

**RTA Yarwun Pty Ltd:
Expansion of borrow pits,
Lot 7 Aldoga Road, Aldoga
(EPBC 2018/8381)
EPBC Offset Area Management Plan**



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Date: 18 March 2024

Prepared for: RTA Yarwun Ltd

Our Reference: 20222485D

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DOCUMENT CONTROL				
Version No.	Date	Revision details	Prepared by	Approved by
V1	9 January 2023	First draft	David Sasse	Alan Key
V2	9 March 2023	Insert figures, format and review	David Sasse	Alan Key
A	3 May 2023	Updated to incorporate offset field survey findings	David Sasse	Alan Key
B	2 October 2023	Updated to incorporate feedback from DCCEEW	David Sasse	Alan Key
C	10 October 2023	Updated to incorporate feedback from RTY	David Sasse	Alan Key
D	18 March 2024	Updated to incorporate supplementary squatter pigeon survey report	David Sasse	Alan Key

ACKNOWLEDGEMENTS AND DISCLAIMER

This report should be cited as: *RTA Yarwun Pty Ltd: Expansion of borrow pits, Lot 7 Aldoga Road, Aldoga (EPBC 2018/8381) EPBC Offset Area Management Plan*

ACKNOWLEDGEMENTS:

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Declaration

I declare that to the best of my knowledge, all the information contained in, or accompanying this document is complete, current and correct. I am duly authorised to sign this declaration on behalf of the proponent/approval holder. I am aware that:

- a. *section 490 of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) makes it an offence for an approval holder to provide information in response to an approval condition where the person is reckless as to whether the information is false or misleading.*
- b. *section 491 of the EPBC Act makes it an offence for a person to provide information or documents to specified persons who are known by the person to be performing a duty or carrying out a function under the EPBC Act or the Environment Protection and Biodiversity Conservation Regulations 2000 (Cth) where the person knows the information or document is false or misleading.*
- c. *the above offences are punishable on conviction by imprisonment, a fine or both.*

Signed:



Craig Aaron Wise

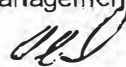
Full name (please print):

Organisation: RTA Yarwun Pty Ltd

ACN: 137 266 301

EPBC Referral Number: EPBC 2018/8381

EPBC Offset Area Management Plan

Date: 13/12/2024 

Executive summary

RTA Yarwun Pty Ltd (**RTAY**) is developing borrow pits on Lot 7 SP228453 located in Aldoga, approximately 15km west of Gladstone, within the Brigalow Belt bioregion of Queensland. The borrow pits are required to provide clay, general fill and hard rock to service the existing waste management precinct Residue Management Area. RTAY is continuing the Residue Management Area (**RMA**) 1 expansion to develop 121 ha of land for a further six borrow pits (Nos. 1, 2, 3, 5, 6 and 10).

The project was referred under the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth) (**EPBC Act**) in 2018 (EPBC 2018/8381). The development, was decided on 31 October 2019 as a controlled action, to have significant impacts to matters of national environmental significance (**MNES**) of up to:

- 96 hectares of koala (*Phascolarctos cinereus*) (combined populations of QLD, NSW and the ACT) habitat
- 162.2 ha of squatter pigeon (southern) (*Geophaps scripta scripta*) dispersal habitat.

Field surveys of both the impact and offset sites were undertaken separately. Comprehensive field surveys have been undertaken in wet and dry seasons on the impact area by Ecosure over many years. The vegetation of the impact site is combination of remnant and non-remnant vegetation.

The proposed offsets for the project are located on a property known as Connie Creek, located approximately 160 km north-west of Rockhampton. Two field investigations were undertaken by ERM in January and February 2023 within the offset investigation area (**OIA**) on Connie Creek. Vegetation condition assessment was undertaken in accordance with the BioCondition assessment framework (Version 2.2, Eyre, et al, 2015). The Modified Habitat Quality Assessment (**MHQA**) technique, an extension of the BioCondition method, was used to collect species-specific information to contribute to site condition, site context and species stocking rate as well as habitat condition data in accordance with the EPBC Act Offsets Assessment Guide.

The vegetation selected for the RMA1 Offset Area is mostly in moderate to low condition, particularly those areas associated with native timber harvesting and grazing land use (regrowth non-remnant regional ecosystems (**REs**), with signs of degradation due to cattle grazing, erosion, and the presence of introduced flora species. The offset areas were selected for their values consistent with habitat definitions as per the conditions of approval for EPBC 2018/8381, for koala and squatter pigeon.

An overview of the terrestrial ecology of the impact areas and the resultant offset requirements are summarised in *Table 1*. The offset will meet the offset policy requirements of being 100% direct offset.

This Offset Area Management Plan (**OAMP**) demonstrates that the proposed offset site on Connie Creek meets the principles of the EPBC Act Environmental Offsets Policy (**EPBC Offsets Policy**) and is a suitable offset for approved impacts resulting from the Project.

This OAMP has been prepared to address the impacts to the MNES from the project, to address requirements of the EPBC offset framework, ensuring that the offset on Connie Creek will address the approval conditions for the Offset Area Management Plan and securing the offset.

Table 1: Summarised project impacts versus proposed offset area values

Protected matter and habitat definition (approval conditions)	EPBC status	Impact area	Habitat quality score (/10)	Impact quantum	Offset area (ha)	Habitat quality start score	Quality score without offset	Quality score with offset	Offset quantum and % of liability provided
<i>Phascolarctos cinereus</i> (koala) Forest or woodland (including remnant, regrowth and modified vegetation communities) containing species that are koala food trees and any shrub land with emergent koala food trees. Koala food tree/s means trees species of <i>Angophora</i> , <i>Corymbia</i> , <i>Eucalyptus</i> or <i>Lophostemon</i> that are greater than 10cm in diameter at breast height and for which there is sufficient evidence that the tree species is known to comprise part of the diet of the koala (<i>Phascolarctos cinereus</i>) (combined populations of QLD, NSW and ACT).	Vulnerable	96.0	7	67.2ha	410.70	7	6	8	123.58
<i>Geophaps scripta scripta</i> (squatter pigeon - southern) The Queensland REs and other habitat features identified as foraging habitat and dispersal habitat in the <i>EPBC 2018/8381 Referral Request for Information Response</i> April 2019 and attachments.	Vulnerable	162.2	7	113.54ha	550.60	7	6	8	102.58

Part A: Project Details and Impact Areas

1 Introduction

1.1 Project description

RTA Yarwun Pty Ltd (**RTY**) is developing borrow pits on Lot 7 SP228453 located in Aldoga, approximately 15km west of Gladstone, within the Brigalow Belt bioregion of Queensland (refer to *Figure 1*). The borrow pits are required to provide clay, general fill and hard rock to service the existing waste management precinct Residue Management Area (**RMA**). RTAY is continuing the RMA 1 expansion to develop 121 ha of land for a further six borrow pits (Nos. 1, 2, 3, 5, 6 and 10).

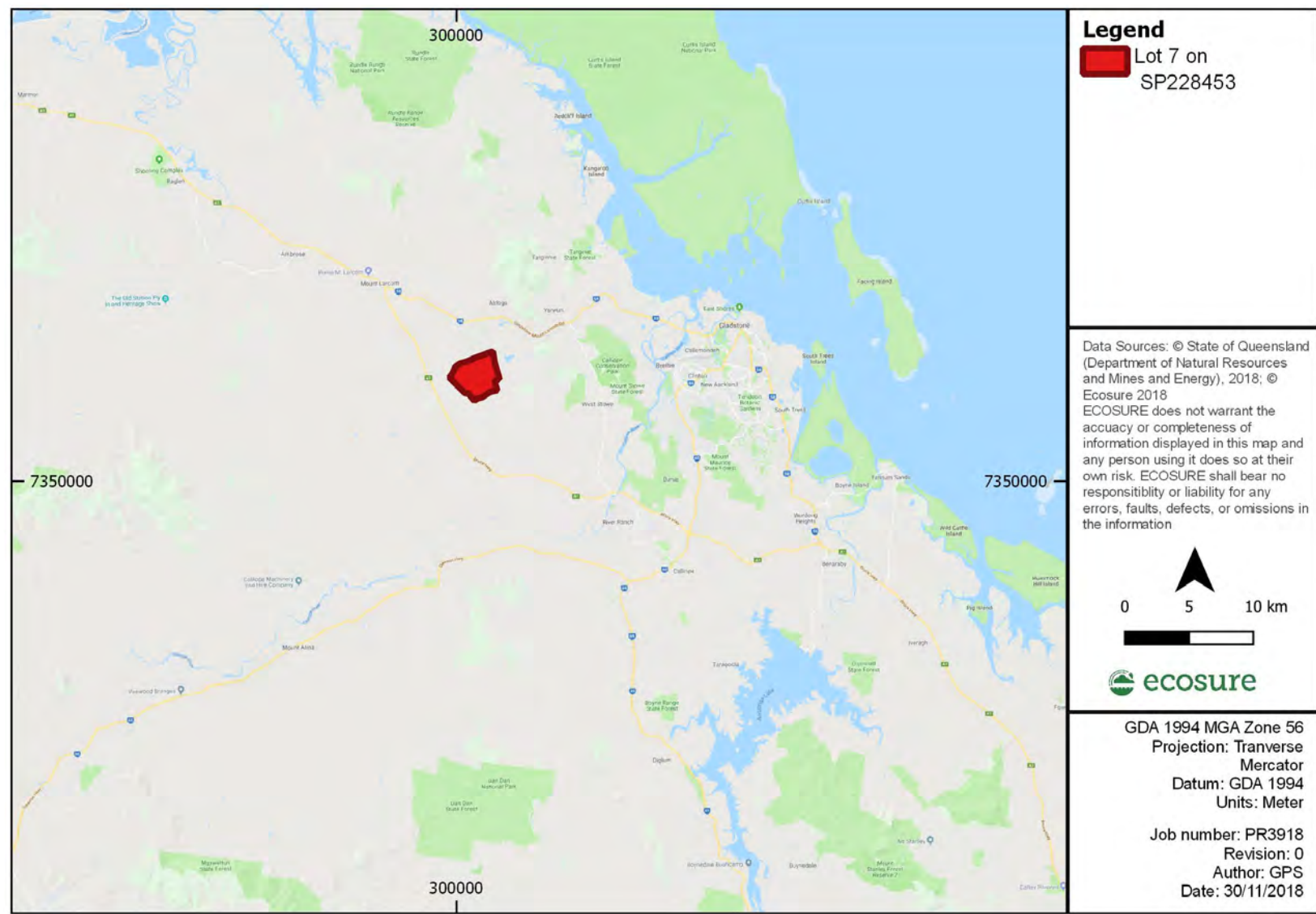
The project was referred under the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) in 2018 (EPBC 2018/8381). The development, was decided on 31 October 2019 as a controlled action, to have significant impacts to matters of national environmental significance (**MNES**) of up to:

- 96 hectares of koala (*Phascolarctos cinereus*) (combined populations of QLD, NSW and the ACT) habitat
- 162 ha of squatter pigeon (southern) (*Geophaps scripta scripta*) habitat.

The approval conditions require that the impacts to MNES be offset. The offset area is proposed to be located on Connie Creek. This Offset Area Management Plan (**OAMP**) has been prepared to address the impacts to the MNES from the project, and address requirements of the EPBC offset framework, ensuring that the offset on Connie Creek will address the approval conditions for the Offset Management plan and offset securement.

This OAMP utilises the findings of the ecological assessments from both the impact site and offset area to address how the offset obligations under the Environmental Offset Policy (**EOP**) are addressed; and demonstrates that the offset area is suitable to meet all the EOP requirements and the approval conditions.

Figure 1: Project location



1.2 Purpose and objectives of this management plan

The purpose of the OAMP is to address the requirements of EPBC approval (2018/8381), relating to MNES offset requirements and implementing the offset to achieve a conservation outcome. The requirements of the approval conditions relating to offsets and the Section of the OAMP where addressed, are provided in *Table 2*.

The environmental outcomes of this OAMP are specific improvements in ecological values in habitat for each of the matters impacted by the Project. These improvements are defined in detail in *Section 9* of this document (Offset completion criteria and performance targets).

Table 2: EPBC approval conditions for offsets addressed in this document

Condition	OAMP section or comment
Maximum impact limits	
1. The approval holder must not impact more than: a) 96 hectares (ha) of koala (<i>Phascolarctos cinereus</i>) (combined populations of QLD, NSW and the ACT) habitat b) 162 ha of squatter pigeon (southern) (<i>Geophaps scripta scripta</i>) habitat	<i>Refer to Section 3. The estimates for each MNES required in the offset site are based on the total clearance areas.</i>
Offset Management Plan	
4A. The approval holder must submit for the written approval of the Minister an Offset Area Management Plan (OAMP) for one or more environmental offsets to compensate, in accordance with the Environmental Offsets Policy, for the impact of the action on the Koala and Squatter Pigeon (southern) as permitted in condition 1. The approval holder must not clear within borrow area 1 or borrow area 6 (except to establish erosion and sediment control structures) until the OAMP has been approved by the Minister.	<i>This document</i>
5A. The OAMP/s must be consistent with the department's Environmental Management Plan Guidelines, and must include the following: a) A summary of the residual impacts to protected matters that will be compensated for by the offset. This summary must include the area(s) of habitat for protected matters and its condition and quality at all impact sites which the particular offset is to address.	<i>Refer to Section 3 and Table 6</i>
b) The environmental objectives, relevant protected matters and a reference to the EPBC Act approval conditions to which the particular OAMP refers.	<i>Refer to Section 3, Section 9, and this table (Table 2)</i>
c) A table of commitments made in the Offset Management Plan to achieve the environmental objectives, and a reference to where the commitments are detailed in the OAMP.	<i>Refer to Section 1.3 and Table 3</i>
d) Reporting and review mechanisms, and documentation standards to demonstrate compliance with the commitments in the OAMP.	<i>Refer to Section 11</i>
e) An assessment of risks to achieving environmental objectives and risk management strategies that will be applied.	<i>Refer to Section 7 and Table 13</i>

Condition	OAMP section or comment
f) A monitoring program, which must include: i. measurable performance indicators ii. trigger values for corrective actions. iii. the timing and frequency of monitoring to detect trigger values and changes in the performance indicators	<i>Refer to Section 11 and Table 17</i> <i>Also refer to Table 13 and Table 14</i>
g) Proposed corrective actions, if trigger values are reached.	<i>Refer to Table 14</i>
h) Links to referenced plans and applicable conditions of approval (including State approval conditions).	<i>Refer to Section 2.2 and Table 5, Section 1.2 and this table (Table 2)</i>
7. Within 3 months of the date the OAMP is approved by the Minister, the approval holder must commence implementing the approved OAMP.	<i>Refer to Section 14</i>
8. To compensate for impacts on listed threatened species as identified in condition 1, the approval holder must have irrevocably submitted an application for the legal security of each offset area specified in the approved OAMP within 6 months of the date of approval of the OAMP by the Minister The OAMP implemented under this condition must be attached to the land title via a legal security mechanism implemented as required under this condition.	<i>Refer to Section 12</i>

1.3 Commitments made in the OAMP

This section summarises the commitments made throughout this OAMP to achieve ecological benefit(s) for the relevant protected matters. These ecological benefits will be achieved through the integrated implementation of many elements of this OAMP. Additional commitments are also made in alignment with the general conditions of the approval. *Table 3* below lists each of these commitments and provides references to the sections in this OAMP where these commitments are detailed.

Table 3: Commitments made in this OAMP

Commitment	Relevant approval condition	OAMP section or comment
The approval holder will prepare and submit an Offset Area Management Plan (OAMP) to the Minister for approval.	4A.	<i>This document</i>
Within 3 months of the date the OAMP is approved by the Minister, the approval holder will commence implementing the approved OAMP.	7.	<i>See Section 14</i>
The approval holder will irrevocably submit an application for the legal security of each offset area specified in the approved OAMP within 6 months of the date of approval of the OAMP by the Minister. The OAMP will be attached to the land title of the relevant offset area.	8	<i>See Section 12</i>
The approval holder will maintain accurate and complete compliance records. If the Department makes a request in writing, the approval holder will provide electronic copies of compliance records to the Department within the timeframe specified in the request.	10.	<i>See Section 8.1 and Section 11</i>

Commitment	Relevant approval condition	OAMP section or comment
The approval holder will submit this plan to the Department electronically.	12.a.	See Section 13
The approval holder will publish this plan on the website within 20 business days of the date the plan is approved by the Minister or Department, or of the date a plan is submitted to the Minister or Department, unless otherwise agreed to in writing by the Minister;	12.b.	See Section 14
The approval holder will exclude or redact sensitive ecological data from plans published on the website or provided to a member of the public.	12.c.	See Section 11
The approval holder will ensure that the most recent approved version of this plan remains accessible to the public on the website of the approval holder for the duration of the action.	12.d	See Section 14
If the approval holder wishes to carry out any activities otherwise than in accordance with the approved management plan required under condition 4A, the approval holder will submit to the Department for the Minister's written approval a revised version of that management plan. The varied activity will not commence until the Minister has approved the varied management plan in writing. The Minister will not approve a varied management plan unless the revised management plan would result in an equivalent or improved environmental outcome over time. If the Minister approves the revised management plan that management plan will be implemented in place of the management plan originally approved.	14.	See Section 13
The approval holder will prepare a compliance report for each 12 month period following the date of commencement of the action, or otherwise in accordance with an annual date that has been agreed to in writing by the Minister. The approval holder will: - publish each compliance report on the website within 20 business days following the relevant 12 month period; - notify the Department by email that a compliance report has been published on the website and provide the weblink for the compliance report within 5 business days of the date of publication; - keep all compliance reports publicly available on the website until this approval expires; - exclude or redact sensitive ecological data from compliance reports published on the website; and - where any sensitive ecological data has been excluded from the version published, submit the full compliance report to the Department within 5 business days of publication.	15.	See Section 11
The approval holder will notify the Department in writing of any: incident; non-compliance with the conditions; or non-compliance with the commitments made in this plan. The notification will be given as soon as practicable, and no later than 10 business days after becoming aware of the incident or non-compliance. The notification will specify: - any condition which is or may be in breach; - a short description of the incident and/or non-compliance; and - the location (including co-ordinates), date, and time of the incident and/or non-compliance. In the event the exact information cannot be provided, provide the best information available.	16.	See Section 13

Commitment	Relevant approval condition	OAMP section or comment
The approval holder will provide to the Department the details of any incident or non-compliance with the conditions or commitments made in this plan as soon as practicable and no later than 10 business days after becoming aware of the incident or non-compliance, specifying: a. any corrective action or investigation which the approval holder has already taken or intends to take in the immediate future; b. the potential impacts of the incident or non-compliance; and c. the method and timing of any remedial action that will be undertaken by the approval holder.	17.	See Section 13

1.4 Area for offset acquittal

RTAY has identified and selected a property to acquit potential offset requirements associated with EPBC Approval 2018/8381 and other proposed projects planned for Aldoga Rd site.

Within the offset property, an area has been selected to acquit offset requirements specifically for the Expansion of borrow pits project EPBC 2018/8381. The area known as 'Connie Creek offset area 1' (the **offset area**), is the subject of this OAMP, to acquit the Project's environmental offset obligations.

The selected property is considered suitable to provide the values required to address the EOP principles. Consideration was also given to future property planning and any potential future use for the property to avoid the potential for conflicting land use with the offset area.

Connie Creek is a property of 5,480ha in area that rises into the coastal ranges to the west of the township of St Lawrence which is located 137km south of Mackay and 152km north of Rockhampton. The property is accessed along the Croydon St Lawrence Road.

Due to the property rising from the coastal plains to the coastal ranges, the property contains regional ecosystems from both the Central Queensland Coast and Brigalow Belt (North) bioregions. The coastal range is acknowledged as a hot spot for koalas, as identified in a research project conducted in 2018 by Central Queensland University for the Queensland Department of Transport and Main Roads.¹ The presence of squatter pigeon was confirmed adjacent to the offset area during the field surveys undertaken in 2023. The context of the property on a regional scale is shown in **Error! Reference source not found.**

Land within the offset property is used for extensive cattle grazing. The property has no infrastructure and the current level of management is low due to this. Feral animals and wildfire are often present on the property due to the lack of management and infrastructure.

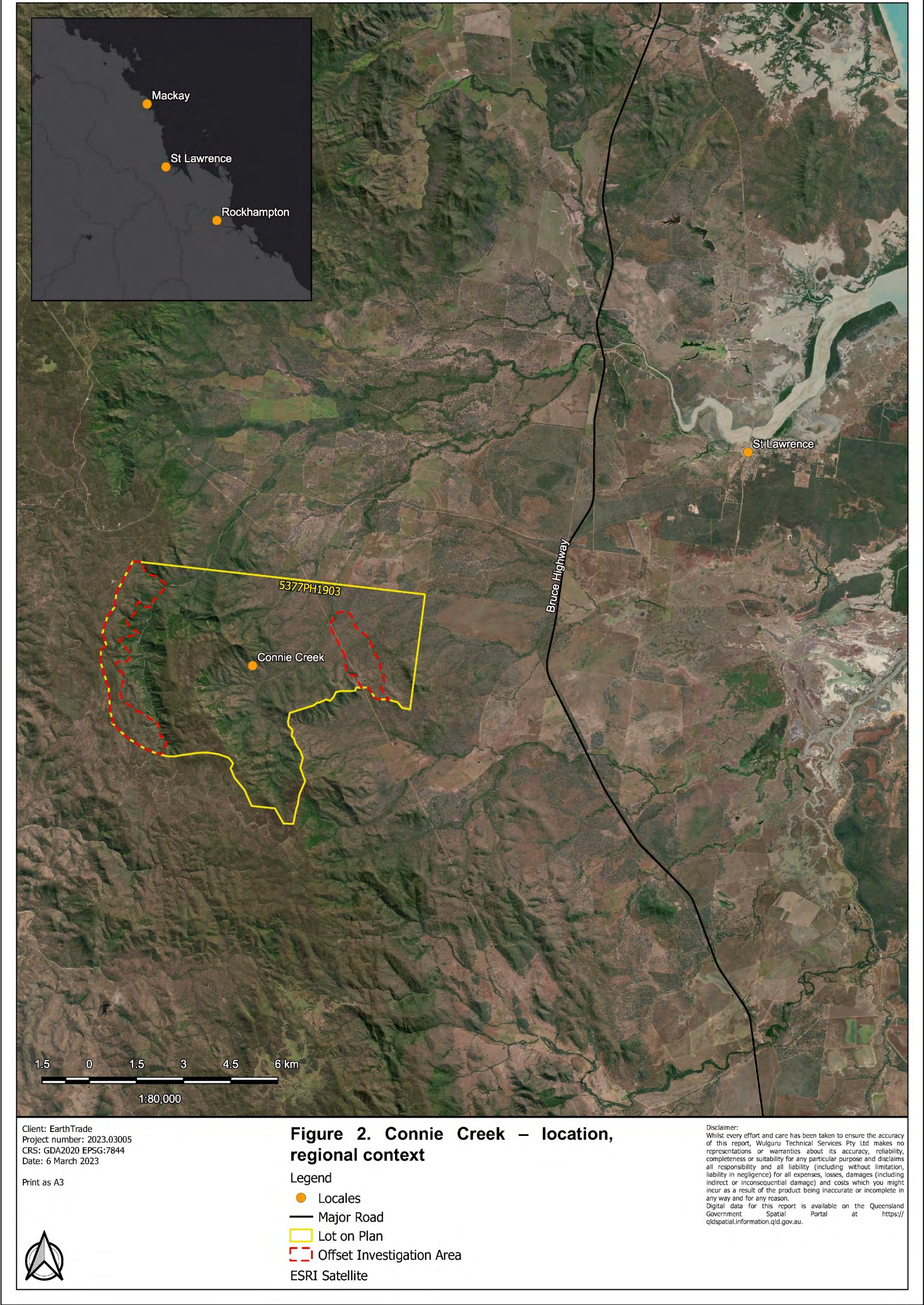
The property is predominantly degraded remnant vegetation, and although all areas have been subjected to historical and current disturbance in the form of timber harvesting, heavy grazing and

¹ Melzer, A., Santamaria, F., and Allen, S. (2018) *The koalas, koala habitat and conservation management in the Clarke-Connors Ranges and associated landscapes*. A report to the Queensland Department of Transport and Main Roads. Koala Research CQ, School of Medical and Applied Sciences, CQUniversity, Rockhampton.

inappropriate fire regimes, the proposed offset property forms part of a large landscape biodiversity corridor (refer to *Section 4.1.1*).

Additional offset areas for other projects of the proponent will be considered on this property in the future, enabling the offset areas to be further connected and provide larger tracts of habitat for the species being protected. Locating offsets for various projects together will improve the biodiversity value of each individual offset, and strengthen other values such as connectivity and resilience. Management efficiencies for each offset will be achieved where the management actions, reporting timeframes and monitoring can be aligned, where appropriate. This will achieve efficiencies in managing many aspects of the cumulative offset area, such as management of weeds, feral animals, fire, and monitoring.

Figure 2: Connie Creek – regional context



1.5 Plan structure

The OAMP is divided into 2 parts – **Part A** (Project Details and Impact Areas) and **Part B** (Offset Land Management Details).

Part A contains:

- Introduction to the Project and the purpose of the plan
- How the offsets address the EOP and EPBC Plans
- An overview of the proposed offset properties
- Impact area description

Part B contains the Land Management plan, containing:

- Offset property information, including the landscape values
- Offset regional ecosystems (**REs**) and habitat quality scoring (**HQS**)
- Risk analysis
- Offset management measures
- Completion criteria and performance targets
- Monitoring and reporting
- Adaptive management and plan review.

2 EPBC Act Environmental Offsets Policy and framework

This section describes how the proposed offset meets the relevant requirements of the EPBC Act Environmental Offsets Policy (October 2012) (**EOP**), plans and guidelines.

2.1 Policy principles

The EPBC Act EOP sets out eight key overarching principles to determine the suitability of offsets. *Table 4* outlines each of the policy principles and how it has been considered in the OAMP, with a reference to the relevant OAMP section.

Table 4: EPBC Act Environmental Offset Policy principles

Policy principle	Project offsets
Suitable offsets must deliver an overall conservation outcome that improves or maintains the viability of the protected matters.	The offset will deliver a conservation outcome by acquitting 100% of the project's required offsets for the koala and squatter pigeon species. Calculations have been undertaken based on ecological reports that included both flora and fauna surveys undertaken on both the impact and offset areas informing inputs to the Offset Assessment Guide. The offset area was selected as they are known to contain the koala and the squatter pigeon is known to occur adjacent to the offset area and adjacent properties. The proposed offset area will be managed to mitigate the risks, to increase the extent and condition of the habitat, and improve the viability of the species within the proposed offset area, as per the offset area management measures. The habitat will be managed to improve the habitat values for those species, and a declared area under the <i>Vegetation Management Act 1999</i> (Qld) (VM Act) will ensure legal protection of the area.
Suitable offsets must be built around direct offsets but may include other compensatory measures.	100% of the Project's MNES offset obligations will be acquitted by the proposed direct land-based offsets.
Suitable offsets must be in proportion to the level of statutory protection that applies to the protected matter.	The koala and squatter pigeon are listed as vulnerable under the EPBC Act. The status of the impacted threatened species has been taken into account by the offset assessment guide that has been used to calculate the offset area requirements.
Suitable offsets must be of a size and scale proportionate to the residual impacts on the protected matter.	The extent of the offset has been calculated using ecological reports that include both flora and fauna surveys, for both the impact and offset sites to inform inputs into the habitat quality spreadsheets and then the offset assessment guide. The inputs to the offset assessment guides for each of the impacted protected matters are detailed in <i>Section 6</i>.
Suitable offsets must effectively account for and manage the risks of the offset not succeeding.	The risks associated with the offset have been assessed (<i>Table 13</i>) and mitigation and appropriate management actions proposed in the offset area management measures shown in <i>Table 14</i> . In addition, uncertainty, and therefore risk, associated with averted loss and net gain in habitat quality were addressed by applying the offset assessment guide.

Policy principle	Project offsets
Suitable offsets must be additional to what is already required, determined by law or planning regulations, or agreed to under other schemes or programs.	Vegetation clearing in regulated vegetation areas as a Native Forest Practice, broadscale clearing in vegetation that is not regulated, and grazing on the offset area are activities that are not currently prohibited by legal mechanisms at either the local, state or Australian government legislative level. The area is zoned rural and has been used for timber harvesting and cattle grazing previously. The current regulated vegetation will be secured via a declared area that has its head of power under the VM Act. See <i>Section 12</i> for further detail.
Suitable offsets must be efficient, timely, transparent, scientifically robust and reasonable	The proposed offsets will be efficient and timely as the offset will be established and implementation commenced within 3 months of the date the OAMP is approved by the Minister (as per approval condition 7). The offsets' scale and suitability are transparent, and the offsets are based on the terrestrial ecology reports prepared by suitably qualified ecologists for the impact and offset sites (<i>Attachment 1</i>). They have been prepared using the EPBC Act Offset Assessment Guide inputs and calculators. Refer to <i>Section 6</i> for further detailed application of the Offset Assessment Guide.
Suitable offsets must have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced.	The offset area was surveyed during January and February 2023, providing the baseline habitat quality assessment and these scores compared against the relevant bio-condition benchmarks for attributes relevant to the protected matters. Habitat quality assessments were conducted in accordance with the MHQA technique, an extension of the BioCondition method, which was used to collect species-specific information to contribute to site condition, site context and species stocking rate as well as habitat condition data in accordance with the EPBC Act Offsets Assessment Guide. This method involved collecting spatial data; and conducting in situ vegetation surveys, assessing site condition, spatial context as well as targeted species habitat criteria. These habitat assessment measurements will be conducted in accordance with this plan during its implementation phase. Monitoring and reporting are detailed in the offset area management measures outlined in <i>Table 14</i>, and the monitoring schedule and reporting schedule are shown in <i>Table 17</i> and <i>Table 18</i>. The offset will be protected from clearing and secured via a declared area that has its head of power under the VM Act. Refer to <i>Section 12</i> for further detail.

2.2 Addressing relevant EPBC plans and advice

The EOP states that an offset should address key priority actions for the impacted MNES in any approved recovery plans, threat abatement plans, conservation advice, ecological character description or approved Commonwealth Management Plan. *Table 5* summarises how this plan addresses the relevant Conservation Advice, Recovery Plans and Threat Abatement Plans, on the offset sites.

