recent years. The woodlands associated with the area comprise widespread communities much of which is disturbed and located within a heavily cleared landscape. Based on the habitat mapping definitions used by BMA (Kerswell et al. 2020), portions of the Disturbance footprint may impact habitats with access to groundwater which may potentially act as 'climate refuge' habitat for Koala.

Similarly, the Koala Recovery plan does not provide a clear description of 'habitat critical to the survival' of Koala but does note that evaluation of the following may be required:

- Is the habitat used during periods of stress (fire, floods or drought)
- Is the habitat used for breeding, foraging, social behaviour or dispersal
- Is an important population present
- Does the habitat support genetic diversity
- Is the habitat used as a corridor
- Is the habitat necessary to maintain the long-term future of Koala

The Koala Recovery plan also notes that in order to halt the decline and promote recovery of the species, the following activities should be avoided:

- Clearing of habitat used by Koalas for feeding and resting
- Reducing connectivity between patches used by Koala
- Clearing habitat used during extreme events
- Avoiding activities that will expose Koalas to additional threats

Habitat and Connectivity Appraisal

The overall Study area is largely disturbed by past vegetation clearing or thinning for cattle grazing. The vast majority of the Disturbance footprint intersects dispersal habitat (native grassland, cleared habitat or low regrowth). The Proposed Action will not erect structures that will provide an impermeable barrier to movement across the landscape. Evidently, the species occurs in the local region (based on records close to the Action area) and uses the habitat for foraging and possibly breeding. The Disturbance footprint for the most part avoids impacting preferred Queensland Blue Gum dominated habitat (0.35 ha) but does impact 6.72 ha of preferred foraging habitat that may be considered as a refuge during drought or extreme heat events (habitats likely connected to groundwater). Given the species is known to occur, the preferred foraging habitat identified within the Action area may be broadly interpreted as habitat critical to the survival of the species.

Known threats to the species are already present in the area. The Peak Downs Mine Road is located within 1 km of the alignment and other mine roads intersect the western portion of the Study area. These present vehicle collision risk to Koalas in the area. Predation by wild dogs is a known threat to the species and were detected throughout the Study area during surveys (Ausecology 2024a). With mitigation measures in place (i.e. vehicle speed controls, pest and weed measures, preclearance surveys, the use of fauna spotter catchers during clearing) the Proposed action will not increase additional threats to the species in the area.

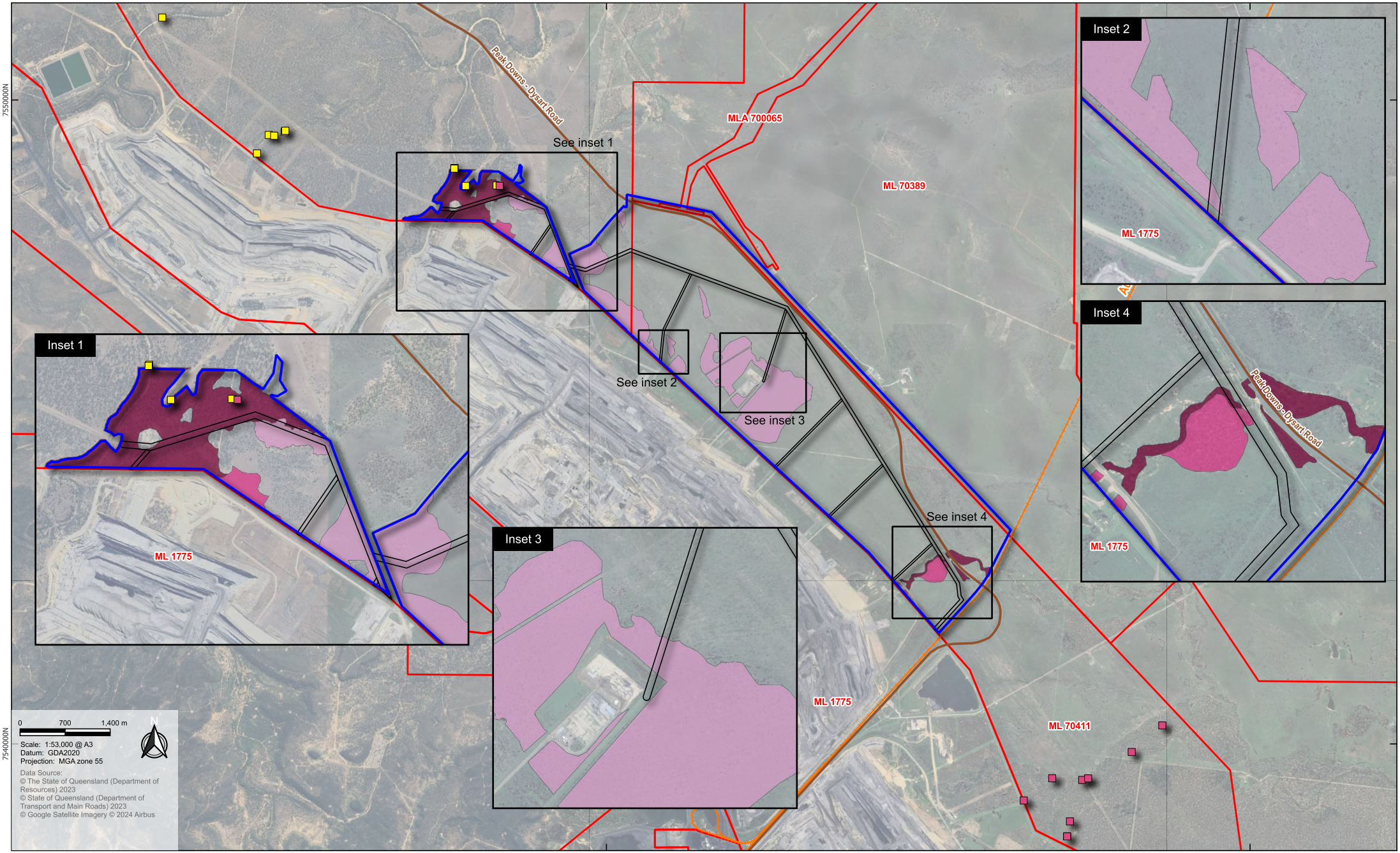
The Disturbance footprint impacts an overall area of 79.06 ha. Of this impact, there is a total of 7.18 ha of Koala habitat identified as preferred or suitable. This impact has been subject to a significant impact assessment. Impacts to dispersal habitat are considered relatively minor due to the sparse nature of these woodlands. Clearing of woody vegetation elsewhere in the Disturbance footprint will only occur where there is shrubby regrowth present. Following construction, the access track will undergo intermittent slashing to maintain safe access. There will be no fencing and therefore no post-construction impact to Koala dispersal across the landscape. Hence, the Proposed action once constructed is not anticipated to reduce dispersal opportunities for Koala.

Further, a preliminary analysis based on existing Queensland vegetation (RE) mapping indicates there is approximately 18,480 ha of potential eucalypt dominated habitat (as defined above) occurring within a 10 km radius of the Disturbance footprint. As such, the Proposed action proposes to impact only 0.09% of potential habitat available within the wider area, and hence is unlikely to significantly impact habitat availability for Koala.

Significant Impact Assessment

Table 11 in ***Appendix C*** provides the significant impact assessment for the Koala based on the Proposed action in accordance with the MNES Guidelines. The assessment indicates that there is potential for adverse impacts to habitat critical to the survival of the species.

While it is not considered that the Project is likely to significantly impact the species requiring offset, the assessment identifies that there will be an impact to habitat critical to the survival of the species. To support conservation gains and acknowledging the controlled action decision by DCCEEW, the offset package in ***Section 7*** includes offset for Koala.



Legend

- Study area
- Action area
- Mining leases
- State controlled roads
- Railways

Survey records

- Koala (Ausecology 2021-2022)
- Koala – scat or scratches (Ausecology 2019)

Koala habitat

- Preferred
- Suitable
- Marginal

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Figure 8
Ground-truthed habitat for Koala – Study area

Filepath: -BE2020\BE200178.01 BHP Powerline Realignment Stage 2\Workspaces\BAA2400122.011. PDM Preliminary Documentation\Rev 0\Figure 8 Ground-truthed habitat mapping for Koala – Study area.qgz

6.4.3 Greater Glider – Endangered

Ecology

The Greater Glider is typically found in mature eucalypt forests and woodlands with a variety of eucalypt species and a high density of large tree hollows (van der Ree et al. 2004). Large hollows in old trees are preferred as daytime shelter sites (Goldingay 2012). Sites with a high abundance of suitable hollows appear to support higher populations. Eyre (2006) reported a single individual required three living hollow-bearing trees per hectare to be present in an area. Suitable trees with large hollows used for den sites were found to be largely trees with a diameter of 50 cm or greater (Smith et al. 2007). Its diet is largely composed of eucalypt leaves and occasionally flowers. Greater Glider utilises small home ranges of between 1 ha and 4 ha recorded in more productive forests (Gibbons & Lindenmayer 2002). In more open and dry habitats, it has been recorded using home ranges up to 16 ha in size (Smith et al. 2007).

Females breed at two years of age and may produce a single young each year from March to June (Woinarski et al. 2014). Recent genetic evidence indicates the species may comprise three separate species (McGregor et al. 2020). This is not accepted by other scientists, although it is recognised the species taxonomy is complex (with up to five subspecies present across its range) and requires further revision (Baker and Gynther 2023). The central and southern subspecies occurs patchily across much of eastern Australia and is generally associated with the Great Dividing Range and habitat to the east towards the coast. Occurs from central Victoria north to approximately Ayr. The southern range of the central Greater Glider is uncertain but may be around the Queensland – New South Wales border (McGregor et al. 2020).

Association with the Study Area

Greater Gliders were recorded within the wooded eastern section of the Study area during spotlighting surveys carried out in 2019 by Ausecology (***Figure 5***). The species was recorded in eucalypt open forest (RE 11.3.4) adjacent to the powerline footprint and in riparian habitat (RE 11.3.25) 300 m to the north. The species has also been recorded further to the northwest and southeast but not elsewhere within the Study area (despite targeted surveys). The nearest database record (ALA) is from 2024 and located 11 km north in vegetation along the Isaac River (***Figure 4***). There is a 2022 record located 15 km to the northeast (ALA 2025). To the south there are three WildNet records from 2001 located 25 km to 27 km from the Action area.

The dominant eucalypt species present in the communities in which the species was recorded includes Queensland Blue Gum (*Eucalyptus tereticornis*), Silver-leaved Ironbark (*E. melanophloia*), *Angophora floribunda*, and Carbeen (*Corymbia tessellaris*). The remainder of the woodland habitat present surrounding these communities (RE 11.5.3) is dominated by Poplar Box (*E. populnea*) with Carbeen and *C. dallachiana*. Of these Greater Glider is known to be associated with Queensland Blue Gum and Carbeen based on a detailed analysis of species observations across a number of studies. The Greater Glider is not generally associated with the other tree species present (refer Table 8 in Eyre et al. 2022).

Habitat potential for Greater Glider within the Disturbance footprint has been categorised as per Kerswell et al. (2020) and Ausecology (2025) as follows:

- 6.04 ha of preferred habitat – connected eucalypt woodlands with one or more food trees and more than two hollow bearing trees per hectare with hollows medium-large in size (>10 cm entrance) and within 1 km of a creek line (RE 11.3.25, 11.3.4 and 11.5.3).
- 0.38 ha of suitable habitat – other eucalypt woodlands connected to preferred habitat with at least one food tree present but not more than two hollow bearing trees per hectare with hollows medium-large in size (RE 11.5.3).
- 0.8 ha of marginal habitat – compliant RE listed under Eyre et al. (2022), trees with 30 cm or greater diameter present but no confirmed records from surveys carried out for the Action.

Habitat mapping for Greater Glider is provided in ***Figure 9***. The mapping has been updated based on refined mapping for the wider area provided in Ausecology (2025). Preferred and suitable habitat for the species is restricted to the western portion of the Disturbance footprint where the species was recorded. Marginal habitat occurs adjacent to a drainage line in the southeast of the Study area which is disconnected from other potential habitat and where the species has not been recorded during the extensive past survey efforts. The remainder of the Disturbance footprint is dominated by grasslands, unsuitable woody regrowth, isolated small patches, or other habitats unsuitable to Greater Glider such as Brigalow communities or very sparse woodlands (such as RE 11.8.5).

The severity of impacts to marginal habitat for Greater Glider are considered low due to the limited value and role these areas play in supporting this species. The marginal habitat within the Disturbance footprint presents some foraging opportunity in the form of scattered mature Eucalypts. The vegetation in this area is sparse and there is an overall absence of functional canopy connectivity that is needed to support glider movement within the patch.

