MILLENNIUM EXPANSION PROJECT WOTONGA OFFSET AREA MANAGEMENT PLAN M MINING PTY LTD

EPBC Act Approval: 2009/4821

January 2023

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1 Introduction

The purpose of this management plan is to identify the management objectives and actions necessary to fulfil a statutory requirement for the provision of an offset for the Millennium Expansion Project under Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) approval 2009/4821 (Appendix 1). Specifically, this management plan fulfils Condition 2 which states:

To offset the impacts to the Brigalow (Acacia harpophylla dominant and co-dominant) ecological community, the person taking the action must submit to the Minister for approval an Offset Management Plan within 12 months of the date of this approval.

This Offset Area Management Plan is intended to support a Voluntary Declaration under the Queensland Vegetation Management Act 1999 which will protect the offset from clearing until the objectives and outcomes of the plan have been achieved. This management plan will be recorded on property title and is binding on current and future landholders.

This plan consists of the following components:

Part 1 – Summary Information:

1. Departmental reference details
2. Legislative triggers and impacts requiring offsets
3. Offset area details
4. Description of the values impacted in the clearing area and the values located in the offset area

Part 2 – Management Plan:

1. The offset area management objectives and outcomes
2. Any restrictions imposed on the use of the offset area
3. The activities that will be undertaken to achieve the objectives and outcomes
4. Monitoring requirements
5. An analysis of the risks to achieve the management objectives and outcomes
6. A map that shows spatially the areas subject to the management plan
7. A reporting program
8. Consent between the landowner and the delegate

Part 3 – Appendices:

1. Appendix 1: Mapping
2. Appendix 2: BioCondition Field Assessment Sheet
3. Appendix 3: EPBC Approval 2009/4821
4. Appendix 4: Risk Analysis
5. Appendix 5: Other Environmental Values

2 Summary Information

2.1 Departmental Reference Details

Reference and Assessment Details	
Queensland Departmental Ref Number: MIN10034430	**Queensland Offset ID:** 2013/007155
Property address: 'Wotonga Pastoral Holding', Ellensfield Rd, Burton, Queensland	
Real property description (Primary Lot on Plan/s): Lot 13 on SP178466 (offset)	
Tenure: Leasehold	**Primary Local Government Area:** Isaac Regional Council

Federal Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) Referral Trigger	Values impacted/requiring offset
EPBC Act Environmental Offsets Policy (2012) Controlling provision under the EPBC Act	☒ Listed threatened communities

2.2 Offset Area Details

Landholder Details	
Registered Owner/s on Title: State of Queensland	
Lessee: Wotonga Pastoral Pty Ltd	**Trustee:** N/A
Business/Company name (ABN/CAN): Wotonga Pastoral Pty Ltd (ACN: 33 229 389 728)	
Phone number: 61 (4) 407 168 013	**Mobile phone:** 61 (4) 407 168 013
Facsimile number:	**Contact person (if required):** Malcom Burston
Email: malburston.pl@bigpond.com	
Postal Address: 162 Geebung Station Road, Kuttabul, QLD, 4741	

Property Details	
Property name: 'Wotonga Pastoral Holding'	
Real property description (Lot on Plan/s): Lot 13 on SP178466	
Tenure: Leasehold	**Primary Local Government Area:** Isaac Regional Council
Planning Scheme Zone: Rural	**Offset area (ha):** 1,290
Registered interests[1]**:** (outside of the offset area)	

[1] Registered interests include mortgages, leases, subleases, covenants, profit á prendre, easements and building management statements, that have been registered on title under the *Land Act 1994* or the *Land Title Act 1994*.

1. Rights and interests reserved to the Crown by Lease No. 17668014.
2. Easement No 602806083 (A1249) 30/05/1979 Burdening the land to Queensland Electricity Commission over Easement A on GV149.
3. Transfer No 706303084 24/01/2003 at 11:38 of Easement: 602806083 (A1249) Resumption Easement: 602806087 (R1002) Queensland Electricity Transmission Corporation Limited A.C.N. 078 849 233.
4. Easement No 602806060 (A1278) 06/08/1979 Easement in pursuance of an agreement dated the 20th day of September, 1978 between the lessee of the within described holding and Queensland Electricity Commission for purposes as defined in such agreement.
5. Transfer No 706303027 24/01/2003 at 11:33 Easement: 602806060 (A1278) Queensland Electricity Transmission Corporation Limited A.C.N. 078 849 233.
6. Resumption Easement No 602806061 (R1016) 15/08/1986 Easement pursuant to proclamation dated 10th July 1986 under section 306 of the Land Act 1962-1986 over an area of 26.71 hectares as shown as Easement B on Plan GV277 deposited in the Department of Mapping and Surveying for the purpose of electrical works (Transmission line) is hereby resumed and shall vest in the Queensland Electricity Commission as from 12th July 1986.
7. Transfer No 703437134 07/07/1999 at 08:08 resumption Easement: 602806061 (R1016) Queensland Electricity Transmission Corporation Limited A.C.N. 078 849 233.
8. Resumption Easement No 602806087 (R1002) 15/08/1986 Burdening the land to Queensland Electricity Commission over Easement C on GV278.
9. Transfer No 707365377 09/01/2004 at 09:25 resumption Easement: 602806087 (R1002) Queensland Electricity Transmission Corporation Limited A.C.N. 078 849 233
10. Easement in Gross No 711365466 22/01/2008 at 16:21 burdening the land Queensland Electricity Transmission Corporation Limited A.C.N. 078 849 233 over Easement D on SP184906.
11. Easement in Gross No 711663868 21/05/2008 at 15:49 burdening the land Queensland Electricity Transmission Corporation Limited A.C.N. 078 849 233 over Easement E on SP184908.

Legally Binding Mechanism

Type of mechanism applied

☒ Voluntary Declaration (*Vegetation Management Act 1999*) ☐ Covenant (*Land Act 1994/ Land Title Act 1994*)

Reference Number:2013/007155 Reference Number:

☐ Nature Refuge (*Nature Conservation Act 1992*) ☐ Other

Reference Number: Reference Number:

2.3 Description of the values impacted on the clearing area and the values located on the offset area

Table 1 identifies the values impacted (for which the offset is provided) and the values present on the offset area.

Table 1: Description of values impacted and values located on the offset area

Impact Area				Offset Area		
Value	**Conservation Status (EPBC Act)**	**Regional Ecosystem (RE) and *Vegetation Management Act, 1999* Status[2]**	**Area hectares (ha)**	**Value**	**Conservation Status**	**Area (ha)**
Brigalow Threatened Ecological Community (*Acacia harpophylla* dominant and co-dominant)	Endangered	11.9.1 (E)	1.6	RE 11.9.5	Endangered	136
		11.9.5 (E)	0.9			
		Unknown	20			

[2] *VM Act* = Queensland *Vegetation Management Act 1999; E = Endangered*

3 Offset Description

3.1 Condition and structure

The Wotonga Pastoral Holding is located to the south of Burton Coal Mine in the Bowen Basin, 25 kilometres (km) north-west of Millennium Expansion Project (MEP), and approximately 150 km south-west of Mackay (Appendix 1, Figure 1). The Wotonga Pastoral Holding is approximately 19,450 ha in size. The offset area is situated in the western half of the property and is 1,312 ha in size. Approximately 136 ha of the offset area contains Brigalow remnant vegetation (Table 1). The Brigalow-dominated vegetation units are analogous to RE 11.9.5 (*Acacia harpophylla* open forest on fine-grained sedimentary rocks) and Brigalow Threatened Ecological Community (*Acacia harpophylla* dominant and co-dominant). It occurs as structurally diverse formations ranging from open forest to open woodland of Brigalow (*Acacia harpophylla*) with occasional trees to tall shrubs of Red Bauhinia (*Lysiphyllum carronii*) and Yellow Wood (*Terminalia oblongata*), with a variable shrublayer of False Sandalwood (*Eremophila mitchellii*), Native Capers (*Capparis spp.*), and a grassy groundlayer of windmill grasses (*Chloris spp.* and *Enteropogon spp.*), native bluegrasses (*Bothriochloa spp.*), or the introduced Buffel Grass (*Cenchrus ciliaris*).

In November 2011 Ecofund undertook field assessments throughout the proposed offset. These surveys identified that the area proposed as an offset was generally in good condition, with exotic perennial pasture grasses such as Buffel Grass dominant in only a few areas, usually along sandy watercourses or near stock watering points. Elevated areas, locations not obviously disturbed by mechanical clearing, places with heavy clay soils, or very quartz-rich soils tended to have a predominance of native perennial grass species. A single area of apparent man-made gullying was observed. There was evidence of apparent drought-death of Brigalow on the northern flanks of the valleys within the Spade Creek area. This phenomenon has been widely reported in the Moranbah district to the south, but little formal study has been conducted, either recently or historically. It should be noted that at least some of the remnant Brigalow observed occurred in an 'open-woodland' structural formation, thus appearing much less heavily wooded than many typical Brigalow communities to the west of the area of interest. However, this structural form was consistent with aerial imagery available from the mid-1960s, well before extensive mechanical clearing took place in this district (Pollock 2011).

The offset area also contains habitat for a number of threatened flora and fauna species. A discontinuous population of the flora species, Grey Milkwood (*Cerbera dumicola*), listed as near threatened under the *Nature Conservation Act 1992* (Qld; NC Act) was discovered on sandstone and tertiary duricrust scarps to the immediate southeast of upper Spade Creek. A discontinuous population of many hundreds was observed on the western hills of the Kerlong Range. This species appears to be restricted to scarp margins and open scalded areas, often within lancewood (*Acacia shirleyi*) forest in the southern and eastern parts of the offset area. The offset area also contains suitable foraging habitat for the Squatter Pigeon (southern) (*Geophaps scripta scripta*[3]). The offset area is dissected by Brook Creek, an ephemeral stream order 2 watercourse that is a tributary of the Isaac River

[3] Listed as Vulnerable under the EPBC Act and NC Act

Table 2: Condition of vegetation at the Wotonga Pastoral Holding offset area

Community	Condition	Age	Extent (ha)
Brigalow (*Acacia harpophylla* dominant and co-dominant) (RE 11.9.5)	Dominant canopy has greater than 70% of the height and greater than 50% of the cover relative to the undisturbed height and cover of that stratum and dominated by species characteristic of the vegetation's undisturbed canopy.	Remnant	136
Acacia and *Eucalyptus* species woodland	Dominant canopy has greater than 70% of the height and greater than 50% of the cover relative to the undisturbed height and cover of that stratum and dominated by species characteristic of the vegetation's undisturbed canopy.	Remnant	1,176
Total			**1,312**

3.2 Management requirements

Management requirements differ throughout the offset area due to differences in vegetation structure, habitat type and ecological condition. Two management zones have been identified within the offset area (Appendix 1, Figure 2):

- 'Active management zone' – Management actions will target the Brigalow-dominated vegetation communities, located in the more degraded lowland areas in the west. This area will benefit from active management, in particular a reduction of Buffel Grass cover to reduce competition with Brigalow regrowth and reduce the risk of high intensity wildfire. Management actions will include weed control, managing stock access, fire management, pest management and rehabilitation if deemed required by Ecologist monitoring.
- 'Passive management zone' – The mountainous areas in the east that form the larger proportion of the offset area are in better condition and will be passively managed.