Table 5: Conservation Advice and Threat Abatement Plans addressed in the OAMP

Document	Key threats	Section addressed in document
<i>Conservation advice for Phascolarctos cinereus (Koala).</i> (2022) DAWE, Canberra. <i>National Recovery Plan for the Koala: Phascolarctos cinereus (combined populations of Queensland, New South Wales and the Australian Capital Territory).</i> (2022) DAWE, Canberra	<u>Climate change driven processes and drivers:</u> • Loss of climatically suitable habitat Areas that are climatically suitable for koalas are contracting. Climate change predictions indicate drier, warmer conditions across the koala's range. Current and future climate change projections indicate a progressive eastward and southwards contraction in the koala's suitable climate envelope and consequent suitable habitat (Adams-Hosking et al. 2011). • Increased intensity/frequency of drought Low rainfall has been linked with physiological stress to koalas due to low moisture levels, causing negative effects on population viability (Davies et al. 2013). In the future, average winter and spring rainfall are predicted to continue to decline across the koala's range (BoM 2021). • Increased intensity/frequency of heatwaves Due to climate change, average temperatures across the koala's range will continue to increase across all seasons resulting in an increased frequency and intensity of heat stress days and heat wave episodes (BoM 2021). Heat stress threats will synergistically interact with drought, further exacerbating the impacts of reduced water availability. • Increased intensity/frequency of bushfires Australia will continue to experience a harsher fire-weather climate into the future (BoM 2019, 2021). The fire season length is increasing and the number of catastrophic fire days	For the contribution to biodiversity corridors and connectivity – Refer to <i>Section 4.1.1</i>. The offset site was selected for its potential to provide a substantial increase to the habitat, connectivity and other ecological values within the surrounding area. The area is currently composed of degraded tracts of regulated and regrowth vegetation. Protecting these eucalypt forests from native timber harvesting and inappropriate fire will add significant value to the area by improving the condition and connectivity of local and regional koala habitat. The connecting of the protected areas around the offset site will increase the ability of the koala to move to moister areas during periods of drought and increased heat waves. The connectivity to the local creeks will give access to and enable the koalas to shelter in trees of a higher moisture density. The prevention of harvesting of larger trees will provide more and larger shelter as the regional ecosystem rehabilitates to scores closer to the benchmark. Additionally, the offset will assist in landscape connectivity and context by improving the existing regulated vegetation adjacent to and within the landscape corridors that link the important refuges of the Glencoe State Forest, and Mount Buffalo State Forest to the south. Fire is not permitted in the offset area unless for fuel reduction purposes, at no less than seven-year intervals and no more

Document	Key threats	Section addressed in document
	will increase in the future by an estimated 15-70% by 2050 (Climate Council 2019). A broad range of fire-related threats exist including high frequency fire, high severity fire, shifts in fire season, biodiversity loss, declining ecological mechanisms, shifts in biotic interactions including reproduction and fire-predator interactions, fire-drought interactions, and fire-fragmentation interactions which can be amplified by land clearing and logging (Bradshaw et al. 2018; Leavesley et al. 2020). All of these threats will have a significant impact on koala habitat and resident populations. Declining nutritional value of foliage Physical disturbance (e.g., logging during forestry activities and/or fire) alters tree species composition and can favour tree species that do not support the koala's nutritional requirements (Au et al. 2019). Additional research is required to assess how elevated levels of CO₂ affect nitrogen and available nitrogen (which integrates the effects of tannins) (DeGabriel et al. 2009). Bushfire effects on the nutritional value of eucalypt regrowth (e.g., epicormic growth) are unknown and research has been initiated.	than 30% of the area at any one time (as per Queensland DES regional ecosystem descriptions fire management guidelines) (refer to <i>Table 14</i>). Fuel reduction burns will be used as a last resort, and if utilised will be planned to be low intensity with no canopy scorch, with the aim to reduce fuel load in the ground cover layer. This practice aims to prevent unplanned high intensity burns that result from a build-up of fuel. Appropriate fire management will mitigate the increased risks of fires on the site. The prevention of harvesting of larger trees will provide more and larger foraging and shelter trees as the regional ecosystem rehabilitates to scores closer to the benchmark. For the contribution to biodiversity corridors and connectivity – Refer to <i>Section 4.1.1</i>. The establishment of the offset area which adjoins the landscape corridors, as well as buffers and increases in extent and condition of the habitat, will reduce the level of physical disturbance and act to reduce the alteration in tree species composition.
	<u>Clearing and degradation of koala habitat</u> Human activities (e.g., deforestation and land clearance for grazing, agriculture, urbanisation, timber harvesting, mining and other activities) have resulted in habitat loss, fragmentation and degradation.	Refer to <i>Table 14</i> - Forestry and native vegetation - clearing is not allowed under the management plan. No forestry or timber harvesting activities are to be conducted during the period of the declaration of the offset area. Forestry and native timber harvesting practices in the offset area remove large trees that provide shelter and food and may also contain hollows and deadwood. It is therefore considered a potential threat to the quality of the habitat.
	<u>Increased mortality due to vehicle strikes and dogs</u> Vehicle related mortality occurs regularly on roads in close proximity to occupied koala habitat (Gonzalez-Astudillo 2018; Queensland Government 2021). Dog attacks are also a significant	Refer to <i>Table 14</i>: Access will be restricted. The offset area is on a privately owned and remote agricultural property (Error! Reference source not found.) with access to

Document	Key threats	Section addressed in document
	cause of death and injury especially in areas within and adjacent to peri-urban and residential areas (DPIE 2020). Koalas are unable to adapt to these threats and as human activities continue to expand into koala habitat, trauma from these threats will continue.	the area restricted to the landholders. Access to the offset area property is restricted by boundary fencing to prohibit access to the offset area. Therefore, impacts to resident koala populations arising from car strikes are unlikely. <i>Table 14: Feral animals – monitoring and control as detailed.</i> Existing populations of feral animals (feral cats, dogs and pigs) will be controlled within the offset areas in accordance with the <i>Biosecurity Act 2014</i> (Qld). Monthly inspections to record the presence of wallow holes, tracks and visual incidents, e.g. any injury to or predation of koalas, in the offset area will be undertaken. On being notified or becoming aware of the presence of large numbers, for example, approximately 10 feral animals or multiple tracks in the offset area at any one time, or any predation of koalas, the Landholder is to implement feral animal control measures within one month.
	<u>Koala retrovirus (KoRV) and Chlamydia (<i>Chlamydia percorum</i>)</u> Wild populations carry disease pathogens. Inadvertent spread of disease also occurred historically following koala translocations. Disease can be a major contributor to population decline and reduces population viability. Chlamydia causes infertility, blindness and death (Polkinghorne et al. 2013). The prevalence of disease (chlamydiosis) has been found to increase following extreme stress from hot weather, drought, habitat loss and fragmentation (Lunney et al. 2012; Davies et al. 2013). KoRV was relatively recently identified and is thought to be responsible for a range of conditions, including leukaemia (Tarlinton et al. 2005) and an immunodeficiency syndrome. Up to 100% of koalas in Queensland and NSW have KoRV. There is some evidence that chlamydiosis may be exacerbated by KoRV (Tarlinton et al. 2005). KoRV has endogenised in koalas (Tarlinton et al. 2006) in Queensland and New South Wales. That is, it has infected germ line cells (spermatozoa or oocytes) and is transmitted genetically (by inheritance) from parents to offspring. Although this is a known mechanism of transmission, KoRV may also spread from koala to koala (horizontal spread) by close	There is no known treatment for disease which is prevalent in the populations naturally. The establishment of the offset area which adjoins the landscape corridors, as well as buffers and increases in extent and condition of the habitat may act to reduce some of the environmental stresses that are thought to accentuate the diseases.

Document	Key threats	Section addressed in document
	contact, and from infected mothers to their joeys via the milk, in a manner similar to the way that many other retroviruses spread (Hanger 1999). Whether KoRV can be transmitted by biting insects has yet to be determined.	
<i>Conservation Advice: Geophaps scripta scripta squatter pigeon (southern)</i> (2015) Threatened Species Scientific Committee. Canberra	<u>Ongoing vegetation clearance and fragmentation</u> Birds do not move far from woodland trees that provide protection from predatory birds, and do not typically forage further than 100 m from remnant trees or patches of wooded habitat (DoEE 2018). The population declined rapidly during the late 19th and early 20th centuries and continued to decline in NSW and southern Queensland where it is now very rare (Cooper et al., 2014). In NSW, the disappearance of the subspecies has been attributed to overgrazing at times of drought, followed by clearing of vegetation. Current threats include ongoing vegetation clearance and fragmentation,	Refer to <i>Table 14</i>: Forestry and native vegetation - clearing is not permitted under the plan. No forestry or timber harvesting activities will be undertaken during the period of the declared area. Forestry and native timber harvesting practices in the offset area is considered a potential threat to the quality of the vegetation community and habitat due to a reduction in cover and fragmentation of habitat.
	Overgrazing of habitat by livestock and feral herbivores; trampling of nests by domestic stock. The population declined rapidly during the late 19th and early 20th centuries and continued to decline in NSW and southern Queensland where the species is now very rare (Cooper et al., 2014). In NSW, the disappearance of the subspecies has been attributed to overgrazing at times of drought, followed by clearing of vegetation.	Refer to <i>Table 14</i>: Grazing – grazing is not permitted during the wet season or squatter pigeon breeding season; ground cover levels will be monitored and managed. Stock will be grazed in the offset areas for fuel reduction purposes during September to January, or until the wet season starts, to avoid the squatter pigeon breeding season and nest trampling.
	Introduction of weeds Squatter pigeons have a mainly granivorous diet, mostly feeding on the seeds of legumes in the family Fabaceae (45% of food volume) including those of exotic pasture plants such as <i>Stylosanthes</i> spp., and native grasses in the family Poaceae (23% of food volume) (Crome 1976; Higgins and Davies 1996). They occasionally forage in sown grasslands and pastures, feeding on exotic legumes such as <i>Stylosanthes</i> spp. (Crome 1976). A high weed cover results in competition for the bird's diet.	Refer to <i>Table 14</i>: Pest plants – will be reduced to less than 10% of ground cover. Weed control will be undertaken throughout the offset areas and then periodically, as required, to treat the weeds at the optimum time in their life cycles. The practices will control and minimise the spread of existing weed species.
	Inappropriate fire regimes.	Refer to <i>Table 14</i>: Fire – fire is not permitted in the offset area unless for fuel reduction purposes at no less than seven-year

Document	Key threats	Section addressed in document
	Hot fires that impact vegetation community structure and increase the likelihood of weed invasion after the initial reduction in groundcover.	intervals and no more than 25% of the area in any year (this is restricted to the eucalypt areas).
	Predation by feral animals including cats and foxes	Refer to <i>Table 14</i> : Feral animals – will be monitored and controlled. The presence of feral animals will be minimised and existing populations of feral animals (feral cats, dogs and pigs) controlled within the offset areas in accordance with the <i>Biosecurity Act 2014</i> (Qld). Major damage to the environment/habitat occurs when large numbers of animals congregate in the area.
	Illegal shooting	Refer to <i>Table 14</i> : Access – access by unauthorised personnel will not be permitted. Monthly inspections will confirm fences are preventing cattle and unauthorised people from accessing the offset area. The offset area is on a large privately owned agricultural property in a remote area (Error! Reference source not found.) with access to the area restricted to the land managers.
<i>Threat Abatement Plan for predation, habitat degradation, competition and disease transmission by feral pigs (Sus scrofa)</i> (2017) Department of the Environment and Energy, Canberra	Predation by feral pigs	Refer to <i>Table 14</i> . Major damage to the environment/habitat occurs when large numbers of animals congregate in the area. Feral animals will be monitored and controlled as described in <i>Table 14</i> . The plan will minimise the presence of feral animals and control of existing populations of feral animals (feral cats, dogs and pigs) within the offset areas in accordance with the <i>Biosecurity Act 2014</i> (Qld). Monthly inspections will be conducted to record the presence of wallow holes, tracks and visual incidents in the offset area. Upon being notified or becoming aware of the presence of large numbers of feral animals in the offset area, the Landholder is to implement feral animal control measures within one month.
<i>Threat Abatement Plan for predation by feral cats.</i> (2015) Department of the Environment, Canberra.	Predation by cats	
<i>Threat Abatement plan for competition and land degradation by rabbits.</i>	Presence of rabbits	

Document	Key threats	Section addressed in document
(2016) Department of the Environment and Energy, Canberra.		
<i>Threat Abatement Plan for predation by the European red fox</i> (2008) Department of the Environment, Water, Heritage and the Arts, Canberra.	Predation by foxes	

3 Impact site description

RTAY has expanded its current waste management precinct Residue Management Area 1 that required developing and operating clay borrow pits, general fill, hard rock extraction pits on Lot 7 SP228453. The development is an extension of Borrow Pit 9 on the same lot (Referral number 2017/7858), which was deemed as not a controlled action under the EPBC Act.

The new development footprint (indicated in *Figure 3* (pink hatching)) covers 121 ha of land (including uncleared areas approved under the EPBC 2017/7858) in the Brigalow Belt bioregion of Queensland. In total, 6 borrow pit areas (excluding areas cleared for the previously referred Area 9 (Pit 9), which is not a part of the action) are proposed to be developed within Lot 7 over 10 years. The pits will typically be excavated to 5 m depth. The impact footprint also includes the pits, associated haul roads, stockpile areas and water management infrastructure.

The development was decided on 31 October 2019 as a controlled action (EPBC 2018/8381), to have significant impacts to Matters of National Environmental Significance (MNES) of up to:

- 96 hectares of koala (*Phascolarctos cinereus*) (combined populations of QLD, NSW and the ACT) habitat
- 162.2 ha of squatter pigeon (southern) (*Geophaps scripta scripta*) habitat.

3.1 Ecological assessments

Comprehensive field surveys were undertaken in wet and dry seasons on the impact area. Ecosure (2019) provides a summary of all the ecological surveys undertaken on the impact area. They include:

- Wet season fauna survey and habitat quality assessment (Ecosure 2019)
- Impact assessment report (2018)
- Vegetation clearing report – Lot 7, SP228753 (Ecosure 2016)
- Conservation significant fauna survey report (Ecosure, 2015)
- Supporting information for a PMAV over Lot 7 SP228453 (Ecosure 2015).

The flora surveys were assessed by a suitably qualified botanist under the Queensland protected plants framework, and involved mapping of REs over the property, timed meander surveys for threatened species; and mapping and habitat quality assessment of threatened ecological communities. Fauna assessments included general fauna surveys to target any potential threatened and migratory species, bird surveys, trapping using Elliot traps, cage traps, pitfall and funnel traps, motion camera traps and anabat recording.

There were wet and dry season targeted surveys for koalas including: rapid spot assessment technique to determine presence/absence of koala faecal pellets over 37 sites, targeted faecal pellet searches of koala food trees, and opportunistic searches for koalas over eight days. The habitat score was determined in accordance with the EPBC Koala habitat assessment tool (Commonwealth of Australia, 2014).

Survey effort for squatter pigeons included daily transect surveys of eight days, flushing surveys over six days, and meander surveys through potential habitat.

3.1.1 Significant impact assessment findings (Ecosure, 2018)

The field and subsequent impact assessment of the site (Ecosure, 2019) identified that the development is likely to cause a significant impact to the koala and squatter pigeon.

One koala was observed on the site in August 2015 during a dry season survey. Koala faecal pellets from five sites across the project area were recorded in 2016 (see *Figure 4*). Koala habitat was found to occur across the site:

- Primary food trees - *Eucalyptus tereticornis*, *E. crebra*, *E. molucanna*, *E. exserta* were found across the site.
- Secondary food trees - *Corymbia citriodora* occurred on site.
- Koala habitat was identified from the pre-clearance REs that contained vegetation communities with koala food trees, intersected with areas of remnant and regrowth vegetation greater than 15 years old.
- Approximately 96 hectares of koala habitat was identified to be directly or indirectly impacted by the proposed development.

Numerous sightings of squatter pigeons were recorded within the impact site during the three fauna surveys. The entire lot was categorised as preferred habitat of squatter pigeon based on preclearance REs that contained vegetation communities appropriate for squatter pigeons, intersected with areas of foliage cover greater than 40%. Approximately 162 hectares of squatter pigeon was identified to be directly or indirectly impacted by the project.

The report identified that there was unlikely to be a significant impact to preferred habitat for any other MNES threatened and migratory species or threatened ecological communities.

Figure 3: Project site (impact area)

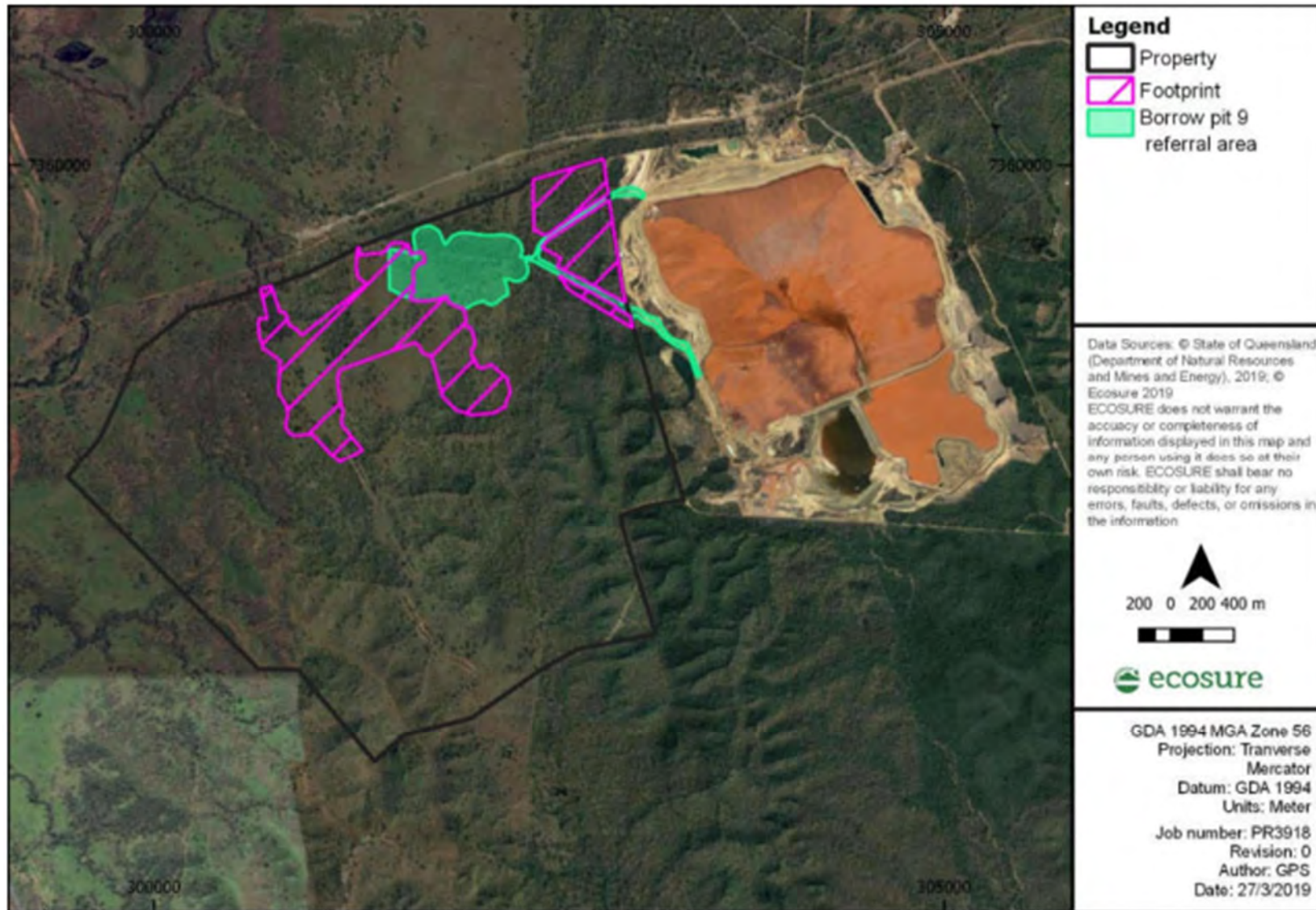
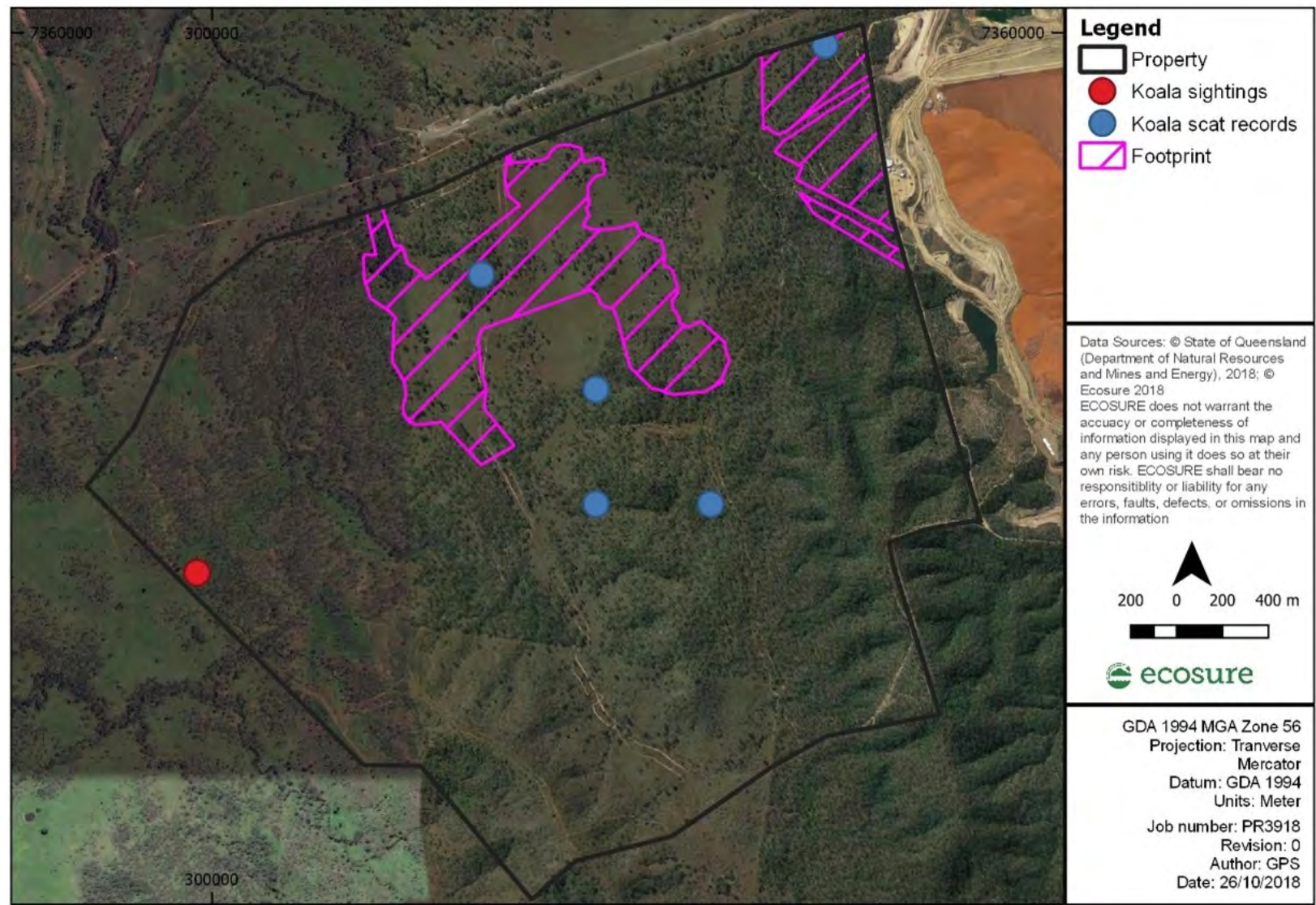


Figure 4: Koala sighting and scat records



3.2 Biodiversity values of the impact site

A search of the pre-clearing RE mapping shows that two land zones occur at the site, being land zones 3 and 11. The RE descriptions (Queensland government) land zone definitions describe these zones as:

- Land zone 3: recent Quaternary alluvial systems, including closed depressions, paleo-estuarine deposits currently under freshwater influence, inland lakes and associated wave-built lunettes.
- Land zone 11: metamorphosed rocks, forming ranges, hills and lowlands. Primarily lower Permian and older sedimentary formations which are generally moderately to strongly deformed.

The RE mapping for the impact site (and lot) was field verified and mapped.

The land to be impacted by the project is remnant and non-remnant vegetation, including regrowth vegetation containing scattered trees and grassland, having previously been used for cattle grazing. To assist determining the vegetation types occurring on the site before clearing, a preclearance RE map was prepared by Ecosure. The vegetation occurring on the lot was mapped by Ecosure (*Figure 5*). The vegetation that is likely to have occurred on site, has been determined based on preclearance RE mapping (Ecosure, 2018) and is illustrated in *Figure 6* and summarised in *Table 6*. The broad vegetation groups (BVGs) for each RE are also identified in *Table 6*.

Based on the existing remnant vegetation, non-remnant vegetation, and preclearance mapping, Ecosure (2018) identified the habitat for koala and squatter pigeon, to be impacted by the project. The habitat for each species is identified in *Figure 7* and *Figure 8*.

Table 3 of the EPBC 2018/8381 Referral Request for Information Response 11 April 2019 (Rio Tinto Yarrow Pty Ltd – refer to *Attachment 1B*) details the squatter pigeon habitat assessment that was undertaken for the Project and finds that the area is utilised for dispersal as per the definition in use at that time.

Table 6: Impact area existing and preclearance RE types supporting koala and squatter pigeon (from Ecosure, 2018)

RE	RE short description	BVG	Notes
11.3.4	<i>Eucalyptus tereticornis</i> woodland to open forest.	BVG1M:16c	May occur as non-remnant vegetation on site (from preclearing mapping - part code)
11.3.25	<i>Eucalyptus camaldulensis</i> or <i>E. tereticornis</i> open forest to woodland.	BVG1M:16a	May occur as non-remnant vegetation on site (from preclearing mapping - part code)
11.3.26	<i>Eucalyptus moluccana</i> or <i>E. woollsiana</i> +/- <i>E. populnea</i> +/- <i>E. melanophloia</i> tall open forest to woodland +/- <i>Allocasuarina luehmannii</i> low tree layer and a grassy ground layer.	BVG1M:13d	May occur as non-remnant vegetation on site (from preclearing mapping - part code)
11.11.4 and 11.11.4c	<i>Eucalyptus crebra</i> woodland +/- <i>Corymbia citriodora</i> +/- <i>E. tereticornis</i> +/- <i>C. tessellaris</i> +/- <i>Lophostemon suaveolens</i> with <i>Xanthorrhoea</i> spp. and	BVG1M:13c/ BVG1M:13d	Occurs as remnant vegetation and non-remnant (from preclear mapping)

RE	RE short description	BVG	Notes
	<i>Macrozamia</i> spp. often present in shrub layer.		
11.111.15	<i>Eucalyptus crebra</i> +/- <i>Corymbia erythrophloia</i> +/- <i>E. populnea</i> +/- <i>E. melanophloia</i> +/- <i>C. tessellaris</i> +/- <i>C. clarksoniana</i> woodland to open woodland often with a shrubby layer.	BVG1M:13c	Occurs as remnant vegetation and non-remnant (from preclear mapping)

3.3 Offset habitat values of the impact site

The impact site, including the area identified to be offset, and the habitat quality score is provided in Table 7. The area requiring offsets was prescribed in the approval conditions. The habitat quality score was determined by suitably qualified ecologists (Ecosure, 2018).

Table 7: Impact site fauna habitat values

Protected matter and habitat definition (approval conditions) ²	EPBC status	Impact area (ha)	Habitat quality score
<i>Phascolarctos cinereus</i> (Koala) Forest or woodland (including remnant, regrowth and modified vegetation communities) containing species that are Koala food trees and any shrub land with emergent Koala food trees. Koala food tree/s means trees species of <i>Angophora</i> , <i>Corymbia</i> , <i>Eucalyptus</i> or <i>Lophostemon</i> that are greater than 10cm in diameter at breast height and for which there is sufficient evidence that the tree species is known to comprise part of the diet of the Koala (<i>Phascolarctos cinereus</i>) (combined populations of QLD, NSW and ACT).	Vulnerable	96	7
<i>Geophaps scripta scripta</i> (Squatter pigeon - southern) The Queensland REs and other habitat features identified as foraging habitat and dispersal habitat in the <i>EPBC 2018/8381 Referral Request for Information Response</i> April 2019 and attachments.	Vulnerable	162	7

² Approval: Expansion of borrow pits, Lot 7 Aldoga Road, Aldoga, Queensland (EPBC 2018/8381), Condition 1

Figure 5: Field-validated REs in the impact area

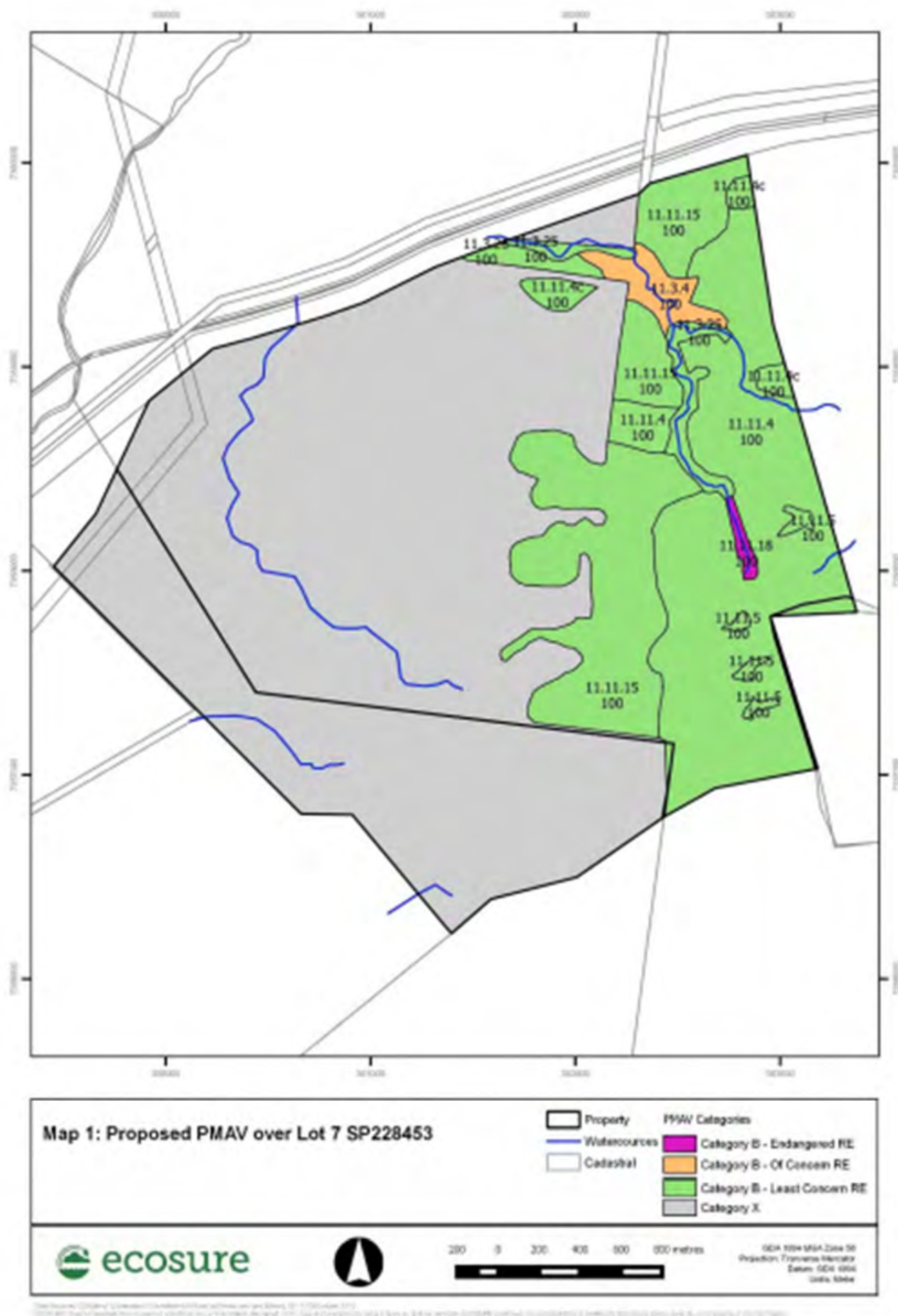


Figure 6: Impact site – pre-clearing RE mapping (2018)

