Wotonga Offset Photo Monitoring May 2023

Millennium Mine 'Wotonga Offset Area'

24000604-A

17 November 2023

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Department of Agriculture, Water and the Environment
Environment Assessment Branch
Department of Agriculture, Water and the Environment
Canberra, ACT

Attention: Att. Mr David Calvert: A/g Assistant Secretary

Subject: EPBC 2009/4821 Year 10 Monitoring Report (May 2023) for Wotonga Offset Area Management Plan Millennium Mine Expansion Project

Kleinfelder Australia Pty Ltd (Kleinfelder) have been engaged by M Mining Pty Ltd (M Mining) to complete the Year 10 Wet season photo monitoring of their environmental offset area. The offset area has been established on the Wotonga Pastoral Holding property, north-east of Moranbah in central Queensland. The offset area was established to comply with conditions of approval under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (EPBC 2009/4821) (**Appendix 1**). This letter demonstrates compliance with the monitoring requirements for Year 10 as described in the Wotonga Offset Area Management Plan (WOAMP) (Kleinfelder 2023). Offset property details are provided in **Appendix 2**.

The offset area consists of an active management area and a passive management area. The active management area contains the target regional ecosystem 11.9.5 *Acacia harpophylla* and/or *Casuarina cristata* open forest on fine-grained sedimentary rocks.

1 METHODOLOGY

The status of the offset area was based on visual inspection that was completed on 15th of May 2023, by Jason Mark (Ecologist) and Caleb Bush (Junior Ecologist) of Kleinfelder and was conducted at the end of the wet season.

This section includes the findings from the visual monitoring and any management actions required.