The offset area would be protected from clearing through a voluntary declaration under the *Vegetation Management Act 1999* (Qld; VM Act; Appendix 1, Figure 3).

4 Management Plan A - Ecosystem requirements

4.1 Management objectives and outcomes

The management objectives and outcomes for the offset area are:

- 'Active management zone' 136 ha (Figure 2):
  - The ecological condition of remnant Brigalow vegetation is improved, and achieves the benchmark requirement scores outlined in Table 3.
- **'Passive management zone' 1,176 ha (Figure 2):**
  - Existing remnant vegetation and associated ecological values are protected from clearing. The condition of the passive management zone will be monitored. Should monitoring indicate a change in the condition of the passive management zone, an adaptive management approach will used.

Table 3: Key ecological condition indicators and necessary scores

Ecological condition indicator	Benchmark requirement score	Description	Benchmark RE 11.9.5
Recruitment of woody perennial species, benchmark requirement score	5	≥75% of overstorey species present as regeneration	100%
Native plant species richness, benchmark requirement score	2.5	≥25% to 90% of benchmark number of species within each life-form	Trees: 4 Shrubs: 5 Grasses: 7 Forbs: 13
Shrub canopy cover, benchmark requirement score	5	≥50% to ≤ 200% of benchmark shrub cover	15
Native perennial grass cover, benchmark requirement score	3	> 50 to 90% of benchmark perennial grass cover	27
Weed cover, benchmark requirement score	10	< 5 % weed cover	0

Note on BioCondition and benchmarks

BioCondition is a condition assessment framework for Queensland that provides a measure of how well a terrestrial ecosystem is functioning for biodiversity values. It is a site-based, quantitative and therefore repeatable assessment procedure that can be used in any vegetative state, and provides a numeric score that can be summarised as a condition rating of 1, 2, 3 or 4, or functional through to dysfunctional condition for biodiversity. In BioCondition, 'condition' refers to the degree to which the attributes of a patch of vegetation differ from the attributes of the same vegetation in its reference state. A BioCondition field assessment sheet is included as Appendix 2. The reference state of a given ecosystem is referred to as the benchmark. Benchmarks are provided on the Queensland Government website(https://www.qld.gov.au/environment/plants-animals/biodiversity/benchmarks).

4.2 Restrictions imposed on the use of the offset area

Restrictions will be implemented within the offset area to ensure the management objectives and outcomes are achieved (Table 4).

Table 4: Restrictions to be implemented within the offset area

Restrictions	How it will be implemented
Restricted access to the offset area.	The offset area will be fenced wherever access is possible with clear signage indicating its restricted access status.
Control of livestock access.	The majority of the offset area is bounded by cliffs (Figure 2). The section of the offset area not bounded by cliffs would be fenced to manage access of livestock. Pulse grazing for a short duration may be permitted for the sole purpose of controlling fuel loads to reduce the risk of a high intensity wildlife. Degraded/eroded sections of the active management area will be fenced to exclude cattle at all times.
Personnel and vehicles accessing the offset area must follow weed hygiene protocols.	Personnel are responsible for checking clothing for weed material prior to and after accessing the offset areas. Accompanying vehicles must have a valid weed inspection certificate prior to entering the Wotonga Pastoral Holding property.
No aerial- or vehicle-sown exotic pasture grass seeding within 50 metres (m) of the boundary of the offset area.	The proposed offset area is 4 km from the nearest property boundary, as well as being surrounded by mountainous terrain on three sides, so it will not be affected by aerial seeding at neighbouring properties. In addition, this management plan will prohibit aerial seeding within 100 m of the offset area, and prohibit vehicle sowing within 50 m of the offset area.

4.3 Responsible Parties

The following responsibilities apply to each party;

- **M Mining** is responsible for the management and resourcing of all monitoring, weed and pest control, any fence installation and any rehabilitation activities associated with the Wotonga Offset Area. M Mining is also responsible for ensuring this management plan is updated regularly.
- **All contractors** working within the Wotonga Offset Area are to ensure familiarity with and that all works to be completed in compliance with the Wotonga Offset Management Plan.
- **Leaseholder** to ensure familiarity and compliance with the Wotonga Offset Management Plan

4.4 Management activities

Management requirements vary throughout the offset area due to differences in vegetation structure, habitat type and ecological condition. Remnant vegetation associated with the Kerlong Range ('passive management zone') is currently in good condition with very little evidence of disturbance. The passive zone will be monitored biennially to identify any significant issues or decline in health with an action plan detailing approach to rectify issue and improve condition developed as required. . Targeted management actions to improve ecological condition detailed in this section will be undertaken in the 'active management zone'. A risk assessment and Trigger Action Response Plan (TARP) has been undertaken to identify and analyse any real or potential risks associated with achieving the management objectives and outcomes and is provided in Appendix 1: MappingAppendix 4..

4.4.1 Weed Control

Vertebrate pest species such as Pigs (*Sus scrofa*), Wild Dog (*Canis lupus*) and Feral Cat (*Felis catus*) pose significant threat to native fauna within the offset area as well as threaten to disrupt micro habitats such as any water source due to fouling. Signs for vertebrate pest species should be monitored during

the biannual photo monitoring. During the fauna surveys conducted every 4 years all pest interactions should be recorded and compared to record pest movements across the offset area. Similarly weeds are known to adversely affect the diversity and ecological and landscape function of a natural area. In particular exotic pasture grass species pose a significant risk to the offset area with reduced ground layer diversity, loss of microhabitat and increased risk of wildfire.

Weed and vertebrate pest control should be undertaken as required by appropriately experienced technicians or landholders throughout the entire life of the offset (25 years) with the objective to reduce density and extant of exotic grasses each year and eradicate other weed and pest priority species, with a target of less than five percent weed coverage and no new sightings of vertebrate pest species. A weed control plan (WAP) is to be maintained, guiding weed and vertebrate pest control priority, methodology, timing, and effort. The WAP should also provide guidance on weed hygiene measures.

Biennial weed surveys are to be undertaken. The WAP is to be updated to include priority and control methodology with findings of the biennial weed survey and incorporate, any continues improvement opportunities and adaptive management implemented over the preceding two years. Weed and vertebrate pest control is to consider 'Integrated Pest Management' principles and should include multiple control techniques e.g. baiting, shooting, biological control, crash grazing, and herbicide use. It is expected weed and vertebrate pest control activities will reduce over time as the condition of the offset area improves and the offset establishes natural resilience to weed and pest incursion.

4.4.2 Managing access by livestock

Most of the offset is bounded by cliffs and steep terrain effectively excluding stock. The remaining perimeter is to be fenced (four strand barb wire) to control cattle movement in and out of the offset. Cattle can be introduced to the offset for the purpose of pulse grazing for weed control and / or fuel load reduction only. Watering points (maximum of three) shall be installed if livestock are introduced, to remove pressure on degraded watercourses. Inspections of fencing to be completed six monthly, assessing for any repairs required due to fence damage or erosion undermining fencing. Any damages are to be repaired immediately or temporary exclusion options installed while construction or repairs are completed.

4.4.3 Fire Management

Fire and the risk of fire are to be managed within the offset through the implementation of a fire management plan. This will include but may not be limited to the installation of firebreaks and controlling of fuel load. Firebreaks are to be inspected 6 monthly to ensure, they stay free of obstructions to ensure effectiveness in preventing fire spread from neighbouring areas and allow access to the offset in the event of a fire. Pulse grazing is a method that could be applied within the offset area in order to reduce fuel loads of species such as Buffel Grass. This would require consultation with the landowner and agreed to timeframes for the movement of livestock as well as the establishment of a gated entry point to the property. Cattle should not be used in the offset if restricted matter is identified in the grazing paddock they are sourced from. Correct use of Pulse grazing would be the most effective way to keep site Biomass below the target of 1,300kg per hectare. Pasture biomass monitoring is to be completed as part of the ecological monitoring to inform the fire management plan program of actions to manage fuel loads.

4.4.4 Rehabilitation and Erosion and Sediment Control

Biannual visual monitoring to include any observations of erosion and / or unvegetated areas from disturbances including adverse weather, livestock damage, drought or other anthropogenic influences and record the extant and distribution of each item. Any active erosion or sediment movement in excess of natural processes should be investigated and a tailored erosion and sediment control plan drafted. A tailored revegetation plan should be drafted by a suitable qualified person if natural regeneration is unsuccessful in an unvegetated areas from disturbances or following erosion control measures. The revegetation plan may include but not limited to seeding, tubestock planting, temporary fencing (if cattle

are being used for pulse grazing at the time), biodegradable erosion control or soil improvement works. The revegetation and or erosion and sediment control plan is to be included in the following annual compliance report.

4.4.5 Biodiversity monitoring

Biodiversity monitoring, including BioCondition, flora and landscape health monitoring, fauna monitoring, pest and weed monitoring to be completed in accordance with Section 4.5 below.

4.5 Monitoring requirements

Ongoing monitoring is required to ensure the Offset Area Management Plan achieves its desired outcome and to measure how the offset is progressing over time in relation to the mitigation of potential risks and threatening processes.

Monitoring for this area will include the following:

4.5.1 Visual monitoring and record keeping

Visual monitoring and record keeping will be undertaken at least twice per year and opportunistically while implementing management actions. Observations will include: Fence Status, Current state of Offset area including weed, vertebrate pest and erosion observations, potential bushfire fuel loads and ground cover, groundcover and signs of land degradation during pulse grazing, anthropogenic impacts and revegetation monitoring (if undertaken).