The marginal habitat patch is fragmented from nearby potential Greater Glider habitat, where the next nearest patch (also being of marginal habitat value) is approximately 130m to the east. Beyond this, the nearest preferred habitat is situated approximately 1km to the east (outside of the Disturbance footprint). Dispersal opportunity to either patch is not possible due to existing barriers causing fragmentation – these barriers are the established Peak Downs Mine Road (public road) and utilities easement with 132kV power lines and access road. The separation caused by the barriers is approximately 130m in distance, which is more than the known glide range, where the species typically glides approximately 30-40m and up to 120m in extreme and uncommon situations (DESI, 2024). The marginal habitat is extremely isolated from surrounding habitat and provides limited value to the species.

Hence, the assessment of significant impacts is undertaken only for preferred and suitable habitat values. The significant impact assessment (Section 5.3.4.6 of ***Appendix*** C) assessed impacts associated with the Proposed action for 6.04 ha of preferred habitat and 0.38 ha of suitable habitat.

Characterisation of Denning Habitat

The PD RFI requested an estimate of tree hollow density associated with the Disturbance footprint with regard to characterising denning habitat as per the following:

- Likely/current denning habitat – areas containing appropriate trees with a diameter at breast height (DBH) greater than the relevant RE threshold for large trees in Eyre et al. (2022).
- Potential/future denning habitat - all areas containing appropriate trees with a diameter at breast height greater than 30 cm but less than the relevant RE threshold for large trees.

An assessment was carried out within areas mapped as ‘preferred habitat’ associated with the Disturbance footprint and nearby surrounds. This has been based on data collected from targeted assessments of Greater Glider habitat and BioCondition data collected by Ausecology during surveys for the Proposed action.

The targeted habitat assessments involved collection of habitat data within ~1 ha plots including the following:

- Tree species
- Height (m)
- DBH (cm)
- Status (alive / dead)
- Presence / absence of visually confirmed hollows with > 10 cm entrance

Trees were categorised based on information provided in Eyre et al. (2022), whereby preferred tree species with a DBH > 30 cm but < 50 cm are considered suitable foraging trees and trees with a DBH ≥ 50 cm are considered suitable denning trees. Stags with a DBH > 50 cm were also considered to be suitable denning trees. Trees that contained a visually confirmed hollow with an entrance > 10 cm, were also considered to be suitable denning trees, regardless of the measured DBH.

BioCondition plots require the collection of a number of structural measurements across a half hectare plot. This includes a count of the number of large eucalypts, classified as those trees greater than the threshold benchmark size described for the associated RE. This data also allows for an assessment of the potential presence of current denning trees, although does not provide data to categorise the presence of future denning trees.

Greater Glider habitat tree data was derived from two targeted habitat assessment sites located within the Disturbance footprint itself and three BioCondition plots (***Figure 10***). One of the BioCondition plots (BC02) overlaps with a habitat assessment site. All sites were located within remnant RE 11.5.3 and within the Action area except for a single BioCondition site located in RE 11.3.4 (BC05). This site coincides with the area in which three individuals were recorded within a relatively small area adjacent to the Disturbance footprint. The large eucalypt benchmark size for RE 11.5.3 and 11.3.4 is 44 cm and 53 cm respectively.

The baseline targeted habitat assessment data collected is provided in ***Appendix G***. The denning tree data has been revised such that denning trees include all those considered against the benchmark threshold size for the

relevant RE. The data collected at site H1 counted 18 trees comprising four current denning trees (i.e. >44cm DBH) and 12 future denning trees (i.e. >30 cm and <45 cm) within the hectare plot. The data collected at site H2 counted 17 trees comprising nine current denning trees and eight future denning trees within the hectare plot (***Figure 10***). It is noted the majority of the trees were either Poplar Box or Silver-leaved Ironbark (neither of which are trees that the Greater Glider has been particularly associated with in the past) (Eyre et al. 2022).

The Biocondition data collected at site BC02 (which broadly overlapped with H1) recorded eight large eucalypts (or current denning trees) per hectare (extrapolated from four per half hectare). The data collected at BC04 recorded no large trees at all. Examination of aerial imagery indicates the site is sparsely wooded and is similar to nearby areas mapped as preferred habitat, particularly to the south of the alignment. Site BC05 recorded 30 large trees (>53 cm) per hectare which is substantially more than the other sites. The species composition at this site includes preferred tree species for Greater Glider (Queensland Blue Gum and Carbeen).

Current denning tree density within the mapped area of preferred habitat is highly variable. Although some Poplar Box woodland areas currently support 8-9 suitable large trees per hectare, there are nearby areas which support no large trees. It is uncertain whether this is an indication of past disturbance associated with grazing management or simple natural variation of community structure in the landscape. The Proposed action largely avoids what appears to be the more preferred vegetation type in the local area.

DCCEEW Approved Species Documents

There is no approved recovery plan or threat abatement plan adopted for the species under the EPBC Act.

The *Conservation advice for* Petauroides volans *(Greater Glider (southern and central))* (DCCEEW 2022b) identifies the following threats to the species:

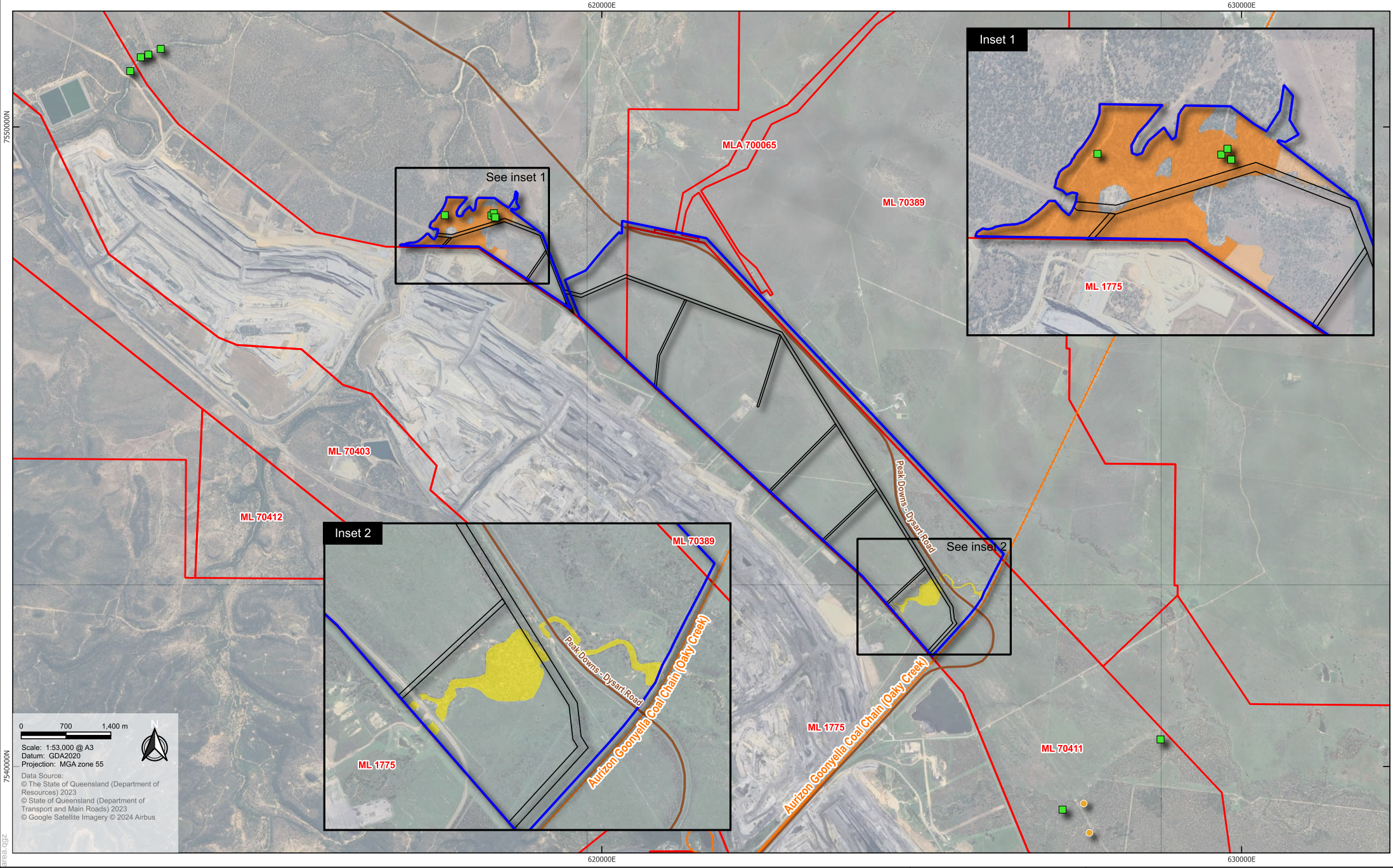
- Inappropriate fire regimes leading to high intensity and widespread bushfires impacting populations and habitat values (removing old growth trees with hollows)
- Habitat clearing and fragmentation of habitat for development, agriculture and forestry harvesting
- Climate change impacts to weather patterns increasing the potential for bushfire, heat stress for individuals and declining forage tree moisture levels
- Predation by, or competition for hollows from native species such as owls and cockatoos
- Predation from feral cats and European Red Fox

The Conservation Advice for the species identifies five 'broadly defined' habitat types that may provide habitat critical to the survival of the species:

- Large contiguous areas of eucalypt forest, which contain mature hollow-bearing trees and a diverse range of the species' preferred food species in a particular region
- Smaller or fragmented habitat patches connected to larger patches of habitat, that can facilitate dispersal of the species and/or that enable recolonization
- Cool microclimate forest/woodland areas (e.g. protected gullies, sheltered high elevation areas, coastal lowland areas, southern slopes)
- Areas identified as refuges under future climate changes scenarios
- Short-term or long-term post-fire refuges (i.e. unburnt habitat within or adjacent to recently burnt landscapes) that allow the species to persist, recover and recolonise burnt areas (DCCEEW 2022b)

Habitat and Connectivity Appraisal

As noted, large hollow bearing trees occur patchily within the Disturbance footprint and surrounds. The western portion of the Disturbance footprint intersects a tract of eucalypt woodlands which extends to the north and west from the area. Most of this habitat is dominated by tree species that Greater Glider is not generally associated with. Habitat comprising preferred species (such as Queensland Blue Gum) has largely been avoided. The Disturbance footprint is not located in a cool micro-climate woodland and there is no reason to believe the area would be a refuge from wildfires. There is no evidence habitat intersecting the Disturbance footprint or adjacent woodland would be considered habitat critical to the survival of Greater Glider.



Legend

- Study area
- Action area
- Mining leases
- State controlled roads
- Railways

Survey records

- Greater Glider (AECOM 2020)
- Greater Glider (Ausecology 2021-2022)

Greater Glider habitat

- Preferred
- Suitable
- Marginal

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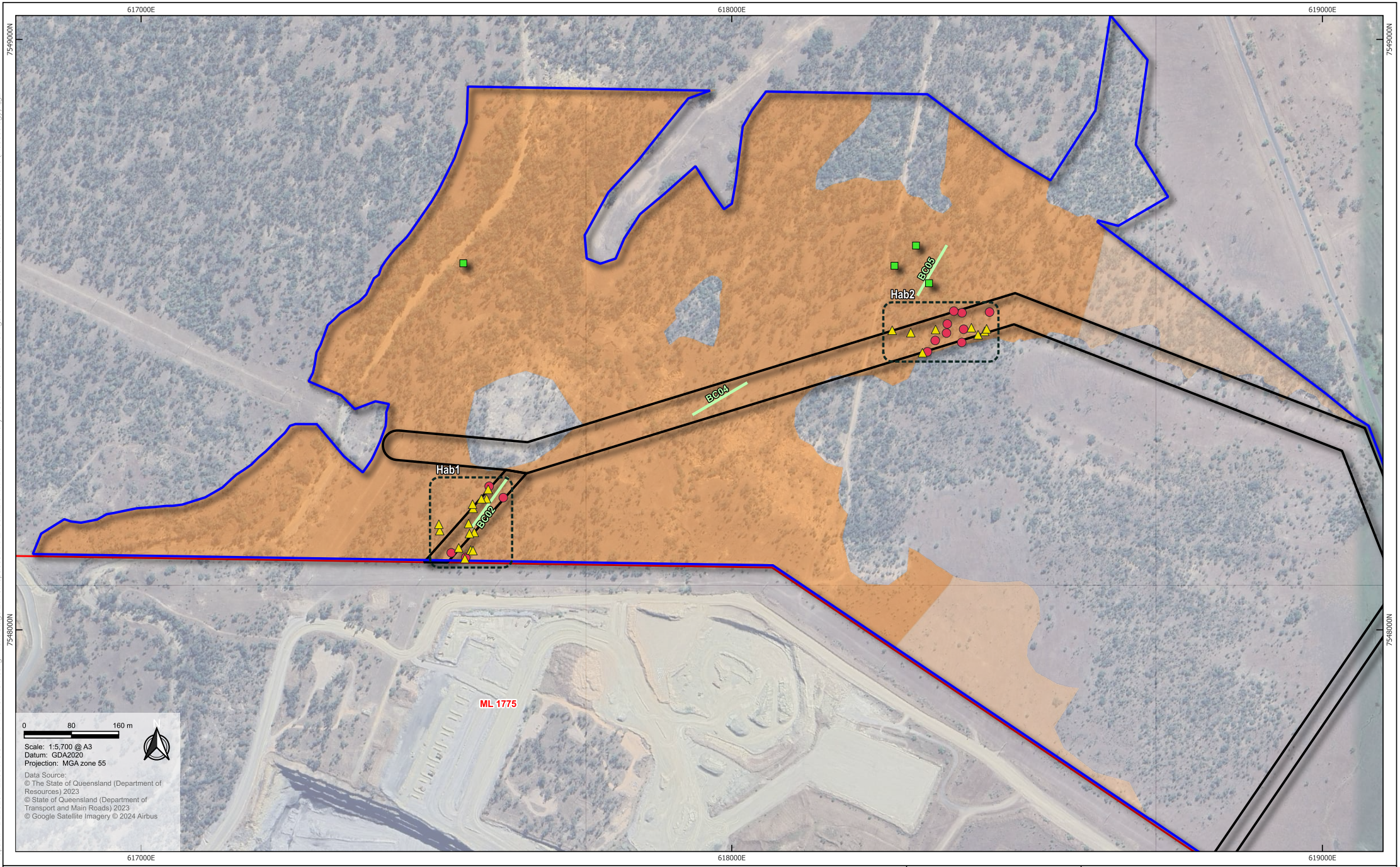
Figure 9
Ground-truthed habitat for Greater Glider (southern and central) – Study area