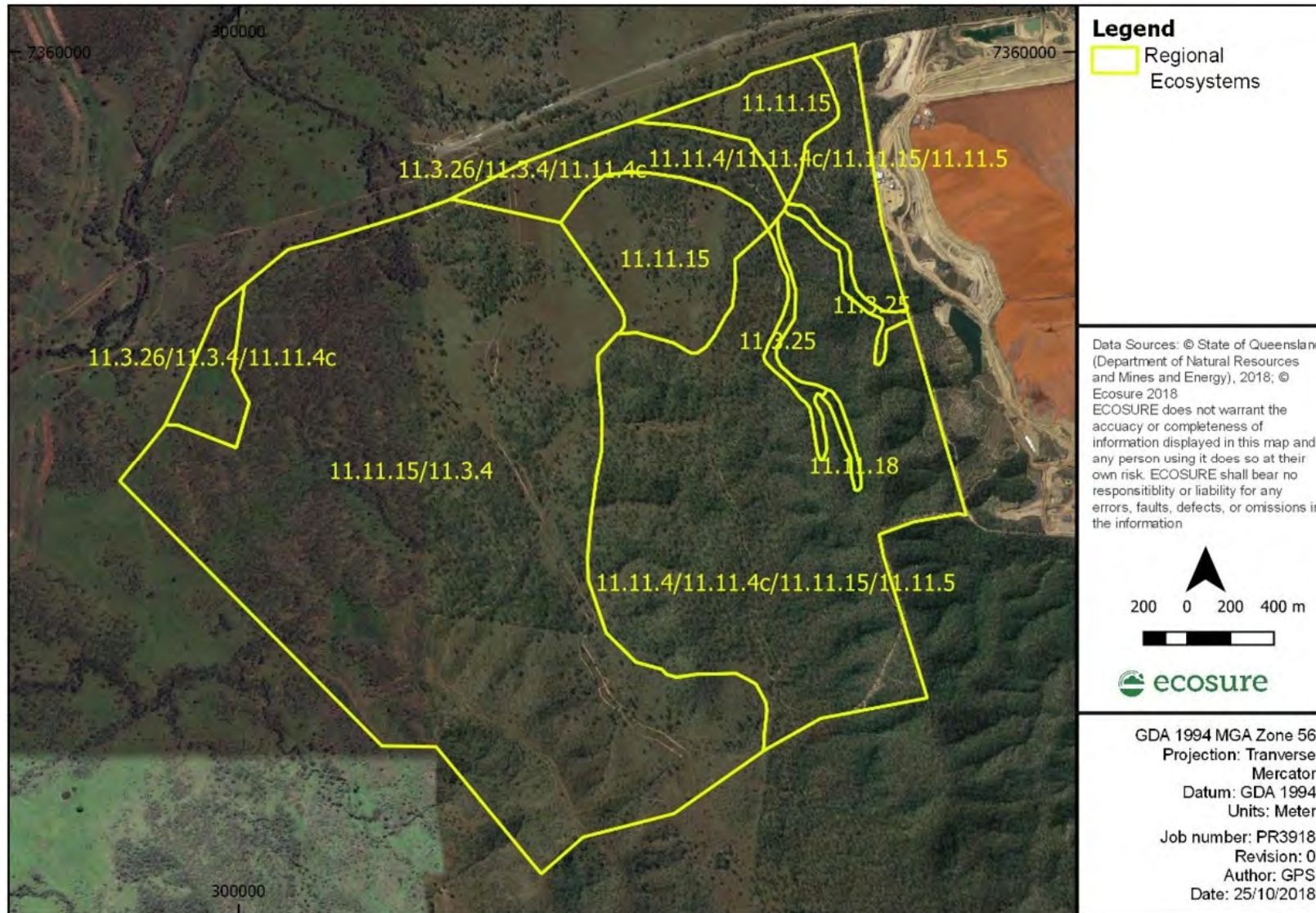


Figure 7: Impact site – koala habitat

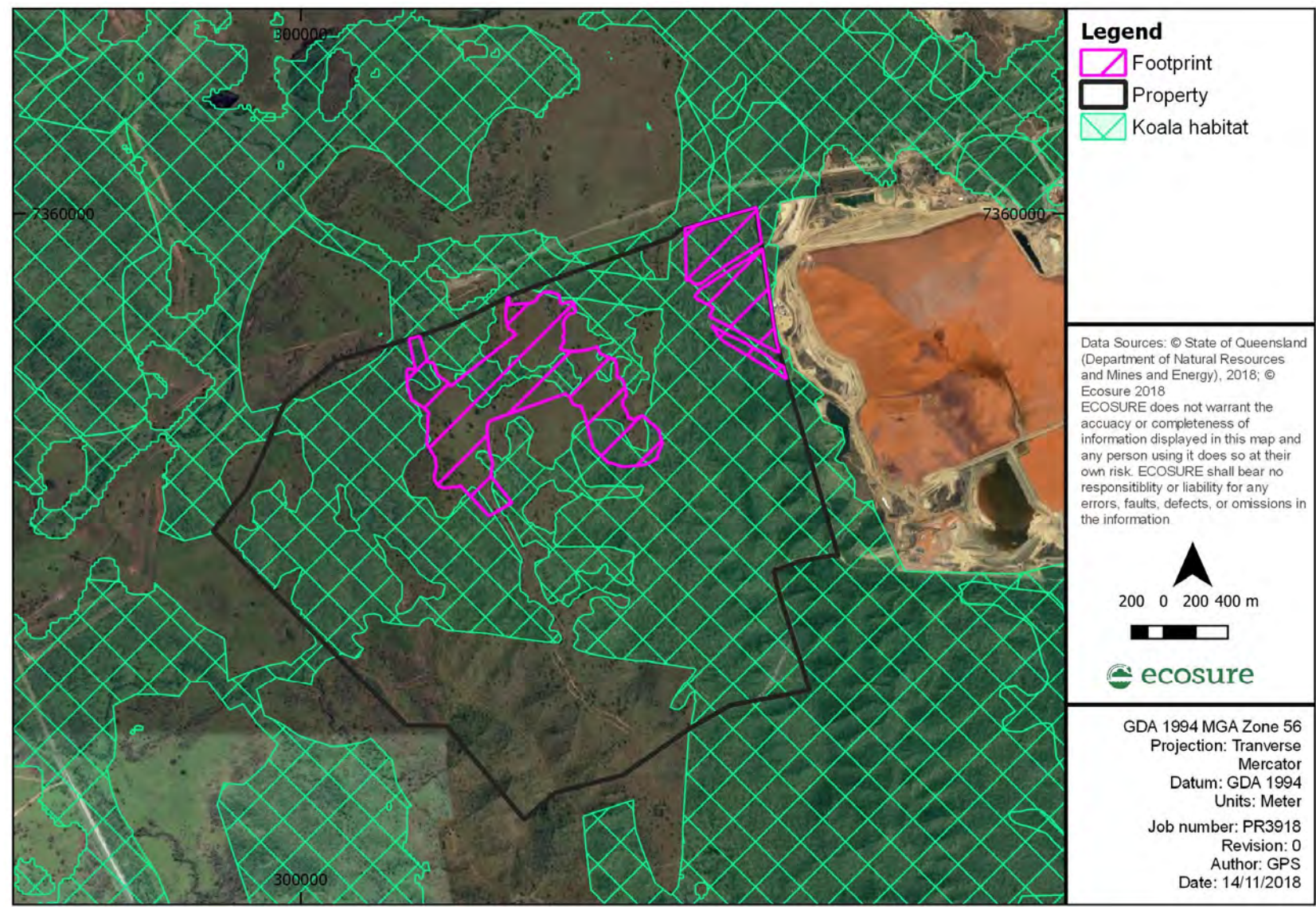
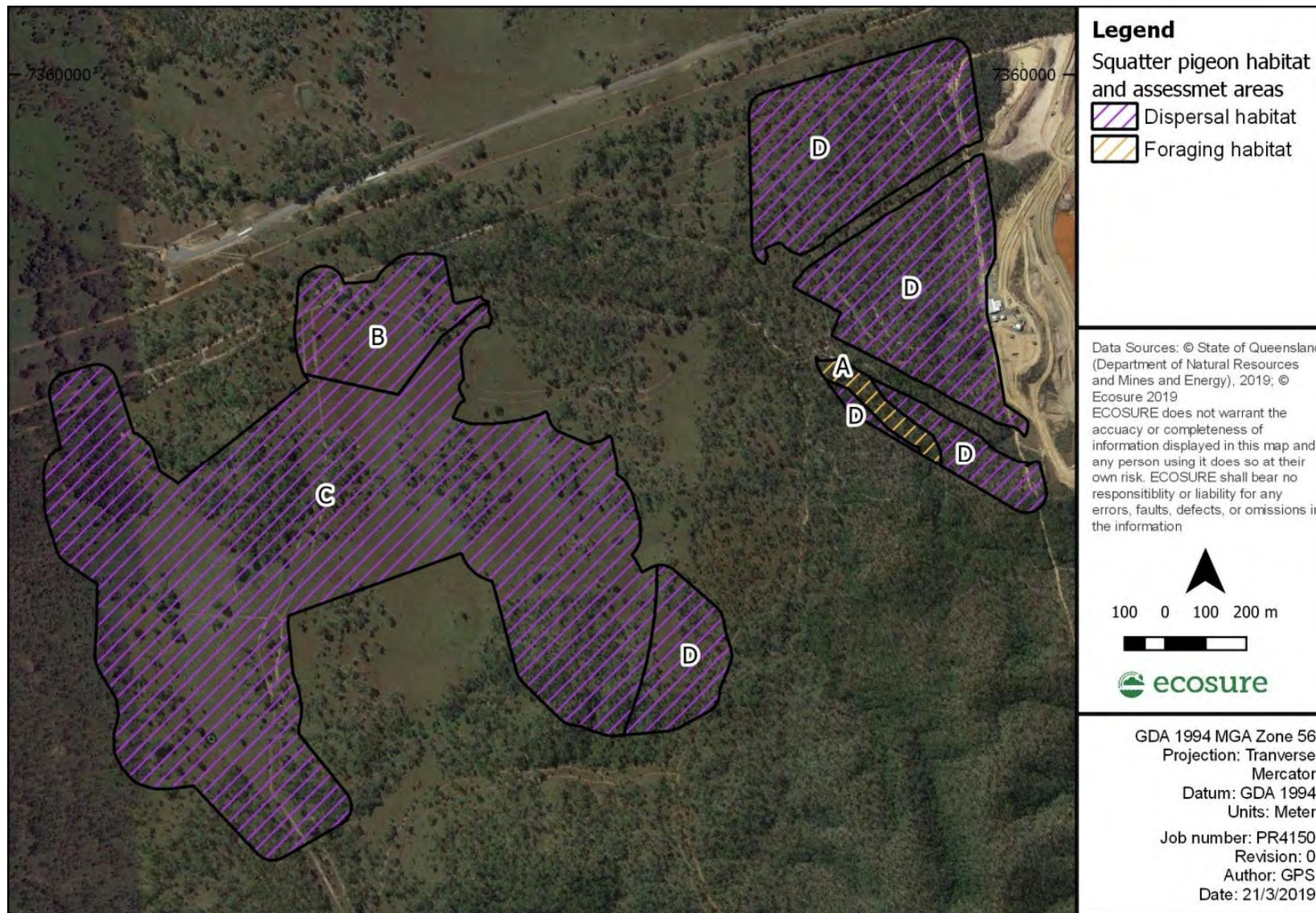


Figure 8: Impact site – squatter pigeon habitat



Part B: Land Management Plan

4 Offset property

4.1 Overview of the offset property 'Connie Creek'

As described in *Section 1.4*, the property Connie Creek is a property of 5,560ha in area that rises into the coastal ranges to the west of the township of St Lawrence. The property is located approximately 160 km north-west of Rockhampton, 140 km south of Mackay and 20 km west of St Lawrence. The property is accessed from the Croydon-St Lawrence Road.

Due to the property rising from the coastal plains to the coastal ranges, the property contains regional ecosystems from both the Central Queensland Coast and Brigalow Belt (North) bioregions.

The elevation rises from 40m on the coastal plains to 430m on the coastal range. Evelyn Peak (455m) is a feature in the centre of the property forming the eastern edge of a significant plateau (circa 600ha in area) which then joins Catherine Peak (555m) on the southern boundary of the property. Catherine Peak is part of the coastal range.

The eastern (coastal plain) part of Connie Creek is dissected south to north by Blackfellow Creek and Six Mile Creek. The western, elevated part of the property is dissected, south to north by Stony Creek. All creek systems are a Stream Order 3, empirical and fast flowing during rainfall events. This contributes to the considerable erosion that can be seen in the systems.

All drain into Connie Creek to the north, which flows into St Lawrence Creek and the Great Barrier Reef lagoon just to the North of St Lawrence township.

The western portion of the property rises into the coastal ranges and is situated between Glencoe State Forest (2054ha) is 2.5km to the North of the property. Mount Buffalo State Forest (2073 ha) is 9.5km to the South. The coastal range in this district is acknowledged as a hot spot for koalas as identified by the 2018 Central Queensland University research project (Melzer, A., Santamaria, F., and Allen, S. (2018)). The presence of squatter pigeon was confirmed adjacent to the offset area during the field surveys undertaken in 2023.

The property is currently used for extensive cattle grazing, has no infrastructure and the level of management is low due to this. Feral animals and wildfire are often present on the property due to the lack of management and infrastructure.

Large swathes of remnant vegetation are present on the ridgelines on the western boundary of the property. One section of the OIA was located on the western property boundary (543.56 ha) and another section of the OIA was located on the lower flood plains to the east (248.83 ha). In total, areas of ground-truthed vegetation and habitat in the OIA covers an area of 792.39 ha.

The property is suitable for locating the offsets for a number of reasons:

- The relevant field-verified biodiversity values are present on the offset property (*Figure 9*).
- The offset area is located within a corridor of State significance (*Figure 10*).
- The property management objectives align with the offset management objectives
- There is potential for the future location of other offsets on the same property for other projects, thus creating larger areas of biodiversity offsets and achieving a better environmental outcome.

Table 8 identifies the specific areas on Connie Creek that are suitable for each MNES being offset (see Section 6 for further details).

Table 8: Regional ecosystems for MNES offsets on Connie Creek

Regional ecosystem	Koala	Squatter pigeon (southern)
8.12.7a	X	X
8.12.7	X	X
8.12.5a	X	X
8.12.22	X	X
11.3.35	X	X
11.3.29a	X	X
11.3.29		X
11.12.6a	X	X
11.11.15	X	X

4.1.1 Connectivity

Approximately 80% of the property itself is within a large landscape corridor of state significance (see Figure 10). This corridor is recognised in the Queensland Government Biodiversity Planning Assessment Mapping and links the important refuges of the Glencoe State Forest and Mount Buffalo State Forest. Blackfellow Creek and Stony Creek, which dissect the proposed offset property, reinforce this connectivity. Both creeks are stream order 3 and drain into Connie Creek to the north, which flows into St Lawrence Creek and into the Great Barrier Reef lagoon just north of the township of St Lawrence. Although the condition of vegetation along these waterways is threatened by weed invasion, these waterways are likely to play a role in maintaining landscape connectivity, particularly with the long-term benefit brought by the implementation of the offset management actions (see Section 8).

Figure 9: Field-verified regional ecosystems – Connie Creek

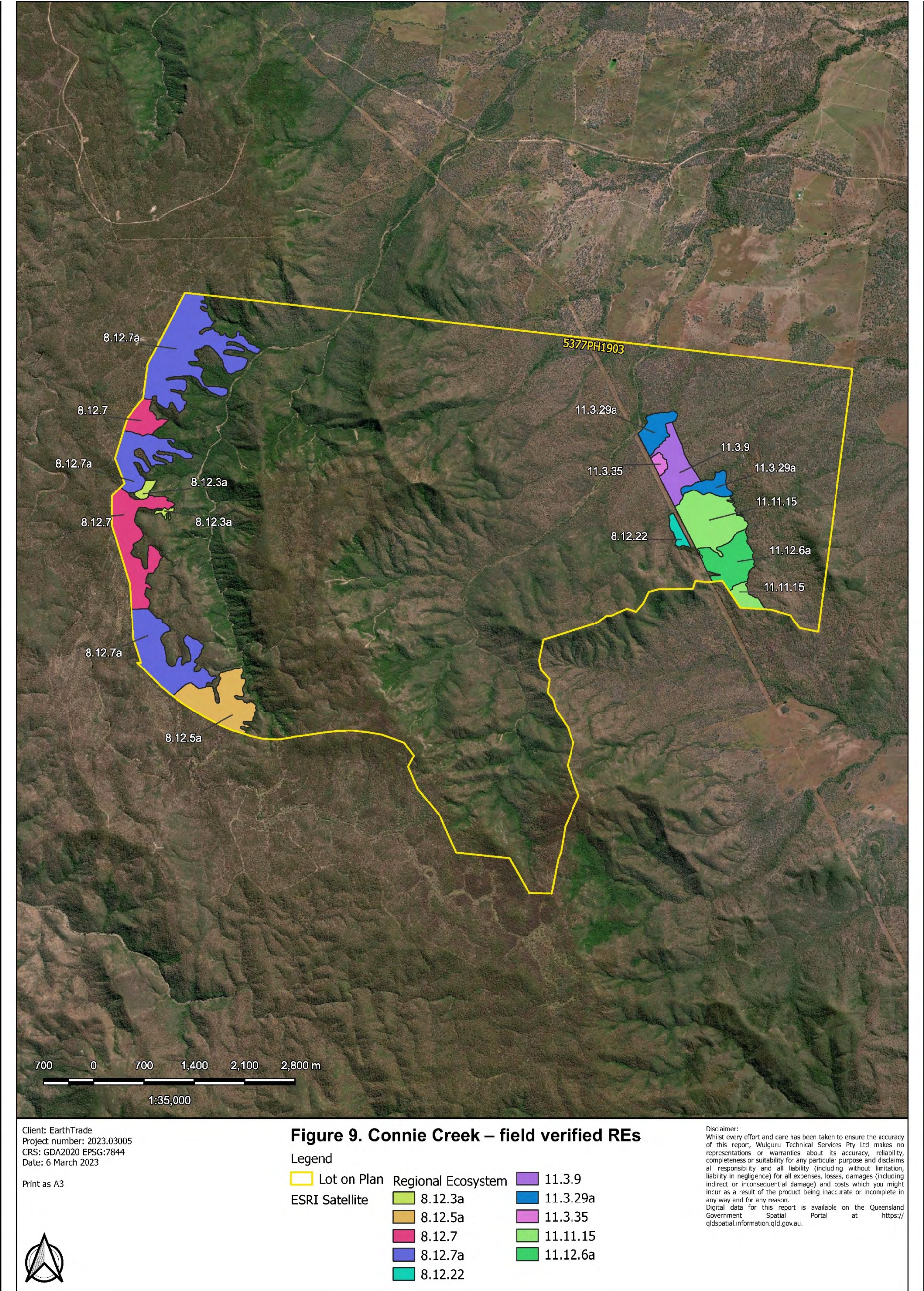


Figure 10: Biodiversity corridors – Connie Creek



5 Offset site biodiversity values

5.1 Site assessment methodology to determine ecological values

Preliminary desktop assessment

This assessment consisted of a desktop review to identify values that may be present, which informed the design of a field survey and sampling program to describe on-ground conditions and to assess the known, likely, and potential occurrence of significant ecological values within the OIA.

A number of desktop sources were reviewed to identify ecological values that may occur within the Connie Creek and the OIA. A wider Study Area, defined by a 10 km buffer around the Connie Creek property boundary was used for the database searches. The EPBC Act Protected Matters Search Tool and Queensland Department of Environment and Science Wildlife Online search results were cross-checked using the Atlas of Living Australia database locations of records in the context of the Study Area.

The desktop review, through the likelihood of occurrence analysis detailed in Section 2.3 of the survey report, and located in Appendix A of the survey report,³ provided information on species known or likely to occur within the OIA, based on species records, the availability of suitable habitat, breeding, roosting, denning and foraging sites for fauna, Ramsar sites for waterbirds, and habitat for flora.

Field survey work

Three field investigations were undertaken within the OIA in January, February and April 2023. Four ERM ecologists undertook a 3-day field assessment of the OIA from 11 to 14 January 2023, with a total of 60 person hours on the ground. The survey involved vegetation and habitat assessments, and targeted threatened species surveys. Four ERM ecologists undertook a 5-day field assessment of the OIA from 30 January to 3 February 2023, with a total of 100 person hours on the ground. This survey involved TEC ground-truthing and validation, habitat assessments, and targeted threatened species. Two ERM ecologists undertook a 4-day field assessment of the OIA from 17 April to 20 April 2023 with a total of 40 person hours on the ground. The surveys involved vegetation and habitat assessments including BioCondition and modified habitat quality assessment plots.

The survey guidelines for species or groups of species included:

- *Survey Guidelines for Australia's Threatened Mammals (as listed under the EPBC Act)* (DSEWPAC, 2011)
- *EPBC Act referral guidelines for the vulnerable koala* (DoE, 2015)
- *Survey guidelines for Australia's threatened birds (as listed under the EPBC Act)* (DEWHA, 2010)
- *A review of koala habitat assessment criteria and methods* (Commonwealth Information Sheet) (Youngentob et al, 2021)
- *Terrestrial Vertebrate Fauna Survey Guidelines for Queensland* (DES, 2018).

³ ERM (2023). *RTA Yarwun Pty Ltd: RMA 1 Borrow Pits and RMA 2 Biodiversity Offsets Offset Investigation Area Ecological Report*.

Targeted survey effort for the squatter pigeon (southern) was undertaken diurnally. Area searches and transect surveys in suitable habitat were completed in accordance with *Survey guidelines for Australia's threatened birds*. Flushing surveys were also utilised in suitable locations.

Scat and scratch marks searches were undertaken for koala as per the *Survey Guidelines for Australia's Threatened Mammal (as listed under the EPBC Act)*. Scat searches are not a specific survey guideline recommendation for locating greater gliders, however this method has been listed in the *Terrestrial Vertebrate Fauna Survey Guidelines for Queensland* as a means to locate cryptic and nocturnal species.

Three threatened species were recorded during the field surveys, being the koala, squatter pigeon, and the greater glider.

5.2 General description and vegetation habitat values

The Study Area was classified into 8 broad habitat types, defined based on vegetation type and structure, as well as utilising the RE Broad Vegetation Group naming conventions. These broad habitat types have then been considered as respective foraging, breeding, roosting and dispersal functions for the listed targeted threatened species that are known or likely to occur within the OIA boundary (refer Appendix A of the field survey report). This ground-truthed habitat mapping was used to identify areas of habitat for listed threatened species that are MNES.

A total of 792.39 ha of ground-truthed REs were mapped and verified within the OIA. RE 8.12.7a is listed as an 'of least concern' RE and covers 227.07 ha of the OIA. RE 8.12.7a and RE 8.12.7 dominate the OIA, occupying 227.07 and 81.08 ha respectively.

The habitats in the Study Area are mostly in moderate to low condition, particularly those heavily associated with the native timber harvesting and grazing land use (regrowth non-remnant areas), with signs of degradation due to cattle grazing, erosion, and the presence of introduced flora species. A summary of these habitat types, along with their vegetation communities' classifications and attributes, is provided in Table 3-6 of the field survey report.

6 Offset site start values

The results of the habitat quality assessments of the two different vegetation structures (remnant and regrowth) and the various assessment units that occur within the offset areas are detailed within the field data sheets that are provided within the ecology reports (see *Attachment 1C*) and were transcribed into the Offset Assessment Guide (DCCEEW) (**OAG**). The detailed habitat quality assessment tables are provided at *Appendix B*.

Figure 11 and *Figure 12* provide detailed maps of the proposed offset areas for each of the species being offset (koala and squatter pigeon). The quantum of each of the offset areas have been determined utilising outputs from the DCCEEW OAG.

6.1 Koala

The koala is a medium-sized marsupial with a stocky body, large, rounded ears, sharp claws and variable but predominantly grey-coloured fur. Males are typically larger than females. Its morphological appearance changes gradually from south to north across its range, with larger individuals in the south and smaller individuals in the north. The average weight of males is 12 kilograms in Victoria compared with 6.5 kilograms in Queensland. In the south, the koala is

characterised by longer, thicker, brown-grey fur, whereas in the north it has shorter, silver-grey fur (Martin & Handasyde 1999).

The population of the listed koala has a wide but patchy distribution that spans the coastal and inland areas of Queensland north to the Herberton area, extending westwards into hotter and dryer semi-arid climates of central Queensland, NSW and the ACT. Koalas in Queensland inhabit the moist coastal forests, southern and central western subhumid woodlands, and a number of eucalypt woodlands adjacent to waterbodies in the semi-arid western parts of the state (Melzer et al. 2000). In many locations, koala populations are of low density, widespread and fragmented (Melzer et al. 2018). Surveys in north-western Queensland found that koalas were patchily distributed, associated with creek-lines, areas of higher tree species richness, with higher abundance correlating with leaf-moisture content (Munks et al. 1996).

The natural range of the koala is determined by specialist food, habitat and environmental requirements. Typically, this includes forests and woodlands dominated by eucalyptus species (Melzer et al. 2000). The koala's home range (the area an individual needs to survive) is highly variable and dependant on life history stage, soil fertility, habitat quality and nutritional requirements. Consequently, home ranges across the species' distribution are highly variable, with home ranges in Queensland reported to vary between 3 and 500 ha (Wilmott 2020).

Koalas of the St Lawrence area contains a widespread population of moderate density that occurs around the Bruce Highway from St Lawrence to Granite Creek along the Styx River catchment area. This population extends from the Connors Range in the West and the coast from Clairview to Camilla in the North. This suggests that this population is valued as a major regional koala population for this portion of the Central Queensland coast. The estimated density for the area was 0.12 koalas/ ha in comparison to Queensland population densities ranging from 0.01 koalas/ ha to between 1 and 2.5 koalas/ha and Central Queensland populations ranging from 0.01 to 0.4 koalas/ ha. In addition, this population has endured intense dry spells lasting several months along with extensive tree mortality occurring throughout the Central Queensland region, suggesting that the population represents a drought refuge which is vital for the regions' koala conservation (Melzer, 2011, Melzer, Santamaria and Allen, 2011). The Melzer 2011 study had created a likelihood of koala occurrence table based on their constituent plant communities occurring within their Study Area. Some of these plant communities correlate with REs located within the OIA, including RE 11.3.25 and 11.3.29. These REs are ranked as a high likelihood of occurrence, 11.3.25b and 11.3.29a are ranked as a moderate likelihood of occurrence, 11.12.6a are ranked as a low likelihood of occurrence, and 8.12.22 are ranked as very low likelihood of occurrence.

6.1.1 Koala – offset site attributes

The koala scoring method in the MHQA utilised the indicators of tree canopy, tree sub-canopy, and large trees. The assessment of the quality and availability of habitat required for shelter/ breeding and food/ foraging for koalas scored highly within the western side of the OIA in comparison to the eastern side. Along with confirmed sightings during the field survey, evidence of koala scat and scratch marks along trees within several REs were present, indicating the presence of the species throughout the broader OIA and not just the surveyed area. This is supported by the desktop evidence of records of the species occurring within the locality.

Suitable habitats for Koala occur within all eucalypt open forest and woodland broad vegetation groups in the OIA, including REs 8.12.5a, 8.12.7, 8.12.7a, 8.12.22, 11.3.35, 11.3.29, 11.12.6a, 11.11.15b, 11.11.15, 11.3.29a. This represents a total of 516.88 ha of potential koala habitat within the OIA.

The habitat quality assessment results for the koala offset area are summarised in *Table 9*. The koala offset area is shown in *Figure 11*.

Figure 11: Koala offset area – Connie Creek

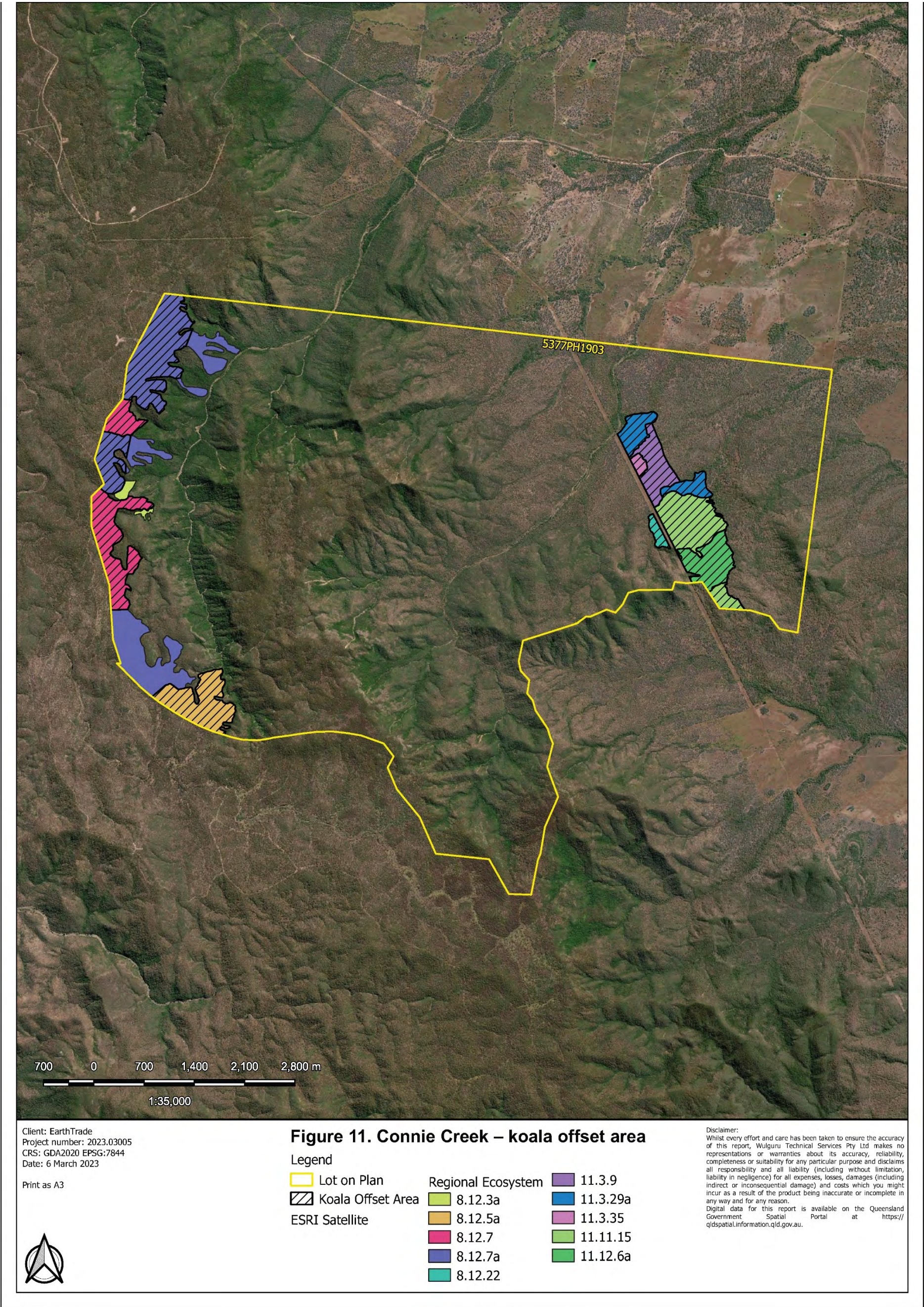


Table 9: Koala area habitat quality assessment results

RE	Description	Assessment sites	Polygon	Type of vegetation	Start habitat quality score	Area (ha)	Regulated vegetation?	Contribution to offset area as a % of the final area (ha)
8.12.7a	<i>Corymbia citriodora</i> and <i>Eucalyptus portuensis</i> open forest to woodland (12-27m tall)	15, 4, 6	3	Remnant	7	121.00	Yes	29.46%
8.12.7	<i>Corymbia citriodora</i> +/- <i>Eucalyptus portuensis</i> +/- <i>E. drepanophylla</i> (or <i>E. crebra</i>) open forest on hill slopes and undulating plateaus on Mesozoic to Proterozoic igneous rocks	1, 5	1	Remnant		81.00	Yes	19.72%
8.12.5a	<i>Lophostemon confertus</i> and/or <i>Eucalyptus portuensis</i> (or <i>E. exserta</i>) open forest to closed scrub (5-38m tall).	3	5	Remnant		55.80	Yes	13.59%
8.12.22	<i>Eucalyptus drepanophylla</i> and/or <i>Corymbia clarksoniana</i> +/- <i>C. erythrophloia</i> +/- <i>E. platyphylla</i> +/- <i>E. exserta</i> +/- <i>C. trachyphloia</i> woodland on hills and ranges at low to moderate altitudes in drier areas	11	2	Remnant		6.70	Yes	1.63%
11.3.35	<i>Eucalyptus platyphylla</i> , <i>Corymbia clarksoniana</i> woodland on alluvial plains	8	7	Remnant		4.90	Yes	1.19%
11.3.29a	<i>Eucalyptus crebra</i> +/- <i>Corymbia dallachiana</i> +/- <i>C. erythrophloia</i> , <i>E. moluccana</i> woodland	7, 10	4	Remnant		32.80	Yes	7.99%
11.12.6a	<i>Eucalyptus crebra</i> +/- <i>Corymbia citriodora</i> and/or <i>E. acmenoides</i> +/- <i>Lophostemon suaveolens</i> woodland to open forest.	9	6	Remnant		39.10	Yes	9.52%
11.11.15	<i>Eucalyptus crebra</i> woodland to open woodland on deformed and metamorphosed sediments and interbedded volcanics			Remnant		69.40	Yes	16.90%

6.2 Squatter pigeon (southern)

The squatter pigeon (southern) is a medium-sized, ground-dwelling pigeon that measures approximately 30 centimetres in length and weighs about 190-250 grams. Adults are predominantly grey-brown, but have black and white stripes on the face and throat, blue-grey skin around the eyes, dark-brown (and some patches of iridescent green or violet) on the upper surfaces of the wings, blue-grey on the lower breast and belly, white on the lower region, flanks of the belly and extending onto the under surfaces of the wings, and a blackish-brown band along the trailing edge of the tail. They have black bills, dark-brown irises, and dull-purple legs and feet. The sexes are similar in appearance (Higgins & Davies 1996).

In Queensland, squatter pigeon (southern) foraging and breeding habitat is known to occur on well-draining, sandy or loamy soils on low, gently sloping, flat to undulating plains and foothills (i.e. Queensland RE land zone 5), and lateritic (duplex) soils on low 'jump-ups' and escarpments (i.e. Queensland RE land zone 7) (Squatter Pigeon Workshop 2011). Recent evidence suggests that the squatter pigeon also breed within recent Quaternary alluvial systems (i.e. Queensland RE land zone 3) (Squatter Pigeon Workshop 2011).

6.2.1 Squatter pigeon (southern) - offset site attributes

The squatter pigeon scoring method focused on the following indicators: remnant or regrowth open-forest to sparse open woodland, distance to water; and stony rises on sandy gravelly soils. The assessment in the quality and availability of habitat required for shelter/breeding and food/foraging for the squatter pigeon had a low score in both the western and eastern side of the OIA.

Suitable habitat for squatter pigeon occurs across all REs in the OIA. The presence of squatter pigeon was confirmed adjacent to the offset area during the field surveys undertaken in 2023. This supports the recorded individual from the desktop assessment results that had occurred within the locality.

A supplementary survey on Connie Creek was undertaken in February 2024 which confirmed the presence of squatter pigeon (southern) on the offset area. The report for this survey is provide at *Attachment 1D*.

The habitat quality assessment results for the squatter pigeon offset area are summarised in *Table 10*. The squatter pigeon offset area is shown in *Figure 12*.