4.5.2 Photograph monitoring

Photograph monitoring will be undertaken biannually (during wet and dry seasons) for the duration of the offset management period, to enable visual assessment of changes over time. A Global Position System marked permanent stake is located at each photo site (total of 7), photos will be taken North, South, East and West and the time and date, general environmental condition, any disturbance, and vegetation composition recorded. A report will be drafted with the results of the monitoring event including observations on natural regeneration of native understorey and overstorey species, the occurrence of habitat complexity (e.g. logs, litter), plant establishment and the status of weeds and other disturbance. A comparison will be drawn with previous monitoring events were relevant.

4.5.3 BioCondition monitoring

Field component of ecological equivalence monitoring (developed to support the now superseded '*Queensland Biodiversity Environmental Offset Policy 2011*') will be undertaken in Years 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23 and 25, at the end of the summer rainfall period, ideally between March and May, at locations used in the baseline BioCondition assessment (Figure 2). BioCondition assessments will be undertaken to measure the ecological indicators used in ecological equivalence assessments, in accordance with the field component of the Ecological Equivalence Methodology Guideline. Note that the same method should be used each year to enable meaningful comparison and updated guidelines e.g. 'Guide to determining terrestrial habitat quality V1.3' should not be adopted .

4.5.4 Voluntary monitoring

Additional voluntary monitoring measures include:

- voluntary fauna monitoring could be conducted in year 1, 4, 8 and 12, between September to November, to account for peak activity across a range of fauna classes, including:
  - Sampling at four sites: three within the offset area and one site within a nearby reference area, Dipperu (Scientific) National Park, as a control site.
    - Site 1 E 0623971; N 7589621 [4]
    - Site 2 E 0624664; N 7589681
    - Site 3 E 0625265; N 7589681
    - Dipperu National Park E 0680228; N 7577246
  - The proposed survey effort will be consistent with EHP and SEWPaC fauna survey guidelines. The following surveys will be undertaken at each site:

[4] All voluntary monitoring site location data is provided in Datum, GDA94 MGA Zone 55

- four nights of invertebrate pitfall trapping with 10 traps in each transect line.
- four nights of reptile/amphibian pitfall trapping with three buckets and two pairs of funnel traps.
- three-hour active search at each site for evidence of species considered likely to occur (see Appendix 5).
- four species accumulation bird surveys for three consecutive morning and evenings.
- four nights of micro chiropteran recording at each of the four sites concurrently.

4.5.5 Baseline monitoring reports:

Baseline BioCondition assessments has been undertaken in year 1 (Figure 2). The results of the baseline BioCondition assessments will inform weed management measures and provide reference for any potential change in condition. Permanent photo-monitoring sites have been established and the first photo-monitoring event undertaken, prior to the implementation of management actions.

Ongoing Monitoring will be undertaken in accordance with the schedule in Table 5.

Table 5: Proposed monitoring schedule

Year	Monitoring activity	
	Photo Monitoring & Visual Inspection	Bio-Condition assessment
	Frequency	Frequency
2015	Min. twice per year	-
2016	Min. twice per year	once per year
2017	Min. twice per year	-
2018	Min. twice per year	once per year
2019	Min. twice per year	-
2020	Min. twice per year	once per year
2021	Min. twice per year	-
2022	Min. twice per year	once per year
2023	Min. twice per year	-
2024	Min. twice per year	once per year
2025	Min. twice per year	-
2026	Min. twice per year	once per year
2027	Min. twice per year	-
2028	Min. twice per year	once per year

* All monitoring to continue as above though to 2038

4.6 An analysis of risks

A risk assessment has been undertaken to identify and analyse any real or potential risks associated with achieving the management objectives and outcomes; the actions to be taken to minimise those risks and; any remedial action that will be undertaken if any of the risks occur.

- Risk analysis is provided in Appendix 4.
- TARP is provided in Appendix 4.

4.7 Mapping

The following maps have been prepared to support this Offset Area Management Plan and are provided in Appendix 1:

- Figure 1: Context map showing offset location (Overview Map).
- Figure 2: Wotonga Pastoral Holding Brigalow Offset.
- Figure 3: Voluntary Declaration Map.

4.8 Reporting

An Annual Compliance Report, prescribed under Condition 5 of the EPBC approval is required to be submitted to the administering authority detailing the progress against the proposed management outcomes.

As a minimum each report must include:

- departmental reference number.
- name and contact details of landholder.
- lot on plan property description and postal address.
- progress towards the achievement of management outcomes.
- activities undertaken within each management action – management Activities Schedule with progress to date recorded against each activity.
- digital photographs taken from fixed monitoring photograph points to observe changes in native plant biomass.
- sampling and assessment of BioCondition monitoring on relevant years.
- problems, issues, impediments that require adaptive management actions (e.g. adverse climatic conditions such as storm damage or flooding, bushfire, or pest species invasion).

Reports should indicate whether management and monitoring activities are:

- On track – with report provided.
- Complete – with report provided.
- Delays being experienced – with explanation.

Monitoring reports completed in the prior 12 months are to be submitted as part of the annual compliance report to the administering authority.

5 Consent

Consent must be provided by the owner/s and signed off by the chief executive delegate.

☑ Consent provided by owners and signed off by the chief executive delegate.

Consent

SIGNED by _____ to indicate approval of the Offset Area Management Plan.

Name: COLIN MOFFATT
Signature: .....

Witness name: Francis Kuranchie
Signature: .....

Date: 17-07-2023

SIGNED by MALCOLM R BURSTON being the current owner/s of the abovementioned property to indicate that the terms of this Offset Area Management Plan including responsibilities under the management plan, have been read, understood and accepted.

The landowner agrees that any non-compliance with the requirements of this Offset Area Management Plan shall constitute a breach of the terms and conditions of the legally binding mechanism entered into.

Name: MALCOLM BURSTON
Signature: .....

Witness name: ELLISE M GALEA
Signature: .....

Date: 11-07-2023.

Name: .....
Signature: .....

Witness name: .....
Signature: .....

Date: .....

6 Reference list

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- Department of Primary Industries and Fisheries (2007) Fact sheet: Harrisia cactus. Available from: http://www2.dpi.qld.gov.au/extra/weeds/pdf/IPA-Harrisia-Cactus.pdf
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7 Appendices

7.1 Appendix 1: Mapping

The following maps have been prepared to support this Offset Area Management Plan:

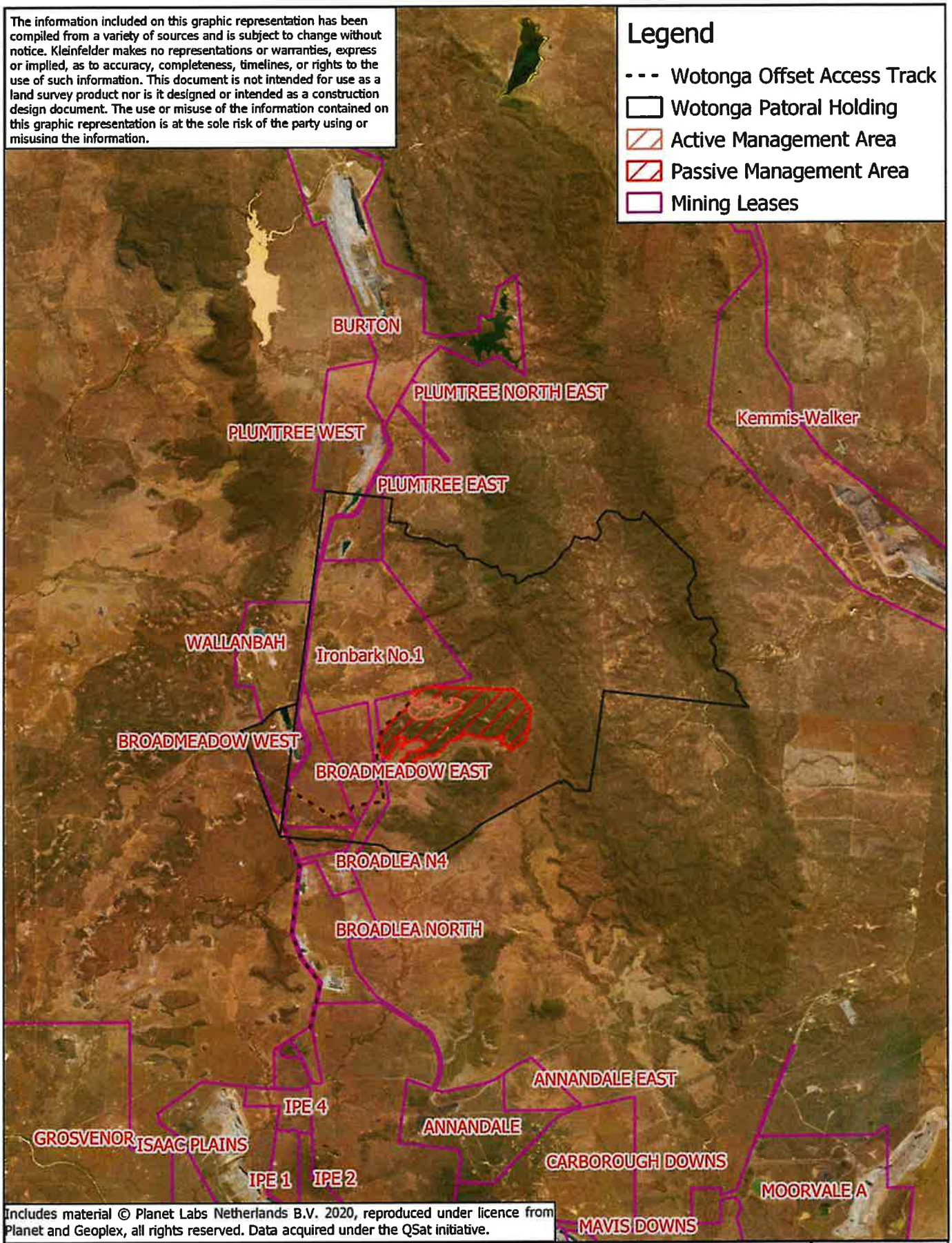
☒ Figure 1: Millennium Expansion Project – Wotonga Offset Location.

☒ Figure 2: Regulated Vegetation - Wotonga Offset Area.

☒ Figure 3: Wildlife Habitat – Wotonga Offset Area.

☒ Figure 4: Wotonga Pastoral Holding Offset Management.

☒ Figure 5: Voluntary Declaration Map.