Filepath: -BE2020\BE200178.01 BHP Powerline Realignment Stage 2\Workspaces\BAA2400122.01\1. PDM Preliminary Documentation\Rev 0\Figure 9 Ground-truthed habitat for Greater Glider (southern and central) – Study area.qgz



Filepath: ~BE2020\BE200178.01 BHP Powerline Realignment Stage 2\Workspaces\BAA2400122.011 PDM Preliminary Documentation\Rev 0\Figure 10 Greater Glider assessment locations (Ausecology).qgz

Legend

- Study area
- Action area
- Mining leases
- Biocondition assessment sites

Greater Glider habitat

- Preferred
- Suitable

Survey records

- Greater Glider (Ausecology 2019)
- Habitat assessment sites
- Current den trees
- Future den trees

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Figure 10
Greater Glider habitat assessment locations and data (Ausecology)

The Disturbance footprint is located within a tract of eucalypt forest which extends locally to the north and west but is somewhat disconnected from larger remnants in the wider area by previous clearing for various developments. Greater Gliders are considered capable of an approximate glide angle of 40 degrees from the horizontal take off position. Lesser angles have been observed (31 degrees calculated) although this was recorded in tall forests (45 m canopy height) (Taylor & Goldingay 2009) which would allow for a flatter trajectory over distance.

The main power line easement will be too wide (50 m) to be used as a crossing point. Given the height of the tallest canopy trees present (27 m) the species is unlikely to cross cleared habitat greater than 32 m wide based on a 40-degree glide angle. Most of the trees in the area are less than 22 m in height. The Proposed action will provide a barrier to habitat to the south of the powerline, although analysis of aerial imagery indicates much of the mapped habitat to the south of the alignment appears disturbed and very sparse and much less likely to support the species.

Regarding the presence of other known or potential threats to the species, feral Cat has been recorded during surveys for the Proposed action (Ausecology 2024a). The potential for large wildfires will be managed under the Proponent's company-wide fire management plan. There may be existing issues associated with hollow competition and predation from native birds, but these are natural processes that are not in the control of the Proponent.

The Proposed action will impact up to 6.42 ha of potential habitat for the species. This includes 0.04 ha of the more favoured Queensland Blue Gum vegetation (RE 11.3.4 and 11.3.25) with the remainder dominated by Poplar Box and Silver-leaved Ironbark (RE 11.5.3) (species which appear less favoured). There is no evidence this habitat may be considered as habitat critical to the survival of the species.

Significant Impact Assessment

Table 12 in ***Appendix C*** provides the significant impact assessment for the Greater Glider based on the Proposed action in accordance with the MNES Guidelines. The assessment indicates that there is potential for a significant impact to Greater Glider through fragmentation of habitat in the northwest of the Disturbance footprint. The assessment identifies that there will be an impact from fragmentation, potentially fragmenting an existing population into two or more populations.

While it is not considered that the Project is likely to significantly impact the species requiring offset, considering the potential impact and to support conservation gains (acknowledging the controlled action decision by DCCEEW), the offset package in ***Section 7*** includes offset for Greater Glider.

6.4.4 Squatter Pigeon (southern) – Vulnerable

Ecology

The Squatter Pigeon is largely a terrestrial pigeon species, foraging and breeding on the ground. The species mainly occurs in dry grassy eucalypt woodlands and open forests (Frith 1982; Crome and Shields 1992). It may also inhabit Callitris/Acacia dominated woodlands and has been reported from open plains in its historical southern range (Frith 1982). Most individuals live in sandy sites within 3 km of a permanent water source (Blakers et al. 1984). While typically associated with alluvial plains (Queensland Land Zone 3), the species is known to inhabit other landscapes (Lloyd et al. 2025). They remain common in heavily grazed country in tropical Queensland (Reis 2012) but they are typically more common in ungrazed lands (Woinarski and Ash 2002; Reis 2012). They are frequently observed on cleared tracks and roadsides (Higgins & Davies 1996), which suggests that such disturbed areas can provide (at least temporary) dispersal and foraging habitat. Although the species is often seen in poorly vegetated sites these are usually located close to wooded areas.

This species mainly feeds on grass seed although insects are seasonally important in the diet (Reis 2012).Movement patterns are poorly understood. It appears the species is locally nomadic or even sedentary and is not considered to have any long-distance seasonal movements (Higgins & Davies 1996). The species may breed throughout the year, but this appears to be greatly influenced by rainfall and abundance of foraging resources. Peak breeding is likely to occur during the dry season (April to October) (Squatter Pigeon Workshop 2011). The nest is a shallow depression on the ground usually sheltered by a bush or log (Reis 2012). Nesting sites are typically located within 0.5 km of a perennial water source (Lloyd et al. 2025). Breeding habitat is stated as occurring on stony rises with sandy or gravelly soils and within 1 km of a permanent water source (Squatter Pigeon Workshop 2011; DCCEEW 2026). The total population size is estimated at 220,000 mature birds. Individuals located north of Roma occur as a single continuous interbreeding population (Garnett & Baker 2021).

The subspecies was historically found from the Dubbo region in New South Wales north to the Burdekin River area in in Queensland. There have been no official records in New South Wales since the 1970s. Although the species has declined greatly in southern Queensland in the past it appears this decline has slowed, and the species now persists over a wide area and can be locally abundant in central Queensland (Garnett et al. 2011) where groups of up to 30 individuals can still be seen (Reis 2012). South of the Carnarvon Range the species appears to occur only in scattered areas.

Association with the Study Area

Squatter Pigeon was not recorded within the Study Area during surveys for the Proposed action despite six fauna surveys across six years (2019-2014 – refer to ***Appendix C*** for further survey detail). The species has been detected in the area surrounding the Disturbance footprint during three of these surveys. The closest record during these surveys (collected in 2022) is located 1.8 km east of the Disturbance footprint. It is noted, Squatter Pigeon has been recorded once in 2013 within the Study Area (***Figure 5***). The species was recorded in regrowth RE 11.4.8 in close proximity to more suitable habitats including riparian Queensland Blue Gum open forest (RE 11.3.25) and Poplar Box dominated woodland (RE 11.5.3).

The species may occur in woodlands on sandy soils within 3 km of permanent water (including farm dams), particularly within REs on Land Zone 5 and 7 (DCCEEW 2026) as well as Land Zones 3 and 10. The majority of the Study area comprises vegetation communities (remnant, regrowth and non-remnant) occurring on land zones 4 and 8. The species forages/breeds in areas where the ground cover is no more than 33%. Much of the Disturbance footprint was unsuitable for the species as it comprised grasslands with dense cover, woody regrowth, or other unsuitable habitats located on clay soils such as Brigalow communities. Habitat mapping for the Proposed action indicates the Disturbance footprint will impact up to 22.73 ha of Squatter Pigeon habitat (***Figure 11***) comprising the following habitat areas as defined by Kerswell et al. (2020):

- 0 ha of preferred habitat – eucalypt or acacia woodlands with <33% ground cover on well-draining soils (land zone 3, 5, 7, 8, 9 and 10) within 1 km of a permanent waterbody. Suitable waterbodies include mapped wetlands or 3rd order (or above) mapped watercourses.
- 19.81 ha of suitable habitat – eucalypt or acacia woodlands with <33% ground cover on well-draining soils (land zone 3, 5, 7, 8, 9 and 10) within 1-3 km of a permanent or seasonal waterbody (includes non-remnant areas within 100 m of preferred habitat). Suitable habitat is considered to encompass foraging habitat for the species.
- 2.92 ha of marginal habitat – other non-remnant (regrowth) or remnant woodland areas more than 3 km from a waterbody that allow for movement (i.e., dispersal) between preferred and suitable habitat.

Ausecology (2025) had previously mapped parts of the Study area as being preferred habitat for Squatter Pigeon. Based on the above Kerswell et al. (2020) criteria and in consideration of DCCEEW (2026), the areas that had been mapped as preferred habitat for Squatter Pigeon have required revision.

The previously mapped preferred habitat areas do not occur within 1 km of a permanent waterbody based on watercourse and wetland mapping (NRMMRRDD 2024), on-ground observations, and satellite imagery (Google Earth 2026). The previous mapping was based on the assumption that stream orders of three or above corresponded to perennial streams, which does not align with on-ground observations and watercourse mapping. Waterbodies in Queensland are mapped using the state-*based Vegetation management watercourse and drainage features v.07* dataset (NRMMRRD 2024), which distinguishes between perennial (permanent) and non-perennial (ephemeral or intermittent) waterways. No waterways within 1 km of the Study area are mapped as perennial. Wetlands in Queensland are similarly mapped using the *Qld Wetland Mapping V6.0* spatial datasets (NRMMRRD 2024), which also specifies whether wetlands are permanent. This dataset indicates that all wetland areas mapped within 1 km of the Study area are intermittent or ephemeral, rather than near-permanent or permanent. The nearest permanent waterbody to the Study area is a dammed area located approximately 2 km northeast (north of the Peak Downs Mine Road – refer to ***Figure 11***). The absence of perennial waterbodies within 1 km of the Study area is also evident from historical aerial satellite imagery (Google Earth 2026). The imagery shows that all waterways and wetlands within 1 km of the Study area fill intermittently and are dry for extended periods of time, and hence do not meet the permanent waterbody criteria.

Although these areas have been previously mapped as preferred habitat (based on the criteria designated by Kerswell et al. (2020)) the lack of an actual permanent waterbody within 1 km of this area indicates these areas are more accurately described as suitable habitat (as per the Kerswell et al. 2020 definition), or foraging habitat (not within 1 km of a permanent water source). As such, areas previously mapped as preferred habitat have been corrected to suitable habitat.

The severity of impacts to marginal habitat for Squatter Pigeon are considered low due to the limited value and role these areas play in supporting these species; hence, the assessment of significant impacts is undertaken only for suitable habitat values. The significant impact assessment (Section 5.3.5.5 of ***Appendix*** C) assesses impacts associated with the Proposed action for 19.81 ha of suitable habitat.

DCCEEW Approved Species Documents

There is no approved recovery plan for the species.

Relevant threat abatement plans applicable to the species include:

- Threat abatement plan for competition and land degradation by rabbits (DEE 2016)
- Threat abatement plan for predation by feral cats (DE 2015b)
- Threat abatement plan for predation by the European red fox (DEWHA 2008c)

The Approved Conservation Advice for the species (TSSC 2015a) notes the following threats to the species:

- Habitat loss through land clearing, particularly for livestock grazing which decreases foraging resources
- Overgrazing by livestock and feral herbivores
- Unsuitable fire regimes
- Changes to habitats caused by invasive weeds and/or thickening of understorey vegetation, including introduced pasture species such as Buffel Grass (Higgins & Davies 1996; Garnett et al 2011)
- Predation by feral Cats and Red Fox

All of the small, isolated and sparsely distributed populations south of the Carnarvon Range area are considered as important subpopulations including:

- Populations occurring in the Condamine River catchment and Darling Downs
- Populations known to occur in the Warwick-Inglewood-Texas area
- Populations potentially occurring in northern NSW (Squatter Pigeon Workshop 2011; DCCEEW 2024).

