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EPBC Act Controlled Action Decision Notice

Australian Government
Department of Agriculture, Water and the Environment

Notification of
REFERRAL DECISION AND DESIGNATED PROPONENT – controlled action
DECISION ON ASSESSMENT APPROACH

Scenic Precinct, Springfield, Queensland (EPBC 2020/8651)

This decision is made under section 75 and section 87 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

proposed action	To develop a mixed-use precinct at Lot 51 on SP242316, part of Lot 1 on RP863336 and part of Lot 50 on SP242316, Springfield College Drive, Springfield, Queensland. [See EPBC Act referral 2020/8651].
decision on proposed action	The proposed action is a controlled action. The project will require assessment and approval under the EPBC Act before it can proceed.
relevant controlling provisions	• Listed threatened species and communities (sections 18 & 18A) • Listed migratory species (sections 20 & 20A)
designated proponent	Springfield City Group Pty Limited ABN: 35 055 714 531
assessment approach	The project will be assessed by preliminary documentation.

Decision-maker

Name and position	Andrew McNee Assistant Secretary Assessments and Governance Branch
Signature	
date of decision	29 July 2020

Attachment A2

Additional Information Request

Australian Government
Department of Agriculture, Water and the Environment

EPBC Ref: 2020/8651

Mr Russell Luhrs
Chief Operating Officer
Springfield City Group Pty Ltd
145 Sinnathamby Blvd
Springfield Central QLD 4300

Dear Mr Luhrs

Additional information required for preliminary documentation
Scenic Precinct, Springfield, Queensland (EPBC 2020/8651)

I am writing to you in relation to your proposal to construct and operate a mixed-use precinct at Lot 51 on SP242316, part of Lot 1 on RP863336 and part of Lot 50 on SP242316, Springfield College Drive, Springfield, Queensland.

On 29 July 2020, a delegate of the Minister decided that the proposed action is a controlled action and that it will be assessed by preliminary documentation. Further information will be required to be able to assess the relevant impacts of the proposed action.

Details outlining the further information required are at Attachment A. Details outlining the information requirements for offset proposals required under the EPBC Environmental Offsets Policy are at Attachment B.

Details on the assessment process and the responsibilities of the proponent are set out in the enclosed fact sheet. Further information is available from the department's website at http://www.environment.gov.au/epbc.

If you have any questions about the assessment process or the further information required, please contact Eireann Tobin, by email to Eireann.Tobin@awe.gov.au, or telephone (02) 6274 1926 and quote the EPBC reference number shown at the beginning of this letter.

Yours sincerely

Richard Miles
Director
Queensland South and Sea Dumping Section
27 August 2020

ATTACHMENT A
REQUEST FOR ADDITIONAL INFORMATION REQUIRED FOR ASSESSMENT BY PRELIMINARY DOCUMENTATION

Scenic Precinct, Springfield, Queensland (EPBC 2020/8651)

1. General content, format and style

The preliminary documentation must:

1.1	Include: a) The information contained in your original referral b) All additional information submitted to the Department in support of the referral c) The further information you provide on the impacts of the proposed action and the strategies you propose to avoid, mitigate, and/or offset those impacts (as described below), and d) Other relevant information on the matters protected by the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act).
1.2	Follow the structure of this information request.
1.3	Include a copy of these guidelines and a reference table indicating where to find the information fulfilling this request.
1.4	Contain sufficient information to enable interested stakeholders and the Minister (or delegate) to understand the environmental consequences of the proposed development on matters of national environmental significance (MNES). Specifically, it must contain sufficient information to allow the Minister (or delegate) to make an informed decision on whether or not to approve, under Part 9 of the (EPBC Act) , the undertaking of the action for the purposes of each controlling provision. Please note that the Department may require further information, in addition to the information required below, should new information come to light during the assessment stage (e.g. an additional species has been identified onsite).
1.5	Ensure all work and conclusions: a) Are evidence based and the evidence is provided. b) Use scientifically robust methodologies appropriate to the purpose, detail why the methodology/s was selected, and are described and referenced. c) Consider and state any limitations in the chosen approach.

	d) Are supported by peer reviewed literature, with references provided, or expert opinion. e) Are presented clearly, unambiguously, succinctly and objectively. f) Are, where appropriate, supported by maps, plans, diagrams or other descriptive detail. g) Demonstrate consideration of relevant Approved Listing Advice(s), Approved Conservation Advice(s), Recovery Plan(s), Threat Abatement Plan(s) or comparable policy guidelines, and approved survey methods.
1.6	Be able to read as a stand-alone document and must include summaries of all relevant information. Detailed technical information, studies, or investigations necessary to support the main text should be attached as appendices to the main document.

2. Description of the action

The preliminary documentation must include a description of the action:

2.1	Including: a) The location, boundaries, and size (in hectares) of the disturbance footprint, and of adjoining areas and vegetation, which may be indirectly impacted by the proposal, including from material stockpiles, vehicle access and associated activities. b) A description of all components of the proposed action, including the anticipated timing and duration, (including start and completion dates) of each component of the proposed action. This should include a detailed outline of the expected timing of any staged clearing over the construction period. c) A description of the construction and operation of the residential development and associated works (i.e. activities that comprise its operation). d) An indicative layout plan for the proposed action area, including the location and type of land use, key infrastructure, and the number and location of dwellings, other buildings, open space, and conservation areas.
2.2	The Department notes that Springfield City Group Pty Ltd has previously referred the approved First Nine residential development at Lot 161 on SP27165, Brookwater Drive, Queensland (EPBC 2016/7676), located adjacent to the current referral. The Department further notes that Springfield City Pty Ltd has recently referred the Peninsula Precinct, Springfield, Queensland (EPBC 2020/8629) located to the south of the current referral.

	At the time of the referral decision for the above projects, the proponent noted that these developments were not part of a larger action and that the action was not related to other actions or proposals in the region. The Department notes that the proponent does not identify the proposed action as being a component of a larger action. Please confirm whether or not the current referral is related to the above proposals and if it is part of a larger action1. Further details on 'split referrals' and components of a larger action can be found at https://www.environment.gov.au/resource/epbc-act-policy-statement-staged-developments-split-referrals-section-74a-epbc-act

3. Description of the environment and Matters of National Environmental Significance

Listed threatened species and ecological communities and listed migratory species

From the information provided to date, the Department considers that the matters that may or are likely to be significantly impacted by the proposed action include, but are not limited to:

- Koala (*Phascolarctos cinereus* – combined populations of Qld, NSW and the ACT) – vulnerable
- Grey-headed Flying-fox (*Pterous poliocephalus*) – critically endangered

The Department also considers that there is a real chance or possibility that significant impacts may arise in relation to the following:

- Swift Parrot (*Lathamus discolour*) – critically endangered
- Regent Honeyeater (*Anthochaera Phrygia*) – critically endangered
- White-throated Needletail (*Hirundapus caudacutus*) – vulnerable and migratory.

Note that this may not be a complete list and it is your responsibility, as the proponent, to ensure that any species or ecological communities listed under the EPBC Act at the time of the controlled action decision, which will or are likely to be significantly impacted by the proposed action, are assessed for the Minister's consideration. Any listing events (i.e. new listing or up-listing of a species or ecological community, e.g. from vulnerable to endangered category) that occur after the controlled action decision was made do not affect the approval process decision, as set out in s158A of the EPBC Act.

Furthermore, it is also the responsibility of the proponent to maintain awareness of any changes to species distributions. Please ensure that a recent Protected Matters Search Tool report has been generated and used during the assessment stage before finalising the draft preliminary documentation.

[1] Please note that the EPBC Act defines an 'action' in section 523 to include a project, development, undertaking and activity, or series of activities. The use of words such as 'project', 'development' and 'series of activities' indicate that, for the purposes of the act, a number of related activities may be treated as a single action.

Habitat quality

In accordance with the Koala habitat assessment tool in the EPBC Act referral Guidelines for the listed Koala, the referral notes that the site contains habitat critical to the survival of the Koala with a score of 7. The Department disagrees with this score and considers that a score of 8 is more appropriate for the following reasons:

a. Koala occurrence (+2) – three SAT surveys conducted across the proposed site in 2020 found indirect evidence of Koala in the form of scats. Therefore, there is evidence of one or more Koalas within the last two years.

b. Vegetation composition (+2) – the site contains 'woodland' or 'open forest', with two or more known Koala food tree species, including Spotted Gum (*Corymbia citriodora*), Narrow-leafed Ironbark (*Eucalyptus crebra*) and Forest Red Gum (*Eucalyptus tereticornis*).

c. Habitat connectivity (+2) – the proposed site is part of a contiguous landscape of greater than 500 ha.

d. Key existing threats (+1) – there is some evidence of threats from vehicle strike and dog attack within the area. Therefore, there is evidence of infrequent or irregular Koala mortality from vehicle strike or dog attack.

e. Recovery value (+1) – It is uncertain whether the habitat is important for achieving the interim recovery objectives detailed in the referral guidelines:

    - The EPBC Act referral guidelines for the listed Koala note that the interim recovery objectives for Koala in the coastal context are to protect and conserve large, connected areas of habitat critical to the survival of the Koala and maintain corridors and connective habitat critical to the survival of the Koala and maintain corridors and connective habitat that allows movement of Koala between large areas of habitat.

    - As noted in relation to the connectivity score, the Department considers that the propose site is connected to large areas of contiguous habitat of more than 500 ha in size, in particular it is connected to large areas of habitat to the north, south and east of the proposed action area.

    - The Department considers that, while the proposed site is located near existing areas of urban development, it is connected to large areas of contiguous habitat and is therefore at least uncertain whether the habitat is important for achieving the interim recovery objectives for the coastal context.

The preliminary documentation must provide a description of the environment affected by and surrounding the proposed action area, over both the short and long term. Specific matters this section must address include, but are not limited to:

3.1	A description of any potential MNES (including but not limited to those listed in this request for further information) that occur in the project area and adjacent areas.

3.2	A description and map of the current land use/s, land topography, surface and ground water bodies, waterways and vegetation communities (habitat types as they relate to potentially impacted listed threatened and migratory species) on the proposed action site and adjoining areas.
3.3	For listed threatened species and ecological communities that have the potential, or are likely, to be present at and in the vicinity of the project site, including but not limited to those listed in this request for further information, this section must provide the following: a) Information on the abundance, distribution, ecology and habitat preference of the species or communities. b) Quantification of the extent of habitat and (if known) the number of individuals present or historical patterns of use on and surrounding the proposed action site (including maps identifying known or potential habitat). c) Assessment of the quality and importance of known or potential habitat for the species or communities within the proposed action site and surrounding areas. d) Information detailing known populations or records within at least five kilometres of the development footprint and (if known) the size of these populations. e) Information on the survey methodology used, including a map/s of survey points or transects, how the survey points or transects were selected, when surveys were conducted (e.g. dates, time of day, season, etc) and search effort (e.g. 20 hours over 8 days). f) An assessment of the adequacy of any surveys undertaken. In particular, the extent to which these surveys were appropriate for the species and undertaken in accordance with relevant survey guidelines. g) Results of any surveys undertaken.
3.4	Information about the methods, data and scientific literature used to identify and assess the environmental values on the proposed action site and surrounding areas, including survey data and historical records. Survey data for the proposed action site must be provided for the above listed threatened species, should be as recent as possible, and must not have been collected more than five years before the date of this letter.

4. Quantification of impacts

Based on the information provided in the referral and additional information provided in support of the referral, in formation provided in the Species Profile and Threats Database, and observation records provided in the Atlas of Living Australia, the Department considers that:

- Due to the presence of Koala food trees across the proposed action area and as there are few barriers to movement, the proposed action is likely to result in the loss of 24.2 ha of habitat critical to the survival of the Koala.
- The Department notes that the proponent proposes to avoid 11.92 ha of habitat critical to the survival of the Koala to the west of the proposed site and retain this area as a linear park and that the action may result in indirect impacts on this retained vegetation. The Department considers that the action is likely to have indirect impacts on the balance of habitat retained within the proposed action area as well as habitat adjacent to the proposed action area.
- Due to the presence of key foraging resources and the proximity of the proposed action to one nationally significant Flying-fox camp, there is a real chance or possibility that the proposed action may significantly impact on habitat critical to the survival of the Grey-headed Flying-fox.
- Further information regarding the presence of habitat and potential impacts are required to determine whether or not the proposed action is likely to have a significant impact on the Regent Honeyeater, Swift Parrot, and White-throated Needletail.
- The Department notes that the action may also result in indirect impacts on MNES and habitat adjacent to the proposed action site. Indirect impacts may result from edge effects; isolation/fragmentation of habitat; mortality or injury to MNES from increased traffic; and/or predation from domestic dogs. Direct and indirect impacts on adjacent habitat may also render this habitat functionally lost.

To clarify the extent and nature of impact on listed threatened species and ecological communities as a result of the proposed action, the preliminary documentation must:

4.1	Provide a description of the intended land uses proposed as part of the completed development, including any proposed conservation areas or retained movement corridors, and associated ongoing activities, and details of the intended party that would be responsible for future management activities.
4.2	Include current maps and coordinates/shapefiles of the proposed impact area and areas of habitat for MNES proposed to be retained. Maps must clearly identify development footprints, buffer zones, and any conservation areas where impacts will be avoided, and areas of adjacent habitat that would be subject to indirect impacts, including areas that are to be retained within and adjacent to the site.

4.3	Confirm the area of habitat that will be directly and indirectly impacted by the proposed action, including areas where: a) Connectivity to surrounding habitat will be retained, removed or functionally lost. b) Adjacent habitat will be subject to intensification of ongoing impacts (for example, through increased levels of dust or polluted runoff).
4.4	Confirm the quantity and quality of suitable habitat to be impacted within the proposed action area.
4.5	Provide an assessment of the direct, indirect, consequential and cumulative impacts that may occur during construction and post-construction phases, including: a) The nature and extent of impacts (including direct, indirect and facilitated impacts*), including timing and whether the impact is temporary or permanent. b) Details of any policy guidelines, relevant studies, surveys or consultations with species experts/field specialists, which were not included in the referral or additional information provided in support of the referral. c) A local and regional scale analysis of likely impacts, with reference to the project's potential contribution to cumulative impacts in the context of development patterns in the locality and region. d) A risk assessment of potential impacts from the action that are likely to be unpredictable, severe, or irreversible. *Note: Facilitated impacts may include (but are not limited to) the risk of injury or mortality to MNES as a result of the introduction of domestic dogs in a residential area, vehicle strike as a result of increased residential car use and/or the development of domestic pools.

5. Avoidance and mitigation

The Department notes that the proposed action includes retention of 11.92 ha of vegetation to along the western boundary of the action site to be maintained as a linear park, and act as a vegetative corridor to facilitate movement and connectedness in the area. Further information regarding the proposed habitat for MNES is required, including (but not limited to) suitability of the areas for MNES at the proposed action site, details of the dimensions and location of the retained area, proposed measures for rehabilitation and maintenance, vegetation composition and uses.

To clarify the proposed measures to avoid and mitigate impacts, the preliminary documentation must:

5.1	Provide a consolidated description of all proposed measures to avoid and mitigate impacts, including those provided in the referral and any additional to those described in the referral.

	This should include: a) Discussion of consideration and assessment of alternative strategies, plans and measures to avoid and mitigate impacts (e.g. alternative project plans, retention of habitat/movement corridors/buffers, and fauna-friendly development and road design). b) Details about pre-clearance and clearance procedures to ensure that species are detected and managed to minimise mortality, stress, injury, or introduction of disease. c) A description (including maps and imagery) of the location, boundaries and size of buffer areas and/or proposed exclusion zones, including the 11.92ha area of vegetation that is proposed to be retained as a linear park, and details on how these areas will be enhanced, protected and maintained, during all phases of the proposed action (for example, clearing, construction and operation). Also include a description of any fences or barriers which may be installed around areas where impacts will be avoided. d) Details of any rehabilitation measures to be implemented for disturbed areas, including rehabilitation objectives, target species, timing of rehabilitation stages, methodology, maintenance measures, schedules, and monitoring. e) Details of any ongoing mitigation and management measures during the operation of the facility.
5.2	For each measure proposed, indicate the: a) Responsible party b) Environmental outcomes to be achieved c) Millstones / performance / completion criteria d) Proposed monitoring and evaluation program.
5.3	Provide an assessment of the predicted effectiveness of each proposed avoidance or mitigation measure, noting that the effectiveness of a particular measure is a reflection of confidence in the ability of the measure to reduce the risk of a threat. The assessment of effectiveness should be evidence based and include examples of demonstrated success of a particular measure to achieve the desired avoidance/mitigation outcome.

6. Proposed offsets

Based on the referral information and additional information submitted in support of the referral, the Department considers that the proposed action is likely to have a residual significant impact on the Koala and the Grey-headed Flying-fox. Further information is sought above to confirm whether significant residual impacts are likely on the Regent Honeyeater, Swift Parrot, and White-throated Needletail.

Where residual significant impacts remain after consideration of avoidance and mitigation measures, an environmental offset will be required to compensate for the impacts in accordance with the *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy* (EPBC Offsets Policy). Offsets must be specific to the species or ecological community being impacted and must improve or maintain the viability of the species.

If a residual significant impact is identified, the preliminary documentation must include an offset proposal, which must:

6.1	Demonstrate how the offset proposal: a) Meets the principles outlined in the EPBC Offsets Policy. b) Address the considerations and requirements outlined in the EPBC Offsets Policy, including but not limited to sections 6 and 7 of the EPBC Offsets Policy. c) Directly contributes to the ongoing viability of the EPBC listed species or ecological community or migratory species and will deliver an overall conservation outcome that improves or maintains the viability of the protected matter, as compared to what is likely to have occurred under the status quo, i.e. if neither the action nor the offset had taken place. d) Compensates for the impact over the entire duration of the impact (i.e. should impacts be in perpetuity, the offsets must also be delivered in perpetuity). Note: while the offsets do not need to be secured before the decision on whether to approve the proposed action, should the proposed action be approved, conditions of an approval are likely to require that offsets are secured, and management measures are in place, before commencement of the proposed action.
6.2	For further details regarding offset requirements, see Attachment B.

<u>Habitat quality assessment methodology</u>

The Department notes that a suitable methodology must be used to determine habitat quality at the offset site for input into the EPBC Act Offsets Assessment Guide (i.e. the 'calculator').

In the past, the Koala habitat assessment tool at Table 4 (p. 27) of the *EPBC Act referral guidelines for the listed Koala* has been used by proponents to assess habitat quality for that species at proposed offset sites, however the Department notes that this methodology may not accurately account for potential habitat quality improvements as a result of management measures over time.

The Department notes that:

- The methodology chosen to assess habitat quality must be evidence-based, quantitative, robust and repeatable.

- The same methodology to assess habitat quality must be used at both impact and offset sites for input into the EPBC Act Offsets Assessment Guide (the 'calculator').
- The quality score for an area of habitat must relate directly to habitat requirements of the species (e.g. number of Koala feed trees). Note that this may inform outcome-based conditions if the Minister decides to approve the proposed action.
- There are three components that need to be considered when calculating habit quality: site condition, site context, and species stocking rates.

The Department encourages all proponents to initially consult the Department on an appropriate methodology to calculate a habitat quality score, before conducting their assessment.

7. Economic and social matters

The preliminary documentation must:

7.1	Provide details on the social and economic costs and/or benefits of undertaking the proposed action, including the basis for any estimations of costs and/or benefits. Where possible, please include the total economic capital investment and economic ongoing value of the project.
7.2	Identify if economic benefits and employment opportunities are in addition to what would have been expected if the action were not to take place.
7.3	Provide details of any public stakeholder consultation activities, including the outcomes of those consultations.
7.4	Provide details of any consultation with Indigenous stakeholders.

8. Ecologically sustainable development

The preliminary documentation must:

8.1	Provide a description of how the proposed action meets the principles of ecologically sustainable development, as defined in section 3A of the EPBC Act.

ATTACHMENT B
INFORMATION REQUIREMENTS FOR EPBC ACT OFFSET PROPOSALS

The offset proposal must include, but not be limited to, the following:

Details in relation to the proposed offset package, including:

a) A description of the proposed offset site(s) including location, size, condition, and relevant ecological/species habitat features, landscape context and cadastre boundaries of the offset site(s) (supported by mapping).

b) Evidence of the presence of, or usage by, relevant protected matter(s) on, or adjacent to the proposed offset site(s), and the presence and quality of habitat for protected matter(s) on the proposed offset site.

c) Current and likely future tenure of the proposed offset site and details of how the offset site will be legally secured for the full duration of the impact.

Details and justification demonstrating how the proposed offset package will maintain or improve the viability of the protected matter(s) consistent with the EPBC Environmental Offsets Policy and *EPBC Act Offsets Assessment Guide*. This includes:

a) Offset completion criteria (i.e. environmental outcomes) to be achieved, and reasoning for these in reference to relevant statutory recovery plans, conservation advices, and threat abatement plans (e.g. within 15 years of commencement of the action, 85 per cent of the offset site contains X number of Koala habitat trees).

b) Milestones to demonstrate adequate progress towards achieving the offset completion criteria (e.g. within 10 years of commencement of the action the proponent must increase, by at least 20 per cent, the number of available Koala food trees at the offset site).

c) Specific environmental management activities and mitigation that will attain and maintain the completion criteria, including the management of threats to relevant species and the timing of actions (e.g. complete the planting, and ensure a survival rate of 90 per cent, of at least 15, 000 seed, sapling, or tube stock (or equivalent) Koala food tree species within five years following commencement of the action; reduce the invasive weed coverage on the offset site to 5 per cent within five years following commencement of the action implement an annual non-native feral pest control program over a 10 year period).

d) Baseline survey information to determine the presence of relevant protected matters and the extent and quality of the respective habitat(s) at the proposed offset site(s) in accordance with the relevant survey guidelines or using a scientifically robust and repeatable methodology.

e) A monitoring and corrective action program to measure the success of the environmental outcomes, which must include performance indicators, milestone outcomes, monitoring requirements, trigger values, corrective measures, and identified roles and responsibilities in accordance with the requirements in section 3 of the Departments Environmental Management Plan Guidelines:

https://www.environment.gov.au/epbc/publications/environmental-management-plan%ADguidelines

f) Evidence of how the proposed offset completion criteria for the offset will be maintained over the duration of the impact (including any registered interest on the land, conditions of the legal security mechanism, how these conditions will be met, and how achievement of legal security will be demonstrated to the Department). Note: The EPBC Offsets Policy states that the offset should secure and manage the offset site for the life of the impact.

g) Justification of how the offset package meets the *EPBC Act Offsets Assessment Guide*, in particular:

- Evidence of the likely effectiveness of any proposed management actions (i.e. rehabilitation / restoration / re-creation of habitat) to support quality improvement and/or maintenance of the proposed offset site(s) for the relevant protected matter(s).
- The time over which management actions will deliver the proposed improvement or maintenance of habitat quality for the relevant protected matter(s).
- The risk of damage, degradation or destruction to any proposed offset site(s), in the absence of any formal protection and/or management, over a foreseeable time period (20 years). This information is important in determining the comparative benefit of a proposed offset.
- Evidence to support ‘confidence in results’ for averted loss and quality scores.

Note: where increases in habitat quality of the offset site are being proposed by the proponent to meet the direct offset requirements, the Department will require specific details of site condition, site context or stocking rate measures to be implemented commensurate to the expected level of habitat improvement.

Attachment A3

EPBC Referral Material

EPBC 2020/8651 Referral Material

Scenic Precinct, Springfield, QLD

Prepared for Springfield City Group

October 2025

EPBC Act referral

Australian Government
Department of Agriculture, Water and the Environment

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Title of proposal	**2020/8651 - Scenic Precinct - Springfield, Queensland**

Section 1

Summary of your proposed action

1.1 Project industry type Residential Development

1.2 Provide a detailed description of the proposed action, including all proposed activities

The proposed development footprint and associated impact area will occupy approximately 24.2 ha of the 36.12 ha subject site. The proposed development will include a mixed-use precinct comprising:

- Town Business;
- Retail;
- Childcare;
- Utilities;
- Parklands;
- Roads and infrastructure;
- Place(s) of worship;
- Education; and
- Town Residential.

Refer to Ecological Assessment - Matters of National Environmental Significance (SHG 2020) for further details.

1.3 What is the extent and location of your proposed action?

See Appendix B

1.5 Provide a brief physical description of the property on which the proposed action will take place and the location of the proposed action (e.g. proximity to major towns, or for off-shore actions, shortest distance to mainland)

Springfield City Group Pty Ltd is proposing to develop a mixed-use community residential development on land located Springfield College Drive, Springfield. The site is located over three (3) land parcel, described as, Lot 51 on SP242316, part of Lot 1 on RP863336 and part of Lot 50 on SP242316. The site is adjacent to the Opossum Creek Parklands and Springfield Anglican College. Refer to Figure 1 and Figure 2 of the Ecological Assessment - Matters of National Environmental Significance (SHG 2020) for the site context and site aerial.

1.6 What is the size of the proposed action area development footprint (or work area) including disturbance footprint and avoidance footprint (if relevant)?

24.20ha

1.7 Proposed action location

Lot - Lot 51 on SP242316, part of Lot 1 on RP863336 and part of Lot 50 on SP242316

1.8 Primary jurisdiction Queensland

1.9 Has the person proposing to take the action received any Australian Government grant funding to undertake this project?

☐ Yes ☑ No

1.10 Is the proposed action subject to local government planning approval?

☑ Yes ☐ No

1.10.1 Is there a local government area and council contact for the proposal?

☐ Yes ☑ No

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

1.11 Provide an estimated start and estimated end date for the proposed action	Start Date	01/01/2021
	End Date	01/01/2041

1.12 Provide details of the context, planning framework and state and/or local Government requirements

The site is located within Ipswich City Council (ICC) but lies within the Springfield Structure Plan (SSP) area. The SSP sets out the broader planning framework for land within the structure plan boundary. The Scenic Precinct will be developed in accordance with the SSP. The SSP designate the land as community residential and open space.

1.13 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders

The overarching Springfield Structure Plan was adopted as part of the Ipswich Planning Scheme 2006 and was subject to extensive public consultation during its design phase in accordance with the Integrated Planning Act 1997. The development intent of Greater Springfield has incorporated public opinions and addressed public concerns.

1.14 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project

The proposed action does not trigger an Environmental IMpact Assessment under Queensland Legislation

1.15 Is this action part of a staged development (or a component of a larger project)?

☐ Yes ☑ No

1.16 Is the proposed action related to other actions or proposals in the region?

☐ Yes ☑ No

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 2

Matters of national environmental significance

2.1 Is the proposed action likely to have any direct or indirect impact on the values of any World Heritage properties?

☐ Yes ☑ No

2.2 Is the proposed action likely to have any direct or indirect impact on the values of any National Heritage places?

☐ Yes ☑ No

2.3 Is the proposed action likely to have any direct or indirect impact on the ecological character of a Ramsar wetland?

☐ Yes ☑ No

2.4 Is the proposed action likely to have any direct or indirect impact on the members of any listed species or any threatened ecological community, or their habitat?

☑ Yes ☐ No

Species or threatened ecological community

Koala

Impact

Koalas are found in a range of habitats, from coastal islands and tall eucalypt forests to low woodlands inland and the species is known to occur in the locality. Extensive searches for this species, including spot assessment technique (SAT) surveys and scat meanders were completed across the referral area and only indirect evidence in the form of scats was observed. The assessment against the EPBC Significant Impact Guidelines 1.1 indicates the proposed action is highly unlikely to have a significant impact on the Koala (the species), however is identified to contain vegetation which meets the definition of critical habitat for the survival of the Koala. An assessment against the Koala Referral Guidelines identified that the project will involve the direct clearing of 24.20 hectares of critical habitat for the Koala scored using the Koala Habitat Assessment Tool as providing a Habitat Score of 7. Under the Koala Referral Guidelines, the action is likely to have a significant impact on the species through the clearing of critical habitat.