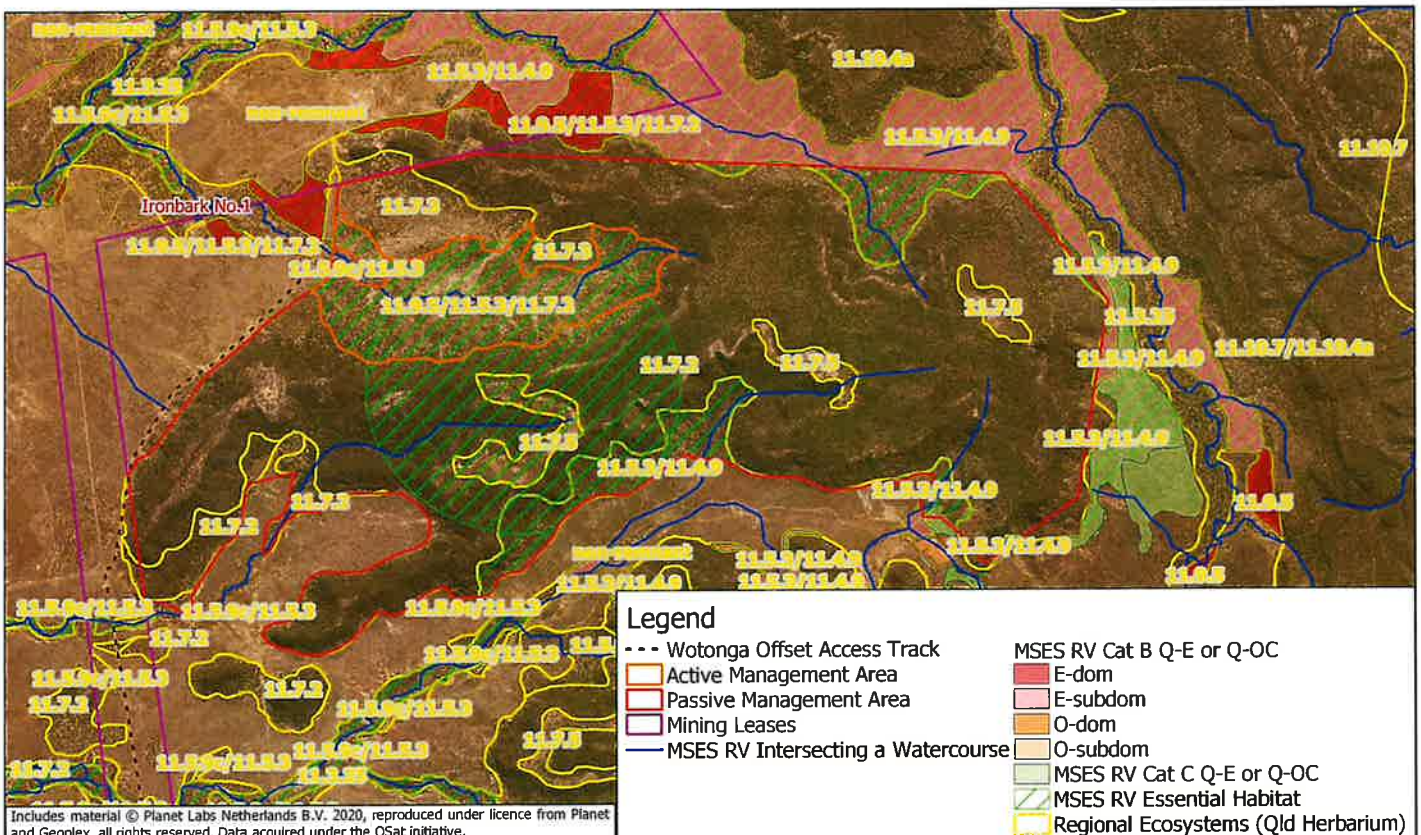
0 2.5 5 7.5 10 km

KLEINFELDER
Bright People. Right Solutions.
www.kleinfelder.com

Project Reference: 20225209	**Millennium Expansion Project - Wotonga Offset Location**
Date Drawn: 2022-02-15	
Drawn by: K. Wormington	
Data Source: QSpatial	Wotonga Offset Management Plan Review and Update

Figure: **1**

L:\GIS FOLDER\00 CLIENT FILES\133273 M Mining\20225209 - Wotonga Offset MP Review and update\Mapping



0 750 1500 m

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Project Reference: 20225209
Date Drawn: 2022-02-15
Drawn by: K. Wormington

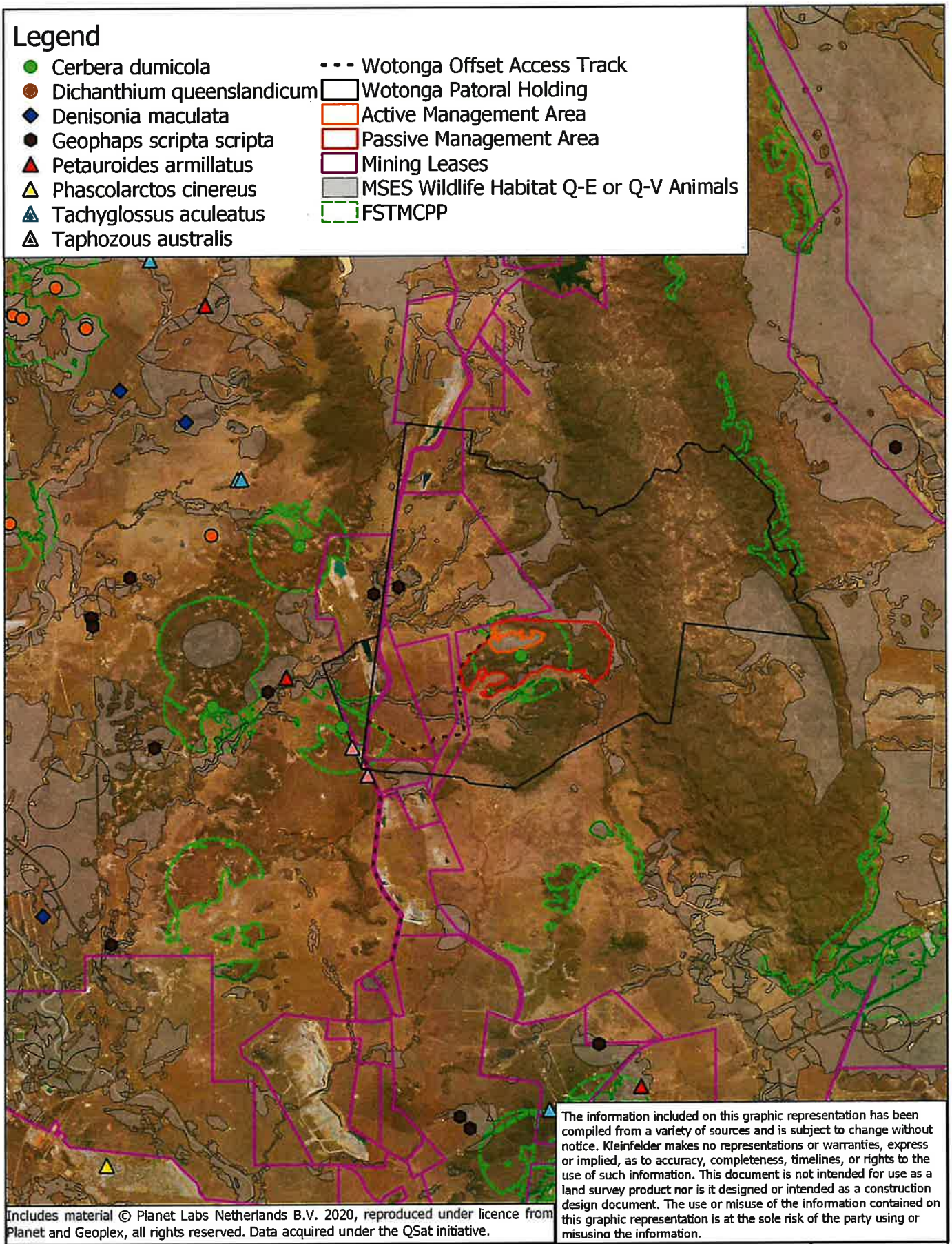
Data Source: QSpatial

Regulated Vegetation - Wotonga Offset Area

Wotonga Offset Management Plan Review and Update

Figure: **2**

L:\GIS FOLDER\00 CLIENT FILES\133273_M_Mining\20225209 - Wotonga Offset MP Review and update\Mapping



0 2.5 5 7.5 10 km

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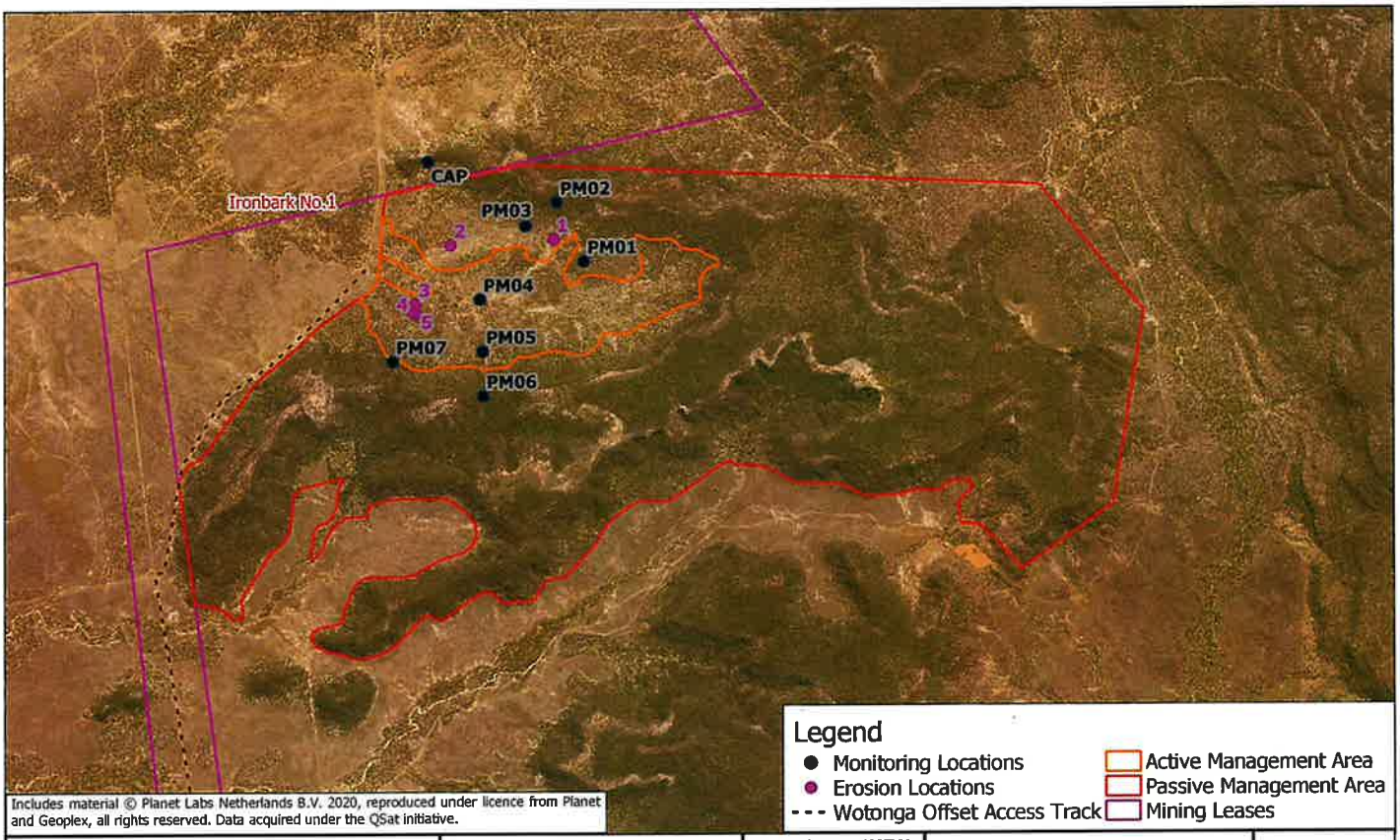
Project Reference: 20225209
Date Drawn: 2022-02-15
Drawn by: K. Wormington
Data Source: QSpatial