Figure 12: Squatter pigeon (southern) offset area – Connie Creek

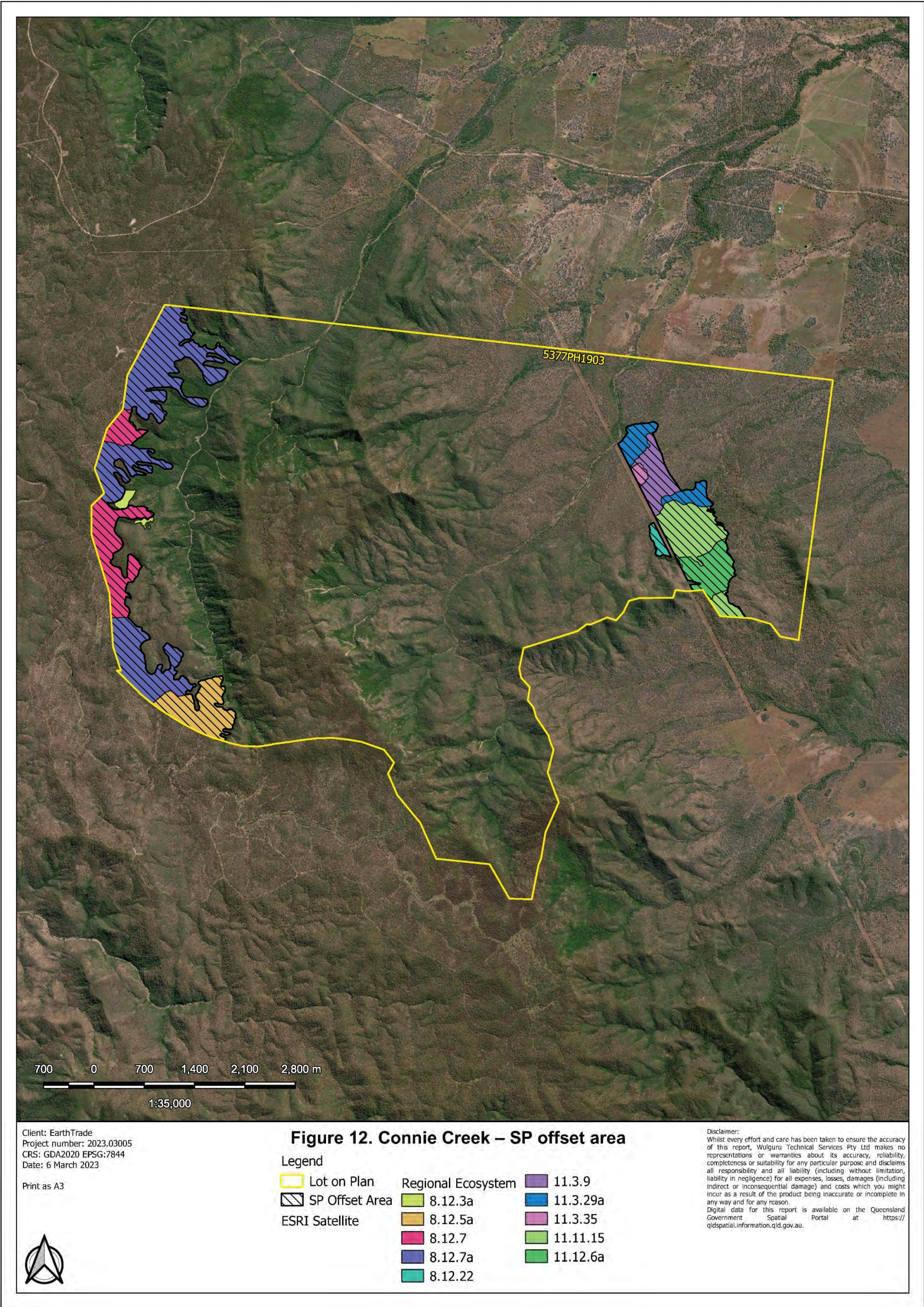


Table 10: Squatter pigeon (southern) offset area habitat quality assessment results

RE	Description	Assessment sites	Polygon	Type of vegetation	Start habitat quality score	Area (ha)	Regulated vegetation?	Contribution to offset area as a % of the final area (ha)
8.12.7a	<i>Corymbia citriodora</i> and <i>Eucalyptus portuensis</i> open forest to woodland (12-27m tall)	15, 4, 6	3	Remnant	7	226.90	Yes	41.21%
8.12.7	<i>Corymbia citriodora</i> +/- <i>Eucalyptus portuensis</i> +/- <i>E. drepanophylla</i> (or <i>E. crebra</i>) open forest on hill slopes and undulating plateaus on Mesozoic to Proterozoic igneous rocks	1, 5	1	Remnant		81.00	Yes	14.71%
8.12.5a	<i>Lophostemon confertus</i> and/or <i>Eucalyptus portuensis</i> (or <i>E. exserta</i>) open forest to closed scrub (5-38m tall).	3	5	Remnant		55.80	Yes	10.13%
8.12.22	<i>Eucalyptus drepanophylla</i> and/or <i>Corymbia clarksoniana</i> +/- <i>C. erythrophloia</i> +/- <i>E. platyphylla</i> +/- <i>E. exserta</i> +/- <i>C. trachyphloia</i> woodland on hills and ranges at low to moderate altitudes in drier areas	11	2	Remnant		6.70	Yes	1.22%
11.3.35	<i>Eucalyptus platyphylla</i> , <i>Corymbia clarksoniana</i> woodland on alluvial plains	8	7	Remnant		4.90	Yes	0.89%
11.3.29a	<i>Eucalyptus crebra</i> +/- <i>Corymbia dallachiana</i> +/- <i>C. erythrophloia</i> , <i>E. moluccana</i> woodland	7, 10	4	Remnant		32.80	Yes	5.96%
11.3.29	<i>Eucalyptus crebra</i> +/- <i>Corymbia dallachiana</i> +/- <i>C. erythrophloia</i> , <i>E. moluccana</i> woodland			Remnant		34.00	Yes	6.18%
11.12.6a	<i>Eucalyptus crebra</i> +/- <i>Corymbia citriodora</i> and/or <i>E. acmenoides</i> +/- <i>Lophostemon suaveolens</i> woodland to open forest.	9	6	Remnant		39.10	Yes	7.10%
11.11.15	<i>Eucalyptus crebra</i> woodland to open woodland on deformed and metamorphosed sediments and interbedded volcanics			Remnant		69.40	Yes	12.60%

6.3 Offset area start values

The results of the habitat quality assessments of the different vegetation community assessment units that occur within the offset areas are summarised in *Table 9* and *Table 10*. The field data sheets are provided within the ecology reports (see *Attachment 1C*). The detailed habitat quality assessment tables are provided at *Appendix B*.

A detailed map of the offset areas for each MNES in this management plan are shown at *Figure 11* and *Figure 12*. The offset area has been determined utilising outputs from the DCCEEW OAG. The full OAG outputs for each MNES are shown at *Appendix A*.

The inputs used in the OAG for each of remnant and regrowth vegetation, to calculate the area required for the offset area for each species are outlined in *Table 11*.

Table 11: Offset Assessment Guide inputs for koala and squatter pigeon

Attribute		Koala	Squatter pigeon
	EPBC status	Vulnerable	Vulnerable
	Vegetation status	Remnant	Remnant
Impact area (ha)		96.00	162.20
Impact quality		7	7
Time until ecological benefit		20 years	20 years
Start area (hectares)		410.70	550.60
Start quality (scale of 0-10)		7	7
Future quality without offset (scale of 0-10)		6	6
Future quality with offset (scale of 0-10)		8	8
Risk of Loss (ROL) without offset %		8%	8%
Confidence in ROL Result (%)		85%	100%
Confidence in Condition Result (%)		85%	85%
% of impact offset		123.58%	102.58%

7 Analysis of risks to achieving management objectives and offset completion criteria

Potential risks to achieving the management objectives and outcomes have been considered in the plan (*Table 13*). They have been assessed against the risk matrix (*Table 12*) that was supplied by DCCEEW. The risk matrix has been used to assess the risk that the plan's objectives will not be met and identify the sources of those risks and strategies for managing them.

The risk assessment:

- identified events that will, may, or are likely to impact the attainment of the completion criteria
- assessed the likelihood and consequences of those events, and characterises residual risk levels, taking into consideration the mitigation of the risk by implementing the management actions

- c) identified the level of uncertainty in mitigating the risk with the management actions and trigger criteria and corrective actions until the risk is reduced to an acceptable level.

Table 12: Risk matrix

RISK MATRIX						
Qualitative measure of likelihood (how likely is it that this event/circumstances 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 project				
Possible		Might occur during the life of the project				
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 <i>(e.g. short-term delays to achieving plan objectives, implementing low-cost, well-characterised corrective actions)</i>				
Moderate		Isolated but substantial instances of environmental damage that could be reversed with intensive efforts <i>(e.g. short-term delays to achieving plan objectives, implementing well-characterised, high-cost/effort corrective actions)</i>				
High		Substantial instances of environmental damage that could be reversed with intensive efforts <i>(e.g. medium-long term delays to achieving objectives, implementing uncertain, high-cost/effort corrective actions)</i>				
Major		Major loss of environmental amenity and real danger of continuing <i>(e.g. plan objectives are unlikely to be achieved, with significant legislative, technical, ecological and/or administrative barriers to attainment that have no evidenced mitigation strategies)</i>				
Critical		Severe widespread loss of environmental amenity and irrecoverable environmental damage <i>(e.g. plan objectives are unable to be achieved, with no evidenced mitigation strategies)</i>				
		Consequence				
Likelihood		Minor	Moderate	High	Major	Critical
	Highly Likely	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

Table 13: Risk assessment for the terrestrial offset sites

Note: The risk ranking codes relate to the risk matrix as follows: L = Likelihood C = Consequence R = Risk

Risk	Threats	Initial risk ranking			Management measures	Management measures/actions	Residual risk ranking		
		L	C	R			L	C	R
Force majeure events									
Mining of the offset site	No current permits cover the proposed offsets site. Open cut mining may produce full clearing of the offset site.	Rare	Critical	High	Offset area management	No current exploration or production permits cover the offset sites. The legal security over the site makes it known that the area is an offset. No available legal mechanism would render mining impossible on the offset site, however the declared area under the VM Act would significantly increase offset obligations upon any person proposing to impact the offset site.	Rare	Critical	High
Drought	The threat posed by drought is a decrease in DMY and groundcover, an increase in the likelihood of unplanned fire due to the dry conditions that could be started by lightning strike during storms and an increase in weed cover when rainfall was received. There would also be lower levels of growth expected.	Likely	Moderate	Medium	Offset area management Grazing management	Cattle will be excluded from the offset area during times of drought. Limited mitigation measures can be implemented. Should the offset be deemed by the approval holder or the Department to be delayed due to drought, both parties will work together to determine an appropriate response.	Likely	Moderate	Medium
Cyclones/ severe tropical lows/ flooding	The most significant impact from tropical cyclones or tropical lows is typically flooding. Systems generally form between November and April.	Likely	Moderate	Medium	Offset area management	Limited mitigation measures can be implemented. The offset areas on Connie Creek are in elevated parts of the landscape that do not experience flooding. Localised creek flows overtopping the banks would be the only impact for short periods of time. Wind damage to bigger trees would be expected to be the largest impact. However, cyclones and/or severe tropical lows are relatively infrequent (though likely to occur at some point during the life of the approval). However, flooding is not expected to be of sufficient duration, and winds are not expected to be sufficiently severe, to cause substantial long-term harm to the site. Additionally, the increased availability of soil moisture following extreme weather events is expected to increase growth rates, likely assisting natural repair of any potential damage. Increased soil moisture may assist weed growth, so a meander survey across the entire site will occur as soon after the end of a cyclone and any associated flooding as is safe and reasonably practicable to detect any areas of increased weed density. Flooding may also contribute to erosion (see below).	Likely	Minor	Low
Degradation of habitat or vegetation loss through land clearing									
Degradation of habitat	The degradation of habitat due to the lack of environmental management of the offsets area including appropriate grazing regimes, invasive plant control, fire management, and/or infrastructure maintenance.	Possible	High	Medium	Offset area management Grazing management	Implementation of the management actions and adaptive management framework as outlined in this OAMP.	Unlikely	Minor	Low
Erosion	Raindrops hit bare soil with enough force to break the soil aggregates. These fragments wash into soil pores and prevent water from infiltrating the soil. Water then accumulates on the surface and increases runoff which takes soil with it.	Highly likely	Minor	Medium	Offset area management Grazing management	The expected severity of erosion at this site may occur due to the topography of the site. However, that risk can be further reduced by decreasing stock movement in the Offset Area and maintaining a dry matter yield (DMY). DMY of at least 1,020kg/ha will be maintained at all times and stock will be removed from the offset site before that minimum level would be breached.	Possible	Minor	Low

Risk	Threats	Initial risk ranking			Management measures	Management measures/actions	Residual risk ranking		
		L	C	R			L	C	R
Timber harvesting/collection	Unauthorised access to the offset area may result in timber harvesting/collection Such actions would delay the establishment of the TEC.	Unlikely	Moderate	Low	Offset area management Site access control	Complete the installation of signage at all vehicle access points identifying the areas as an environmental offset, within six months of the approval of this OAMP. Complete the installation of any new planned fences, within twelve months of the approval of this OAMP. All field monitoring (rapid and detailed) will report on any evidence of timber harvesting.	Rare	Moderate	Low
Unplanned clearing	The offset site occurs within Connie Creek, a property that is used for cattle production. It is possible for unplanned/illegal clearing for agriculture activities but considered improbable as the offset site will be mapped as Category A on the property map of assessable vegetation (PMAV). Clearing can also occur by vehicles traversing the area off designated roads/tracks and/or illegal camping. This is also considered improbable, as the site is remote and access to the site will be restricted. The most plausible (though still unlikely) cause of unplanned/illegal clearing would be if aerial spraying on adjacent properties strayed across the offset boundary.	Unlikely	Major	High	Offset area management Site access control	Complete the installation of signage at all vehicle accesses identifying the areas as an environmental offset, within six months of the approval of this OAMP. Complete the installation of any new fences, within twelve months of the approval of this OAMP. Within six months of the approval of this OAMP, register a declared area over the Offset Site, ensuring it is shown as Category A vegetation on the PMAV. All monitoring (rapid and detailed) will report on any evidence of clearing.	Rare	Major	Medium
Fire: the impact from uncontrolled fire would be a reduction in groundcover, thinning of the canopy and slowing of the offset site achieving the completion criteria									
Unplanned or non-controlled fire in offset area.	The impact from uncontrolled fire would be a reduction in DMV and overall groundcover, thinning of the canopy, destruction of regrowth and emerging saplings and an overall slowing of the offset site achieving the completion criteria.	Likely	Moderate	Medium	Fire management	The Connie Creek offset site is largely comprised of remnant eucalypt species circa 12-22m in height. These communities are adapted to fire and the risk of a 100% loss is low due to lower DMV (fuel load) within the communities that are further managed with grazing.	Possible	Minor	Low
Increased fire risk due to high fuel loads	During periods when a low-level grazing regime has occurred and an average or above average wet season, there is an opportunity for fuel loads in the form of dry matter to accumulate to unacceptable levels. When this occurs and the high levels of fuel are present prior to summer, then the risk of wild and/or high-intensity fires is exacerbated.	Possible	High	Medium	Fire management	Graze to reduce DMV to no less than 1,020kg/ha. In the offset area, a cold fire is only to be used at >7 -year intervals during the months of June, July, August and September, when wind speeds are less than 5km/h on the offset site.	Unlikely	Minor	Low
Invasive plants: introduction, establishment and spread of non-native weeds including restricted invasive plants listed under the Biosecurity Act 2014 (Qld)									
New infestations of invasive weed species in the offset area.	Infestation of previously unidentified invasive weeds within the offset area. If a weed infestation is unchecked, it may cause a significant deterioration in the offset site.	Possible	High	Medium	Invasive plants management listed under the <i>Biosecurity Act 2014</i> (Qld)	The offset sites on Connie Creek are remote and access to the offset area will be limited, to reduce/prevent pathogen/propagule transmission vectors. All vehicles accessing the offset area are required to have undergone a weed inspection and vehicle hygiene check, confirming that they are weed free, before accessing the site. If a new weed infestation is identified, weed management measures will occur as per <i>Table 14</i>.	Unlikely	Minor	Low
Expansion of existing infestations of declared weed species in the offset area	The extent of existing infestations of restricted invasive plants species expand or the species become more abundant within the area.	Highly likely	High	High	Invasive plants management listed under the <i>Biosecurity Act 2014</i> (Qld)	Access to the offset area will be restricted. Chemical and/or mechanical control of all restricted invasive plants in accordance with the control measures outlined in the Biosecurity Queensland Fact Sheets or other sources of information.	Unlikely	Minor	Low
Pest/feral animals in the offset area									

Risk	Threats	Initial risk ranking			Management measures	Management measures/actions	Residual risk ranking		
		L	C	R			L	C	R
Increased population of feral animals in the offset area.	Wild cat, pig and dog populations are extensive and highly transient, and therefore the scale of impact is potentially large. Major damage to the environment/habitat occurs when large numbers of animals congregate in the area.	Highly likely	High	High	Pest animal management Feral pig management	Currently there is no control of pigs and wild dogs on the property. The Pastoral Manager, during quarterly inspections of the offset area will remove any wild cats, pigs or wild dogs that are seen. If an increase in pig or dog activity is noted, a trapping, baiting and/or control program is to be instigated until the increased activity has ceased.	Possible	Minor	Low
Degradation of habitat by overgrazing									
Unauthorised or inappropriate grazing in offset area	High density grazing over an extended period destroys shrubs and native grass cover and slows the regeneration of habitat. The natural condition of the native ground cover is a low cover and hence any grazing undertaken is to reduce exotic grass cover whilst retaining a minimum of 1,200kg/ha of DMY at the end of the dry season. Stocking rates are not fixed as this region is subject to significant changes in grass cover with seasonal conditions.	Possible	High	Medium	Grazing management	Fences are in working order and allow for exclusion of cattle when needed. Signage will be installed on all major access gates to ensure the Environmental Offset Area is well signposted. Stocking rates are not fixed as this region is subject to significant changes in grass cover with seasonal conditions. However, grazing used as required when DMY exceeds 1,200kg/ha and the fire risk is high. Cattle are excluded from all areas during the wet season. Cattle are excluded from the riparian offset areas. Cattle are excluded from all areas during drought and when DMYs are below 1,200kg/ha	Unlikely	Minor	Low
Degradation of habitat or vegetation loss through thickening of native vegetation									
Thickening of vegetation in the offset area	Clearing or the harvesting of the larger trees for sawlogs and other timber products has resulted in a large number of eucalypt seedlings establishing resulting in a thickened or high stem density. The soil has a finite resource of nutrients and water, and this high density of stems results in a situation whereby the stems cease growing and stay at an immature condition/size unless a force majeure event or intervention occurs to reduce the stem density and therefore allowing larger trees to establish and therefore hollows to be produced.	Possible	High	Medium	Offset area management	Ecological burns to be undertaken in the offset area only to reduce fuel loads and will be undertaken in accordance with the regional ecosystem description database guidelines.	Unlikely	Minor	Low
Offset fails to achieve the interim performance targets and/or completion criteria within the anticipated 5-, 10-, 15- and 20-year timeframes, respectively									
Offset fails to achieve the interim performance targets and/or completion criteria within the anticipated 5, 10-, 15- and 20-year timeframes, respectively	Failure to achieve and maintain offset completion criteria	Possible	High	Medium	Offset area management	Implement the management actions of this OAMP. Monitor and report on attainment of interim environmental performance targets and completion criteria.	Unlikely	High	Medium

8 Offset management measures

The terrestrial offset area management measures have been prepared in accordance with the specific requirements for the OAMP in the EPBC Act approval conditions (*Table 2*).

The offset area management measures include, but are not limited to, management actions required on the offset site to abate those threats identified to the koala and the squatter pigeon (southern). The offset area management measures provide for the management, reporting, and the monitoring program (*Table 17*) that will be undertaken for the period of EPBC Act approval. Protection of the offset area will be maintained under the VM Act as a Category A area of vegetation (vegetation subject to a restoration order or an offset).

The management actions include:

- Limiting vegetation clearing to only those areas required for maintaining fencing and fire control lines
- Prohibiting alternate land use and activities during the period of the declared area (e.g. timber harvesting, cropping)
- Restricting unauthorised access
- Excluding domestic livestock from the offset area except for the infrequent grazing associated with fuel reduction in dry periods
- Controlling feral animals
- Managing fire
- Controlling weeds

The management schedule describes the actions to be undertaken on the offset site (*Table 14*).

Regular offset area reports will be prepared by the proponent as listed in *Table 17* and *Table 18* (Refer to *Section 11*). These will report against each of the management actions shown in *Table 14*. These management actions enable the offset site to improve to achieve the scores in *Appendix A*, thus attaining and maintaining the completion criteria required of the offset. The reports will provide transparency regarding how the site management actions are being implemented, and where relevant, identify any force majeure events impacting the offset site, and any non-compliance with the management plan.

Table 14: Terrestrial offsets - management actions, triggers and corrective actions

The management actions shown in this table are consistent with the risks identified in the listing advice, conservation advices, and threat abatement plans in *Table 5*.

Threat to offset values	Management objective	Performance criteria	Management actions	Monitoring	Trigger for adaptive management and corrective action(s)	Corrective action and timing
<i>Degradation of habitat</i>	Achieve the completion criteria and habitat quality improvements for offset values, which include the habitat quality scores in this OAMP	Increase the habitat quality scores for each offset value at each habitat quality assessment site based on the results of baseline and subsequent monitoring events to achieve the scores in the completion criteria	Implementation of the management actions and adaptive management framework as outlined in this OAMP.	Monitoring of offset value habitat quality scores will be undertaken in accordance with <i>Section 11</i> . The results of monitoring events will be compared against the habitat quality scores in the interim performance targets and completion criteria to determine the progress of the offset area and recorded as part of reporting (see <i>Section 11</i>).	Habitat quality scores for interim performance targets are not achieved for one or more offset values by: - Year 5 - Year 10 - Year 15 - Year 20	Step 1: Investigate cause of trigger: - Within one month after detection of the trigger, complete an investigation into the reasons why the interim performance targets or the completion criteria were not achieved within the specified timeframes. - Within two months after detection of the trigger, complete a re-evaluation of the suitability of the relevant management measures in the OAMP. The re-evaluation must identify appropriate corrective actions. Step 2: Implementation of corrective action/s The appropriate corrective actions identified under Step 1 will be implemented as soon as practicable, and in any case within eight months after detection of the trigger. They may include (though are not limited to): - Third party review of the OAMP to provide input on the effectiveness of the management actions. - Increasing the frequency and intensity of pest animal and weed control measures or revising the type of measures to be implemented. - For offset values that have not achieved interim performance targets by year 20, for those offset values, the approval holder will obtain advice from senior ecologists and land managers with the aim of identifying appropriate additional management interventions
<i>Habitat or vegetation loss through land clearing</i>	Maintain the extent of offset value habitat within the offset area	No unapproved and/or intentional clearing of vegetation within the offset area, except for clearing that is required for fencing, access, firebreaks and public safety.	Protection of the offset area via a declared area under Section 19E and 19F of the VM Act, as described in <i>Section 12</i> , to be registered within six months of the approval of this OAMP.	Reporting to the Australian Government consistent with any and all EPBC Act approval(s).	Any activities in contravention of the declared area management plan.	Step 1: Investigate cause of trigger (e.g. unauthorised access) - As soon as practicable, and in any case within one month of detection of the trigger, identify appropriate corrective actions. Step 2: Implementation of corrective action/s - As soon as practicable, and in any case within two months of detection of the trigger, the appropriate corrective actions must be implemented. These may include (though are not limited to) additional fencing and/or signage and security for the offset area.
			Comply with the restrictions on clearing established throughout this OAMP. Construction and maintenance of access tracks, fencing and firebreaks will be undertaken in accordance with the requirements of <i>Table 14</i>. If vegetation clearing is required for fencing, access, firebreaks or public safety it must be undertaken in accordance with best practice	Quarterly inspections will monitor and document if there is evidence of recent forestry or timber harvesting activities. Monthly and quarterly inspections will monitor and document vegetation clearing that has occurred for fire break, access road or fence line maintenance.	Detection of prohibited forestry operations, native timber harvesting or clearing outside of established access tracks, fire control lines and fence lines (existing infrastructure).	- Step 1: Upon being notified or becoming aware of prohibited forestry operations, native timber harvesting or clearing outside of existing infrastructure, the approval holder is to assess how unauthorised persons accessed the site, review existing access restrictions, and inspect signage and offset area fencing within one fortnight of detection of the clearing. - Step 2: All actions required to prevent recurrence of the prohibited clearing will be completed within one month of detection of the clearing.

Threat to offset values	Management objective	Performance criteria	Management actions	Monitoring	Trigger for adaptive management and corrective action(s)	Corrective action and timing
			management methods and any applicable legislative requirements.			
<i>Degradation of habitat by overgrazing</i>	Ensure that any livestock grazing for fire management and weed control maintains and enhances the ground cover attributes for MNES and does not result in the degradation of habitat and vegetation	Increase the richness and average % cover of native perennial grasses at each habitat quality assessment site based on the results of baseline and subsequent monitoring events	Stock will be grazed only when required to reduce DMY (i.e.: when DMY exceeds 1,020kg/ha), and only during the dry season. The dry season is normally between April and December; however, if unseasonal rainfall should occur, then grazing is to be allowed.	Habitat quality assessments will be undertaken in accordance with <i>Section 11</i> . These will include assessment of percentage cover of native perennial grasses Dry matter yield measurements must be in accordance with the Brigalow Belt pasture photo standards. ⁴	Detection of stock grazing outside of the dry season, or during the exclusion period. Decrease in the richness and average ground layer cover at one or more habitat quality assessment sites based on the results of baseline and subsequent monitoring events.	Upon being notified or becoming aware of prohibited stock grazing in the offset area, the Pastoral Manager is to remove the stock from the area (if present) and assess the adequacy of fencing within 10 days. The Pastoral Manager is to undertake fence maintenance and repairs to resecure the offset area within 10 days.
<i>Introduction, establishment and spread of non-native weeds including restricted invasive plants listed under the Biosecurity Act 2014 (Qld)</i>	Manage restricted invasive plant species to reduce degradation of MNES habitat	Weed cover must not exceed 10% cover of the offset area by Year 20. No new restricted invasive plants listed under the <i>Biosecurity Act 2014</i> (Qld) are identified at any monitoring site (based on subsequent monitoring events).	The primary weed control method for exotic grasses will be grazing by cattle and then maintaining DMY and overall ground cover, which will be undertaken during the dry season (that is, from April to end of October each year). Parkinsonia will require foliar spraying or cut stump methods initially. Weed control will be undertaken as early as practicable within the natural regeneration process throughout the offset areas and then periodically as required to treat the weeds at the optimum time in their life cycles to control and minimise the spread of the existing weed species.	Monitoring of this management action will be undertaken by the Pastoral Manager, Landholder or suitable qualified person appointed by the Landholder at least four times annually. Weed cover is to be monitored and at the same time as the DMY measurements. Quarterly inspections will observe and record the presence of weeds and success of previously applied weed control measures. The inspection will include before and after photos of the weed control area. Quarterly inspections will be conducted by the Pastoral Manager, Landholder or suitable qualified person appointed by the Landholder to record the DMY in the offset area.	Pest plants dominate isolated area and or occur in an area greater than 10% of the offset area. A new declared pest weed species is identified at one or more monitoring sites, or opportunistically during any site inspection or other monitoring.	Step 1: Investigate cause of trigger Step 2: Implementation of corrective action(s) Upon being notified or becoming aware of pest plants dominating isolated areas and or occupying greater than 10% of the offset area, the Pastoral Manager is to implement pest control measures within one month. These measures may include, and are not limited to: • foliar spraying • basal bark spraying • stem injection • cut stump • cut and swab • stem scraper • wick applicators.
<i>Increased population of feral animals in the offset area. Wild cat, pig and dog populations are prevalent and highly transient, and therefore the scale of impact</i>	Minimise the introduction of pest animals and control of existing populations of pest animals (wild dogs, pigs, feral cats and foxes) within the offset areas in accordance with the <i>Biosecurity Act 2014</i> (Qld).	Detection of twelve or more wild pigs or dogs during any inspection.	Implement control actions for pest animals in accordance with <i>Table 14</i> . Participate fully in, and cooperate with, any and all regional pest control programs, unless those would otherwise contravene a part of this OAMP.	Undertake monitoring for pest animals in accordance with <i>Section 11</i> .	Any observed or suspected apparent substantial decline in squatter pigeon abundance detected during periodic full BioCondition assessments, or during quarterly site inspections (including site meander survey). Any observed evidence of feral	• Upon being notified or becoming aware of pest animal populations exceeding the threshold, the Pastoral Manager is to implement all necessary or appropriate control measures needed to reduce pest animal populations to below trigger thresholds. The land manager is to have completed implementation of all necessary or appropriate pest control measures within one month. • The Pastoral Manager or Landholder may approach neighbouring landowners to discuss the increased pest animal presence and an integrated control program may be developed. If an integrated control program is

⁴ Available at <https://futurebeef.com.au/resources/brigalow-belt-pasture-photo-standards/>

Threat to offset values	Management objective	Performance criteria	Management actions	Monitoring	Trigger for adaptive management and corrective action(s)	Corrective action and timing
<i>is potentially large. Major damage to the environment/habitat occurs when large numbers of animals congregate in the area.</i>					animal presence (that is, an indicator of feral animals required to be recorded as part of the feral animal monitoring requirements by the landholder detailed in Table 14.)	considered appropriate, the land manager will make best endeavours to reach agreement with neighbouring landowners to implement such a program. If impacts from the pest animal populations have not naturally remediated within six months of completion of implementation of the control measures, the land manager is to undertake and complete all works required to remediate those impacts.
<i>Degradation of habitat by feral pigs</i>	Minimise degradation of MNES habitat by feral pigs.	Reduction in mean feral pig abundance from the first year of management.	Implement control actions for feral pigs in accordance with <i>Section 8</i> . Participate fully in, and cooperate with, any and all regional pest control programs, unless those would otherwise contravene a part of this OAMP.	Monitoring of this management action will be undertaken by the Pastoral Manager, Landholder or suitable qualified person appointed by the Landholder at least four times annually. Quarterly inspections will involve traversing the offset area with streams, low lying areas and vehicle access tracks being noted to record the presence of wallow holes, tracks and visual incidents in the offset area. If detected, these areas will be GPS-recorded and photographed and rechecked at the next quarterly inspection.	An increase in mean feral pig abundance from first year and subsequent monitoring events.	
<i>Fire</i> <i>The impact from uncontrolled fire would be a reduction in groundcover, thinning of the canopy and slowing of the offset site achieving the completion criteria.</i> <i>Due to the scale of the mapping products, site specific data is not available. Anecdotal evidence from the landholder indicates that unplanned fire results from fire</i>	No evidence of unplanned and uncontrolled fire in the offset area	Uncontrolled fire does not occur in the offset area. Planned and controlled ecological burns are restricted to <30% of the offset area in any 12-month period.	Implement fire management in accordance with requirements in this OAMP. If one or more bushfires are current in the region and considered potentially threatening to the site, coordinate with all relevant fire authorities to determine the appropriate method of protecting the site (if the relevant fire authorities advise against seeking to protect the site from a specific fire, the approval holder may comply with that advice without needing approval or agreement from DCCEEW). The approval holder will maintain firebreaks along all external boundaries of the offset area. Fire control lines must be inspected quarterly. Maintenance must be undertaken as required and at least once every two years. Please note: if fire damages the offset areas, that constitutes an incident for the purposes of <i>Section 11</i> and <i>Section 13</i>.	Monitoring of this management action will be undertaken by the Pastoral Manager, Landholder or suitable qualified person appointed by the approval holder at least four times annually. Quarterly inspections will monitor and document if there is evidence of wildfire, prohibited burning or force majeure events. Quarterly inspections will monitor and document if a prescribed low-intensity ecological burn has occurred, and recorded in the Annual report with the written advice from an ecologist or other suitably qualified person (e.g. Fire Warden) Weed cover is to be monitored by the same methodology and at the same time as the DMY and weed control undertaken post a fire event to ensure weed cover (weeds of national significance) is <10%.	Destruction of, or significant damage to, regrowth or fallen timber. The occurrence of deliberately lit fires.	Step 1: Investigate cause of trigger - Within one month of detection of the trigger, complete an investigation into the reasons why the fire management measures have resulted in a decrease in habitat quality scores. That investigation must review adherence to the fire management measures and must identify appropriate corrective actions. Step 2: Implementation of corrective action/s - Corrective action: upon being notified or becoming aware of a prohibited fire in the offset area, the landholder is to reassess and implement new access protocols for any lessees etc., signage and general access within one fortnight. - Corrective action: subsequent to any occurrence of fire in the offset area, the Pastoral Manager, Landholder or suitable qualified person appointed by the Landholder will: - inspect and repair, and widen if necessary, all firebreaks; and - reassess fuel load reduction practices; and - exclude grazing until the DMY is above 1,200 kg/ha

Threat to offset values	Management objective	Performance criteria	Management actions	Monitoring	Trigger for adaptive management and corrective action(s)	Corrective action and timing
<i>encroaching from the National Park.</i>			In the offset area, a cold fire is only to be used at 3 to 5-year intervals during the months of June, July, August and September, when wind speeds are less than 5km/h on the offset site.	Dry matter yield measurements must be in accordance with the Brigalow Belt pasture photo standards. The approval holder and the land manager will keep themselves informed of any bushfires in the region.		
<i>Offset fails to achieve the interim performance targets and completion criteria within the anticipated 5, 10, 15 and/or 20-year timeframes, respectively</i>	Achieve the interim performance targets and completion scores in <i>Section 9</i> at years 5, 10, 15 and 20 years, respectively.	The interim performance targets are achieved by year 5, 10 and 15. The completion criteria are achieved by year 20.	All management actions outlined in this OAMP will be implemented to ensure that the interim performance targets and completion criteria are achieved.	Monitoring of the offset area will be undertaken in accordance with <i>Section 11</i> . The results of monitoring events will be compared against the interim performance targets and completion criteria to determine the progress of the offset area and recorded as part of reporting.	Interim performance targets are not achieved by year 5, 10 or 15. Completion criteria are not achieved by year 20.	Step 1: Investigate cause of trigger - Within one month of detection of the trigger, complete an investigation into the reasons why the interim performance targets or the completion criteria were not achieved within the specified timeframes. This investigation must re-evaluate the suitability of the relevant management measures in the OAMP and must identify appropriate corrective actions. Step 2: Implementation of corrective action/s As soon as practicable, and in any case within eight months of detection of the trigger, complete implementation of the corrective actions identified under Step 1. These may include (though are not limited to): - Increasing the frequency and intensity of pest animal and weed control measures or revising the type of measures to be implemented. - Modifying the fire management measures, to better support enhancement of offset values. If the investigation under Step 1 recommends changes to the management regime, then as soon as possible, and in any case within six months of detection of the trigger, implement a revised OAMP incorporating those recommended changes.
<i>Site access</i>	Unauthorised persons, vehicles, and/or stock are prevented from accessing the site, and authorised stock are prevented from incurring during exclusion times	Public access to the offset area is prohibited. Access is restricted to those authorised persons required to undertake actions described in this management plan, including the landholder, and approval holder staff and their contractors and assigns. The offset area is not to be utilised for any purpose including recreational activities, or any other activities that deter from achieving the outcomes of this plan. No evidence of unauthorised persons, vehicles, and/or stock is detected on site at any point. Fences and signage are erected at all necessary points and kept in good repair throughout the life of the EPBC Act approval.	Fences will be maintained around to prevent unauthorised access and to control stock presence. Signs will be erected at all entrances and potential access points to the site stating that access to the site is forbidden. All signs and any new planned fences will be erected within six months of the approval of this OAMP.	Monitoring of this management action will be undertaken by the Pastoral Manager, Landholder or suitable qualified person within 3 months of the offset area being legally secured and during quarterly inspections. Quarterly inspections will monitor and document evidence of unauthorised access to the offset area. Quarterly inspections will monitor and document if signage is fit for purpose.	Evidence of unauthorised persons, vehicles, and/or stock is detected at any point. Evidence of stock is detected at any point during exclusion times. Damage is detected to any fence or sign.	For evidence of unauthorised persons, vehicles, and/or stock; or evidence of stock in an exclusion area: Step 1: determine access method - Upon being notified or becoming aware of prohibited access to the offset area, the Landholder is to reassess access protocols for any lessees etc., signage and general access within one fortnight. - Damage to signage will be repaired within one fortnight of noting the damage. - If there are areas that have been negatively impacted, the regeneration of those areas will be added to the monitoring sites at <i>Table 19</i> and monitored during the quarterly inspections. - Signage will be repaired and maintained as required by the Pastoral Manager, Landholder or suitable qualified person appointed by the approval holder.

