BHP Mitsubishi Alliance

Appendix M

Inderi Offset Area Management Plan

Offset Area Management Plan: Inderi Offset Area

SLR Consulting Australia Pty Ltd

Horse Pit Extension Project – Caval Ridge Mine

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Issue Date: 17 August 2022
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Document management

Rev.	Issue Date	Description	Author (s)	Approved
A	21/07/2021	Issued for review	L. Wickson	B. Dreis
B	4/02/2022	Issued for review	L. Wickson	B. Dreis
0	29/03/2022	Issued for use	P. Wagner	B. Dreis
1	12/05/2022	Updated	P. Wagner	B. Dreis
2	20/05/2022	Updated	P. Wagner	B. Dreis
3	1/06/2022	Updated	J. van Osta	B. Dreis
4	17/08/2022	Updated	P. Wagner	B. Dreis

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Definitions

Term	Definition
Broad Vegetation Group	High-level groupings of vegetation communities and Regional Ecosystems in Queensland by Neldner et al. (2019).
Inderi Offset Area	The approximately 66.61 ha Offset Area within the Inderi property to acquit HPE Project impacts on king bluegrass (*Dichanthium queenslandicum*) and MSES Regulated Vegetation (BVG 30b).
Habitat Quality Score	A method of evaluating habitat quality within a particular community based on key indicators including site condition, site context and species habitat index (if necessary). The method produces a score out of 10, where the maximum score of 10 represents a fully intact system. Scores of 4, 5 and 6 may indicate good quality regrowth or medium value habitat.
Matters of National Environmental Significance	Environmental values protected under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. Significant impacts to these values may require offsets under the legislation.
Matters of State Environmental Significance	State interests defined under Schedule F of the Queensland State Planning Policy and include ecological features such as Regulated Vegetation, wetlands, fish habitat areas and threatened species habitat.
Offset Investigation Area	The approximately 452.8 ha area within the Inderi property surveyed as part of the May 2021 field assessment conducted by E2M.
Regional Ecosystem	A vegetation community in a bioregion that is consistently associated with a combination of geology, landform, and soil. Regional Ecosystems are described in the Regional Ecosystem Description Database, produced by the Queensland Herbarium.
Regulated Vegetation	Vegetation that is mapped within the regulated vegetation management map produced by Department of Natural Resources, Mines and Energy. The Queensland *Vegetation Management Act 1999* is applicable to regulated vegetation.
Remnant vegetation	Vegetation which forms the predominant canopy of the community that: a) covers more than 50% of the undisturbed predominant canopy; and b) averages more than 70% of the vegetation's undisturbed height; and c) is composed of species characteristic of the vegetation's undisturbed predominant canopy.
Suitable habitat	A species preferred environment required to sustain a viable population. Suitable habitat may include breeding, foraging and shelter resources for fauna or preferred environmental conditions for flora.
Threatened species	Extinct (EX), Extinct in the Wild (XW), Critically Endangered (CE), Endangered (E), Vulnerable (V) or Conservation Dependent (CD) under the *Environmental Protection and Biodiversity Conservation Act 1999* or extinct in the wild (PE), critically endangered (CE), endangered (E), vulnerable (V) or near threatened (NT) under the *Nature Conservation Act 1992*.

Term	Definition
Vegetation community	An identified vegetation community (i.e. structure, composition, condition and/or underlying geology) verified from a field survey. Communities may include Regional Ecosystems, remnant vegetation and/or disturbed/novel ecosystems (e.g. parkland, disturbed roadsides etc.).

Abbreviations

Abbreviation	Description
BMA	BM Alliance Coal Operations Pty Ltd
BVG	Broad Vegetation Group
CVM	Caval Ridge Mine
DAF	Queensland Government Department of Agriculture and Fisheries
DAWE	Commonwealth Government Department of Agriculture, Water and the Environment
E2M	E2M Pty Ltd
EA	Environmental Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
GTRE	Ground-truthed Regional Ecosystem
ha	Hectares
KPI	Key Performance Indicator
MNES	Matters of National Environmental Significance
MSES	Matters of State Environmental Significance
NC Act	*Nature Conservation Act 1992*
OAG	Offset Assessment Guide
OAMP	Offset Area Management Plan
OIA	Offset Investigation Area
RE	Regional Ecosystem
SIA	Significant Impact Assessment
SLR	SLR Consulting Pty Ltd
sp.	Singular species. For example, *Eucalyptus* sp. refers to a single species of *Eucalyptus*
spp.	Multiple species. For example, *Eucalyptus* spp. refers to multiple species of *Eucalyptus*
TEC	Threatened Ecological Community

Abbreviation	Description
the Project (or the HPE Project)	Horse Pit Extension Project
Vdec	Voluntary declaration is a delivery mechanism under the VM Act used to secure an environmental offset
VM Act	*Vegetation Management Act 1999*

1 Introduction

1.1 Background

The development of the BM Alliance Coal Operations Pty Ltd (BMA) Horse Pit Extension (HPE) Project at Caval Ridge Mine (CVM) will likely result in a significant residual impact on four environmental values categorised as Matters of National Environmental Significance (MNES) and/or Matters of State Environmental Significance (MSES) (herein referred to as 'target protected matters'):

- 167.84 ha of ornamental snake (*Denisonia maculata*) habitat;
- 23.40 ha of king bluegrass (*Dichanthium queenslandicum*) habitat;
- 23.40 ha of MSES-Regulated Vegetation[1]; and
- 84.19 ha of connectivity area.

The impacts are expected to trigger offset requirements under the Commonwealth *Environment Protection and Biodiversity Conservation Act* 1999 (EPBC Act) Environmental Offsets Policy (DSEWPaC 2012) (Commonwealth Offsets Policy) and the Queensland *Environmental Offsets Act 2014* (EO Act).

A delineated Offset Investigation Area (OIA) within a property known as "Inderi" (formally Lot 55 on Plan DSN318) (Figure *1*) was identified and surveyed for its offset suitability, concluding:

- the property is suitable to directly offset 100% of the HPE Project impacts to king bluegrass (*Dichanthium queenslandicum)* and MSES Regulated Vegetation ('of concern' (BVG 30b));
- there is no ornamental snake habitat located within the property. The HPE Project impacts to ornamental snake are required to be directly offset on an alternative property; and
- The HPE Project impacts to connectivity values are not required to be directly offset on Inderi.

Further details regarding the offset suitability of areas within Inderi property are provided in the *Horse Pit Extension Project: Environmental Offset Strategy* (E2M, 2022).

This Offset Area Management Plan (OAMP) details the management actions and monitoring requirements necessary to achieve a conservation outcome for the following target protected matters:

- king bluegrass (*Dichanthium queenslandicum*); and
- MSES Regulated Vegetation (BVG 30b).

1.2 Commonwealth offset conditions

The HPE Project's offset conditions under the Commonwealth EPBC Act are yet to be confirmed by the Commonwealth Department of Agriculture, Water and Environment (DAWE). Therefore, the HPE Project's Commonwealth offset obligations presented in this OAMP are based on analysis from the *Environmental Offset Strategy: Horse Pit Extension Project – Caval Ridge Mine* (E2M 2022) (herein referred to as the 'Offset Strategy').

[1] a native grassland community designated as Regional Ecosystem (RE) 11.8.11 within the Broad Vegetation Group (BVG) 30b[1] and listed as 'of concern' under the *Vegetation Management Act 1999*

The Offsets Strategy (E2M 2022), under the Commonwealth offset framework, identified 33 ha of king bluegrass (*Dichanthium queenslandicum)* habitat within the Inderi Offset Area is required to directly offset 100% of the HPE Project impacts (Table 1). The area required to offset the HPE Project impacts on king bluegrass habitat (i.e. 23.40 ha) is based on the results of the EPBC Act Offsets Assessment Guide calculator as detailed in the Offset Strategy (E2M 2022). Approximately 66.61 ha of king bluegrass habitat was recorded within the Inderi Offset Area.

Table 1. Commonwealth offset requirements summary

Target protected matter	Status		Significant Residual Impact (ha)	Offset Area required (ha)	Suitable habitat within the Inderi Offset Area (ha)
	EPBC Act	State			
King bluegrass (*Dichanthium queenslandicum*)	E	V	23.40	33.00	66.61

1.3 State offset conditions

The HPE Project's offset conditions under the *Queensland Environmental Offsets Policy Version 1.12* (QEOP) are yet to be identified. Therefore, the HPE Project's State offset requirements (i.e. MSES Regulated Vegetation) in this OAMP are based on the offset suitability analysis in the Offset Strategy (E2M, 2022).

The Offset Strategy, under the Queensland offset framework, identified that 34 ha of non-remnant grassland vegetation (BVG 30b) within the Inderi HPE Offset Area is required to directly offset 100% of the HPE Project impacts on 'of concern' remnant native grassland (RE 11.8.11 (BVG30b)) (Table 2). The area required to offset the HPE Project impacts on Of Concern MSES Regulated Vegetation (BVG 30b) is based on the Land-based Offset Multiplier Calculator (Department of Environment and Heritage Protection (DEHP), 2014) as detailed in the Offset Strategy (E2M 2022). Approximately 39.83 ha of RE 11.8.11 (non-remnant) was recorded within the Inderi Offset Area.

Table 2. State offset requirements summary

Target protected matter	Status		Significant Residual Impact (ha)	Offset Area required (ha) under the EO Act[1]	Suitable area within the Inderi Offset Area (ha)
	EPBC Act	State			
MSES Regulated Vegetation (BVG 30b)	NA	Of Concern	23.40	34.00[2]	39.83

[2] Based on the EO Act land-based offsets multiplier calculator (DEHP, 2014)

Legend

- Road
- Horse Pit Extension Project Area
- Inderi Property

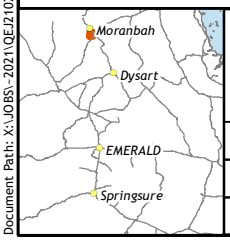
N

Scale 1:2,000,000 (A4)

0 10 20 30 40 50

Kilometres

Coordinate System: GCS GDA 1994



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Road: © DNRME 2020

Rev	Description	Drawn	Approved	Date
3	Issued for Use	DL	JVO	31/05/2022
4	Issued for Use	DL	PW	15/08/2022