Wildlife Habitat - Wotonga Offset Location

Wotonga Offset Management Plan Review and Update

Figure: **3**

L:\GIS FOLDER\00 CLIENT FILES\133273 M Mining\20225209 - Wotonga Offset MP Review and update\Mapping



0 750 1500 m

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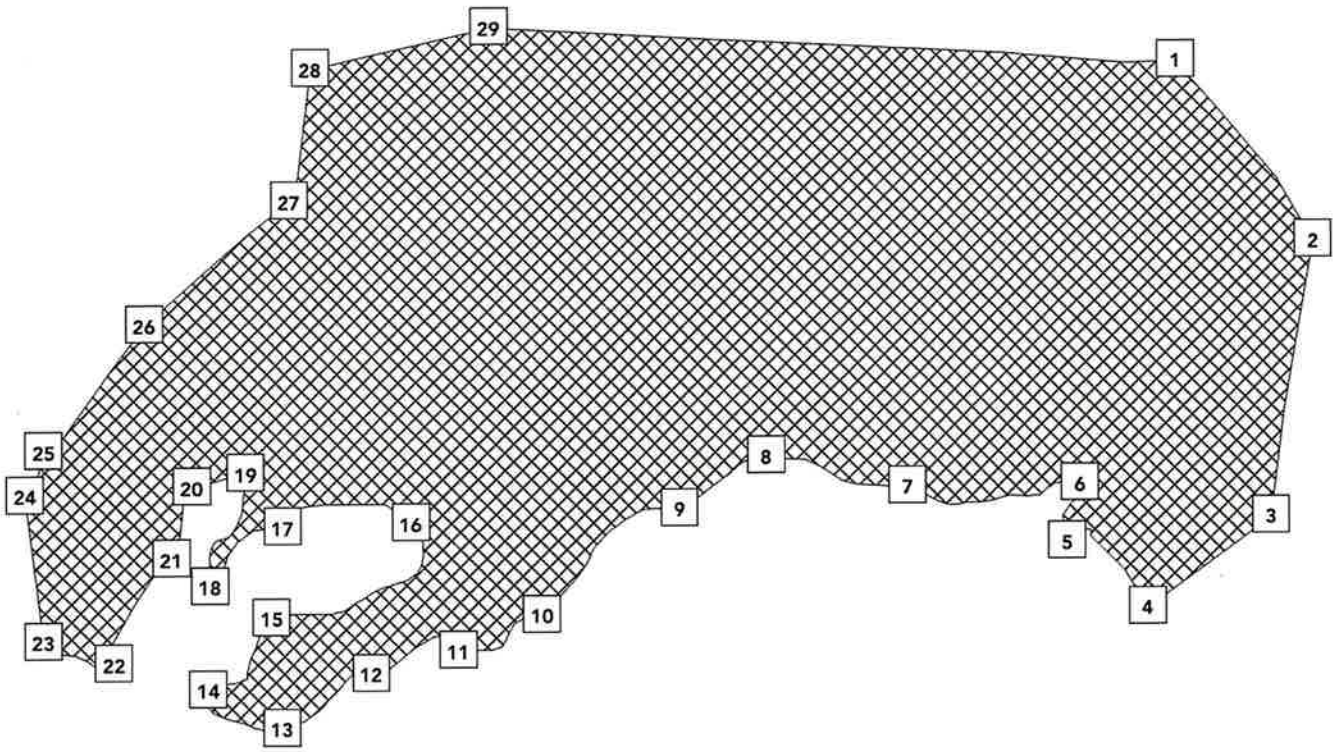
Project Reference: 20225209	**Wotonga Pastoral Holding Offset Management**
Date Drawn: 2022-02-15	
Drawn by: K. Wormington	
Data Source: QSpatial	Wotonga Offset Management Plan Review and Update

Figure: **4**

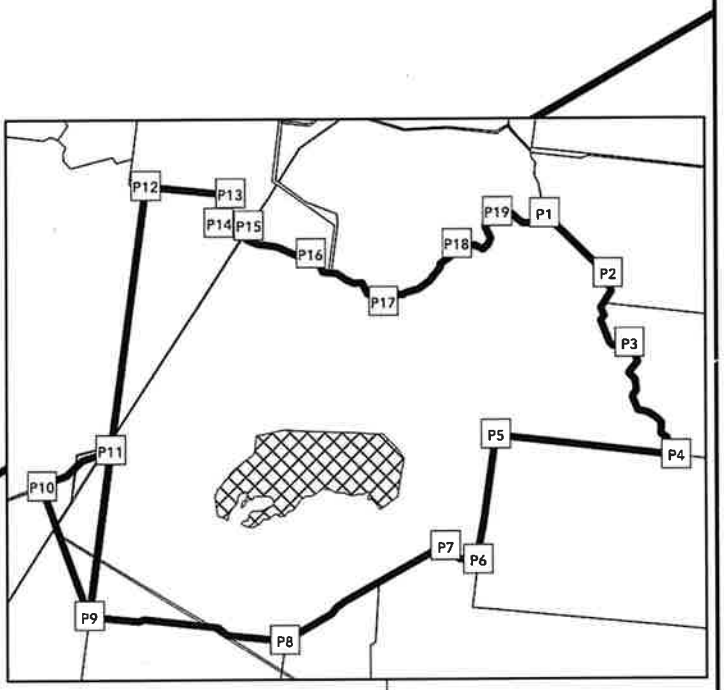
L:\GIS FOLDER\00 CLIENT FILES\133273_M_Mining\20225209 - Wotonga Offset MP Review and update\Mapping



Reference Coordinates
Projection: MGA Zone 55 Datum: GDA 94

Reference	x_coord	y_coord
P1	148.2881992	-21.71371151
P2	148.3084589	-21.73272922
P3	148.3153004	-21.75506608
P4	148.3301377	-21.79063738
P5	148.2727974	-21.78397107
P6	148.2669069	-21.82383013
P7	148.2567198	-21.81951991
P8	148.2053128	-21.84929876
P9	148.1438234	-21.84148117
P10	148.1287239	-21.7999486
P11	148.1506505	-21.78867613
P12	148.1618547	-21.70442077
P13	148.1883364	-21.70729046
P14	148.187234	-21.71642137
P15	148.1942004	-21.71731869
P16	148.2140204	-21.72624519
P17	148.237311	-21.74160558
P18	148.2605031	-21.72320158
P19	148.2734497	-21.71308116

Reference	x_coord	y_coord
1	148.2371316	-21.78349912
2	148.2436492	-21.79141565
3	148.241729	-21.80352781
4	148.2359781	-21.80755344
5	148.2321794	-21.80469177
6	148.2327801	-21.80213566
7	148.2246006	-21.80226943
8	148.2180112	-21.80097436
9	148.2139379	-21.80329538
10	148.2074551	-21.80801333
11	148.2035707	-21.80960658
12	148.1994881	-21.81062106
13	148.1952795	-21.81305297
14	148.1918089	-21.8113849
15	148.1947487	-21.80819493
16	148.2013168	-21.8039984
17	148.1952381	-21.80420892
18	148.191735	-21.80684037
19	148.1934838	-21.80185347
20	148.1909767	-21.80246708
21	148.1900422	-21.80563729
22	148.1873945	-21.81025508
23	148.1841029	-21.80928203
24	148.1831764	-21.80285013
25	148.1840425	-21.80090983
26	148.1887115	-21.79536272
27	148.1954493	-21.78988512
28	148.1964142	-21.78404189
29	148.204794	-21.78217645



Proposed Voluntary Declaration

Lot on Plan: 13SP178466

Cadastral data: December 2012
Map projection: GDA 1994 MGA Zone 55

Property boundary
Declared Area
1 Reference Points
Qld DCDB

0 240 480 720 960 1,200
Metres

1:34,38@A4

Date: 22/03/2013

N

ecofund queensland

7.2 Appendix 2: BioCondition Field Assessment Sheet

Queensland Government

Appendix 2: BioCondition field assessment sheet (v 2.1)

Site:	**RE/Landtype:**	**Bioregion:**	**Property:**
Date:	**Photos** (optional) **N:**	**S:**	**E:** **W:**
Landscape photo(s):		**Spot photo (s):**	
Datum: WGS84 or GDA94 Zone:	**0m mark AMGE:**		**AMGN:**
	50m mark AMGE:		**AMGN:**
Transect bearing:			
General description:			

100 x 50 m area: * Ecologically Dominant Layer (EDL)