8.1 Responsible parties

As approval holder, RTY is accountable for implementing the plan. Completing the actions will be ensured through the annual reporting requirements (*Section 11*). RTY will coordinate reporting, reviewing, inspections, auditing and any adaptive management changes to the plan. A person within RTY (e.g. Environment Manager) will be assigned the responsibility of managing offset requirements for the company.

In keeping with approval condition 13, RTY will maintain accurate records substantiating all activities related to the management of the offset area, and the monitoring of the offset site, as described in *Section 11*. These records will be made available to the Department on request.

RTY will undertake the offset management actions and day to day management of the site, including fencing, managing fire breaks, weed management, feral animal management and grazing management. RTY will also undertake the landholder reporting as per *Table 18*.

RTY will engage suitably qualified persons to undertake the BioCondition assessments, ecological studies and surveys, prepare reports and undertake inspections, as required.

8.2 Emergency procedures

Incidents identified at any of the offset sites will be reported by the lessee to RTY. The level of severity will dictate the necessary actions through the company's formal incident management system. General incidents, for example, wild dog incursion, will be managed by RTY and responses to incidents adversely impacting habitat quality on the offset site, or MNES directly, will be coordinated by RTY, to ensure remediation or enhanced management measures (*Table 14*) are implemented to address the incident as soon as reasonably possible.

In keeping with approval condition 16, RTY will notify DCCEEW within 10 business days of becoming aware of any incident, non-compliance with conditions, or non-compliance with any of the commitments made in this OAMP. (See also *Section 13* - Adaptive management and plan review).

9 Offset completion criteria and performance targets

Offset completion criteria have been determined for each species based on an understanding of the specific habitat, connectivity and other ecological values for the koala and squatter pigeon (southern). These criteria were initially derived from detailed ecology survey information of both the impact and offset sites. The impact site survey was conducted in compliance with the *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland* (Version 3.2) (Neldner et al. 2012). Survey work at the offset site utilised the approach specified within the *Guide to determining terrestrial habitat quality* (Version 1.1, DEHP, 2014) and the BioCondition assessment method in accordance with *BioCondition: A Condition Assessment Framework for Terrestrial Biodiversity in Queensland - Assessment Manual* (Version 2.2) (Eyre et al, 2015).

The targeted habitat quality meets guidelines published by ANZMEC (2000),⁵ stating completion criteria should be:

1. Specific enough to reflect the unique set of environmental, social and economic circumstances.
2. Flexible enough to adapt to changing circumstances without compromising objectives.
3. Include environmental indicators suitable for demonstrating that rehabilitation trends are heading in the right direction.
4. Undergo periodic review resulting in modification if required due to changed circumstances or improved knowledge.
5. Based on targeted research which results in more informed decisions.

Over the course of the management period a set number of interim completion criteria have been proposed for each species to track the trajectory of habitat quality improvement towards the desired final completion criteria. The timing for these interim targets corresponds with the 5 yearly targeted species surveys and detailed ecological condition monitoring in years 2028, 2033, 2038 and 2043.

Interim targets were derived for each species by identifying the attributes expected to increase over the period of the approval. The values were determined by differentiating between specific attributes, of which the majority were longer term targets (e.g. species richness, tree canopy cover, number of large trees) and those where an initial benefit could be realised early (e.g. recruitment of woody species, non-native plant cover).

The completion of management actions identified in *Table 14*Table 15 will enable the offset site to improve and achieve the scores required in *Appendix A*, thus meeting and maintaining the completion criteria required of the offset. The annual reports will provide transparency regarding how the site management actions are being implemented, and where relevant, identify any force majeure events impacting the offset site, and any non-compliance with the management plan.

⁵ *Strategic Framework for Mine Closure*. (2000). Australian and New Zealand Minerals and Energy Council and Minerals Council of Australia. Canberra, ACT.

Table 15: Interim targets and completion criteria

Protected matter	EPBC Status	Impact area (ha)	Habitat quality score	Regional ecosystems	Assessment Sites	Offset area (ha)	Habitat start quality score	Habitat quality score Year 5	Habitat quality score Year 10	Habitat quality score Year 15	Habitat finish quality score
<i>Koala</i>	Vulnerable	96.0	7	8.12.7a, 8.12.7 8.12.5a, 8.12.22, 11.3.35, 11.3.29a 11.12.6a, 11.11.15	15, 4, 6, 1, 5, 3, 11, 8, 7, 10, 9, 12, 13	410.70	7	7-7.25	7.25-7.5	7.5-7.75	8
<i>Squatter pigeon</i>	Vulnerable	162.2	7	8.12.7a, 8.12.7 8.12.5a, 8.12.22, 11.3.35, 11.3.29a, 11.3.29, 11.12.6a, 11.11.15	15, 4, 6, 1, 5, 3, 11, 8, 7, 10, 9, 12, 13	550.60	7	7-7.25	7.25-7.5	7.5-7.75	8

10 Offset site management and protection additional to those that currently exist

Securing the offset area will add additional protection for biodiversity values from clearing⁶ and provide additional management of weeds and pest animals that are additional to the general requirements for biosecurity.

The offset area is not protected from timber harvesting, the inappropriate use of hot fires or the under-sowing of exotic pasture species by either the VM Act or the EPBC Act due to exemptions within the legislative frameworks for the continuing use of the land. Remnant vegetation areas are protected from broadscale clearing under the VM Act; however, the clearing of regrowth is permitted (see the offsets maps at *Figure 11* and *Figure 12*). Maintaining the existing condition of regulated vegetation and land for habitat values is not addressed under the VM Act.

The *Biosecurity Act 2014* (Qld) (the **Biosecurity Act**) imposes a 'general biosecurity obligation' on all Queenslanders to manage biosecurity risks that are under their control and that they know about or could reasonably be expected to know about.⁷ In practical terms, this means that:

- If you are a livestock owner, you are expected to stay informed about pests and diseases that could affect or be carried by your animals, as well as weeds and pest animals that could be on your property. You are also expected to manage them appropriately.
- If you are a landowner, you are expected to stay informed about the weeds and pest animals (such as wild dogs) that could be on your property. You are also expected to manage them appropriately.

The Biosecurity Act assigns the pests identified in the offset areas as Restricted Matters in Categories 1-7 and requires the following management as shown below in *Table 16*.

Table 16: Biosecurity Act 2014 (Qld) obligations

Category	What is required	Examples
1	Must advise an authorised officer within 24 hours of becoming aware	Electric ant/ little fire ant, red imported fire ant
2	Must advise an authorised officer within 24 hours of becoming aware	Noxious fish, including alligator gar and black pacu
3	Must not distribute, be traded or released into the environment	Most invasive weeds, pest animals, noxious fish
4	Must not move	Certain weeds, pest animals, noxious fish such as feral pigs, feral deer, rabbits, Hudson pear and jumping cholla cactus
5	Must not possess or keep	Rabbits, carp, bunny ears cactus
6	Must not feed (except if undertaking a control program)	Feral deer, wild dogs, rabbits, foxes, noxious fish
7	Must, as soon as practicable, kill the restricted matter	Noxious fish, including tilapia, gambusia, carp

⁶ *Vegetation Management Act 1999* (Schedule definitions)

⁷ See <https://www.daf.qld.gov.au/business-priorities/biosecurity/policy-legislation-regulation/biosecurity-act-2014/general-biosecurity-obligation>

The obligations in the OAMP are additional to these general obligations, in that control is required once thresholds as detailed in *Table 14* are met, which initiates the respective controlling actions. For example, there is a requirement to control wild pigs if numbers in excess of 12 are observed in any one property inspection; this is above and beyond the requirements of the Biosecurity Act, as is the reduction of weed species to 10% of the offset area over the life of the management plan.

The Connie Creek property is located within the Isaac Regional Council local government area. The *Isaac Region Biosecurity Plan 2020-23* states that landholders are required to “exercise due diligence by taking all practical steps towards best practice management of pest species, as defined by the *Biosecurity Act 2014* or under Isaac Regional Council local laws on land that they occupy.”⁸

11 Monitoring and reporting

The monitoring methods (*Table 17*) will enable comparative changes in vegetation condition against baseline data collected on the offset site, as well as attainment and maintenance of the offset completion criteria (see *Section 9* and *Appendix A*). Furthermore, the monitoring will measure changes resulting from the management actions and variability due to climatic conditions. This will inform the nature and frequency of management actions required and if trigger levels are breached, the use of corrective actions to bring the offset back into compliance.

Note that the methodologies listed, and the RE benchmarks used in the establishment of the baseline data, will be used consistently throughout the reporting period to enable the comparison of data.

RTY, its successors or assigns, will, as per condition 15 of the approval, provide an Annual Compliance Report each year following the date of the commencement of the action for the period of the approval. Offset Area Reports describing the progress of the offset area over the relevant 12-month period will be part of those reports until the completion criteria are achieved or the end of the EPBC approval (i.e. until 1 July 2034), whichever comes first. The monitoring methodology and schedule is outlined in *Table 17*. The reporting schedule is provided in *Table 18*. The location of the monitoring sites is shown at **Error! Reference source not found.** *Figure 13*. The coordinates of the monitoring sites are shown in *Table 19*.

The Offset Area Reports will contain records substantiating all activities relevant to the implementation and management of the offsets, in keeping with the requirements of condition 5A f. and condition 14 of the approval. RTY, its successors or assigns, will publish the annual compliance reports, of which the Offset Area Reports form a part, on the website within three months of the relevant 12-month period. RTY, its successors or assigns, will supply documentary evidence showing proof of the date of publication of the compliance report will be supplied to the Department at the same time that the compliance report is published. These commitments ensure that condition 15 of the approval is being met. Any sensitive ecological data will be excluded or redacted from compliance reports that are published on the website.⁹

⁸ Isaac Region Biosecurity Plan 2020-23, p.12. Available at: <https://www.isaac.qld.gov.au/downloads/file/2042/draft-isaac-region-biosecurity-plan>

⁹ Sensitive ecological data is as defined in the Australian Government Department of the Environment (2016) *Sensitive Ecological Data – Access and Management Policy V1.0*, or subsequent revision.

Commonwealth threatened species survey guidelines used to inform the requirements of the terrestrial flora and fauna surveys will include:

- Survey guidelines for Australia's threatened birds (DEWHA 2010)
- Survey guidelines for Australia's threatened mammals (SEWPaC 2011)
- Species profile and threats database for relevant EPBC Act listed species and communities

Table 17: Monitoring schedule and methodology to be used

Monitoring	Attributes monitored	Timing	Method	Location/s
Surveys undertaken by ecologists every 5 years				
Targeted surveys for koala and squatter pigeon	Detection of species	Squatter pigeon surveys: 2028, 2033, 2038, 2045, (September – October or March – May) Koala surveys: 2028, 2033, 2038, 2045, (September – October or March – May)	EPBC Act referral guidelines for the vulnerable squatter pigeon and the <i>Environment Protection and Survey guidelines for Australia's threatened mammals</i> (SEWPaC) and <i>Environment Protection and Survey guidelines for Australia's threatened birds</i> (SEWPaC)	Sites listed in Table 19 and shown in Figure 13
Targeted habitat quality assessments of koala and squatter pigeon	Nature and quality of habitat attributes, specific to each MNES species, as defined under the EPBC Act conditions of approval (i.e. nature and health of koala food trees, extent and quality of foraging resources for the squatter pigeon).		Conduct a koala and koala habitat survey each 5 years (beginning in 2028) along predetermined, stratified transects within the offset area to ensure that koala experts sample extensively and intensively those areas containing vegetation of habitat types known to be preferred by koalas in the region in each assessment unit that comprises the MNES offset, to confirm the ongoing presence of and to detect changes to EPBC Act approval defined habitat attributes for the species. Conduct a squatter pigeon habitat each 5 years (beginning in 2028), along predetermined, stratified transects within the offset area to confirm the ongoing presence of and to detect changes to EPBC Act approval defined habitat attributes for the species.	Across the offset area
Ecological condition and relevant habitat features using BioCondition assessments	Recruitment of woody perennial species in EDL		Field observations, vegetation assessment as per the <i>Guide to determining terrestrial habitat quality – a toolkit for assessing land-based offsets under the Queensland Environmental Offsets Policy (version 1.2 April 2017)</i> (DEHP, 2017).	Sites listed in Table 19 and shown in Figure 13
	Native plant species richness – trees			
	Native plant species richness – shrubs			
	Native plant species richness - grasses			
	Native plant species richness – forbs			

Monitoring	Attributes monitored	Timing	Method	Location/s
	Tree canopy height Tree canopy cover Shrub canopy cover Native perennial 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		Data for each of the ecological condition attributes monitored will be collected at each site listed in <i>Table 19</i> and reported on and presented in a sequential manner (including previous data collected) to quantify change from the baseline condition determined in January and February 2023. This will record the change in each attribute measured and hence the condition of the ecological community and habitat, thus enabling a statistical comparison to previous years' data and attainment of the offset completion criteria.	
Note that the methodologies listed, and the RE benchmarks used in the establishment of the baseline data, must be used consistently throughout the reporting period to enable the comparison of data.				
Quarterly landholder/approval holder records and monitoring (report to approval holder – end of September, December, March and June each year)				
Forestry operations, native timber harvesting and general vegetation impacts	Any incidence of native plant destruction	Monitored quarterly and reported annually in Offset Area Report until the offset completion criteria are achieved.	Forestry Operations, Native Timber Harvesting and general vegetation impacts	Across the offset area
Unauthorised impacts to vegetation from activities such as illegal access/ camping	Vegetation, woody debris, grass cover, weed cover, feral animal damage and presence	Monitored quarterly and reported annually until the offset completion criteria are achieved.	RTY or person appointed by RTY will undertake quarterly inspections of the offset area to observe and record grass cover levels, weeds, accessibility (i.e. condition of fencing), and evidence of fire, erosion, and feral animal incursion. The inspection records will be provided to the approval holder and serve as the primary data source for the Offset Area Report. Grass cover assessment is to be undertaken as per the dry matter yield measurements in accordance with the Brigalow Belt pasture photo standards.	Across the offset area
Grazing	Cattle stocking rates Grass cover	Monitored monthly during grazing periods (dry season or as otherwise authorised) in accordance with <i>Table 14</i> and reported annually until the offset completion criteria are achieved.		
Unplanned fire	Occurrence, control measures implemented, timing and result of the control measures as per <i>Table 14</i> .	Monitored quarterly and reported annually until the offset completion criteria are achieved.		

Monitoring	Attributes monitored	Timing	Method	Location/s
			This is in addition to biocondition assessments.	
Weeds	Occurrence, control measures implemented, timing and the result of the control measures as per <i>Table 14</i> .	Monitored quarterly and reported annually until the offset completion criteria are achieved	Weed cover is to be monitored by the same methodology and at the same time as the grass cover measurements. This is in addition to biocondition assessments.	Across the offset area
Pest animals	Occurrence, control measures implemented, timing, number and type of animal/s and the result of the control measures as per <i>Table 14</i> .	Monitored quarterly and reported annually until the offset completion criteria are achieved	Quarterly inspections will involve traversing the offset area along streams, low lying areas and vehicle access tracks, to record the presence of wallow holes, tracks and any visual incidents. If detected, these locations will be GPS'd and photographed and rechecked at the next quarterly inspection. Any evidence of predation on koalas must be reported immediately to the approval holder and corrective actions implemented (<i>Table 14</i>).	Across the offset area

RTY or a suitably qualified person appointed by the Landholder will undertake quarterly inspections of the offset area to observe and record DMY, pest plants, accessibility (i.e. condition of fencing), evidence of fire and evidence of pest animal incursion. The inspection records will serve as the primary data source for the annual Offset Area Report.

Dry matter yields are to be assessed as per the Brigalow Belt pasture photo standards.¹⁰

Table 18: Reporting schedule

Report Details to DCCEEW	Offset implementation reporting period	Annual Compliance Report to DCCEEW
Offset Area Report detailing photo point and management actions and offset condition outcomes achieved for preceding reporting period. Note: the reports and results from detailed ecology survey and monitoring events conducted in accordance with <i>Table 17</i> will be provided as an Appendix to the subsequent Annual Compliance Report.	From the date of approval of this OAMP to June 2045	November each year for the term of the approval (until June 2045)
	1 October – 30 September annually	

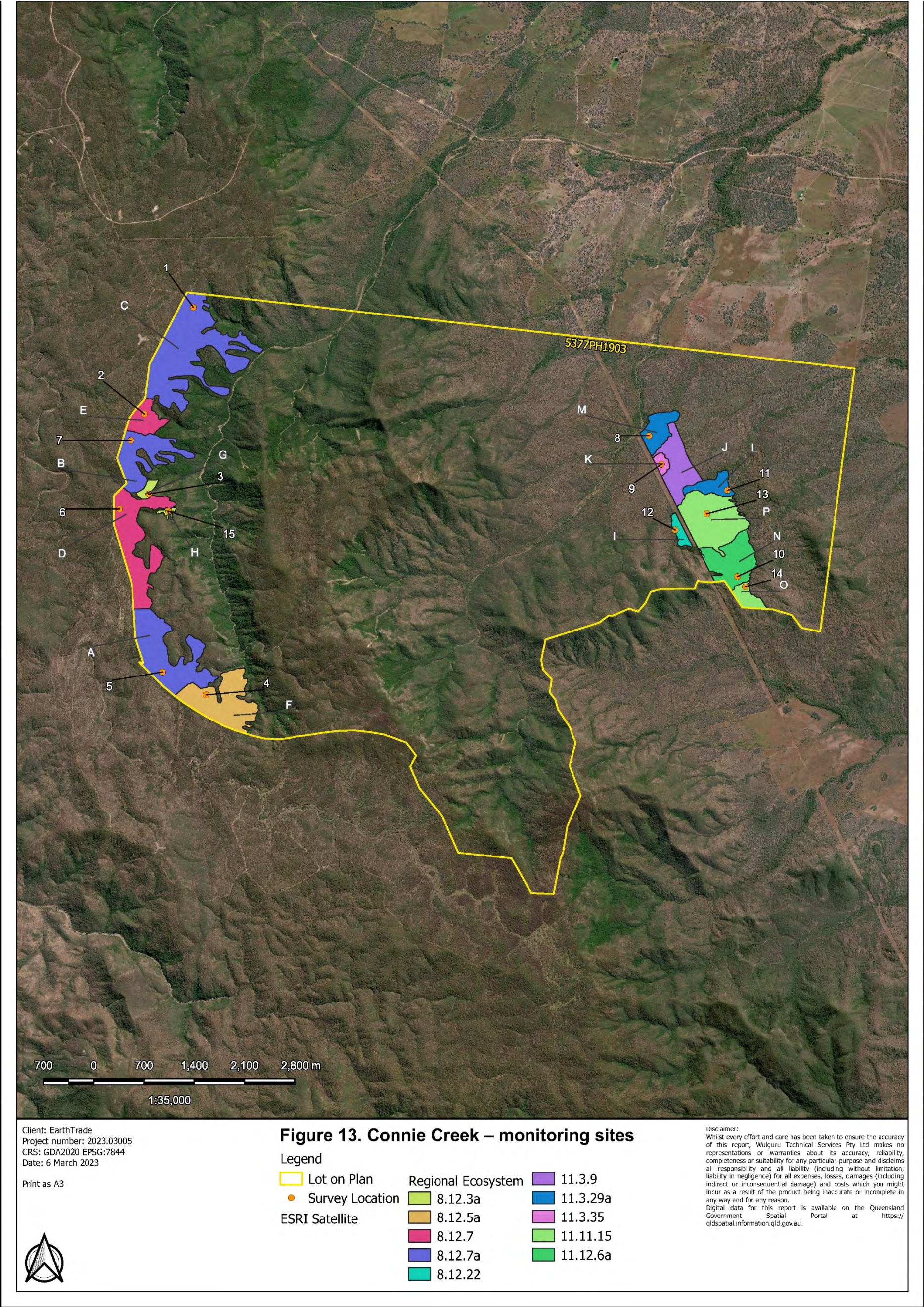
¹⁰ <https://futurebeef.com.au/knowledge-centre/brigalow-belt-pasture-photo-standards>

Table 19: Monitoring sites

Regional ecosystem	Survey site number (to be consistent with the baseline data collected for the duration of the OAMP)	Ha in the offset area	Location - easting	Location - northing
8.12.7a	15	226.90	149.3312440	-22.4080620
	4		149.3363513	-22.4325733
	6		149.3246285	-22.4077657
8.12.7	1	81.00	149.3346339	-22.3807829
	5		149.3304175	-22.4295132
8.12.5a	3	55.80	149.3285923	-22.4057407
8.12.22	2	6.70	149.3280246	-22.3950820
11.3.35	8	4.90	149.3963030	-22.3979450
11.3.29a/ 11.3.29	7	32.80	149.3261801	-22.3985683
	10	34.00	149.4082770	-22.4167770
	11		149.4069000	-22.4052000
11.12.6a	9	39.10	149.3979910	-22.4017800
11.11.15	12	69.40	149.3998370	-22.4105350
	13		149.4041400	-22.4083930

Coordinates system: GDA_2020_MGA_Zone_55

Figure 13: Offset area monitoring sites



12 Legally binding mechanism

The offset will be secured by being declared as an area of high conservation value under section 19F of the VM Act. Once this has been registered on the title, the offset area will be mapped as a category A area on the property map of assessable vegetation (**PMAV**). An area mapped as category A on a PMAV is described as an 'area subject to compliance notices, offsets and voluntary declarations'.

The title search for the subject lot of the offset property are provided at *Schedule 1.1*. The request for a declared area form, and the declared area management plan form are provided at *Schedule 1.2* and *1.3*. Both of these forms are requirements of the Queensland Department of Resources so that the legally binding mechanism may be lodged on the title of the property.

The approval holder will legally secure the environmental offset within 2 years of the date that the OAMP is approved by the Minister. The approved OAMP must be attached to the legal mechanism used to legally secure the environmental offset. The approval holder will notify the Department within 5 business days of the mechanism to legally secure the environmental offset having been executed.

Management and monitoring of the offset area will be undertaken in accordance with commitments in the approved OAMP.

The declared area will remain in place as the legally securing mechanism for the offset area. The declared area and approved OAMP will ensure the offset completion criteria are attained, and then maintained for the period of the EPBC Act approval (i.e. until 30 June 2045). Statutory protection of the offset area is maintained under the VM Act, NC Act and EPBC Act (or subsequent legislation).

13 Adaptive management and plan review

This plan has been prepared to be implemented until the offset completion criteria have been achieved when the approval for the action ceases. In keeping with approval condition 12.a., this OAMP will be submitted to the Department electronically.

Management measures will be reported in the Offset Area reports, and adapted, where required, if triggers are reached and corrective actions are implemented (see *Table 14*). If management measures need substantial adjustment, RTY will review this plan in consultation with the DCCEEW.

In accordance with EPBC approval condition 16, RTY will notify the Department of any incident or non-compliance with the conditions or commitments made in this OAMP as soon as practical and no later than 10 business days after becoming aware of the incident or non-compliance, specifying:

- a) any condition which is or may be in breach;
- b) a short description of the incident and/or non-compliance; and
- c) the location (including co-ordinates), date, and time of the incident and/or non-compliance. In the event the exact information cannot be provided, the best information available will be provided.

Additionally, in accordance with EPBC approval condition 17, RTY will provide to the Department the details of any incident or non-compliance with the conditions or commitments made in this OAMP as soon as practicable and no later than 10 business days after becoming aware of the incident or non-compliance, specifying:

- a) any corrective action or investigation which RTY has already taken or intends to take in the immediate future;
- b) the potential impacts of the incident or non-compliance; and
- c) the method and timing of any remedial action that will be undertaken by RTY.

In keeping with approval condition 14, If RTY wishes to carry out any activity otherwise than in accordance with this OAMP, RTY will submit to the Department for the Minister's written approval a revised version of the OAMP. The varied activity will not commence until the Minister has approved the varied OAMP in writing. If the Minister approves the revised OAMP, that OAMP will be implemented in place of the OAMP originally approved.

14 Conclusion

This Offset Management Plan has been prepared to address all the requirements of the *Environment Protection and Biodiversity Conservation Act 1999*. This OAMP will be published on RTY's website within 20 business days of the OAMP being approved by the Minister. The OAMP will remain on the website and accessible to the public for the duration of the EPBC Act approval, in keeping with approval condition 12.

The offset site on Connie Creek will successfully deliver offsets for the Project's residual significant impacts to koala habitat, and provide the equivalent area in habitat for the squatter pigeon (southern).

This offset for the Project will be implemented consistent with the EPBC Act *Environmental Offset Policy* and the approval conditions for the project. The approval holder commits to the implementation of this plan.

The approval holder also commits to registering a legally binding conservation mechanism to provide long-term protection to the offset area within 6 months of the Minister's approval of the OAMP.

List of abbreviations

Abbreviation	Description
BVG	Broad vegetation group
CHRC	Central Highlands Regional Council
DAWE	Department of Agriculture, Water and the Environment (former)
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DEHP	Department of Environment and Heritage Protection (Qld) (former)
DES	Department of Environment and Science (Qld)
DEWHA	Department of the Environment, Water, Heritage and the Arts (Australian) (former)
DMY	Dry matter yield
DoE	Department of Environment (Australian) (former)
DoEE	Department of the Environment and Energy (Australian) (former)
DoR	Department of Resources (Qld)
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (Australian) (former)
EOP	Environmental Offsets Policy (October 2012) (EPBC Act)
EPBC Act	<i>Environment Protection & Biodiversity Conservation Act 1999</i> (Cth)
EVNT	Endangered, vulnerable or near-threatened (species)
ha	hectares
HQS	Habitat quality scoring
HVR	High-value regrowth
km	kilometres
KoRV	Koala retrovirus
m	metres
ML	Mining lease
MNES	Matters of national environmental significance
NC Act	<i>Nature Conservation Act 1992</i> (Qld)
OAG	Offset Assessment Guide (DCCEEW)
OAMP	Offset Area Management Plan
OIA	Offset Investigation Area
PMAV	Property map of assessable vegetation
Project	Bluff Coal Mine
RE	Regional ecosystem
RTY	Rio Tinto Yarwun Pty Ltd
SLC	Special least concern (species)
TEC	Threatened ecological community
THQ	Terrestrial habitat quality
VM Act	<i>Vegetation Management Act 1999</i> (Qld)
WoNS	Weed of national significance

Glossary

Term	Definition
Assessment unit/AU	An individual region within the offset area subject to specific management requirements.
Business day	A day that is not a Saturday, a Sunday or a public holiday in the state or territory of the action.
Category A vegetation	Under Queensland vegetation management legislation, Category A vegetation is an area which is: • a declared area • an offset area, an exchange area, an area that has been subject to unlawful clearing or an enforcement notice, an area subject to clearing as a result of a clearing offence OR • an area that the chief executive determines to be Category A. Category A areas are colour-coded red on the regulated vegetation management map. See <i>Vegetation Management Act 1999</i> , s20AL.
Category X vegetation	Under Queensland vegetation management legislation, all areas other than Category A, B, C and R areas are Category X areas. Some Category X areas are also identified on a property map of assessable vegetation (PMAV) as 'locked in'. Category X areas are also known as 'exempt areas' because activity in Category X areas is not regulated by the <i>Vegetation Management Act 1999</i> . Category X areas are colour-coded white on the regulated vegetation management map (see <i>Vegetation Management Act 1999</i> (Qld) s 20A.).
Completion criteria	The habitat quality gains required to be achieved for the offset area as specified in the OAMP.
Compliance records	All documentation or other material in whatever form required to demonstrate compliance with the conditions of approval in the approval holder's possession or that are within the approval holder's power to obtain lawfully.
Compliance reports	Written reports: - providing accurate and complete details of compliance, incidents, and non-compliance with the conditions and the plans; - consistent with the Department's <i>Annual Compliance Report Guidelines</i> (2014); - including a shapefile of any clearance of any relevant habitat, undertaken within the relevant 12 month period; and - annexing a schedule of all plans prepared and in existence in relation to the conditions during the relevant 12-month period.
Department/al	The Australian Government agency responsible for administering the EPBC Act.
Habitat quality	Habitat quality is a measure of how well the offset area supports the listed threatened species and contributes to their ongoing viability, relative to the baseline habitat quality data provided in the OAMP. The measure of habitat quality should include site condition, site context and species individual or population persistence.
Incident/s	Any event which has the potential to, or does, impact on one or more listed threatened species other than as authorised by the approval for the Project.
Koala food trees	<i>Angophora</i> , <i>Corymbia</i> , <i>Eucalyptus</i> or <i>Lophostemon</i> tree species greater than 10 centimetres (cm) in diameter at breast height and/or greater than 4 m tall for which there is sufficient evidence that the tree species is known to comprise part of the regional diet of the koala (<i>Phascolarctos cinereus</i>) (combined populations of QLD, NSW and the ACT).

Term	Definition
Legal security	Enduring protection for the offset site against activity incompatible with conservation by legal agreement under relevant Queensland legislation.
Minister	The Australian Government Minister administering the EPBC Act including any delegate thereof.
Offset calculator	The Offset Assessment Guide spreadsheet tool as provided by DCCEEW
Performance targets	Incremental habitat quality gains for the offset area that enable the approval holder to detect any impediments and respond in sufficient time to ensure the completion criteria specified in condition 4 or condition 5, respective to the option chosen under condition 2, are achieved and maintained over the period of this approval.
Property Map of Assessable Vegetation	A map certified by the chief-executive as a PMAV for an area and showing the vegetation category areas for the area (e.g. Category C area, Category X area)
Regional ecosystem	Means regional ecosystem as gazetted in the <i>Vegetation Management Act 1999</i> (Queensland).
Regrowth vegetation	Vegetation that is not remnant vegetation.
Regulated vegetation	Vegetation that: - is an endangered regional ecosystem, an of concern regional ecosystem, or a least concern regional ecosystem, and - forms the predominant canopy of the vegetation covering more than 50% of the undisturbed predominant capacity; averaging more than 70% of the vegetation's undisturbed height; and composed of species characteristic of the vegetation's undisturbed predominant canopy.
Sensitive ecological data	Data as defined in the Australian Government Department of the Environment (2016) <i>Sensitive Ecological Data – Access and Management Policy V1.0</i> , or subsequent revision.
Squatter pigeon (southern) <i>Geophaps scripta scripta</i> habitat	Queensland REs consisting of habitat attributes identified as supporting suitable foraging and dispersal habitat in the <i>EPBC 2018/8381 Referral Request for Information Response</i> April 2019 and attachments.
Squatter pigeon breeding habitat (Land Zones 3, 4, 5, 7 and 10)	Remnant or regrowth open-forest to sparse, open-woodland or low-woodland dominated by <i>Eucalyptus</i> , <i>Corymbia</i> , <i>Acacia</i> or <i>Callitris</i> species within one kilometre of a suitable, permanent or seasonal waterbody. Breeding habitat is distinguished by ground-layer vegetation that: consists of patchy, native, perennial tussock grasses, or a mix of perennial tussock grasses and low shrubs or forbs; and does not cover more than 33% of the ground. Suitable squatter pigeon breeding habitat tends to occur on well-draining sandy or gravelly soils low, gently sloping, flat to undulating plains and foothills, lateritic (duplex) soils on low 'jump-ups' and escarpments.
Squatter pigeon foraging habitat (Land Zones 3, 4, 5, 7 and 10)	Remnant or regrowth open-forest to sparse, open-woodland or low-woodland dominated by <i>Eucalyptus</i> , <i>Corymbia</i> , <i>Acacia</i> or <i>Callitris</i> species within three kilometres of a suitable, permanent or seasonal waterbody. Foraging habitat is distinguished by ground-layer vegetation that: consists of patchy, native, perennial tussock grasses, or a mix of perennial tussock grasses and low shrubs or forbs; and does not cover more than 33% of the ground. Suitable squatter pigeon foraging habitat tends to occur on well-draining, sandy or gravelly soils low, gently sloping, flat to undulating plains and foothills, lateritic (duplex) soils on low 'jump-ups' and escarpments.
Squatter pigeon dispersal habitat	Dispersal habitat is any forest or woodland occurring between patches of foraging or breeding habitat which facilitates movement among foraging habitat, breeding habitat and/or waterbodies. Dispersal habitat includes vegetation where the groundcover layer has been thinned through current land-use practices in a way that suits the species (e.g. light cattle grazing). The species does disperse into highly modified or

Term	Definition
	degraded habitats, including cleared areas which are within 100 metres of remnant trees or patches of habitat.
Suitably qualified person	A person who has professional qualifications, training, skills and/or experience related to the nominated subject matter and can give authoritative independent assessment, advice and analysis on performance relative to the subject matter using the relevant protocols, standards, methods and/or literature.
Website	A set of related web pages located under a single domain name attributed to the approval holder and available to the public.