FIGURE 1: LOCATION OVERVIEW

HPE OAMP - Inderi
BMA Caval Ridge Mine

Map Number	Job Number	Rev
1 of 1	QEJ21025	4

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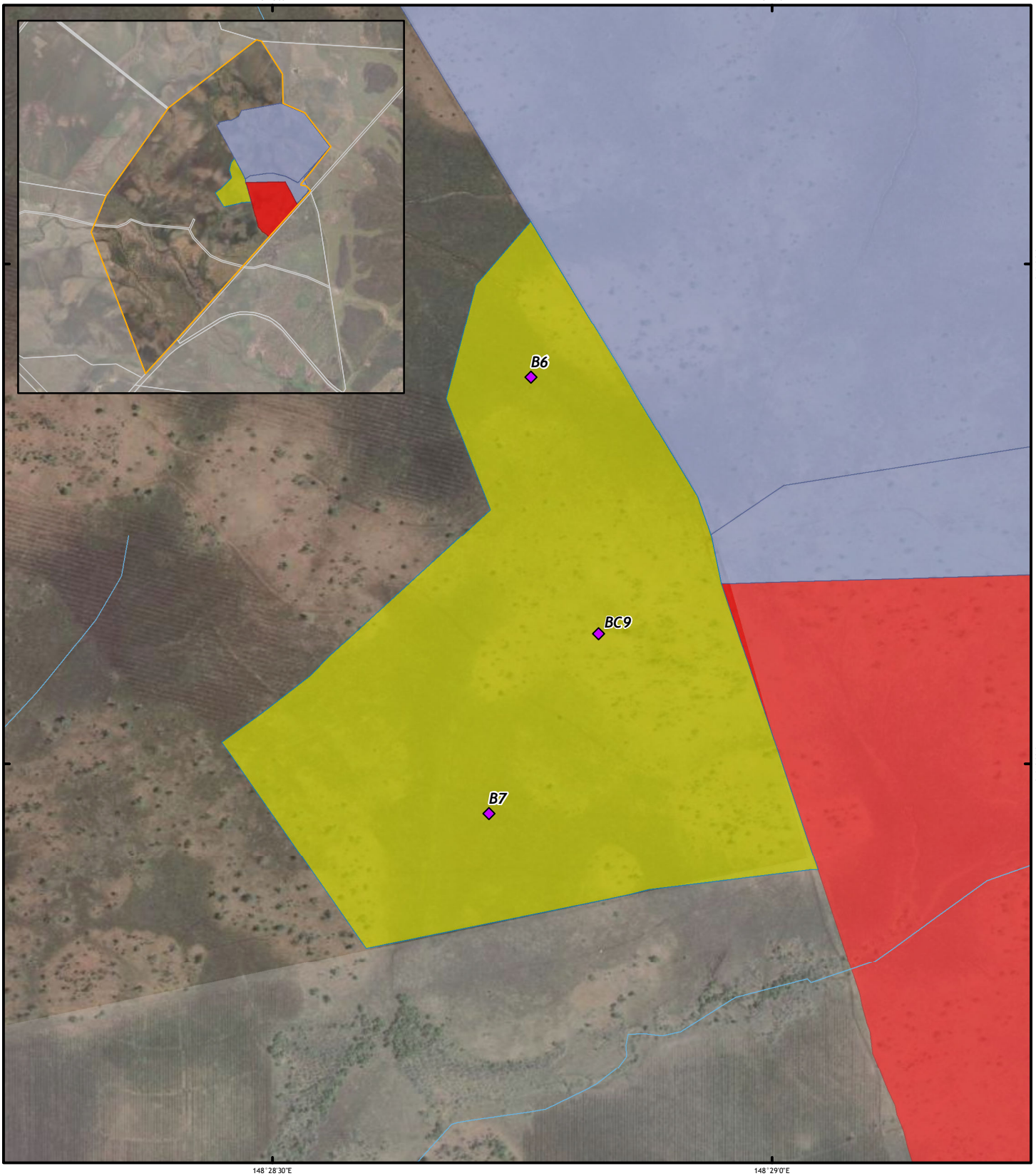

Legend

- Biocondition Site
- Watercourse
- Inderi Property
- HPE Offset Area (71.43 ha)
- Offset procurement in progress by other parties
- Existing Offset Category A Area (2014)

N

Scale 1:10,000 (A4)

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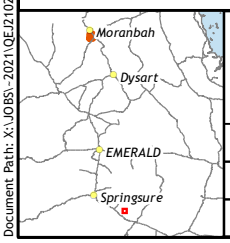
Kilometres

Coordinate System: GCS GDA 1994



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Rev	Description	Drawn	Approved	Date
3	Issued for Review	DL	JVO	31/05/2022
4	Issued for Review	DL	PW	15/08/2022

FIGURE 2: INDERI OFFSET AREA AND SURVEY LOCATIONS

HPE OAMP - Inderi
BMA Caval Ridge Mine

Map Number	Job Number	Rev
1 of 1	QEJ21025	4

Document Path: X:\JOBS\-2021\QEJ21025\GIS\QEJ21025_OAMP_Inderi_2_OffsetArea.mxd

1.4 Purpose and content of this OAMP

This OAMP has been prepared to address the management objectives, actions and outcomes necessary to:

- Deliver an overall conservation outcome for the target protected matters within the Inderi Offset Area; and
- Satisfy the Commonwealth and Queensland approval offset conditions (yet to be finalised).

The OAMP must provide content as specified by DAWE and the Queensland Government. These requirements are detailed in Table 3 with reference to where the relevant information is provided.

Table 3. Overview of OAMP content

Requirement	Information Location
Details to demonstrate how the environmental offset/s compensate for residual significant impacts of the project on relevant listed threatened species and communities, and/or their habitat, in accordance with the principles of the Offsets Policy and all requirements of the Offsets Assessment Guide (OAG)	Offsets have been developed in accordance with both the EPBC Act Offsets Policy and the OAG. Details are provided in the *Horse Pit Extension Project Environmental Offsets Strategy* (E2M, 2022).
A description of the offset area/s, including location, size, condition, environmental values present and surrounding land uses	Section 2. Offset Area Details.
Baseline data and other supporting evidence that documents the presence of the relevant listed threatened species and communities, and the quality of their habitat within the offset area/s	An ecological field survey was conducted within the Inderi Offset Area to determine the suitability of the environment to support king bluegrass and MSES Regulated Vegetation. Details are provided in the *Horse Pit Extension Project Environmental Offsets Strategy* (E2M, 2022).
An assessment of the site habitat quality for the offset area/s using the Queensland Guide to determining terrestrial habitat quality: A toolkit for assessing land based offsets under the Queensland Environmental Offsets Policy (Version 1.2, April 2017), or subsequent revision	The site habitat quality of the Inderi Offset Area was determined during field assessments in line with the *Queensland Guide to determining terrestrial habitat quality* (DES, 2020). Details are provided in the *Horse Pit Extension Project Environmental Offsets Strategy* (E2M, 2022).
Details of how the offset area/s will provide connectivity with other habitats and biodiversity corridors and/or will contribute to a larger strategic offset for the relevant listed threatened species and communities	Section 2.4 Landscape connectivity.

Requirement	Information Location
Maps and shapefiles to clearly define the location and boundaries of the offset area/s, accompanied by the offset attributes (e.g. physical address of the offset area/s, coordinates of the boundary points in decimal degrees, the listed threatened species and communities that the environmental offset/s compensates for, and the size of the environmental offset/s in hectares)	• Figure 3 and Figure 4; • Section 2 Offset Area Details; and • InderiOffsetArea_20220601.shp.
Specific offset completion criteria derived from the site habitat quality to demonstrate the improvement in the quality of habitat in the offset area/s over a 20 year period	Sections 3.2 Management objectives and 3.3 Completion scores and interim targets.
Details of the management actions, and timeframes for implementation, to be carried out to meet the offset completion criteria	• Section 3.5 Management actions; and • Section 4 Offset Monitoring.
Interim milestones that set targets at 5-yearly intervals for progress towards achieving the offset completion criteria	Section 3.3 Completion Scores and interim targets.
Details of the nature, timing and frequency of monitoring to inform progress against achieving the 5-yearly interim milestones (the frequency of monitoring must be sufficient to track progress towards each set of milestones, and sufficient to determine whether the offset area/s are likely to achieve those milestones in adequate time to implement all necessary corrective actions)	Table 8. Offset management action monitoring schedule.
Proposed timing for the submission of monitoring reports which provide evidence demonstrating whether the interim milestones have been achieved	Section 5 Reporting.
Timing for the implementation of corrective actions if monitoring activities indicate the interim milestones have not been achieved	Section 3.4 Risks and triggers and Appendix B Risk Analysis.
Risk analysis and a risk management and mitigation strategy for all risks to the successful implementation of the OAMP and timely achievement of the offset completion criteria, including a rating of all initial and post-mitigation residual risks in accordance with a risk assessment matrix	Section 3.4 Risks and triggers and Appendix B Risk Analysis.
Evidence of how the management actions and corrective actions consider relevant approved conservation advice and are consistent with relevant recovery plans and threat abatement plans	Section 3.5 Management Actions.

Requirement	Information Location
Details of the legal mechanism for legally securing the proposed offset area/s, such that legal security remains in force over the offset area/s for at least 20 years to provide enduring protection for the offset area/s against development incompatible with conservation	• The offset will be secured via a Voluntary Declaration under the Queensland *Vegetation Management Act 1999*. • Section 3.5.6 Offset securement.

2 Offset Area Details

2.1 Property location and regional context

The Inderi Offset Area is located entirely within the Inderi property (formally Lot 55 on DSN318), a 3,034 ha cattle property located in the Central Highlands Regional Council Local Government Area, approximately 20 km northwest of the township of Rolleston and 242 km south of the CVM (Figure 1). The Inderi Offset Area is located within in the Basalt Downs biogeographic subregion and is surrounded by properties with similar land uses (i.e. agriculture).

2.2 Tenure and ownership

The Inderi property is owned and managed under freehold tenure by the Kooringal Pastural Company. The Inderi property already supports three other offset areas not held by BMA (two in progress and one established) including an existing 137.2 ha offset secured in 2014 (Figure 2).

2.3 Offset Area and values

The Inderi Offset Area is located within the western portion of the Inderi property adjacent to an existing secured offset area. The Inderi Offset Area comprises approximately 67 ha of two vegetation communities:

- Non-remnant grassland consistent with RE 11.8.11 (Photo 1); and
- Remnant *Eucalyptus orgadophila* woodland (RE 11.8.5).

The non-remnant grassland vegetation community contains a suitable offset for both target protected matters: king bluegrass habitat and MSES Regulated Vegetation (BVG 30b); whereas RE 11.8.5 contains only suitable habitat to offset king bluegrass habitat.

As the king bluegrass and MSES Regulated Vegetation offsets may be collocated, the subset HPE Offset Area within the Inderi OIA focused on identifying the requisite area of native grassland suitable to acquit both offset obligations.

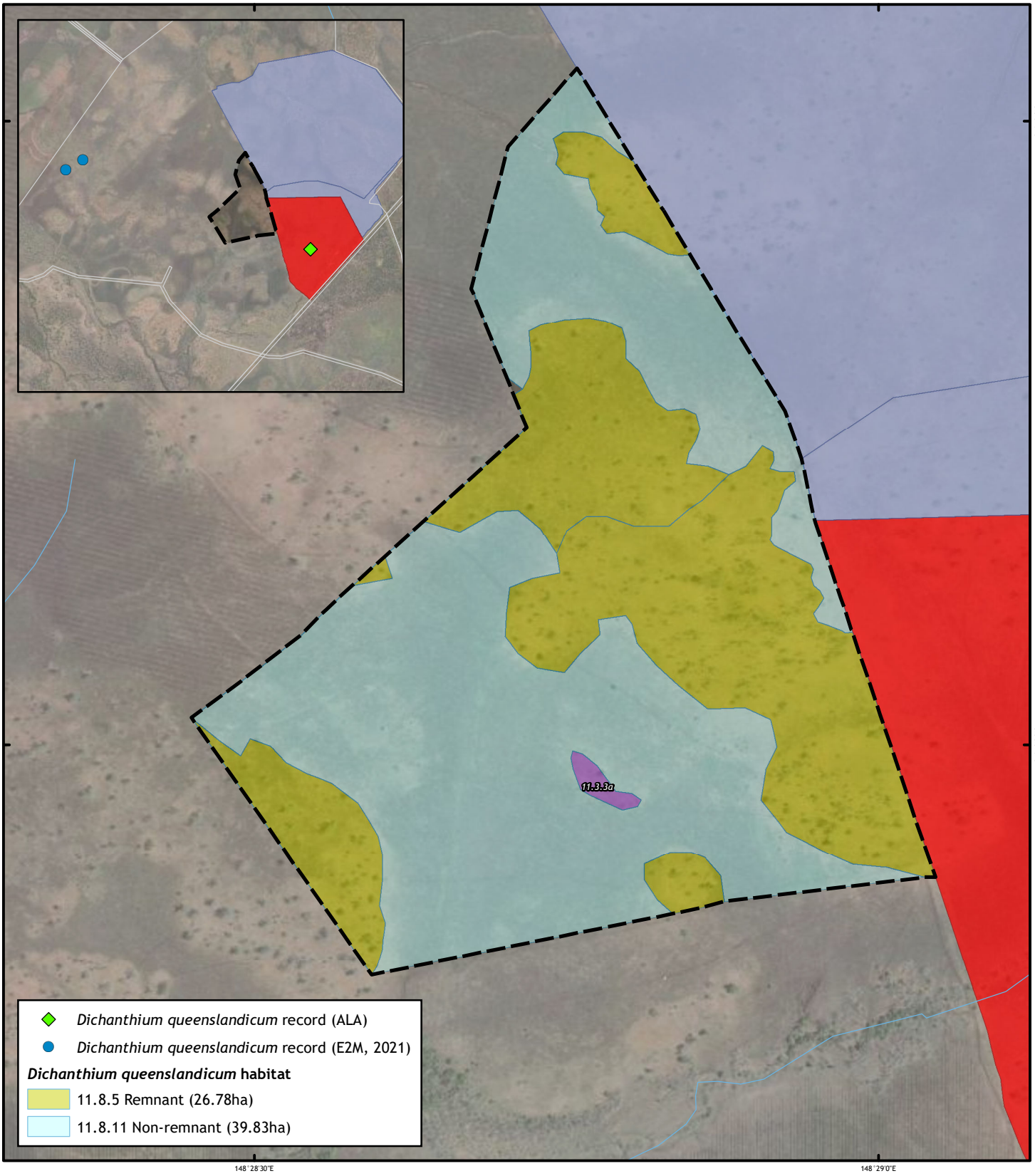
In addition to the presence of suitable offsets for the target protected matters for the HPE Project, the location and configuration of the Inderi Offset Area is based on:

- existing fence lines;
- existing croplands (leucaena);
- minimising new fencing/disturbance;
- existing infrastructure and livestock water source points; and
- the location of existing and proposed offset areas within the Inderi property.

The current configuration and location of the proposed Inderi Offset Area utilises an existing fence line on the southern and eastern boundary and abuts an existing offset area to the southeast as well as two additional Offset Areas presently under development. The Inderi Offset Area consists of 40 ha of non-remnant grassland (RE 11.8.11 (BVG 30b)) with approximately 27 ha area of RE 11.8.5 (Figure 3 and Figure 4).

Photo 1. Grasslands within the Inderi Offset Area

No king bluegrass individuals were observed within the Inderi Offset Area during the initial field surveys (May 2021), however, has been previously recorded in adjacent areas, including the existing offset area (refer to Offset Investigation Area within the Offset Strategy (E2M, 2022)). The species was also recorded approx. 3.5 km north-west of the Inderi Offset Area in association with remnant RE 11.8.11 (E2M, 2022) (Figure 3).



Legend

- Watercourse
- Inderi Offset Area
- Offset procurement in progress by other parties
- Existing Offset Category A Area (2014)
- 11.3.3a Non-remnant

N

Scale 1:8,000 (A4)

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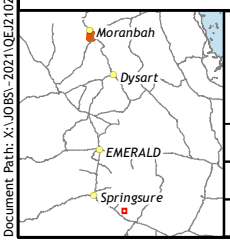
Kilometres

Coordinate System: GCS GDA 1994



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3	Issued for Use	DL	PW	31/05/2022
4	Issued for Use	DL	PW	15/08/2022

FIGURE 3: INDERI OFFSET AREA KING BLUEGRASS HABITAT

HPE OAMP - Inderi
BMA Caval Ridge Mine

Map Number	Job Number	Rev
1 of 1	QEJ21025	4

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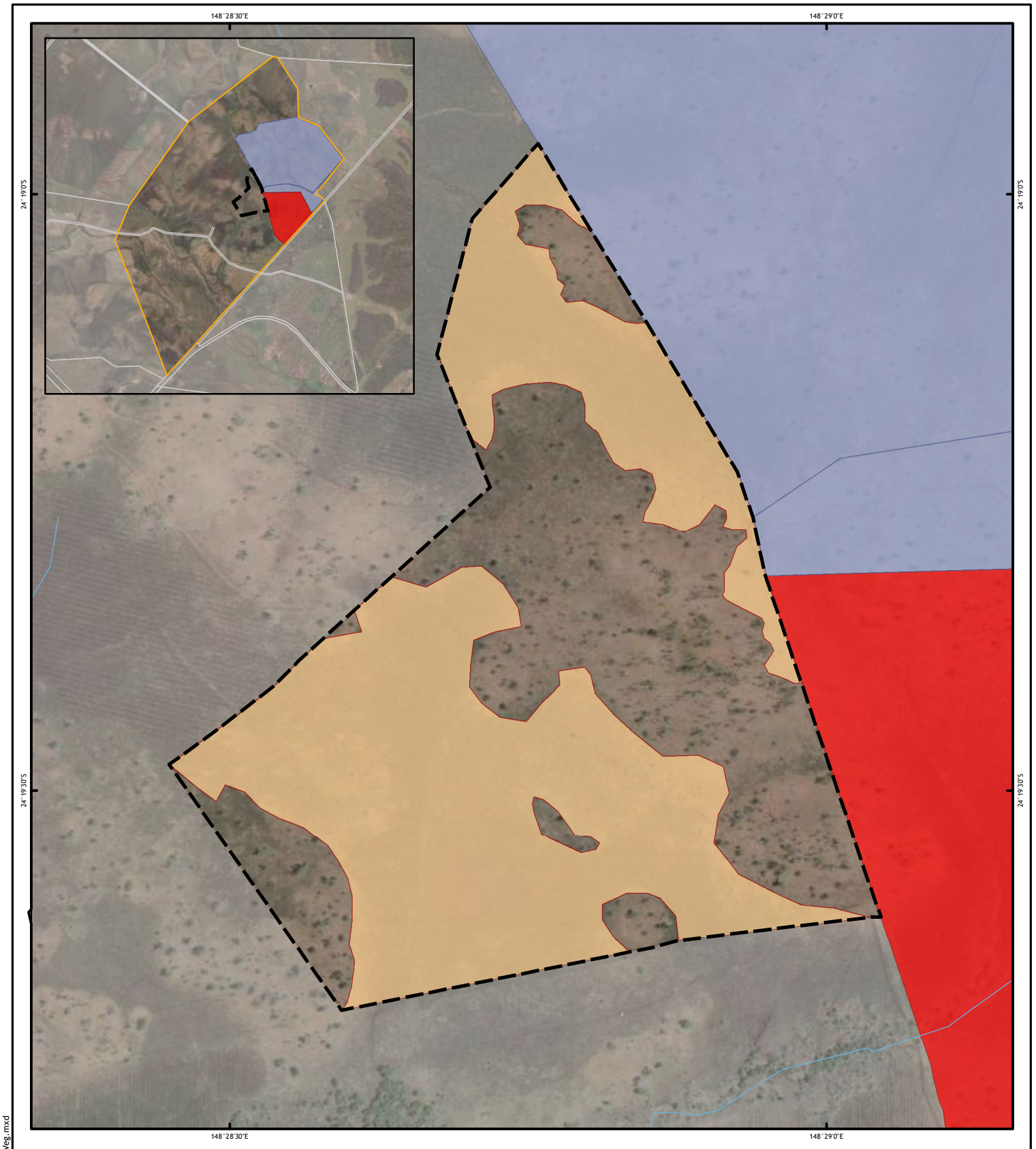

Legend

- Watercourse
- Offset Property
- Inderi Offset Area
- Offset procurement in progress by other parties
- Existing Offset Category A Area (2014)

Of Concern Regulated Vegetation (BVG 30b) suitable offsets

- Non-remnant 11.8.11

N

Scale 1:8,000 (A4)

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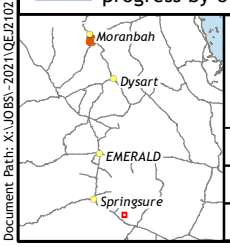
Meters

Coordinate System: GCS GDA 1994



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Rev	Description	Drawn	Approved	Date
3	Issued for Use	DL	JVO	31/05/2022
4	Issued for Use	DL	PW	15/08/2022

FIGURE 4: INDERI OFFSET AREA SUITABLE FOR MSES REGULATED VEGETATION OFFSETS

HPE OAMP - Inderi
BMA Caval Ridge Mine

Map Number	Job Number	Rev
1 of 1	QEJ21025	4

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2.4 Landscape connectivity

The Inderi Offset Area is located within a largely fragmented landscape, mostly attributed to agricultural development within the region. Remnant vegetation is generally restricted to riparian corridors (e.g. Aldebaran Creek and associated tributaries) and basalt hills. The Albinia National Park is also located 14 km southeast of the Inderi Offset Area.

Remnant native grassland communities have been largely cleared or disturbed within the surrounding areas, with remnant and non-remnant areas containing various levels of encroachment of introduced pasture species and environmental weeds. Areas within the Inderi Offset Area are connected to larger tracts of suitable king bluegrass habitat and remnant native grasslands (containing RE 11.8.11) to the south and east.

The Inderi Offset Area is also strategically located adjacent to the existing secured offset (Figure 2) as well as two other proposed offsets to the north. The existing offset area was secured in 2014 and is 137.2 ha. Vegetation is analogous to that within the Inderi Offset Area (i.e. natural grassland vegetation communities) and is under active management until 2034. Locating the offset area adjacent to other legally secured offset will enable the establishment of one contiguous habitat area and a cumulative conservation benefit for the threatened flora and vegetation communities targeted (i.e. king bluegrass, native grasslands including Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin Threatened Ecological Community).

2.5 Threatening processes

Initial surveys of the Inderi Offset Area by E2M in May 2021 identified a number of threatening processes to king bluegrass and grassland vegetation communities within and adjacent to the Offset Area. Conditions at the time of the survey were dry, as evidenced by:

- Prolonged below average rainfall;
- The observed grazing impacts on vegetation; and
- The low native perennial grass cover (relative to the benchmark).

Native grasslands are adapted to drought like conditions; however prolonged periods of drought and the additional pressures from grazing and encroachment of environmental weeds can hinder the condition and recovery of the vegetation/habitat.

The Inderi Offset Area was currently subject to livestock grazing. Livestock grazing is identified as a threat to king bluegrass and cannot tolerate continual high intensity stocking regimes (SEWPaC, 2013). In addition to browsing and overgrazing, livestock trampling can compact the soil, impeding the development of root structures of native grass species (TSSC), 2009). Pasture improvement through the introduction of exotic pasture species can also displace and out-compete native species over a number of years (TSSC), 2009). A number of introduced pasture species were present within the Inderi Offset Area including buffel grass (*Cenchrus ciliaris*), *Setaria parviflora* and red natal grass (*Melinis repens*).