Eucalypt large tree DBH (from benchmark doc.):	**Non-eucalypt large tree DBH** (from benchmark doc.):
Number of large eucalypt trees:	**Number of large non-eucalypt trees:**
Total large trees:	
Tree canopy (EDL) height:	
Subcanopy and/or emergent height (where relevant): **S:**	**E:**
Proportion of dominant canopy (EDL) species with evidence of recruitment:	
Total tree species richness Includes all tree (i.e. single stemmed >2 m height) species in 100 x 50 m, not just EDL species:	

50 x 10 m area: (*list species if known or count if unknown)

Shrub species richness (defined as single stemmed below 2 m or multi-stemmed from base or below 20 cm) *:
Grass species richness:
Forbs and others (non grass ground) species richness:
Non-native plant cover:

50 x 20 m area: Coarse woody debris (CWD; >10 cm, >0.5 m, measured to the plot boundary):

CWD Length:		CWD Length:		CWD Length:		CWD Length:		CWD Length:		CWD Length:	
1		8		15		22		29		36	
2		9		16		23		30		37	
3		10		17		24		31		38	
4		11		18		25		32		39	
5		12		19		26		33		40	
6		13		20		27		34		41	
7		14		21		28		35		Total:	

Five 1 x 1 m plots (* attributes used in scoring, however assessment of all attributes helps accurately estimate cover of each attribute)

Ground cover:	1	2	3	4	5	Mean
Native perennial ('decreaser') grass cover*						
Native other grass cover (if relevant)*						
Native forbs and other species (non-grass)						
Native shrubs (<1 m height)						
Non-native grass						
Non-native forbs and shrubs						
Litter*						
Rock						
Bare ground						
Cryptograms						
Total	=100%	=100%	=100%	=100%	=100%	

100 m transect

Tree canopy cover: (only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that these layers should be present *trees in the same layer and continuous along the transect can be grouped)

Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total
										Total C: Total S: Total E:	

Shrub canopy cover: (*denote as native or exotic—only native shrub cover used in scoring)

Shrubs*	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total
												Total native:		
												Total exotic:		

7.3 Appendix 3: EPBC Approval 2009/4821

Australian Government
Department of Sustainability, Environment, Water, Population and Communities

Approval

Millennium Expansion Project – EPBC No 2009/4821

This decision is made under sections 130(1) and 133 of the *Environment Protection and Biodiversity Conservation Act 1999*.

Proposed action

person to whom the approval is granted	Peabody Energy Australia Pty Ltd
proponent's ACN (if applicable)	93 096 909 410
proposed action	To extend the current open cut mining operation on the existing ML 70313 and additionally into two adjoining leases Mining Lease Application MLA 70401 "North Poitrel" and Mineral Development Licence MDL 136 "Mavis Downs", 22km east of Moranbah and 16km south west of Coppabella in central Queensland as described in the referral received 27 March 2009 and the Millennium Expansion Project Environment Impact Statement dated December 2010 (see EPBC Act Referral 2009/4821).

Approval decision

Controlling Provision	Decision
Listed threatened species and communities (sections 18 & 18A)	Approved

conditions of approval

This approval is subject to the conditions specified below.

expiry date of approval

This approval has effect until 28 October 2031.

Decision-maker

name and position	David Calvert A/g Assistant Secretary Environment Assessment Branch
signature	
date of decision	3 November 2011

Conditions attached to the approval

1. To offset the impact to the Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community, the person taking the action must register a legally binding conservation mechanism (such as a Nature Refuge Agreement) over a minimum of 112.5 hectares of the Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community (the offset area) as identified in the offset management plan referred to in condition 2. The mechanism/s must provide enduring protection for protection for the offset area and be registered within 2 years of the date of this approval.

   The conditions of the conservation mechanism must ensure that management actions are undertaken for the protection and enhancement of the Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community. The person taking the action must obtain agreement from any third parties responsible for management actions and provide details of the responsible parties, including their position or status as a separate contractor, to the **department**.

2. To offset the impacts to the Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community, the person taking the action must submit to the **Minister** for approval an Offset Management Plan within 12 months of the date of this approval.

   This Offset Management Plan must include, at a minimum, the following information:
   a. the desired outcomes/objectives of implementing the plan;
   b. details of Brigalow (*Acacia harpophylla* dominant and co-dominant) endangered ecological community offset areas, including a textual description and map to clearly define the location and boundaries of the offset area. This must be accompanied with the **offset attributes** and a **shapefile**;
   c. details of management actions to protect and enhance the extent and condition of the threatened species habitat values including rehabilitation, weed control, fire management, erosion and sediment control, management of livestock and restrictions on access, within the offset area;
   d. the timing, responsibilities and performance criteria for such actions;
   e. a monitoring plan including ecological surveys that must be undertaken to assess the success of the management measures against identified milestones and objectives;
   f. a process to report, to the **department**, the management actions undertaken in the offset areas and the outcome of those actions, including identifying any need for improved management;
   g. a description of the potential risks to successful management and rehabilitation in the offset areas, and a description of the contingency measures that would be implemented to mitigate these risks; and,
   h. details of parties responsible for monitoring, reviewing and implementing the plan.

   The Offset Management Plan must be implemented.

3. Before impacting or removing any EPBC listed ecological community or species, the person taking the action must provide to the **Minister** a Threatened Flora and Fauna Species and Ecological Communities Management Plan. The Plan must contain, but is not limited to, the following:

   a. Management actions relating to EPBC listed species; and
   b. Mitigation actions relating to EPBC listed species.

   The Threatened Flora and Fauna Species and Ecological Communities Management Plan must be implemented. This plan may be made publicly available on the internet by the **department**.

Note: Condition 8 provides that, if the **Minister** believes that it is necessary or desirable for the better protection of the environment, the **Minister** may require the person taking the action to make, within a period specified by the **Minister**, revisions to a plan required under these conditions.

4. Within 14 days from the **commencement of construction**, the person taking the action must advise the **department** in writing of the actual date of **commencement of construction**.
5. Within three months of every 12 month anniversary of the **commencement of construction**, the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the **department** at the same time as the compliance report is published.
6. Upon the direction of the **Minister**, the person taking the action must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the **Minister**. The independent auditor must be approved by the **Minister** prior to the commencement of the audit. Audit criteria must be agreed to by the **Minister** and the audit report must address the criteria to the satisfaction of the **Minister**.
7. If the person taking the action wishes to carry out any activity otherwise than in accordance with the Plans referred to in conditions 2 and 3, as specified in the conditions, the person taking the action must submit to the **department** for the **Minister**'s written approval a revised version of that plan. The varied activity shall not commence until the **Minister** has approved the revised plan in writing. If the **Minister** approves the revised plan, that plan must be implemented in place of the plan originally approved.
8. If the **Minister** believes that it is necessary or convenient for the better protection of listed threatened species and communities to do so, the **Minister** may request that the person taking the action make specified revisions to plans specified in the conditions and submit the revised plan for the **Minister**'s written approval. The person taking the action must comply with any such request. The revised plan must be implemented. Unless the **Minister** has approved the revised plan then the person taking the action must continue to implement the original plan.
9. If, at any time after 5 years from the date of this approval, the person taking the action has not substantially commenced the action, then the person taking the action must not substantially commence the action without the written agreement of the **Minister**.
10. The person taking the action must maintain accurate records substantiating all activities and outcomes associated with or relevant to the above conditions of approval, including measures taken to implement the management plans required by this approval, and make them available upon request to the **department**.

    Such records may be subject to audit by the **department** or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the **department**'s website. The results of audits may also be publicised through the general media.

Note: To avoid doubt, if a condition of a State (QLD) approval held by the proponent requires a plan relating to EPBC-listed species the proponent may simultaneously meet the relevant requirements of these conditions by submitting a single plan.

Definitions

Department - the Australian Government Department responsible for the *Environment Protection and Biodiversity Conservation Act 1999*.

Minister - the Minister administering the *Environment Protection and Biodiversity Conservation Act 1999*.

Shapefile -means an ESRI Shapefile containing '.shp', '.shx' and '.dbf' files and other files capturing attributes of the Offset Area, including the shape, EPBC reference ID number and EPBC protected matters present at the relevant site. Attributes should also be captured in '.xls' format.

Offset attributes -mean an '.xls' file capturing relevant attributes of the Offset Area, including the EPBC reference ID number, the physical address of the offset site, coordinates of the boundary points in decimal degrees, the EPBC protected matters that the offset compensates for, any additional EPBC protected matters that are benefiting from the offset, and the size of the offset in hectares.

Commencement of construction- means any preparatory works required to be undertaken including clearing vegetation, the erection of any onsite temporary structures and the use of heavy duty equipment for the purpose of breaking the ground for mining, buildings or infrastructure.

7.4 Appendix 4: Risk Analysis

A risk assessment has been undertaken to identify and analyse any real or potential risks associated with achieving the management objectives and outcomes; the actions to be taken to minimise those risks and; any remedial action that will be undertaken if any of the risks occur. Table 6 below presents the Risk assessment and risk weighting, Table 7 shows the matrix used to determine the risk weighting and Table 8 shows the TARP that will be utilised to trigger management actions to ensure compliance and management objectives are achieved.