Species or threatened ecological community

Grey-headed Flying-fox

Impact

This species generally roosts in camps in trees adjacent to larger permanent watercourse. The GHFF requires foraging resources and roosting sites and is a canopy-feeding frugivore and nectarivore, which utilises vegetation communities including rainforests, open forests, closed and open woodlands, Melaleuca swamps and Banksia woodlands. It also feeds on commercial fruit crops, however the primary food source is blossom from Eucalyptus and related genera. Opportunistic and targeted surveys did not locate roosting sites on the subject site or within the immediate vicinity of the site. No Grey-headed Flying-fox individuals were recorded during field surveys. The proposed action will result in the direct impact (clearing) of approximately 24.20 ha of native vegetation available foraging habitat for the GHFF (utilisation not confirmed). The proposed action has the potential to impact on foraging habitat for the GHFF.

2.4.2 Do you consider this impact to be significant?

☑ Yes ☐ No

2.5 Is the proposed action likely to have any direct or indirect impact on the members of any listed migratory species or their habitat?

☐ Yes ☑ No

2.6 Is the proposed action to be undertaken in a marine environment (outside Commonwealth marine areas)?

☐ Yes ☑ No

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

2.7 Is the proposed action likely to be taken on or near Commonwealth land?

☐ Yes ☑ No

2.8 Is the proposed action taking place in the Great Barrier Reef Marine Park?

☐ Yes ☑ No

2.9 Is the proposed action likely to have any direct or indirect impact on a water resource from coal seam gas or large coal mining development?

☐ Yes ☑ No

2.10 Is the proposed action a nuclear action?

☐ Yes ☑ No

2.11 Is the proposed action to be taken by a Commonwealth agency?

☐ Yes ☑ No

2.12 Is the proposed action to be undertaken in a Commonwealth Heritage place overseas?

☐ Yes ☑ No

2.13 Is the proposed action likely to have any direct or indirect impact on any part of the environment in the Commonwealth marine area?

☐ Yes ☑ No

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 3

Description of the project area

3.1 Describe the flora and fauna relevant to the project area

Field survey confirmed that the referral area contains predominantly remnant vegetation, excluding the internal tracks. The vegetation on-site is considered to be accurately mapped as 'remnant' vegetation due to the cessation of logging activities. The 'remnant' Category B vegetation communities contain species consistent of the mapped regional ecosystems, being composite RE12.9-10.2/12.9-10.7/12.9-10.19 (65/20/15).

The dominant RE was identified to be RE12.9-10.2 due to the dominance of Corymbia citriodora (Spotted Gum) and Eucalyptus crebra (Narrow-leaved Ironbark). There were elements of RE12.9-10.7 and RE12.9-10.19 indicated by the presence of other canopy species including Eucalyptus moluccana (Gum-topped Box), Eucalyptus fibrosa (Broad-leaved Ironbark), Eucalyptus tereticornis (Forest Red Gum), Eucalyptus acmenoides (White Mahogany) and Angophora leiocarpa (Smooth-barked Apple). The understorey contained a mix of Acacia species including Acacia concurrens (Black Wattle), Acacia leiocalyx (Early Flowering Black Wattle), Acacia disparrima (Hickory Wattle), Acacia fimbriata (Brisbane Wattle), and Alphitonia excelsa (Soap Tree). The ground layer was dominated by native forbs and grasses such as Aristida vagans (Threeawn Speargrass), Themeda triandra (Kangaroo Grass), Cymbopogon refractus (Barbed Wire Grass), Heteropogon contortus (Black Speargrass), and contained an abundance of leaf litter. Groundcover was largely devoid of weeds except for isolated areas of Lantana camara (Lantana) and Lantana montevidensis (Creeping Lantana) infestations. The canopy height and coverage of the mapped 'remnant' RE12.9-10.2 is consistent with the remnant status definition.

The location and extent of the field verified vegetation communities is depicted in Plan 3 of the Ecological Assessment - Matters of National Environmental Significance (SHG 2020).

3.2 Describe the hydrology relevant to the project area (including water flows)

The referral area contains a high point in the north-eastern portion of the site where the ground elevation is approximately 100m AHD. The site falls to the east and south-east to low points along Opossum Creek outside of the referral area, where the elevation is approximately 30m AHD. Adjacent to the referral area is Opossum Creek which is identified as a considerable waterway within the Ipswich local government area.

3.3 Describe the soil and vegetation characteristics relevant to the project area

Land zone 9-10 dominates the majority of the site, consisting of fine to coarse grained sedimentary rocks, including sandstone, siltstones, mudstones and shales. Land zone 3 is situated in association with the fringing area of Opossum Creek.

Land zone 9-10 is described as "undulating country on fine grained sedimentary rocks and course grained sedimentary rocks", while land zone 3 is described as "recent quaternary alluvial systems".

The location and extent of the field verified vegetation communities is depicted in the Ecological Assessment – Matters of National Environmental Significance prepared by SHG (2020)

3.4 Describe any outstanding natural features and/or any other important or unique values relevant to the project area

From an MNES perspective, no outstanding natural features and/or any other important or unique values relevant to the project area were identified on or proximal to the subject site.

3.5 Describe the status of native vegetation relevant to the project area

Field survey confirmed that the referral area contains predominantly remnant vegetation, excluding the internal tracks. The vegetation on-site is considered to be accurately mapped as 'remnant' vegetation due to the cessation of logging activities. The 'remnant' Category B vegetation communities contain species consistent of the mapped regional ecosystems, being composite RE12.9-10.2/12.9-10.7/12.9-10.19 (65/20/15).

The dominant RE was identified to be RE12.9-10.2 due to the dominance of Corymbia citriodora (Spotted Gum) and Eucalyptus crebra (Narrow-leaved Ironbark). There were elements of RE12.9-10.7 and RE12.9-10.19 indicated by the presence of other canopy species including Eucalyptus moluccana (Gum-topped Box), Eucalyptus fibrosa (Broad-leaved Ironbark), Eucalyptus tereticornis (Forest Red Gum), Eucalyptus acmenoides (White Mahogany) and Angophora leiocarpa (Smooth-barked Apple). The understorey contained a mix of Acacia species including Acacia concurrens (Black Wattle), Acacia leiocalyx (Early Flowering Black Wattle), Acacia disparrima (Hickory Wattle), Acacia fimbriata (Brisbane Wattle), and Alphitonia excelsa (Soap Tree). The ground layer was dominated by native forbs and grasses such as Aristida vagans (Threeawn Speargrass), Themeda triandra (Kangaroo Grass), Cymbopogon refractus (Barbed Wire Grass), Heteropogon contortus (Black Speargrass), and contained an abundance of leaf litter. Groundcover was largely devoid of weeds except for

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isolated areas of Lantana camara (Lantana) and Lantana montevidensis (Creeping Lantana) infestations. The canopy height and coverage of the mapped 'remnant' RE12.9-10.2 is consistent with the remnant status definition.

3.6 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area

The referral area contains a high point in the north-eastern portion of the site where the ground elevation is approximately 100m AHD. The site falls to the east and south-east to low points along Opossum Creek outside of the referral area, where the elevation is approximately 30m AHD. Adjacent to the referral area is Opossum Creek which is identified as a considerable waterway within the Ipswich local government area.

3.7 Describe the current condition of the environment relevant to the project area

Field survey confirmed that the referral area contains predominantly remnant vegetation, excluding the internal tracks. The vegetation on-site is considered to be accurately mapped as 'remnant' vegetation due to the cessation of logging activities. The 'remnant' Category B vegetation communities contain species consistent of the mapped regional ecosystems, being composite RE12.9-10.2/12.9-10.7/12.9-10.19 (65/20/15).

Connectivity towards the south and west is limited by major arterial roads and large-scale residential development. The development to the west is associated with a current EPBC approval (EPBC2016/7676).

The site retains connectivity to the north and east, with the site adjoining existing known koala habitat on the Opossum Creek corridor and vacant bushland to the north. It should be noted that the vacant bushland to the north and south are subject to active EPBC Referrals. Currently, the site is connected to approximately 675 ha.

3.8 Describe any Commonwealth Heritage places or other places recognised as having heritage values relevant to the project

The EPBC Act Protected Matters Report indicated that no World Heritage Properties, National Heritage Places or any other Commonwealth Heritage Places exist within a 5 km radius of the site of the proposed action.

3.9 Describe any Indigenous heritage values relevant to the project area

Not Applicable

3.10 Describe the tenure of the action area (e.g. freehold, leasehold) relevant to the project area

Freehold

3.11 Describe any existing or any proposed uses relevant to the project area

The site is currently vacant and consists of predominantly native vegetation. The proposed development footprint and associated impact area will occupy approximately 24.2 ha of the 36.12 ha subject site. The proposed development will include a mixed precinct comprising:

- Town Business;
- Retail;
- Childcare;
- Utilities;
- Parklands;
- Roads and infrastructure;
- Place(s) of worship;
- Education; and
- Town Residential.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 4

Measures to avoid or reduce impacts

4.1 Describe the measures you will undertake to avoid or reduce impact from your proposed action

One of the purposes of this report is to identify potential impacts upon ecological values and provide guidance for further design development. Therefore, where practicable, the detailed design stage should consider the extent of the final project footprint in respect to avoiding and minimising impacts to areas of remnant and riparian vegetation, TECs and key habitat values therein.

A Vegetation Clearing and Management Plan (VC&MP) should form part of the broader management document submitted as part of the operational works application for the development site. The VC&MP should cover clearing of all vegetation listed in this report and include details on:

Clearly show trees to be removed
All civil works likely to impact on existing vegetation
Temporary and permanent exclusion and protection fencing
Roles and responsibilities for site contractors, the developer and the consultant group
Stockpiling and site access locations
A clearing sequence plan showing the commencement of clearing and direction of removal (this should be in conjunction with the Fauna Management Plan to allow for the appropriate flushing of fauna towards safe havens and/or the application of an appropriate relocation program)
Links to weed management and revegetation proposals
The stock piling and reuse of cleared vegetation

A Fauna Management Plan (FMP) should be prepared for potential impacts of the construction phase covering the loss of vegetated areas, isolated trees and likely barriers and impediments to local dispersal.

The FMP should link closely with the VC&MP and include details on:

Species surveyed as using the site with a focus on those most likely impacted by development works
A list of relevant State and Commonwealth legislation constraints and controls for the above listed fauna
A plan showing existing habitat opportunities and locations
Details of the threats to existing fauna species
Clearing sequence plan from the VC&MP
Management and mitigation measures i.e. temporary use of fauna exclusion fencing
Fauna spotter role, contacts and certification
Specific fauna management procedures for potential or known habitat trees

A Rehabilitation Management Plan (RMP) should form part of the broader management document submitted as part of the operational works drawings for the referral area, and will generally include information on:

Rehabilitation approaches in accordance with SEQ Ecological Restoration Guidelines (SEQRF)
Existing and proposed contours
Locations of services, earthworks
Existing vegetation to be retained, removed
Location of waterways and waterbodies
Major weed infestations and proposed treatments
Trail and path systems

A registered and suitability qualified fauna spotter catcher/ecologist will need to be employed for the construction phase of the Project to implement a protocol of best management practises. Significance habitat features, should any be identified on site, will be flagged prior to clearing events and these areas supervised by an appropriately experienced ecologist. Identified within the clearing supervision protocol should be flagging of hollow bearing trees followed by the removal of vegetation surrounding them. After 24 to 72 hours, these trees should then be removed. Trees must be directionally felled into open or already cleared areas.

The objective of this is to enable hollow dependant fauna an opportunity to move on their own accord as many species utilise multiple den/roost sites within a given home range. Certain areas would be identified and flagged as significant such as old-growth trees with hollow resources and on-site identification to construction personnel will help reduce/avoid clearing. Where required, native fauna situated within areas to be cleared will be relocated to a secure area of similar habitat prior to the commencement of vegetation clearance works by a registered fauna spotter/catcher. Should any removal and relocation of nests be required, it is to be undertaken by a suitably qualified and experienced persons and advice sought where necessary.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

4.2 For matters protected by the EPBC Act that may be affected by the proposed action, describe the proposed environmental outcomes to be achieved

The site design is considered to be in-line with on-ground values and the planning intent of the Springfield Structure Plan area. The action proposes to avoid the Opossum Creek corridor which is considered to provide significant biodiversity values to the Springfield region. Further, substantial avoidance, mitigation and management measures are proposed to ensure potential impacts environmental values are and residual impacts of clearing of 24.20 ha of critical habitat for the koala and 24.20 ha of foraging habitat for the GHFF are appropriately managed.

Refer to the Ecological Assessment – Matters of National Environmental Significance prepared by SHG (2020) for the full details.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 5

Conclusion on the likelihood of significant impacts

5.1 You indicated the below ticked items to be of significant impact and therefore you consider the action to be a controlled action

- ☐ World Heritage properties
- ☐ National Heritage places
- ☐ Wetlands of international importance (declared Ramsar wetlands)
- ☑ Listed threatened species or any threatened ecological community
- ☐ Listed migratory species
- ☐ Marine environment outside Commonwealth marine areas
- ☐ Protection of the environment from actions involving Commonwealth land
- ☐ Great Barrier Reef Marine Park
- ☐ A water resource, in relation to coal seam gas development and large coal mining development
- ☐ Protection of the environment from nuclear actions
- ☐ Protection of the environment from Commonwealth actions
- ☐ Commonwealth Heritage places overseas
- ☐ Commonwealth marine areas

5.2 If no significant matters are identified, provide the key reasons why you think the proposed action is not likely to have a significant impact on a matter protected under the EPBC Act and therefore not a controlled action

Not applicable

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 6

Environmental record of the person proposing to take the action

6.1 Does the person taking the action have a satisfactory record of responsible environmental management? Explain in further detail

Springfield City Group (SCG) as the master developer of the Greater Springfield Project has an excellent record of environmental management and sustainability recognised at a local, state, national and international levels.

6.2 Provide details of any past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against either (a) the person proposing to take the action or, (b) if a permit has been applied for in relation to the action – the person making the application

EPBC2016/7676

6.3 If it is a corporation undertaking the action will the action be taken in accordance with the corporation's environmental policy and framework?

☑ Yes ☐ No

6.3.1 If the person taking the action is a corporation, provide details of the corporation's environmental policy and planning framework

SCG seeks to deliver outcomes through its activities and those of its partners that support its commitment to delivering sustainable environmental management outcomes consistent with its planning framework. SCG development partners undertake development activities on SCG behalf in accordance with their Corporate environmental management policy and planning framework.

6.4 Has the person taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?

☑ Yes ☐ No

6.4.1 EPBC Act No and/or Name of Proposal

EPBC2016/7676

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 7

Information sources

Reference source

7399 E MNES Ecological Assessment, prepared by Saunders Havill Group for Springfield City Group Pty Ltd, dated April 2020.

Reliability

Information is current and reliable

Uncertainties

Nil

Reference source

Atlas of Living Australia, 2020, Spatial Data Portal [https://spatial.ala.org.au/], accessed MArch 2020.

Reliability

Information is reliable and current.

Uncertainties

Nil

Reference source

Commonwealth of Australia, 2011, The Senate: Environment and Communications References Committee. The Koala – saving our national icon, Commonwealth of Australia.

Reliability

Information is reliable and current.

Uncertainties

Nil

Reference source

Department of Environment & Climate Change NSW, 2008, Recovery plan for the Koala (Phascolarctos cinereus), Department of Environment & Climate Change NSW

Reliability

Information is reliable and current.

Uncertainties

Nil

Reference source

Department of Environment and Science (2017), Grey-headed flying-fox, Queensland Government.

Reliability

Information is reliable and current.

Uncertainties

Nil

Reference source

Department of the Environment and Energy, 2020, Monitoring Flying-fox Populations – Interactive Flying-fox Web Viewer, Department of the Environment and Energy, Australian Government.

Reliability

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Information is reliable and current.

Uncertainties

Nil

Reference source

Department of the Environment, 2013, Matters of Nation Environmental Significance – Significant Impact Guidelines 1.1 Environment Protection and Biodiversity Conservation Act 1999, Australian Government.

Reliability

Information is reliable and current.

Uncertainties

Nil

Reference source

Department of the Environment, 2019, Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) in Species Profile and Threats Database, Department of the Environment, Canberra.

Reliability

Information is reliable and current.

Uncertainties

Nil

Reference source

Department of the Environment, 2019, Plectranthus habrophyllus in Species Profile and Threats Database, Department of the Environment, Canberra

Reliability

Information is reliable and current.

Uncertainties

Nil

Reference source

Department of the Environment, 2019, Pteropus poliocephalus in Species Profile and Threats Database, Department of the Environment, Canberra.

Reliability

Information is reliable and current.

Uncertainties

Nil

Reference source

EPBC Act Referral Guidelines for the vulnerable koala (combined populations of Queensland, New South Wales and the Australian Capital Territory), Commonwealth of Australia, 2014.

Reliability

Information is reliable and current.

Uncertainties

Nil

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Reference source

Eyre TJ, Ferguson DJ, Hourigan CL, Smith GC, Mathieson MT, Kelly, AL, Venz MF, Hogan, LD & Rowland, J., 2018, Terrestrial Vertebrate Fauna Survey Assessment Guidelines for Queensland, Department of Environment and Science, Queensland Government, Brisbane.

Reliability

Information is reliable and current.

Uncertainties

Nil

Reference source

Gonzalez-Astudillo, V, Allavena, R, Mckinnon, A, Larkin, R & Henning, J, 2017, 'Decline causes of Koalas in South East Queensland, Australia: a 17-year retrospective study of mortality and morbidity', Scientific Reports, 7:42587.

Reliability

Information is reliable and current.

Uncertainties

Nil

Reference source

Phillips, S & Callaghan, J 2011, The Spot Assessment Technique: a tool for determining localised levels of habitat use by Koalas Phascolarctos cinereus, Australian Zoologist, 35(3): 774-780.

Reliability

Information is reliable and current.

Uncertainties

Nil

Reference source

Ipswich City Council, 2006, Ipswich Planning Scheme, Ipswich.

Reliability

Information is reliable and current.

Uncertainties

Nil

Reference source

Rhodes, J. R., Beyer, H. L., Preece, H.J. and McAlpine, C.A. 2015. South East Queensland Koala Population Modelling Study. UniQuest, Brisbane, Australia

Reliability

Information is reliable and current.

Uncertainties

Nil

Reference source

Wilson, PR & Taylor, PM 2012, Land Zones of Queensland, Queensland Herbarium, Queensland Department of Science, Information Technology, Innovation and the Arts, Queensland Government, Brisbane.

Reliability

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Information is reliable and current.

Uncertainties

Nil

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 8

Proposed alternatives

Do you have any feasible alternatives to taking the proposed action?

Yes ☑ No

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 9

Person proposing the action

9.1.1 Is the person proposing the action a member of an organisation?

☑ Yes ☐ No

Organisation

Organisation name	SPRINGFIELD CITY GROUP PTY LIMITED
Business name	
ABN	35055714531
ACN	
Business address	145 Sinnathamby Blvd, Springfield Central, 4300, QLD, Australia
Postal address	
Main Phone number	0738199999
Fax	
Primary email address	r.luhrs@springfieldcity.com
Secondary email address	

9.1.2 I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:

☐ Small business
☑ Not applicable

9.1.2.2 I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations *

☐ Yes ☑ No

9.1.3 Contact

First name	Russell
Last name	Luhrs
Job title	Chief Operating Officer
Phone	
Mobile	
Fax	
Email	r.luhrs@springfieldcity.com
Primary address	145 Sinnathamby Blvd, Springfield Central, 4300, QLD, Australia
Address	

Declaration: Person proposing the action

I, _____, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf or for the benefit of any other person or entity.

Signature: ..... Date: .....

I, _____, the person proposing the action, consent to the designation of _____ as the proponent for the purposes of the action described in this EPBC Act Referral.

Signature:.....Date: .....

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Proposed designated proponent

9.2.1 Is the proposed designated proponent a member of an organisation?

☑ Yes ☐ No

Organisation

Organisation name	SPRINGFIELD CITY GROUP PTY LIMITED
Business name	
ABN	35055714531
ACN	
Business address	145 Sinnathamby Blvd, Springfield Central, 4300, QLD, Australia
Postal address	
Main Phone number	0738199999
Fax	
Primary email address	r.luhrs@springfieldcity.com
Secondary email address	

9.2.2 Contact

First name	Russell
Last name	Luhrs
Job title	Chief Operating Officer
Phone	0738199999
Mobile	
Fax	
Email	r.luhrs@springfieldcity.com
Primary address	145 Sinnathamby Blvd, Springfield Central, 4300, QLD, Australia
Address	

Declaration: Proposed Designated Proponent

I, _____,the proposed designated proponent, consent to the designation of myself as the proponent for the purposes of the action described in this EPBC Act Referral.

Signature: ..... Date: .....

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Referring party (person preparing the information)

9.3.1 Is the referring party (person preparing the information) a member of an organisation?

☑ Yes ☐ No

Organisation

Organisation name	Saunders Havill Group Pty Ltd
Business name	
ABN	24144972949
ACN	
Business address	9 Thompson St, Bowen Hills, 4006, QLD, Australia
Postal address	
Main Phone number	0732519444
Fax	
Primary email address	mail@saundershavill.com
Secondary email address	

9.3.2 Contact

First name	James
Last name	Gautrey
Job title	Ecologist
Phone	0732519458
Mobile	
Fax	
Email	jamesgautrey@saundershavill.com
Primary address	9 Thompson St, Bowen Hills, 4006, QLD, Australia
Address	

Declaration: Referring party (person preparing the information)

I, _____, declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence.

Signature: ..... Date: .....

Australian Government
Department of Agriculture, Water and the Environment

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Appendix A

Attachment

Document Type	File Name
action_area_images	7399 E 01 Concept Precinct Layout A.pdf
supporting_tech_reports	7399_SCENIC_EPBC_REFERRAL_opt_1.pdf
supporting_tech_reports	7399_SCENIC_EPBC_REFERRAL_opt_2.pdf

Appendix B

Coordinates

Area 1
-27.656742498,152.907097176
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Appendix A – Concept Precinct Layout

1. Concept Precinct Layout

NOTES
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Legend

- Referral Area
- Qld DCDB
- Scenic Precinct (36.12 ha)
- Development footprint (24.2 ha)
- Linear Park (11.92 ha)

Issue	Date	Description	Drawn	Checked
A	2/04/2020	Preliminary	MP	JG

0 30 60 120 180 m

Transverse Mercator | GDA 1994 | Zone 56 | 1:5,000 @ A3

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Scenic Precinct

ADDRESS/RPD: Eden Station Drive, Brookwater *2/04/2020* *7399 E 01 Concept Precinct Layout A*

Appendix B – MNES Ecological Technical Report

Ecological Assessment – Matters of National Environmental Significance

EPBC Act Referral – MNES Flora and Fauna

Scenic Precinct

Prepared for Springfield City Group
April 2020

Job 7399 E

saunders havill group

Document Control

Document: 7399 E Scenic Precinct Ecological Assessment – Matters of National Environmental Significance, prepared by Saunders Havill Group for Springfield City Group, dated 3 April 2020.

Document Issue

Issue	Date	Prepared By	Checked By
Issue A	03/04/2020	AW	JG

Prepared by
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www.saundershavill.com

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1. Introduction

Saunders Havill Group (SHG) was engaged by Springfield City Group Pty Ltd to carry out an ecological assessment of Matters of National Environmental Significance (MNES) to support a referral under the Commonwealth Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The purpose of this report is to identify potential MNES, specifically listed threatened species that may be impacted by the proposed urban development ('the action') of land located at Springfield College Drive, Springfield, Queensland ('the site').

The site is located within Ipswich City Council (ICC) but lies within the Springfield Structure Plan (SSP) area. The SSP sets out the broader planning framework for land within the structure plan boundary. The Scenic Precinct will be developed in accordance with the SSP. The SSP designate the land as community residential and open space.

1.1. Project Background

Springfield City Group Pty Ltd is proposing to develop a mixed-use community residential development on land located Springfield College Drive, Springfield. The site is located over three (3) land parcel, described as, Lot 51 on SP242316, part of Lot 1 on RP863336 and part of Lot 50 on SP242316. The site is adjacent to the Opossum Creek Parklands and Springfield Anglican College. Refer to **Figure 1** for the site context and **Figure 2** for the site aerial.

1.2. Project Description

The proposed development footprint and associated impact area will occupy approximately 24.2 ha of the 36.12 ha subject site. The proposed development will include a mixed precinct comprising:

- Town Business;
- Retail;
- Childcare;
- Utilities;
- Parklands;
- Roads and infrastructure;
- Place(s) of worship;
- Education; and
- Town Residential.

Refer **Plan 1** for the proposed developable footprint.

1.3. Purpose

The purpose of this ecological assessment is to confirm the presence or absence of Matters of National Environmental Significance (MNES), which have been identified by a desktop assessment and then field verified by targeted field surveys. This ecological assessment identifies the MNES of potential relevance to the site. It assesses the significance of potential project related impacts upon relevant MNES in consideration of proposed impact avoidance and minimisation measures.

1.4. Areas of investigation

The areas of investigation for this ecological assessment include:

- Referral area – the area of the proposed development footprint, including any areas that are considered functionally lost and where temporary disturbance is required. The referral area totals approximately 24.2 ha.
- Subject site – the extent of the Scenic Precinct on Lot 51 on SP242316, part of Lot 1 on RP863336 and part of Lot 50 on SP242316. The subject site totals approximately 36.12 ha.
- Locality – the extent of the 5 km radius database searches of the subject site.