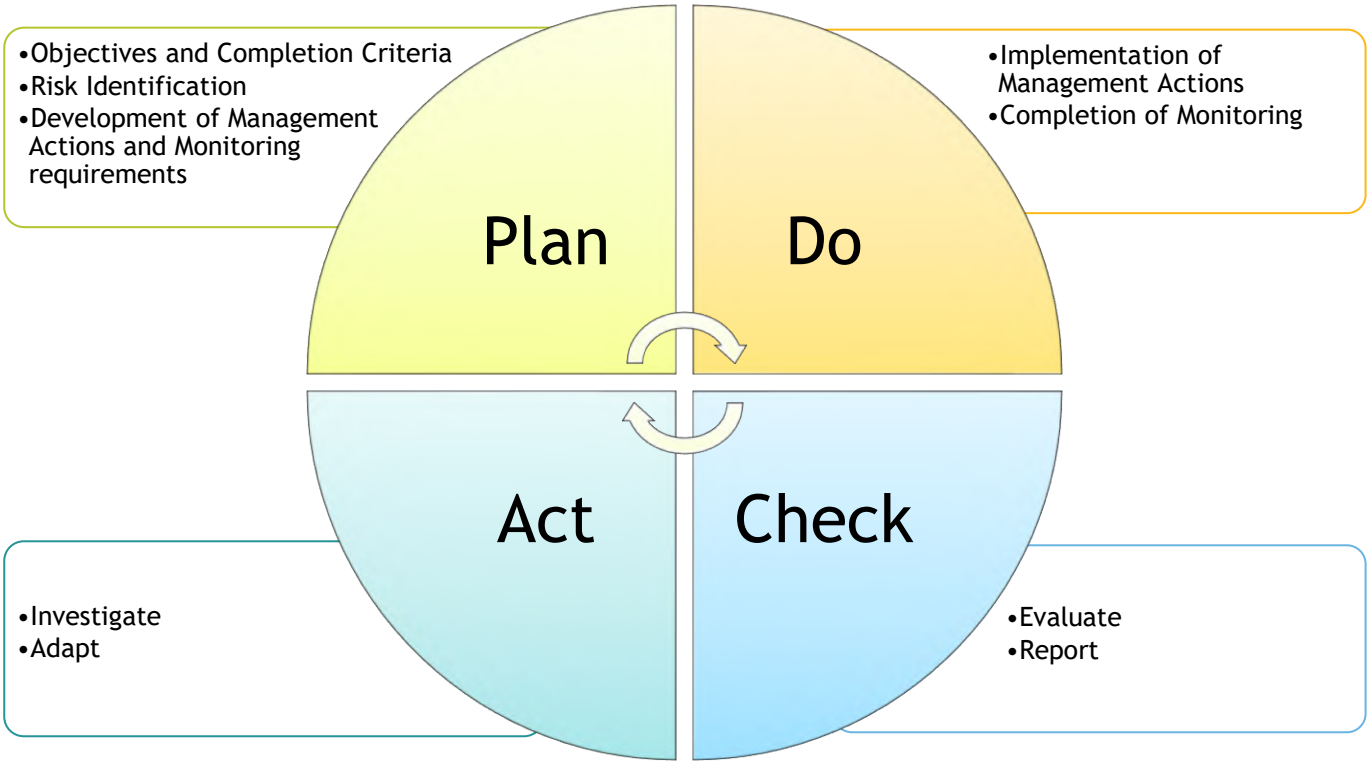
Similarly, encroachment of other invasive, environmental weeds can out-compete native flora species, altering the vegetative structure and compositions within native grassland communities (TSSC), 2009). Environmental weed species observed within the Inderi Offset Area include parthenium (*Parthenium hysterophorus*), *Opuntia* spp. and wild gooseberry (*Physalis angulata*).

3 Offset Management Framework

3.1 Overview

The management of the offset commitment will be implemented in accordance with an Offset Management Framework centred on an adaptive management cycle. The cycle is based on the PLAN – DO – CHECK – ACT model used in the overarching BHP Environmental Management System (EMS). The accountability for implementation of the framework will lie with BMA, however for some aspects (e.g. stock management, fence monitoring, habitat quality assessment) a suitably qualified person will be appointed and held accountable to BMA to deliver the necessary outcomes (e.g. maintenance of infrastructure, monitoring reports etc.).

A key aspect of the framework is the feedback cycle facilitated by CHECKing outcomes of monitoring, investigating contributing factors to results not considered in line with milestones or Key Performance Indicators (KPIs) (ACT), adapting approaches to management (informed by experts where appropriate) with the aim of improving likelihood of success (ACT) and finally circling back to updating documentation and work plans (PLAN) to ensure improved actions are then incorporated and implemented (DO) in future.



The framework encompasses the following key components:

PLAN

- **Offset Management Objectives** – the understanding of the MNES values to be offset and threats to those values drives the management objectives for the site. The objectives are outlined in Section 3.2 and Section 3.3.

- **Completion Criteria** – final completion criteria specific to the management objectives have been identified. Performance targets are defined to measure performance of the management actions during the offset management period and progress toward final completion criteria. Criteria are shown in Section 3.3.
- **Risk Planning** – a risk assessment identifies threats to the management process whereby management actions and monitoring design can incorporate precautionary measures, or ensure monitoring parameters are appropriate for detection of negative results. The risk assessment is summarised in Section 3.4.
- **Management Actions Definition** – management actions have been designed specific to the desired conservation outcomes of the offset. Actions are documented in terms of method, location, timing for implementation and responsibility. In addition, action specific performance indicators have been defined for each management action and options for corrective actions identified. Management actions and schedule are documented in Section 3.5.
- **Monitoring Program** – the monitoring requirements are documented in Section 4.1. Firstly, baseline data will be collected to establish the benchmark for reporting against. Baseline data collection will be undertaken by a suitably qualified person depending on the nature of the parameter (e.g. ecologist will be required for measuring of habitat quality whereas the location and condition of fire breaks would be assessed by a land manager).
- **Establish Process** – obligations of approval and management/monitoring commitments will be recorded in the BMA Coal Legal Obligations Register (CLOR) and Management Plan LOR (or comparable management systems of the time). A corresponding mechanism for assigning and tracking monitoring, management actions, reporting etc. will be implemented (e.g. the BMA Enterprise Work Management System (SAP) that is currently in place). Work orders are developed to provide a detailed breakdown of tasks to be completed. The SAP currently provides a mechanism for tracking activity completion and assigning work orders (among other things).

Outcomes of the PLAN component of the framework are documented in the below sections of this document. The nature of the adaptive management cycle is such that the management actions and monitoring program will be updated and implemented where investigation outcomes identify a necessary amendment.

DO

- **Implementation** – management actions and the monitoring program will be implemented in accordance with the work orders as they are scheduled, currently provided within the SAP. Implementation will be undertaken by suitably qualified personnel depending on the nature of the task.
- **Operation** – the offset site will be operated in accordance with the management strategies defined within this OAMP. This includes land use restrictions identified to ensure the delivery of an improved environmental outcome, and the legally binding mechanism under the *Vegetation Management Act 1999* under which the offset will be secured (Section 3.5.6).

CHECK

- **Evaluate** – outcomes of the monitoring undertaken will be evaluated following each monitoring event. The method of evaluation will be dependent on the parameter measured and relevant target/KPI for comparison. The monitoring schedule is shown in Section4.
- **Report** – results of all monitoring will be captured and data collected will be maintained in an appropriate data storage format. Maintaining a record of results throughout the life of the offset will allow for trends to be identified (if relevant to measuring success) and measuring against KPIs and performance targets.

ACT

- **Record** – non-conformances (i.e. if actions were not completed within schedule) will be recorded in the BMA Event Management System, triggering an investigation. Non-conformance investigation will be completed and solutions identified and implemented.
- **Investigate -** in the event monitoring results identify performance targets or KPIs are not reached or other aspects of monitoring indicate areas of concern, an investigation will be undertaken. The investigation will:
  - Identify key drivers/parameters that relate to the monitoring result not in line with milestones or KPIs.
  - Require development of suitable mitigation or corrective actions. Where items can be solved in the short term, work order notifications will be raised for implementation (e.g. minor fencing repair). For major actions or repair works, a plan for completion will be developed in consideration of budgeting cycle or if the work is considered urgent, escalated for prioritisation. Where actions are required for impacts other than maintenance or repair activities (i.e. a change in the approach to managing the property) a suitably trained ecologist will be consulted to inform the identification of appropriate corrective actions (specifically actions that are scientifically robust and targeted to the objectives of meeting completion criteria for king bluegrass conservation).
  - The investigation may require multiple stakeholder input such as BHP Environment representative, the suitably qualified persons (e.g. ecological consultants and/or experts in specialists disciplines, landholder or land management specialists) depending on the complexity of the outcome.
- **Adapt** – where investigation outcomes require a long-term amendment to the OAMP (i.e. for actions or monitoring changes to be permanently implemented rather than one-time-only repair actions) relevant documents will be updated and changes to scheduling, obligations or monitoring revised (i.e. cycle back to the PLAN component) to update work orders. These updates will enable implementation of revised management and monitoring through the DO component of the framework.

Management and monitoring will continue in accordance with PLAN documentation (and subsequent updates installed as a result of the investigation process), renewing the implementation of the DO component. The framework cycle will continue until final completion criteria are determined to be reached, or for the minimum 20-year term (whichever is longer).

The OAMP will be formally reviewed every five years (at a minimum and more frequently should monitoring outputs trigger adaptive management updates). The review will consider results of all monitoring including information gathered by the suitably qualified person, results of ecological condition scoring and pest animal monitoring. The formal review will be a further opportunity for effectiveness of management actions to be assessed and amendments considered for implementation.

3.2 Management objectives

The management objective of the Inderi Offset Area is to achieve a conservation gain for two protected matters:

- King bluegrass (*Dichanthium queenslandicum*); and
- MSES Regulated Vegetation (i.e. natural grasslands (BVG 30b)).

Specifically, the management objectives of this OAMP are to:

- Improve habitat quality scores for both protected matters by a minimum of two points;

- Promote the recovery of the non-remnant grassland community to a remnant condition status consistent with RE 11.8.11;
- Improve the condition of suitable habitat for king bluegrass (*Dichanthium queenslandicum*) within the Inderi Offset Area and establish a population of the species; and
- Decrease weed cover across the Inderi Offset Area.

3.3 Completion scores and interim targets

The final completion scores for the Inderi Offset Area are detailed in Table 4. To determine whether the management actions are effective, habitat quality completion scores (Year 20) and interim performance targets (Year 5, 10 and 15) have been developed (Table 4). The baseline habitat quality scores have been calculated using the *Queensland Guide to determining terrestrial habitat quality* (DES 2020). Habitat Quality scores have been calculated using the site-based attributes method (based on BioCondition Assessment survey data). This method consists of a number of vegetation attributes (i.e. structure and species composition) that are measured in comparison to a 'benchmark', which is the reference for a particular regional ecosystem in an undisturbed state with most of its natural values intact (DES 2020). The habitat quality score (out of 10) is then calculated based on the site-based attribute score and an area weighting (refer to *Queensland Guide to determining terrestrial habitat quality* (DES 2020)). The interim and final habitat quality scores will be measured and calculated using the same approach (site condition via BioCondition Assessment.

While compliance will not be measured or reported on the interim performance targets, they do provide a means to compare monitoring results and track progress. The habitat quality improvements are based on the improvement within the offset area and the estimated time for improvement to occur. The reduction of threats (e.g. livestock grazing, weeds) is expected to have a short-term effect on the habitat quality; while criteria associated with vegetation structure and composition (i.e. non-native cover and ground cover, recruitment, and species richness) is likely to be recognised over a longer time period.

Table 4: Interim and final completion criteria

Criteria	Baseline Score/condition	Interim Performance Targets			Final Completion Score
		Year 5	Year 10	Year 15	
King bluegrass (*D. queenslandicum*)					
Habitat Quality (site-based attributes)*	5	6	6	7	≥7
Species presence	Species yet to be detected within Offset Area	Habitat improvement	Species observed		Species identified within Offset Area
MSES Regulated Vegetation (BVG 30b)					
Habitat Quality (site-based attributes)*	4	4	5	5	≥6

* derived from site-based attributes (i.e. BioCondition scores)

3.4 Risks and triggers

A risk assessment was undertaken to assess known and potential risk events which may prevent the OAMP's KPIs (identified in Table 8), interim performance targets and ultimately, management objectives from being met. Table 5 summarises the key risks associated with the proposed management actions and the corrective actions to be undertaken if the risk occurs. The corrective actions will be put into action as soon as reasonably practicable and continue to be monitored in accordance with Table 8. Due to the similarities in protected matter values (i.e. native grassland vegetation/habitat), associated risks discussed are relevant to both the king bluegrass and MSES Regulated Vegetation (BVG 30b).

A detailed risk assessment is provided in Appendix B.