All individuals to the north of the Carnarvon Range are considered to be part of a single, widely distributed, interbreeding population (Squatter Pigeon Workshop 2011; Garnett & Baker 2021). Therefore, given the Study area is located over 250 km north of the Carnarvon Range any individuals present are not considered part of an ‘important subpopulation’.

Critical Habitat Appraisal

There is no definition of habitat critical to the survival of Squatter Pigeon specifically identified in reporting applicable to the species. This is likely due to the relatively broadly described habitat requirements of the species.

It is noted the MNES Guidelines state that habitat critical to the survival of a species refers to areas that are ‘necessary’ for activities such as foraging, breeding, roosting or dispersal. Breeding habitat is considered unlikely to occur for the following reasons:

- The Study area occurs on a generally flat plain and does not comprise woodlands on ‘stony rises’
- Very little of the mapped habitat present within the disturbance footprint is located within 1 km of a permanent waterbody. This comprises a very small portion of disturbed open woodland in the central portion of the Study area approximately 950 m away from the nearest farm dam.

The species is considered locally nomadic or possibly sedentary. Despite this, the species has been identified within the Study area on a single occasion in 2013 despite more recent and repeated surveys for the Proposed action. Buffel Grass dominates the ground layer through extensive portions of the Study area. Much of the Study area comprises vegetation occurring on land zones 4 and 8 which the species is not generally associated with (refer DCCEEW 2026). Feral Cat was detected throughout the Study area and cattle grazing also occurs throughout (Ausecology 2024a). These are all degrading impacts and considered threats to the species or its habitat. This may indicate why the species has not been readily detected within the Study area despite repeated surveys across a number of years..

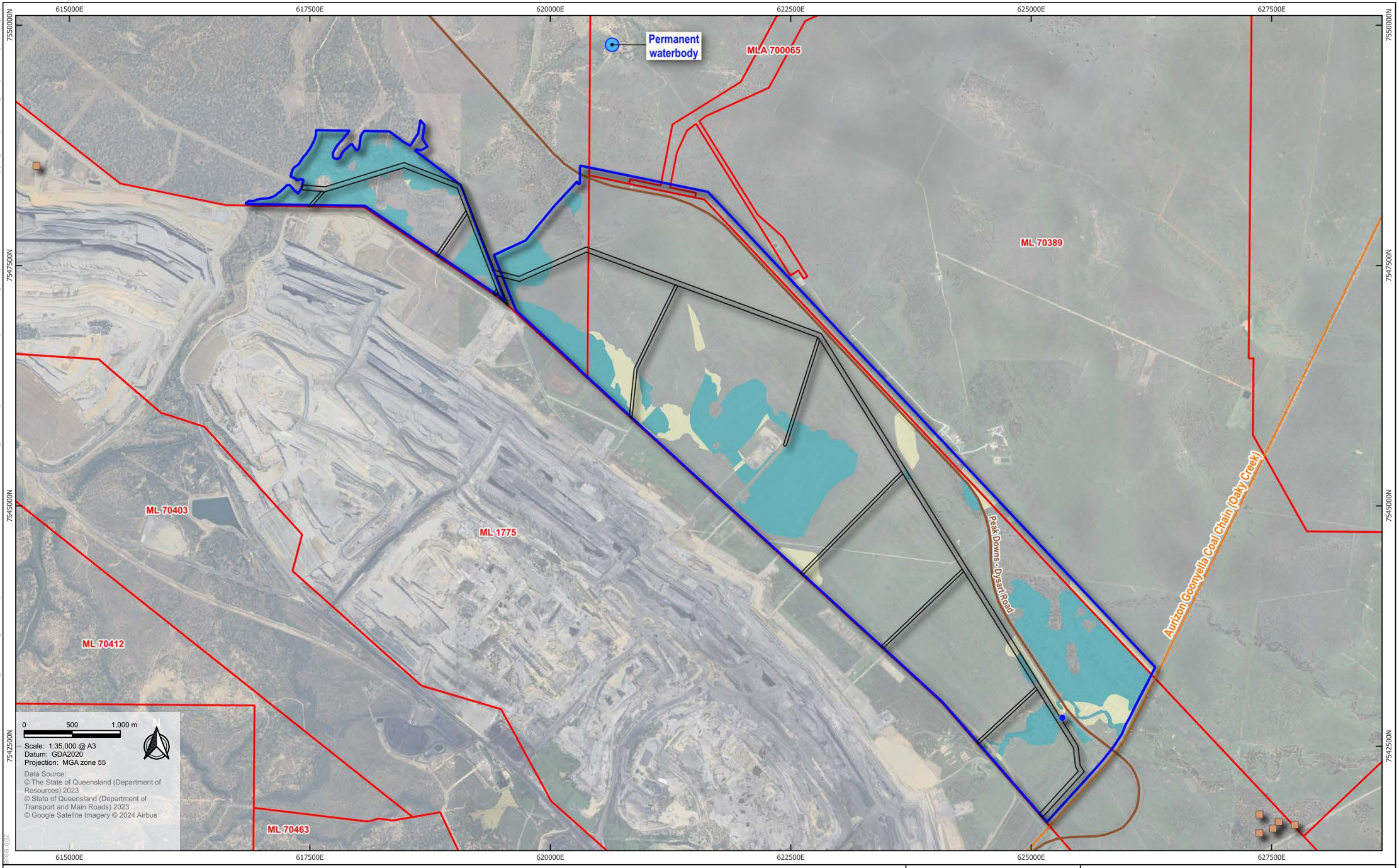
Foraging and dispersal habitat for Squatter Pigeon are acknowledged as occurring within portions of the Study area based on the broad habitat needs described for the species. However, suitable habitat for the species is not specific to the Study area and occurs commonly across the wider landscape. The habitat present within the Study area is not considered *necessary* for foraging, breeding, roosting or dispersal for Squatter Pigeon. As such, habitat critical to the survival of Squatter Pigeon is not considered to occur within the Study Area.

Significant Impact Assessment

The Proposed action will impact 19.81 ha of potential habitat for Squatter Pigeon. This occurs across scattered patches throughout the Study area (***Figure 11***). A preliminary analysis based on existing Queensland vegetation (RE) mapping indicates there is approximately 21,470 ha of potentially suitable habitat (as defined above) occurring within a 10 km radius of the Disturbance footprint. As such, the Proposed action will impact only 0.1% of likely available habitat within the wider area.

The available habitat represents widespread sclerophyll vegetation communities occurring across the Study area and surrounding region to the east, north and west. Following construction, areas subject to clearing within the Disturbance footprint associated with the power line corridor will be allowed to regenerate naturally with only intermittent control of woody regrowth to maintain safe operation. The species is likely to utilise the completed power line corridor for intermittent foraging, particularly where it occurs adjacent to woody vegetation. The Project is linear and relatively narrow and does not require fencing. The Project will not impact the species' ability to disperse across the local landscape.

Table 13 in ***Appendix C*** provides the significant impact assessment for the Squatter Pigeon based on the Proposed action in accordance with the MNES Guidelines. The assessment considers it is unlikely a significant impact to Squatter Pigeon (southern) will occur as a result of the Proposed action.



Legend

- Study area
- Action area
- Mining leases
- State controlled roads
- Railways
- Permanent waterbody

Squatter Pigeon habitat

- Suitable
- Marginal

Survey records

- Squatter Pigeon (Aurecon 2013)
- Squatter Pigeon (Ausecology 2022)

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Figure 11
Ground-truthed habitat mapping for Squatter Pigeon (southern) – Study area

Filepath: ~BE2020\BE200178.01 BHP Powerline Realignment Stage 2\Workspaces\BAA2400122.012_Revised MNES Significant Impact Assessment Report\Rev 4\Figure 11 Ground-truthed habitat mapping for Squatter Pigeon (southern) – Study area.mxd

7 Offsets

Section 6.2 presents the outcomes of an assessment of the potential significant impacts of the Project on MNES. The assessment identified the Proposed action has the potential to have a significant impact on Koala (*Phascolarctos cinereus*) and Greater Glider (*Petauroides volans*), when using a precautionary approach.

The impacts to Koala and Greater Glider are expected to trigger offset requirements under the EPBC Act Environmental Offsets Policy (DSEWPaC, 2012).

To account for this, an Offset Management Plan (OMP) has been developed to guide management and monitoring with an appropriate Offset Area for the legislated offset timeframe. The OMP has been developed with respect to the Commonwealth Offset Policy, and the BMA Offset Management Framework (i.e. based on the PLAN, DO, CHECK, ACT Model used within BMA Environmental Management System).

This section summarises key material from the OMP regarding both the Offset Area and the Offset Delivery required to compensate for potential significant impacts to Koala and Greater Glider. The full OMP is provided in ***Appendix F***.

7.1 Offset Area Description

A portion of a property known as Croydon Station (formally Lot 4 on Plan KL210) has been surveyed and identified as suitable to provide environmental offsets for the Project. Croydon Station occupies 58,669 ha and is located in central Queensland and is approximately 140 km south of Mackay and 77 km east of the Project (refer to ***Figure 12*** location context). The Offset Investigation Area (OIA) subject of the OMP is located in the far west of Croydon Station and occupies approximately 845 ha.

The Offset Area (115.56 ha) is located within the OIA (refer to ***Figure 13***). Croydon Station occurs within the Isaac Downs subregion which is part of the Brigalow Belt North Interim Biogeographic Regionalisation for Australia bioregion.

The OIA encompasses portions of the braided channel system associated with the Connors River, the main channel of which is a stream order 7 watercourse. Connors River flows in a general north-to-south direction through the OIA and is recognised as a State significant riparian corridor, providing important connectivity opportunities for flora and fauna (SQ 2025). The Offset Area abuts a contiguous patch of remnant vegetation associated with Connors River. The river maintains a contiguous linear vegetated connection to the north and south, where the width of the vegetation varies widely. Lotus Creek extends east from the Connors River and represents a riparian biodiversity corridor of regional significance. The Croydon Station property supports existing offset areas to the northeast of the Offset Area (refer to ***Figure 14***). Portions of the OIA are currently being considered as offset areas suitable for a separate BMA project.

7.1.1 Ecological Surveys and Habitat Quality Assessments

A comprehensive desktop assessment and ecological field surveys of the OIA were undertaken by E2M in April 2022, and March and November 2025. The terrestrial ecological values of the OIA and suitability to support MNES, including the Koala and Greater Glider (central and southern), was evaluated through a desktop assessment and field assessments informed by the recommended guidelines prescribed by the Queensland and/or Commonwealth governments.

Three field surveys were carried out (e2m Pty Ltd, 2026) within the OIA (inclusive of the Offset Area), consisting of:

- Survey 1 (6 to 10 April 2022): Comprising RE verification, habitat assessments, targeted fauna surveys for the Koala and Greater Glider (central and southern)
- Survey 2 (17 to 22 March 2025): Including additional RE verification, habitat assessments and targeted fauna surveys; and
- Survey 3 (10 to 13 November 2025): Comprising Habitat Quality assessments, additional habitat assessments within the Offset Area.