2 VISUAL MONITORING

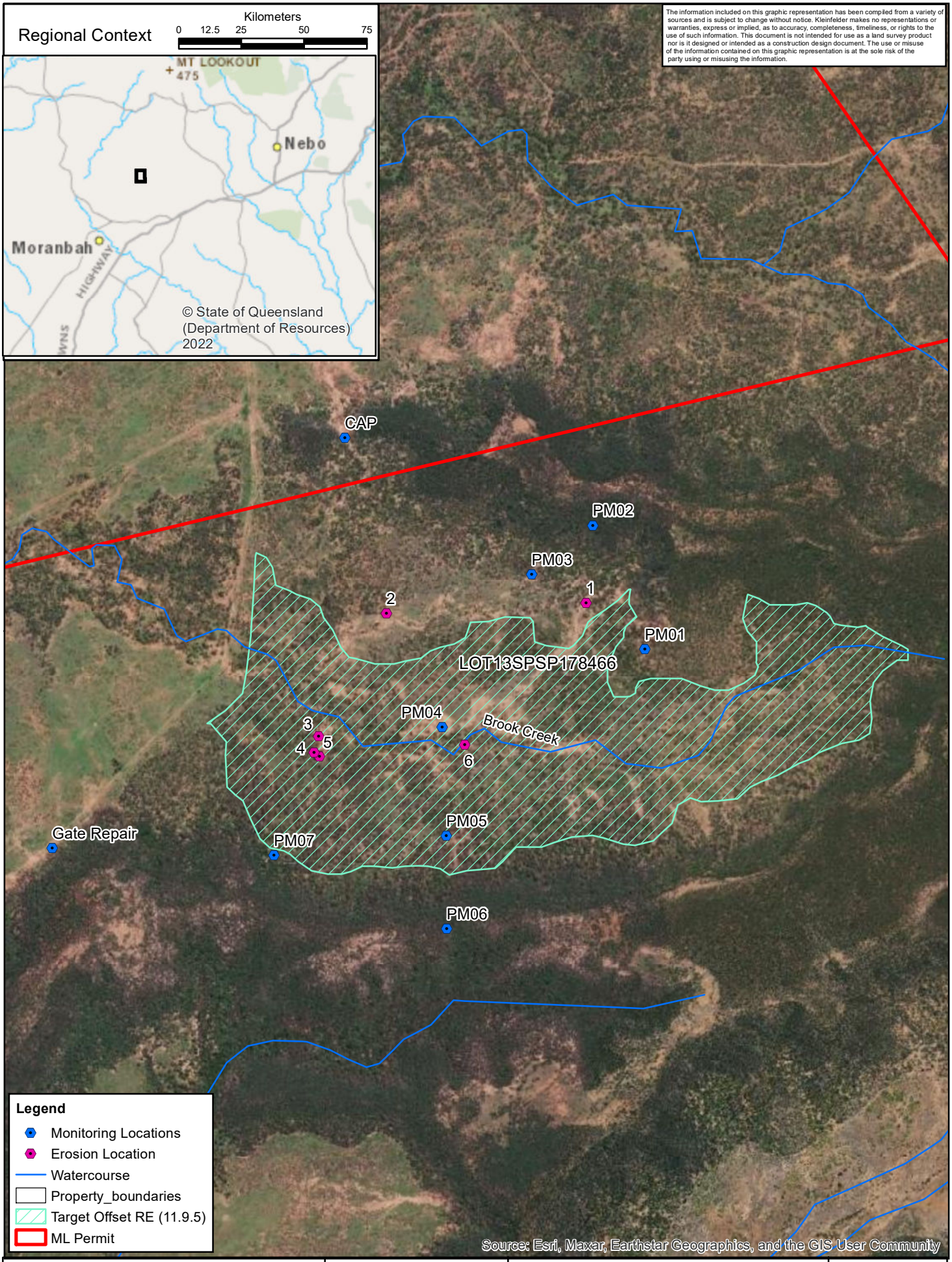
2.1 PERMANENT PHOTO-MONITORING SITES

Photo-monitoring Points were established within the offset area in August 2015. The locations of the Photo-monitoring Points are shown in **Table 1** and in **Figure 1**. Directional photos for May 2023, in order of north, east, south and west, taken from the Photo-monitoring Points are shown in **Plate 1** to **Plate 7**. A sample photo from each point, in the same direction, at each sampling period is shown in **Appendix 3**. Semi-permanent metal star pickets were at each photo monitoring point to ensure replicates are taken from the same locations and observed to be in good order.

Table 1: Table 2 Coordinates for Photo-monitoring Points.

Photo-monitoring Point	Easting	Northing
PM01	624951	7590122
PM02	624779	7590533
PM03	624576	7590371
PM04	624278	7589864
PM05	624292	7589503
PM06	624293	7589194
PM07	623720	7589438

Coordinates are in datum GDA94, MGA Zone 55 projection



Metres
0 50 100 200 300 400 500

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PROJECT REFERENCE: 24000604
DATE DRAWN: 11/17/2023 Version 1
DRAWN BY: JMark
DATA SOURCE: Queensland Spatial Catalogue

Site Overview

M Mining
Wotonga Offset Biannial Photo Monitoring
Wotonga Offset

FIGURE:
1

J:\00 CLIENT FILES\133273_M_Mining\24000604_WotongaVisualMonitoring_2023\24000604_Working.mxd

Plate 1: PM01 directional photos May 2023

Plate 2: PM02 directional photos May 2023

Plate 3: PM03 directional photos May 2023

Plate 4: PM04 directional photos May 2023

Plate 5: PM05 directional photos May 2023

Plate 6: PM06 directional photos May 2023

Plate 7: PM07 directional photos May 2023

2.2 PERIMETER FENCING AND GATES

2.2.1 Outcomes

The offset area is to be fully fenced in accordance with the WOAMP and offset agreement. The fences present are a three-strand barb-wire type and are generally in good condition. The ridgeline forming the boundary of the offset to the north, east and west is providing an exclusion structure to cattle ingress.

Several gates are located around the offset perimeter. The two gates located on the western perimeter were inspected and appeared in good working order.

The cattle access point (Easting 623956, Northing 7590823) in the saddle of the steep ridgeline at the northern section of the offset boundary still requires a fence to be erected (**Figure 1**).

2.2.2 Further Actions

Fence damage identified in previous report was repaired and observed in working order. Communications with the landholder indicated the new fencing required will be installed through an agreement with M Mining and should be completed prior to the dry season monitoring. Gates should remain closed to exclude stock from the offset site.