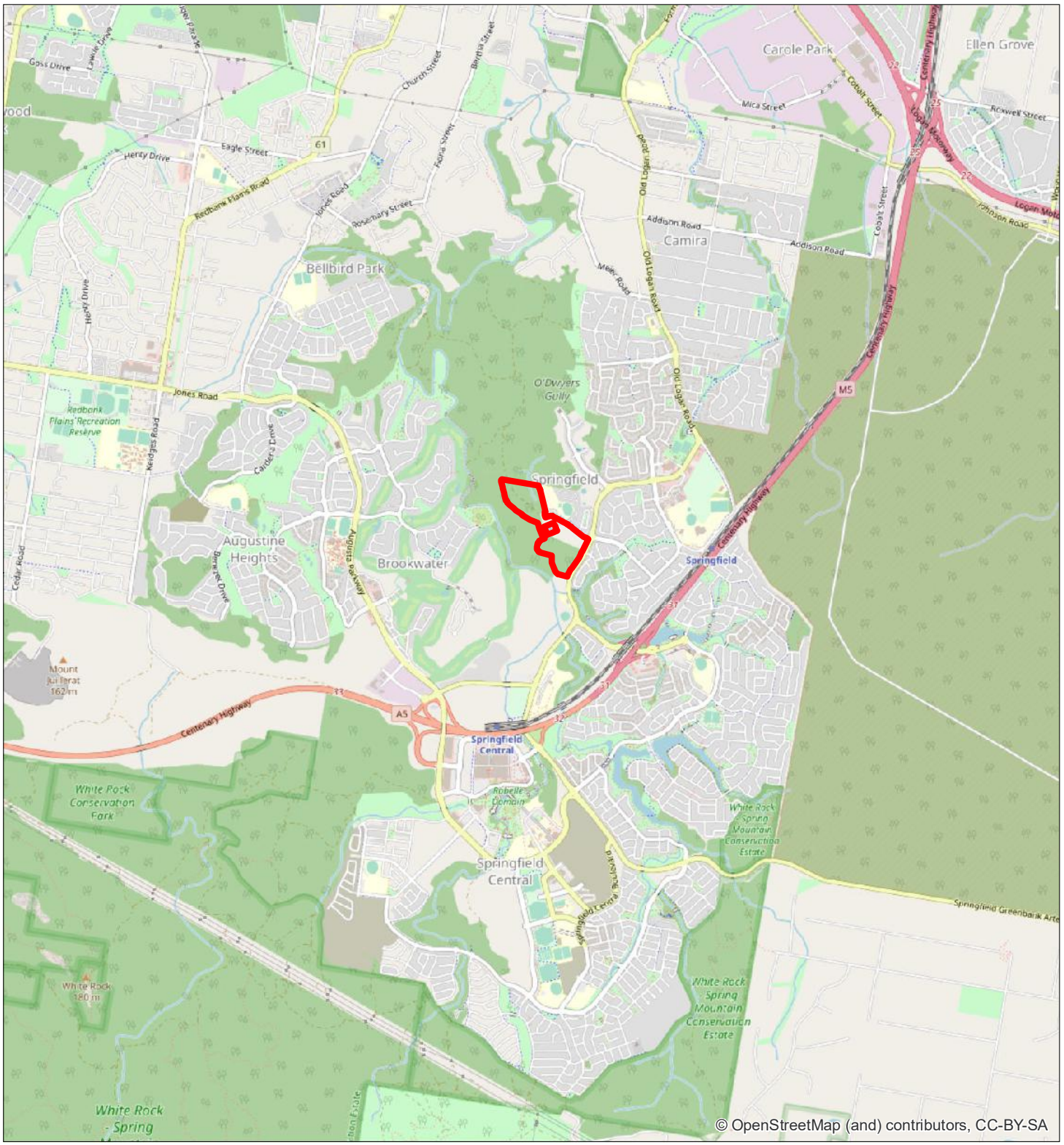
1.5. Study Limitations

The ecological assessment presented herein has involved a combination of desktop assessments and field investigations and has relied on publicly available information and data. The likelihood of occurrence assessment has relied on database searches and publicly available information that relates to the subject site and broader locality. Field surveys focussed on verifying the vegetation and essential habitat mapped by the State Government and flora and fauna surveys targeting threatened species identified by database searches.

Targeted flora and fauna surveys were undertaken on 28 January 2020 and 16 March 2020, during relatively warm conditions, with the latter survey following a period of intermittent rainfall (9 – 15 March had 42.00 mm rain) (BOM 2020).

The field surveys only targeted those threatened species or communities, which have either been previously recorded or predicted to occur in the locality, and as such were assessed as having a moderate or high likelihood of occurring in the referral area.

Fauna surveys relied on passive methods for detection, such as call recognition, visual identification, active searches and inferential evidence of habitat usage (e.g. scratches, scats, burrows, active nests etc.). No trapping was conducted as part of the fauna surveys, as the target species in the referral area did not justify the need for such surveys.



Legend

Referral Area

Figure 1

Site Context

SPRINGFIELD CITY GROUP

File ref. *7399 E Figure 1 Site Context A*
Date *1/04/2020*
Project *Scenic Precinct*

0 0.5 1 2 km

N

Scale (A4): 1:50,000 [GDA 1994 MGA Z56]

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Legend

- Referral Area
- Qld DCDB
- Relevant lots

Figure 2

Site Aerial

SPRINGFIELD CITY GROUP

File ref. 7399 E Figure 2 Site Aerial A
Date *1/04/2020*
Project *Scenic Precinct*

0 25 50 100 150 200 *m*

N

Scale (A4): 1:5,000 [GDA 1994 MGA Z56]

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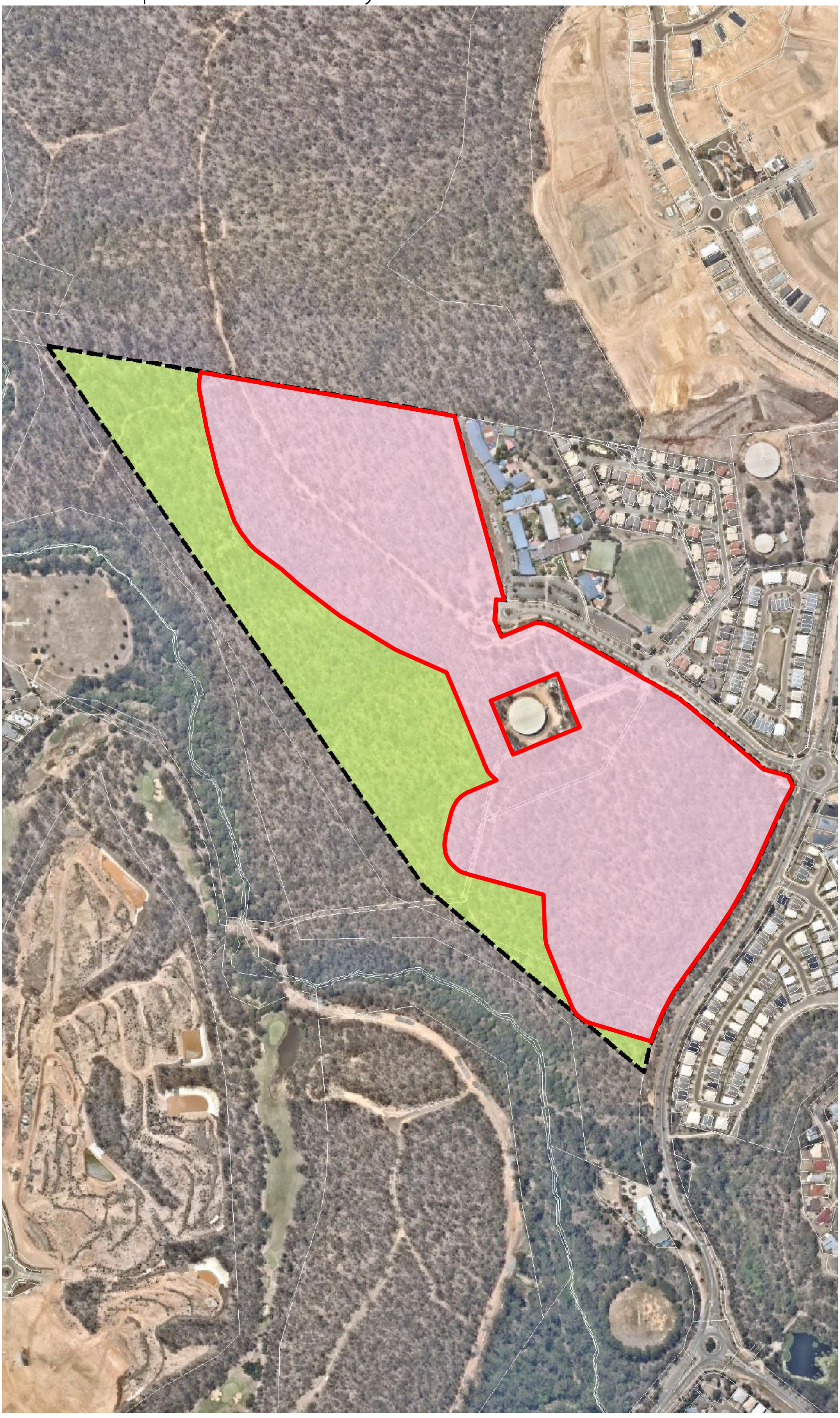
1. Concept Precinct Layout



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- Development footprint (24.2 ha)
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0 30 60 120 180 m

Transverse Mercator | GDA 1994 | Zone 56 | 1:5,000 @ A3

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SPRINGFIELD CITY GROUP

Scenic Precinct

ADDRESS/RPD: Eden Station Drive, Brookwater *2/04/2020* *7399 E 01 Concept Precinct Layout A*

2. Legislative Context

2.1. Commonwealth Legislation and Policy

2.1.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) establishes a requirement for Commonwealth environmental assessment and approval for actions that are likely to have a significant impact on any MNES protected under the EPBC Act, including:

- World heritage properties;
- National heritage places;
- Wetlands of international importance (listed under the Ramsar Convention);
- Listed threatened species and ecological communities;
- Migratory species protected under international agreements;
- Commonwealth marine areas;
- The Great Barrier Reef;
- Nuclear actions (including uranium mines); and
- A water resource, in relation to coal seam gas development and large coal mining development.

Other matters protected under the EPBC Act, include:

- The environment, where actions proposed are on, or will affect Commonwealth land and the environment; and
- The environment, where Commonwealth agencies are proposing to take an action.

When a proponent proposes to take an action that they believe may need approval under the EPBC Act, they must refer the proposed action to the Australian Government Minister for the Environment (the Minister). The purpose of the referral is to determine whether a proposed action is a 'controlled action' and thereby requires approval under the EPBC Act. If the Minister determines that a proposed action is a 'controlled action', it would then proceed through the Commonwealth assessment and approval process.

2.1.2 EPBC Act Environmental Offsets Policy

The *EPBC Act Environmental Offsets Policy* (2012) (EOP) outlines the Commonwealth Government's approach to the use of environmental offsets under the EPBC Act. The EOP applies to both project-by-project assessments and approvals under Part 8 and Part 9 of the EPBC Act.

The EOP provides a framework on the use of environmental offsets under the EPBC Act including when offsets are required, how offsets can be delivered, and the framework under which they operate. Offsets are not required for all approvals under the EPBC Act and the EOP is only triggered when significant residual impacts to matters protected under the EPBC Act are unavoidable. The EOP relates to all matters protected under the EPBC Act.

The EOP applies to offsetting requirements in both terrestrial and aquatic (including marine) environments. It requires that an environmental offset under the EPBC Act be suitable and *'delivers an overall conservation outcome that improves or maintains the viability of the protected matter(s)'*.

3. Methodology & Process

3.1. Desktop analysis methodology

Prior to the commencement of field surveys, a desktop analysis was conducted of Commonwealth, State and Local environmental databases and overlay mapping, and included the following:

- Commonwealth Matters of National Environmental Significance (MNES) protected under the EPBC Act on and around the site using the protected matters search tool with a 5 km radius (**Appendix A**);
- *Nature Conservation Act 1992* (NCA) listed threatened species on and around the site using the wildlife online database search tool with a 5 km radius (**Appendix B**);
- public environmental databases including Atlas of Living Australia, BioMaps and the Australian Koala Foundation (AKF); and
- regulated vegetation management and vegetation supporting maps under the *Vegetation Management Act 1999* (VMA).

Additionally, a review of aerial photography history was undertaken via QImagery to assist with the broad delineation of vegetation communities and to determine historical patterns to local vegetation communities. A review of historical aerial imagery indicates that the property was historically utilised as part of the broader forestry practices throughout the Springfield area, but since 1980 has remained in a relatively natural state.

3.2. Likelihood of Occurrence Assessment

The likelihood of occurrence assessment was based upon publicly available species records and/or other information sources, such as field guides and web-based species profiles, including but not limited to:

- Commonwealth Government's *Species Profile and Threats Database* (SPRAT) for the threatened species and ecological communities listed under the EPBC Act; and
- The Queensland *Department of Environment and Science* (DES) threatened species website.

The likelihood of occurrence assessment was also informed by field survey results, including an appreciation and understanding of the species habitats within the referral area.

The likelihood of threatened species and ecological communities occurring in the referral area has been assessed against the criteria outlined in **Table 1**.

Table 1: Likelihood of occurrence assessment criteria

Likelihood of occurrence	Assessment criteria
Low	No previous records of the species within the locality and one or more of the following criteria is met: • Not previously recorded on the referral area and surrounds and the referral area is beyond the current known geographic range; • Dependant on specific habitat types or resources that are not present on the referral area; or • Considered extinct in the wild.
Moderate	Species previously recorded within the locality and one or more of the following criteria is met: • Previously recorded in proximity to the referral area (i.e. vagrant individuals); or • Potential habitat typologies or resources are present on the referral area.
High	Species previously recorded within the locality and one or more of the following criteria is met: • Previously recorded on the referral area; • Dependant on habitats or habitat resources that are available on the referral area; or • Suitable habitats are available on the referral area that are capable of supporting a resident population or individuals of the species.
Known	Flora species or ecological community positively identified during field surveys within the referral area. Fauna species positively recorded during field surveys within the referral area or adjacent habitats.

3.3. Field survey methodology

A field survey utilising the methods outlined in the following subsections was conducted to describe ecological value of the referral area.

3.3.1 Bird surveys

This technique is a non-intrusive active area search that provides a direct census of bird species occurrence and abundance. Inclement weather was avoided as this greatly reduces the detection of bird species.

Birds were surveyed across the referral area for a minimum of one-hour duration where possible, where two (2) survey were undertaken in the morning. This specific methodology was employed on 28 January and 16 March 2020. Further observations were recorded over several hours during other survey activities including fauna and flora meanders and opportunistic survey. Birds were identified from either direct observation or by their calls.

3.3.2 Modified Habitat Quality Assessment

The vegetation values of the referral area were assessed using the modified habitat quality assessment methodology. This assessment approach utilises the Queensland BioCondition Assessment method combined with site context and species stocking rate assessments to determine the habitat quality of the referral area.

Photo 1: Transect 1 demonstrating the MHQA methodology

3.3.3 *Koala habitat and SAT surveys*

Surveys to understand Koala presence were undertaken across the referral area in accordance with the methodology developed by the Australian Koala Foundation[1] and specified in the *EPBC Act Referral Guidelines for the Vulnerable Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory)* (hereby referred to as 'the Koala referral guideline'). The scat meander technique was utilised to identify the presence of Koala within the surrounding environment. Where scat or signs of Koala usage are identified during the scat meander, the Spot Assessment Technique (SAT) method was implemented. This methodology is an assessment of Koala activity involving a search for any Koalas and signs of Koala usage. The SAT method involves identifying a non-juvenile tree of any species within the referral area that is either observed to have a Koala or scats, or is known to be a Koala food tree or otherwise important for Koalas, and recording any evidence of Koala usage of that tree including physical presence, identifiable scratches or scats. The nearest non-juvenile tree is then identified and the same data recorded. The next closest non-juvenile tree to the first tree is then assessed and so on until 30 trees have been surveyed.

The number of trees showing evidence of Koala activity is expressed as a percentage of the total number of trees sampled to indicate the frequency of Koala usage. Assessment of each tree involves a systematic search for Koala scats beneath the tree within a 1 m radius of the trunk. After approximately two minutes of searching for scats, the base of the trunk is observed for scratches and the crown for Koala[1].

3.3.4 *Observational survey for significant flora and fauna, habitat trees and biodiversity values*

The referral area was walked several times to ensure all species (flora and fauna) were recorded and identified. Particular attention was paid to any threatened species that were listed as possibly occurring on or within the vicinity of the application area and specific micro-assemblages which may support these threatened species. This included observations for vertebrate fauna present on or that may utilise the referral area, including faunal lists and significance status of species under the Commonwealth's EPBC Act including the JAMBA, CAMBA, ROKAMBA and the Bonn Convention, and Queensland's NCA.

The observational survey included identification of ecological features and values such as broad vegetation communities, fauna habitats, and ecological corridors. Identification and description of the fauna habitats present within the area included any habitat trees. Specific attention was paid to threatened flora and fauna species.

For the purposes of this report, a significant flora and fauna species has been defined as a species that is scheduled as 'critically endangered', 'endangered', 'vulnerable' or conservation dependent under the Commonwealth EPBC Act.

3.3.5 *Scats, tracks and other traces search*

Surveys for scats, tracks and other traces were conducted throughout the survey period during July 2019. Both predator and non-predator scats were sought during all searches. Only those samples definitively identified were included in the survey results. Specific search efforts were made to locate the presence of Koalas or evidence of their occurrence on the subject lands and the local area. In addition, particular notice of potential dens, scats and tracks for invasive species, such as European Red Fox and domestic cats, was taken to identify predator-prey interactions and understand existing impacts within the referral area.

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[1] Phillips, S & Callaghan, J 2011, "The *Spot Assessment Technique*: a tools for determining localised levels of habitat use by Koala *Phascolarctos cinereus*", *Australian Zoologist*, 35:3.

3.3.6 Fauna movement barrier assessment

A combination of contemporary aerial imagery, locality knowledge and field inspection can assist in understanding if there are barriers to fauna movement in the landscape. Once the aerial imagery is interrogated, location(s) for inspection are selected (typically roads) and barriers identified.

4. Results

4.1. Desktop Assessment

4.1.1 Landscape Context and Historical Aerial Imagery

The referral area is located in a landscape that has historically supported similar land uses (refer to Error! Reference source not found.**Plan 1** for historical aerial imagery analysis), however, the landscape has rapidly evolved since the inception of the Springfield Master Plan area. Although the site retains native vegetation, the larger tract of vegetation in which the site comprises has been subject to historic and ongoing vegetation clearing associated with residential development.

Connectivity towards the east is limited by major arterial roads and a local school. The development to the west is associated with a current EPBC approval (EPBC2016/7676). The site retains connectivity to the south and north, with the site adjoining existing known koala habitat on the Opossum Creek corridor and vacant bushland to the north and south. It should be noted that the vacant bushland to the north and south are subject to active EPBC Referrals. Currently, the site is connected to approximately 675 ha.

4.1.2 Matters of National Environmental Significance

Based upon the database searches and the findings of the desktop assessment, the only MNES identified as being of potential relevance to the Project, include threatened flora and fauna species and migratory fauna species.

4.1.3 EPBC Act Threatened Ecological Communities

The Protected Matters Search Tool (PMST) (refer **Appendix A)** returned the following four (4) threatened ecological communities (TEC), listed under the EPBC Act, as having potential to occur within 5 km of the referral area:

- Coastal Swamp Oak (*Casuarina glauca)* Forest of New South Wales and South East Queensland ecological community
- Lowland Rainforest of Subtropical Australia
- Poplar Box Grassy Woodland on Alluvial Plains
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

The likelihood of occurrence for each TEC within the referral area, as presented in **Table 2**, referred to State Government regional ecosystem mapping within the Locality and known distributions of the TECs, to identify those TECs with potential to occur in the referral area or recorded during field surveys.

The results of the likelihood of occurrence assessment determined that no TECs listed above have the potential to occur within the referral area. Field verification surveys confirmed that no TECs are present on the referral area.

Table 2: Likelihood of occurrence of TECs within referral area

TEC	EPBC Act status	Desktop Likelihood of Occurrence
Coastal Swamp Oak (*Casuarina glauca)* Forest of New South Wales and South East Queensland ecological community	Endangered	**Low** No species representing these characteristics or vegetation communities were observed within the assessment area. The site is not mapped as containing any regional ecosystem communities associated with this ecological community.
Lowland Rainforest of Subtropical Australia	Critically Endangered	**Low** No species representing these characteristics or vegetation communities were observed within the referral area. The site is not mapped as containing any regional ecosystem communities associated with this ecological community. It should be noted that niche habitat characteristics to support this vegetation community are known to occur to the north of the referral area along Opossum Creek.
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	**Low** No species representing these characteristics or vegetation communities were observed within the referral area. The site is not mapped as containing any regional ecosystem communities associated with this ecological community.
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	**Low** No Characteristics or species representing this community were observed on or within the immediate vicinity of this site.

4.1.4 Threatened Flora Species

Database searches returned eighteen (18) flora species, listed as threatened under the EPBC Act and/or NC Act, as having being previously recorded or predicted to occur within 5 km of the referral area, as presented in **Appendix B.**

Based on the presence of species records within the locality and the habitats within the referral area, a likelihood of occurrence assessment was conducted to determine those threatened flora species with potential to occur within the referral area. The assessment identified that one (1) threatened flora species had a high likelihood of occurring on the referral area. All other threatened flora species were assessed as having a low likelihood of occurring.

Table 3: Likelihood of occurrence of flora species within referral area

Species	EPBC/ NC Act status	Desktop Likelihood of Occurrence
Coleus habrophyllus	Endangered	**High** This species requires niche habitat requirements including south south-east facing rocky outcrop, limited to no weeds, a relatively undisturbed understorey and shaded location. The population situated on Mountain Creek to the south of the referral area is located on a rocky outcrop facing south-east and contains limited to no weed incursion. Suitable habitat was found on-site which may support the species.

		Plectranthus parviflorus specimens were found within suitable *Coleus habrophyllus* habitat.

The complete likelihood of occurrence assessment is presented in **Appendix C**.

4.1.5 Threatened Fauna Species

Database searches returned thirty (30) fauna species listened as threatened under the EPBC Act and/or NC Act, as having been previously recorded or predicted to occur within 5 km of the referral area.

Based on the presence of species records within the locality and the habitats identified within the referral area, a likelihood of occurrence assessment was conducted to determine those threatened species with potential to occur within the referral area. The likelihood of occurrence assessment determined five (5) threatened fauna species listed under the EPBC Act and/or NC Act, as having a moderate or higher likelihood of occurring on the referral area. These species are outlined in **Table 4** below. All other threatened and/or migratory fauna species were assessed as having a low likelihood of occurring.

Table 4: Likelihood of occurrence of fauna species within referral area

Species	EPBC/ NC Act status	Desktop Likelihood of Occurrence
Anthochaera phrygia (Regent Honeyeater)	Critically Endangered	**High** Suitable foraging habitat for the Regent Honeyeater occurs on and adjacent to the referral area. The referral area and adjoining Opossum Creek corridor are dominated by regional ecosystems which contain suitable species to support the Regent Honeyeater. This species has been sighted recently in the Springfield Lakes area and as a result there is a potential for this species to opportunistically forage on-site.
Lathamus discolour (Swift Parrot)	Critically Endangered	**High** Suitable foraging habitat for the Swift Parrot occurs on and adjacent to the referral area. The referral area and adjoining Opossum Creek corridor are dominated by regional ecosystems which contain suitable species to support the Swift Parrot. This species has been sighted recently in the Springfield Lakes area and as a result there is a potential for this species to opportunistically forage on-site.
Petauroides volans (Greater Glider)	Vulnerable	**Moderate** A variety of eucalypt species occur over site, however, given the historical logging activities of the site, it is unlikely that the site contains a suitable hollow density to support a greater glider population. It should be noted that WildNet records indicate this species has been sighted previously in the Springfield Lakes area.
Phascolarctos cinereus (Koala)	Vulnerable	**Known** Suitable Koala habitat is present on-site and Koalas have been known to occur within close proximity to the site.
Pteropus poliocephalus (Grey-headed Flying Fox)	Vulnerable	**High** Suitable foraging habitat occurs on-site and the nearest known roost site located in Pilney Reserve (Barbara Street), 3.6 km north-east.

The complete likelihood of occurrence assessment is presented in **Appendix C.**

4.1.6 Migratory Species

Database searches returned sixteen (16) migratory fauna species listed as threatened under the EPBC Act and/or NC Act, as having been previously recorded or predicted to occur within 5 km of the Referral area.

Based on the presence of species records within the locality and the habitats identified within the referral area, a likelihood of occurrence assessment was conducted to determine those threatened species with potential to occur within the referral area. The likelihood of occurrence assessment determined that two (2) threatened migratory fauna species listed under the EPBC Act and/or NC Act as having a moderate likelihood of occurring in the referral area. These species being, *Rhipidura rufifrons* (Rufous Fantail) and *Hirundapus caudacutus* (White-throated Needletail). All other threatened and/or migratory fauna species were assessed as having a low likelihood of occurring.

The complete likelihood of occurrence assessment is presented in **Appendix C.**

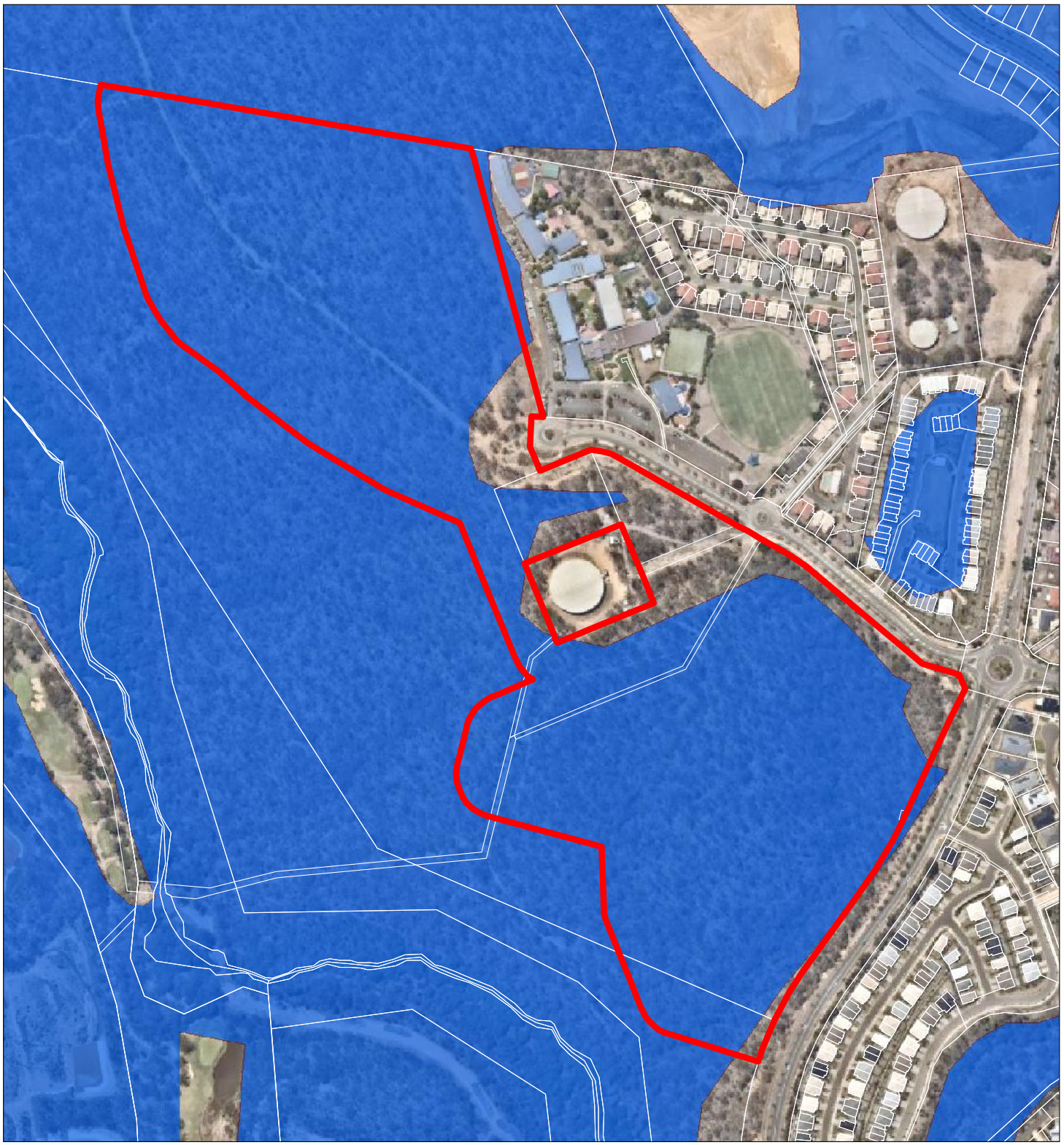
4.1.7 State Mapped Regulated Vegetation and Essential Habitat

A desktop review of the Queensland 'Regulated Vegetation Management Mapping' was conducted, focusing on the referral area. This analysis indicated that the referral area contains a two (2) polygons of State mapped regulated vegetation (regional ecosystem), as outlined in **Table 5** and presented in **Figure 3** and **Figure 4.**

Table 5: State mapped regulated vegetation (regional ecosystem) within the subject site

Regional Ecosystem	**Short Description**	**VM Act Status**	**Extent on the referral area (ha)**
Remnant & Regrowth			
12.9-10.2/12.9-10.7/12.9-10.19	*12.9-10.2: Corymbia citriodora subsp. variegata +/- Eucalyptus crebra open forest on sedimentary rocks.* *12.9-10.7: Eucalyptus crebra +/- E. tereticornis, Corymbia tessellaris, Angophora spp., E. melanophloia woodland on sedimentary rocks.* *12.9-10.19: Eucalyptus fibrosa subsp. fibrosa woodland +/- Corymbia citriodora subsp. variegata, E. acmenoides or E. portuensis, Angophora leiocarpa, E. major. Understorey often sparse. Localised occurrences of Eucalyptus sideroxylon. Occurs on Cainozoic and Mesozoic sediments.*	Of Concern	33.14 ha
12.3.11	*Eucalyptus tereticornis +/- Eucalyptus siderophloia, Corymbia intermedia open forest on alluvial plains usually near coast.*	Of Concern	0.37 ha
Non-remnant	Cleared land	-	2.61 ha
		Total	**36.12 ha**

Essential habitat mapped over the site includes two (2) fauna species, being *Phascolarctos cinereus* (Koala) and *Ninox strenua* (Powerful Owl), and one (1) flora species, *Coleus habrophyllus*.