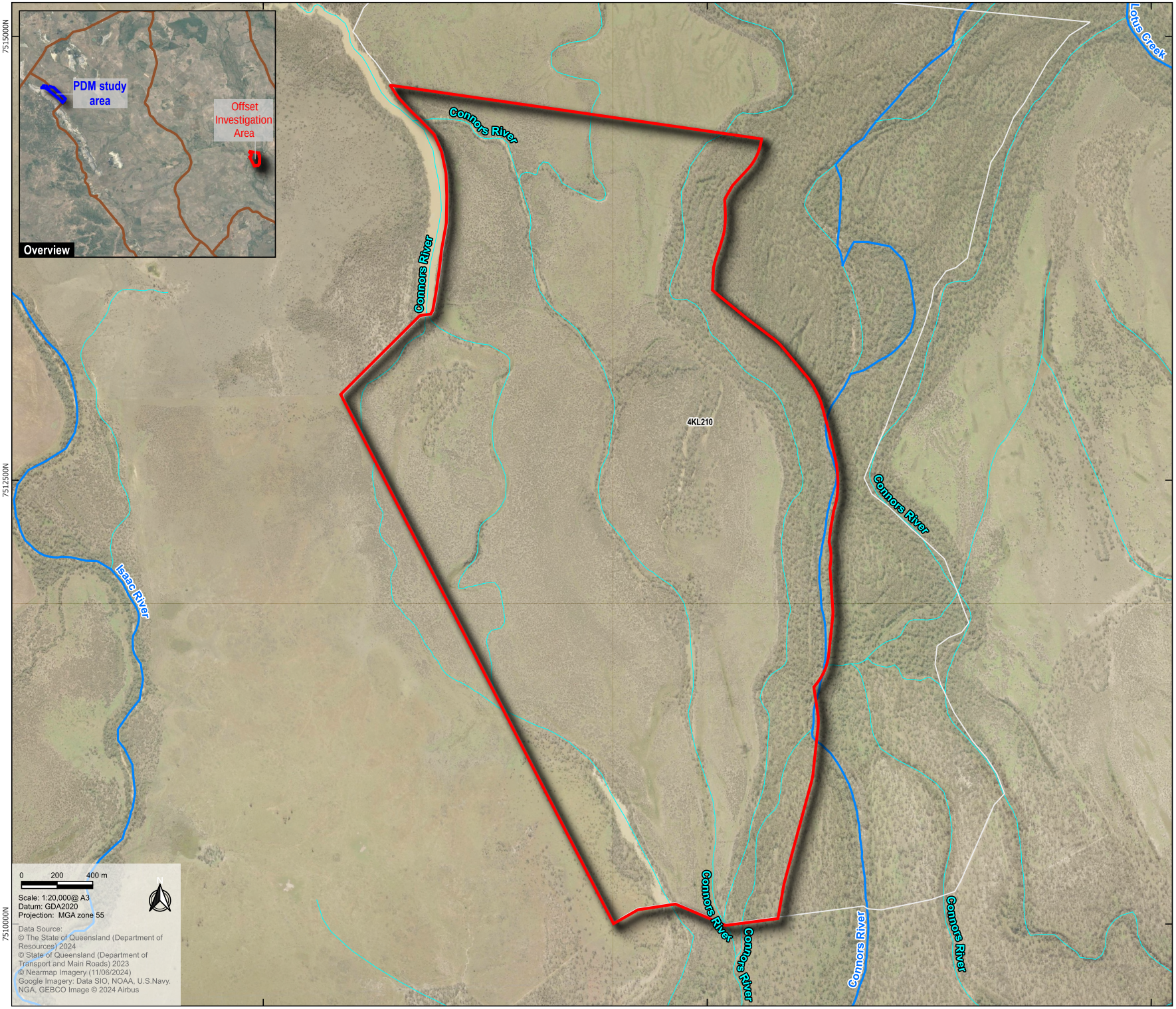
The detailed methodology utilised across these three survey events is detailed in Section 2.1.2 of ***Appendix F***.

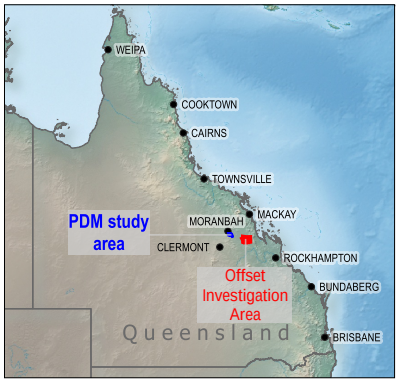
7.1.2 Vegetation communities

The OIA has been subject to cattle grazing with extensive areas cleared of native vegetation since at least the 1970s. Remnant vegetation is largely restricted to riparian corridors in the east of the OIA. The ecological assessments identified six REs as occurring within the OIA in a variable condition status. The extent of REs present within the OIA and the Offset Area are presented in ***Table 7-1*** and ***Figure 15***.

Table 7-1: Ground-truthed vegetation communities (REs) identified within the OIA and Offset Area

RE	Description (QH 2024)	Condition status	Extent within OIA (ha)	Extent within Offset Area (ha)
11.3.1	*Acacia harpophylla* open forest (particularly in southern parts), with or without scattered emergent *Eucalyptus coolabah* on alluvial plains	Remnant	1.95	-
		High value regrowth	38.54	-
11.3.3	*Eucalyptus coolabah* woodland on alluvial plains	Remnant	93.28	58.73
11.3.4	*Eucalyptus tereticornis* woodland to open forest occurring with other eucalypts on alluvial plains	Remnant	89.50	35.09
11.3.25	*Eucalyptus tereticornis* open forest occurring with other eucalypts on levees and banks of rivers	Remnant	22.03	21.74
11.3.27b	Freshwater wetland (billabongs) fringed by *Eucalyptus tereticornis* and *E. coolabah*	Remnant	27.54	-
11.8.4	*Eucalyptus crebra* woodland with other eucalypt species on Cainozoic igneous rocks	High value regrowth	10.99	-
Non-remnant	-	Non-remnant	561.01	-
		Total	844.82	115.56





Legend

- Offset Investigation Area
- Study Area
- Cadastre (DCDB)
- State controlled roads

Watercourses

- Major
- Minor

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This map has been compiled from the best information available to Epic Environmental. While effort has been made to create an accurate reference, it is not survey-verified, and some information may not be correct. Area calculations, boundaries and measurements displayed are GIS-derived approximations that may vary between datasets due to differences in projection systems and data collection methods.

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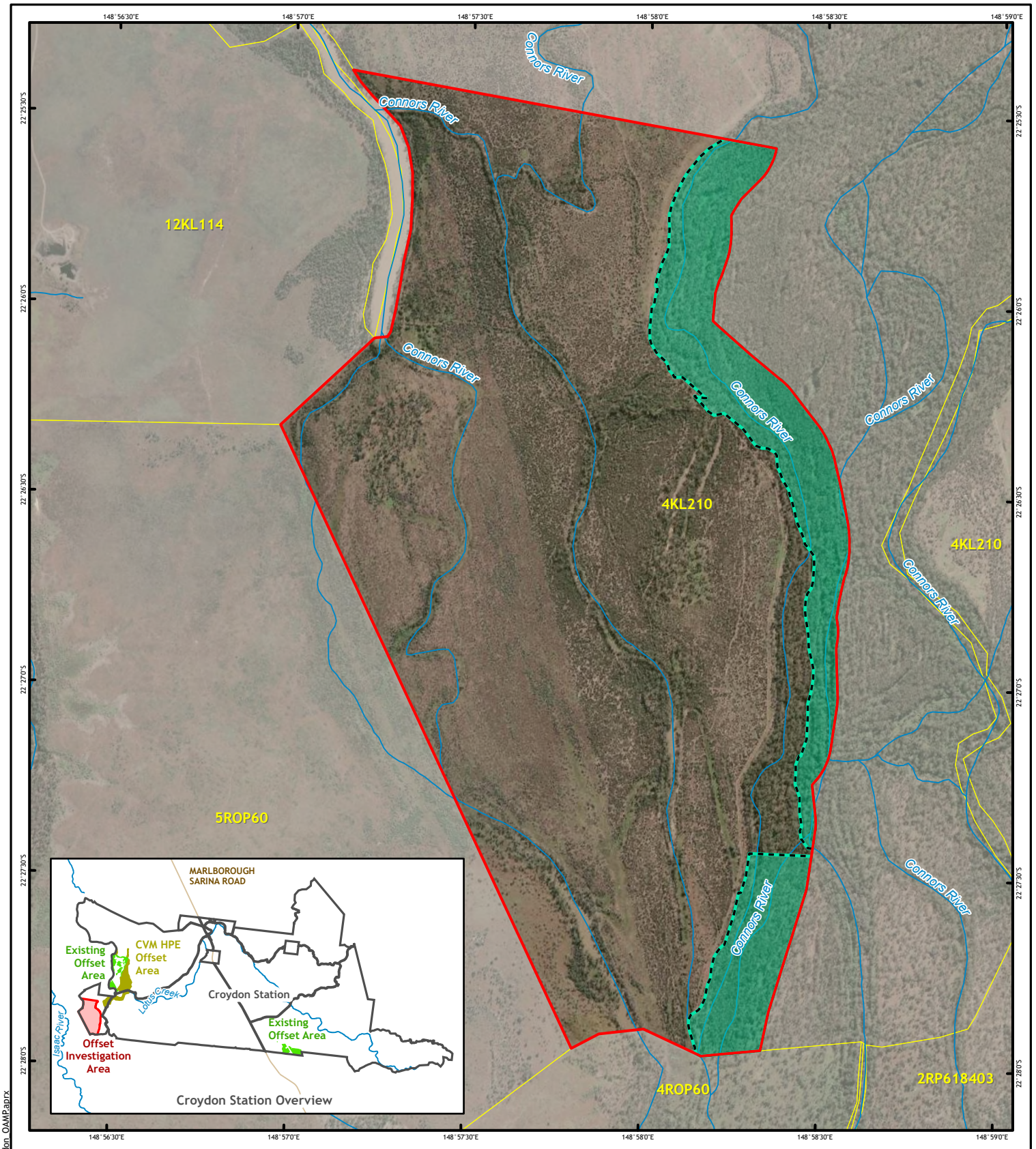
Figure 12

Contextual location:
Offset Investigation Area and Action Area



Legend

- Watercourse
- Cadastre
- Offset Investigation Area
- Offset Area

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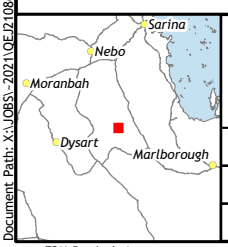
Kilometres

Coordinate System: GDA2020 MGA Zone 55
Projection: Transverse Mercator



Notes:
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Rev	Description	Drawn	Approved	Date
4	Issued for Review	GO	PW	3/03/2026

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FIGURE 13: OFFSET STUDY AREA - CROYDON STATION

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Map Number	Job Number	Rev
1 of 1	QEJ21086	4

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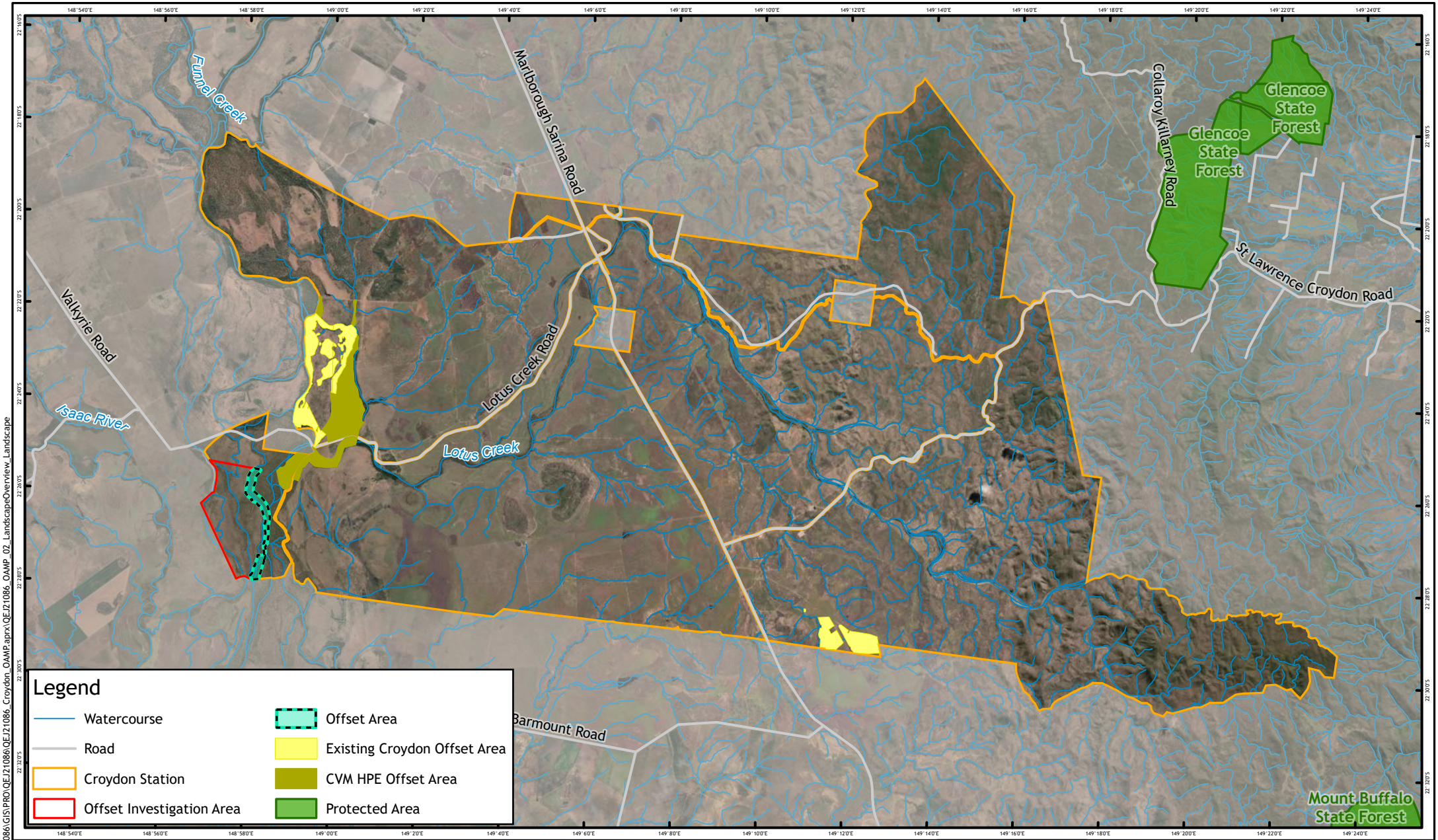