2.3 NOXIOUS AND ENVIRONMENTAL WEEDS

2.3.1 Outcomes

Cenchrus ciliaris (Buffel Grass) and *Megathyrsus maximus var maximus* (Guinea Grass) were observed in varying densities throughout the offset area with native species including *Heteropogon contortus* (Black Spear grass), *Aristida leptopoda* (White Spear grass), *Aristida caput- medusae* (Many-headed Wiregrass), *Themeda triandra* (Kangaroo Grass) and *Chloris divaricate* (Slender Rhodes Grass) *also* present. Buffel Grass was particularly evident on the flat country within the *Eucalyptus persistens*, *Triodia mitchellii* open woodland on stripped margins of Cainozoic lateritic duricrust Regional Ecosystem, with Guinea Grass observed along Brook

Creek upper banks. Scattered infestations of exotic grasses were also observed within the active management area. Both species are known to outcompete native grass species and generate above natural groundcover biomass levels for Brigalow dominant ecosystem.

Presence of cacti species including *Harrisia martinii* (Harrisia Cactus) and *Opuntia tomentosa* (Velvety-tree Pear), both of which are restricted matter with the latter a Weed of National Significance, occurred across site with re-treatment and treatment of germinating individuals from dropped cladodes on the surrounding areas required following last years weed control efforts.

During the visit to the Offset area to conduct the Photo monitoring Kleinfelder undertook follow-up treatment of cactus species within the offset. Using GIS mapping acquired from the Weed Management Plan mapped individuals were targeted across the offset and treated by chipping and hanging method.

2.3.2 Further actions

Follow up treatment will continue to be required to target new growth individuals as well as follow up on the larger individuals that may need retreatment and treatment of any cladodes that have successfully reshot. Follow up control should be undertaken over the next 12-18 months. Consultation with the property owner to develop a holistic approach to treating exotic grasses should be undertaken before on-ground works are completed to ensure the approach is widely adopted and outcomes meet all parties needs and resources.

2.4 EROSION AND AREAS WITH HIGH EROSION POTENTIAL

2.4.1 Outcomes

Monitoring of the identified erosion sites showed that there has been an overall minimal change since the previous inspection with some active erosion at Site 1 (tunnelling) and Site 4 (slumping). No new erosion locations were identified as part of the 2023 wet season inspection. This would indicate that the erosion has somewhat stabilised. Between November 2022 and May 2023 Wotonga received approximately 541 millimetres of rain (Bureau of Meteorology – Moranbah Airport Weather station). This is approximately the average annual rainfall so it is likely any major erosion would most likely have occurred within the wet season.

Erosion has occurred onsite due to both wind and water erosive forces and has been exacerbated by past land management practices including land clearing and grazing.

A large area of erosion is present in the centre of the active offset area north of Brook Creek (Site 2). It is likely due to the loss of topsoil, which is thin and susceptible to mobilisation, a characteristic trait of the region and soil type. The soil in the region is known to be sodic and highly erosive within the A and B horizons, particularly. When topsoil is lost through land practices or earthmoving the subsoil rapidly mobilises with weak cohesive forces binding the soil resulting in rapid soil loss and continuing land degradation. Some organic matter has accumulated in the last 6 months in this area and vegetation cover continues to increase, which may further develop and improve the soil characteristics. The area should continue to be monitored as these conditions can be difficult to manage and require a systematic and pragmatic approach ensuring goals and outcomes can be achieved and mitigation measures do not negatively affect other environmental values or result in further erosion in other areas of the catchment. The low-nutrient nature of the soil makes it difficult for vegetation to recolonise the area and active revegetation planting or seeding may be required if vegetation colonisation does not continue.

Other areas of the site are affected by gully erosion. The gullies are well developed but stable with no significant movement in the past two years of monitoring for most sites. Evidence of recent active erosion was observed at Site 4 where vegetation from pre-displacement was observed on the slumped material (**Plate 8**). Continued detailed monitoring is required to ensure the gully has stabilised and vegetation is colonising the structures. Ongoing monitoring will provide valuable data to develop an appropriate mitigation plan should erosion become active in drier years with decreased ground cover.

Plate 8: Slumped material in active erosion area

Table 2: Current Erosion Sites

Site	Notes
1	Top of large erosion gully to the north of Brook Creek.
2	Scalded area.
3	Erosion head cut 1 of erosion gully south of Brook Creek.
4	Erosion head cut 2 of erosion gully south of Brook Creek.
5	Erosion head cut 3 of erosion gully south of Brook Creek.

2.4.2 Further actions

Erosion control activities have not been undertaken to date and are not currently planned to occur. Removal of livestock during key periods of the year will lead to slow improvement of scalded areas as soil profiles develop and organic matter composition increases. Gully erosion may require more intense remediation possible including gully reshaping, geotextile placement, revegetation, or coir logs/timber check dams. Gully erosion should continue to be monitored but remediation works is not recommended at this time.