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Schedule 1: Legally binding mechanism

Schedule 1.1: Title search – Connie Creek – Lot 5377 PH1903



Current State Tenure Search

Queensland Titles Registry Pty Ltd
ABN 23 648 568 101

Title Reference:	17668175	Search Date:	02/11/2022 13:15
Date State Tenure Created:	21/10/1995	Request No:	42710536
Creating Dealing:			

DESCRIPTION OF LAND

Tenure Reference: PH 35/5377
Lease Type: ROLLING TERM LEASE
LOT 5377 CROWN PLAN PH1903
Local Government: ISAAC
Area: 5560.000000 Ha. (SURVEYED)
No Land Description
No Forestry Entitlement Area
Purpose for which granted:
NO PURPOSE DEFINED

REGISTERED LESSEE

Dealing No: 709966219 26/09/2006

TERM OF LEASE

Term and day of beginning of lease
Term: 30 years commencing on 01/10/1983
Expiring on 30/09/2013
Extended to 30/09/2063

CONDITIONS

A126 SPECIFIED CONDITIONS FOR: Term Lease
PURPOSE: Rolling term lease - Pastoral

STATUTORY CONDITIONS:

Statutory conditions are the general mandatory conditions of a lease and binds the lessee in accordance with Part 2 Division 1 of the Land Act.

1. Permitted Use: The lessee must use the land only for the purpose for which the tenure was issued under the Land Act 1994.
2. Duty of Care: The lessee has the responsibility for a duty of care, for the land under the Land Act 1994.
3. Rent/Instalment: The lessee must pay the annual rent/instalment in accordance with the Land Act 1994 and the Land Regulation 2009.
For further information on how annual rent is determined, refer to the department's website at www.dnrm.qld.gov.au.
4. Noxious plants: The lessee must keep noxious plants on the land under control. If the lessee does not comply with this condition, the Minister may bring the noxious plants under control, the cost of which will be recovered from the lessee.
5. Information to Minister: The lessee must give the Minister administering the Land Act 1994, information the Minister asks for about the tenure.

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Requested by: D-ENQ TITLES QUEENSLAND

www.titlesqld.com.au
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CONDITIONS (Continued)

6. Monies for Improvements: No money for improvements is payable by the State on the forfeiture, surrender or expiry of this lease but money may be payable if the State receives payment from an incoming lessee or buyer for the improvements on the land. However, the previous lessee may apply to the Minister to remove the improvements that belong to the lessee, within a period of 3 months from the date of the forfeiture, surrender, or expiry of this lease. The lessee may only undertake the removal of the improvements in the presence of an authorised representative of the department, if required by the Minister. The lessee may only remove those improvements if all monies due from the lessee to the department under this lease have been paid.

 REGULATORY-CONDITIONS:-----

A regulatory condition relates to a lease, in accordance with the Land Regulation.

1. Indemnity: The lessee indemnifies and agrees to keep indemnified the Minister, and the State of Queensland and its Representatives, (the "Indemnified parties") against all liability, costs, loss and expenses including claims in negligence (including any claims, proceedings or demands brought by any third party, and any legal fees, costs and disbursements on a solicitor and client basis) ("Claim") arising from or incurred in connection with:

- a. the granting of this lease to the lessee;
- b. the lessee's use and occupation of the land; or
- c. personal injury (including sickness and death) or property damage or loss in connection with the performance (or attempted purported performance or non-performance) of the lease or a breach of the lease by the lessee.

The lessee hereby releases and discharges to the full extent permitted by law, the Indemnified parties from all actions, claims, proceedings or demands and in respect of any loss, death, injury, illness or damage (whether personal or property and whether special, direct, indirect or consequential financial loss) arising out of the use and occupation of the lease. To the full extent permitted by law, the Minister, the State of Queensland and their Representatives will not be liable to the lessee for any special, indirect or consequential damages, including consequential financial loss arising out of the use and occupation of the lease.

2. Public Liability: The lessee must effect a public liability insurance policy with an insurer authorised under the Insurance Act 1973 (Commonwealth) or, if not so authorised then only with the Minister's approval, which can be given or withheld in the Minister's sole discretion, naming the lessee as the insured covering legal liability for any loss of, or damage to any property and for the injury (including death) to any person arising out of anything done or omitted on or about the land or any improvements thereon and against all claims, demands, proceedings, costs, charges, and expenses whatsoever (including claims in negligence) Such policy must:
- a. be for an amount of not less than \$20,000,000.00 and have no per event sublimit or such higher amounts as the Minister may reasonably require.
 - b. be effected on a "claims occurring" basis; and
 - c. be maintained at all times during the currency of the lease, and upon receipt of any notice of cancellation, the lessee must immediately effect another public insurance policy in accordance with the terms of the lease.

CONDITIONS (Continued)

The lessee must, as soon as practicable, inform the Minister, in writing, of the occurrence of any event that the lessee considers is likely to give rise to a claim under the policy of insurance effected and must ensure that the Minister is kept fully informed of subsequent actions and developments concerning the claim. The lessee must renew such policy, at the lessee's expense, each year during the currency of this lease.

The condition will be satisfied if the lessee is the State of Queensland or a statutory authority eligible for cover under the Queensland Government Insurance Fund and is insured and continues to be insured by the Queensland Government Insurance Fund.

This condition will be satisfied if the lessee is the Commonwealth of Australia or a statutory authority eligible for cover under the Comcover Insurance Fund and is insured and continues to be insured by Comcover.

3. Access: The provision of access, further access or services to the land will not be the responsibility of the State.
4. Survey Costs: If the land needs to be surveyed or re-surveyed the lessee must do this at their own cost under the Survey and Mapping Infrastructure Act 2003. This survey plan must be lodged in the land registry within the specified time.
5. Extension: The lease is subject to the extensions of rolling term leases provision of the Land Act 1994 and the Minister must grant an extension of the term of a rolling term lease if the lessee makes an application in the approved form. The extension will be for the original term of the lease and may be given subject to condition changes.
6. Jurisdiction: The lessee is subject to the Land Act 1994 and all other relevant Queensland and Commonwealth legislation.
7. Compliance with Laws - the lessee must comply with all lawful requirements of the -
 - a. Local Government; and
 - b. any department within the Queensland or Commonwealth governments (including the department administering the Land Act 1994), local authority or statutory instrumentality having jurisdiction over the land, or the development, use and occupation of the land, in regard to its use, occupation and development of the land.

SPECIAL-CONDITIONS:-----

These conditions relate to this lease.

Improvements or development on or to the land

1. The lessee must during the whole term of the lease, to the satisfaction of the relevant authorities, maintain existing improvements and boundary fencing on the land in a good and substantial state of repair.

Quarry material

1. The lessee must allow any person authorised under the Forestry Act 1959 access to the leased land for the purpose of cutting and removing timber or removing other forest products, or quarry material, or other material from the leased land. Except as hereinafter provided the lessee must not interfere with any forest products or remove any quarry material (including any stone, gravel, sand, earth, soil, rock, guano or clay which is not a mineral within the meaning of the Mineral Resources Act 1989) or other material upon the leased land without the permission of the Minister administering the Land Act 1994 except under the authority of and in compliance in every respect with the requirements or a permit, licence, agreement or contract granted or made under the Forestry Act 1959.

Queensland Titles Registry Pty Ltd
 ABN 23 648 568 101

Title Reference: 17668175

CONDITIONS (Continued)
ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by Lease No. 17668175
2. EASEMENT No 602806234 (A1576) 29/04/1982
EASEMENT IN PURSUANCE OF AN AGREEMENT DATED THE 8TH DAY OF MARCH, 1982 BETWEEN THE LESSEE OF THE WITHINDESCRIBED HOLDING AND THE QUEENSLAND ELECTRICITY GENERATING BOARD FOR PURPOSES AS DEFINED IN SUCH AGREEMENT (SEC. 284)
3. MORTGAGE [REDACTED]
4. AMENDMENT OF LEASE CONDITIONS No 715974040 26/08/2014 at 05:00
THE CONDITIONS OF THE WITHIN TENURE ARE HEREBY AMENDED.

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
717803142	NT DETERM NATIVE TITLE ACT 1993 (CTH)	27/01/2017 14:34	CURRENT
719767646	EXEMPT CONS SEC 322AA LAND ACT 1994	02/12/2019 08:28	CURRENT

UNREGISTERED DEALINGS

NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current State Tenure Search **

Information provided under section 34 Land Title Act (1994) or section 281 Land Act (1994)

Schedule 1.2: Request for declared area – Connie Creek



Queensland
Government

Department of Resources
ABN 59 020 847 551

Request for a declared area

ss19E-19L Vegetation Management Act 1999

Use this form to request an area of land to be declared an area of high nature conservation value or an area vulnerable to land degradation. For guidance on declared areas see the [Guide to declared areas \(hyperlink\)](#).

To apply for an area to be legally secured as an exchange area, complete the [application to legally secure an exchange area](#). For guidance on legally securing an exchange area see the [General guide to accepted development vegetation clearing codes](#).

1. Owner's (applicant's) details

Owner, of land includes -

- (a) for freehold land - all registered owners; or
- (b) for a lease, license or permit under the *Land Act 1994* – all lessees, licensees or permittees; or
- (c) for indigenous land - the holder of title to the land; or
- (d) for any tenure under any other Act - the holder of the tenure.

First name: Middle name: Surname:

Company name:

If a corporation then enter one of the following: ☐ ACN ☐ ABN ☐ ARBN

Main phone: Other phone:

Email:

Address line 1:

Address line 2:

Town/Suburb: State: Postcode:

Preferred method of contact ☐ Phone ☐ Email ☐ Letter

The nominated contact person does not need to be the owner. All verbal and written correspondence (including the issue of notices) will be sent to the nominated contact person.

Name of nominated contact person (if applicable):

Company name:

If a corporation then enter one of the following: ☐ ACN ☐ ABN ☐ ARBN

Main phone: Other phone:

Email address:

Address line 1:

Address line 2:

Town/Suburb: State: Postcode:

Preferred method of contact ☐ Phone ☐ Email ☐ Letter

I accept that I will act as the nominated contact person on behalf of the owner(s) referred to in Section 1.

Signature of nominated contact person

Date:

2. Property description			
This is the property on which the declared area is proposed. The declared area management plan should indicate the specific location of the proposed declared area on the property. Extra pages may be attached to list additional lots.			
Lot number	Plan number	Area in hectares	Tenure
5377	PH1903	5560	Leasehold (rolling term)

3. Registered interest holder consent																																			
A registered interest is one registered under the <i>Land Act 1994</i> or the <i>Land Title Act 1994</i>. Registered interests include but are not limited to mortgages, leases, subleases, covenants, profit a prendres, easements and building management statements. A declaration may not be made unless the holder of a registered interest (other than the owner) in the proposed declaration area has consented in writing to the making of the declaration. Note: Registered interest holder consent is not required to lodge this request for a declared area but is required prior to the making of a declaration.																																			
Acknowledgement and waiver by all registered interest holders. READ BEFORE SIGNING THIS SECTION By signing this section, those signing are taken to: - acknowledge that a declaration resulting from this request may have legal and financial implications for your interest in the property, and you agree that in no event shall the Department of Resources be liable for any special, indirect or consequential damages or any damages whatsoever rising out of or in connection with this request or any subsequent declaration in accordance with this request. - consent to the making of a declaration as proposed in this request and supporting material. Extra pages may be attached to list additional lots and/or registered interest holders and provide their consent to the making of the declaration.																																			
<table border="1"> <thead> <tr> <th>Parcel (Lot & plan)</th> <th>Type of registered interest</th> <th>Registered interest holder's name</th> <th>Contact details</th> <th>Signature</th> </tr> </thead> <tbody> <tr> <td>5377 PH1903</td> <td>Easement</td> <td>Powerlink Qld</td> <td>PO Box 1193, Virginia, Qld 4014</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Parcel (Lot & plan)	Type of registered interest	Registered interest holder's name	Contact details	Signature	5377 PH1903	Easement	Powerlink Qld	PO Box 1193, Virginia, Qld 4014																										
Parcel (Lot & plan)	Type of registered interest	Registered interest holder's name	Contact details	Signature																															
5377 PH1903	Easement	Powerlink Qld	PO Box 1193, Virginia, Qld 4014																																

4. Type of declaration	
Specify the type of declaration that is requested, and the relevant criteria for the declaration. One or more of the criteria may be applicable to the area being sought for declaration. Note: The owner must provide an explanation of how the declared area meets the criteria selected in this section. This explanation must be provided in the documents accompanying the request.	
☒ Area of high nature conservation value ☐ A wildlife refugium ☐ A centre of endemism ☒ An area containing a vegetation clump or corridor that contributes to the maintenance of biodiversity ☒ An area that makes a significant contribution to the conservation of biodiversity ☐ An area that contributes to the conservation value of a wetland, lake or spring ☐ Another area that contributes to the conservation of the environment OR ☐ An area vulnerable to land degradation ☐ Soil erosion ☐ Rising water tables ☐ The expression of salinity, whether inside or outside the area ☐ Mass movement by gravity of soil or rock ☐ Stream bank instability ☐ A process that results in declining water quality	
4.1 Purpose of request	
☐ Vegetation Management Environmental Offset ☐ Environmental Offset (Queensland) ☒ Environmental Offset (Commonwealth) ☐ Carbon Offset	☐ Better Environmental Outcome (BEO) ☐ Other Conservation Purpose ☐ Enforceable Undertaking
<i>Note: if the purpose of the declaration is to legally secure an exchange area, complete the application to legally secure an exchange area</i>	
4.2 Associated development approval	
<i>If the declaration is linked to a development approval under the Planning Act (for example, if it required to meet a project condition to legally secure an offset area), please provide details of the development approval below:</i>	
Development approval reference number:	EPBC 2018/8381
<i>If the declaration is linked to an approval under another Act please provide details of the approval below:</i>	
Other Approval reference number:	
Responsible agency:	Dept of Climate Change, Energy, the Environment and Water
5. Management plan	
A management plan must be provided with this request for a declared area. The management plan must contain all the components identified in this section. The management plan is to refer to the area identified in Section 2 of this form. The management plan may also include any other information the applicant considers will assist in the determination of the request. For more information on the management plan, consult the Guide to declared areas, available on www.qld.gov.au.	

Management plan checklist

- ☒ Property owner's contact details and signature
- ☒ Includes description of the area subject to the declared area
- ☒ Includes map showing the location and extent of the declared area (or enough information for chief executive to map the stated area):
 - ☒ A map that defines the boundaries of the proposed declared area and a description of the boundaries of the area referenced by Map Grid of Australia 2020 (MGA2020) coordinates and zone references for the area
 - ☒ A map showing the proposed declared area with five or more GPS points that correspond to identifiable fixed features; and the Map Grid of Australia 2020 (MGA2020) coordinates and zone references for each point, acquired by GPS or similar system of satellites that receives and processing information; and a description of the feature that each point represents
 - ☒ A dataset, which can be used in a Geographic Information System showing the proposed declared area
- ☒ States the owner's management intent, and management outcomes proposed by the owner, for the conservation of the high nature conservation value of the area or the prevention of land degradation in the area
- ☒ States the activities the owner intends to carry out, or refrain from carrying out, to achieve the stated management outcomes
- ☒ States the restrictions, if any, to be imposed on the use of, or access to, the area by other persons to achieve the stated management outcomes
- ☒ If the declared area is to legally secure an environmental offset and the Department of Resources is not the administering agency, includes confirmation that the administering agency has / has not approved the declared area management plan that complies with the VMA.

A declared area management plan template / guidance is available at www.qld.gov.au.

6. Signature of owner (applicant) and all registered owners

Where the owner is a company, execution by the company must be provided in accordance with the requirements of the **Corporations Act 2001 (Commonwealth)**, section 127.

A company:

- may execute a document without using a common seal if the document is signed by two (2) directors of the company or a director and a company secretary; or for a proprietary company that has a sole director who is also the sole company secretary - that director; or
- with a company seal may execute a document if the seal is fixed to the document and the fixing of the seal is witnessed by two (2) directors of the company or a director and a company secretary; or for a proprietary company that has a sole director who is also the sole company secretary - that director.

READ BEFORE SIGNING THIS SECTION

Acknowledgement and waiver by the owner (applicant) and all registered owners.

Before consent to or lodging this request for a declared area, it is recommended that all registered owners of the property seek their own independent legal and financial advice regarding the effect of this request, and the legal and financial impacts of any subsequent declaration.

By signing this section, those signing are taken to:

- acknowledge that the declared area resulting from this request may have legal and financial implications for your interest in the property, and you agree that in no event shall the Department of Resources be liable for any damages whatsoever rising out of or in connection with this request or any subsequent declaration; and
- consent to the lodgment of the request; and
- agree that all information entered and provided in this request, including any maps, lists or other documents additionally supplied, is correct and accurate; and
- authorise the nominated contact person to act as such on your behalf; and
- authorise all verbal correspondence relating to this request to be to the nominated contact person; and
- authorise all written correspondence (including the issuing of notices) relating to this request to be sent to the postal address for the nominated contact person; and
- request that the chief executive agree to make a declaration as proposed in this request.

If there are more owners, extra pages containing the additional signature(s) may be attached.

Lot	Plan number	Owner's name	If a corporation record one of the following:		Owner's signature	Date	Company seal (if applicable)
5377	PH1903		☐ ACN	☐ ARBN			
			☐ ACN	☐ ARBN			
			☐ ACN	☐ ARBN			
			☐ ACN	☐ ARBN			
			☐ ACN	☐ ARBN			
			☐ ACN	☐ ARBN			
			☐ ACN	☐ ARBN			
			☐ ACN	☐ ARBN			
			☐ ACN	☐ ARBN			
			☐ ACN	☐ ARBN			
			☐ ACN	☐ ARBN			
			☐ ACN	☐ ARBN			
			☐ ACN	☐ ARBN			
			☐ ACN	☐ ARBN			
			☐ ACN	☐ ARBN			

Privacy statement: The Department of Resources is collecting the information in this form and any attachments to process your request that the chief executive declare a stated area of land under the *Vegetation Management Act 1999*. The consideration of your request may involve consultation, and if so, details of your request and any attachments may be disclosed to third parties. These details will not otherwise be disclosed outside the Department of Resources unless required or authorized by law.

Office use only			
Name:		Position:	
Signature		Date:	
		Date received	

Schedule 1.3: Declared area management plan



Queensland
Government

Department of Resources
ABN 59 020 847 551

Declared area management plan

Vegetation Management Act 1999

Complete the following management plan for an area to be declared as an area of high nature conservation value or an area vulnerable to land degradation.

For guidance on declared areas see the [Guide to declared areas \(hyperlink\)](#). For guidance on legally securing an exchange area see the [General guide to accepted development vegetation clearing codes](#).

Note: Examples of information to include in this management plan are intended as guidance only. The level of detail or scope of the management plan will depend on the purpose of the declaration and the particular circumstances of the area being secured.

1. Owner's details

First name:		Middle name:		Surname:	
Company name:					
If a corporation then enter one of the following: ☐ ACN ☐ ABN ☐ ARBN					
Main phone:		Other phone:			
Address line 1:					
Address line 2:					
Town/Suburb:		State:		Postcode:	
Email address:					
Preferred method of contact				☐ Phone	☐ Email ☐ Letter
Local government area:					
<i>Office use only:</i>					
eLVAS case number:					
Notification number:					

2. Property description

This is the property on which the declared area is proposed. The declared area management plan should indicate the specific location of the proposed declared area on the property.

Extra pages may be attached to list additional lots.

Lot number	Plan number	Declared area in hectares	Tenure
5377	PH1903	550.6	Leasehold (rolling term)

3. Description of declared area

Include enough information to allow the chief executive to map the boundary of the stated area, including a description of the area subject to the declared area and a map showing the location and extent of the area.

Please refer to accompanying EPBC Offset Area Management Plan (OAMP). See section 6.

A map may be attached to this plan and submitted with the request for a declared area. Please provide spatial data in the format of a .kml or .shp file of your proposed area so that the exact extent can be used for the assessment.

4. Purpose of the declaration

The purpose of this declaration is to conserve an area of:

☒ high nature conservation value
☐ vulnerable to land degradation

under section 19G(1)(b)(iii) of the *Vegetation Management Act 1999* (VMA)

5. Registered interest holders consent

A registered interest is one registered under the *Land Act 1994* or the *Land Title Act 1994*.

Registered interests include mortgages, leases, subleases, covenants, profit a prendres, easements and building management statements.

A declaration may not be made unless the holder of a registered interest (other than the owner) in the proposed declaration area has consented in writing to the making of the declaration.

READ BEFORE SIGNING THIS SECTION

Acknowledgement and waiver by all registered interest holders.

By signing this section, those signing are taken to:

- acknowledge that a declared area resulting from a request for a declared area may have legal and financial implications for your interest in the property, and you agree that in no event shall the Department of Resources be liable for any special, indirect or consequential damages or any damages whatsoever rising out of or in connection with a request for a declared area or any subsequent declaration of the area in accordance with the request for a declared area.
- consent to the making of a declared area as proposed in the request for a declared area.

Extra pages may be attached to list additional lots and/or registered interest holders and provide their consent to the making of the declaration

Parcel (Lot & plan)	Type of registered interest	Registered interest holder's name	Contact details	Signature
5377 PH1903	Easement	Powerlink Qld	PO Box 1193, Virginia, Qld 4014	

Principles for drafting management plan: *In the sections below you will need to outline how you will achieve the management outcomes, including details on what actions will be taken to achieve this and how you will mitigate any impacts and manage any potential risks that may hinder the specified outcome.*

6. Management intent

Please refer to OAMP section 8

Examples:

1. The management intent for the area is the conservation of the native vegetation in the area. Conservation of the native vegetation will prevent the loss of biodiversity and maintain ecological processes.
2. The management intent for an area vulnerable to land degradation is to rehabilitate a degraded, unstable watercourse in an area subject to stream bank instability.

7. Management outcome

Please refer to OAMP section 9

Principles for drafting management outcomes: The management outcomes for the area should be achievable, measurable and related to the to the conservation value or land degradation issue associated with the area.

Examples:

1. The management outcome for the area is that it achieves the definition of remnant vegetation.
2. The management outcome for the area is to establish (insert number) habitat trees and to have restored and enhanced (insert hectares) of natural area within (insert number) of years.

Note for exchange areas: If the declaration is to legally secure an exchange area, the management objective must be either of the following:

- i. If the exchange area is located in a category X area, category C area or category R area—to return the exchange area to remnant vegetation (a category B area on the regulated vegetation management map) as soon as possible and within 20 years
- ii. If the exchange area is located in a category B area—to achieve the nominated substantial conservation outcome or address the nominated significant land degradation issue as soon as possible

8. Activities and restrictions

Please refer to OAMP section 8

Example: To achieve the management outcome, the landholder will comply with the following activities and restrictions:

1. *Clearing of native vegetation will not occur unless in accordance with an exemption listed in Schedule 21 of the Planning Regulation 2017 or a development approval under the Planning Act 2016.*
2. *All reasonable measures will be taken to maintain and enhance the structure and function of the regional ecosystem. For example, minimizing the introduction, establishment and spread of non-native plants. Where non-native plants already occur in the area, all reasonable measures will be taken to control the non-native plants.*
3. *Burning will only occur in accordance with the fire guideline/s specified in the Regional ecosystem description database (available at www.qld.gov.au) for the regional ecosystem/s in the declared area.*
4. *Pest animals and pest plants considered an invasive biosecurity matter under the Biosecurity Act 2014 will be controlled.*
5. *Livestock will be managed to ensure the growth of native vegetation and biodiversity is not impeded.*

Note for exchange areas: If the declaration is to legally secure an exchange area, this section of the management plan must include:

- Description of the works / management actions that will be undertaken to achieve the management objective, including the methods, timing, frequency, intended benefits etc.
- The conservation outcomes that will be achieved by the works / management actions
- Description of the management actions that will be undertaken to ensure that the effects of the works do not result in land degradation
- Details of who is responsible for all works and management actions, and the estimated length of time the area/s will be managed

9. Term

A management plan for a declared area has effect until the earlier of the following happens:

- the plan ends under its terms; or
- the declaration of the area as a declared area ends under section 19L of the VMA

Please refer to OAMP section 9

Ending a declaration

Under section 19L of the VMA the chief executive may, by written notice given to the owner of the land the subject of a declaration, end the declaration if the chief executive considers:

- the declaration is not in the interests of the State, having regard to the public interest; or
- the management outcomes mentioned in section 19E(3)(c) of the VMA for the management plan relevant to the declaration have been achieved.

The chief executive may, by notice given to the owner of land declared as an area of high conservation value, end the declaration if:

- the area is, on or after the commencement of subsection 19L(2) of the VMA, a legally secured offset area; and
- a prescribed activity is, under an authority under another Act, to be carried out in or on the area; and
- the holder of the authority has entered into an agreed delivery arrangement in relation to an environmental offset for impacts to the area.

Note: If the landholder considers the management outcomes have been achieved, they may submit a request to end a declaration to the Department of Resources. The Department of Resources will assess whether the management outcomes have been met before removing the declaration. If the declaration is to legally secure an environmental offset and the Department of Resources is not the administering agency, the department should also be satisfied that the administering agency agrees the management outcomes have been met and agrees to the ending of the declaration in order for the department to end the declaration.

Once the declaration has ended this plan will cease to have effect and the department will remove the declaration notice from the title of the land. The landholder should submit a 20C PMAV application with the request to remove the declaration to replace the PMAV currently over the declared area and map the appropriate category of vegetation for the area (for example, category B).

10. Monitoring and record keeping

Please refer to OAMP section 11

Monitoring and record keeping should be undertaken to track the state of the declared area and progress towards achieving the management outcomes specified in this plan. The following information should also be provided:

- Monitoring and auditing processes including adaptive management approaches to rectify negative results from the monitoring and auditing processes
- Record keeping process for retaining appropriate records for monitoring and auditing processes.

Note: Providing the information above complies with the ADVCC requirements for legally securing an exchange area.

To apply for an area to be legally secured as an exchange area, complete the [application to legally secure an exchange area](#). For guidance on legally securing an exchange area see the [General guide to accepted development vegetation clearing codes](#).

11. Additional information

The management plan may also include any other information the applicant considers will assist in the determination of the request. Additional information can be provided below or as an attachment to this plan.

12. Administering agency approval

If you are using a declared area to legally secure an environmental offset and the Department of Resources is not the administering agency, has the administering agency approved this management plan?

- ☒ Yes – Please include a copy of this approval with the request
- ☐ No – Please provide contact information for the administering agency and details of the offset delivery progress

Note: this management plan complies with the requirements for a declared area under the VMA, it does not fulfil the requirements of an offset management plan.

13. Signature of owner (applicant) and all registered owners

If there is more than one owner of the land on which the declared area is proposed, each owner must complete and sign this management plan. The owner of the land is the party/s registered on title as the registered owner.

Where the owner is a company, execution by the company must be provided in accordance with the requirements of the *Corporations Act 2001 (Commonwealth)*, section 127.

A company:

- may execute a document without using a common seal if the document is signed by two (2) directors of the company or a director and a company secretary; or for a proprietary company that has a sole director who is also the sole company secretary - that director; or
- with a company seal may execute a document if the seal is fixed to the document and the fixing of the seal is witnessed by two (2) directors of the company or a director and a company secretary; or for a proprietary company that has a sole director who is also the sole company secretary - that director.

If there are more owners, extra pages containing the additional signature(s) may be attached.