Table 5. Risks associated with management actions

Risk Type	Risks	Risk description	Risk to king bluegrass conservation outcome
Standard	Overgrazing	Inappropriate grazing regimes resulting in soil compaction and impacting cover and composition of groundcover.	Potential to: • reduce the availability of king bluegrass habitat and condition of grassland vegetation (MSES Regulated Vegetation) • reduce the likelihood of king bluegrass establishing within the offset area and potential persistence of populations of the species • reduce the habitat quality score of habitat and vegetation community within the Offset Area, reducing conservation value; and • reduce the conservation value less than that of the impact site
	Vegetation clearing	Removal of habitat and vegetation within the offset area.	Potential to: • result in the loss of king bluegrass habitat and native grassland communities (MSES Regulated Vegetation) within the Offset Area • impact vegetation composition and structure resulting in reduced habitat quality scores • reduce the conservation value of the offset area to less than that of the impact site
	Erosion	Loss of vegetation composition and structure, particularly groundcover.	Potential to: • impact groundcover composition and structure resulting in reduced habitat quality scores • reduce the conservation value of the Offset Area to less than that of the impact site
	Failed vegetative regeneration	No recruitment of establishment and spread of native flora species within the offset area	Failure to achieve completion criteria.
	Introduction and spread of weeds	The extent of existing infestations of invasive weed species and exotic pasture grass expand or the weed/exotic pasture grass species	Potential to reduce the habitat quality score of habitat within the Offset Area, reducing conservation value.

Risk Type	Risks	Risk description	Risk to king bluegrass conservation outcome
	High fuel loads resulting in high intensity fire	Impacts to vegetation composition and structure impacting habitat quality scores.	Potential to: • result in the loss habitat and natural grassland communities within the Offset Area • impact vegetation composition and structure resulting in reduced habitat quality scores • reduce the conservation value of the Offset Area to less than that of the impact site
	Fence failure	Unauthorised access to offset area by persons, vehicles or stock.	Potential to: • lead to the introduction and spread of weeds impacting habitat quality scores • result in the degradation of habitat (trampling), impacting habitat and groundcover; and • result in unauthorised vegetation clearing
Force majeure	Drought	Dry conditions resulting in negative impacts to vegetation regeneration (groundcover) or dieback, due to a lack of water resources.	Potential to: • reduce the habitat quality score of habitat within the Offset Area, reducing conservation value; and • reduce the conservation value less than that of the impact site
	Bushfire	Moderate to high intensity bushfire resulting in short term degradation of habitat.	Potential to result in localised damage to vegetation leading to a reduction in canopy and ground cover, impacting habitat quality scores.
	Severe storm/tropical low	Flooding/inundation and destructive winds	Potential to result in localised damage to vegetation leading to a reduction in canopy and ground cover, impacting habitat quality scores.

3.5 Management actions

To achieve the management objectives, management actions will centre on the regional and local priority recovery and threat abatement actions outlined in the relevant Approved Conservation Advice (SEWPaC, 2013). While management actions for king bluegrass will also assist in the improvement of grasslands associated with offset for MSES Regulated Vegetation (BVG 30b), actions have also developed using the Approved Conservation Advice for the Natural Grasslands of the Queensland Central Highlands and Northern Fitzroy Basin (TSSC, 2009). Management actions will aim to:

- mitigate adverse impacts from grazing;
- control and minimise environmental weeds; and
- restrict habitat loss, disturbance and modification.

An overview of the management actions are provided in Table 6, including the associated methods, timing, location and responsibilities for each action. Further details regarding relevant management action are also provided in the following sections.

Table 6. Inderi Offset Area management actions summary

Management Action	Method (i.e. how the action will be implemented)	Location (i.e. where the action will be implemented)	Timeframe (i.e. when the action will be carried out)	Responsibility (i.e. who will carry out the action)
Controlled livestock grazing to prevent impacts from overgrazing and soil compaction	Low-intensity cattle grazing is permitted during the late dry season (June to December) provided minimum ground cover thresholds are maintained (50% cover or in accordance with Queensland government requirements if available). Livestock grazing will be excluded during the wet season (January to May) to allow native grass species to seed. Further details regarding control of livestock grazing measures are detailed within Section 3.5.1.	Inderi Offset Area	For the duration of the Offset.	Landholder

Management Action	Method (i.e. how the action will be implemented)	Location (i.e. where the action will be implemented)	Timeframe (i.e. when the action will be carried out)	Responsibility (i.e. who will carry out the action)
Weed management and control	Prior to the commencement of control measures, a baseline weed survey will be conducted during optimal conditions (i.e. wet season) to identify weed species and densities occurring within the Offset Area, including key infestation areas. Weed management will target 'restricted matter' identified under the Queensland Biosecurity Act 2014 and other environmental weeds previously recorded within the Offset Area. Weed control techniques to be implemented in the offset area will include: • Manual removal; and • Chemical control. Further details associated with weed management are provided in Section 3.5.2.	Inderi Offset Area	Baseline assessment to be undertaken prior to the commencement of the offset management. Monitoring and control is to be undertaken over the duration of the OAMP.	Suitably qualified professional and Landholder.
Weed hygiene	Implementation of weed hygiene practices, including vehicle and machinery wash downs if equipment is coming from weed infested areas.	Inderi Offset Area	For the duration of the OAMP.	Suitably qualified professional and Landholder.
Natural regeneration	Vegetation is to regenerate through natural processes (passive). No vegetation clearing or intentional fires are permitted over the duration of the OAMP. Further details regarding natural regeneration measures are detailed within Section 3.5.2.	Inderi Offset Area	For the duration of the Offset with the exception of controlled burns as required (as per Section 3.5.4).	Landholder

Management Action	Method (i.e. how the action will be implemented)	Location (i.e. where the action will be implemented)	Timeframe (i.e. when the action will be carried out)	Responsibility (i.e. who will carry out the action)
Fire management to mitigate frequency and intensity of potential burns	Firebreaks will be maintained across the offset area to mitigate the threat of uncontrolled fire events. Any new firebreaks are to be co-located with existing access tracks and fence lines where possible. Further details regarding fire management measures are detailed within Section 3.5.4.	Inderi Offset Area	Firebreaks are to be inspected biannually for condition and adequacy. Maintenance will be undertaken as required over the duration of the offset.	Suitably qualified professional and/or Landholder.
Inspection/repair of infrastructure following extreme weather events (e.g. fire, flood, cyclone)	For extreme weather events: • Determine the extent of damage to offset area infrastructure (such as fence lines) through visual inspection of infrastructure and associated monitoring (see Table 8). • Cattle will be removed from the offset area to prevent further damage following the extreme weather event. Undertake investigations to identify suitable timeframes for reintroduction of cattle when conditions are stable and ecosystem functions have been restored. • Weed cover in areas disturbed by the weather event to be monitored to ensure progress / measure outcomes are still maintained. • Investigate to determine if additional restoration / revegetation required to maintain offset progress toward completion criteria.	Inderi Offset Area	As soon as safely possible after an extreme weather event.	Suitably qualified professional and/or Landholder.

Management Action	Method (i.e. how the action will be implemented)	Location (i.e. where the action will be implemented)	Timeframe (i.e. when the action will be carried out)	Responsibility (i.e. who will carry out the action)
Establishment of offset area restrictions	Identification of actions that will impact/impede the achievement of management objectives. Further details regarding Offset Area restrictions (i.e. vegetation clearing, livestock grazing etc.) are provided in Section 3.5.5.	Inderi Offset Area	Prior to the implementation of this OAMP or as required in accordance with the Offset management framework detailed within Section 3.1.	Suitably qualified professional and/or Landholder.

3.5.1 Controlled livestock grazing

Grasses stimulated by light grazing can tolerate moderate grazing but become compromised under constant and/or heavy defoliation (Partridge, 1992). The root systems of heavily grazed grass weaken, tussock size diminishes, and the grazed flower stems/seed heads reduce the soil seed bank and future recruitment (Souther et al., 2020). The effect of high-intensity grazing is exacerbated by extreme climatic events, such as drought, potentially altering plant species composition and increasing the invasibility of non-native species over time (Souther et al., 2020).

To mitigate the potential effects of overgrazing, exclusion fencing will be erected around the Inderi Offset Area to exclude cattle during the wet season (January to May) when native grass species go to seed. Easing grazing pressure when native grasses flower and set seed will promote natural regeneration, replenish the soil seedbank and improve species richness and ground cover.

Cattle grazing is permitted within the Inderi Offset Area during the late dry season (June to December) to reduce fuel loads and fire risk, provided the minimum live groundcover threshold (50% or in accordance with Queensland government requirements if available) is maintained.

3.5.2 Weed management

Weed management will be undertaken within the Inderi Offset Area and will include:

- Queensland *Biosecurity Act 2014* 'Restricted Matter' and 'Prohibited Matter' plant species;
- Weeds of National Significance (WONS) as defined by (Australian Weeds Committee, 2012); and
- Locally declared weeds identified under the Central Highlands Regional Council Biosecurity Plan 2017-2020 (Central Highlands Regional Council, n.d.).

Weed species observed throughout the Inderi Offset Area and surrounds (as recorded during the May 2021 field studies) were subject to livestock grazing and/or showing signs of stress, attributed to the conditions at the time of the survey. Varying densities of improved pasture grass species (non-native) buffel grass (*C. ciliaris*) and red natal grass (*M. repens*) were present throughout the Offset Area. Biosecurity Act-listed weed species, including parthenium (*P. hysterophorus*) and Opuntia spp. were also observed throughout remnant and non-remnant vegetation within the Offset Area.

An environmental weed baseline assessment will be undertaken prior to the commencement of management actions to determine the composition, density and map key infestation areas within the Inderi Offset Area. Once target weed species within the offset area are identified and primary infestation areas are identified, the level for weed control measures required within the Inderi Offset Area can be determined.

Weed control techniques to be implemented in the Inderi Offset Area are to comprise two broad weed control methods; mechanical removal and chemical treatment. Where practicable, weed control will be undertaken by manual removal to minimise the chance of overspray and run-off of herbicides into the adjacent environs. Chemical control will only be undertaken by a suitably trained person (i.e. Agriculture Chemical Distribution Control certified) in accordance with the Material Safety Data Sheet (MSDS). Mixing of chemicals or rinsing of equipment should never occur adjacent to water bodies.

Detailed methodology for weed control techniques, including herbicide application rates for relevant species, can be found on the Queensland Department of Agriculture and Fisheries website and associated weed profiles (refer to https://www.daf.qld.gov.au/business-priorities/biosecurity/invasive-plants-animals/plants-weeds).

3.5.3 Natural regeneration

Natural regeneration is most suitable in areas containing native vegetation, as natural recruitment suggests the presence of a viable seed bank. Provided that the vegetation contains species from each stratum, this method is best for restoring an area to its pre-clearing condition. Natural regeneration will be facilitated for areas within Inderi Offset Area containing remnant and non-remnant vegetation.

Natural, or passive regeneration, in conjunction with other management measures (i.e. weed management, fire management and fencing etc.), will utilise existing vegetation and soil seed bank to promote rehabilitation through natural processes. Over the duration of the offset the existing native vegetation will assist in the re-introduction of native species to areas previously occupied by environmental weeds.

3.5.4 Fire management

Fire is to be, where possible, excluded from the Inderi Offset Area by maintaining firebreaks relative to the offset area (if applicable) and not using fire as a management tool in the Inderi Offset Area unless identified by a suitably qualified person in order to promote management objectives (e.g. low intensity controlled burn to reduce fuel loads or promote native species growth).

3.5.5 Offset Area restrictions

The Inderi Offset Area is to be managed for conservation purposes and is subject to land use restrictions to ensure the delivery of an improved environmental outcome for targeted matters. A summary of these restrictions are summarised in Table 7.