2.5 BUSHFIRE FUEL LOADS

2.5.1 Outcomes

During the preceding wet season, a combined total of 541 millimetres of rainfall was recorded from November 2022 and May 2023 (Moranbah Airport Bureau of Meteorology). This has resulted in an increase in grass cover (particularly Buffel Grass). The bushfire fuel load is currently moderate to high across the site, which was to be expected as biomass from plant growth increases during the wet season (**Plate 1** - **Plate 7** and **Appendix 3**). An increase in fine fuel was observed throughout the monitoring sites and when traversing between monitoring sites. The site was assessed for biomass using the Futurebeef photo standards and methodology at each photo monitoring location.

The site scored moderate to high with an average of 1,290kg/ha of biomass with the lowest observation of 510kg/ha and the highest of 2,500 kg/ha. Futurebeef photographic guidelines used for estimating fuel loads across varying vegetation groups for the Wotonga Offset are as followed. Blue Grass & Wire Grass Photo Standards, Lancewood, Bendee, Rosewood & Spotted Gum Photo Standard, Eucalyptus Woodland Photo Standards and Buffel Grass Photo Standards were used as appropriate for each monitoring location.

2.5.2 Further actions

Introduce cattle to the offset and graze until spring or when fuel loads are reduced to 1,100kg/ha. Cattle stocking rate should be high enough to ensure fuel load is reduced to 1,100kg/ha before spring.

2.6 DAMAGE/DEGRADATION FROM PEST ANIMAL POPULATIONS

2.6.1 Outcomes

Evidence of *Oryctolagus cuniculus* (Rabbit) was observed during this monitoring event within the creek and adjacent flats in the western side of the Offset.

Levels of activity observed were very low and it is likely pest animals are having a negligible effect on the health and structure of the offset vegetation and ecosystem.

Anecdotal evidence suggests pest management has been undertaken by landholders and agistees over many years in the offset and on surrounding lands. Wild Dogs and Feral Pigs have been targeted particularly during calving season.

2.6.2 Further actions

Pest management (shooting) should be undertaken for two consecutive nights or equivalent to ensure populations are managed to acceptable levels. Should populations be observed to be increasing additional management could be required.

2.7 SUCCESS OF REVEGETATION WORKS

2.7.1 Outcomes

Active revegetation activities have not been undertaken to date and are not currently scheduled to occur. The vegetation is in good health with a number of native species present in each stratum. Further development of the vegetation structure is expected without the need for revegetation.

2.7.2 Further actions

No further actions required at this time.

2.8 GROUNDCOVER AND SIGNS OF LAND DEGRADATION DURING PULSE GRAZING

2.8.1 Outcomes

Cattle and evidence of cattle were observed within the offset area with higher concentrations observed along the northern side of Brook Creek. Buffel Grass is more dominant in the more open Box Eucalypt vegetation community found on the northern side of Brook Creek. Open Box Eucalypt vegetation community is also preferred by browsing cattle. Cattle should be used to control fuel load following the wet season when biomass is relatively high but cattle will likely reduce the biodiversity and recruitment rate of the offset if allowed to graze year round in its current condition.

2.8.2 Further actions

Discussion should be held with the landowner to determine fencing requirements and a fence installed along the north-western perimeter. This will allow cattle movement to be managed and excluded when grazing is deemed inappropriate.

3 SUMMARY

An inspection of the offset area was undertaken on 15th of May 2023 for the purposes of visual monitoring according to Section 4 of the Wotonga Offset Area Management Plan.

Vegetation appeared in good health with some small impacts from pests and weeds. While the fuel load is currently moderate this is expected to decrease with a controlled grazing program and as biomass decreases in the dry season. Weed species were present in scattered to low densities in the active management area and did not appear to be having significant impacts on the ecological values. A weed management campaign was being undertaken at the time of the survey.

Sincerely,

Kleinfelder Australia Pty Ltd

Jason Mark

Senior Ecologist
Ecology
jmark@kleinfelder.com
Mobile: 0451 148 780

4 REFERENCES

Ecofund. 2013. *Wotonga Offset Area Management Plan Millennium Expansion Project*. A report prepared for Peabody Energy Australia Pty Ltd.