Lot	Plan number	Owner's name	If a corporation record one of the following:	Owner's signature	Date	Company seal (if applicable)
5377	PH1903		☐ ACN ☐ ARBN			
			☐ ACN ☐ ARBN			
			☐ ACN ☐ ARBN			
			☐ ACN ☐ ARBN			
			☐ ACN ☐ ARBN			
			☐ ACN ☐ ARBN			
			☐ ACN ☐ ARBN			
			☐ ACN ☐ ARBN			
			☐ ACN ☐ ARBN			

Department of Resources (office use only)

Name		Position		Signature		Date	
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Appendix A: Offset Assessment Guide outputs

Appendix A1: OAG output – koala

Offsets Assessment Guide	
For use in determining offsets under the Environment Protection and Biodiversity Conservation Act 19	
2 October 2012	
Matter of National Environmental Significance	
Name	Koala
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	0.2%

Impact calculator					
Ecological communities					
Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Information source
Area of community	No		Area (Hectares)		
			Quality (Scale 0-10)		
		Total quantum of impact (Adjusted Hectares)			
Threatened species habitat					
Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Information source
Area of habitat	Yes		Area (Hectares)	96	Conditions of Approval and agreed Biodiversity Offset Strategy
			Quality (Scale 0-10)	7	
		Total quantum of impact (Adjusted Hectares)		67.20	
Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Information source
Number of features e.g. Nest hollows, habitat trees	No				
Condition of habitat Change in habitat condition, but no change in extent	No				
Threatened species					
Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Information source
Birth rate e.g. Change in nest success	No				
Mortality rate e.g. Change in number of road kills per year	No				
Number of individuals e.g. Individual plants/animals	No				

Offset calculator																			
Ecological Communities																			
Protected matter attributes	Attribute relevant to case?	Total quantum of impact (Adjusted Hectares)	Proposed offset	Time Horizon (Years)		Start area and quality		Future area and quality <u>without</u> offset (adjusted hectares)		Future area and quality <u>with</u> offset (adjusted hectares)		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	Offset Result		Cost (\$ total)	
Area of community	No			Risk-related time horizon (max. 20 years)		Start area (hectares)		Risk of loss <u>without</u> offset (%)		Risk of loss <u>with</u> offset (%)		0.00		0.00	0.00	Overall net present value	0.00		
				Time until ecological benefit		Start quality (scale of 0-10)		Future quality <u>without</u> offset (scale of 0-10)		Future quality <u>with</u> offset (scale of 0-10)		0.00		0.00	0.00	% of impact offset	0.00%		
								Future area <u>without</u> offset		0.0	Future area <u>with</u> offset		0.0		Minimum (90%) direct offset requirement met?		FALSE		
Threatened species habitat																			
Protected matter attributes	Attribute relevant to case?	Total quantum of impact (Adjusted Hectares)	Proposed offset	Time Horizon (Years)		Start area and quality		Future area and quality <u>without</u> offset (adjusted hectares)		Future area and quality <u>with</u> offset (adjusted hectares)		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	Offset Result		Cost (\$ total)	
Area of habitat	Yes	67.20		Risk-related time horizon (max. 20 years)		20	Start area (hectares)	410	Risk of loss <u>without</u> offset (%)	8%	Risk of loss <u>with</u> offset (%)	0%	32.80	85%	27.88	26.79	Overall net present value	83.04	
				Time until ecological benefit		20	Start quality (scale of 0-10)	7	Future quality <u>without</u> offset (scale of 0-10)	6	Future quality <u>with</u> offset (scale of 0-10)	8	2.00	85%	1.70	1.63	% of impact offset	123.58%	
									Future area <u>without</u> offset	377.2	Future area <u>with</u> offset	410.0			Minimum (90%) direct offset requirement met?		TRUE		
Protected matter attributes	Attribute relevant to case?	Quantum of impact	Proposed offset	Time horizon (years)		Start Value		Future value without offset		Future value with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)	
Number of features e.g. Nest hollows, habitat trees	No											0.00		0.00	0.00	0.00%	FALSE		
Condition of habitat Change in habitat condition, but no change in extent	No											0.00		0.00	0.00	0.00%	FALSE		
Threatened species																			
Protected matter attributes	Attribute relevant to case?	Quantum of impact	Proposed offset	Time horizon (years)		Start Value		Future value without offset		Future value with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)	
Birth rate e.g. Change in nest success	No											0.00		0.00	0.00	0.00%	FALSE		
Mortality rate e.g. Change in number of road kills per year	No											0.00		0.00	0.00	0.00%	FALSE		
Number of individuals e.g. Individual plants/animals	No											0.00		0.00	0.00	0.00%	FALSE		

Summary							
				Cost (\$)			
Protected matter attributes	Quantum of impact	Net present value	% of impact offset	Direct offset adequate?	Direct offset	Other compensatory measures	Total
Birth rate	0.00	0.00	0.00	FALSE	0.00	N/A	0.00
Mortality rate	0.00	0.00	0.00	FALSE	0.00	N/A	0.00
Number of individuals	0.00	0.00	0.00	FALSE	0.00	N/A	0.00
Number of features	0.00	0.00	0.00	FALSE	0.00	N/A	0.00
Condition of habitat	0.00	0.00	0.00	FALSE	0.00	N/A	0.00
Area of habitat	67.20	83.04	1.24	TRUE	0.00	N/A	0.00
Area of community		0.00	0.00	FALSE	0.00	N/A	0.00
					\$0.00	\$0.00	\$0.00

Appendix A2: OAG output – squatter pigeon

Offsets Assessment Guide	
For use in determining offsets under the Environment Protection and Biodiversity Conservation Act 19	
2 October 2012	
Matter of National Environmental Significance	
Name	Squatter Pigeon
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	0.2%

Impact calculator					
Ecological communities					
Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Information source
Area of community	No		Area <i>(Hectares)</i>		
			Quality <i>(Scale 0-10)</i>		
		Total quantum of impact <i>(Adjusted Hectares)</i>			
Threatened species habitat					
Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Information source
Area of habitat	Yes		Area <i>(Hectares)</i>	162.2	Conditions of Approval and agreed Biodiversity Offset Strategy
			Quality <i>(Scale 0-10)</i>	7	
		Total quantum of impact <i>(Adjusted Hectares)</i>		113.54	
Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Information source
Number of features e.g. Nest hollows, habitat trees	No				
Condition of habitat Change in habitat condition, but no change in extent	No				
Threatened species					
Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Information source
Birth rate e.g. Change in nest success	No				
Mortality rate e.g. Change in number of road kills per year	No				
Number of individuals e.g. Individual plants/animals	No				

Offset calculator																		
Ecological Communities																		
Protected matter attributes	Attribute relevant to case?	Total quantum of impact (Adjusted Hectares)	Proposed offset	Time Horizon (Years)		Start area and quality		Future area and quality <u>without</u> offset (adjusted hectares)		Future area and quality <u>with</u> offset (adjusted hectares)		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	Offset Result		Cost (\$ total)
Area of community	No			Risk-related time horizon (max. 20 years)		Start area (hectares)		Risk of loss <u>without</u> offset (%)		Risk of loss <u>with</u> offset (%)		0.00		0.00	0.00	Overall net present value	0.00	
				Time until ecological benefit		Start quality (scale of 0-10)		Future quality <u>without</u> offset (scale of 0-10)		Future quality <u>with</u> offset (scale of 0-10)		0.00		0.00	0.00	% of impact offset	0.00%	
								Future area <u>without</u> offset	0.0	Future area <u>with</u> offset	0.0			Minimum (90%) direct offset requirement met?			FALSE	
Threatened species habitat																		
Protected matter attributes	Attribute relevant to case?	Total quantum of impact (Adjusted Hectares)	Proposed offset	Time Horizon (Years)		Start area and quality		Future area and quality <u>without</u> offset (adjusted hectares)		Future area and quality <u>with</u> offset (adjusted hectares)		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	Offset Result		Cost (\$ total)
Area of habitat	Yes	113.54		Risk-related time horizon (max. 20 years)	20	Start area (hectares)	550	Risk of loss <u>without</u> offset (%)	8%	Risk of loss <u>with</u> offset (%)	0%	44.00	100%	44.00	42.28	Overall net present value	116.47	
				Time until ecological benefit	20	Start quality (scale of 0-10)	7	Future quality <u>without</u> offset (scale of 0-10)	6	Future quality <u>with</u> offset (scale of 0-10)	8	2.00	85%	1.70	1.63	% of impact offset	102.58%	
								Future area <u>without</u> offset	506.0	Future area <u>with</u> offset	550.0			Minimum (90%) direct offset requirement met?			TRUE	
Protected matter attributes	Attribute relevant to case?	Quantum of impact	Proposed offset	Time horizon (years)		Start Value		Future value without offset		Future value with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)
Number of features e.g. Nest hollows, habitat trees	No											0.00		0.00	0.00	0.00%	FALSE	
Condition of habitat Change in habitat condition, but no change in extent	No											0.00		0.00	0.00	0.00%	FALSE	
Threatened species																		
Protected matter attributes	Attribute relevant to case?	Quantum of impact	Proposed offset	Time horizon (years)		Start Value		Future value without offset		Future value with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)
Birth rate e.g. Change in nest success	No											0.00		0.00	0.00	0.00%	FALSE	
Mortality rate e.g. Change in number of road kills per year	No											0.00		0.00	0.00	0.00%	FALSE	
Number of individuals e.g. Individual plants/animals	No											0.00		0.00	0.00	0.00%	FALSE	

Summary							
				Cost (\$)			
Protected matter attributes	Quantum of impact	Net present value	% of impact offset	Direct offset adequate?	Direct offset	Other compensatory measures	Total
Birth rate	0.00	0.00	0.00	FALSE	0.00	N/A	0.00
Mortality rate	0.00	0.00	0.00	FALSE	0.00	N/A	0.00
Number of individuals	0.00	0.00	0.00	FALSE	0.00	N/A	0.00
Number of features	0.00	0.00	0.00	FALSE	0.00	N/A	0.00
Condition of habitat	0.00	0.00	0.00	FALSE	0.00	N/A	0.00
Area of habitat	113.54	116.47	1.03	TRUE	0.00	N/A	0.00
Area of community		0.00	0.00	FALSE	0.00	N/A	0.00
					\$0.00	\$0.00	\$0.00

Appendix B: Detailed habitat quality assessment tables

Appendix B1: Offset assessment table – koala – current quality

Assessment table for fauna habitat offset	Assessment unit:	Bench-	8.12.7a			8.12.7a			8.12.7a			8.12.7			8.12.7			8.12.5a		
	Property:	mark																		
	Assessment site no:	(BM)	KM MHQA 01			KM MHQA 04			02 SNAP			01 SNAP			KM MQHA 05			KM MHQA 03		
	Regional ecosystem:	8.12.7a	8.12.7a			8.12.7a			8.12.7a			8.12.7			8.12.7			8.12.5a		
Ecological condition indicator			Value	% BM	Score	Value	% BM	Score	Value	% BM	Score	Value	% BM	Score	Value	% BM	Score	Value	% BM	Score
Recruitment of woody perennial species (%)	100	75	75%	5	100	77	77%	5	100	60	60%	3	100	60	60%	3	100	60	60%	3
Native plant species richness (No.): Trees	7	7	100%	5	7	9	129%	5	7	6	86%	2.5	7	6	86%	2.5	7	9	129%	5
Shrubs	9	3	33%	2.5	9	4	44%	2.5	9	4	44%	2.5	9	3	33%	2.5	9	4	44%	2.5
Grasses	6	3	50%	2.5	6	2	33%	2.5	6	5	83%	2.5	6	4	67%	2.5	6	4	67%	2.5
Forbs	19	3	16%	0	19	5	26%	2.5	19	7	37%	2.5	19	10	53%	2.5	19	2	11%	0
Tree canopy height (m): average of emergent, canopy and sub-canopy layer	15	7.5	50%	3	15	9	60%	3	15	5	33%	3	15	13	87%	5	15	11	73%	5
Tree sub-canopy height	8	0	0%	0	8	0	0%	0	8	0	0%	0	8	0	0%	0	100	0	0%	0
Tree canopy cover (%): average of emergent, canopy and sub-canopy layer	62	35	56%	5	62	45	73%	5	62	70	113%	5	62	56	90%	5	62	30	48%	2
Tree sub-canopy cover	30	0	0%	0	30	0	0%	0	30	0	0%	0	30	0	0%	0	30	0	0%	0
Shrub canopy cover (%):	27	0	0%	0	27	10	37%	3	27	2	7%	0	27	4	15%	3	27	3	11%	3
Native perennial grass cover (%):	12	20	167%	5	12	10	83%	3	12	5	42%	1	12	30	250%	5	12	20	167%	5
Organic litter (%):	61	55	90%	5	61	60	98%	5	61	70	115%	5	61	50	82%	5	61	30	49%	3
Large trees/ha (euc./non-euc. combined)	18	142	789%	15	18	24	133%	15	18	16	89%	10	18	8	44%	5	18	54	300%	15
Coarse woody debris (m/ha)	362	980	271%	2	362	2330	644%	2	362	115	32%	2	362	90	25%	2	362	1100	304%	2
Non-native plant cover (%):	0	0.07	7%	5	0	0.02	2%	10	0	0	0%	10	0	0.02	2%	10	0	0.03	3%	10
Site condition score (-/80)				55.0				63.5				49.0				53.0				60.0
Size of patch (-/10)				10				10				10				10				10
Connectedness (-/5)				5				5				5				5				5
Context (-/5)				5				5				5				5				5
Corridors (-/6)				6				6				6				6				6
Site context score (-/26)				26.0				26.0				26.0				26.0				26.0
Quality/availability of food/habitat for foraging				4				4				8				8				8
Quality/avail. of habitat for shelter and breeding				6				4				10				10				8
Role of site				4				4				4				4				4
Quality/availability of habitat required for mobility				7				7				7				7				7
Absence of threats				10				10				10				10				10
Fauna score (-/50)				31.0				29.0				39.0				39.0				37.0
Assessment unit totals																				
Habitat quality score (-/156)												114.83				112.00				123.00
Total possible score:												156.00				156.00				156.00
OAG score:												7.36				7.18				7.88
AU area within offset area:												121.00				81.00				55.80
Total offset area for this MNES:												410.70				410.70				410.70
Area weighting:												0.29				0.20				0.14
AU weighted HQS:												2.17				1.42				1.07
Total HQS all AUs:																				

Assessment table for fauna habitat offset	Assessment unit:	Bench-	8.12.22			11.3.35			11.3.29a			11.12.6a			11.11.15		
	Property:	mark															
	Assessment site no:	(BM)	KM MHQA 02			MHQA02SNMG31012023			MHQA01SNMT31012023			MHQA03SNMT31012023			KJ MHQA 03		
	Regional ecosystem:	8.12.22	8.12.22			11.3.35			11.3.29a			11.12.6a			11.11.15		
Ecological condition indicator			Value	% BM	Score	Value	% BM	Score	Value	% BM	Score	Value	% BM	Score	Value	% BM	Score
Recruitment of woody perennial species (%)	100		90	90%	5	100	90	90%	5	100	90	90%	5	100	90	90%	5
Native plant species richness (No.): Trees	9		14	156%	5	6	14	233%	5	7	14	200%	5	4	14	350%	5
Shrubs	18		6	33%	2.5	4	6	150%	5	7	6	86%	2.5	5	6	200%	5
Grasses	4		1	25%	2.5	7	1	14%	0	8	1	13%	0	8	1	14%	0
Forbs	21		12	57%	2.5	12	12	100%	5	17	12	71%	2.5	15	12	100%	5
Tree canopy height (m): average of emergent, canopy and sub-canopy layer	18		10	56%	3	15	10	67%	3	21	10	48%	3	25	10	56%	3
Tree sub-canopy height	8		5	63%	3	6	5	83%	5	11	5	45%	3	9	5	50%	3
Tree canopy cover (%): average of emergent, canopy and sub-canopy layer	55		60	109%	5	30	60	200%	5	44	60	136%	5	44	60	171%	5
Tree sub-canopy cover	47		50	106%	5	15	50	333%	3	10	50	500%	3	15	50	1000%	3
Shrub canopy cover (%):	21		20	95%	5	5	20	400%	3	2	20	1000%	3	4	20	667%	3
Native perennial grass cover (%):	36		1	3%	0	52	1	2%	0	40	1	3%	0	26	1	2%	0
Organic litter (%):	57		35	61%	5	15	35	233%	3	30	35	117%	5	44	35	152%	5
Large trees/ha (euc./non-euc. combined)	53		20	38%	5	32	20	63%	10	14	20	143%	15	13	20	118%	15
Coarse woody debris (m/ha)	515		40	8%	0	319	40	13%	2	304	40	13%	2	819	40	9%	0
Non-native plant cover (%):	0	0.03	3%	10	0	0.03	3%	10	0	0.03	3%	10	0	0.03	3%	10	0
Site condition score (-/80)					58.5			64.0			64.0			64.5			67.0
Size of patch (-/10)					10			10			10			10			10
Connectedness (-/5)					5			5			5			5			5
Context (-/5)					5			5			5			5			5
Corridors (-/6)					0			0			0			0			0
Site context score (-/26)					20.0			20.0			20.0			20.0			20.0
Quality/availability of food/habitat for foraging					8			4			4			6			6
Quality/avail. of habitat for shelter and breeding					8			4			4			0			6
Role of site					4			4			4			4			4
Quality/availability of habitat required for mobility					7			7			7			7			7
Absence of threats					10			8			8			10			8
Fauna score (-/50)					37.0			27.0			27.0			27.0			31.0
Assessment unit totals																	
Habitat quality score (-/156)					115.50			111.00			111.00			111.50			118.00
Total possible score:					156.00			156.00			156.00			156.00			156.00
OAG score:					7.40			7.12			7.12			7.15			7.56
AU area within offset area:					6.70			4.90			32.80			39.10			69.40
Total offset area for this MNES:					410.70			410.70			410.70			410.70			410.70
Area weighting:					0.02			0.01			0.08			0.10			0.17
AU weighted HQS:					0.12			0.08			0.57			0.68			1.28
Total HQS all AUs:																	7.39

Appendix B2: Offset assessment table – koala – future quality without offset

Assessment table for fauna habitat offset	Assessment unit:	Bench- mark (BM)	8.12.7a			BM	8.12.7a			BM	8.12.7a			BM	8.12.7			BM	8.12.7			BM	8.12.5a							
	Property:																													
	Assessment site no:		KM MHQA 01				KM MHQA 04				02 SNAP				01 SNAP				KM MQHA 05				KM MHQA 03							
	Regional ecosystem:		8.12.7a	8.12.7a			8.12.7a	8.12.7a			8.12.7a	8.12.7a			8.12.7	8.12.7			8.12.7	8.12.7			8.12.5a	8.12.5a						
Ecological condition indicator			Value	% BM	Score		Value	% BM	Score		Value	% BM	Score		Value	% BM	Score		Value	% BM	Score		Value	% BM	Score					
Recruitment of woody perennial species (%)		100	75	75%	5	100	77	77%	5	100	60	60%	3	100	60	60%	3	100	60	60%	3	100	89	89%	5					
Native plant species richness (No.): Trees		7	7	100%	5	7	9	129%	5	7	6	86%	2.5	7	6	86%	2.5	7	6	86%	2.5	7	9	129%	5					
Shrubs		9	3	33%	2.5	9	4	44%	2.5	9	4	44%	2.5	9	3	33%	2.5	9	3	33%	2.5	9	4	44%	2.5					
Grasses		6	3	50%	2.5	6	2	33%	2.5	6	5	83%	2.5	6	4	67%	2.5	6	4	67%	2.5	6	4	67%	2.5					
Forbs		19	3	16%	0	19	5	26%	2.5	19	7	37%	2.5	19	10	53%	2.5	19	10	53%	2.5	19	2	11%	0					
Tree canopy height (m): average of emergent, canopy and sub-canopy layer		15	7.5	50%	3	15	9	60%	3	15	5	33%	3	15	13	87%	5	15	13	87%	5	15	11	73%	0					
Tree sub-canopy height		8	0	0%	0	8	0	0%	0	8	0	0%	0	8	0	0%	0	8	0		0	100	0	0%	0					
Tree canopy cover (%): average of emergent, canopy and sub-canopy layer		62	35	56%	5	62	45	73%	5	62	70	113%	5	62	56	90%	5	62	30	48%	2	62	30	48%	0					
Tree sub-canopy cover		30	0	0%	0	30	0	0%	0	30	0	0%	0	30	0	0%	0	30	0		0	30	0	0%	0					
Shrub canopy cover (%):		27	0	0%	0	27	10	37%	3	27	2	7%	0	27	4	15%	3	27	3	11%	3	27	3	11%	3					
Native perennial grass cover (%):		12	20	167%	5	12	10	83%	3	12	5	42%	1	12	30	250%	5	12	20	167%	5	12	55	458%	5					
Organic litter (%):		61	55	90%	5	61	60	98%	5	61	70	115%	5	61	50	82%	5	61	55	90%	5	61	30	49%	3					
Large trees/ha (euc./non-euc. combined)		18	142	789%	15	18	24	133%	15	18	16	89%	10	18	8	44%	5	18	66	367%	15	18	54	300%	15					
Coarse woody debris (m/ha)		362	980	271%	2	362	2330	644%	2	362	115	32%	2	362	90	25%	2	362	1150	318%	2	362	1100	304%	2					
Non-native plant cover (%):		0	0.07	7%	5	0	0.02	2%	10	0	0	0%	10	0	0.02	2%	10	0	0.02	2%	1	0	0.03	3%	10					
Site condition score (-/80)		55.0				63.5				49.0				53.0				51.0				53.0								
Size of patch (-/10)		10				10				10				10				10												
Connectedness (-/5)		5				5				5				5				5												
Context (-/5)		5				5				5				5				5												
Corridors (-/6)		6				6				6				6				6												
Site context score (-/26)		26.0				26.0				26.0				26.0				26.0				26.0								
Quality/availability of food/habitat for foraging		4				4				8				8				4				8								
Quality/avail. of habitat for shelter and breeding		6				4				10				10				4				8								
Role of site		4				4				4				4				4				4								
Quality/availability of habitat required for mobility		7				7				7				7				7				7								
Absence of threats		4				4				4				4				4				4								
Fauna score (-/50)		25.0				23.0				33.0				33.0				23.0				31.0								
Assessment unit totals																														
Habitat quality score (-/156)														100.83													97.50			110.00
Total possible score:														156.00													156.00			156.00
OAG score:														6.46													6.25			7.05
AU area within offset area:														121.00													81.00			55.80
Total offset area for this MNES:														410.70													410.70			410.70
Area weighting:														0.29													0.20			0.14
AU weighted HQS:														1.90													1.23			0.96
Total HQS all AUs:																														

Assessment table for fauna habitat offset	Assessment unit:	Bench-	8.12.22			11.3.35			11.3.29a			11.12.6a			11.11.15		
	Property:	mark				BM			BM			BM			BM		
	Assessment site no:	(BM)	KM MHQA 02			MHQA02SNMG31012023			MHQA01SNMT31012023			MHQA03SNMT31012023			KJ MHQA 03		
	Regional ecosystem:	8.12.22	8.12.22			11.3.35			11.3.29a			11.12.6a			11.11.15		
Ecological condition indicator			Value	% BM	Score		Value	% BM	Score		Value	% BM	Score		Value	% BM	Score
Recruitment of woody perennial species (%)	100		90	90%	5	100	90	90%	5	100	90	90%	5	100	90	90%	5
Native plant species richness (No.): Trees	9		14	156%	5	6	14	233%	5	7	14	200%	5	4	14	350%	5
Shrubs	18		6	33%	2.5	4	6	150%	5	7	6	86%	2.5	5	6	120%	5
Grasses	4		1	25%	2.5	7	1	14%	0	8	1	13%	0	8	1	14%	0
Forbs	21		12	57%	2.5	12	12	100%	5	17	12	71%	2.5	15	12	80%	2.5
Tree canopy height (m): average of emergent, canopy and sub-canopy layer	18		10	56%	0	15	10	67%	0	21	10	48%	0	25	10	40%	0
Tree sub-canopy height	8		5	63%	0	6	5	83%	0	11	5	45%	0	9	5	56%	0
Tree canopy cover (%): average of emergent, canopy and sub-canopy layer	55		60	109%	0	30	60	200%	0	44	60	136%	0	44	60	136%	0
Tree sub-canopy cover	47		50	106%	0	15	50	333%	0	10	50	500%	0	15	50	333%	0
Shrub canopy cover (%):	21		20	95%	5	5	20	400%	3	2	20	1000%	3	4	20	500%	3
Native perennial grass cover (%):	36		1	3%	0	52	1	2%	0	40	1	3%	0	26	1	4%	0
Organic litter (%):	57		35	61%	5	15	35	233%	3	30	35	117%	5	44	35	80%	5
Large trees/ha (euc./non-euc. combined)	53		20	38%	5	32	20	63%	10	14	20	143%	15	13	20	154%	15
Coarse woody debris (m/ha)	515		40	8%	0	319	40	13%	2	304	40	13%	2	819	40	5%	0
Non-native plant cover (%):	0	0.03	3%	10		0	0.03	3%	10	0	0.03	3%	10	0	0.03	3%	10
Site condition score (-/80)					42.5				48.0				50.0				53.0
Size of patch (-/10)					10				10				10				10
Connectedness (-/5)					5				5				5				5
Context (-/5)					5				5				5				5
Corridors (-/6)					6				0				0				0
Site context score (-/26)					26.0				20.0				20.0				20.0
Quality/availability of food/habitat for foraging					8				1				1				6
Quality/avail. of habitat for shelter and breeding					8				1				1				0
Role of site					4				4				4				4
Quality/availability of habitat required for mobility					7				1				1				7
Absence of threats					4				4				4				1
Fauna score (-/50)					31.0				11.0				11.0				21.0
Assessment unit totals																	
Habitat quality score (-/156)					99.50				79.00				81.00				91.50
Total possible score:					156.00				156.00				156.00				156.00
OAG score:					6.38				5.06				5.19				5.87
AU area within offset area:					6.70				4.90				32.80				39.10
Total offset area for this MNES:					410.70				410.70				410.70				410.70
Area weighting:					0.02				0.01				0.08				0.10
AU weighted HQS:					0.10				0.06				0.41				0.56
Total HQS all AUs:																	6.32

Appendix B3: Offset assessment table – koala – future quality with offset

Assessment table for fauna habitat offset	Assessment unit:	Bench- mark (BM)	8.12.7a			BM	8.12.7a			BM	8.12.7a			BM	8.12.7			BM	8.12.7			BM	8.12.5a													
	Property:																																			
	Assessment site no:		KM MHQA 01				KM MHQA 04				02 SNAP				01 SNAP				KM MQHA 05				KM MHQA 03													
	Regional ecosystem:		8.12.7a	8.12.7a			8.12.7a	8.12.7a			8.12.7a	8.12.7			8.12.7	8.12.7			8.12.7	8.12.5a																
Ecological condition indicator		Value	% BM	Score		Value	% BM	Score		Value	% BM	Score		Value	% BM	Score		Value	% BM	Score		Value	% BM	Score												
Recruitment of woody perennial species (%)	100			5	100			5	100			3	100			3	100			3	100			5												
Native plant species richness (No.): Trees	7			5	7			5	7			2.5	7			2.5	7			2.5	7			5												
Shrubs	9			2.5	9			2.5	9			2.5	9			2.5	9			2.5	9			2.5												
Grasses	6			2.5	6			2.5	6			2.5	6			2.5	6			2.5	6			2.5												
Forbs	19			2.5	19			2.5	19			2.5	19			2.5	19			2.5	19			2.5												
Tree canopy height (m): average of emergent, canopy and sub-canopy layer	15			3	15			3	15			3	15			5	15			5	15			5												
Tree sub-canopy height	8			3	8			3	8			3	8			3	8			3	100			3												
Tree canopy cover (%): average of emergent, canopy and sub-canopy layer	62			5	62			5	62			5	62			5	62			3	62			2												
Tree sub-canopy cover	30			3	30			3	30			3	30			3	30			3	30			3												
Shrub canopy cover (%):	27			3	27			3	27			3	27			3	27			3	27			3												
Native perennial grass cover (%):	12			5	12			3	12			5	12			5	12			5	12			5												
Organic litter (%):	61			5	61			5	61			5	61			5	61			5	61			3												
Large trees/ha (euc./non-euc. combined)	18			15	18			15	18			10	18			5	18			15	18			15												
Coarse woody debris (m/ha)	362			3	362			5	362			5	362			3	362			5	362			5												
Non-native plant cover (%):	0			10	0			10	0			10	0			10	0			3	0			10												
Site condition score (-/80)				72.5				72.5				63.0				60.0				51.0				60.0												
Size of patch (-/10)				10				10				10				10				10				10												
Connectedness (-/5)				5				5				5				5				5				5												
Context (-/5)				5				5				5				5				5				5												
Corridors (-/6)				6				6				6				6				6				6												
Site context score (-/26)				26.0				26.0				26.0				26.0				26.0				26.0												
Quality/availability of food/habitat for foraging				5				5				8				8				5				8												
Quality/avail. of habitat for shelter and breeding				6				4				10				10				4				8												
Role of site				5				5				5				5				5				5												
Quality/availability of habitat required for mobility				15				15				15				15				15				15												
Absence of threats				10				10				10				10				10				10												
Fauna score (-/50)				41.0				39.0				48.0				48.0				39.0				46.0												
Assessment unit totals																																				
Habitat quality score (-/156)												124.00												128.00												130.50
Total possible score:												156.00												156.00												156.00
OAG score:												7.95												8.21												8.37
AU area within offset area:												121.00												81.00												55.80
Total offset area for this MNES:												410.70												410.70												410.70
Area weighting:												0.29												0.20												0.14
AU weighted HQS:												2.34												1.62												1.14
Total HQS all AUs:																																				

Assessment table for fauna habitat offset	Assessment unit:	Bench-	8.12.22			11.3.35			11.3.29a			11.12.6a			11.11.15		
	Property:	mark				BM			BM			BM			BM		
	Assessment site no:	(BM)	KM MHQA 02			MHQA02SNMG31012023			MHQA01SNMT31012023			MHQA03SNMT31012023			KJ MHQA 03		
	Regional ecosystem:	8.12.22	8.12.22			11.3.35			11.3.29a			11.12.6a			11.11.15		
Ecological condition indicator			Value	% BM	Score	Value	% BM	Score	Value	% BM	Score	Value	% BM	Score	Value	% BM	Score
Recruitment of woody perennial species (%)	100			5	100			5	100		5	100		5	100		5
Native plant species richness (No.): Trees	9			5	6			5	7		5	4		5	4		5
Shrubs	18			2.5	4			5	7		2.5	5		5	3		5
Grasses	4			2.5	7			2.5	8		2.5	8		2.5	7		2.5
Forbs	21			2.5	12			5	17		2.5	15		2.5	12		5
Tree canopy height (m): average of emergent, canopy and sub-canopy layer	18			3	15			3	21		3	25		3	18		3
Tree sub-canopy height	8			3	6			5	11		3	9		3	10		3
Tree canopy cover (%): average of emergent, canopy and sub-canopy layer	55			5	30			5	44		5	44		5	35		5
Tree sub-canopy cover	47			5	15			3	10		3	15		3	5		3
Shrub canopy cover (%):	21			5	5			3	2		3	4		3	3		3
Native perennial grass cover (%):	36			5	52			3	40		3	26		5	45		3
Organic litter (%):	57			5	15			3	30		5	44		5	23		5
Large trees/ha (euc./non-euc. combined)	53			5	32			10	14		15	13		15	17		15
Coarse woody debris (m/ha)	515			3	319			2	304		2	819		2	441		2
Non-native plant cover (%):	0			10	0			10	0		10	0		10	0		10
Site condition score (-/80)				66.5				69.5			69.5			72.0			74.5
Size of patch (-/10)				10				10			10			10			10
Connectedness (-/5)				5				5			5			5			5
Context (-/5)				5				5			5			5			5
Corridors (-/6)				6				0			0			0			0
Site context score (-/26)				26.0				20.0			20.0			20.0			20.0
Quality/availability of food/habitat for foraging				8				10			10			6			6
Quality/avail. of habitat for shelter and breeding				8				10			10			5			6
Role of site				5				5			5			5			5
Quality/availability of habitat required for mobility				15				15			15			15			15
Absence of threats				10				10			10			10			8
Fauna score (-/50)				46.0				50.0			50.0			41.0			40.0
Assessment unit totals																	
Habitat quality score (-/156)				138.50				139.50			139.50			133.00			134.50
Total possible score:				156.00				156.00			156.00			156.00			156.00
OAG score:				8.88				8.94			8.94			8.53			8.62
AU area within offset area:				6.70				4.90			32.80			39.10			69.40
Total offset area for this MNES:				410.70				410.70			410.70			410.70			410.70
Area weighting:				0.02				0.01			0.08			0.10			0.17
AU weighted HQS:				0.14				0.11			0.71			0.81			1.46
Total HQS all AUs:																	8.33

Appendix B4: Offset assessment table - squatter pigeon habitat – current quality

Assessment table for fauna habitat offset	Assessment unit:	Bench- mark (BM)	8.12.7a			BM	8.12.7a			BM	8.12.7a			BM	8.12.7			BM	8.12.7			BM	8.12.5a					
	Property:																											
	Assessment site no:		KM MHQA 01				KM MHQA 04				02 SNAP				01 SNAP				KM MQHA 05				KM MHQA 03					
	Regional ecosystem:		8.12.7a	8.12.7a			8.12.7a	8.12.7a			8.12.7a	8.12.7a			8.12.7	8.12.7			8.12.7	8.12.7			8.12.5a	8.12.5a				
Ecological condition indicator			Value	% BM	Score		Value	% BM	Score		Value	% BM	Score		Value	% BM	Score		Value	% BM	Score		Value	% BM	Score			
Recruitment of woody perennial species (%)		100	75	75%	5	100	77	77%	5	100	60	60%	3	100	60	60%	3	100	60	60%	3	100	89	89%	5			
Native plant species richness (No.): Trees		7	7	100%	5	7	9	129%	5	7	6	86%	2.5	7	6	86%	2.5	7	6	86%	2.5	7	9	129%	5			
Shrubs		9	3	33%	2.5	9	4	44%	2.5	9	4	44%	2.5	9	3	33%	2.5	9	3	33%	2.5	9	4	44%	2.5			
Grasses		6	3	50%	2.5	6	2	33%	2.5	6	5	83%	2.5	6	4	67%	2.5	6	4	67%	2.5	6	4	67%	2.5			
Forbs		19	3	16%	0	19	5	26%	2.5	19	7	37%	2.5	19	10	53%	2.5	19	10	53%	2.5	19	2	11%	0			
Tree canopy height (m): average of emergent, canopy and sub-canopy layer		15	7.5	50%	3	15	9	60%	3	15	5	33%	3	15	13	87%	5	15	13	87%	5	15	11	73%	5			
Tree sub-canopy height		8	0	0%	0	8	0	0%	0	8	0	0%	0	8	0	0%	0	8	0		0	100	0	0%	0			
Tree canopy cover (%): average of emergent, canopy and sub-canopy layer		62	35	56%	5	62	45	73%	5	62	70	113%	5	62	56	90%	5	62	30	48%	2	62	30	48%	2			
Tree sub-canopy cover		30	0	0%	0	30	0	0%	0	30	0	0%	0	30	0	0%	0	30	0		0	30	0	0%	0			
Shrub canopy cover (%):		27	0	0%	0	27	10	37%	3	27	2	7%	0	27	4	15%	3	27	3	11%	3	27	3	11%	3			
Native perennial grass cover (%):		12	20	167%	5	12	10	83%	3	12	5	42%	1	12	30	250%	5	12	20	167%	5	12	55	458%	5			
Organic litter (%):		61	55	90%	5	61	60	98%	5	61	70	115%	5	61	50	82%	5	61	55	90%	5	61	30	49%	3			
Large trees/ha (euc./non-euc. combined)		18	142	789%	15	18	24	133%	15	18	16	89%	10	18	8	44%	5	18	66	367%	15	18	54	300%	15			
Coarse woody debris (m/ha)		362	980	271%	2	362	2330	644%	2	362	115	32%	2	362	90	25%	2	362	1150	318%	2	362	1100	304%	2			
Non-native plant cover (%):		0	0.07	7%	5	0	0.02	2%	10	0	0	0%	10	0	0.02	2%	10	0	0.02	2%	1	0	0.03	3%	10			
Site condition score (-/80)					55.0				63.5				49.0				53.0				52.0				60.0			
Size of patch (-/10)					10				10				10				10				10				10			
Connectedness (-/5)					5				5				5				5				5				5			
Context (-/5)					5				5				5				5				5				5			
Corridors (-/6)					6				6				6				6				6				6			
Site context score (-/26)					26.0				26.0				26.0				26.0				26.0				26.0			
Quality/availability of food/habitat for foraging					2				2				2				2				2				4			
Quality/avail. of habitat for shelter and breeding					2				2				2				2				2				2			
Role of site					1				1				1				1				1				1			
Quality/availability of habitat required for mobility					7				7				7				7				7				7			
Absence of threats					10				10				10				10				10				10			
Fauna score (-/50)					22.0				22.0				22.0				22.0				22.0				24.0			
Assessment unit totals																												
Habitat quality score (-/156)													103.83												100.00			110.00
Total possible score:													156.00												156.00			156.00
OAG score:													6.66												6.41			7.05
AU area within offset area:													226.90												81.00			55.80
Total offset area for this MNES:													550.60												550.60			550.60
Area weighting:													0.41												0.15			0.10
AU weighted HQS:													2.74												0.94			0.71
Total HQS all AUs:																												