Table 7: Inderi Offset Area restrictions

Restrictions	Details
Vegetation clearing is prohibited unless in accordance with an exemption(s) under the Queensland *Vegetation Management Act 1999* and EPBC Act.	Vegetation clearing within the Offset Area is restricted to: • that necessary for the removal of non-native weeds or pests identified under the Queensland *Biosecurity Act 2014* • to ensure public safety • for construction and maintenance of tracks, fence lines or firebreaks; and • that necessary to establish and maintain access to Habitat Quality Assessment sites. Clearing for new fencing will be on the outside of the Offset Area boundary.

Restrictions	Details
Livestock grazing	Grazing of livestock (cattle) will occur in the offset area under the following arrangements: • graze stock at rates and times necessary to reduce the fuel load in the offset areas with a minimum grass cover (50% or in accordance with Queensland government requirements if available) at the end of the dry season to be measured as per the *Land Manager's Monitoring Guide* (Department of Environment and Resource Management (DERM), 2010), or any subsequent published version of this document. • cattle are to be excluded from the offset area during the wet season (January to May) to allow native grass species to set seed.
Fire	Fire (apart from force majeure events and prescribed, low intensity burns as identified by a suitably qualified person) is excluded from the Offset Area.
Feral pest animals and weeds	Minimise the introduction of feral animals, weeds control of existing populations within the offset area in accordance with the Queensland *Biosecurity Act 2014*. Keep the introduction, establishment and spread of non-native weeds including restricted and prohibited biosecurity matter listed under the Queensland *Biosecurity Act 2014* to no more than 10% weed cover over the offset area.

3.5.6 Offset securement

The mechanism to legally secure the offset is a Voluntary Declaration (Vdec) under the provisions of the Queensland *Vegetation Management Act 1999* where it is secured for the life of the approval, for the purposes of an environmental offset. This process requires the OAMP be connected to the land title. It is accepted that the adaptive management process adopted in this plan may require periodic review and the most recent revision of the plan will be considered the accepted plan.

4 Offset Monitoring

4.1 Monitoring actions

Ongoing monitoring is required to gauge the effectiveness of and, if necessary, adapt the management actions, as well as record the progress towards completion criteria. The following monitoring actions are recommended:

- Habitat Quality Assessments (i.e. site-based attribute BioCondition surveys) to monitor vegetation regeneration;
- Weed surveys to monitor the cover and abundance of non-native/environmental pest flora species
- Targeted surveys and habitat assessment/utilisation survey for *Dichanthium queenslandicum* to determine presence and relative abundance; and
- Routine maintenance to ensure security of the Offset Area.

Monitoring will be undertaken in the Inderi Offset Area for the duration of the environmental offset or until completion criteria are met, which-ever is longer. Monitoring will continue in the Offset Area for the duration of the environmental offset, even after completion criteria are achieved, to ensure the completion criteria are maintained for life of the offset.

A detailed overview of the monitoring requirements within the Inderi Offset Area are provided in Table 8. Specific KPIs for each monitoring action have also been provided in order to measure targets associated with management objectives and the overall desired conservation outcomes for the Offset Area. Further details regarding the monitoring actions are also provided in the following sections.

Table 8. Offset management action monitoring schedule

Monitoring activity	Monitoring timeframe and frequency	Attribute monitored	Method	Location	Key Performance Indicators (KPIs)	Possible Corrective Actions
Targeted king bluegrass surveys	Targeted surveys during optimal survey condition (i.e. mid to late wet season (February to May) are to be conducted annually for first five years (Year 1 – Year 5) and then once every five years to Year 20	Species presence and stocking rate: • presence within the Inderi Offset Area • species usage of Offset Area • density/populations	Random meander technique (Cropper, 1993) Population surveys in accordance with the *Flora Survey Guidelines - Protected Plants* (DES, 2020)	Inderi Offset Area	• The species is recorded within the Offset Area during optimal survey conditions; and • The presence of the species within the Offset Area is maintained over the duration of the offset.	Corrective actions will be determined firstly through an investigation (CHECK-ACT) to identify drivers. If the number/ extent of populations detected have reduced and is significantly different (± standard error of the mean) to previous monitoring results, an investigation into possible causes for a decline will be undertaken. A suitably qualified flora ecologist/botanist will be consulted to inform the development of scientifically robust management actions and possible corrective actions. Corrective actions and suitable corresponding monitoring actions will be documented and incorporated into the OAMP revisions where required (ACT-PLAN). Corrective actions will be implemented as part of the DO component of the Offset Management Framework where the feedback loop allows for continuous improvement. Examples of possible corrective actions may include: • Livestock exclusion or revision of stocking densities • Additional weed removal/control • Active seeding of king bluegrass

Monitoring activity	Monitoring timeframe and frequency	Attribute monitored	Method	Location	Key Performance Indicators (KPIs)	Possible Corrective Actions
Habitat Quality Assessment	Annually for first five years (Year 1 – Year 5) and then once every five years to Year 20.	Site condition: • Recruitment of woody perennial species • Native plant species richness (tree, shrub, grass, forb) • Canopy height (tree) • Canopy cover (tree, shrub) • Native grass cover • Organic litter • Large trees • Coarse woody debris • Non-native plant cover • Quality and availability of food and foraging habitat • Quality and availability of shelter	In accordance with the *Guide to determining terrestrial habitat quality* (DES, 2020).	Inderi Offset Area: BioCondition assessment survey sites BC6, BC7 and BC9. An additional two sites within remnant RE 11.8.5 and one within RE 11.8.11 should also be established as within the first monitoring event.	Increase in Habitat Quality Score (Site-based attributes) over time. Interim KPIs are detailed within Table 4. No decrease in Habitat Quality scores as based on the BioCondition survey data	Corrective actions will be determined firstly through an investigation (CHECK-ACT) to identify drivers. If the habitat quality scores have reduced and is significantly different (± standard error of the mean) to previous monitoring results, an investigation into possible causes for a decline will be undertaken. A suitably qualified flora ecologist/botanist will be consulted to inform the development of scientifically robust management actions and possible corrective actions. Corrective actions and suitable corresponding monitoring actions will be documented and incorporated into the OAMP revisions where required (ACT-PLAN). Corrective actions will be implemented as part of the DO component of the Offset Management Framework where the feedback loop allows for continuous improvement. Examples of possible corrective actions may include: • Livestock exclusion or revision of stocking densities • Active revegetation (seeding) • Weed removal

Monitoring activity	Monitoring timeframe and frequency	Attribute monitored	Method	Location	Key Performance Indicators (KPIs)	Possible Corrective Actions
Weed monitoring	Annually for first five years (Year 1 – Year 5) and then once every five years to Year 20	• Abundance and distribution of weeds, including the location, species, population density, general health and life stage (flowering, mature, etc.).	• Targeted surveys of key infestation areas (as determined by the baseline survey) • Weed surveys (refer to Section 4.1.3)	Inderi Offset Area	• No new weed infestations • Decrease in the weed cover within key infestation areas	Examples of possible corrective actions may include additional weed control measures and follow-up surveys or adoption of alternative control methods.
Ground cover monitoring	Annually for first five years (Year 1 – Year 5) and then once every five years to Year 20	• Damage/degradation of soil by livestock trampling • Minimum level of groundcover (50% or in accordance with Queensland government requirements if available) is maintained at the end of the dry season	• Level 1 visual inspections in accordance with DERM *Land Manager's Monitoring Guide* (2010) • Guide to determining terrestrial habitat quality (DES, 2020)	Inderi Offset Area • Assessment of soils in conjunction with Habitat Quality assessments and quarterly inspections	• No evidence of habitat degradation resulting from livestock trampling is observed. • Minimum level of groundcover (50% or in accordance with Queensland government requirements if available) is maintained at the end of the dry season. • Groundcover species richness increases.	Examples of possible corrective actions may include: • Livestock exclusion • Revision of stocking densities; and • Active revegetation (seeding).

Monitoring activity	Monitoring timeframe and frequency	Attribute monitored	Method	Location	Key Performance Indicators (KPIs)	Possible Corrective Actions
Maintenance inspection	Quarterly and/or following extreme weather events.	• Condition and functionality of fences	• Inspection of fence lines and firebreaks.	• Throughout the Offset Area and boundary fencing	• Fences are intact and exclude livestock/unauthorised entry. • Inspections are conducted within two weeks following an extreme weather event (tropical low, cyclone, flood etc.)	Examples of possible corrective actions may include fence maintenance and repairs to resecure the Offset Area and re-establishment of firebreaks.

4.1.1 Targeted king bluegrass surveys

The random meander technique (Cropper, 1993) will be used to survey for *Dichanthium queenslandicum* within the Inderi Offset Area. The random meander technique involves traversing suitable habitat within the Inderi Offset Area. This technique is suitable for locating species that typically occur at very low densities or those that may occur in isolated patches.

Random meander surveys are to be conducted during the mid to late wet season (February to May) when the species typically flowers and seeds (DES, 2022).

If the species is detected a population survey will be conducted in accordance with the *Flora Survey Guidelines – Protected Plants* (DES, 2020). Population surveys will comprise:

- mapping of the population within the Offset Area by traversing the periphery of the population whilst capturing GPS points or capturing individual occurrences
- Recording the density or total number of individuals comprising each population
- Assessment of the reproductive status (i.e. flowering, seeding, mature etc.) and health of populations/individuals; and
- Photographs of individuals/populations.

Targeted king bluegrass surveys are to be conducted annually for first five years (Year 1 – Year 5) and then once every five years to Year 20.

4.1.2 Habitat quality assessments

Habitat quality assessments using the site-based attributes methods (i.e. BioCondition) detailed within the *Guide to determining terrestrial habitat quality* (DES, 2020) are to be conducted to monitor the natural regeneration of grasslands and king bluegrass habitat over time. Three BioCondition assessments were conducted across the Inderi Offset Area during the initial survey and are to be used as the baseline score (Table 9; Figure 2). An additional two BioCondition sites within remnant RE 11.8.5 and at least one site within non-remnant RE 11.8.11 will be established within the first monitoring event.

BioCondition assessments will be undertaken when plant diversity is greatest (Eyre et al., 2015). For the majority of Queensland, this is typically from March to late May, but is dependent on local seasonal conditions (Eyre et al., 2015). Habitat quality assessments are to be conducted annually for first five years (Year 1 – Year 5) and then once every five years to Year 20.

Baseline BioCondition data is presented in Appendix A.

Table 9. BioCondition monitoring sites within the Inderi Offset Area

Survey site name	Regional Ecosystem	Longitude	Latitude	Target protected matter
BC6	11.8.11	148.479	-24.319	King bluegrass MSES Regulated Vegetation (BVG30b)
BC7	11.8.11	148.479	-24.326	King bluegrass MSES Regulated Vegetation (BVG30b)
BC9	11.8.5	148.480	-24.323	King bluegrass

4.1.3 Weed monitoring

Supplementary to habitat quality assessments, weed monitoring will be conducted across the Inderi Offset Area to detect the presence and extent of new infestations of weeds, as well as monitor if weed control measures are sufficient for existing populations. Weed surveys will comprise traversing the Inderi Offset Area to identify and determine the extent of non-native/environmental weeds species present, particularly along disturbed edges (fence lines), drainage lines and access tracks. The detection of weeds will include collection of data relating to the location, species, population density, general health (i.e. stressed, dead, healthy) and life stage (flowering, seeding, mature, etc.).

Subsequent weed surveys will assess previously identified key infestation areas to determine the effectiveness of weed control measures as well as any new infestations within the Inderi Offset Area.

4.1.4 Ground cover monitoring

To ensure stocking rates are not adversely impacting king bluegrass habitat or grasslands vegetation, areas will be surveyed for evidence of soil compaction and any other adverse impacts on habitat associated with cattle (i.e. overgrazing). Where necessary, any corrective actions (detailed within Table 8) will be implemented where evidence of increased soil compaction is observed.