Queensland Herbarium (2021) Regional Ecosystem Description Database (REDD). Version 12.1 (December 2021) (Queensland Department of Environment and Science: Brisbane)

Queensland Department of Agriculture and Fisheries (2017) Futurebeef. https://futurebeef.com.au/ Accessed 4th January 2022

Kleinfelder (2021) Wotonga Offset Photo Monitoring October 2021 A report prepared for M Mining (Millennium)

APPENDIX 1: CONDITIONS OF APPROVAL UNDER THE EPBC ACT

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 andBiodiversity 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 LeaseApplication 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.

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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

date of decision

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 actionsare 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 statusas 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. Thismust 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 oflivestock 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 toassess 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 contingencymeasures that would be implemented to mitigate these risks; and,
   h. details of parties responsible for monitoring, reviewing and implementing theplan.

   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 ManagementPlan 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 **commencementof 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 thesame 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 bythe **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 notcommence 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 persontaking 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 bythis 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 (OLD) 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 *EnvironmentProtection and Biodiversity Conservation Act 1999.*

Minister - the Minister administering the *Environment Protection and BiodiversityConservation 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 **'.xis'** format.

Offset attributes -mean an **'.xis'** 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 compensatesfor, 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.

APPENDIX 2: WOTONGA OFFSET DETAILS

Departmental Reference Details

Reference and Assessment Details	
Queensland Departmental Reference No: MIN10034430	**Queensland Offset** ID: TBA
Property Address: Wotonga Pastoral Holding, Ellensfield Road, Burton, Queensland	
Real property description: Lot 13 on SP178466	
Tenure: Leasehold	**Primary local government area:** Isaac RegionalCouncil

Offset Area Details

Landholder Details	
Registered Lot on Plan: Lot 13 on SP178466	
Registered Owner/s on Title: State of Queensland	
Lessee: Malcolm Burston	
Business/Company name (ABN/CAN): ABN: 33 229 398 728	
Phone number: -	**Mobile Phone:** +61 (4) 407 168 013
Fax number: -	**Contact person:** Malcom Burston
Email: malburston.pl@bigpond.com	
Postal address: 162 Geebung Station Road, Kuttabul, QLD, 4741	

APPENDIX 3: PHOTO-MONITORING SAMPLE DIRECTION FOR ALL SURVEYS

PM01 sample photos (northerly) for each monitoring event since August 2015 (Regional Ecosystem 11.7.3)

April 2015

April 2016

August 2016

May 2017

August 2017

June 2018

September 2018

June 2019

June 2020

December 2020

May 2021

October 2021

April 2022

October 2022

May 2023

PM02 sample photos (northerly) for each monitoring event since August 2015 (Regional Ecosystem 11.7.2)

April 2015

April 2016

August 2016

May 2017

August 2017

June 2018

September 2018

June 2019

June 2020

December 2020

May 2021

October 2021

April 2022

October 2022

May 2023

PM03 sample photos (northerly) for each monitoring event since August 2015 (Regional Ecosystem 11.7.3)

April 2015

April 2016

August 2016

May 2017

August 2017

June 2018

September 2018

June 2019

June 2020

December 2020

May 2021

October 2021

April 2022

October 2022

May 2023

PM04 sample photos (northerly) for each monitoring event since August 2015 (Erosion)

April 2015

April 2016

August 2016

May 2017

August 2017

June 2018

September 2018

June 2019

June 2020

December 2020

May 2021

October 2021

April 2022

October 2022

May 2023

PM05 sample photos (northerly) for each monitoring event since August 2015 (Regional Ecosystem 11.9.5)

April 2015

April 2016

August 2016

May 2017

August 2017

June 2018

September 2018

June 2019

June 2020

December 2020

May 2021

October 2021

April 2022

October 2022

May 2023

PM06 sample photos (northerly) for each monitoring event since August 2015 (Regional Ecosystem 11.7.2)

April 2015

April 2016

August 2016

May 2017

August 2017

June 2018

September 2018

June 2019

June 2020

December 2020

May 2021

October 2021

April 2022

October 2022

May 2023

PM07 sample photos (northerly) for each monitoring event since August 2015 (Regional Ecosystem 11.5.3a)

April 2015

April 2016

August 2016

May 2017

August 2017

June 2018

September 2018

June 2019

June 2020

December 2020

May 2021

October 2021

April 2022

October 2022

May 2023