Legend

- Referral Area
- Qld DCDB

Regulated Vegetation

- Category A area - *Vegetation Offset/Compliance notices/VDecs*
- Category B area - *Remnant vegetation*
- Category C area - *High value regrowth vegetation*
- Category R area - *Reef regrowth watercourse vegetation*
- Category X area - *Vegetation not regulated under the VMA*
- Water
- Area not categorised

Figure 3

Regulated Vegetation Management Map

File ref. *7399 E Figure 3 RVMM A*
Date *1/04/2020*
Project *Scenic Precinct*

0 25 50 100 150 200 m

N

Scale (A4): 1:5,000 [GDA 1994 MGA Z56]

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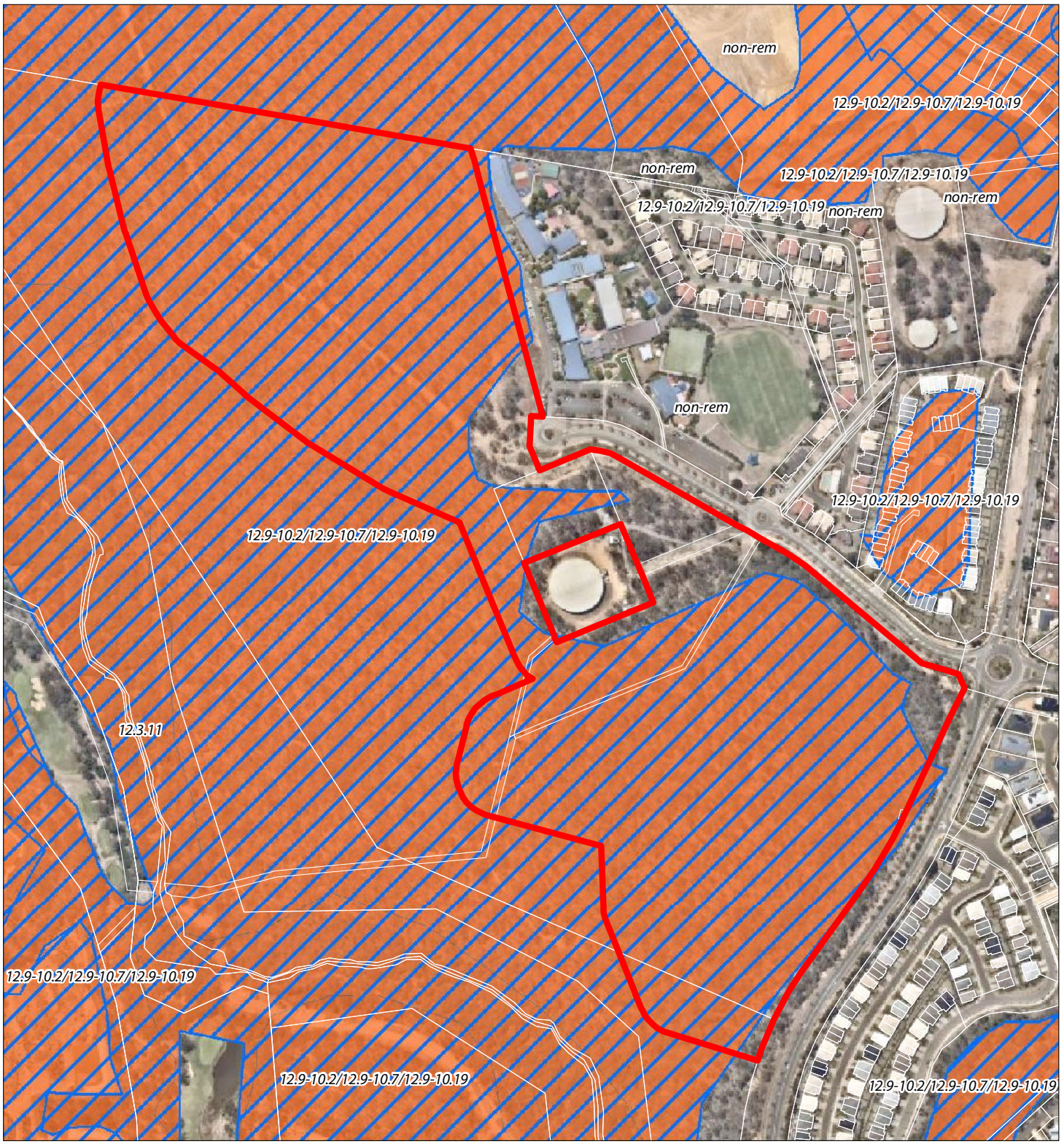
Layer Source: © State of Queensland (Department of Natural Resources, Mines and Energy) 2020, Aerial (Nearmap 2020)



Legend

- Referral Area
- Qld DCDB
- VM Watercourses
- VM Essential Habitat
- VM Wetland

Regional Ecosystems mapping

- Category A or B area containing endangered regional ecosystems
- Category A or B area containing of concern regional ecosystems
- Category A or B area that is a least concern regional ecosystem
- Category C area containing endangered regional ecosystems
- Category C area containing of concern regional ecosystems
- Category C area that is a least concern regional ecosystem

Figure 4

Regulated Vegetation Supporting Map

File ref. *7399 E Figure 4 RVSM A*
Date *1/04/2020*
Project *Scenic Precinct*

0 25 50 100 150 200 m

N

Scale (A4): 1:5,000 [GDA 1994 MGA Z56]

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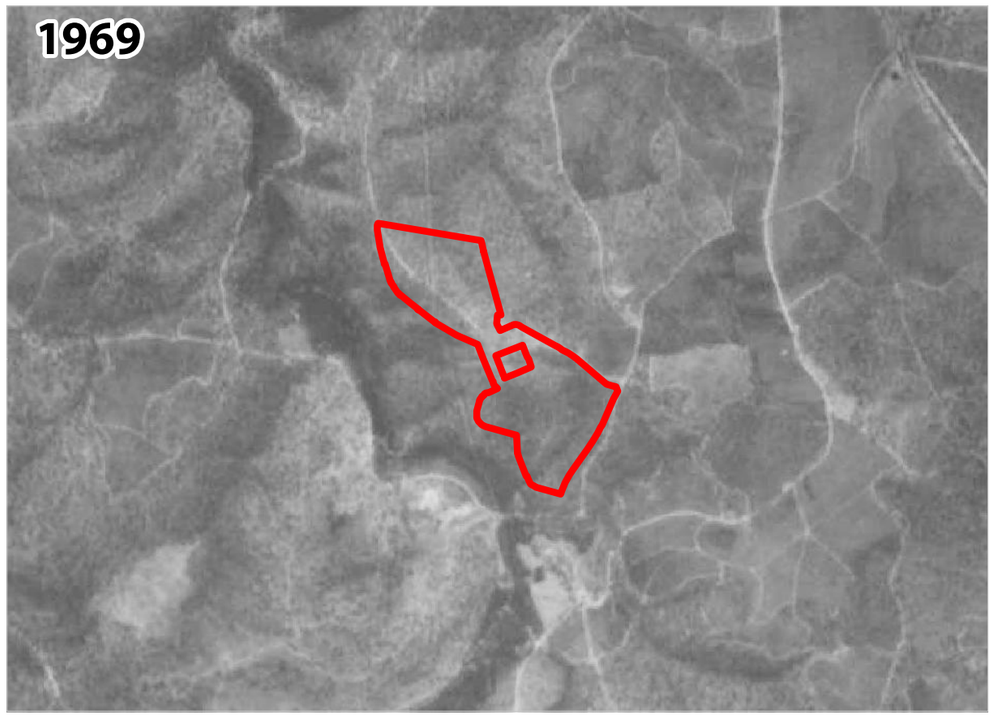
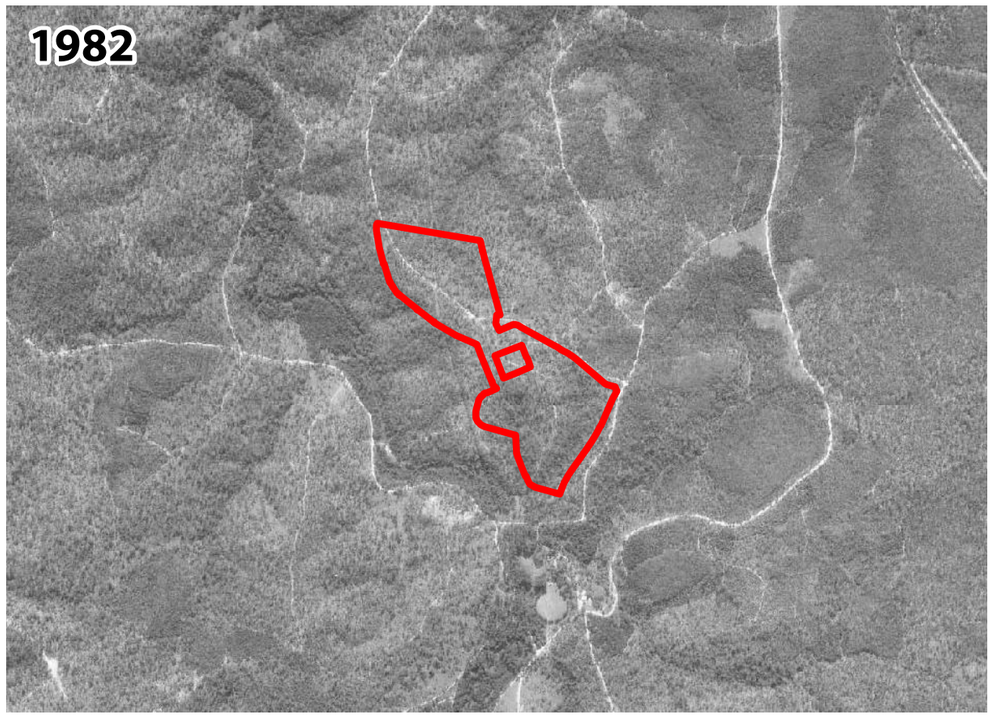
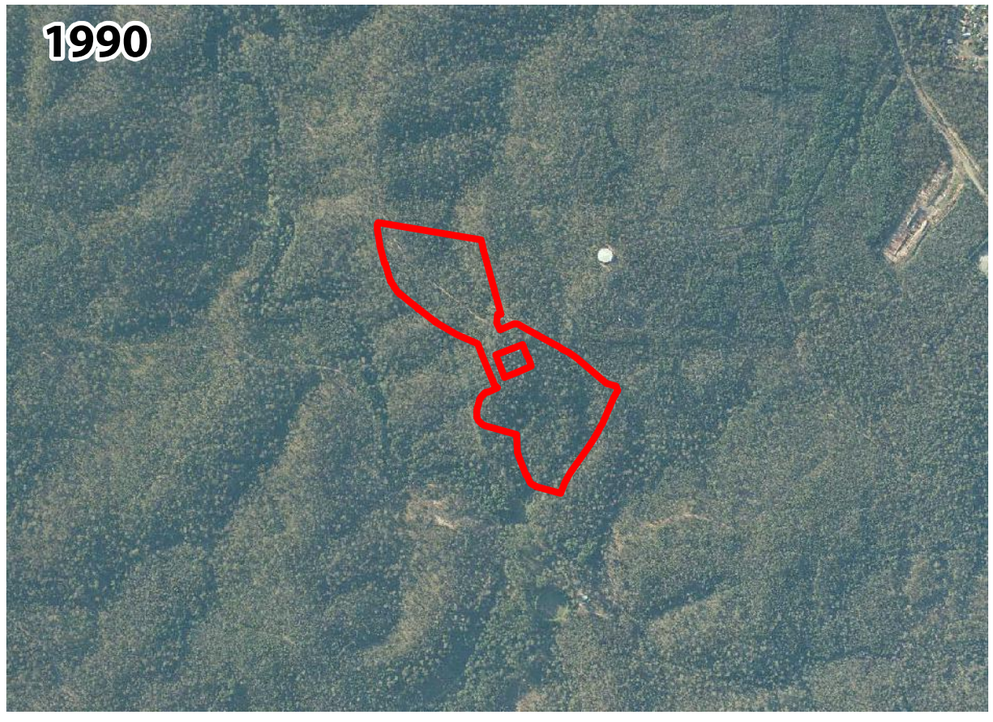
2. Historic Aerial Imagery







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Legend

Referral Area

Issue	Date	Description	Drawn	Checked
A	1/04/2020	Preliminary	MP	JG

0 100 200 400 600 800 m

Transverse Mercator | GDA 1994 | Zone 56 | 1:20,000 @ A3

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Scenic Precinct

4.2. Field Assessment

The results of the flora and fauna surveys, and likelihood of occurrence, enables an understanding of the ecological constraints and potential impacts to MNES associated with the Project as concept design, and what is to be considered during the detailed design phases of the Project.

The results of the targeted vegetation, flora and fauna surveys, is presented within the following sections. Refer to **Plan 2** for the field survey effort undertaken across the referral area and surrounding locality.

4.2.1 Ecological context of referral area

The referral area is located in a landscape that has historically supported similar land uses (refer to **Plan 1** Error! Reference source not found.for historical aerial imagery analysis), however, the landscape has rapidly evolved since the inception of the Springfield Master Plan area. Although the site retains native vegetation, the larger tract of vegetation in which the site comprises has been subject to historic and ongoing vegetation clearing associated with residential development. As shown in **Plan 1**, the subject site and surrounding areas have been historically subject to forestry practices. In more recent times, the vegetation on-site has been unmanaged and allowed to exist as vacant bushland.

The vegetation on-site is considered to be accurately mapped as 'remnant' vegetation due to the cessation of logging activities. The 'remnant' Category B vegetation communities contain species consistent of the mapped composite regional ecosystem being RE12.9-10.2/12.9-10.7/12.9.10.19 (65/20/15). The canopy height and coverage of the vegetation communities is consistent with the remnant status definition for the composite RE.

The referral area is bound by Opossum Creek to the west and south and bushland to the north which provides an effective fauna movement corridor. The Opossum Creek corridor is a 100-150 m creek corridor which provides lateral fauna movement to the Flinders Karawatha Corridor to the east and existing vacant bushland to the north-west.

Connectivity towards the east is limited by major arterial roads and a local school. The development to the west is associated with a current EPBC approval (EPBC2016/7676). The site retains connectivity to the north and east, with the site adjoining existing known koala habitat on the Opossum Creek corridor and vacant bushland to the north and south. It should be noted that the vacant bushland to the north and south are subject to active EPBC Referrals. Currently, the site is connected to approximately 675 ha.

4.2.2 EPBC Act Threatened Ecological Communities

As outlined in **Section 4.1.3**, The Protected Matters Search Tool (PMST) (refer **Appendix A**) returned the following four (4) threatened ecological communities (TECs), listed under the EPBC Act, as having potential to occur within 5 km of the Referral area:

- Coastal Swamp Oak (*Casuarina glauca)* Forest of New South Wales and South East Queensland ecological community
- Lowland Rainforest of Subtropical Australia
- Poplar Box Grassy Woodland on Alluvial Plains
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

The likelihood of occurrence for each TEC within the referral area, as presented in **Table 2**, referred to State Government regional ecosystem mapping within the locality and known distributions of the TECs, to identify those

TECs with potential to occur in the referral area or recorded during field surveys. The results of the likelihood of occurrence assessment determined that no TECs listed above have the potential to occur within the referral area. Field verification surveys confirmed that no TECs are present on the referral area.

4.2.3 Habitat Assessment and Vegetation Communities

The following section discusses the results of the field verification surveys of vegetation communities and regional ecosystems within the 24.2 ha referral area.

Field survey confirmed that the referral area contains predominantly remnant vegetation, excluding the internal tracks. The vegetation on-site is considered to be accurately mapped as 'remnant' vegetation due to the cessation of logging activities. The 'remnant' Category B vegetation communities contain species consistent of the mapped regional ecosystems, being composite RE12.9-10.2/12.9-10.7/12.9-10.19 (65/20/15).

The dominant RE was identified to be RE12.9-10.2 due to the dominance of *Corymbia citriodora* (Spotted Gum) and *Eucalyptus crebra* (Narrow-leaved Ironbark). There were elements of RE12.9-10.7 and RE12.9-10.19 indicated by the presence of other canopy species including *Eucalyptus moluccana* (Gum-topped Box), *Eucalyptus fibrosa* (Broad-leaved Ironbark), *Eucalyptus tereticornis* (Forest Red Gum), *Eucalyptus acmenoides* (White Mahogany) and *Angophora leiocarpa* (Smooth-barked Apple). The understorey contained a mix of *Acacia* species including *Acacia concurrens* (Black Wattle), *Acacia leiocalyx* (Early Flowering Black Wattle), *Acacia disparrima* (Hickory Wattle), *Acacia fimbriata* (Brisbane Wattle), and *Alphitonia excelsa* (Soap Tree). The ground layer was dominated by native forbs and grasses such as *Aristida vagans* (Threeawn Speargrass), *Themeda triandra* (Kangaroo Grass), *Cymbopogon refractus* (Barbed Wire Grass), *Heteropogon contortus* (Black Speargrass), and contained an abundance of leaf litter. Groundcover was largely devoid of weeds except for isolated areas of *Lantana camara* (Lantana) and *Lantana montevidensis* (Creeping Lantana) infestations. The canopy height and coverage of the mapped 'remnant' RE12.9-10.2 is consistent with the remnant status definition.

The location and extent of the field verified vegetation communities is depicted in **Plan 3**.

4.2.4 Connectivity

Connectivity towards the south and west is limited by major arterial roads and large-scale residential development. The development to the west is associated with a current EPBC approval (EPBC2016/7676).

The site retains connectivity to the north and east, with the site adjoining existing known koala habitat on the Opossum Creek corridor and vacant bushland to the north. It should be noted that the vacant bushland to the north and south are subject to active EPBC Referrals. Currently, the site is connected to approximately 675 ha.

Refer to **Plan 5** for detailed connectivity analysis.

4.2.5 Threatened Flora Species

A total of one-hundred and twenty-nine (129) flora species were recorded including seventy-seven (76) native species within the vegetation communities during field surveys, as listed in **Appendix E. No flora species listed under the EPBC Act and NC Act were recorded in the referral area.**

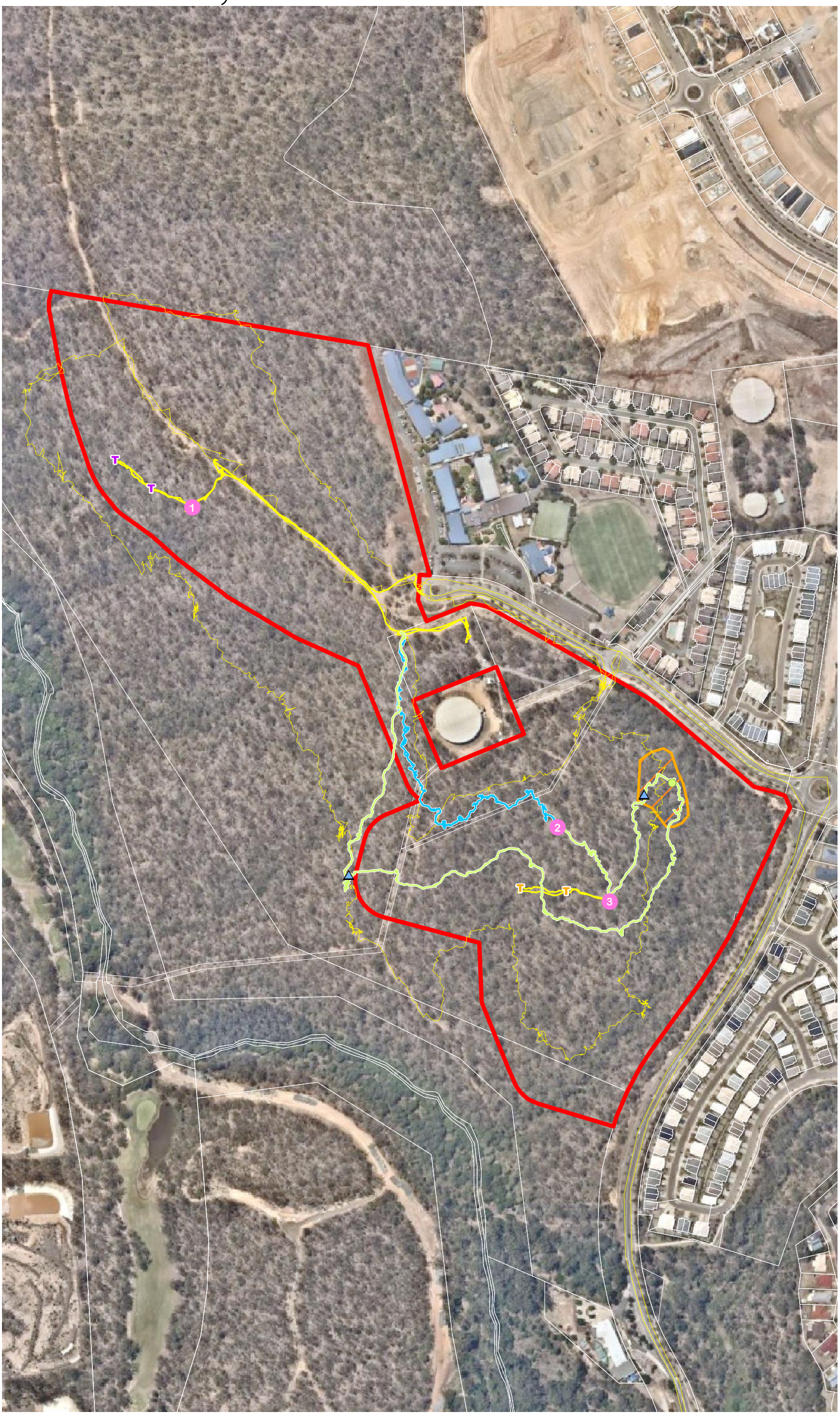
Threatened species meanders were conducted to identify species specific habitat niches for *Coleus habrophyllus* (formerly *Plectranthus habrophyllus*) (refer **Plan 3**). A rocky outcrop was identified in the eastern portion of the site. (refer **Photo 2**). The area was largely free of weeds and is located on a south-south-east facing slope, both of which are suitable habitat niches for *Coleus habrophyllus*. Targeted searches of the area for the species were undertaken, however, only the common *Plectranthus parviflorus* was identified (refer **Photo 3 and 4**). This species shares many similar features to *C. habrophyllus*; however, a key distinguishing feature is the presence of a tubular node at the base of the stem in *P. parviflorus*. Given that *Coleus habrophyllus* was not identified during the extensive targeted surveys of the potential habitat, the species is not considered to be present within the referral area.

Photo 2: Rocky outcrop with eastern aspect

Photo 3 and 4: *Plectranthus parviflorus* (Cockspur Flower) within rocky outcrop

Of the 129-flora species recorded, fifty-two (52) species are considered to be non-native introduced species. Refer to **Appendix E** for the complete flora list and native / non-native designation.

3. Field Survey Effort



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Legend

- Referral Area
- Qld DCDB

Field data

- Confirmed *Plectranthus parviflorus* specimens
- Rocky outcrop
- SAT survey
- Modified Habitat Quality Assessment Transect 1
- Modified Habitat Quality Assessment Transect 2
- Suitable *Coleus habrophyllus* habitat
- SAT meander
- *Coleus habrophyllus* meander
- GPS Tracklog

Issue	Date	Description	Drawn	Checked
A	1/04/2020	Preliminary	MP	JG

0 10 20 40 60 80 m
Transverse Mercator | GDA 1994 | Zone 56 | 1:4,000 @ A3

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SPRINGFIELD CITY GROUP

Scenic Precinct

ADDRESS/RPD: Eden Station Drive, Brookwater *1/04/2020* *7399 E 03 Field Survey Effort A*

4.2.6 *Threatened Fauna Species*

Database searches returned thirty (30) fauna species listened as threatened under the EPBC Act and/or NC Act, as having been previously recorded or predicted to occur within 5 km of the referral area. Of the thirty (30) identified fauna species, five (5) were assigned a moderate or greater likelihood of occurring on site. These species include, Koala, Grey-headed Flying-fox, Swift Parrot, Regent Honeyeater and Greater Glider.

Koala (*Phascolarctos cinereus*)

In accordance with the *EPBC Act Referral Guidelines for the Vulnerable Koala*, the Spot Assessment Technique (SAT) was applied to search the referral area for the potential presence of the Koala. The Spot Assessment Technique (SAT) method is an assessment of Koala activity involving a search for any Koalas and signs of Koala usage. The SAT involves identifying a focal tree where a Koala or scats are found. The next closest habitat tree to the first tree is then assessed and so on until the 30 closest trees to the original focal tree have been recorded. The number of trees showing evidence of koalas is expressed as a percentage of the total number of trees sampled to indicate the frequency of koala usage. Assessment of each tree involves a systematic search for koala scats beneath the tree within a 1 m radius of the trunk. After approximately 2-minutes of searching for scats, the base of the trunk is observed for scratches and the crown for potential koala presence.

Surveys of Koala utilisation of the site were conducted across the referral area to determine the likelihood of occurrence throughout the entire extent, and identify whether there was any concentrated occurrence. Three (3) Koala SAT surveys were conducted (refer **Plan 3**). **Table 5** presents the Koala usage scores for the three (3) SAT surveys completed. Refer to **Appendix D** for the raw SAT survey data.

Table 6: Summary of SAT Results

SAT Site Number	Evidence of Koala Use (%)	East Coast (Med-High) Koala Use (High/Medium/Low)
1	6.66%	Low
2	0%	Nil
3	6.66 %	Low

The Australian Koala Foundation koala activity level classification table (following Philips and Callaghan 2011) provides an estimate of koala utilisation based on defined Activity Categories. The East Coast (med-high) Activity Category is appropriate for the referral area. The evidence suggests that while the referral area is utilised by Koalas, it is considered relatively poor habitat for the species. The relatively low levels of koala usage at the site may be a result of major changes in the immediate landscape including historical land clearing and rapid urbanisation following the approval of the Springfield Structure Plan area.