Similarly monitoring of groundcover in relation grazing intensity will also be undertaken to ensure a minimum level of groundcover (50% or in accordance with Queensland government requirements if available) is maintained across the Inderi Offset Area at the end of the dry season. In addition to habitat quality assessments, visual inspections, in accordance with the Level 1 monitoring detailed within the DERM *Land Manager's Monitoring Guide* (2010), will also be undertaken as part of the maintenance inspections.

4.1.5 Maintenance inspections

Inspections of fencing and firebreaks are to be conducted quarterly over the duration of the offset to ensure security of the Inderi Offset Area is maintained. Inspections are to be carried out throughout the Inderi Offset Area and boundary fencing. Additional maintenance inspections will also be conducted within two weeks of extreme weather events (i.e. cyclone, tropical storms etc.) to ensure the fencing and firebreaks associated with the Inderi Offset Area are maintained.

4.2 Management responsibilities

The responsible party assigned to undertake each management action is summarised in Table 10.

Table 10. Management action implementation responsibility

Management Action	Responsibility
Livestock grazing management	Landholder and suitable qualified person
Weed management	Landholder and suitable qualified person
Natural regeneration	Landholder and suitable qualified person
Fire management (if necessary)	Landholder

Management Action	Responsibility
Offset area restrictions and maintenance	Landholder and suitable qualified person

4.3 Force majeure

The offset risk assessment identified a number of potential risks to achieving the objectives of the OAMP that may result in significant set-backs to the progress toward final completion criteria. For example, in the event of an extreme weather event (i.e. catastrophic bushfire, severe cyclone or prolonged drought), whereby the habitat values of the offset area are severely impacted. The purpose of the offset is to counterbalance the significant residual impacts of the HPE Project and in the event a catastrophic event occurs BMA are committed to fulfilling the requirements of the approval.

BMA will notify DAWE as soon as it becomes aware the offset area has been affected by a Force Majeure event and will take all reasonable steps to prevent, limit and minimise the effects of the event on the habitat quality of the Offset Area. Depending on the severity of the event, the OAMP may require a review and consultation with stakeholders/advisors (including experienced land managers or fauna ecologist) to identify appropriate course of action (in accordance with the Offset Assessment Framework approach). Identification of alternative management strategies (and corresponding monitoring) will prompt an update to the OAMP, the monitoring program and the schedule of work orders (in accordance with the PLAN – DO – CHECK – ACT approach). Updates will then be implemented in accordance.

BMA currently manages a portfolio offset sites across the region. Sites secured for the sole purpose of providing compensatory measures in accordance with Queensland or Commonwealth offset requirements. In the event of a catastrophic event at the Inderi Offset Area, BMA will be able to draw on experience in managing the other offset sites. Similarly, BMA undertakes a variety of rehabilitation activities within its operations and as a result has access to commercially available stores of seed for us in regeneration activities. As described in Table 8, active revegetation/restoration works may be implemented to address impacts on protected matters from catastrophic events. A rehabilitation or revegetation specialist/ecologist may be consulted to develop a works program specific to the extent and nature of the impact.

5 Reporting

BMA will prepare a report on the implementation of this OAMP at year 5, and then every five years for the remaining 15 years or until completion criteria are met (for a minimum of 20 years whichever is longer). The report will summarise the activities implemented under the OAMP and discuss the effectiveness of mitigation measures, based on the results of monitoring activities. Reporting will be conducted through internal BMA compliance reporting and will be made available upon request.

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Appendix A Baseline Offset Habitat Quality Data

Inderi Habitat Quality Scores

Dichanthium queenslandcium habitat

AU
1
2
3
(blank)

Assessment Unit	**3**			**2**		
Site	B1			B2		
Regional ecosystem	11.8.5			11.8.11		
Broad condition state	Remnant			Non-Remnant		
Biocondition attribute	**Benchmark**	**Value**	**Score**	**Benchmark**	**Value**	**Score**
Recruitment of woody perennial species (%)		66	3		0	0
Native plant species richness - trees (No.)	2	3	5	na	0	
Native plant species richness - shrubs (No.)	3	3	5	na	0	
Native plant species richness - grasses (No.)	6	7	5	11	5	2.5
Native plant species richness - forbs (No.)	16	8	2.5	17	6	2.5
Tree emergent height (m)	na	0		na	0	
Tree canopy height (m)	15	14	5	na	0	
Tree sub-canopy height (m)	5	5	5	na	0	
Tree height - average			5			
Tree emergent cover (%)	na	0		na	0	
Tree canopy cover (%)	13	8.5	5	na	0	
Tree sub-canopy cover (%)	3	1	2	na	0	
Tree cover - average			3.5			
Native shrub canopy cover (%)	2	2	5	na	0	
Native perennial grass cover (%)	60	14	1	43	14	1
Organic litter (%)	25	14	5	13	6	3
Large trees/ha - total	6	8	15	na		
Coarse woody debris (m/ha)	250	75	2	na		
Non-native plant cover (%)	0	15	5	0	40	3
Maximum site-based score			80			30
Site-based BioCondition score (out of 10)			**7.75**			**4**

Assessment Unit (AU)	**3**	**2**
AU BioCondition Score	6.08035714	3.95833333
AU Area	26.78	39.83
AU Weighted BioCondition Score	2.44455734	2.36691813

BioCondition Score (out of 10)	**4.81**

2			2			2			2		
B3			B4			B6			B7		
11.8.11			11.8.11			11.8.11			11.8.11		
Non-Remnant			Non-Remnant			Non-Remnant			Non-Remnant		
Benchmark	**Value**	**Score**	**Benchmark**	**Value**	**Score**	**Benchmark**	**Value**	**Score**	**Benchmark**	**Value**	**Score**
	0	0		0	0		0	0		0	0
na	0		na	0		na	0		na	0	
na	0		na	0		na	0		na	0	
11	5	2.5	11	7	2.5	11	6	2.5	11	5	2.5
17	5	2.5	17	4	0	17	7	2.5	17	6	2.5
na	0		na	0		na	0		na	0	
na	0		na	0		na	0		na	0	
na	0		na	0		na	0		na	0	
na	0		na	0		na	0		na	0	
na	0		na	0		na	0		na	0	
na	0		na	0		na	0		na	0	
na	0		na	0		na	0		na	0	
43	14	1	43	10	1	43	19	1	43	12	1
13	6	3	13	8	5	13	14	5	13	7	5
na			na			na			na		
na			na			na			na		
0	40	3	0	25	3	0	25	3	0	15	5
		30			30			30			30
		4			**3.83333333**			**4.66666667**			**5.33333333**

2			3			3			3		
B8			B9			BC10			BC2		
11.8.11			11.8.5			11.8.5			11.8.5		
Non-Remnant			Remnant			Non-remnant			Remnant		
Benchmark	**Value**	**Score**	**Benchmark**	**Value**	**Score**	**Benchmark**	**Value**	**Score**	**Benchmark**	**Value**	**Score**
	0	0		100	5		100	5		100	5
na	0		2	2	5	2	2	5	2	2	5
na	0		3	2	2.5	3	2	2.5	3	5	5
11	5	2.5	6	8	5	6	9	5	6	8	5
17	5	2.5	16	7	2.5	16	5	2.5	16	5	2.5
na	0		na	0		na	0		na	0	
na	0		15	14	5	15	13	5	15	10	3
na	0		5	6	5	5	0	0	5	6	5
					5			2.5			4
na	0		na	0		na	0		na	0	
na	0		13	26	5	13	2	2	13	8	5
na	0		3	21	3	3	2.6	5	3	0	0
					4			3.5			2.5
na	0		2	0	0	2	0	0	2	6	3
43	16	1	60	27	1	60	0.4	0	60	21.6	1
13	10	5	25	14	5	25	2.2	0	25	14.8	5
na			6	12	15	6	2	5	6	8	15
na			250	280	5	250	50	2	250	65	2
0	15	5	0	20	5	0	60	0	0	30	3
		30			80			80			80
		5.33333333			**7.5**			**4.125**			**7.25**

2			2			3			3		
BC5			BC6			BC7			BC8		
11.8.11			11.8.11			11.8.5			11.8.5		
Non-remnant			Non-remnant			Remnant			Remnant		
Benchmark	**Value**	**Score**	**Benchmark**	**Value**	**Score**	**Benchmark**	**Value**	**Score**	**Benchmark**	**Value**	**Score**
	0	0		0	0		66	3		100	5
na	0		na	0		2	3	5	2	2	5
na	0		na	1		3	3	5	3	4	5
11	8	2.5	11	6	2.5	6	6	5	6	4	2.5
17	3	0	17	6	2.5	16	5	2.5	16	4	2.5
na	0		na	0		na	0		na	0	
na	0		na	0		15	15	5	15	15	5
na	0		na	0		5	6	5	5	7	5
								5			5
na	0		na	0		na	0		na	0	
na	0		na	0		13	13.3	5	13	0	0
na	0		na	0		3	2.7	5	3	0.4	2
								5			1
na	0		na	0		2	1.4	5	2	0.2	3
43	0.4	0	43	0	0	60	0.8	0	60	0	0
13	6.4	3	13	6.2	3	25	5	3	25	6.8	3
na			na			6	2	5	6	0	0
na			na			250	30	2	250	10	0
0	65	0	0	65	0	0	55	0	0	45	3
		30			30			80			80
		1.83333333			**2.66666667**			**5.6875**			**4.375**

	3		
	BC9		
	11.8.5		
	Remnant		
Benchmark	**Value**	**Score**	
	66	3	
2	3	5	
3	4	5	
6	7	5	
16	5	2.5	
na	0		
15	13	5	
5	7	5	
		5	
na	0		
13	13.7	5	
3	1	2	
		3.5	
2	0	0	
60	1.8	0	
25	22	5	
6	2	5	
250	220	5	
0	30	3	
		80	
		5.875	

Inderi Habitat Quality Scores

Regulated vegetation (of concern RE 11.8.11)

AU
1
2
3
(blank)

Assessment Unit	2			2		
Site	B2			B3		
Regional ecosystem	11.8.11			11.8.11		
Broad condition state	Non-Remnant			Non-Remnant		
Biocondition attribute	**Benchmark**	**Value**	**Score**	**Benchmark**	**Value**	**Score**
Recruitment of woody perennial species (%)		0	0		0	0
Native plant species richness - trees (No.)	na	0		na	0	
Native plant species richness - shrubs (No.)	na	0		na	0	
Native plant species richness - grasses (No.)	11	5	2.5	11	5	2.5
Native plant species richness - forbs (No.)	17	6	2.5	17	5	2.5
Tree emergent height (m)	na	0		na	0	
Tree canopy height (m)	na	0		na	0	
Tree sub-canopy height (m)	na	0		na	0	
Tree height - average						
Tree emergent cover (%)	na	0		na	0	
Tree canopy cover (%)	na	0		na	0	
Tree sub-canopy cover (%)	na	0		na	0	
Tree cover - average						
Native shrub canopy cover (%)	na	0		na	0	
Native perennial grass cover (%)	43	14	1	43	14	1
Organic litter (%)	13	6	3	13	6	3
Large trees/ha - total	na			na		
Coarse woody debris (m/ha)	na			na		
Non-native plant cover (%)	0	40	3	0	40	3
Maximum site-based score			30			30
Site-based BioCondition score (out of 10)			**4**			**4**

Assessment Unit (AU)	**2**
AU BioCondition Score	3.95833333
AU Area	39.83
AU Weighted BioCondition Score	3.95833333