Table 6: Assessment of risks to achieving management objectives and outcomes

Year	Management action	Associated Consequence	Initial level of risk	Proposed actions to minimise risk	Residual level of risk
1-25	Weed and Vertebrate Pest control	Introduction and/or spread of weeds preventing natural regeneration of native plants.	M	Regular inspections, weed, Vertebrate Pest, hygiene protocols and awareness as per the 'Wotonga Offset Weed Control Plan', treatment of declared weed species, pulse grazing.	L
1-25	Managing access by livestock	Fence fails – stock can access offset area.	H	Regular inspections of fencing (6 monthly) and maintenance as required.	L
1-25	Erosion control	Erosion occurs – causing land degradation and impacting on stream habitat.	M	Regular inspections (6 monthly) and additional inspections after, drought, heavy rain or flooding.	L
1-25	Fire management	Medium-high intensity fire occurs within the offset area.	H	Regular assessment of fuel loads (yearly), pulse grazing if required, and maintenance of firebreaks around offset areas.	M
1–25	Rehabilitation	Failure of natural regeneration following disturbance (e.g. drought or flooding).	M	Regular inspections of native vegetation cover (6 monthly) and additional inspections after, drought, heavy rain or flooding to identify if any potential rehabilitation is required. If rehabilitation is required, planting will occur at a suitable time of year. Follow-up maintenance (e.g. watering and weed control) will be undertaken to assist plant establishment.	L
1-25	Biodiversity monitoring	Failure to complete monitoring event due to interstate travel restrictions and or extreme weather events.	M	Ensure contractors have Queensland staffing resources or outside resources available to complete field works in the event of interstate travel restrictions. Monitor long range weather forecast and adapt monitoring schedule to allow safe access to the Offset Area	L

Table 7: Qualitative Risk Analysis Matrix used to assess level of risk

Rating	Consequences	Likelihood				
		Rare 1	Unlikely 2	Possible 3	Likely 4	Almost certain 5
5	**Severe** - Permanent and/or very long term damage to areas of significant value, e.g. permanent loss of vegetation through pest invasion.	H	H	E	E	E
4	**Major** - Significant and/or long term damage to areas of high value, e.g. significant loss of vegetation through pest invasion.	M	M	H	H	E
3	**Moderate** - Moderate or medium term damage to areas of value, e.g. moderate loss of vegetation through pest invasion.	M	M	M	H	H
2	**Minor** - Minor and/or short term damage to areas of low value, e.g. minor loss of vegetation through pest invasion.	L	M	M	M	H
1	**Insignificant** - Insignificant or very short term damage to areas of very low or negligible value, e.g. insignificant loss of vegetation through pest invasion.	L	L	L	M	M

Low Risk (L)	Moderate Risk (M)	High Risk (H)	Extreme Risk (H)
Requires routine action	Requires moderate action < 1 Month	Requires priority action < 2 Weeks	Requires immediate action < 1 Week

MILLENNIUM MINE
Wotonga Offset Ecological Condition and Monitoring

Table 8: Wotonga Offset Ecological Condition and Monitoring TARP

Trigger	Action	Response
Travel Restrictions		
Environmental Monitoring Level 1 Extent that may cause travel restrictions	M mining Environmental Advisor to monitor situation	• Monitor official correspondence regarding any travel restrictions.
Environmental Monitoring Level 2 Queensland/Australian Government recommend travel restrictions	M mining Environmental Advisor to monitor situation	• Monitor official correspondence and cause of travel restrictions e.g. covid cases and contact contractors to confirm the availability of Queensland resources.
Environmental Monitoring Level 3 Queensland/Australian Government restrict interstate travel	M mining Environmental Advisor to monitor situation and contact contractor to bring forward fieldworks	• Monitor official correspondence and cause of travel restrictions e.g. covid cases and contact contractors to inform

		eh requirement to use Queensland-only resources and if possible bring fieldwork forward before further restrictions are applied.
Environmental Monitoring Level 4 Queensland/Australian Government restrict movement within Queensland	M mining Environmental Advisor to monitor situation and contact contractor to postpone fieldworks	• Monitor official correspondence and cause of travel restrictions e.g. covid cases and contact contractors to postpone field works.
Rainfall		•
Rainfall <50mm	M mining Environmental Advisor to Monitor rainfall and long-range outlook.	• Monitor rainfall and long-range outlook.
Rainfall >50mm	Monitor rainfall and long-range outlook.	• Monitor rainfall and long-range outlook contact contractors to confirm schedule and availability on alternate dates. If long range forecast is for heavy rainfall discuss possibility to bring fieldwork forward before forecasted weather event.
Rainfall >500mm	Monitor rainfall and long-range outlook.	• Monitor rainfall and long-range outlook contact landholder and discuss site conditions and safety concerns. Contact contractors to postpone field works were possible.
Rainfall >1,000mm	Monitor rainfall and contact landholder.	• Monitor rainfall and contact landholder. Contact contractor and advise to pause mobilisation and await further instruction. MMining staff to inspect property ASAP following event and site access is save.

		Develop access and emergency response plan prior to accessing property. Contact contractor to advice revised approach.
Ecological Condition		
Ecological Condition Level 1 (trending towards offset objectives)	M mining Environmental Advisor to review all monitoring reports and consider any recommendations. Review results and ensure trending will meet offset objectives	• Review all monitoring reports and consider any recommendations. Review results and ensure trending will meet offset objectives.
Ecological Condition Level 2 (Not trending towards offset objective)	M mining Environmental Advisor to review all monitoring reports and consider any recommendations. Review results and discuss with specialist consultants a action/mitigation plan.	• M mining Environmental Advisor to review all monitoring reports and consider any recommendations. Review results and discuss with specialist consultants a action/mitigation plan to return offset to planned condition for the stage of development the offset is scheduled to be.

7.5 Appendix 5: Other Environmental Values

Vegetation Communities

The vegetation communities within the Wotonga Offset Area, and their details, mapped by the Queensland Herbarium are listed in Table 9.

Table 9: Vegetation Communities Description Nature Refuges and Modified Conservation Area: November 2021 (Queensland Herbarium 2021b)

F-V or F-E indicates 'vulnerable' or 'endangered' under Federal legislation EPBC Act; Q-LC, Q-NT, Q-V, Q-OC or Q-E indicates 'least concern', 'near threatened', 'vulnerable', of concern or 'endangered' under NC Act or VM Act., and BS-NC, BS-OC or BS-E indicates a 'no concern at present', 'of concern' and 'endangered Biodiversity Status.

RE	Description	VM Act Status	Biodiversity Status	EPBC Act	BVG1M
11.5.3	*Eucalyptus populnea* +/- *E. melanophloia* +/- *Corymbia clarksoniana* +/- *C. dallachiana* and occasionally *E. cambageana* or *E. brownii* woodland. Localised areas may be dominated by *E. melanophloia*, occasionally *E. crebra* and other canopy species. There is typically a secondary tree layer, including *Eremophila mitchellii*, *Geijera parviflora*, *Archidendropsis basaltica*, *Erythroxylum australe*, *Cassia brewsteri*, *Ventilago viminalis*, *Allocasuarina luehmannii* and *Callitris glaucophylla*. A low shrub layer of *Carissa ovata*, *Erythroxylum australe*, *Capparis lasiantha* commonly occurs. Occurs on flat to gently undulating plains formed from Cainozoic sediments. Associated soils are generally deep texture contrast with thick sandy surface horizons with some deep red earths.	Q-LC	BS-NC		17a
11.5.9c	*Eucalyptus crebra* +/- *Corymbia intermedia* +/- *E. moluccana* +/- *C. dallachiana* woodland. Occurs on Cainozoic sandplains formed on plateaus and broad crests of hills and ranges. Soils are generally deep red earths.	Q-LC	BS-NC		18b
11.4.9	*Acacia harpophylla* woodland to open forest, usually with a low tree mid-storey of *Terminalia oblongata* and *Eremophila mitchellii*. *Casuarina cristata* sometimes replaces *Acacia harpophylla* in the overstorey and *Lysiphyllum cunninghamii* sometimes co-dominates. Other low tree or shrub species such as *Alectryon diversifolius*, *Carissa ovata*, *Pittosporum spinescens*, *Ehretia membranifolia*, *Geijera parviflora* and *Flindersia dissosperma* may occur in the mid-storey or low shrub layer. Occurs on level to gently undulating Cainozoic plains, including weathered basalt. Associated soils are predominantly moderately deep to deep	Q-E	BS-E	F-E	25a

	cracking clays that may be brown, red-brown or grey-brown, and with much surface gravel in some areas.				
11.7.2	Monospecific stands of *Acacia spp.* forest/woodland on Cainozoic lateritic duricrusts. *Acacia shirleyi* and/or *Acacia catenulata* usually predominate the woodland to low woodland to low open forest tree canopy (7-12m high). Other *Acacia spp.* that commonly occur and occasionally dominate the tree layer include *A. rhodoxylon*, *A. burrowii*, *A. sparsiflora*, *A. crassa* and *A. blakei*. Emergent eucalypt species such as Eucalyptus thozetiana, E. crebra, E. decorticans and *E. exserta* may be present. A low shrub layer is sometimes present and dominated by species such as *Acalypha eremorum*, *Croton phebalioides* and *Carissa ovata*. The ground layer is extremely sparse and dominated by grasses such as *Aristida caput-medusae*, *Paspalidium rarum*, *Urochloa foliosa*. Forbs are usually rare although *Sida sp.* (Musselbrook M.B.Thomas+ MRS437) may be conspicuous. Occurs on scarps and adjacent tops and slopes of dissected tablelands, mesas and buttes formed from chemically altered sediments and duricrusts. The soils are shallow to very shallow lithosols with surface stone and boulders. The vegetation is often growing in pockets of shallow lithosol soil between bare rock.	Q-LC	BS-NC		24a
11.7.3	*Eucalyptus persistens* low open woodland often with a *Triodia mitchellii* ground layer. Other scattered eucalypts such as *Corymbia leichhardtii* or *Eucalyptus melanophloia* may also occur. Understorey species are usually very sparse. Occurs on the stripped margins of ranges and plateaus. Soils are usually shallow loamy red earths overlying a hard pan.	Q-LC	BS-NC		19d
11.7.5	Shrubland +/- emergent eucalypts. Characteristic genera include *Calytrix spp.*, *Hakea spp.*, *Kunzea spp.*, *Micromyrtus spp.*, *Acacia spp.*, *Melaleuca spp.* and (in the ground layer) *Triodia spp.* Often scattered or fringing emergent tree species are present, including *Eucalyptus exserta*, *E. panda*, *E. curtisii*, *Corymbia trachyphloia* and *Acacia blakei*. Occurs on shallow soils often associated with natural scalds on Cainozoic lateritic duricrusts and sometimes lithosols derived from quartzose sandstone.	Q-LC	BS-NC		29b
11.9.5	*Acacia harpophylla* and/or *Casuarina cristata* or *Acacia harpophylla* open forest to woodland. *Casuarina cristata* is more common in southern parts of the bioregion. A prominent low tree or tall shrub layer dominated by species such as *Geijera parviflora* and *Eremophila mitchellii*, and occasionally with semi-evergreen vine thicket species is often present. The latter include *Flindersia dissosperma*, *Brachychiton rupestris*, *Excoecaria dallachyana*, *Macropteranthes leichhardtii* and *Acalypha eremorum* in eastern areas, and species such as *Carissa ovata*, *Owenia acidula*, *Croton insularis*, *Denhamia oleaster* and *Notelaea microcarpa* in south-western areas. *Melaleuca bracteata* may be present along watercourses. Occurs on fine-	Q-E	BS-E	F-E	25a

	grained sediments. The topography includes gently undulating plains, valley floors and undulating footslopes and rarely on low hills. The soils are generally deep texture-contrast and cracking clays. The cracking clays are usually black or grey to brown or reddish-brown in colour, often self-mulching and sometimes with gilgai microrelief in flatter areas. Some texture contrast soils are shallow to only moderately deep.				