Opportunistic searches for Koalas were also undertaken as part of the field survey effort. No direct evidence of Koalas was documented on-site.

Grey-headed Flying-fox

Pteropus poliocephalus (Grey-headed Flying-fox) requires foraging resources and roosting sites to persist. The species is known to use a wide variety of habitats including subtropical and temperate rainforests, tall sclerophyll forest and woodlands, heaths, swamps and also urban and agricultural areas where food trees have been cultivated.

The species is highly adaptive with its diverse native diet, which it can supplement with introduced species. It is known to forage within a variety of habitat areas as each resource does not produce food throughout the entire year. The

4.2.6 *Threatened Fauna Species*

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Surveys of Koala utilisation of the site were conducted across the referral area to determine the likelihood of occurrence throughout the entire extent, and identify whether there was any concentrated occurrence. Three (3) Koala SAT surveys were conducted (refer **Plan 3**). **Table 5** presents the Koala usage scores for the three (3) SAT surveys completed. Refer to **Appendix D** for the raw SAT survey data.

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The species is highly adaptive with its diverse native diet, which it can supplement with introduced species. It is known to forage within a variety of habitat areas as each resource does not produce food throughout the entire year. The

closest active GHFF roost is approximately 3.6 km north of the site, being Barbara St, Camira (140), while the nearest roost with greater than 2,500 GHFFs is located approximately 13 km north-east on Avondale Crescent, Parkinson. Opportunistic and targeted surveys did not locate roosting sites on the referral area or within the immediate vicinity of the site. No Grey-headed Flying-fox individuals were recorded during field surveys.

It is noted that foraging habitat for the Grey-headed Flying-fox is analogous with habitat for the Koala.

Swift Parrot (*Lathamus discolor*)

The Swift Parrot breeds in Tasmania during the austral summer and the entire population migrates north to mainland Australia for the austral winter. Whilst on the mainland the Swift Parrot disperses widely, foraging on flowers and lerps in *Eucalyptus spp.* mainly in Victoria and New South Wales. Only a small number of Swift Parrots are observed in Queensland on a regular basis. Within Queensland, the preferred foraging species include *Eucalyptus macrocarpa, Eucalyptus melliodora, Eucalyptus robusta, Eucalyptus tereticornis* and *Corymbia citriodora*. The species prefers large trees which flower consistently.

The species was not identified on-site during field survey events; however, suitable foraging habitat was noted within the referral area, with species such as *Corymbia citriodora* and *Eucalyptus tereticornis* all recorded on-site. It should be noted that detailed habitat quality transects concluded that the vegetation on-site meets the definition of 'remnant', however, due to historical logging activities, large trees were predominantly absent. Analysis of the data indicates that four (4) trees per hectare were equal to or greater than the large tree benchmark (380 mm DBH) for the 'remnant' composite RE12.9-10.2 (dominant RE within composite vegetation community). The benchmark large trees per hectare the 'remnant' RE12.9-10.2 as per the Queensland Herbarium Benchmark guideline is 38 trees per hectare. As such, the 'remnant' RE12.9-10.2 vegetation community within the referral area meets 10.5 % of the large tree benchmark for the regional ecosystem. This data indicates that although the vegetation community on-site contains potential foraging species for the Swift Parrot, the preferential of the species to forage in large, mature trees therefore limits the availability of preferred habitat on-site.

Further, given the superior mobility capacity of the specie and abundance of preferential habitat within close proximity of the site (Greenbank Military Base located within the Flinders-Karawatha Corridor), the significance of the foraging habitat on-site is considered marginal. This is further supported by the National Recovery Plan for the Swift Parrot (*Lathamus discolor*) (Saunders & Tzaros 2011) which states "*Many of the Swift Parrot foraging sites in Queensland occur in council reserves or parkland. The Regional Ecosystems containing preferred Swift Parrot forage tree species have been mapped and overlaid for the recorded areas of Swift Parrots in Queensland"*. Review of the *Vegetation Management Act 1999* Vegetation Management Report indicates that the referral area does not contain essential habitat for the Swift Parrot, whereas, this is not the case for the Greenbank Military Base.

Regent Honeyeater (*Anthochaera phrygia*)

The Regent Honeyeater has an extremely patchy distribution, with a small number of known breeding sites. Regent Honeyeaters are known to use different areas in different years depending on food resources, with research also indicating that they may travel large distances. Most Regent Honeyeater records have been derived from box-ironbark eucalypt associations, where the bird seems to prefer more fertile sites with higher soil water content, including creek flats, broad river valleys and lower slopes. Key tree species for the Regent Honeyeater include *Eucalyptus sideroxylon, Eucalyptus melliodora, Eucalyptus albens, Eucalyptus leucoxylon, Corymbia maculata/citriodora, Eucalyptus robusta, Casuarina cunninghamiana, Amyema cambagei* and *Dendropthoe vitellina*. The species prefers large trees which flower consistently.

The species was not identified on-site during field survey events; however, suitable foraging habitat was noted within the referral area, with species such as *Corymbia citriodora* and *Eucalyptus tereticornis* recorded on-site. It should be noted that detailed habitat quality transects concluded that the vegetation on-site meets the definition of 'remnant', however, due to historical logging activities, large trees were predominantly absent. Analysis of the data indicates that six (6) trees per hectare were equal to or greater than the large tree benchmark (380 mm DBH) for the 'remnant' RE12.9-10.2 vegetation community. The benchmark large trees per hectare the 'remnant' RE12.9-10.2 as per the Queensland Herbarium Benchmark guideline is 38 trees per hectare. As such, the 'remnant' RE12.9-10.2 vegetation community within the referral area meets 10.5 % of the large tree benchmark for the regional ecosystem. This data indicates that although the vegetation community on-site contains potential foraging species for the Regent Honeyeater, the preferential of the specie to forage in large, mature trees therefore limits the availability of preferred habitat on-site. Further, given the superior mobility capacity of the specie and abundance of preferential habitat within close proximity of the site (Greenbank Military Base located within the Flinders-Karawatha Corridor), the significance of the foraging habitat on-site is considered marginal.

A total of twenty-six (26) fauna species were recorded during the field survey, including twenty (20) birds, three (3) mammals and three (3) reptiles. Indirect evidence of Koala usage was identified on-site in the form of scats. **No fauna species of conservation significance were directly recorded during the field survey.**

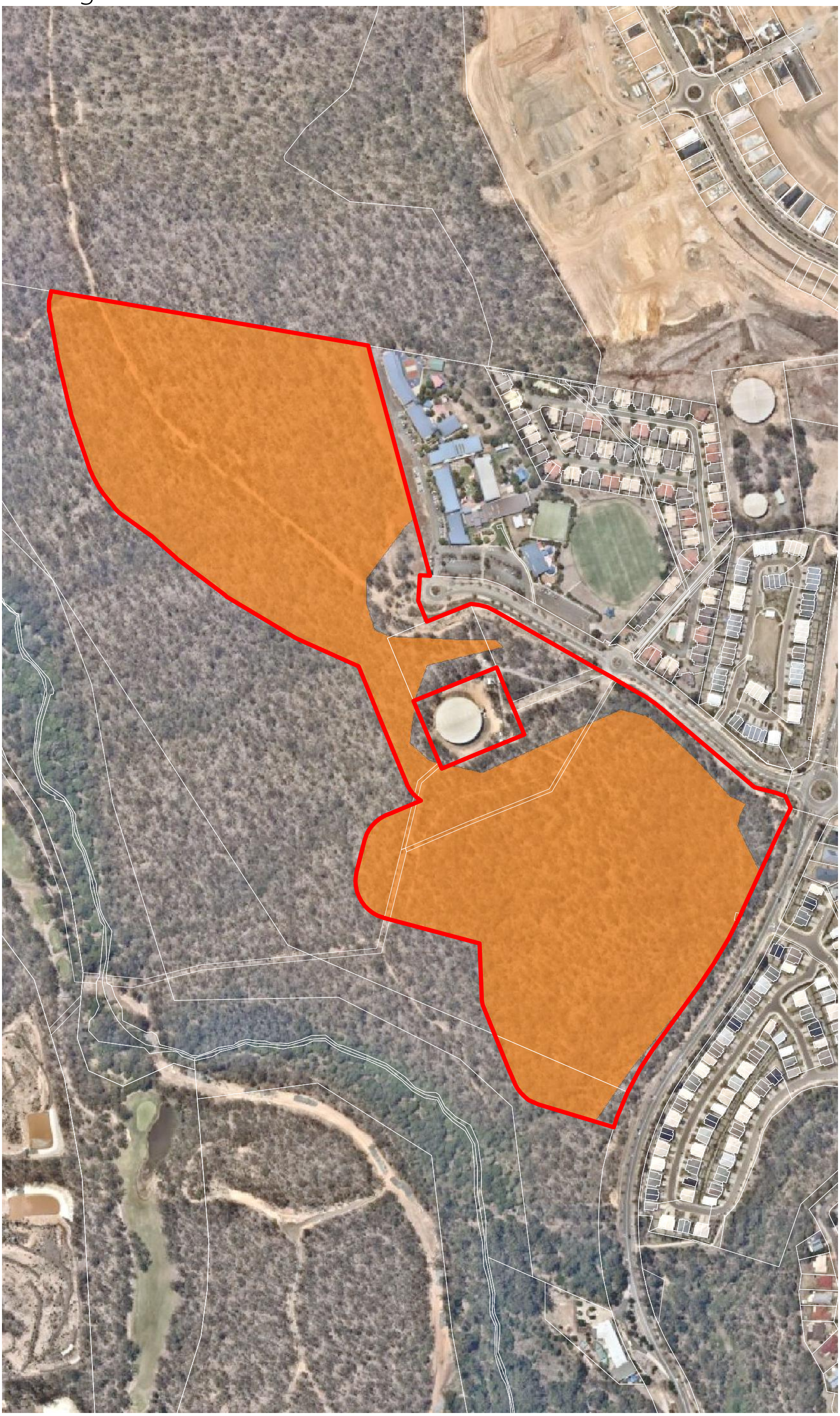
A complete fauna species list is provided in **Appendix E.**

4.2.7 Migratory Species

Database searches returned sixteen (16) migratory fauna species listed as threatened under the EPBC Act and/or NC Act, as having been previously recorded or predicted to occur within 5 km of the referral area. Following the likelihood of occurrence assessment, only one species was identified as having a moderate likelihood of occurring onsite, this being the Rufous Fantail. **No migratory fauna species of conservation significance were recorded during the field survey.**

A complete fauna species list is provided in **Appendix E.**

4. Vegetation Communities



NOTES
This plan was prepared as a desktop assessment tool.
The information on this plan is not suitable for any other purpose.
Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
Qld State Cadastre and Mapping layers © State of Queensland (Department of Natural Resources and Mines) 2020. Updated data available at http://qldspatial.information.qld.gov.au/catalogue//
Aerial Imagery © Nearmap, 2020

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Legend

- Referral Area
- Qld DCDB

Vegetation Communities

- RE 12.9-10.2/12.9-10.7/12.9-10.19

Issue	Date	Description	Drawn	Checked
A	1/04/2020	Preliminary	MP	JG

0 10 20 40 60 80 m

Transverse Mercator | GDA 1994 | Zone 56 | 1:4,000 @ A3

saunders havill group

SPRINGFIELD CITY GROUP

Scenic Precinct

ADDRESS/RPD: Eden Station Drive, Brookwater *1/04/2020* *7399 E 04 Vegetation Communities A*

4.3. Likelihood of Occurrence

The likelihood of occurrence assessment was initially conducted prior to conducting field surveys to identify the MNES (threatened ecological communities and threatened and/or migratory species) of potential relevance to the referral area. The identified MNES were then the focus of the field survey program and effort.

Subsequent to completing the field survey, the likelihood of occurrence was revised and finalised, based on field survey results and the confirmed vegetation communities and associated habitats contained with the referral area. The outcome of this two-staged likelihood of occurrence is presented in the following sections.

Those matters with a moderate or high likelihood of occurrence proceed to the impact assessment presented in **Section 5.**

Based upon the database searches and the findings of the desktop assessment, the only MNES identified as being of potential relevance to the Project, include threatened ecological communities, threatened flora and fauna species, and migratory fauna species.

4.3.1 EPBC Act Threatened Ecological Communities

The likelihood of occurrence for each TEC within the referral area, as presented in **Table 2**, referred to State Government regional ecosystem mapping within the locality and known distributions of the TECs, to identifies those TEC's with potential to occur in the referral area or recorded during field surveys.

The Protected Matters Search Tool (PMST) (refer **Appendix A**) returned the following four (4) threatened ecological communities (TEC), listed under the EPBC Act, as having potential to occur within 5 km of the referral area:

- Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community
- Lowland Rainforest of Subtropical Australia
- Poplar Box Grassy Woodland on Alluvial Plains
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

The results of the likelihood of occurrence assessment determined that none of the above-mentioned TECs were likely to occur due to the absence of regional ecosystems and species on site typically associated with these TECs. **Field surveys confirmed no TEC's were present within the referral area.**

4.3.2 Threatened Flora Species

Database searches returned fifteen (15) flora species, listed as threatened under the EPBC Act and four (4) under the NCA Act as having been previously recorded or predicted to occur within 5 km of the referral area, as presented in **Appendix A** and **Appendix B.**

Based on the presence of species records within the locality and the habitats within the referral area, a likelihood of occurrence assessment was conducted to determine those threatened flora species with potential to occur within the referral area. The assessment identified that fourteen (14) of the listed threatened flora species had a low risk of impact on site due to being unlikely to occur in the referral area. *Coleus habrophyllus*, which is listed as Endangered under the EPBC Act, was identified as having high risk of occurrence on the site due to previous records of the species

proximal to the site and the presence of suitable habitat on-site. Detailed field surveys identified suitable habitat niches for *Coleus habrophyllus*, however, given the species was not identified during the extensive targeted surveys of the potential habitat, the species is not considered to be present within the referral area. As such, **field surveys confirmed that no EPBC listed flora species were present within the referral area.**

Table 7: Field Assessment Confirmed Likelihood of Occurrence – Threatened Flora

Species	EPBC/ NC Act status	Desktop Likelihood of Occurrence	Field Assessment Confirmed Likelihood of Occurrence
Coleus habrophyllus	Endangered	**High** This species requires niche habitat requirements such a rocky outcrop, limited to no weeds, a relatively undisturbed understorey and shaded location. The population situated on Mountain Creek to the south of the referral area is located on a rocky outcrop facing south-east and contains limited to no weed incursion. The species has been previously recorded on-site and rocky outcrop habitat is present.	**Moderate** This species requires niche habitat requirements such a rocky outcrop, limited to no weeds, a relatively undisturbed understorey and shaded location. The population situated on Mountain Creek to the south of the referral area is located on a rocky outcrop facing south-east and contains limited to no weed incursion. Detailed field surveys identified suitable habitat niches for *Coleus habrophyllus*, however, given the species was not identified during the extensive targeted surveys of the potential habitat, the species is not considered to be present within the referral area.

The complete likelihood of occurrence is provided in **Appendix C.**

4.3.3 Threatened Fauna Species

Database searches returned twenty-six (26) fauna species, listed as threatened under the EPBC Act and nine (9) listed under the NCA Act, as having been previously recorded or predicted to occur within 5 km of the referral area, as presented in **Appendix A** and **Appendix B.**

Based on the presence of species records within the locality and the habitats within the referral area, a likelihood of occurrence assessment was conducted to determine those threatened fauna species with potential to occur within the referral area. The assessment identified that five (5) threatened fauna species had a moderate or high likelihood or occurring on-site. The Koala was identified as being known to occur on the site as it has been recorded during field surveys.

Table 8: Field Assessment Confirmed Likelihood of Occurrence – Threatened Fauna

Species	EPBC/ NC Act status	Desktop Likelihood of Occurrence	Field Assessment Confirmed Likelihood of Occurrence
Anthochaera phrygia (Regent Honeyeater)	Critically Endangered	**High** Suitable foraging habitat for the Regent Honeyeater occurs on and adjacent to the referral area. The referral area and adjoining Opossum Creek corridor are dominated by regional ecosystems which contain suitable species to support the Regent Honeyeater. This species has been sighted recently in the Springfield Lakes area and as a result there is a potential for this species to opportunistically forage on-site.	**High** Suitable foraging habitat for the Swift Parrot occurs on and adjacent to the referral area. The referral area is dominated by *Corymbia citriodora* (Spotted Gum), while, the Opossum Creek corridor contains a more prominent abundance of suitable species such as *Eucalyptus crebra* (Narrow-leaved Ironbark) and *Eucalyptus tereticornis* (Forest Red Gum). This species has been sighted recently in the Springfield Lakes area, however was not identified during detailed field surveys.
Lathamus discolour (Swift Parrot)	Critically Endangered	**High** Suitable foraging habitat for the Swift Parrot occurs on and adjacent to the referral area. The referral area and adjoining Opossum Creek corridor are dominated by regional ecosystems which contain suitable species to support the Swift Parrot. This species has been sighted recently in the Springfield Lakes area and as a result there is a potential for this species to opportunistically forage on-site.	**High** Suitable foraging habitat for the Swift Parrot occurs on and adjacent to the referral area. The referral area is dominated by *Corymbia citriodora* (Spotted Gum), while, the Opossum Creek corridor contains a more prominent abundance of suitable species such as *Eucalyptus crebra* (Narrow-leaved Ironbark) and *Eucalyptus tereticornis* (Forest Red Gum). This species has been sighted recently in the Springfield Lakes area, however was not identified during detailed field surveys.
Petauroides volans (Greater Glider)	Vulnerable	**Moderate** A variety of eucalypt species occur over site, however, given the historical logging activities of the site, it is unlikely that the site contains a suitable hollow density to support a greater glider population. It should be noted that WildNet records indicate this species has been sighted previously in the Springfield Lakes area.	**Low** A variety of eucalypt species occur across the referral area, however, due to historical logging activities, the site contains a lack of hollow bearing trees. Although the vegetation meets remnant status, the maturity of the vegetation is not yet at a stage to support such species.
Phascolarctos cinereus (Koala)	Vulnerable	**Known** Suitable Koala habitat is present on-site and Koalas have been known to occur within close proximity to the site.	**Known** Suitable Koala habitat is present on-site and Koalas have been known to occur within close proximity to the site. No direct Koala observations were documented during field surveys, however, indirect

			observations in the form of scats was identified.
Pteropus poliocephalus (Grey-headed Flying Fox)	Vulnerable	**High** Suitable foraging habitat occurs on-site and the nearest known roost site located in Pilney Reserve (Barbara Street), 3.6 km north-east.	**High** While suitable foraging vegetation occurs on-site, the species was not seen utilising this vegetation. In addition, there was no observed roosts on site, with the nearest known roost site located in Pilney Reserve (Barbara Street), 3.6 km north-east.

The complete likelihood of occurrence is provided in **Appendix C.**

4.3.4 Migratory Species

Database searches returned seventeen (17) migratory species, listed as threatened under the EPBC Act and/or NCA Act, as having been previously recorded or predicted to occur within 5 km of the referral area, as presented in **Appendix A** and **Appendix B.**

Based on the presence of species records within the locality and the habitats within the referral area, a likelihood of occurrence assessment was conducted to determine those threatened migratory species with potential to occur within the referral area. The assessment identified that two (2) threatened migratory species have a moderate potential of occurring on site, being the Rufous Fantail and White-throated Needletail. All other species were considered to have a low risk of being impacted by the proposed development as they were considered unlikely to occur on site.

The complete likelihood of occurrence is provided in **Appendix C.**

5. Impact Assessment

5.1. Potential Project Related Impacts

The project (mixed-use residential community) will be entirely located within the referral area, with the clearing of predominantly all of the vegetation within this area to facilitate the development on a steeply sloping site.

5.1.1 Impact Avoidance and Minimisation

The layout and design of the mixed-use residential community avoids impacts on the Opossum Creek corridor by providing suitable buffers to the movement corridors, which were identified as containing the highest ecological value on the referral area. It is important to note that no significant or unique ecological or connectivity values were identified on site during the site survey.

5.1.2 Potential Direct Impacts

Vegetation Clearing

The project is predicted to directly impact the entirety of the referral area, with no direct or indirect impacts assumed to occur on the adjoining Opossum Creek corridor.

Table 9: Potential direct impacts to field verified vegetation communities

Regional Ecosystem	Short Description	VM Act Status	Extent on the subject site (ha)	Impact (ha)
Remnant & Regrowth				
12.9-10.2/12.9-10.7/12.9-10.19	*12.9-10.2: Corymbia citriodora subsp. variegata +/- Eucalyptus crebra open forest on sedimentary rocks.* *12.9-10.7: Eucalyptus crebra +/- E. tereticornis, Corymbia tessellaris, Angophora spp., E. melanophloia woodland on sedimentary rocks.* *12.9-10.19: Eucalyptus fibrosa subsp. fibrosa woodland +/- Corymbia citriodora subsp. variegata, E. acmenoides or E. portuensis, Angophora leiocarpa, E. major. Understorey often sparse. Localised occurrences of Eucalyptus sideroxylon. Occurs on Cainozoic and Mesozoic sediments.*	Of Concern	33.14 ha	21.13 ha
12.3.11	*Eucalyptus tereticornis +/- Eucalyptus siderophloia, Corymbia intermedia open forest on alluvial plains usually near coast.*	Of Concern	0.37 ha	0 ha
Non-remnant	Cleared land	-	2.61ha	3.07 ha
		Total	**36.12 ha**	**24.2 ha**

Habitat Loss

The Project is predicted to impact remnant habitat, which provides marginal habitat values for a range of native flora and fauna species.

The MNES identified as having a moderate and higher likelihood of occurrence have been further assessed in terms of the risk of potential project related impacts upon each matter, to determine the need or otherwise for EPBC Act significant impact assessments to be completed, as presented in **Table 10**.

The risk of impact assessment (refer to **Table 10**) is qualitative and based upon the potential extent of habitat loss resulting from the construction phase of the Project and to a lesser degree the operational phase of the Project. It considered, but was not limited to the following:

- The value of the impacted habitat to each respective matter;
- The amount of habitat to be directly impacted (lost) against that to be retained;
- Potential indirect impacts (e.g. dust, noise and soil erosion);
- Potential fragmentation of a population into two or more populations;
- Increased fragmentation of wildlife corridors in the Referral area;
- Risk of operational impacts (e.g. noise); and
- Each species ability (e.g. fauna) or inability (e.g. flora) to move away from areas of direct impact into retained habitat.

Table 10: Threatened fauna and migratory fauna species listed under the EPBC Act, with a moderate or greater likelihood of occurring in the referral area post field survey analysis, and risk of impact assessment

Scientific Name	Common Name	EPBC Act Status	Likelihood of Occurrence	Risk of Impact
Threatened fauna species				
Phascolarctos cinereus	Koala	Vulnerable	**Known** Suitable Koala habitat is present on-site and Koalas have been known to occur within close proximity to the site. No direct Koala observations were documented during field surveys, however, indirect observations in the form of scats was identified.	**Yes**
Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	**High** While suitable foraging vegetation occurs on-site, the species was not seen utilising this vegetation. In addition, there was no observed roosts on site, with the nearest known roost site located in Pilney Reserve (Barbara Street), 3.6 km north-east.	**No**
Lathamus discolor	Swift Parrot	Critically Endangered	**High** Suitable foraging habitat for the Swift Parrot occurs on and adjacent to the referral area. The referral area is dominated by *Corymbia citriodora* (Spotted Gum), while, the Opossum Creek corridor contains a more prominent abundance of suitable species such as *Eucalyptus crebra* (Narrow-leaved Ironbark) and	**No**

			Eucalyptus tereticornis (Forest Red Gum). This species has been sighted recently in the Springfield Lakes area, however was not identified during detailed field surveys.	
Anthochaera phrygia	Regent Honeyeater	Critically Endangered	**High** Suitable foraging habitat for the Swift Parrot occurs on and adjacent to the referral area. The referral area is dominated by *Corymbia citriodora* (Spotted Gum), while, the Opossum Creek corridor contains a more prominent abundance of suitable species such as *Eucalyptus crebra* (Narrow-leaved Ironbark) and *Eucalyptus tereticornis* (Forest Red Gum). This species has been sighted recently in the Springfield Lakes area, however was not identified during detailed field surveys.	**No**
Threatened migratory fauna species				
Rhipidura rufifrons	Rufous Fantail	Migratory Terrestrial Species/Marine Species	**Moderate** WildNet records indicate species has been previously observed in Springfield Lakes area.	**No**
Hirundapus caudacutus	White-throated Needle-tail	Vulnerable	**Moderate** WildNet records indicate species has previously been recorded on the site, however this record was in the year 1990. No recent sightings have been recorded on the site.	**No**

5.1.3 Potential Indirect Impacts

Indirect impacts occur when project related activities affect vegetation or habitats in a manner other than a direct loss or clearing. Examples of indirect impacts include; promotion of soil erosion, sedimentation of waterways, dust inhibiting plant pollution, provision of suitable seed bed for invasive plants, or increased noise activity within or directly adjacent to sensitive habitat areas.

The potential indirect impacts that may potentially result from construction activities and/or the operational phase of the Project has been identified below.

Weeds

Increased vehicle movement during the construction phase has the potential to increase the spread of weeds in the area, particularly during the vegetation clearing phase. With implementation of standard mitigation measures, the project is likely to result in a negligible impact to ecological values due to the potential introduction/spread of weeds.

Vehicle Movement

During construction, a number of vehicles will be required on the referral area. Direct impacts from vehicle movements on threatened species and vegetation communities include:

- damage or destruction of vegetation or fauna habitat by vehicles traversing these areas; and
- fauna strike.

Indirect impacts include:

- interference of fauna through visual and noise impacts. This in turn can affect feeding, roosting, breeding or nesting behaviour;
- introducing and/or spreading weeds or feral animals carried on or in vehicles, resulting in deterioration or loss of vegetation and important fauna habitat; and
- damage or destruction of vegetation and fauna habitat through smothering by dust generated by vehicles traversing the project area.

With implementation of standard mitigation measures, the project is likely to result in a temporary and minor impact to ecological values due to vehicular movements. Further, ecological field survey confirmed only common fauna are present on the site.

Earthworks

Construction activities have the potential to generate dust emissions. Dust emissions during construction will be temporary. The main sources of dust will be generated via:

- wheel-generated dust from the haul roads created for the construction phase;
- dust lift-off from exposed surfaces (e.g. construction roads and pads);
- earthworks, including construction of the embankments, and moving, dumping and shaping material; and
- vegetation and soil clearing of the land.

Excessive deposition of dust on leaves of plants can suppress the growth and photosynthesis, resulting in reduced habitat quality for fauna. High levels of airborne dust can irritate the respiratory systems of fauna and potentially result in ingestion of dust-coated seeds and other foods. Excessive deposition of dust on open water bodies may also

degrade water quality and overall habitat quality for fauna. With implementation of standard mitigation measures, the project is likely to result in a temporary and minor impact to ecological values due to the generation of dust.

Light Emissions During Construction

Artificial light can affect both nocturnal and diurnal animals by disrupting behavioural patterns, with quality of light (e.g. wavelength, colour), intensity and duration potentially evoking different faunal responses. Impacts from increased light levels include disorientation from, or attraction toward, artificial sources of light; mortality from collisions with structures; and effects on light-sensitive cycles of species (e.g. breeding and migration for fauna and flowering in plants). An artificial increase in lighting can also affect abundance of predators.