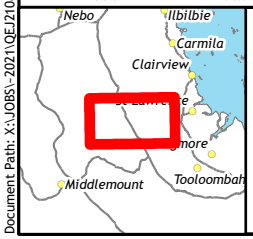

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Kilometres

Coordinate System: GCS GDA 1994

Notes:
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Rev	Description	Drawn	Approved	Date
4	Issued for Review	GO	PW	03/03/2026

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FIGURE 14: EXISTING AND PROPOSED OFFSET SITES IN CROYDON STATION

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Peak Downs Mine Power Line Realignment Project
BM Alliance Coal Operations Pty Ltd

Map Number	Job Number	Rev
1 of 1	QEJ21086	4

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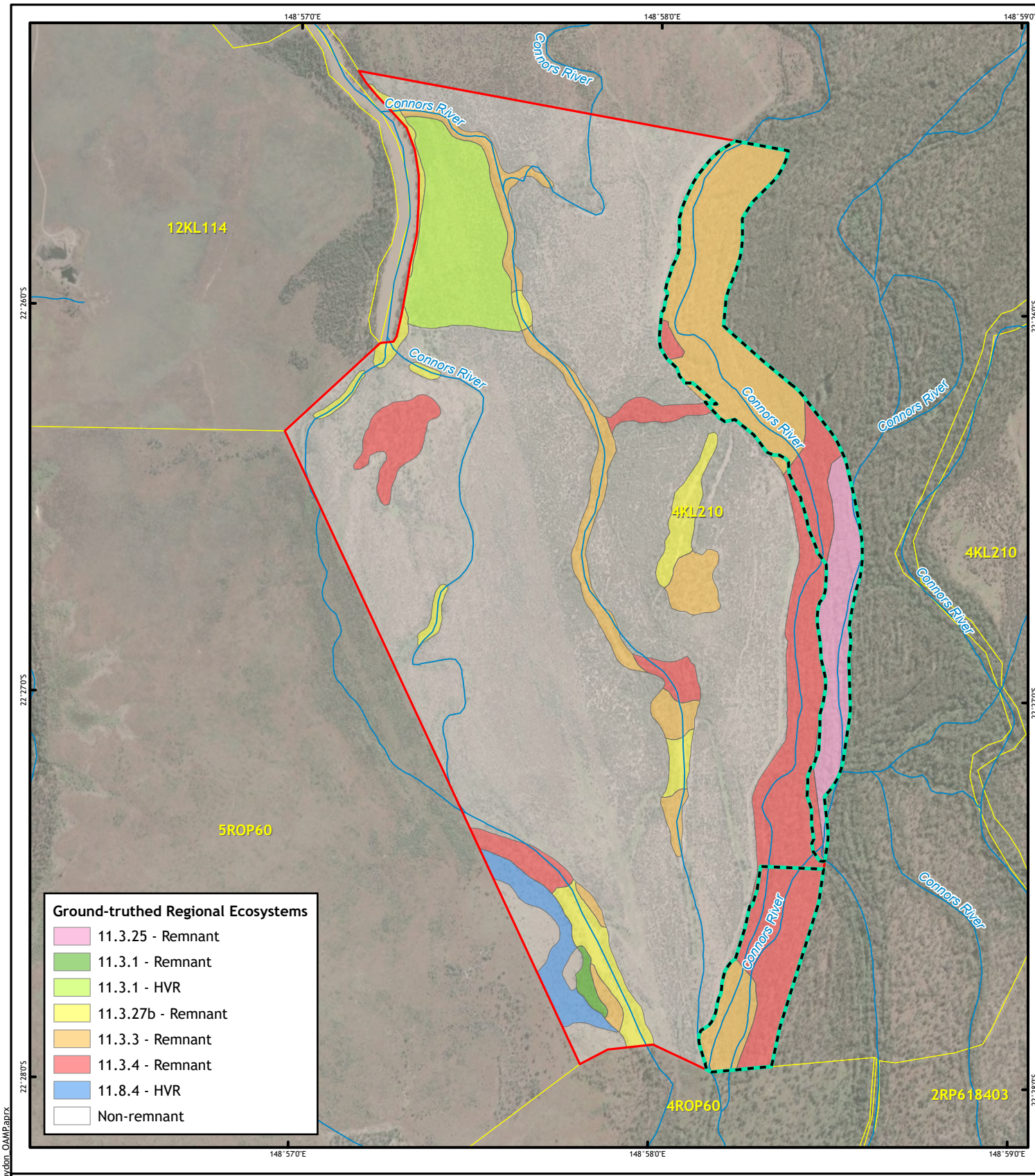


Legend

- Watercourse
- Cadastre
- Offset Investigation Area
- Offset Area

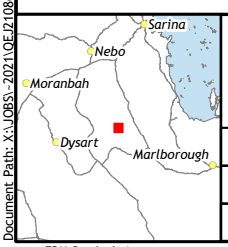
N

Scale 1:25,000 (A4)

0 0.5 1

Kilometres

Coordinate System: GDA2020 MGA Zone 55
Projection: Transverse Mercator



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Rev	Description	Drawn	Approved	Date
4	Issued for Review	GO	PW	03/03/2026

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FIGURE 15: GROUND-TRUTHED VEGETATION COMMUNITIES IN OIA

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Peak Downs Mine Power Line Realignment Project
BM Alliance Coal Operations Pty Ltd

Map Number	Job Number	Rev
1 of 1	QEJ21086	4

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7.2 Offset Area Suitability

The Commonwealth Offsets Policy requires that offsets must deliver an overall conservation gain which compensates for the SRIs associated with the Project. The Commonwealth Offset Policy is accompanied by the Offsets Assessment Guide (OAG), a practical tool that uses a balance sheet approach to compare impacts to offsets for threatened species and ecological communities. Conservation gain is typically measured as a quantifiable improvement in the quality of an area of habitat (i.e. Offset Area) relative to a baseline, and to that of the habitat impacted within the Proposed action. Habitat quality has been quantified within the Project and Offset Areas using the Queensland Guide to Determining Terrestrial Habitat Quality (Habitat Quality Guide) (DES, 2020).

Table 7-2 summarises the Offset Area suitability considering habitat extent and quality relevant to compensating the proposed potential significant impacts to Koala and Greater Glider.

Table 7-2: Offset Area suitability – habitat extent and quality

MNES	Proposed action impact			Offset Area			
	Significant Residual Impact (ha)	Habitat quality score	Habitat required for offset (ha) per OAG	Habitat available (ha)	Baseline habitat quality score	Future habitat quality score with offset	OAG acquittal
Koala	7.18	7	80	115.56	7	8	**144.9%**
Greater Glider	6.42	6	62	115.56	7	8	**189.1%**

7.2.1 Species presence and habitat

Habitat suitability for the two threatened species was mapped as per the habitat definitions described in the *Central Queensland threatened species habitat descriptions (Version 5)* (Kerswell et al. 2023). The following summarises the survey results and habitat mapping with relevance to Koala and Greater Glider.

A single Koala was observed in Queensland Blue Gum (Eucalyptus tereticornis) open forest habitat (RE 11.3.4). Additional evidence of activity was observed at locations throughout the OIA in RE 11.3.27b and RE 11.3.3. Koala habitat within the OIA was categorised as follows:

- Preferred habitat (232.01 ha): includes remnant REs 11.3.3, 11.3.4, 11.3.25 and 11.3.27b, characterised as contiguous remnant eucalypt woodlands, dominated by locally important food tree species, associated with riparian corridors and floodplains.
- Suitable habitat (10.98 ha): high-value regrowth RE 11.8.4, where food trees are present but not dominant and/or areas of eucalypt dominated woodlands located away from permanent or ephemeral water.
- Marginal habitat (40.49 ha): remnant and high-value regrowth RE 11.3.1, only where Coolabah (*E. coolabah*) is an associated species. Also includes non-remnant RE 11.8.4. Considered marginal habitat due the low abundance of Koala food trees and historical disturbance.

Greater Glider was recorded across both survey efforts during spotlighting at six locations within the OIA. The species was recorded in Queensland Blue Gum and Coolabah dominated habitat (RE 11.3.4 and 11.3.3). Greater Glider habitat within the OIA was categorised as follows:

- Preferred habitat (181.76 ha): includes remnant REs 11.3.3, 11.3.4, 11.3.25 and 11.3.27b, characterised as contiguous remnant eucalypt woodlands, comprising suitable hollows and dominated by feed tree species (i.e. breeding/denning and foraging habitat), largely associated with riparian corridors and floodplains.
- Suitable habitat (24.12 ha): corridors of remnant REs 11.3.3 and 11.3.27b that may be utilised for foraging surrounded by non-remnant vegetation, where food trees are present, but density of suitable hollows was low, and habitat restricted to a narrow corridor.

- Marginal habitat (12.97 ha): remnant REs 11.3.27b and 11.3.3 containing food trees and scattered hollows but isolated from larger areas of preferred or suitable habitat.

The Koala and Greater Glider sightings, and the abovementioned habitat types, are presented in ***Figure 16*** and Figure 17, respectively.

7.2.2 Achieving a conservation gain

The Commonwealth Offsets Policy (DSEWPaC, 2012) observes a conservation gain, "*is the benefit that a direct offset delivers to a protected matter, which maintains or increases its viability, or reduces any threats of damage, destruction, or extinction. A conservation gain may be achieved by:*

- *Improving existing habitat for the protected matter.*
- *Creating new habitat for the protected matter.*
- *Reducing threats to the protected matter.*
- *Averting the loss of a protected matters or its habitat that is under threat.*"

The management objectives of the OMP aim to achieve the following conservation benefits:

- To protect and improve existing habitat within the Offset Area for Koala and Greater Glider so in the long-term providing:
  - The equivalent area of habitat value (at a minimum) to that of the Project impact site; and
  - Greater conservation value than its current form.
- Reduce threats to Koala and Greater Glider in the local area associated with the Offset Area and surrounds.

It is important to note that the Offset Area currently comprises remnant vegetation that is associated with a large contiguous patch associated with the Connors River riparian corridor. As such, the current habitat quality for the Koala and Greater Glider are moderate to high (score of 7). To achieve an overall 'net gain' for both species in accordance with the EPBC Act Offset Policy, the Offset Area exceeds offset acquittal (i.e. >100%) as determined by the Offset Assessment Guide (refer to Section 1.2 of ***Appendix F***).

The OMP identifies specific management actions that will collectively enable the above objectives. The management actions have also been developed to be consistent with the S.M.A.R.T. principle: Specific, Measurable, Achievable, Relevant and Time-bound.

The management actions have been designed to result in net gain for the species through:

- Improve the general condition of habitat areas for Koala and Greater Glider.
- Reduce / remove degrading processes and key threats across the Offset Area.
- Improve den site opportunities for Greater Glider across the Offset Area.

The management actions have been developed with respect to the conservation and management priorities identified in the following Commonwealth documents:

- National recovery plan for the Koala *Phascolarctos cinereus* (DAWE 2022).
- Conservation advice for *Petauroides volans* (Greater Glider (southern and central)) (DCCEEW 2022).
- Threat abatement plan for predation by feral cats 2024 – considered relevant to both species (DCCEEW 2026).