Assessment table for fauna habitat offset	Assessment unit:	Bench- mark (BM)	8.12.22			BM	11.3.35			BM	11.3.29a			BM	11.3.29			BM	11.12.6a			BM	11.11.15		
	Property:																								
	Assessment site no:		KM MHQA 02				MHQA02SNMG31012023				MHQA01SNMT31012023				KJ MHQA 01				MHQA03SNMT31012023				KJ MHQA 03		
	Regional ecosystem:		8.12.22	8.12.22			11.3.35	11.3.35			11.3.29a	11.3.29a			11.3.29	11.3.29			11.12.6a	11.12.6a			11.11.15	11.11.15	
Ecological condition indicator		Value	% BM	Score		Value	% BM	Score		Value	% BM	Score		Value	% BM	Score		Value	% BM	Score		Value	% BM	Score	
Recruitment of woody perennial species (%)	100	90	90%	5	100	90	90%	5	100	90	90%	5	100	90	90%	5	100	90	90%	5	100	90	90%	5	
Native plant species richness (No.): Trees	9	14	156%	5	6	14	233%	5	7	14	200%	5	7	14	200%	5	4	14	350%	5	4	14	350%	5	
Shrubs	18	6	33%	2.5	4	6	150%	5	7	6	86%	2.5	7	6	86%	2.5	5	6	120%	5	3	6	200%	5	
Grasses	4	1	25%	2.5	7	1	14%	0	8	1	13%	0	8	1	13%	0	8	1	13%	0	7	1	14%	0	
Forbs	21	12	57%	2.5	12	12	100%	5	17	12	71%	2.5	17	12	71%	2.5	15	12	80%	2.5	12	12	100%	5	
Tree canopy height (m): average of emergent, canopy and sub-canopy layer	18	10	56%	3	15	10	67%	3	21	10	48%	3	21	10	48%	3	25	10	40%	3	18	10	56%	3	
Tree sub-canopy height	8	5	63%	3	6	5	83%	5	11	5	45%	3	11	5	45%	3	9	5	56%	3	10	5	50%	3	
Tree canopy cover (%): average of emergent, canopy and sub-canopy layer	55	60	109%	5	30	60	200%	5	44	60	136%	5	44	60	136%	5	44	60	136%	5	35	60	171%	5	
Tree sub-canopy cover	47	50	106%	5	15	50	333%	3	10	50	500%	3	10	50	500%	3	15	50	333%	3	5	50	1000%	3	
Shrub canopy cover (%):	21	20	95%	5	5	20	400%	3	2	20	1000%	3	2	20	1000%	3	4	20	500%	3	3	20	667%	3	
Native perennial grass cover (%):	36	1	3%	0	52	1	2%	0	40	1	3%	0	40	1	3%	0	26	1	4%	0	45	1	2%	0	
Organic litter (%):	57	35	61%	5	15	35	233%	3	30	35	117%	5	30	35	117%	5	44	35	80%	5	23	35	152%	5	
Large trees/ha (euc./non-euc. combined)	53	20	38%	5	32	20	63%	10	14	20	143%	15	14	20	143%	15	13	20	154%	15	17	20	118%	15	
Coarse woody debris (m/ha)	515	40	8%	0	319	40	13%	2	304	40	13%	2	304	40	13%	2	819	40	5%	0	441	40	9%	0	
Non-native plant cover (%):	0	0.03	3%	10	0	0.03	3%	10	0	0.03	3%	10	0	0.03	3%	10	0	0.03	3%	10	0	0.03	3%	10	
Site condition score (-/80)				58.5				64.0				64.0				64.0				64.5				67.0	
Size of patch (-/10)				10				10				10				10				10				10	
Connectedness (-/5)				5				5				5				5				5				5	
Context (-/5)				5				5				5				5				5				5	
Corridors (-/6)				0				0				0				0				0				6	
Site context score (-/26)				20.0				20.0				20.0				20.0				20.0				26.0	
Quality/availability of food/habitat for foraging				0				2				4				0				0				0	
Quality/avail. of habitat for shelter and breeding				2				2				0				0				2				0	
Role of site				1				1				1				1				1				1	
Quality/availability of habitat required for mobility				7				7				7				7				7				7	
Absence of threats				10				10				10				10				10				10	
Fauna score (-/50)				20.0				22.0				22.0				18.0				20.0				18.0	
Assessment unit totals																									
Habitat quality score (-/156)				98.50				106.00				106.00				102.00				104.50				111.00	
Total possible score:				156.00				156.00				156.00				156.00				156.00				156.00	
OAG score:				6.31				6.79				6.79				6.54				6.70				7.12	
AU area within offset area:				6.70				4.90				32.80				34.00				39.10				69.40	
Total offset area for this MNES:				550.60				550.60				550.60				550.60				550.60				550.60	
Area weighting:				0.01				0.01				0.06				0.06				0.07				0.13	
AU weighted HQS:				0.08				0.06				0.40				0.40				0.48				0.90	
Total HQS all AUs:																							6.72		

Appendix B5: Offset assessment table - squatter pigeon habitat – future quality without offset

Assessment table for fauna habitat offset	Assessment unit:	Bench- mark (BM)	8.12.7a			BM	8.12.7a			BM	8.12.7a			BM	8.12.7			BM	8.12.7			BM	8.12.5a					
	Property:																											
	Assessment site no:		KM MHQA 01				KM MHQA 04				02 SNAP				01 SNAP				KM MQHA 05				KM MHQA 03					
	Regional ecosystem:		8.12.7a	8.12.7a			8.12.7a	8.12.7a			8.12.7a	8.12.7a			8.12.7	8.12.7			8.12.7	8.12.5a								
Ecological condition indicator			Value	% BM	Score		Value	% BM	Score		Value	% BM	Score		Value	% BM	Score		Value	% BM	Score		Value	% BM	Score			
Recruitment of woody perennial species (%)		100	75	75%	5	100	77	77%	5	100	60	60%	3	100	60	60%	3	100	60	60%	3	100	89	89%	5			
Native plant species richness (No.): Trees		7	7	100%	5	7	9	129%	5	7	6	86%	2.5	7	6	86%	2.5	7	6	86%	2.5	7	9	129%	5			
Shrubs		9	3	33%	2.5	9	4	44%	2.5	9	4	44%	2.5	9	3	33%	2.5	9	3	33%	2.5	9	4	44%	2.5			
Grasses		6	3	50%	2.5	6	2	33%	2.5	6	5	83%	2.5	6	4	67%	2.5	6	4	67%	2.5	6	4	67%	2.5			
Forbs		19	3	16%	0	19	5	26%	2.5	19	7	37%	2.5	19	10	53%	2.5	19	10	53%	2.5	19	2	11%	0			
Tree canopy height (m): average of emergent, canopy and sub-canopy layer		15	7.5	50%	3	15	9	60%	3	15	5	33%	3	15	13	87%	5	15	13	87%	5	15	11	73%	5			
Tree sub-canopy height		8	0	0%	0	8	0	0%	0	8	0	0%	0	8	0	0%	0	8	0		0	100	0	0%	0			
Tree canopy cover (%): average of emergent, canopy and sub-canopy layer		62	35	56%	5	62	45	73%	5	62	70	113%	5	62	56	90%	3	62	30	48%	2	62	30	48%	2			
Tree sub-canopy cover		30	0	0%	0	30	0	0%	0	30	0	0%	0	30	0	0%	0	30	0		0	30	0	0%	0			
Shrub canopy cover (%):		27	0	0%	0	27	10	37%	3	27	2	7%	0	27	4	15%	1	27	3	11%	3	27	3	11%	3			
Native perennial grass cover (%):		12	20	167%	3	12	10	83%	3	12	5	42%	1	12	30	250%	3	12	20	167%	5	12	55	458%	3			
Organic litter (%):		61	55	90%	5	61	60	98%	5	61	70	115%	5	61	50	82%	5	61	55	90%	5	61	30	49%	3			
Large trees/ha (euc./non-euc. combined)		18	142	789%	15	18	24	133%	15	18	16	89%	10	18	8	44%	5	18	66	367%	15	18	54	300%	15			
Coarse woody debris (m/ha)		362	980	271%	2	362	2330	644%	2	362	115	32%	2	362	90	25%	0	362	1150	318%	2	362	1100	304%	2			
Non-native plant cover (%):		0	0.07	7%	3	0	0.02	2%	3	0	0	0%	3	0	0.02	2%	3	0	0.02	2%	1	0	0.03	3%	3			
Site condition score (-/80)					51.0				56.5				42.0				38.0				51.0				51.0			
Size of patch (-/10)					10				10				10				10				10				10			
Connectedness (-/5)					5				5				5				5				5				5			
Context (-/5)					5				5				5				5				5				5			
Corridors (-/6)					6				6				6				6				6				6			
Site context score (-/26)					26.0				26.0				26.0				26.0				26.0				26.0			
Quality/availability of food/habitat for foraging					2				2				2				2				2				4			
Quality/avail. of habitat for shelter and breeding					2				2				2				2				2				2			
Role of site					1				1				1				1				1				1			
Quality/availability of habitat required for mobility					7				7				7				7				7				7			
Absence of threats					10				10				10				10				10				10			
Fauna score (-/50)					22.0				22.0				22.0				22.0				22.0				24.0			
Assessment unit totals																												
Habitat quality score (-/156)													97.83												90.50			101.00
Total possible score:													156.00												156.00			156.00
OAG score:													6.27												5.80			6.47
AU area within offset area:													226.90												81.00			55.80
Total offset area for this MNES:													550.60												550.60			550.60
Area weighting:													0.41												0.15			0.10
AU weighted HQS:													2.58												0.85			0.66
Total HQS all AUs:																												

Assessment table for fauna habitat offset	Assessment unit:	Bench- mark (BM)	8.12.22			BM	11.3.35			BM	11.3.29a			BM	11.3.29			BM	11.12.6a			BM	11.11.15		
	Property:																								
	Assessment site no:		KM MHQA 02				MHQA02SNMG31012023				MHQA01SNMT31012023				KJ MHQA 01				MHQA03SNMT31012023				KJ MHQA 03		
	Regional ecosystem:		8.12.22	8.12.22			11.3.35	11.3.35			11.3.29a	11.3.29a			11.3.29	11.3.29			11.12.6a	11.12.6a			11.11.15	11.11.15	
Ecological condition indicator		Value	% BM	Score		Value	% BM	Score		Value	% BM	Score		Value	% BM	Score		Value	% BM	Score		Value	% BM	Score	
Recruitment of woody perennial species (%)	100	90	90%	5	100	90	90%	5	100	90	90%	5	100	90	90%	5	100	90	90%	5	100	90	90%	5	
Native plant species richness (No.): Trees	9	14	156%	5	6	14	233%	5	7	14	200%	5	7	14	200%	5	4	14	350%	5	4	14	350%	5	
Shrubs	18	6	33%	2.5	4	6	150%	2.5	7	6	86%	2.5	7	6	86%	2.5	5	6	120%	5	3	6	200%	5	
Grasses	4	1	25%	2.5	7	1	14%	0	8	1	13%	0	8	1	13%	0	8	1	13%	0	7	1	14%	0	
Forbs	21	12	57%	2.5	12	12	100%	2.5	17	12	71%	2.5	17	12	71%	2.5	15	12	80%	2.5	12	12	100%	5	
Tree canopy height (m): average of emergent, canopy and sub-canopy layer	18	10	56%	2.5	15	10	67%	3	21	10	48%	3	21	10	48%	3	25	10	40%	3	18	10	56%	3	
Tree sub-canopy height	8	5	63%	2.5	6			0	11			0	11			0	9			0	10	5	50%	3	
Tree canopy cover (%): average of emergent, canopy and sub-canopy layer	55	60	109%	5	30	60	200%	5	44	60	136%	5	44	60	136%	5	44	60	136%	5	35	60	171%	5	
Tree sub-canopy cover	47	50	106%	0	15	50	333%	0	10	50	500%	0	10	50	500%	0	15	50	333%	0	5	50	1000%	3	
Shrub canopy cover (%):	21	20	95%	0	5	20	400%	0	2	20	1000%	0	2	20	1000%	0	4	20	500%	0	3	20	667%	3	
Native perennial grass cover (%):	36	1	3%	0	52	1	2%	0	40	1	3%	0	40	1	3%	0	26	1	4%	0	45	1	2%	0	
Organic litter (%):	57	35	61%	5	15	35	233%	3	30	35	117%	5	30	35	117%	5	44	35	80%	5	23	35	152%	5	
Large trees/ha (euc./non-euc. combined)	53	20	38%	5	32	20	63%	10	14	20	143%	15	14	20	143%	15	13	20	154%	15	17	20	118%	15	
Coarse woody debris (m/ha)	515	40	8%	0	319	40	13%	0	304	40	13%	2	304	40	13%	2	819	40	5%	0	441	40	9%	0	
Non-native plant cover (%):	0	0.03	3%	3	0	0.03	3%	3	0	0.03	3%	3	0	0.03	3%	3	0	0.03	3%	3	0	0.03	3%	3	
Site condition score (-/80)				40.5				43.5				48.0				48.0				48.5				60.0	
Size of patch (-/10)				10				10				10				10				10				10	
Connectedness (-/5)				5				5				5				5				5				5	
Context (-/5)				5				5				5				5				5				5	
Corridors (-/6)				0				0				0				0				0				6	
Site context score (-/26)				20.0				20.0				20.0				20.0				20.0				26.0	
Quality/availability of food/habitat for foraging				0				2				4				0				0				0	
Quality/avail. of habitat for shelter and breeding				2				2				0				0				2				0	
Role of site				1				1				1				1				1				1	
Quality/availability of habitat required for mobility				1				1				1				1				7				7	
Absence of threats				7				7				7				7				10				10	
Fauna score (-/50)				11.0				13.0				13.0				9.0				20.0				18.0	
Assessment unit totals																									
Habitat quality score (-/156)				71.50				72.00				81.00				77.00				88.50				104.00	
Total possible score:				156.00				156.00				156.00				156.00				156.00				156.00	
OAG score:				4.58				4.62				5.19				4.94				5.67				6.67	
AU area within offset area:				6.70				4.90				32.80				34.00				39.10				69.40	
Total offset area for this MNES:				550.60				550.60				550.60				550.60				550.60				550.60	
Area weighting:				0.01				0.01				0.06				0.06				0.07				0.13	
AU weighted HQS:				0.06				0.04				0.31				0.30				0.40				0.84	
Total HQS all AUs:																								6.05	

Appendix B6: Offset assessment table - squatter pigeon habitat – future quality with offset

Assessment table for fauna habitat offset	Assessment unit:	Bench- mark (BM)	8.12.7a			BM	8.12.7a			BM	8.12.7a			BM	8.12.7			BM	8.12.7			BM	8.12.5a					
	Property:																											
	Assessment site no:		KM MHQA 01				KM MHQA 04				02 SNAP				01 SNAP				KM MQHA 05				KM MHQA 03					
	Regional ecosystem:		8.12.7a	8.12.7a			8.12.7a	8.12.7a			8.12.7a	8.12.7a			8.12.7	8.12.7			8.12.7	8.12.7			8.12.5a	8.12.5a				
Ecological condition indicator			Value	% BM	Score		Value	% BM	Score		Value	% BM	Score		Value	% BM	Score		Value	% BM	Score		Value	% BM	Score			
Recruitment of woody perennial species (%)		100			5	100			5	100			3	100			3	100			3	100			5			
Native plant species richness (No.): Trees		7			5	7			5	7			2.5	7			2.5	7			2.5	7			5			
Shrubs		9			2.5	9			2.5	9			2.5	9			2.5	9			2.5	9			2.5			
Grasses		6			2.5	6			2.5	6			2.5	6			2.5	6			2.5	6			2.5			
Forbs		19			2.5	19			2.5	19			2.5	19			2.5	19			2.5	19			2.5			
Tree canopy height (m): average of emergent, canopy and sub-canopy layer		15			3	15			3	15			3	15			5	15			5	15			5			
Tree sub-canopy height		8			3	8			3	8			3	8			3	8			0	100			3			
Tree canopy cover (%): average of emergent, canopy and sub-canopy layer		62			5	62			5	62			5	62			5	62			2	62			2			
Tree sub-canopy cover		30			3	30			3	30			3	30			3	30			0	30			3			
Shrub canopy cover (%):		27			3	27			3	27			3	27			3	27			3	27			3			
Native perennial grass cover (%):		12			5	12			3	12			1	12			5	12			5	12			5			
Organic litter (%):		61			5	61			5	61			5	61			5	61			5	61			3			
Large trees/ha (euc./non-euc. combined)		18			15	18			15	18			10	18			5	18			15	18			15			
Coarse woody debris (m/ha)		362			5	362			5	362			5	362			5	362			2	362			2			
Non-native plant cover (%):		0			5	0			10	0			10	0			10	0			1	0			10			
Site condition score (-/80)					69.5				72.5				61.0				62.0				51.0				60.0			
Size of patch (-/10)					10				10				10				10				10				10			
Connectedness (-/5)					5				5				5				5				5				5			
Context (-/5)					5				5				5				5				5				5			
Corridors (-/6)					6				6				6				6				6				6			
Site context score (-/26)					26.0				26.0				26.0				26.0				26.0				26.0			
Quality/availability of food/habitat for foraging					5				5				5				5				5				5			
Quality/avail. of habitat for shelter and breeding					10				10				10				10				10				10			
Role of site					1				1				1				1				1				1			
Quality/availability of habitat required for mobility					15				15				15				15				15				15			
Absence of threats					10				10				10				10				10				10			
Fauna score (-/50)					41.0				41.0				41.0				41.0				41.0				46.0			
Assessment unit totals																												
Habitat quality score (-/156)													126.67												112.00			125.50
Total possible score:													156.00												156.00			156.00
OAG score:													8.12												7.18			8.04
AU area within offset area:													226.90												81.00			55.80
Total offset area for this MNES:													550.60												550.60			550.60
Area weighting:													0.41												0.15			0.10
AU weighted HQS:													3.35												1.06			0.82
Total HQS all AUs:																												

Assessment table for fauna habitat offset	Assessment unit:	Bench-	8.12.22			11.3.35			11.3.29a			11.3.29			11.12.6a			11.11.15		
	Property:	mark				BM			BM			BM			BM			BM		
	Assessment site no:	(BM)	KM MHQA 02			MHQA02SNMG31012023			MHQA01SNMT31012023			KJ MHQA 01			MHQA03SNMT31012023			KJ MHQA 03		
	Regional ecosystem:	8.12.22	8.12.22			11.3.35			11.3.29a			11.3.29			11.12.6a			11.11.15		
Ecological condition indicator			Value	% BM	Score	Value	% BM	Score	Value	% BM	Score	Value	% BM	Score	Value	% BM	Score	Value	% BM	Score
Recruitment of woody perennial species (%)	100			5	100			5	100		5	100		5	100		5	100		5
Native plant species richness (No.): Trees	9			5	6			5	7		5	7		5	4		5	4		5
Shrubs	18			2.5	4			5	7		2.5	7		2.5	5		5	3		5
Grasses	4			2.5	7			2.5	8		2.5	8		2.5	8		2.5	7		0
Forbs	21			2.5	12			5	17		2.5	17		2.5	15		2.5	12		5
Tree canopy height (m): average of emergent, canopy and sub-canopy layer	18			3	15			3	21		3	21		3	25		3	18		3
Tree sub-canopy height	8			3	6			5	11		3	11		3	9		3	10		3
Tree canopy cover (%): average of emergent, canopy and sub-canopy layer	55			5	30			5	44		5	44		5	44		5	35		5
Tree sub-canopy cover	47			5	15			3	10		3	10		3	15		3	5		3
Shrub canopy cover (%):	21			5	5			3	2		3	2		3	4		3	3		3
Native perennial grass cover (%):	36			3	52			3	40		3	40		3	26		5	45		0
Organic litter (%):	57			5	15			3	30		5	30		5	44		5	23		5
Large trees/ha (euc./non-euc. combined)	53			5	32			15	14		15	14		15	13		15	17		15
Coarse woody debris (m/ha)	515			5	319			2	304		2	304		2	819		5	441		0
Non-native plant cover (%):	0			10	0			10	0		10	0		10	0		10	0		10
Site condition score (-/80)				66.5				74.5			69.5			69.5			75.0			67.0
Size of patch (-/10)				10				10			10			10			10			10
Connectedness (-/5)				5				5			5			5			5			5
Context (-/5)				5				5			5			5			5			5
Corridors (-/6)				0				0			0			0			0			6
Site context score (-/26)				20.0				20.0			20.0			20.0			20.0			26.0
Quality/availability of food/habitat for foraging				5				5			5			5			5			5
Quality/avail. of habitat for shelter and breeding				5				5			5			5			5			5
Role of site				1				1			1			1			1			1
Quality/availability of habitat required for mobility				7				7			7			7			7			7
Absence of threats				10				10			10			10			10			10
Fauna score (-/50)				28.0				28.0			28.0			28.0			28.0			28.0
Assessment unit totals																				
Habitat quality score (-/156)				114.50				122.50			103.50			103.50			123.00			121.00
Total possible score:				156.00				156.00			156.00			156.00			156.00			156.00
OAG score:				7.34				7.85			6.63			6.63			7.88			7.76
AU area within offset area:				6.70				4.90			32.80			34.00			39.10			69.40
Total offset area for this MNES:				550.60				550.60			550.60			550.60			550.60			550.60
Area weighting:				0.01				0.01			0.06			0.06			0.07			0.13
AU weighted HQS:				0.09				0.07			0.40			0.41			0.56			0.98
Total HQS all AUs:																				7.72

Attachment 1: Terrestrial ecology reports

Attachment 1A: Impact site ecology report

*Impact Assessment – RTAY Lot 7 Borrow Pits EPBC 2017/8107 November 2018
Report prepared for Rio Tinto Yarwun*

Please see file supplied separately

Attachment 1B: Referral request for information

*Sections 4 and 5 of EPBC 2018/8381 REFERRAL REQUEST FOR INFORMATION RESPONSE
11 April 2019 Rio Tinto Yarwun Pty Ltd*

Please see file supplied separately.

Attachment 1C: Offset site ecology report

*RTA Yarwun Pty Ltd: RMA 1 Borrow Pits and RMA 2 Biodiversity Offsets - Offset Investigation
Area Ecological Report. Report prepared for Rio Tinto Yarwun Pty Ltd April 2023*

Please see file supplied separately

Attachment 1D: Supplementary squatter pigeon (southern) survey report



RTA Yarwun Pty Ltd
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11 March 2024

Memorandum: RTA Yarwun Pty Ltd: Expansion of borrow pits, Lot 7 Aldoga Road, Aldoga, Queensland (EPBC 2018/8381) – supplementary squatter pigeon survey at Connie Creek

Background

RTA Yarwun Pty Ltd (RTAY) is developing borrow pits for the Yarwun Alumina Refinery on Lot 7 SP228453, located in Aldoga, approximately 15km west of Gladstone, within the Brigalow Belt bioregion of Queensland. The borrow pits are required to provide clay, rock and general fill to service the existing Residue Management Area embankment raises.

The project was referred under the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) in 2018 (EPBC 2018/8381). The development, was decided on 31 October 2019 as a controlled action, to have significant impacts to matters of national environmental significance (MNES) of up to:

- 96 hectares of koala (*Phascolarctos cinereus*) (combined populations of QLD, NSW and the ACT) habitat
- 162.2 ha of squatter pigeon (southern) (*Geophaps scripta scripta*) habitat.

The proposed offsets for the project are located on a property known as Connie Creek (Lot 5377 PH1903), located approximately 160 km north-west of Rockhampton. The Offset Area Management Plan for the Connie Creek offsets was lodged with the Department of Climate Change, Energy, the Environment and Water (DCCEEW) in May 2023 with Version C being submitted in October 2023 addressing and incorporating comments from DCCEEW.

In January 2024, DCCEEW advised RTAY that supplementary survey work at Connie Creek would need to be undertaken to confirm the presence of squatter pigeon (southern) on the offset area. RTAY engaged Earthtrade to undertake the survey work, which was completed in February

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2024. This memorandum reports on the outcome of the survey work, which confirmed the presence of squatter pigeon (southern) on the offset property.

Survey methodology

The survey work was undertaken on 24-25 February 2024, and was conducted by Earthtrade's Principal Ecologist Grant Paterson and Senior Ecologist Guy Stevenson. Grant Paterson is a DCCEEW-accredited ecologist with over 30 years of experience in ecological assessment and extensive expertise in designing and conducting fauna surveys to meet the requirements of the EPBC Act. Grant Paterson's CV is provided at *Attachment 1*.

The survey was designed and conducted in accordance with the *Survey guidelines for Australia's threatened birds: Guidelines for detecting birds listed as threatened under the EPBC Act 1999*.¹ The survey effort entailed area searches and flushing surveys, with opportunistic sightings while traversing to, from and across the offset property also recorded.

Data was collected through the use of an iPad camera using Avenza mapping software with GPS capability. The published accuracy of the locational data is +/- 10 metres (m), with a typical accuracy of +/- 5 m. The specifications of the camera are detailed in *Figure 1*.

Figure 1: Camera specifications

Camera	
Camera maker	Apple
Camera model	iPad Pro (10.5-inch)
F-stop	f/1.8
Exposure time	1/1227 sec.
ISO speed	ISO-20
Exposure bias	0 step
Focal length	4 mm
Max aperture	
Metering mode	Pattern
Subject distance	
Flash mode	No flash, compulsory
Flash energy	
35mm focal length	142

Survey conditions were hot, ranging from 30° to 36°, with high humidity, light winds, and sunny patches interspersed with occasional showers. Ground conditions were very wet, and boggy in places.

¹ Commonwealth of Australia, Department of the Environment, Water Heritage and the Arts, 2010. Available at <https://www.dcceew.gov.au/sites/default/files/documents/survey-guidelines-birds-april-2017.pdf>

Survey results

Squatter pigeon (southern) was detected on and near the offset areas, with a total of 37 individuals sighted.

A total of 9 individuals were detected on, or immediately adjacent to, the designated squatter pigeon (southern) offset areas. These sightings comprised 2 pairs of birds and 5 lone individuals. A further 28 individuals were observed when traversing access tracks in an all-terrain vehicle to and from the offset areas, in the vicinity of the northern boundary of the offset property. These 28 birds were comprised of 4 lone individuals and groups ranging between 2 and 7 birds. An example photograph of a recorded individual is shown in *Figure 2*. The recorded locations of all of these sightings are illustrated in *Figure 3*, and detailed in *Table 1*.

Figure 2: Example photograph of a sighted individual squatter pigeon (southern)

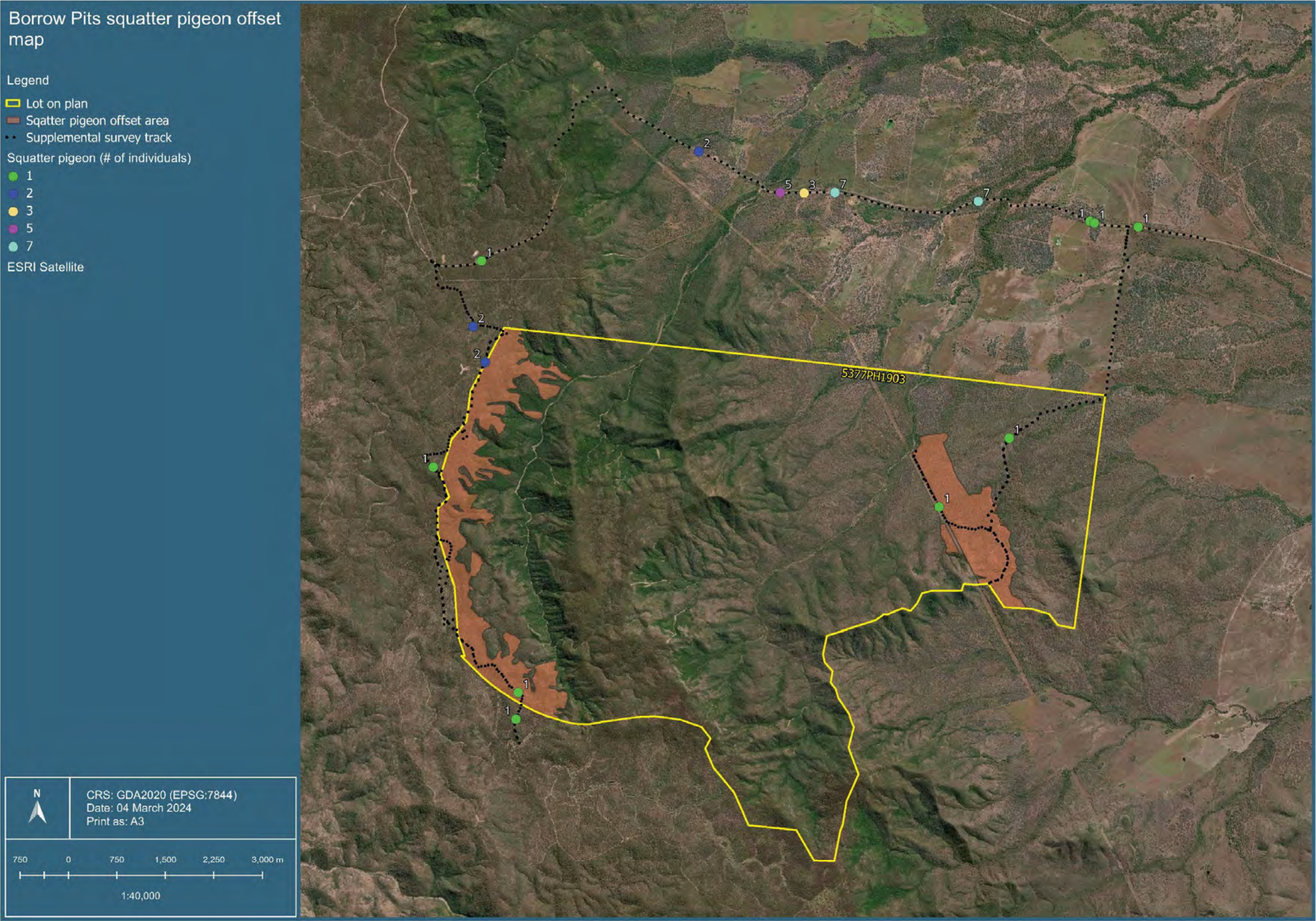


Table 1: Recorded locations of squatter pigeon (southern)

Record No.	Timestamp	Number of individuals	Latitude*	Longitude
1	2024/02/24 11:32:50+10	1	-22.3997	149.3232
2	2024/02/24 10:10:19+10	2	-22.3522	149.3630
3	2024/02/24 10:08:06+10	5	-22.3585	149.3753
4	2024/02/24 10:05:17+10	7	-22.3584	149.3835
13	2024/02/25 11:13:48+10	1	-22.3628	149.4218
14	2024/02/25 15:09:20+10	1	-22.3636	149.4290
15	2024/02/24 12:10:03+10	1	-22.4337	149.3359
16	2024/02/24 12:19:01+10	1	-22.4377	149.3356
17	2024/02/25 10:47:37+10	1	-22.3687	149.3304
18	2024/02/24 11:09:29+10	2	-22.3786	149.3291
19	2024/02/24 11:17:56+10	2	-22.3840	149.3309
20	2024/02/25 11:04:13+10	3	-22.3585	149.3789
21	2024/02/25 11:15:38+10	1	-22.3630	149.4225
22	2024/02/25 13:03:23+10	1	-22.3954	149.4097
23	2024/02/25 13:27:58+10	1	-22.4058	149.3991
24	2024/02/25 11:09:48+10	7	-22.3598	149.4050

* Datum: GDA2020

Figure 3: Recorded squatter pigeon locations at the offset property



Attachment 1: Curriculum vitae



Grant Paterson – Principal Ecologist, Earthtrade Group

Current industry position	Grant Paterson is currently serving as the Principal Ecologist with the Earthtrade Group in Queensland. He has worked with the Earthtrade Group since establishment and was previously with Aurecon for over 11 years, conducting ecological assessments and reporting, predominantly in Queensland and the Northern Territory. His responsibilities include conducting field surveys, site assessments, and reporting. He also provides agronomic advice to various orchards and investigates the benefits of cover cropping with peanuts and soya beans with respect to erosion mitigation, nitrogen fixation, and advises growers of sugar and cereal crops.
Education and qualifications	Bachelor of Applied Science (Horticultural Technology) Specialisation in ex-situ plant conservation, plant identification, natural resource management, agronomy, ecological assessments, landscape design and management, environmental legislation and policy. Grant has over 30 years of experience in the industry.
Professional recognition, registrations, licences, certifications	Australian Government Department of Climate Change, Energy, the Environment and Water Accredited Ecologist
Key achievements	Extensive experience in environmental consulting: With over 30 years in the industry, Grant has developed a deep understanding of environmental issues, agronomy, vegetation, soils, legislation, policy, approvals, and the appeals process. He has worked with a range of tree crop growers and broadacre farmers, providing valuable advice and solutions. Accredited ecologist: Grant is a Department of Climate Change, Energy, the Environment and Water Accredited Ecologist with extensive expertise in design and implementation of flora and fauna surveys and ecological assessments to meet requirements of the <i>Environment Protection and Biodiversity Conservation Act 1999</i>. Principal Ecologist at Agri and Environment Solutions Pty Ltd: Since July 2019, Grant has been providing agronomic advice to various orchards in the Northern Territory, and Northern, Central and South East Queensland. He has also been involved in various environmental assessments and projects. Principal Environmental Scientist at Aurecon Australasia Pty Ltd: From February 2008 to June 2019, Grant worked on a variety of projects involving ecology assessment and management, water management, environmental assessment and management, soils and site contamination assessment, landscape planning, design and implementation, and bushfire hazard assessment. Private Consultant: From February 1996 to February 2008, Grant provided consultancy services, assessment, and advice on a wide range of environmental and agronomic issues to developers, mining companies, horticultural producers, and other individuals across northern Australia.

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