Presence and intensity of artificial light in the project area will temporarily increase during the construction phase; however, night works will not be common. Lighting will be directed to construction areas within the project area. Some light spillage will be inevitable and is likely to be contained. Potential impacts associated with light emissions will be temporary and unlikely to be significant.

With implementation of standard mitigation measures, the project is likely to result in a negligible impact to ecological values due to the use of light pollution during construction.

Noise and Vibration

Noise levels greater than existing ambient noise levels are expected during the construction within the project area. Sources of noise are likely to consist of noise in short, intense pulses from mobile plant equipment, and more prolonged noise, with consistent vibration, pitch and volume from generators, excavators and pumps, in addition from noise from vehicles.

Both steady continuous and single noise events have the potential to lead to ecological impacts. Construction noise is expected to elicit some avoidance response from fauna using the surrounding vegetation though, with consideration of the extent of habitat available in the referral area, this is likely to be a temporary and negligible to minor impact.

Waste Disposal

Inappropriate disposal of non-hazardous wastes can attract vermin and other wildlife to site. This may exacerbate potential impacts (e.g. road mortality). Litter may also enter surrounding environments. With implementation of standard mitigation measures, the project is likely to result in a negligible impact to ecological values due to the generation and handling of waste.

Hazardous and Dangerous Goods

Spills and leaks from transfers (e.g. fuel and/or chemicals) and inadequate storage of dangerous goods and hazardous wastes could result in point-source contamination of surrounding land. Direct adverse impacts could include toxic impacts on vegetation (resulting in degradation or loss of vegetation and habitats), direct toxic impacts on fauna (from contact, inhalation or ingestion) or indirect impacts on threatened and migratory species from habitat loss. Direct adverse impacts on surface and groundwater quality are also possible.

With the application of standard mitigation and management measures, impacts from liquid and solid waste disposal will be avoided or localised and small in scale. Further to this, the likelihood of significant spillages is considered extremely low. Therefore, the project is likely to result in a negligible impact to ecological values due to potential spills and leaks.

Increased Human Presence

Increased human activity during construction has the potential to disturb fauna within adjacent habitat areas. Resulting impacts to fauna include heightened vigilance and predator avoidance, which can disrupt foraging and roosting efficiency or deter wildlife from using particular areas. Impacts essentially represent a reduction in core habitat due to edge effects. The project is likely to result in a temporary and minor impact to ecological values due to increased human presence on site during the construction period.

5.2. Potential Impacts to Matters of National Environmental Significance

5.2.1 EPBC Act Threatened Ecological Communities

The likelihood of occurrence for each TEC within the referral area, as presented in Error! Reference source not found., referred to State Government regional ecosystem mapping within the Locality and known distributions of the TECs, to identifies those TEC's with potential to occur in the Referral area or recorded during field surveys.

The Protected Matters Search Tool (PMST) (refer **Appendix A**) returned the following four threatened ecological communities (TEC), listed under the EPBC Act, as having potential to occur within 5 km of the referral area:

- Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community
- Lowland Rainforest of Subtropical Australia
- Swamp Tea-tree (*Melaleuca irbyana*) Forest of South-east Queensland
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

The results of the likelihood of occurrence assessment determined that none of the above-mentioned TECs were likely to occur due to the absence of regional ecosystems and species on site typically associated with these TECs. **Field surveys confirmed no TEC's were present within the referral area. Consequently, the Project is not considered likely to impact on any EPBC Act listed TEC's.**

5.2.2 Threatened Flora Species

Database searches returned eighteen (18) flora species, listed as threatened under the EPBC Act and/or NC Act as having been previously recorded or predicted to occur within 5 km of the referral area, as presented in **Appendix A** and **Appendix B.**

Based on the presence of species records within the locality and the habitats within the referral area, a likelihood of occurrence assessment was conducted to determine those threatened flora species with potential to occur within the referral area. The assessment identified that Seventeen (17) of the listed threatened flora species had a low risk of impact on site due to being unlikely to occur in the referral area. *Coleus habrophyllus* which is listed as Endangered under the EPBC Act was identified as having a high risk of occurrence on the site due to previous records of the species on and proximal to the site and the presence of suitable habitat on-site.

Detailed field surveys identified suitable habitat niches for *Coleus habrophyllus*, however, given the species was not identified during the extensive targeted surveys of the potential habitat, the species is not considered to be present within the referral area. As such, **field surveys confirmed that no EPBC listed flora species were present within**

the referral area. Consequently, the Project is not considered likely to impact upon any EPBC Act or NC Act listed threatened flora species.

5.2.3 Threatened Fauna Species

In reference to **Table 10**, the threatened fauna species with a moderate or higher likelihood of occurring within the referral area, these being the Regent Honeyeater, Swift Parrot, Grey-headed Flying-fox and Koala, and their supported habitats are at risk of potential project related impacts and a significant impact assessment is considered necessary.

5.2.4 Threatened Migratory Species

In reference to **Table 10**, the threatened migratory species with a moderate likelihood of occurring within the referral area and its supported remnant habitats are at no risk of potential project related impacts and significant impact assessment are not considered necessary. Standard spotter-catcher procedures applied during clearing and construction activities should assist in further mitigating any risk of potential, unforeseen impacts.

6. General Mitigation Measures

6.1. Design Considerations

One of the purposes of this report is to identify potential impacts upon ecological values and provide guidance for further design development. Therefore, where practicable, the detailed design stage should consider the extent of the final project footprint in respect to avoiding and minimising impacts to areas of remnant and riparian vegetation, TECs and key habitat values therein.

6.2. Construction Phase

General mitigation measures to be implemented during the construction phase of the Project are outlined below.

6.2.1 Vegetation Clearing and Management Plan

A Vegetation Clearing and Management Plan (VC&MP) should form part of the broader management document submitted as part of the operational works application for the development site. The VC&MP should cover clearing of all vegetation listed in this report and include details on:

- Clearly show trees to be removed
- All civil works likely to impact on existing vegetation
- Temporary and permanent exclusion and protection fencing
- Roles and responsibilities for site contractors, the developer and the consultant group
- Stockpiling and site access locations
- A clearing sequence plan showing the commencement of clearing and direction of removal (this should be in conjunction with the Fauna Management Plan to allow for the appropriate flushing of fauna towards safe havens and/or the application of an appropriate relocation program)
- Links to weed management and revegetation proposals
- The stock piling and reuse of cleared vegetation

6.2.2 Fauna Management Plan

A Fauna Management Plan (FMP) should be prepared for potential impacts of the construction phase covering the loss of vegetated areas, isolated trees and likely barriers and impediments to local dispersal.

The FMP should link closely with the VC&MP and include details on:

- Species surveyed as using the site with a focus on those most likely impacted by development works
- A list of relevant State and Commonwealth legislation constraints and controls for the above listed fauna
- A plan showing existing habitat opportunities and locations

- Details of the threats to existing fauna species
- Clearing sequence plan from the VC&MP
- Management and mitigation measures i.e. temporary use of fauna exclusion fencing
- Fauna spotter role, contacts and certification
- Specific fauna management procedures for potential or known habitat trees

6.2.3 Rehabilitation Management Plan

A Rehabilitation Management Plan (RMP) should form part of the broader management document submitted as part of the operational works drawings for the referral area, and will generally include information on:

- Rehabilitation approaches in accordance with SEQ Ecological Restoration Guidelines (SEQRF)
- Existing and proposed contours
- Locations of services, earthworks
- Existing vegetation to be retained, removed
- Location of waterways and waterbodies
- Major weed infestations and proposed treatments
- Trail and path systems

6.2.4 Fauna Spotter Catcher

A registered and suitability qualified fauna spotter catcher/ecologist will need to be employed for the construction phase of the Project to implement a protocol of best management practises. Significance habitat features, should any be identified on site, will be flagged prior to clearing events and these areas supervised by an appropriately experienced ecologist. Identified within the clearing supervision protocol should be flagging of hollow bearing trees followed by the removal of vegetation surrounding them. After 24 to 72 hours, these trees should then be removed. Trees must be directionally felled into open or already cleared areas.

The objective of this is to enable hollow dependant fauna an opportunity to move on their own accord as many species utilise multiple den/roost sites within a given home range. Certain areas would be identified and flagged as significant such as old-growth trees with hollow resources and on-site identification to construction personnel will help reduce/avoid clearing. Where required, native fauna situated within areas to be cleared will be relocated to a secure area of similar habitat prior to the commencement of vegetation clearance works by a registered fauna spotter/catcher. Should any removal and relocation of nests be required, it is to be undertaken by a suitably qualified and experienced persons and advice sought where necessary.

7. Significance of Impacts

7.1. Significant Impact Assessment Definitions

The Significant Impact Guidelines provides specific definitions for '*important population*' and '*habitat critical to the survival of a species or ecological community*'. This definition is a key consideration when conducting significant impact assessments for a threatened species or ecological community listed under the EPBC Act. The definitions are presented below.

7.1.1 Population of a species

A 'population of a species' is defined by the Significant Impact Guidelines as:
"An occurrence of the species in a particular area. In relation to critically endangered, endangered or vulnerable threatened species, occurrences include but are not limited to:

- *A geographically distinct regional population, or collection of local populations*
- *A population, or collection of local populations, that occurs within a particular bioregion.*

7.1.2 Important population

An '*important population*' is defined by the Significant Impact Guidelines as:
"An 'important population' is a population that is necessary for a species' long term survival and recovery. This may include populations identified as such in recovery plans, and/or that are:

- *Key source populations either for breeding or dispersal*
- *Populations that are necessary for maintaining genetic diversity*
- *Populations that are near the limit of the species range*

7.1.3 Habitat critical to the survival of a species or ecological community

The Significant Impact Guidelines provide the following definition for '*habitat critical to the survival of a species*'
"Habitat critical to the survival of a species or ecological community' refers to areas that are necessary:

- *For activities such as foraging, breeding, roosting or dispersal*
- *For the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)*
- *To maintain genetic diversity and long-term evolutionary development*
- *For the reintroduction of populations or recovery of the species or ecological community.*

Such habitat may be, but is not limited to:

- *Habitat identified in a recovery plan for the species or ecological community as habitat critical for that species or ecological community*
- *Habitat listed on the Register of Critical Habitat maintained by the minister under the EPBC Act.*

Critical habitat can be further explained as an identified area of viable habitat that contains habitat attributes that are essential for the conservation of a threatened species. These areas are typically under a regime of special protection and management to ensure the critical habitat remains a stronghold for the species to ensure its long-term survival and viability in the wild. Critical habitat may also include an area of land not currently occupied by the species, but can act as a sanctuary by possessing the necessary habitat attributes to facilitate the recovery of a declining population of the species.

7.2. *Pteropus poliocephalus* (Grey-headed Flying-fox)

7.2.1 Conservation Status

The GHFF is listed as Vulnerable under the EPBC Act.

7.2.2 Description

The GHFF is the largest Australian bat with a wingspan of up to one metre. It has dark-grey body fur, a grey head, and a distinctive reddish-brown collar. It is also the only flying-fox with hairy legs right down to its ankles.

7.2.3 Distribution

The GHFF occurs along the south-east coast of Australia, from Rockhampton in central Queensland through New South Wales to western Victoria. During the last few years, the GHFF has also been recorded from Adelaide.

7.2.4 Habitat

The GHFF is heavily dependent on the availability of foraging resources and roost sites. As canopy feeding frugivores and nectavores, GHFFs frequent fruiting and flowering trees in rainforests, open eucalypt forests, woodlands, *Melaleuca sp*. swamps and Banksia woodlands (Duncan *et al*. 1999). The GHFF is also known to forage in fruit crops and introduced tree species within urban environments. Roost sites for the GHFF are commonly within dense vegetation close to water, primarily rainforest patches, stands of *Melaleuca sp.*, mangroves or riparian vegetation.

7.2.5 Recovery Actions

There is no adopted or made Recovery Plan for this species at the federal level. The Queensland Government identifies the following recovery actions:

- Identify and map important foraging and roosting habitats
- Prevent the destruction and degradation of important forested habitat, through: identifying guidelines to protect habitat; appropriate zoning; identifying development alternatives and incentives to retain habitat and educating communities.
- Encourage community partnerships and initiatives that protect important habitats, and where possible re-vegetate with foraging trees for GHFF
- Work with orchardists to improve the image of GHFF, and to identify and implement non-destructive methods to protect fruit crops, such as: appropriate netting (not monofilament netting) that is not hung loose over trees (which can entangle bats and birds)
- Reduce negative public attitudes and conflict with humans

- Develop accurate methods for monitoring population size

7.2.6 Significant Impact Assessment

EPBC Act, Grey-headed Flying-fox populations are listed as Vulnerable. The species is not specifically listed under Queensland's *Nature Conservation Act 1992* (Qld) (NCA), however, retains a Least Concern status for the purposes of the Act. The *Referral guideline for management actions in grey-headed and spectacled flying-fox camps* summarise the decision process in considering the likelihood of a significant impact on the Grey-headed Flying-fox or Spectacled Flying-fox schematically. The Guidelines are specifically for the assessment of impacts on Flying-fox camps. Given no roosting sites are located on-site or in the near vicinity, it is highly unlikely that the action will involve impacts on the Grey-headed Flying-fox according to the Guidelines. However, the Guidelines also state that, '*It does not apply to the following actions... Actions which may impact on the foraging habitat of EPBC Act-listed flying-fox species. Proponents of actions of this kind should refer to the Significant Impact Guidelines 1.1.*'

To determine whether the proposed action is likely to have a significant impact on the Grey-headed Flying-fox, an assessment against the *EPBC Significant Impact Guidelines 1.1* is provided in **Table 11**.

Table 11: Significant Impact Assessment – Vulnerable Grey-headed Flying-fox

Significant Impact Criteria	Description	Impact
An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:		
1. Lead to a long-term decrease in the size of an important population of a species	This species was not observed utilising the site nor observed as a fly over species. Further, no suitable roosting sites occur on or adjacent to the site. SEQ has a permanent and abundant population of GHFF and available habitat is spread throughout the region given the high prevalence of *Eucalypts*. While vegetation on site is considered appropriate foraging habitat for the species, due to the proximity to development and absence of evidence of the species utilising the site even as a transient visitor, the site is not considered to support an important population of the species and the proposed action is unlikely to lead to a long term decrease in the size of any local GHFF populations.	No significant impact
2. Reduce the area of occupancy of an important population	This species was not observed utilising the site nor observed as a fly over species. Further, no suitable roosting sites occur on or adjacent to the site. The proposed action will not reduce the area of occupancy of an important population of GHFF as no part of the action will occur within an area known to be occupied by the species.	No significant impact
3. Fragment an existing important population into two or more	The SPRAT species profile outlines that while there are spatially structured colonies of GHFF, there are no separate or distinct populations due to the constant genetic exchange and movement between camps throughout the	No significant impact

	species' geographic range. In addition, given the high mobility of the species, the proposed action is unlikely to fragment a population into two or more populations. Of note, the species was not observed utilising the site nor observed as a fly over species.	
4. Adversely affect habitat critical to the survival of a species	This species was not observed utilising the site nor observed as a fly over species. Despite this, vegetation across the site is considered to be foraging habitat for the species. The proposal will result in the removal of 24.20 ha of GHFF foraging habitat and consequently this project is likely to adversely impact habitat critical to the survival of the species.	**Significant impact likely**
5. Disrupt the breeding cycle of an important population	The site surveys did not identify any evidence of breeding GHFF. Mating normally occurs within autumn, and females generally give birth in October, where they carry their young to feeding sites for four to five weeks after giving birth. As no roosting camps were observed on or near the site, the proposed action is unlikely to disrupt the breeding cycle of an important population.	No significant impact
6. Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	While suitable foraging habitat is located across the site, its removal is unlikely to have a significant impact on the availability of habitat in the landscape, given the vast quantity and availability of foraging habitat in the surrounding area.	No significant impact
7. Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	The proposed action is unlikely to result in the introduction of invasive species.	No significant impact
8. Introduce disease that may cause the species to decline	The project is unlikely to introduce disease into the area.	No significant impact
9. Interfere substantially with the recovery of the species	Recovery of the species has specifically targeted the broad scale culling of the species. In addition, conservation efforts have led to the protection of known roosting sites and important habitat. The site has not been identified as an important habitat or roost site and the action is unlikely to interfere with the recovery of the species.	No significant impact

7.3. *Lathamus discolor* (Swift Parrot)

7.3.1 Conservation Status

The Swift Parrot is listed as Critically Endangered under the EPBC Act.

7.3.2 Description

The Swift Parrot is mostly bright green in colour, with dark-blue patches on the crown, a prominent red face, and the chin and throat are narrowly bordered with yellow. It is approximately 25 cm in length, the wingspan is 32-36 cm and it weight approximately 65 g. It is a slim, medium-sized parrot with angular pointed wings and a slender tail giving it the characteristic streamlined flight-silhouette.

7.3.3 Distribution

The swift parrot breeds in Tasmania during the summer and the entire population migrates north to mainland Australia for the winter. They occupy habitats across all tenures, with the majority of habitats occurring outside formal conservation reserves. The breeding range of the swift parrot is largely restricted to the east and south-east coast of Tasmania and closely mirrors the distribution of blue gum (*Eucalyptus globulus*). The species breeds in the north-west of the state between Launceston and Smithton, however, the number of birds involved and frequency of these breeding events is not well understood. Potential breeding habitat remaining in the northwest is scarce and highly fragmented. Whilst on the mainland the Swift Parrot disperses widely, foraging on flowers and lerps in *Eucalyptus spp.* mainly in Victoria and New South Wales. Only a small number of Swift Parrots are observed in Queensland on a regular basis. Within Queensland, the preferred foraging species include *Eucalyptus macrocarpa, Eucalyptus melliodora, Eucalyptus robusta, Eucalyptus tereticornis* and *Corymbia citriodora*. The species prefers large trees which flower consistently.

7.3.4 Habitat

Swift parrots breed in tree-hollows in old-growth or other forest with suitable hollows, in relatively close proximity to the main food source, flowering Tasmanian blue gum. Several pairs often nest in close proximity, in the same or neighbouring trees. Breeding success is correlated with the intensity and extent of flowering, which is highly variable between years. In poor years, swamp (black) gum (*Eucalyptus ovata*) is used as food source.

They feed preferentially in the largest trees available. Their distribution fluctuates with food availability as they feed on psyllid lerps, seeds and fruit. Non-breeding birds preferentially feed in inland box-ironbark and grassy woodlands, and coastal swamp mahogany (*Eucalyptus robusta*) and spotted gum (*Corymbia maculata*) woodland when in flower; otherwise often in coastal forests from eastern Victorian to the central coast of New South Wales. Within Queensland, the preferred foraging species include *Eucalyptus macrocarpa, Eucalyptus melliodora, Eucalyptus robusta, Eucalyptus tereticornis* and *Corymbia citriodora*. The species prefers large trees which flower consistently.

7.3.5 Recovery Actions

The Swift Parrot has a National Recovery Plan published in 2011 by Saunders and Tzaros (2011). The overall objective of the National Recovery Plan is to prevent further population decline of the Swift Parrot and to achieve a

demonstratable sustained improvement in the quality and quantity of Swift Parrot habitat to increase carrying capacity. The following actions were designed to achieve the overall objectives of the National Recovery Plan:

- Action 1 – Identify the extent and quality of habitat;
- Action 2 – Manage and protect Swift Parrot habitat at the landscape scale;
- Action 3 – Monitor and manage the impact of collisions, competition and disease;
- Action 4 – Monitor population and habitat;
- Action 5 – Increase community involvement in, and awareness of, the recovery program; and
- Action 6 – Coordinate, review and report on recovery process.

7.3.6 Significant Impact Assessment

Table 12: Significant Impact Assessment – Critically Endangered Swift Parrot

Significant Impact Criteria	Description	Impact
An action is likely to have a significant impact on a critically endangered species if there is a real chance or possibility that it will:		
1. Lead to a long-term decrease in the size of population	The species was not identified on-site during field survey events; however, suitable foraging habitat was noted within the referral area, with species such as *Corymbia citriodora* and *Eucalyptus tereticornis* all recorded on-site. It should be noted that detailed habitat quality transects concluded that the vegetation on-site meets the definition of 'remnant', however, due to historical logging activities, large trees were predominantly absent. Analysis of the data indicates that four (4) trees per hectare were equal to or greater than the large tree benchmark (380 mm DBH) for the 'remnant' composite RE12.9-10.2 (dominant RE within composite vegetation community). The benchmark large trees per hectare the 'remnant' RE12.9-10.2 as per the Queensland Herbarium Benchmark guideline is 38 trees per hectare. As such, the 'remnant' RE12.9-10.2 vegetation community within the referral area meets 10.5 % of the large tree benchmark for the regional ecosystem. This data indicates that although the vegetation community on-site contains potential foraging species for the Swift Parrot, the preferential of the species to forage in large, mature trees therefore limits the availability of preferred habitat on-site. Further, given the superior mobility capacity of the species and abundance of preferential habitat within close proximity of the site (Greenbank Military Base located within the Flinders-Karawatha Corridor), the significance of the foraging habitat on-site is considered marginal. This is further supported by the National Recovery Plan for the	No significant impact

	Swift Parrot (*Lathamus discolor*) (Saunders & Tzaros 2011) which states "*Many of the Swift Parrot foraging sites in Queensland occur in council reserves or parkland. The Regional Ecosystems containing preferred Swift Parrot forage tree species have been mapped and overlaid for the recorded areas of Swift Parrots in Queensland*". Review of the *Vegetation Management Act 1999* Vegetation Management Report indicates that the referral area does not contain essential habitat for the Swift Parrot, whereas, this is not the case for the Greenbank Military Base.	
2. Reduce the area of occupancy of the species	The species was not identified on-site during field survey events; The species consistently occupies the breeding habitat in Tasmania and utilises habitat in Queensland opportunistically. The impact area associated with the proposed development are relatively small given the superior mobility capacity of the specie and abundance of preferential habitat within close proximity of the site. Therefore, the action will not reduce the area of occupancy of the species.	No significant impact
3. Fragment an existing population into two or more	The species was not identified on-site during field survey events; Given the superior mobility capacity of the species and abundance of preferential habitat within close proximity of the site the action will not fragment an existing population into two or more.	No significant impact
4. Adversely affect habitat critical to the survival of a species	The species was not identified on-site during field survey events; Given the superior mobility capacity of the species and abundance of preferential habitat within close proximity of the site the action will not adversely affect habitat critical to the survival of the species.	No significant impact
5. Disrupt the breeding cycle of a population	The Swift Parrot breeds in Tasmania during the austral summer.	No significant impact
6. Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	The species was not identified on-site during field survey events; Given the superior mobility capacity of the species and abundance of preferential habitat within close proximity of the site, the action is not considered to modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	No significant impact
7. Result in invasive species that are harmful to a critically endangered	The proposed action is unlikely to result in the introduction of invasive species.	No significant impact

species becoming established in the critically endangered species' habitat		
8. Introduce disease that may cause the species to decline	The project is unlikely to introduce disease into the area.	No significant impact
9. Interfere substantially with the recovery of the species	The recovery of the Swift Parrot is focussed on identifying and managing habitat at a landscape scale and monitoring and managing competition and disease, particularly within their breeding habitat in Tasmania. The proposed action is not considered to interfere with the recovery of the species because the habitat on-site is not considered significant, particularly at a landscape scale given it is not recognised within Queensland Government mapping. Further, preferential habitat within close proximity of the site located within a bioregional corridor has been identified. As such, protection of this habitat at a landscape scale is important.	No significant impact

7.4. *Anthochaera phrygia (Regent Honeyeater)*

7.4.1 Conservation Status

The Regent Honeyeater is listed as Critically Endangered under the EPBC Act.

7.4.2 Description

The regent honeyeater is a striking, predominantly black and yellow bird. Its head and neck are black, with warty pink or yellow skin around the eyes. The upperparts of its body are black and heavily scalloped with pale yellow. The breast and upper belly are black with a pale yellow to white v-shaped pattern, and the lower belly is a pure pale yellow. The wing and tail feathers have broad yellow edges.

7.4.3 Distribution

The Regent honeyeater is endemic to mainland south-eastern Australia. It has a patchy distribution which extends from south-east Queensland, through New South Wales (NSW) and the Australian Capital Territory (ACT), to central Victoria. Records are widely distributed across its range, but it is only found regularly at a few localities in NSW and Victoria where most of the sightings have been recorded. There are four known key breeding areas: three in NSW and one in Victoria.

The species range and numbers have contracted greatly since about the 1940s. It previously ranged from near Rockhampton in Queensland, to Wilmington in South Australia. It was last recorded in South Australia in 1977 and is now probably extinct in that state. There were reports of 'immense' numbers and 'very large flocks' in the early 20th century, but flocks of more than 30 birds are now uncommon.

7.4.4 Habitat

The species mostly inhabits inland slopes of the Great Dividing Range, in areas of low to moderate relief with moist, fertile soils. It is most commonly associated with box-ironbark eucalypt woodland and dry sclerophyll forest, but also inhabits riparian vegetation such as sheoak (*Casuarina* spp) where it feeds on needle-leaved mistletoe and sometimes breeds. It sometimes utilises lowland coastal forest, which may act as a refuge when its usual habitat is affected by drought. It also uses a range of other habitats including remnant patches in farmland and urban areas, roadside reserves and travelling stock routes.

The Regent honeyeater's diet primarily consists of nectar, but also includes invertebrates (mostly insects) and their exudates (e.g. lerps and honeydew), and occasionally fruit. Its time spent foraging for nectar ranges from 10% to 90% depending on availability. It obtains nectar chiefly from eucalypts and mistletoe, and appears reliant on select species which provide reliable nectar flows. It prefers taller and larger diameter trees for foraging, as these typically produce more nectar. Key tree species for the Regent Honeyeater include *Eucalyptus sideroxylon, Eucalyptus melliodora, Eucalyptus albens, Eucalyptus leucoxylon, Corymbia maculata/citriodora, Eucalyptus robusta, Casuarina cunninghamiana, Amyema cambagei* and *Dendropthoe vitellina*.

The species' movement patterns are thought to be governed by the flowering of select eucalypt species. It is nomadic and partly migratory, with some predictable seasonal movements observed. The species is highly mobile and capable of travelling large distances, however the regularity and extent of long-distance movements are unknown.

Aggregations historically occurred at nectar sources, mostly during autumn and winter, but these events are now rare. The species roosts communally in small groups or large flocks, in trees with dense foliage. Foraging trees are rarely used as roosting sites.

7.4.5 Recovery Actions

The Regent Honeyeater has a National Recovery Plan published by the Commonwealth of Australia (2016). The National Recovery Plan aims to reverse the long-term population trend of decline and increase the numbers of Regent Honeyeaters to a level where there is a viable, wild breeding population, even in poor breeding years, and to enhance the condition of habitat across the Regent Honeyeater range to maximise survival and reproductive success, and provide refugia during periods of extreme environmental fluctuation. The strategies to achieve these objectives are:

- Action 1 – Improve the extent and quality of Regent Honeyeater habitat;
- Action 2 – Bolster the wild population with captive-bred birds until the wild population becomes self-sustaining;
- Action 3 – Increase understanding of the size, structure, trajectory and viability of the wild population; and
- Action 4 – Maintain and increase community awareness, understanding and involvement in the recovery program.