In summary, the proposed management measures (refer to Section 3.3 of ***Appendix F***) are above any current obligation present on the land, and will result in:

- Improvement in MNES species habitat through:
  - active weed management
  - natural regeneration of habitats via control of livestock grazing
  - pest and fire management as well as removal of barbed-wire fences (top strand), reducing current threatening processes; and

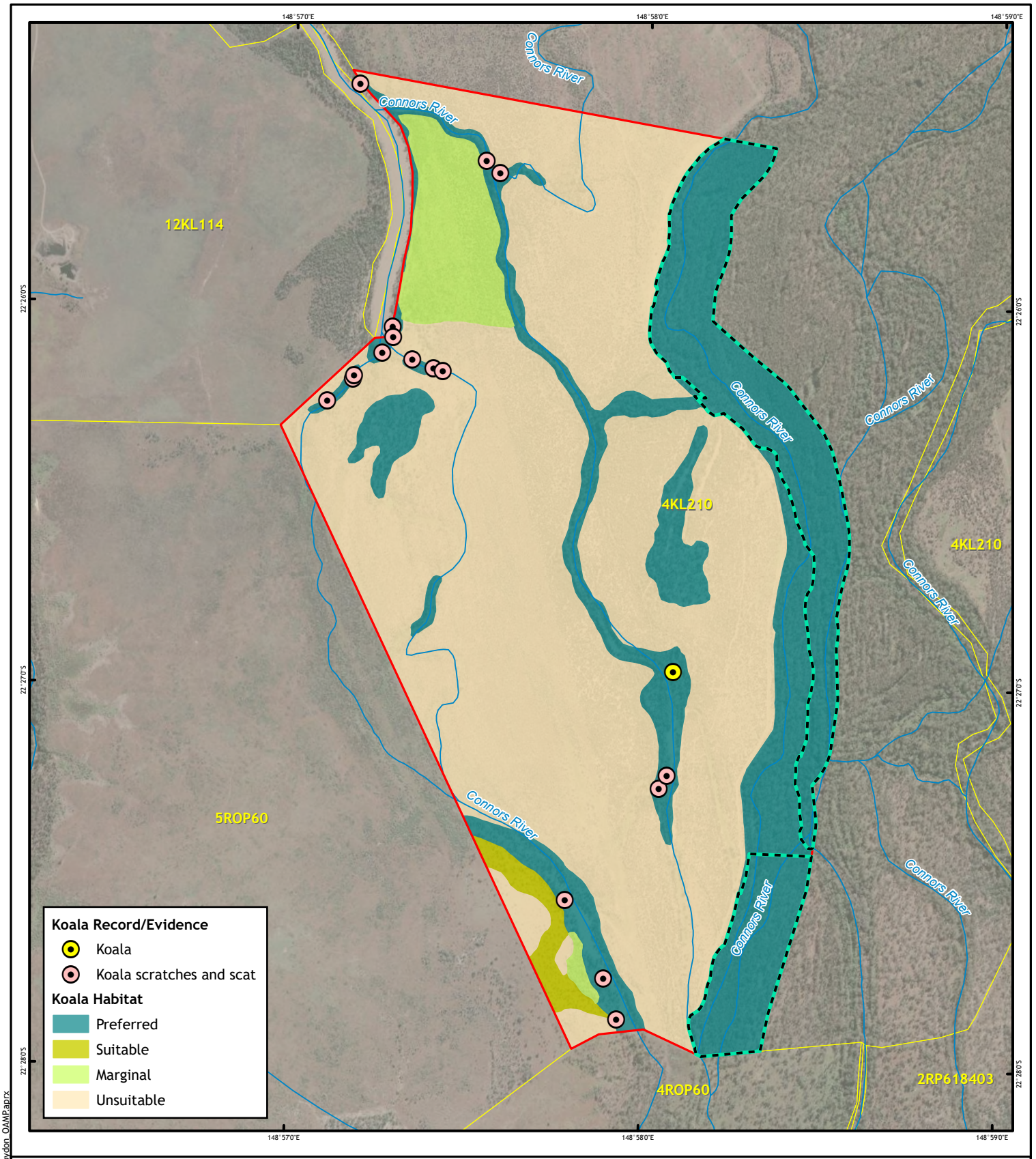
- installation of nest boxes to improve availability of denning habitat for the Greater Glider.

- Securement of the Offset Area as Category A area using a Voluntary Declaration (VDec) under the provisions of the VM Act, as well as via a covenant pursuant to the *Land Act 1994*, will provide a level of security above what is already in place within the Offset Area. Specifically, securement of the Offset Area will protect the Offset Area from:
  - future changes in legislation which could result in reduced protection; and
  - future clearing, including clearing of the currently-mapped Category B regulated vegetation that could potentially be undertaken as Exempt Clearing Work or under future approval.

Full details on the management actions are available in Section 3 of the OMP in ***Appendix F***.

7.2.3 Risk of Loss

Associated risk of loss has been determined as 0% both for 'with' and 'without' offset, supported by a 100% confidence in the risk of loss scores (refer to the OMP in ***Appendix F*** for more detail).



Legend

- Watercourse
- Cadastre
- Offset Investigation Area
- Offset Area

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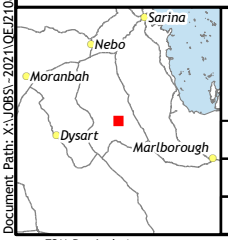
Kilometres

Coordinate System: GDA2020 MGA Zone 55
Projection: Transverse Mercator



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Cadastre: © DNRMMRRD 2025
Ordered Drainage: © DNRMMRRD 2025
Road: © DNRMMRRD 2025

Rev	Description	Drawn	Approved	Date
4	Issued for Use	GO	PW	03/03/2026

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FIGURE 16: KOALA HABITAT MAPPING AND PRESENCE ACROSS THE OIA AND OFFSET AREA

Peak Downs Mine Power Line Realignment Project
BM Alliance Coal Operations Pty Ltd

Map Number	Job Number	Rev
1 of 1	QEJ21086	4

Document Path: X:\JOBS\-2021\QEJ21086\GIS\PRO\QEJ21086\QEJ21086_Croydon_OAMP.aprx

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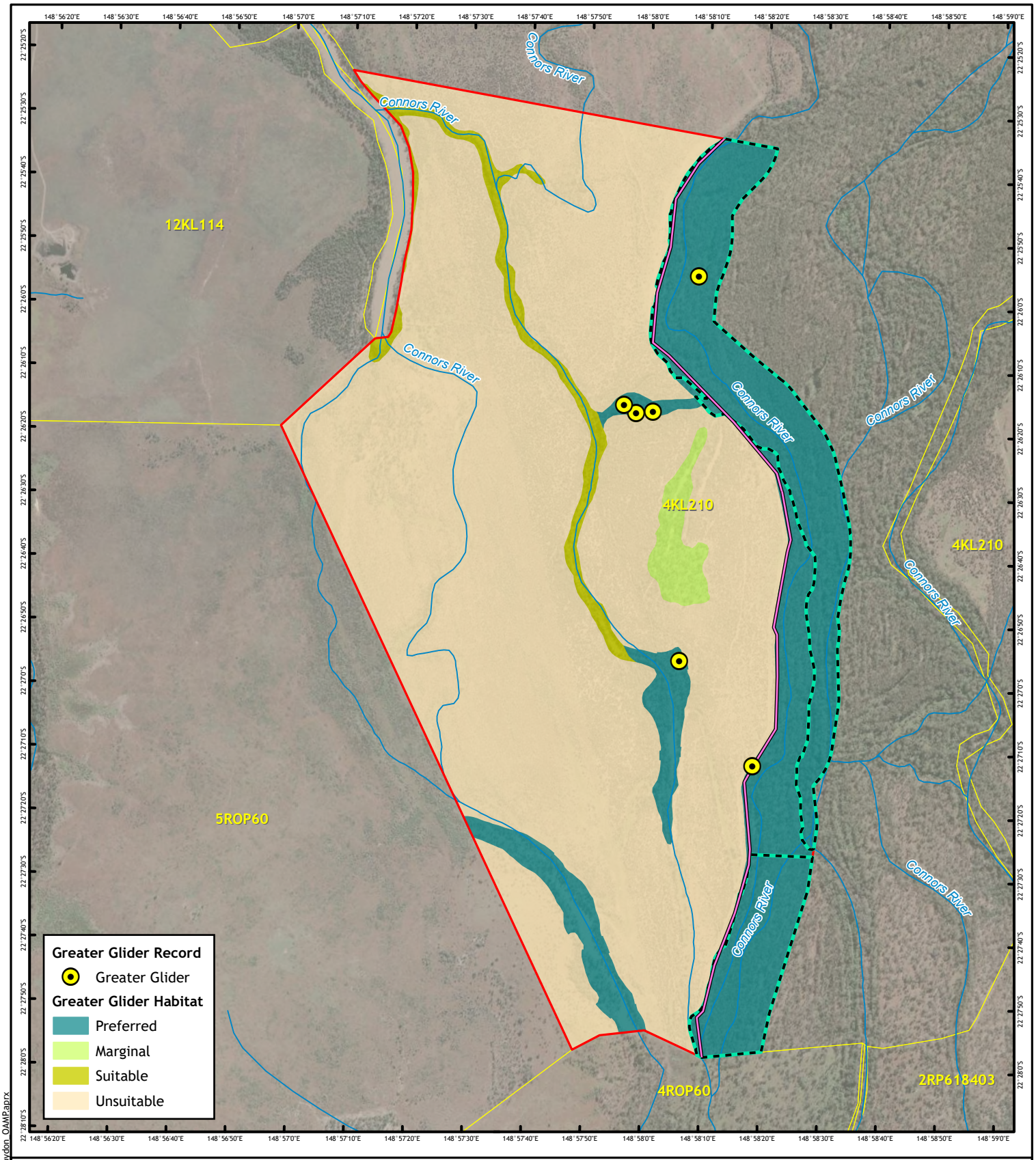


Legend

- Watercourse
- Fencing (Barb-wire Fence)
- Cadastre
- Offset Investigation Area
- Offset Area

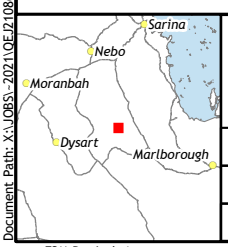
N

Scale 1:25,000 (A4)

0 0.5 1

Kilometres

Coordinate System: GDA2020 MGA Zone 55
Projection: Transverse Mercator



Notes:
Aerial Imagery: © ESRI 2025
Cadastre: © DNRMMRRD 2025
Ordered Drainage: © DNRMMRRD 2025
Road: © DNRMMRRD 2025

Rev	Description	Drawn	Approved	Date
4	Issued for Review	GO	PW	03/03/2026

BMA
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FIGURE 17: GREATER GLIDER HABITAT MAPPING AND PRESENCE ACROSS THE OIA AND OFFSET AREA

Peak Downs Mine Power Line Realignment Project
BM Alliance Coal Operations Pty Ltd

Map Number	Job Number	Rev
1 of 1	QEJ21086	4

Document Path: X:\JOBS\-2021\QEJ21086\GIS\PRO\QEJ21086\QEJ21086_Croydon_OAMP.aprx

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7.3 Offset Delivery

The offset for Koala and Greater Glider will be implemented via the successful delivery of the OMP (refer ***Appendix F***).

7.3.1 Timeframes and Legal Security

BMA anticipates that implementation of the OMP will be a condition of the Project's EPBC Act approval.

The Offset Area will be secured through a VDec of the site as of 'high nature conservation value' under the VM Act. Legal securement of the Offset Area via this mechanism will occur within 12 months of commencement of the Action. During this time, a nature covenant under the Queensland *Land Act 1994* will also be progressed to bind current/future landowners to the offset's conservation objectives to ensure its enforceability and longevity. The OMP will be attached to the legal mechanism used to legally secure the Offset Area for the duration of the offset.

7.3.2 Offset Management Plan

The OMP has been developed to guide management and monitoring of the Koala and Greater Glider within the Offset Area. Its objective is to deliver an overall conservation benefit which compensates for the potential significant residual impacts to Koala and Greater Glider associated with the Proposed Action.

The OMP provides:

- Details of the residual impacts to MNES as a result of the Project including area and habitat quality.
- Description of the Offset Area including survey data documenting the presence of the MNES within the Offset Area and surrounds.
- Details demonstrating how the Offset Area compensates for the significant impacts on the relevant MNES including area and habitat quality and how the Offset Area provides connectivity with adjacent habitats and biodiversity corridors.
- Specific, committal, and measurable environmental outcomes that detail the nature of the conservation gain to be achieved for each MNES including management measures and implementation timeframes.
- Details of the nature, timing and frequency of monitoring to inform progress against 5-yearly interim milestones including associated reporting.
- Details and execution timing of the mechanism to legally secure the proposed Offset Area.

7.3.3 Offset Monitoring

As described in the OMP (***Appendix F***), monitoring will be required for the duration of the offset to measure the success of the management actions implemented under the OMP. Monitoring will provide a record of progress towards offset completion criteria and a mechanism for review of the OMP and development of alternative management (corrective) action/s where performance targets are not being met.

Offset monitoring activities will comprise the following:

- Baseline assessments, including:
  - Targeted species presence - Koala and Greater Glider surveys to determine current presence and abundance
  - Biocondition assessments to determine habitat quality
  - Weed and pest surveys; and
  - Hollow density assessments.
- Ongoing monitoring, comprising:
  - Koala and Greater Glider presence and abundance monitoring
  - Habitat quality monitoring for assessment of progress toward completion criteria

- Nest box monitoring and maintenance
- Feral predator presence monitoring
- Weed presence, abundance and distribution monitoring; and
- Inspection of infrastructure associated with the offset

Further detail regarding the baseline and ongoing monitoring actions is provided in Table 9 of the OMP in ***Appendix F***. The summary describes timing of each baseline and monitoring activity and key performance indicators (KPIs) associated with the management actions. The KPIs stipulate a target against which to measure the success of the offset management actions, thereby providing a positive conservation benefit to the two target species in the long-term.