Table 10 below summarises the likelihood of EPBC Act and NC Act listed threatened species and EPBC Act listed migratory species likely to occur within the Conservation Areas based on the habitat requirements of each species. The list only contains species that:

- Have been recorded in the vicinity.
- Are listed as likely to have habitat or be in the vicinity by the Protected Matter Report.
- Have habitat in the Conservation Areas.

Abbreviation for the likelihood table:

- F-V or F-E indicates 'vulnerable' or 'endangered' under Federal legislation EPBC Act (1999).
- Q-LC, Q-NT, Q-V, or Q-E indicates listed as least concern, 'near threatened', 'vulnerable', or 'endangered' under Queensland Nature Conservation Act (1992).

Referencing included:

- Species Profile and Threats Database for all communities, flora and fauna (DAWE 2022).
- Species Profile Search, Queensland (Queensland Government 2022a).
- Birds (Pizzey and Knight 2017).
- Mammals (Van Dyck and Strahan 2008)
- Reptiles (Wilson 2015).

DAWE consider all flora and fauna species, or their habitat could occur in the Conservation Areas, and Wildlife Online and Atlas of Living Australia are species recorded in the vicinity of Conservation Areas. Abbreviations for data sources are;

PMR = Protected Matter Report (DAWE 2022). Search 10km buffer around the Wotonga Offset Area.

Wildlife Online = (Queensland Government 2022b). Search 10km buffer around the Wotonga Offset Area.

VMPR = (Resources 2022). Search within the Wotonga Pastoral Holdings.

REDD = (Queensland Herbarium 2021).

ALA = (Atlas of Living Australia 2022).

MSES = (DES 2021).

The offset area on the Wotonga Pastoral Holding may contain suitable habitat for the following threatened fauna and flora species.

Table 10: Assessment of likelihood of threatened and special least concern flora and fauna species in the Wotonga Offset Area.

SCIENTIFIC NAME	COMMON NAME	STATUS	SOURCE [5]	HABITAT	LIKELIHOOD OF OCCURRENCE
Flora					
Cerbera dumicola	Grey Milkwood	Q-NT	Field surveys VMPR	Mixed eucalypt woodland to open forests often along creeks and marshy areas with permanent water.	**Present**: Observed on sandstone and duricrust scarps of the western hills of the Kerlong Range.
Cymbonotus maidenii		Q-E	Wildlife Online	*Cymbonotus maidenii* occurs on open grassland, along roadsides or beside watercourses. It grows on black, brown or grey heavy, cracking clay soils.	**Possible**: Recorded within 10 km of Wotonga Offset Area which contains suitable habitat.

[5] Source of information of possible species or species habitat occurrence at the offset area. Where information has been obtained from the EPBC Act Protected Matters Report for this area (PMST 2010), the species Type of Presence is listed as "Species or species habitat likely to occur within area".

SCIENTIFIC NAME	COMMON NAME	STATUS	SOURCE [5]	HABITAT	LIKELIHOOD OF OCCURRENCE
Dichanthium queenslandicum	King Bluegrass	F-E Q-V	Wildlife Online DAWE	King Blue-grass is associated with vegetation, on basalt and fine textured soils, such Brigalow woodlands and natural grasslands in Central Queensland.	**Possible**: Recorded within 10 km of Wotonga Offset Area which contains suitable habitat.
Eucalyptus raveretiana	Black Ironbox	F-V Q-V	DAWE	Black Ironbox usually grows along watercourses in RE 11.3.25 but can occur in open woodland on river flats.	**Unlikely**: There is no suitable habitat in the *Wotonga* Offset Area.
Samadera bidwillii	Quassia	F-V Q-V	DAWE	Quassia commonly occurs in lowland rainforest or on rainforest margins, but it can also be found in other forest types, such as open forest and woodland with a variety of Corymbia and Eucalyptus species adjacent to watercourses.	**Unlikely**: only marginal habitat in the *Wotonga* Offset Area.
Birds					
Apus pacificus	Fork-tailed Swift	F-M Q-SL	DAWE	The Fork-tailed Swift is a common species that is a summer non-breeding migrant to Australia, it is exclusively aerial and uses aerial space over open country.	**Likely**: Suitable habitat in the Wotonga Offset Area.
Erythrotriorchis radiatus	Red Goshawk	F-V Q-E	DAWE	The Red Goshawk occurs in coastal and sub-coastal areas in wooded and forested lands of tropical and warm-temperate Australia. Riverine forests are also used frequently. Such habitats typically support high bird numbers and biodiversity, especially medium to large species which the goshawk requires for prey. Nest trees are invariably within one km of permanent water. Uses a large home range between 50 and 220 km2.	**Unlikely**: There is no suitable habitat in the *Wotonga* Offset Area.

SCIENTIFIC NAME	COMMON NAME	STATUS	SOURCE [5]	HABITAT	LIKELIHOOD OF OCCURRENCE
Myiagra cyanoleuca	Satin Flycatcher	F-M Q-SL	Wildlife Online	Satin Flycatchers inhabit heavily vegetated gullies in eucalypt-dominated forests and taller woodlands, and on migration, occur in coastal forests, woodlands, mangroves and drier woodlands and open forests	**Possible**: Suitable habitat in the Wotonga Offset Area, but it has not been recorded in the vicinity.
Geophaps scripta scripta	Squatter Pigeon (southern)	F-V Q-V	DAWE VMPR	Occurs mainly in grassy woodlands and open forests that are dominated by eucalypts; also recorded in sown grasslands with scattered remnant trees, disturbed habitats, in scrub and acacia growth.	**Likely**: Suitable habitat in the Wotonga Offset Area and recorded in several location in the vicinity.
Neochmia ruficauda ruficauda	Star Finch (southern)	F-E Q-E	DAWE	The Star Finch has a sparse distribution and uses grassy flats and woodlands with small shrubs near water. Although the SPRAT information details the range in which it occurs, from Cloncurry to Northern New South Wales, surveys from 1993 to 1997 did not find the Star Finch in Central Queensland. Recent literature gives its range as only in the Cape York.	**Unlikely**: Although there is suitable habitat in the *Wotonga* Offset Area, It has not been observed in the region for 25 years.
Mammals					
Dasyurus hallucatus	Northern Quoll	F-E Q-E	DAWE	The Northern Quoll lives in open woodlands but prefers remote rocky areas and it has had its range cut to several disjunct populations in Central Queensland to high altitude rocky areas.	**Possible**: Suitable habitat in the Wotonga Offset Area, but it has not been recorded in the vicinity.
Macroderma gigas	Ghost Bat	F-V	DAWE	The Ghost Bat occupies habitat across a wide range landscapes in northern Australia, using deep natural caves, rock crevices or mines for roost sites.	**Possible**: Suitable habitat in the Wotonga Offset Area, but it has not been recorded in the vicinity.

SCIENTIFIC NAME	COMMON NAME	STATUS	SOURCE s	HABITAT	LIKELIHOOD OF OCCURRENCE
Onychogalea frenata	Bridled Nailtail Wallaby	F-E Q-E	Wildlife Online	The Bridled Nail-tail Wallaby occurs in woodland, particularly in Brigalow (*Acacia harpophylla*) scrub, preferring areas with the most fertile soil. They shelter beneath shrubs, in large grass tussocks, and inside hollow logs. the diet of the Bridled Nail-tail Wallaby to be diverse, including herbaceous species (forbs), grasses and shrubs.	**Unlikely**: There is suitable habitat and it has recorded within 10 km of the Wotonga Offset Area. However, the record may be spurious as the remaining wild population is at Taunton National Park, near Dingo, 220 km to the south.
Petauroides volans	Greater Glider	F-V Q-V	DAWE VMPR	The Greater Glider is most abundant in tall moist eucalypt forest and uses hollow trees for denning, but it can be found in a variety of other forests and woodlands (Wormington *et al.* 2002).	**Likely**: There is suitable habitat and it has been recorded close to the Wotonga Offset Area.
Phascolarctos cinereus	Koala	F-E Q-V	Wildlife Online	Koalas are dependent on Eucalyptus species and closely related genera dominated forests and woodlands for foraging and shelter. They depend on moisture in leaves for their water.	**Likely**: There is suitable habitat and it has been recorded close to the Wotonga Offset Area.
Tachyglossus aculeatus	Short-beaked Echidna	Q-SL	Wildlife Online	This species uses a wide range of habitat including forests, woodlands and open country.	**Likely**: There is suitable habitat and it has been recorded close to the Wotonga Offset Area.
Taphozous australis	Coastal Sheathtail Bat	Q-NT	VMPR	*Taphozous australis* depends on coastal roosts, preferring sea caves and rocky clefts. Also known to roost in disused mines, boulder piles, rock fissures. Taphozous australis forages above the canopy in areas of coastal dune scrubland, melaleuca swamps, open eucalypt forest, grasslands, coastal heathland, monsoon forests, and mangroves on lowlands and foothills	**Possible**: There is suitable habitat and it has been recorded close to the Wotonga Offset Area. However, it generally a coastal species living within 3 km of the coast and the records near the Wotonga Offset Area may be spurious.
Reptiles					

SCIENTIFIC NAME	COMMON NAME	STATUS	SOURCE [5]	HABITAT	LIKELIHOOD OF OCCURRENCE
Acanthophis antarcticus	Common Death Adder	Q-V	Wildlife Online	This species is found in a wide variety of well-drained habitats, including rainforests and wet sclerophyll forests, woodland, shrublands, grasslands and coastal heathlands, preferring sites with deep fixed leaf litter.	**Likely**: There is suitable habitat, and it has been recorded within 10 km to the Wotonga Offset Area.
Denisonia maculata	Ornamental Snake	F-V Q-V	Wildlife Online DAWE VMPR	Brigalow (Acacia harpophylla) woodland growing on clay and sandy soils, riverside woodland, and open forest growing on natural levees.	**Likely**: There is suitable habitat, and it has been recorded within 10 km to the Wotonga Offset Area
Egernia rugosa	Yakka Skink	F-V Q-V	DAWE	Habitat poorly known; found on rocky outcrops, sand plain areas and dense ground vegetation, in association with open dry sclerophyll forest (ironbark) or woodland, brigalow forest and open shrub land.	**Possible:** Suitable habitat in the Wotonga Offset Area

Removed: White-bellied Sea-eagle, Little Pied Bat, Brigalow Scaly foot not listed now.

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