7.4.6 Significant Impact Assessment

Table 13: Significant Impact Assessment – Critically Endangered Regent Honeyeater

Significant Impact Criteria	Description	Impact
An action is likely to have a significant impact on a critically endangered species if there is a real chance or possibility that it will:		
1. Lead to a long-term decrease in the size of population	The species was not identified on-site during field survey events; however, suitable foraging habitat was noted within the referral area, with species such as *Corymbia citriodora* and *Eucalyptus tereticornis* recorded on-site. It should be noted that detailed habitat quality transects concluded that the vegetation on-site meets the definition of 'remnant', however, due to historical logging activities, large trees were predominantly absent. Analysis of the data indicates that four (4) trees per hectare were equal to or greater than the large tree benchmark (380 mm DBH) for the 'remnant' composite RE12.9-10.2 (dominant RE within composite vegetation community). The benchmark large trees per hectare the 'remnant' RE12.9-10.2 as per the Queensland Herbarium Benchmark guideline is 38 trees per hectare. As such, the 'remnant' RE12.9-10.2 vegetation community within the referral area meets 10.5 % of the large tree benchmark for the regional ecosystem. This data indicates that although the vegetation community on-site contains potential foraging species for the Regent	No significant impact

	Honeyeater, the preferential of the species to forage in large, mature trees therefore limits the availability of preferred habitat on-site. Further, given the superior mobility capacity of the species and abundance of preferential habitat within close proximity of the site (Greenbank Military Base located within the Flinders-Karawatha Corridor), the significance of the foraging habitat on-site is considered marginal.	
2. Reduce the area of occupancy of the species	The species was not identified on-site during field survey events; The species has a patchy distribution, particularly in Queensland, where utilisation is considered opportunistic. The impact area associated with the proposed development is relatively small given the superior mobility capacity of the specie and abundance of preferential habitat within close proximity of the site. Therefore, the action will not reduce the area of occupancy of the species.	No significant impact
3. Fragment an existing population into two or more	The species was not identified on-site during field survey events; Given the superior mobility capacity of the species and abundance of preferential habitat within close proximity of the site the action will not fragment an existing population into two or more.	No significant impact
4. Adversely affect habitat critical to the survival of a species	The species was not identified on-site during field survey events; Given the superior mobility capacity of the species and abundance of preferential habitat within close proximity of the site the action will not adversely affect habitat critical to the survival of the species.	No significant impact
5. Disrupt the breeding cycle of a population	The Regent Honeyeater typically breeds during spring and summer, from August to February. The Regent Honeyeater was not observed on-site during field surveys. Further, no evidence of breeding was observed.	No significant impact
6. Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	The species was not identified on-site during field survey events; Given the superior mobility capacity of the species and abundance of preferential habitat within close proximity of the site, the action is not considered to modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	No significant impact
7. Result in invasive species that are harmful to a critically endangered species becoming	The proposed action is unlikely to result in the introduction of invasive species.	No significant impact

established in the critically endangered species' habitat		
8. Introduce disease that may cause the species to decline	The project is unlikely to introduce disease into the area.	No significant impact
9. Interfere substantially with the recovery of the species	The recovery actions of the Regent Honeyeater are generally around understanding the species behaviours and characteristics and increasing community awareness. The proposed action is not considered to interfere with the recovery of the species because the habitat on-site is not considered significant and preferential habitat is located within close proximity of the site.	No significant impact

7.5. *Phascolarctos cinereus* (Koala)

7.5.1 Conservation Status

The Koala is listed as Vulnerable under the EPBC Act.

7.5.2 Description

Koalas (*Phascolarctos cinereus*) are native Australian tree-dwelling marsupials with predominantly grey coloured fur.

7.5.3 Distribution

The Koala is found from north east Queensland to the south-east corner of South Australia. As a consequence of translocations, the Koala are found outside their historic range, for example, Kangaroo Island. The distribution of the Koala is influenced by altitude, temperature and leaf moisture. The density of the Koala population in coastal regions is generally greater than inland areas. Koalas are known to naturally inhabit a range of temperate, sub-tropical and tropical forest, woodland and semi-arid communities dominated by *Eucalyptus* sp.

7.5.4 Habitat

Koala habitat can be broadly defined as any forest or woodland containing species that are known Koala food trees, or shrubland and emergent food trees. Preferred food and shelter trees are naturally abundant on fertile clay soils. Along the Great Dividing Range and the coastal belt throughout the species' range, Koalas inhabit moist forests and woodlands mostly dominated by *Eucalyptus* sp.

The Koala species is not territorial and the home ranges of individuals extensively overlap. Home ranges are variable depending on the location, with those in "poorer" habitats being larger than in higher quality habitats. There is little evidence for longer movements in most cases, though dispersing individuals, mostly young males, may occasionally cover distances of several kilometres over land with little vegetation. In SEQ, the average distance between natal and breeding home ranges was similar for males and females, at approximately 3.5 km. Maximum dispersal distances were up to approximately 10 km for males and females. Other studies have reported movement of up to 16 km in rural SEQ.

7.5.5 Threats

Habitat loss and fragmentation, vehicle strike and predation by domestic or feral dogs are the main threats to the Koala. Extreme environmental events, such as drought, can also cause significant mortality.

7.5.6 Significant Impact Assessment

The *EPBC Act referral guidelines for the vulnerable Koala* summarise the significant impact decision for the Koala. The following points help to summarise the guideline:

- Impacts on 'habitat critical to the survival of the species' and impacts that 'substantially interfere with the recovery of the species' are the focus of assessing significance;
- Habitat protection and impact mitigation is focused on areas of habitat that are large and well connected;
- The loss of 20 hectares or more of high-quality habitat critical to the survival (habitat score of 8) is highly likely to have a significant impact for the purposes of the EPBC Act;

- The loss of two hectares or less of marginal quality habitat critical to the survival (habitat score of 5) is highly unlikely to have a significant impact on the koala for the purposes of the EPBC Act;
- The loss of between 2 and 20 ha of habitat critical to the survival may have a significant impact on the koala for the purposes of the EPBC Act. Whether this is more likely or unlikely depends on the characteristics of your action.

To determine whether the proposed action is likely to have a significant impact on the Koala, an assessment against the *EPBC Significant Impact Guidelines 1.1* is provided in **Table 14.** An assessment against the *EPBC Act referral guidelines for the vulnerable Koala* is provided in **Section 7.6**.

Table 14: Significant Impact Assessment – Vulnerable Koala

Significant Impact Criteria	Description	Impact
An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:		
1. Lead to a long-term decrease in the size of an important population of a species	Vegetation within the referral area is predominantly 'remnant' RE12.9-10.2. While the site does contain habitat assessed as critical for the Koala, field assessments failed to directly locate Koalas on-site despite targeted searches, with only indirect evidence of Low Koala usage recorded in the form of scats. As such, Koalas that potentially utilise the site are considered transient individuals. It is therefore unlikely that an important population is present on-site, and so the action is considered unlikely to decrease the size of an important population.	No significant impact
2. Reduce the area of occupancy of an important population	An important population is not considered present on the referral area for the following reasons: ▪ No Koalas (only evidence of their activity) have been recorded on-site ▪ The site contains low quality critical habitat, and is fragmented from conservation areas ▪ Koala records in the broader Springfield area include specimens carrying disease The proposal is not considered likely to reduce the area of occupancy for an important population as as no evidence of an important population was observed on-site.	No significant impact
3. Fragment an existing important population into two or more	An important population is not considered to utilise the site given lack of koala evidence on-site. Consequently, the project is not considered likely to fragment an existing important population as no evidence of an important population was observed on site.	No significant impact

4. Adversely affect habitat critical to the survival of a species	Critical Koala habitat is located across the site. The proposed action will result in the clearing of 24.20 ha of critical Koala habitat. Consequently, the project is likely to adversely affect habitat critical to the survival of the species (refer **Plan 4**).	**Significant impact likely**
5. Disrupt the breeding cycle of an important population	Site surveys did not identify any breeding Koalas. Evidence of Koala activity in the form of scats was recorded on-site, however, no individuals were recorded despite targeted searches. As such, the site is considered to most likely support transient individuals unlikely to constitute a breeding population or an important population.	No significant impact
6. Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	While the vegetation across the site has been assessed as critical Koala habitat, its removal is unlikely to have a significant impact on the availability of habitat in the landscape, given the vast quantity and availability of *Eucalypts* in the surrounding area.	No significant impact
7. Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	Evidence of wild dogs were identified on site in the form of tracks. Domestic dogs have the potential to become feral, are considered a major threat to Koala survival and are present in the surrounding landscape. The proposed action is likely to increase the density of domestic dogs in the area, however, their potential to increase impacts on Koalas will be mitigated by effective governance. Invasive *Lantana camara* is present on-site and is a recognised hindrance to Koala dispersal. It is likely that this invasive plant will be suppressed under the rehabilitation efforts as part of the proposed development. It is unlikely that the proposal will augment invasive species impacts already present in the area.	No significant impact
8. Introduce disease that may cause the species to decline	Most of South East Queensland's Koala populations already have a high prevalence of Chlamydia infection and Koala Retrovirus (KoRV), and sick Koalas have been recorded in the vicinity of the referral area. As such, the project is considered unlikely to cause pressure on the local Koala population to the point where these diseases manifest and the project is extremely unlikely to introduce or spread disease or pathogens into Koala habitat areas.	No significant impact
9. Interfere substantially with the recovery of the species	Analysis suggests the action is unlikely to interfere substantially with the recovery of the Koala, primarily because the bushland is fragmented from surrounding bushland and a lack of records of the Koala utilising the site. Further, the site's location within the Springfield	No significant impact

	Structure Plan area earmarks the site for future development, and as such low value Koala habitat on site will become increasingly isolated from bushland and subject to urban pressures, exacerbating threats to any Koalas that may choose to utilise the site in the future.	

7.6. Assessment against the Koala Referral Guidelines

On 30 April 2012, the Koala populations of Queensland, New South Wales and the Australian Capital Territory were scheduled as Vulnerable under the EPBC Act. This had the effect of making the Koala population in South East Queensland a MNES. As such, an action considered likely to have a significant impact on the Koala or Koala habitat must be referred for controlled action assessment. In December 2014, the '*EPBC Act Referral Guidelines for the Vulnerable Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory)*' ('Koala Referral Guidelines') were released to guide proponents in determining whether an action will have an impact on the Koala and require referral.

The report considers the environmental impacts against the Significant Impact Guidelines (refer **Section 7.5.6** above) and the Koala Referral Guidelines which support the Commonwealth Government scheduling of the Koala as a Vulnerable species under the provisions of the EPBC Act. The assessment methodology included site surveys (including Koala SAT survey techniques) and consideration of Commonwealth, State and Local Government environmental database searches.

To determine whether the proposed development will have an impact on the Koala, the flow chart **(Figure 5**) in the Koala referral Guidelines has been responded to in the following sections of the report along with an assessment against the Koala Habitat Assessment Tool (refer to **Table 15**).

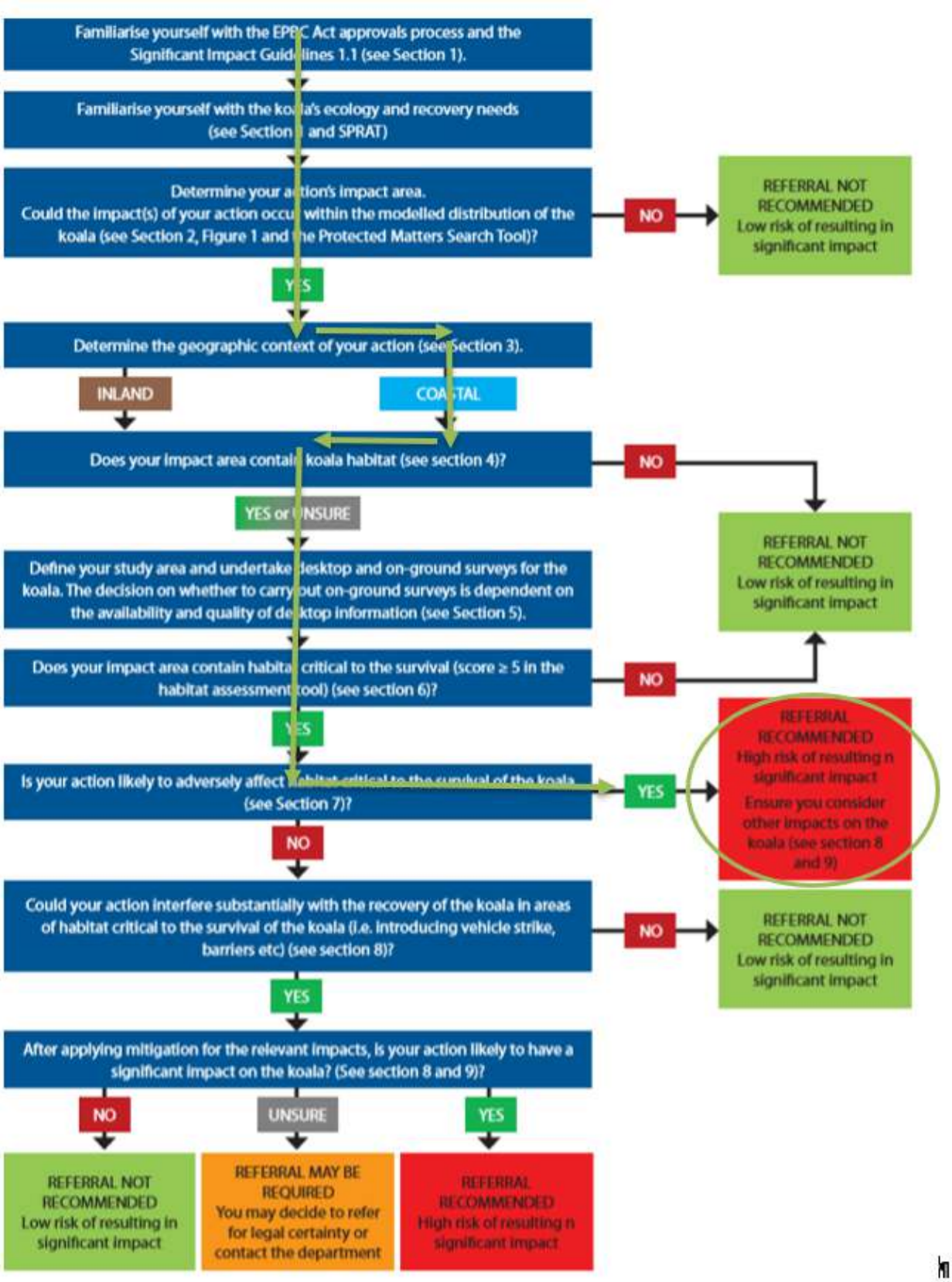


Figure 5: Summary of the EPBC Act referral guidelines for the Koala

Table 15: Koala Habitat Assessment Tool Assessment

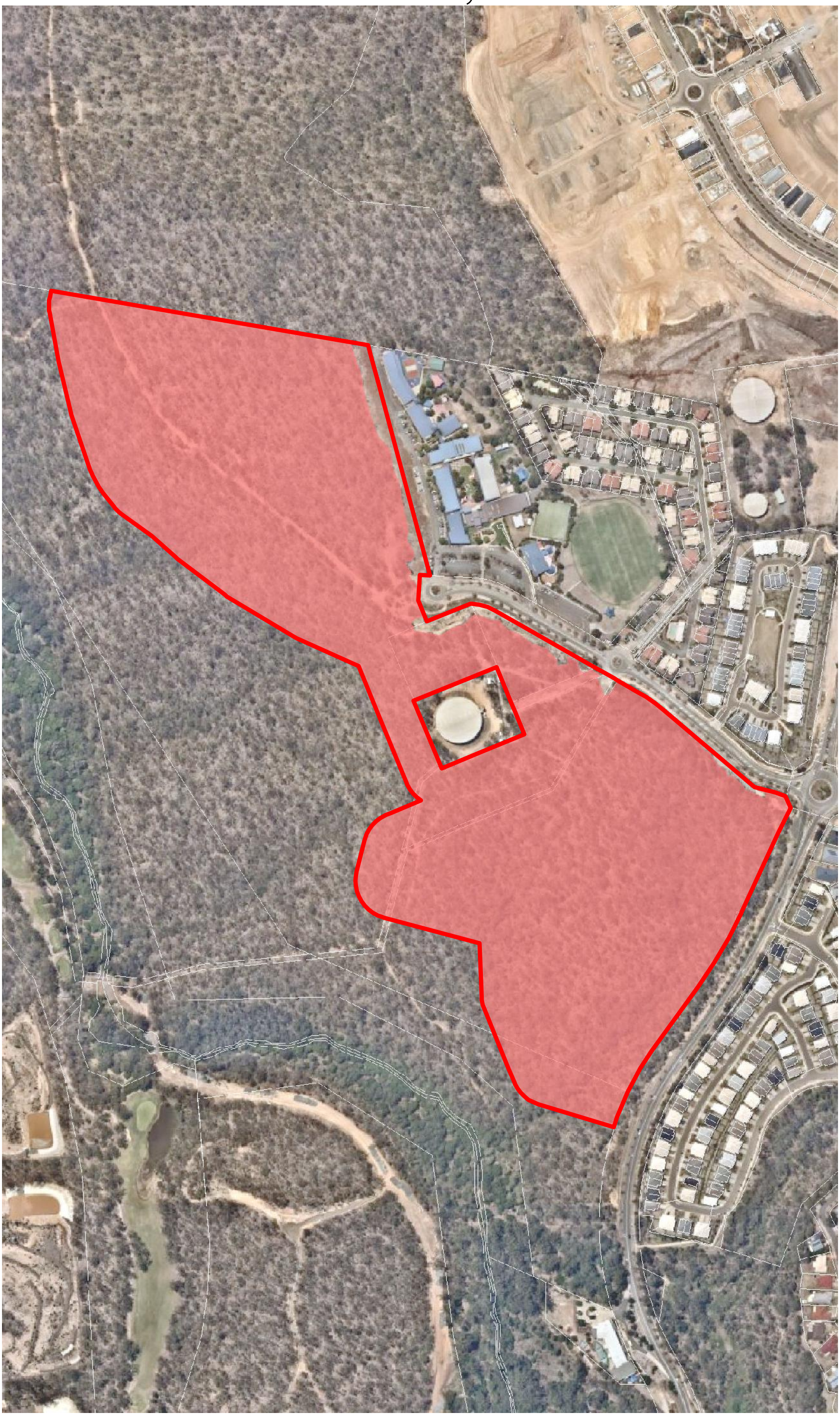
Attribute	Score	Comment
Koala occurrence	**+2 (high)**	**Desktop** The PMR using a 5 km radius identified the Koala as having the potential to occur on-site. The Wildlife Online extract identified 207 records of Koala within a 5 km radius of the site. **On-ground** Surveys conducted by SHG (January and March 2020) resulted in indirect observations of Koalas in the form of scats. The age of these scats is unknown. **There is evidence that one (1) or more Koalas may have utilised the site within the last two (2) years. This attribute has been given a score of 2.**
Vegetation composition	**+2 (high)**	**Desktop** Regional ecosystem mapping published by the Queensland Government identifies the referral area as containing predominantly remnant (Category B) vegetation. **On-ground** The site contains a mix of recognised Koala trees in varying densities and maturity. This includes *Angophora leiocarpa* (Smooth-barked Apple), *Angophora subvelutina* (Broad-leaved Apple), *Corymbia citriodora* (Spotted Gum), *Corymbia intermedia* (Pink Bloodwood), *Corymbia tesselaris* (Moreton Bay Ash), *Eucalyptus crebra* (Narrow-leaved Ironbark), *Eucalyptus tereticornis* (Forest Red Gum), *Eucalyptus moluccana* (Gum Topped Box), *Eucalyptus acmenoides* (White Mahogany), *Eucalyptus carnea* (Broad-leaved White Mahogany), *Eucalyptus fibrosa* (Broad-leaved Red Ironbark), *Eucalyptus grandis* (Flooded Gum), *Eucalyptus propinqua* (Grey Gum), *Eucalyptus resinifera* (Red Stringybark) and *Eucalyptus seeana* (Narrow-leaved Red Gum). **The site contains a 'woodland' or 'open forest' with two (2) or more known Koala food tree species, the vegetation composition attribute is given a score of 2.**
Habitat connectivity	**+2 (high)**	Connectivity towards the north-east is limited by a road and school. Major arterial roads and large-scale residential development are located in the broad landscape to the south, east and west. The development to the west is associated with a current EPBC approval (EPBC2016/7676). The site retains connectivity to the north, with the site adjoining existing known koala habitat on the Opossum Creek corridor and vacant bushland to the north. Currently, the site is connected to approximately 675 ha. Refer to **Plan 6** for detailed connectivity analysis. **Therefore, this attribute has been given a score of 2.**

Key existing threats	**+1 (medium)**	Two key existing threats pose a risk to survival of local Koala populations; vehicle strike and dog attack. **<u>Vehicle Strike:</u>** A review of the Koala Hospital incident data shows that 187 incidences have occurred within a 5 km buffer of the referral area. It should be noted that many live sightings of the Koala in the broader region have been along or proximal to major road networks or highly modified environments. The location of these sightings indicates the risk of motor vehicle strike is considerably high. Additionally, it is noted that anticipated growth and planned residential development surrounding the site will result in increased traffic flows. **<u>Dog Attack:</u>** A recent study completed by Gonzalez-Astudillo *et al.* (2017) analysed the Queensland Koala hospital data from 1997-2013 and found that 1,561 Koalas had injuries associated with trauma from animals, namely dogs. Further, Ipswich City Council's *Koalas in Urban Ipswich* guide suggests dog attacks can account for 40% of total Koala mortalities within an area. The likelihood of a Koala attack is increased when more than one dog is in a backyard, and during the periods of dawn and dusk when Koalas are most active. Further, studies completed as part of the Moreton Bay Rail project (DTMR 2016) found that between 2013 and 2016, 113 koalas had been killed by wild dogs with an additional 38 koala deaths suspected as wild dog predation, 82 koala deaths caused by illness and nine (9) vehicle strike deaths. These figures indicate that the threat of wild dog predation is at the forefront, while disease and vehicle strikes are also ongoing contributors to koala deaths. Refer to **Plan 7** for the hospital incidence within the locality. **As threats from vehicle strikes and dog attacks are present in the area, the key existing threats attribute has been given a score of +1.**
Recovery value	**0 (low)**	The interim recovery objective for coastal areas is based upon protecting and conserving large, connected areas of Koala habitat, particularly where Koalas are genetically diverse or distinct, free of disease or have a low incidence of disease or where there is evidence of breeding and maintain corridors and connective habitat that allows movement of Koalas between large areas of habitat. The site area is situated within the Springfield Structure Plan area, with ongoing residential development and major arterial roads surrounding the site. In its current state, the site retains connectivity to the north and east, with the site adjoining existing known koala habitat on the Opossum Creek

		corridor and vacant bushland to the north. The surrounding locality is earmarked for development to cater for future population growth within SEQ, and hence continued modification and isolation of vegetation is anticipated to occur. Although there are patches of vegetation of varying quality proximal to the project, approved development will impact this vegetation either directly or indirectly (e.g. edge effects). This will also result in additional barriers including roads and incompatible urban landscapes. The movement of fauna to and from the site will become dangerous and potentially lead to increased fauna mortality. Vegetation on-site is predominantly of 'remnant', and contains known Koala food trees. However, due to urban development encroaching the boundary of the site and major roads adjoining the site, it is not considered that the site will be important in the recovery of the Koala. This is because the site is relatively isolated from surrounding habitat and located within the Springfield Structure Plan area, and hence is not considered viable to support a population of Koala. The local Koala population is not considered genetically distinct from other Koala populations in SEQ. While the health of the local Koalas is unknown, diseases such as Chlamydia and Koala Retrovirus are extremely prevalent amongst SEQ Koalas. Environmental corridors are generally considered to provide the most effective habitat value and connectivity when edge effects are minimised. Strategic planning of the Flinders Karawatha Corridor ensures environmental values and the provision of opportunities for fauna dispersal are maintained across the landscape. As such, within the broader landscape, the referral area is not considered to provide Koala habitat critical to the longevity of the population. Potential dispersal to surrounding bushland habitat is limited. Potential recovery and persistence are highly restricted surrounding intensification of disturbances, extensive urban development and the Springfield Structure Plan area designation. Further, residential development has been approved immediately adjacent to and within the surrounding area and will increase the isolated state of the site from suitable habitat. In summary, the recovery value of the referral area is compromised by its Springfield Structure Plan area designation, the existing and future planned urban development within the local area and existing disturbances from the intensification of planned residential development. **The 'recovery value' attribute has been given a score of 0.**

Total	**7**	**As the habitat score is greater than five (5), the site is considered to provide critical habitat for the Koala. Refer to Plan 5 for critical koala habitat analysis.**

5. Critical Koala Habitat Analysis



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Legend

- Referral Area
- Qld DCDB

Potential Critical Koala Habitat

- Habitat to Remove (23.52ha)

Issue	Date	Description	Drawn	Checked
A	1/04/2020	Preliminary	MP	JG

0 10 20 40 60 80 m

Transverse Mercator | GDA 1994 | Zone 56 | 1:4,000 @ A3

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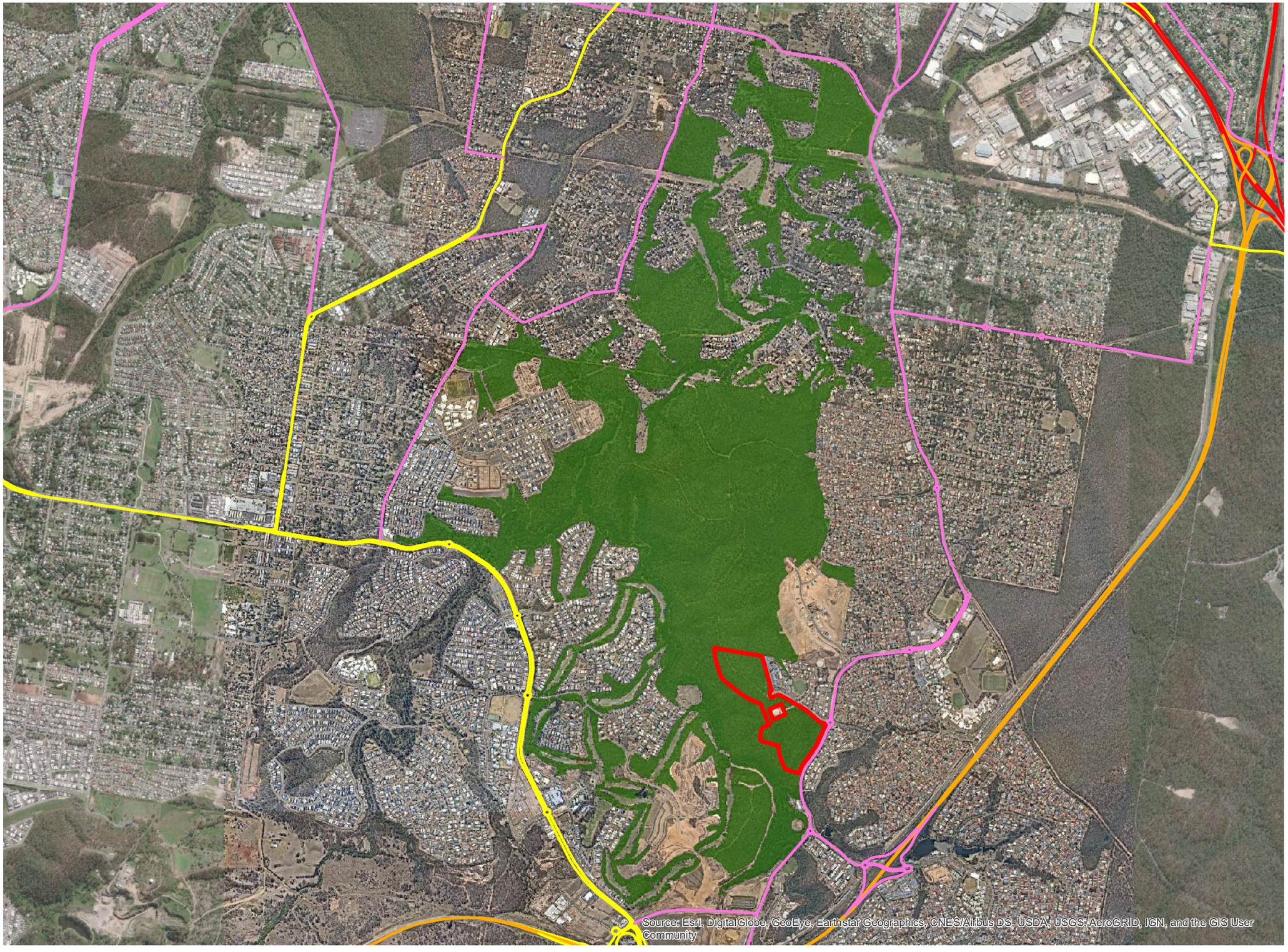
Scenic Precinct