Monitoring will be undertaken in the Offset Area for the life of the offset to ensure that offset completion criteria is achieved and maintained (should the criteria be met ahead of time).

7.3.4 Reporting

The Proponent will prepare a report on the implementation of this OMP at Year 1, Year 2 and Year 5, and then every five years for the remaining 15 years or until completion criteria are met (for a minimum of 20 years whichever is longer). The report will summarise management and monitoring activities carried out and detail progress towards the offset KPIs, performance targets and completion criteria.

Reporting will be made publicly available where required under the Project EPBC Act approval conditions.

8 Rehabilitation Requirements

The Project will be subject to rehabilitation post-mining and in accordance with the PDM EA (EPML00318213) and the PDM Progressive Rehabilitation and Closure Plan (PRCP).

The chosen alignment for the power line has been designed to avoid MNES to the greatest extent possible, as detailed in ***Section 5***. Ongoing mitigation measures are to be implemented as part of the Project. This includes clearing of vegetation only where safety and access requirements demand it within the Project Area.

The 10 m wide construction access track will not be formalised as a gravel access track which would typically result in preventing the vegetation regrowth. Instead, it will be allowed to regenerate naturally following completion of construction of the power lines and will be subject to weed management to support the regeneration of the natural grassland.

During the operational life of the power line, the entire area will be managed through slashing and grazing to keep fuel loads controlled in the corridor and to allow continued maintenance access.

Disturbed areas no longer required for operational purposes will be rehabilitated to a safe, stable and non-polluting landform in accordance with the PDM EA. The access track and powerline easement will be left to naturally regenerate. Proactive steps will be taken to avoid introducing and exacerbating invasive species, including compliance with BMA's Weed and Feral Animal Procedure. Monitoring during the operational and maintenance phases will be conducted, with immediate action plans for any new invasive species detected.

Any decommissioning works will be undertaken in accordance with legislative, regulatory and best practice requirements current at the time that decommissioning is required.

The off-lease portion of the Proposed action will be managed in the same manner as the on-lease portion, in accordance with PDM EA. Rehabilitation at the PDM is currently implemented under the EA conditions. Rehabilitation objectives have been designed in accordance with the DETSI four (4) General Rehabilitation Goals which requires areas disturbed by mining to be rehabilitated to a safe, stable and non-polluting state, able to sustain an agreed post-mining land use.

The PDM EA defines the Acceptance Criteria agreed with DETSI that must be met to achieve the postmining land uses. The majority of PDM will be rehabilitated to a post mining land use (PMLU), as conditioned by the PDM EA. This is applicable to the Proposed action area.

9 Ecologically Sustainable Development

This section outlines the Project's compatibility with the principles defined in Section 3A of the EPBC Act. An outline of the Project against the Ecologically Sustainable Development (ESD) requirements of Section 3A of the EPBC Act is provided in ***Table 9-1***.

Table 9-1: Project compatibility with Section 3A of the EPBC Act

Section 3A, EPBC Act	Project Compatibility
The following principles are principles of ecologically sustainable development:	BMA is committed to the principles of sustainable development, including the wellbeing of its employees and communities. BMA is also committed to developing, implementing and maintaining management systems for health, safety, environment and the community that are consistent with best practices. This commitment is given practical effect by BMA's Environmental Management System which is aligned to ISO14001, and the procedures and operational protocols through which these systems are applied at a site level. Through these systems, BMA seeks to achieve its stated company goal of "zero harm to people and the environment".
Decision making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations	The Project will provide sustained employment and wealth for the region. Issues of community interest and concern will be addressed through BMA's ongoing engagement with key stakeholders throughout the life of the Project as an extension of its existing key stakeholder program. The management of the Project will align with the current approach of the PDM and the BMA Environmental Management System. The Project will achieve an ongoing minimisation of the activity's environmental harm through the existing environmental management plans (e.g., Weed and Feral Animal Management Procedure) and the MNES Management Plan provided as part of this PD. In addition, BMA is committed to providing a safe, inclusive and diverse workplace.
If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation	The 'precautionary principle' is defined in Section 391 (2) of the EPBC Act, that being: *The precautionary principle is that lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there are threats of serious or irreversible environmental damage.* To address this principle, BMA has undertaken an assessment of the risk of unacceptable environmental harm consistent with the precautionary principle. These findings have been incorporated into the development of appropriate environmental control strategies/mitigation strategies. These strategies are outline in ***Section 5***. Further, BMA has the technical and financial support and resources to establish and maintain the proposed environmental protection controls/mitigation measures proposed for the Project.
The principle of inter-generational equity – that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations	The Project addresses the welfare of future generations while realising economic benefits. The welfare of future generations has been considered through minimising disturbance and building beneficial infrastructure. The Project aims to preserve, where possible, the ecological value areas and has designed the Project footprint to minimise impacts as reasonably practicable, as detailed in ***Section 5***. The Proposed action has been designed to minimise its impacts as far as reasonably practicable. Conditions of the approvals relevant to the Proposed action, including the existing PDM EA, Operational Works for native vegetation clearing, and conditions applied as a part of this EPBC Act approval, will regulate key aspects of the Proposed action. These conditions ensure that the impacts of the Proposed action are carefully managed to preserve environmental values over the long term. In summary, through the continued use of sound management practices (currently implemented), the Project will not significantly reduce, or fail to maintain, the health, diversity and productivity of the regional environment or affect future generations.
The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making	BMA has taken a proactive approach to avoid and minimise environmental impacts on biodiversity. The Disturbance footprint was designed following extensive ecological surveys and iterative planning to avoid high-value ecological areas and minimise habitat fragmentation. The majority of the Disturbance footprint occurs within areas that are not considered habitat for MNES. This strategic siting of infrastructure preserves critical habitats and maintains landscape connectivity, thereby supporting the ecological integrity of the Disturbance footprint.
Improved valuation, pricing and incentive mechanisms should be promoted	The Project will be managed in accordance with relevant Queensland and Commonwealth Government policies and standards.

10 Economic and Social Matters

10.1 Economic and Social Impacts

The relocation of the 66kV powerlines at the PDM will deliver significant economic and social benefits. By removing the infrastructure from active production areas, including blasting zones, the Project enhances operational safety and reduces the risk of damage to critical assets. This relocation supports uninterrupted coal production, contributing to the stability and efficiency of mining operations. The resulting production reliability benefits local government through sustained employment and economic activity, while also supporting state and federal governments via consistent royalty and tax revenues. Overall, the Project underpins long-term operational resilience and community prosperity.

This Project will have a positive social impact by supporting a safer and more reliable working environment at PDM, which helps protect the wellbeing of workers and the broader community. By ensuring stable coal production, the Project also supports local employment and provides flow-on benefits to local businesses and services. A strong, steady mining operation contributes to community confidence and helps maintain the social and economic fabric of the region.

10.2 Economic Costs and Benefits

Benefits from the Project occur through the continuity of employment, expendable income, export earnings and government revenue. This is due to PDM continuing to operate safely due to the relocation of powerline infrastructure to be outside of blasting and operating zones. In the current state, operations are restricted due to the proximity of the powerline infrastructure and expose said infrastructure to losses of transmission and lengthy maintenance delays, impacting revenue downstream such as export earnings and government revenue.

BMA is the largest employer in the Central Queensland region and provides local jobs for its direct employees with an employment flow-on effect in the Isaac Regional LGA. The PDM has approximately 2,560 full time equivalent employees, including labour hire and contractors. These jobs are reliant on maintaining continuity of mining operations at the PDM through the proposed action.

The local and regional community has established itself to service the existing PDM, and is therefore accustomed to the benefits, costs and demands associated with mining operations. Development of the proposed action will provide continued direct employment opportunities to the regional communities, and long-term flow-on social and economic benefits in the form of stable royalty payments to the State, taxes, expenditure with regional businesses and continuation of employment of the significant PDM workforce.

10.3 Public Consultation

BMA maintains ongoing dialogue and consultation with key stakeholders regarding its actions and future plans at its operations in central Queensland. The following stakeholders are frequently consulted at various stages of the Proposed action development and implementation:

- Local landholders
- Community groups
- Overlapping tenure holders
- Infrastructure service providers
- Native Title parties (Barada Barna People)
- Isaac Regional Council
- Queensland Department of Environment, Tourism, Science and Innovation
- Queensland Department of Natural Resources and Mines, Manufacturing, and Regional and Rural Development
- Commonwealth DCCEEW

10.4 Indigenous Engagement

Indigenous consultation for the Proposed action will be undertaken through regular Relationship Committee meetings between BMA and the Barada Barna people (determined Native Title group) as prescribed under the BMA and Barada Barna Aboriginal Corporation Indigenous Land Use Agreement (2024), and cultural heritage management will be conducted via the processes set out within the Peak Downs Cultural Heritage Management Plan (2024). Cultural heritage surveys over the entire Disturbance footprint were undertaken in 2022 and 2024. Cultural heritage sites are known within the Action area, recorded during recent surveys and intermittently over the last 15 years. These sites, and any ongoing or new recordings, will be managed in accordance with Cultural Heritage Management Plan processes.

11 Environmental Record of the Person Proposing to take the Action

BMA has an excellent record of responsible environmental management and a strong commitment to the communities and the environments in which it operates. BMA has no convictions for breaches of environmental management requirements and regularly reviews environmental performance and publicly reports on progress.

BMA has been the subject of environmental related proceedings in the Queensland Magistrates Court for matters related to State legislation. A fine was imposed and paid by BMA. No conviction was recorded. To the best of our knowledge and enquiries, there have been no further proceedings against BMA under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources. The proposed action will be undertaken in accordance with the BMA's environmental policy and framework.

BMA has been responsible for multiple referrals and/or actions under the EPBC Act, including (but not limited to):

- 2024/09983 – BM Alliance Coal Operations Pty Ltd, Peak Downs Mine Power Line Realignment Project (draft received) (the referral preceding this PD report)
- 2023/9757 – BM Alliance Coal Operations Pty Ltd, Saraji Mine Grevillea Pit Continuation Project (assessment commenced)
- 2022/9350 – BM Alliance Coal Operations Pty Ltd, Peak Downs Mine Continuation Project (assessment approach determined)
- 2021/9031 – BM Alliance Coal Operations Pty Ltd, Caval Ridge Mine Horse Pit Extension (reconsideration request received)
- 2019/8576 – BM Alliance Coal Operations Pty Ltd, Saraji Mine Spring Creek to Phillips Creek Diversion (approved).
- 2016/7791 – BM Alliance Coal Operations Pty Ltd, Saraji East Mining Lease proposed action (reconsideration request received)
- 2013/6868 – BM Alliance Coal Operations Pty Ltd on behalf CQCA JV, Dysart Road Relocation (approved)
- 2013/6865 – BM Alliance Coal Operations Pty Ltd, Red Hill Mining Proposed action (approved)
- 2012/6268 – BM Alliance Coal Operations Pty Ltd, M Block 3D Seismic Survey Program (approved)
- 2009/4759 – BM Alliance Coal Operations Pty Ltd, Hay Point Coal Terminal Expansion (approved)
- 2008/4659 – BM Alliance Coal Operations Pty Ltd, Vessel-based Seismic and Hydrographic Sonar Survey (approved)
- 2008/4417 – BM Alliance Coal Operations Pty Ltd on behalf CQCA JV, Caval Ridge Open Cut Coal Mine Proposed action (approved)
- 2005/2248 – BM Alliance Coal Operations Pty Ltd, Goonyella Riverside Coal Mine Expansion (project withdrawn)
- 2005/2211 – BM Alliance Coal Operations Pty Ltd, Hay Point Services Coal Terminal Offshore Expansion (approved)
- 2004/1447 – BM Alliance Coal Operations Pty Ltd, Norwich Park Coal Mine - Development of East Pit (approved).
- 2004/1733 – BM Alliance Coal Operations Pty Ltd on behalf CQCA JV, Expansion of the Hay Point Coal Terminal (approved).

BMA has a strong commitment to continual improvement of environmental performance. BMA has environmental procedures and plans in place to avoid breaches and where required incorporate corrective actions. Where breaches have occurred, BMA has followed the relevant regulatory notification requirements

and has responded immediately to apply the appropriate corrective actions to rectify the relevant breaches and to avoid environmental harm.

BHP's approach to environmental management is incorporated in the Charter, which outlines 'an overriding commitment to health, safety, environmental responsibility and sustainable development'. BHP strives to achieve the efficient use of resources, including reducing and preventing pollution, and enhancing biodiversity protection by assessing ecological values and land use in our activities. Our stewardship approach is designed to ensure that the lifecycle health, safety, environment and community impacts associated with resources, materials, processes and products related to our businesses are minimised and managed.

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