2			2			2			2		
B4			B6			B7			B8		
11.8.11			11.8.11			11.8.11			11.8.11		
Non-Remnant			Non-Remnant			Non-Remnant			Non-Remnant		
Benchmark	**Value**	**Score**	**Benchmark**	**Value**	**Score**	**Benchmark**	**Value**	**Score**	**Benchmark**	**Value**	**Score**
	0	0		0	0		0	0		0	0
na	0		na	0		na	0		na	0	
na	0		na	0		na	0		na	0	
11	7	2.5	11	6	2.5	11	5	2.5	11	5	2.5
17	4	0	17	7	2.5	17	6	2.5	17	5	2.5
na	0		na	0		na	0		na	0	
na	0		na	0		na	0		na	0	
na	0		na	0		na	0		na	0	
na	0		na	0		na	0		na	0	
na	0		na	0		na	0		na	0	
na	0		na	0		na	0		na	0	
na	0		na	0		na	0		na	0	
43	10	1	43	19	1	43	12	1	43	16	1
13	8	5	13	14	5	13	7	5	13	10	5
na			na			na			na		
na			na			na			na		
0	25	3	0	25	3	0	15	5	0	15	5
		30			30			30			30
		3.83333333			**4.66666667**			**5.33333333**			**5.33333333**

2			2			
BC5			BC6			
11.8.11			11.8.11			
Non-remnant			Non-remnant			
Benchmark	**Value**	**Score**	**Benchmark**	**Value**	**Score**	
	0	0		0	0	
na	0		na	0		
na	0		na	1		
11	8	2.5	11	6	2.5	
17	3	0	17	6	2.5	
na	0		na	0		
na	0		na	0		
na	0		na	0		
na	0		na	0		
na	0		na	0		
na	0		na	0		
na	0		na	0		
43	0.4	0	43	0	0	
13	6.4	3	13	6.2	3	
na			na			
na			na			
0	65	0	0	65	0	
		30			30	
		1.83333333			**2.66666667**	

Appendix B Risk Analysis

Table B.1: Standard risk assessment

Risk event	Risk description	Initial risk rating			Management actions	Residual risk rating			Performance criteria	Management triggers	Corrective actions	Monitoring
		Likelihood	Consequence	Result		Likelihood	Consequence	Result				
Overgrazing	• soil compaction • hindered grassland regeneration (cover and composition)	Possible	High	Medium	Low-intensity cattle grazing using existing fencing and natural barriers will be employed during the late dry season (June – December), provided the minimum live groundcover threshold (50% or in accordance with Queensland government requirements if available) is maintained at the end of the dry season. Changes to livestock densities may be considered following significant rainfall events to minimise compaction and disturbance of soil.	Unlikely	Minor	Low	• Stock grazed only at permissible times • no evidence of soil compaction • relevant BioCondition site assessment score attributes increase (particularly ground cover)	• evidence of soil compaction • relevant BioCondition site assessment score attributes decrease (particularly ground cover	Investigate cause of habitat degradation. Exclusion of cattle grazing or reduced stocking densities in Offset Area.	Ground cover monitoring Habitat quality assessments
Vegetation clearing	• native grassland and king bluegrass habitat loss • hindered grassland regeneration	Unlikely	Major	High	• offset will be legally secured under the Voluntary Declaration • vegetation clearing within the offset area is prohibited	Rare	Major	Medium	No vegetation clearing to occur within the offset area	vegetation is intentionally cleared within the offset area	Investigate cause of vegetation clearing to mitigate potential for future clearing events. Active regeneration/rehabilitation	Habitat quality assessments Maintenance inspections
Erosion	• reduced groundcover • hindered grassland regeneration	Unlikely	Minor	Low	Livestock grazing and maintenance is undertaken in accordance with this OAMP.	Rare	Minor	Low	• No significant erosion activity is observed. • Groundcover remains consistent or improves	• Significant erosion activity is observed. • Groundcover decreases	Cause of erosion identified and remedied via investigation Active regeneration (i.e. seeding) to improve ground cover	Habitat quality assessments Ground cover monitoring

Risk event	Risk description	Initial risk rating			Management actions	Residual risk rating			Performance criteria	Management triggers	Corrective actions	Monitoring
		Likelihood	Consequence	Result		Likelihood	Consequence	Result				
Failed vegetative regeneration	• No increase in habitat quality observed over time • Failure to meet completion/interim criteria	Rare	Critical	High	Natural regeneration Low-intensity cattle grazing using existing fencing and natural barriers will be employed when during the late dry season (June - December), provided the minimum live groundcover threshold (50% or in accordance with Queensland government requirements if available) is maintained at the end of the dry season. Control of environmental weeds	Rare	Major	Medium	• Offset achieves interim and final completion criteria • Habitat Quality improves over time	• Offset does not achieve interim or final completion criteria • Habitat Quality decreases over time	Investigate cause of failed regeneration to determine suitable management approach. Example corrective actions may include active regeneration/rehabilitation or livestock exclusion	Habitat quality assessments Ground cover monitoring
Introduction and spread of weeds	• Increased abundance and spread of existing weeds impacting habitat quality scores over time • Introduction of new weeds impacting habitat quality scores over time	Possible	Moderate	Medium	Weed management Weed hygiene protocols	Unlikely	Moderate	Low	• Non-native cover remains consistent with baseline or reduces over time • Offset achieves interim and final habitat quality completion criteria • Habitat Quality improves over time	• Non-native cover increases from baseline over time • Offset does not achieve interim and final completion criteria • Habitat Quality decreases over time	Active weed control (spraying, mechanical removal) Livestock exclusion	Weed surveys Habitat quality assessments Ground cover monitoring
High fuel loads resulting in high intensity fire	• hindered grassland regeneration from high intensity fire	Possible	Moderate	Medium	Livestock grazing and maintenance is undertaken in accordance with this OAMP.	Possible	Minor	Low	• no unplanned fires occur within the Offset Area	• uncontrolled fire occurs within Offset Area	Management of fuel loads through livestock grazing management	Habitat quality assessments Ground cover monitoring Maintenance inspections

Risk event	Risk description	Initial risk rating			Management actions	Residual risk rating			Performance criteria	Management triggers	Corrective actions	Monitoring
		Likelihood	Consequence	Result		Likelihood	Consequence	Result				
Fence failure	Unauthorised access to offset vehicles (vehicles and people) Increased access by stock and feral animals	Possible	Minor	Low	Quarterly maintenance inspections of fences and gates	Unlikely	Minor	Low	• No unauthorised access to offset area. • All offset areas appropriately fenced. Fencing is intact. • No breaches in fencing during cattle exclusion times.	• Unauthorised access to offset area. • Fencing falls into disrepair. • Increased cattle densities and grazing through fence failure.	Upon being notified or becoming aware of an unsecured offset area, fence maintenance and repairs to resecure the offset area as soon as possible and within a month.	Quarterly maintenance inspections and all monitoring actions.

Table B.2: Force majeure risk assessment

Risk event	Risk description	Initial risk rating			Management actions	Residual risk rating			Performance criteria	Management triggers	Corrective actions	Monitoring
		Likelihood	Consequence	Result		Likelihood	Consequence	Result				
Drought	• Decreased groundcover and vegetative dieback • No increase in habitat quality observed over time • Failure to meet completion/interim criteria	Likely	Minor	Low	Limited mitigation measures can be implemented. Grazing of the Offset Area will be in accordance with this OAMP to ensure that minimum grass cover requirements (50% or in accordance with Queensland government requirements if available) are met.	Likely	Minor	Low	• Offset achieves interim and final completion criteria • Habitat Quality improves over time	• Offset does not achieve interim or final completion criteria • Groundcover falls below baseline score • Habitat Quality decreases over time	Grazing exclusion to be undertaken to allow Offset Area to recover	Habitat quality assessments Ground cover monitoring

Risk event	Risk description	Initial risk rating			Management actions	Residual risk rating			Performance criteria	Management triggers	Corrective actions	Monitoring
		Likelihood	Consequence	Result		Likelihood	Consequence	Result				
Bushfire	• Moderate to severe intensity bushfires (incl. lightning strike) impacting regeneration of vegetation	Possible	Major	High	In the event of a fire approaching or within the Offset Area, the landholder will coordinate with relevant fire and emergency services. Fuel loads will be managed and kept as low as practicable at all times, and firebreaks will be established and maintained. To prevent arson, only authorised persons will be permitted on site, and site access will be restricted through fencing and other barriers. Surveys undertaken as soon as possible following unplanned fire to measure impacts to habitat quality.	Possible	High	Medium	• Fuel loads will be managed and kept as low as practicable (60% ground cover). • Firebreaks established and maintained. • No unplanned fire occurs.	• Fire impacts the Offset Area. • Fuel loads (dead litter material) exceed acceptable levels (60% ground cover) (refer to Overall Fuel Hazard Assessment Guide (Hines et al., 2010). • Unauthorised access to the site is detected or notified to the Landholder.	If fire impacts the offset site, the Offset Area will be destocked, fire breaks and control lines will be re-established. If unauthorised access to the site is detected (or notified to the Landholder), within two weeks, identify and repair fencing or other barriers to prevent future access Restoration/revegetation measures to support recovery of habitat quality.	Habitat quality assessments Ground cover monitoring Maintenance inspections

Risk event	Risk description	Initial risk rating			Management actions	Residual risk rating			Performance criteria	Management triggers	Corrective actions	Monitoring
		Likelihood	Consequence	Result		Likelihood	Consequence	Result				
Severe storm/tropical low	Flooding of vegetation and impacts to habitat quality Proliferation and spread of weeds displacing native species.	Possible	Minor	Low	Determine the extent of damage to Offset Area infrastructure (such as fence lines) and habitat quality caused by the event. Cattle to be removed from the Offset Area to prevent soil compaction following the extreme weather event. Weed cover in areas disturbed by the weather event to be monitored to ensure progress / measure outcomes are still maintained.	Possible	Minor	Low	• Offset achieves interim and final completion criteria • Habitat Quality improves over time • No evidence of soil compaction in low lying wet areas or waterways.	• Offset does not achieve interim or final completion criteria • Groundcover falls below baseline as a result of prolonged inundation or soil compaction • Habitat Quality decreases over time	All infrastructure is re-instated as soon as practicable. Active weed management	Habitat quality assessments Weed surveys Ground cover monitoring

Table B.3: Risk assessment matrix

Qualitative measure of likelihood (how likely is it that this event/circumstance will occur after management activities are implemented)	
Highly likely	Is expected to occur in most circumstances
Likely	Will probably occur during the life of the offset
Possible	Might occur during the life of the offset
Unlikely	Could occur but considered unlikely or doubtful
Rare	May occur in exceptional circumstances
Qualitative measure of consequences (what will be the consequence/result if the issue does occur)	
Minor	Minor incident of environmental damage that can be reversed (e.g. short term delays to achieving OAMP objectives, implementing low-cost, well-characterised corrective actions)
Moderate	Isolated but substantial instances of environmental damage that could be reversed with intensive efforts (e.g. short-term delays to achieving plan objectives, implementing well-characterised, high cost/effort corrective actions)
High	Substantial instances of environmental damage that could be reversed with intensive efforts (e.g. medium-long term delays to achieving objectives, implementing uncertain, high-cost/effort corrective actions)
Major	Major loss of environmental amenity and real danger of continuing (e.g. OAMP objectives are unlikely to be achieved, with significant legislative, technical, ecological and/or administrative barriers to attainment that have no evident mitigation strategies)
Critical	Severe widespread loss of environmental amenity and irrecoverable environmental damage (e.g. OAMP objectives are unable to be achieved, with no evident mitigation strategies)

	Consequences				
	Minor	Moderate	High	Major	Critical
Highly	Medium	High	High	Severe	Severe
Likely	Low	Medium	High	High	Severe
Possible	Low	Medium	Medium	High	Severe
Unlikely	Low	Low	Medium	High	High
Rare	Low	Low	Low	Medium	High