ADDRESS/RPD: Eden Station Drive, Brookwater | 1/04/2020 | 7399 E 05 Critical Koala Habitat Analysis A

6. Contiguous Landscape Analysis



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Legend

- Referral Area
- Qld DCDB
- Contiguous Landscape (675ha)

Major Roads

- Road type 1
- Road type 2
- Road type 3
- Road type 4

Issue	Date	Description	Drawn	Checked
A	1/04/2020	Preliminary	MP	JG

0 340 680 1,020 m

Transverse Mercator | GDA 1994 | Zone 56 | 1:27,000 @ A3

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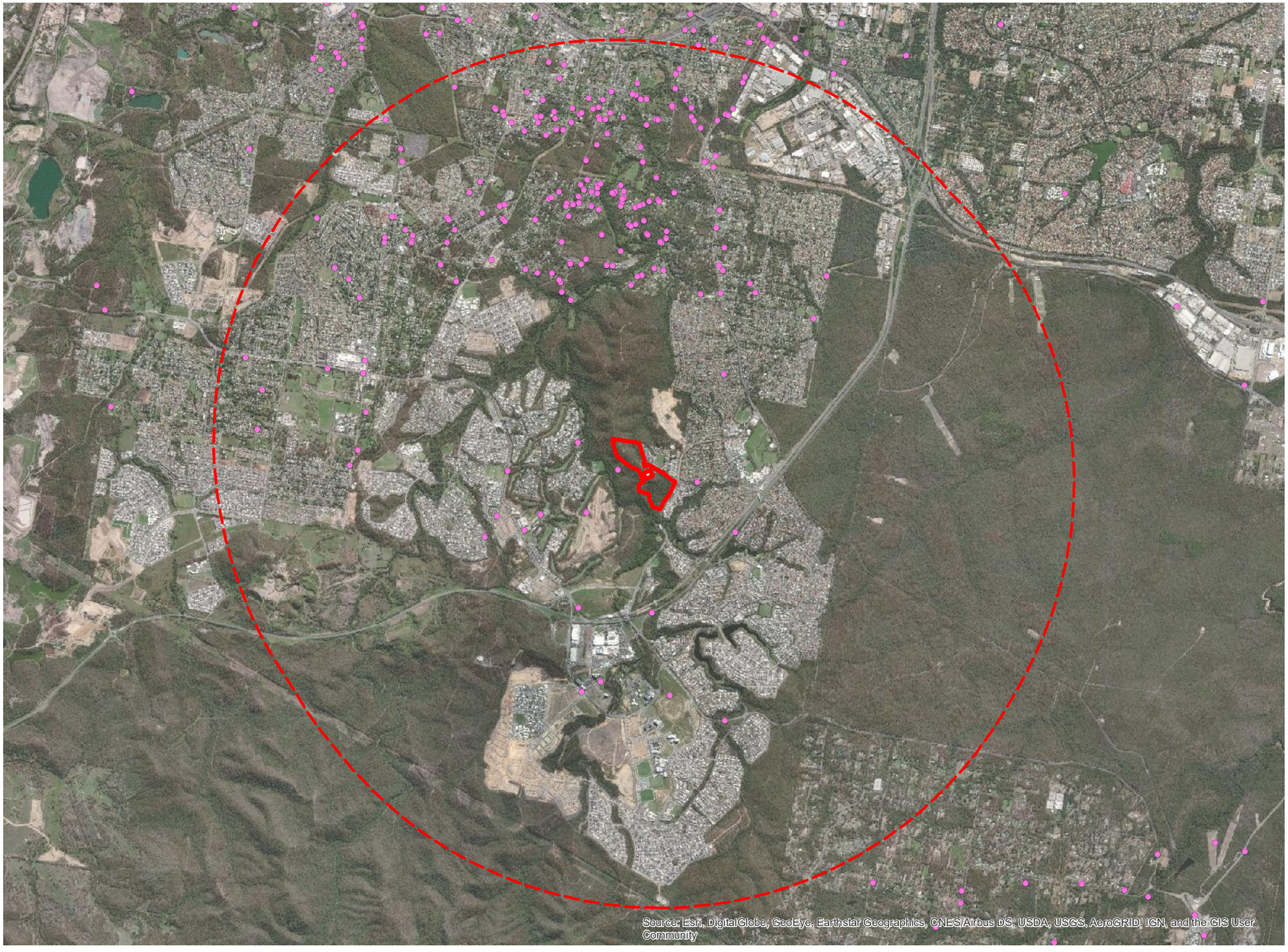
ADDRESS/RPD: Eden Station Drive, Brookwater | 1/04/2020 | 7399 E 06 Contiguous Landscape Analysis A

7. Koala Hospital Incident Locations



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Legend

- Referral Area
- Referral Area 5km buffer
- Koala hospital incidents (232)

Issue	Date	Description	Drawn	Checked
A	1/04/2020	Preliminary	MP	JG

0 620 1,240 1,860 m

Transverse Mercator | GDA 1994 | Zone 56 | 1:48,000 @ A3

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Scenic Precinct

ADDRESS/RPD: Eden Station Drive, Brookwater *1/04/2020* *7399 E 07 Koala Hospital Incident Locations A*

8. EPBC Act Significant Residual Impact and Offset Advice

8.1. Significant Residual Impact Summary

Assessing the proposed action against the *EPBC Significant Impact Guidelines 1.1* and against the *EPBC Act referral guidelines for the vulnerable Koala* determined that the action would have a significant impact on 24.20 ha of habitat critical for the survival of Koala and 24.20 ha of foraging habitat for the GHFF. The project is not considered to have a significant impact on foraging habitat for the Swift Parrot and Regent Honeyeater due to the mobility capacity of the species' and abundance of foraging habitat in close proximity of the site.

The Koala Habitat Assessment Tool provided in the *EPBC Act referral guidelines for the vulnerable Koala* scored the habitat on the referral area **7/10.** As the habitat score is greater than five (5), the site is considered to provide critical habitat for the Koala. As such, the clearing of 24.20 ha of critical Koala habitat is considered to be a significant impact.

8.2. Offset Advice

The proposed action has been determined to have a significant residual impact on 24.20 ha of critical Koala habitat and 24.20 ha of GHFF foraging habitat. As such, an environmental offset in accordance with the *EPBC Act Environmental Offsets Policy* (2012) is deemed necessary. The environmental offset will need to compensate for 100 % of the impact of the proposed action.

9. Conclusion

This ecological assessment has identified matters of national environmental significance (MNES) recorded or predicted to potentially occur on the referral area. It presents the design and mitigation measures employed to avoid and minimise project related impacts to the matters of conservation significance and quantifies the extent of potential residual impacts, principally, limiting disturbance to previously cleared agricultural land.

As the proposed action involves the clearing and functional loss of 24.20 ha of critical habitat for the Koala at a Koala Habitat Assessment Tool score of 7, SHG recommends that the action be referred for an EPBC Act 'controlled action' assessment. Given the analogous alignment of Koala and GHFF habitat, the proposed action will result in the clearing of 24.20 ha of foraging habitat for the GHFF. Further, as the proposed action is considered to have a significant residual impact on critical habitat for the Koala and GHFF foraging habitat, an environmental offset in accordance with the *EPBC Act Environmental Offsets Policy* (2012) is deemed necessary. The environmental offset will need to compensate for 100 % of the impact of the proposed action.

10. Appendices

Appendix A

EPBC Act Protected Matters Search Tool Results

Appendix B

NCA Wildlife Online Search Results

Appendix C

Likelihood of Occurrence Assessment

Appendix D

SAT survey results

Appendix E

Flora and Fauna Species List

Appendix A

EPBC Act Protected Matters Search Tool Results

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created: 02/03/20 10:07:49

Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements

No Image Available

This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

Coordinates
Buffer: 5.0Km

No Image Available

Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	4
Listed Threatened Species:	42
Listed Migratory Species:	16

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	1
Commonwealth Heritage Places:	1
Listed Marine Species:	23
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	1
Regional Forest Agreements:	None
Invasive Species:	34
Nationally Important Wetlands:	1
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar) [Resource Information]

Name	Proximity
Moreton bay	20 - 30km upstream

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may occur within area
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur within area
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community may occur within area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour may occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Cyclopsitta diophthalma coxeni Coxen's Fig-Parrot [59714]	Endangered	Species or species habitat may occur within area
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat likely to occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat known to occur within area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat may occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species

Name	Status	Type of Presence
		habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat likely to occur within area
Insects		
Argynnis hyperbius inconstans Australian Fritillary [88056]	Critically Endangered	Species or species habitat may occur within area
Phyllodes imperialis smithersi Pink Underwing Moth [86084]	Endangered	Species or species habitat may occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat may occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat known to occur within area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Potorous tridactylus tridactylus Long-nosed Potoroo (SE Mainland) [66645]	Vulnerable	Species or species habitat may occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area
Plants		
Bosistoa transversa Three-leaved Bosistoa, Yellow Satinheart [16091]	Vulnerable	Species or species habitat likely to occur within area
Corchorus cunninghamii Native Jute [14659]	Endangered	Species or species habitat may occur within area

Name	Status	Type of Presence
Cupaniopsis shirleyana Wedge-leaf Tuckeroo [3205]	Vulnerable	Species or species habitat may occur within area
Cupaniopsis tomentella Boonah Tuckeroo [3322]	Vulnerable	Species or species habitat likely to occur within area
Cycas ophiolitica [55797]	Endangered	Species or species habitat likely to occur within area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Fontainea venosa [24040]	Vulnerable	Species or species habitat may occur within area
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat likely to occur within area
Macadamia tetraphylla Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut [6581]	Vulnerable	Species or species habitat may occur within area
Notelaea ipsviciensis Cooneana Olive [81858]	Critically Endangered	Species or species habitat may occur within area
Notelaea lloydii Lloyd's Olive [15002]	Vulnerable	Species or species habitat likely to occur within area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat likely to occur within area
Plectranthus habrophyllus [64589]	Endangered	Species or species habitat likely to occur within area
Samadera bidwillii Quassia [29708]	Vulnerable	Species or species habitat likely to occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area
Reptiles		
Delma torquata Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat likely to occur within area
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area
Saiphos reticulatus Three-toed Snake-tooth Skink [88328]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur

Name	Threatened	Type of Presence within area
Migratory Terrestrial Species		
[Cuculus optatus](#) Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
[Hirundapus caudacutus](#) White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
[Monarcha melanopsis](#) Black-faced Monarch [609]		Species or species habitat known to occur within area
[Monarcha trivirgatus](#) Spectacled Monarch [610]		Species or species habitat known to occur within area
[Motacilla flava](#) Yellow Wagtail [644]		Species or species habitat may occur within area
[Myiagra cyanoleuca](#) Satin Flycatcher [612]		Species or species habitat known to occur within area
[Rhipidura rufifrons](#) Rufous Fantail [592]		Species or species habitat known to occur within area
Migratory Wetlands Species		
[Actitis hypoleucos](#) Common Sandpiper [59309]		Species or species habitat may occur within area
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat may occur within area
[Gallinago hardwickii](#) Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
[Numenius madagascariensis](#) Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
[Pandion haliaetus](#) Osprey [952]		Species or species habitat known to occur within area
[Tringa nebularia](#) Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name
Defence - GREENBANK TRAINING AREA

Commonwealth Heritage Places [Resource Information]

Name	State	Status
Natural		
Greenbank Military Training Area (part)	QLD	Listed place

Listed Marine Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Anseranas semipalmata		
Magpie Goose [978]		Species or species habitat may occur within area
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba		
Great Egret, White Egret [59541]		Breeding known to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii		
Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster		
White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus		
White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor		
Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis		
Black-faced Monarch [609]		Species or species

Name	Threatened	Type of Presence
		habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat known to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat likely to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
White Rock	QLD

Invasive Species	[Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat known to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Equus caballus Horse [5]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Cabomba caroliniana Cabomba, Fanwort, Carolina Watershield, Fish		Species or species

Name	Status	Type of Presence
Grass, Washington Grass, Watershield, Carolina Fanwort, Common Cabomba [5171]		habitat likely to occur within area
Chrysanthemoides monilifera		
Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Eichhornia crassipes		
Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Genista monspessulana		
Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to occur within area
Lantana camara		
Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Parkinsonia aculeata		
Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]		Species or species habitat likely to occur within area
Parthenium hysterophorus		
Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii		
Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta		
Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis		
Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area
Solanum elaeagnifolium		
Silver Nightshade, Silver-leaved Nightshade, White Horse Nettle, Silver-leaf Nightshade, Tomato Weed, White Nightshade, Bull-nettle, Prairie-berry, Satansbos, Silver-leaf Bitter-apple, Silverleaf-nettle, Trompillo [12323]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus		
Asian House Gecko [1708]		Species or species habitat likely to occur within area
Ramphotyphlops braminus		
Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi [1258]		Species or species habitat may occur within area

Nationally Important Wetlands	[Resource Information]
Name	State
Greenbank Army Training Area C	QLD

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-27.65784 152.90625

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

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Department of the Environment
GPO Box 787
Canberra ACT 2601 Australia
+61 2 6274 1111

Appendix B

NCA Wildlife Online Search Results

Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point
Species: All
Type: Native
Status: Rare and threatened species
Records: Confirmed
Date: Since 1980
Latitude: -27.6578
Longitude: 152.9062
Distance: 5
Email: amywestman@saundershavill.com
Date submitted: Monday 02 Mar 2020 08:57:23
Date extracted: Monday 02 Mar 2020 09:00:02

The number of records retrieved = 9

Disclaimer

As the DSITIA is still in a process of collating and vetting data, it is possible the information given is not complete. The information provided should only be used for the project for which it was requested and it should be appropriately acknowledged as being derived from Wildlife Online when it is used.

The State of Queensland does not invite reliance upon, nor accept responsibility for this information. Persons should satisfy themselves through independent means as to the accuracy and completeness of this information.

No statements, representations or warranties are made about the accuracy or completeness of this information. The State of Queensland disclaims all responsibility for this information and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Limnodynastidae	*Adelotus brevis*	tusked frog		V		3
animals	birds	Apodidae	*Hirundapus caudacutus*	white-throated needletail		V	V	2
animals	birds	Cacatuidae	*Calyptorhynchus lathami lathami*	glossy black-cockatoo (eastern)		V		2
animals	birds	Strigidae	*Ninox strenua*	powerful owl		V		4
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		V	V	164
plants	land plants	Apocynaceae	*Marsdenia coronata*	slender milkvine		V		5/5
plants	land plants	Lamiaceae	*Coleus habrophyllus*			E	E	13/13
plants	land plants	Myrtaceae	*Eucalyptus curtisii*	Plunkett mallee		NT		5/5
plants	land plants	Myrtaceae	*Melaleuca irbyana*			E		1/1

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.* The codes are Extinct in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ( ).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999.* The values of EPBC are Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Extinct in the Wild (XW) and Vulnerable (V).

Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens).
This number is output as 99999 if it equals or exceeds this value. The second number located after the / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

Appendix C

Likelihood of Occurrence Assessment

Listed TECs

Name	Status	Type of presence	Description of the community/preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community	Endangered	Community likely to occur within area	Coastal Swamp Oak Forest typically occurs on unconsolidated sediments, including alluvium deposits. The canopy layer is dominated by Casuarina glauca (swamp oak, swamp she-oak). This often occurs as a relatively uniform upper layer of swamp oak, with height and density dependent on the local environmental conditions.	Desktop analysis and detailed field surveys confirmed that this TEC does not occur on-site or adjacent to the site.	Low	Low
Lowland rainforest of subtropical Australia	Critically endangered	Community may occur within area	This TEC occurs mainly on basalt and alluvial soils and is characteristic of a low abundance of *Eucalyptus, Melaleuca* and *Casuarina* species. Specimens with buttress roots and a diversity of vines are common throughout this TEC.	Desktop analysis and detailed field surveys confirmed that this TEC does not occur on-site or adjacent to the site.	Low	Low
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community may occur within area	The Poplar Box Grassy Woodland on Alluvial Plains ecological community is typically a grassy woodland with a canopy dominated by *Eucalyptus populnea* and understorey mostly of grasses and other herbs. The ecological community mostly occurs in gently undulating to flat landscapes and occasionally on gentle slopes on a wide range of soil types of alluvial and depositional origin. This TEC is associated with RE11.3.2, RE11.3.17, RE11.4.7, RE11.4.12, and RE12.3.10.	Desktop analysis and detailed field surveys confirmed that this TEC does not occur on-site or adjacent to the site.	Low	Low
White Box-Yellow Box-Blakely's Red Gum Grassy	Critically endangered	Community may occur within area	Box – Gum Grassy Woodlands and Derived Grasslands are characterised by a species-rich understorey of native tussock grasses, herbs and scattered shrubs, and	Desktop analysis and detailed field surveys confirmed that this TEC does	Low	Low

Woodland and Derived Native Grassland			the dominance, or prior dominance, of White Box, Yellow Box or Blakely's Red Gum trees. In Queensland the ecological community is a primary component of the following Regional Ecosystems: 11.8.2a, 11.8.8, 11.9.9a, 13.3.1, 13.11.8, 13.12.8 and 13.12.9. It can also be a smaller component of the following regional ecosystems: 11.3.23, 12.8.16 (only at the far western edge of the bioregion), 13.3.4, 13.11.3 and 13.11.4. These regional ecosystems range in conservation status from 'not of concern at present' to 'endangered'.	not occur on-site or adjacent to the site.		

Listed threatened species

Scientific name	**Common name**	**Status**		**EPBC code**	**Description of preferred habitat**	**Analysis**	**Desktop Likelihood of occurrence (on-site)**	**Field Survey Confirmed Likelihood of occurrence (on-site)**
		National	**QLD**					
Birds								
Anthochaera phrygia	Regent Honeyeater	CE	E	82338	Regent Honeyeaters mostly occur in dry Box-Ironbark Eucalypt woodland and dry sclerophyll forest associations in areas of low to moderate relief, wherein they prefer moister, more fertile sites. These areas are generally associated with creek flats and river valleys and foothills. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes. They are a generalist forager, which mainly feed	Suitable foraging habitat for the Swift Parrot occurs on and adjacent to the subject site. The referral area is dominated by *Corymbia citriodora* (Spotted Gum), while, the Opossum Creek corridor contains a more prominent abundance of suitable species such as *Eucalyptus crebra* (Narrow-leaved Ironbark) and *Eucalyptus tereticornis* (Forest Red Gum). This species has been sighted recently in the	High	High

Scientific name	Common name	Status		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		National	QLD					
					on nectar from a wide range of eucalypts and mistletoes.	Springfield Lakes area and as a result there is a potential for this species to opportunistically forage on-site.		
Botaurus poiciloptilus	Australasian Bittern	E	-	1001	The Australasian Bittern occurs in terrestrial wetlands and, rarely, estuarine habitats, mainly in the temperate south-east and south-west. It favours wetlands with tall dense vegetation, where it forages in still, shallow water up to 0.3 m deep, often at the edges of pools or waterways, or from platforms or mats of vegetation over deep water. It favours permanent and seasonal freshwater habitats, particularly those dominated by sedges, rushes and / or reeds or cutting grass growing over muddy or peaty substrate. The Australasian Bittern occurs in the far south-east of Queensland; it has been reported North to Baralaba and West to Wyandra, although in most years it is probably confined to a few coastal swamps. It is rarely recorded in Queensland, and possibly survives only in protected areas such as the Cooloola and Fraser regions.	There are no wetlands present on-site.	Low	Low

Scientific name	**Common name**	**Status**		**EPBC code**	**Description of preferred habitat**	**Analysis**	**Desktop Likelihood of occurrence (on-site)**	**Field Survey Confirmed Likelihood of occurrence (on-site)**
		National	**QLD**					
Calidris ferruginea	Curlew Sandpiper	CE	E	856	Curlew Sandpipers mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. They are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They occur in both fresh and brackish waters. In Queensland, scattered records occur in the Gulf of Carpentaria, with widespread records along the coast south of Cairns.	No suitable foraging or breeding habitat occurs on-site.	Low	Low
Cyclopsitta diophthalma coxeni	Coxen's Fig Parrot	E	E	59714	The Coxen's Fig Parrot occurs in rainforest habitats including subtropical rainforest, dry rainforest, littoral and developing littoral rainforest, and vine forest. Food is mainly taken from figs however other species fruit have been recorded in their diet including *Elaeocarpus grandis, Syzygium corynanthum, Litsea reticulata* and *Grevillea robusta.*	This site does not contain any rainforest habitat, or species represented in this species diet.	Low	Low

Scientific name	**Common name**	**Status**		**EPBC code**	**Description of preferred habitat**	**Analysis**	**Desktop Likelihood of occurrence (on-site)**	**Field Survey Confirmed Likelihood of occurrence (on-site)**
		National	**QLD**					
Dasyornis brachypterus	Eastern Bristlebird	E	E	533	The Eastern Bristlebird inhabits low dense vegetation in a broad range of habitat types including sedgeland, heathland, swampland, shrubland, sclerophyll forest and woodland, and rainforest. It occurs near the coast, on tablelands and in ranges. The Eastern Bristlebird is found in habitats with a variety of species compositions, but is defined by a similar structure of low, dense, ground or understorey vegetation.	A variety of species compositions is not present on-site therefore it is unlikely the species would occur here.	Low	Low
Erythrotriorchis radiatus	Red Goshawk	V	V	942	A wide ranging and highly mobile species generally observed over eucalypt habitats. This species prefers forest and woodland with a mosaic of vegetation types, large prey populations (birds) and permanent water. The vegetation types include eucalypt woodland, open forest, tall open forest, gallery rainforest, swamp sclerophyll forest and rainforest margins. Habitat has to be open enough for fast attack and manoeuvring in flight, but provide cover for ambushing of prey.	This site does not contain the mosaic of vegetation types that this species favours.	Low	Low

Scientific name	**Common name**	**Status**		**EPBC code**	**Description of preferred habitat**	**Analysis**	**Desktop Likelihood of occurrence (on-site)**	**Field Survey Confirmed Likelihood of occurrence (on-site)**
		National	**QLD**					
Geophaps scripta scripta	Squatter Pigeon (southern)	V	V	64440	This species inhabits open grasslands and woodlands typically with a native understorey although may occur in artificial pasture.	This site does not contain suitable habitat, with a mix of eucalypt woodland with areas that have been highly modified. In addition, the species is very rarely observed in southern Queensland, and thus this species is not expected to occur on-site.	Low	Low
Grantiella picta	Painted Honeyeater	V	V	470	The species inhabits mistletoes in eucalypt forests/woodlands, riparian woodlands of black box and river red gum, box-ironbark-yellow gum woodlands, acacia-dominated woodlands, paperbarks, casuarinas, callitris, and trees on farmland or gardens. The species prefers woodlands which contain a higher number of mature trees, as these host more mistletoes. It is more common in wider blocks of remnant woodland than in narrower strips.	Preferred habitat is not present on-site.	Low	Low
Hirundapus caudacutus	White-throated Needletail	V	-	682	Although they occur over most types of habitat, they are probably recorded most often above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings, below the canopy, but they are less commonly	WildNet records indicate species has previously been recorded on the site, however this record was in the year 1990. No recent sightings have been recorded on the site.	Low	Low

Scientific name	Common name	Status		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		National	QLD					
					recorded flying above woodland. They also commonly occur over heathland, but less often over treeless areas, such as grassland or swamps.			
Lathamus discolor	Swift Parrot	CE	E	744	The Swift Parrot breeds in Tasmania during spring to early summer. During autumn and winter the species migrates to the mainland where it follows a nomadic existence linked to the availability and timing of flowering of trees in various locations.	Suitable foraging habitat for the Swift Parrot occurs on and adjacent to the subject site. The referral area is dominated by *Corymbia citriodora* (Spotted Gum), while, the Opossum Creek corridor contains a more prominent abundance of suitable species such as *Eucalyptus crebra* (Narrow-leaved Ironbark) and *Eucalyptus tereticornis* (Forest Red Gum). This species has been sighted recently in the Springfield Lakes area and as a result there is a potential for this species to opportunistically forage on-site.	High	High
Numenius madagascariensis	Eastern Curlew	CE	E	847	The Eastern Curlew is most commonly associated with sheltered coasts, especially estuaries, bays, harbours, inlets and coastal lagoons, with large intertidal mudflats or sandflats, often with beds of seagrass. Occasionally, the species occurs on ocean beaches (often near estuaries),	No suitable habitat is present on-site.	Low	Low

Scientific name	Common name	Status		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		National	QLD					
					and coral reefs, rock platforms, or rocky islets. The birds are often recorded among saltmarsh and on mudflats fringed by mangroves, and sometimes use the mangroves. The birds are also found in saltworks and sewage farms.			
Pachyptila turtur subantarctica	Fairy Prion (southern)	V		64445	This marine species apparently occurs mainly offshore, but may move inshore during stormy weather.	No suitable foraging or breeding habitat occurs on-site.	Low	Low
Rostratula australis	Australian Painted-snipe	E	V	77037	The Australian Painted Snipe is usually found in shallow inland wetlands, either freshwater or brackish, that are either permanently or temporarily filled. The species has a scattered distribution throughout many parts of Australia, with a single record from Tasmania.	No suitable wetlands occur on-site.	Low	Low
Turnix melanogaster	Black-breasted Button Quail	V	V	923	Typical habitat occurs in dry rainforest and vegetation immediately adjacent to rainforest. However, the species has also been recorded in a variety of low coastal heathlands around Fraser Island and nearby mainland. Deep leaf litter in which the species can forage appears to be particularly favoured.	The site does not contain dry rainforest or vegetation immediately adjacent to rainforest, and no heathlands are present.	Low	Low

Scientific name	Common name	Status		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		National	QLD					
Insects								
Argynnis hyperbius inconstans	Australian Fritillary	CE	E	88056	Most specimens have been collected from river estuaries or swampy coastal areas at or near sea level. The Australian fritillary butterfly is restricted to open, swampy, coastal areas where the larval food plant, *Viola betonicifolia*, grows as a small, insignificant ground herb in association with *Lomandra longifolia* (Long Leaved Matrush) and grasses, especially the grass *Imperata cylindrica* (Bladey Grass). This habitat is called *Melaleuca* wetlands, although the larval food plant does not occur in all sub-types of this plant community.	No suitable coastal habitat was observed throughout the assessment area.	Low	Low
Phyllodes imperialis smithersi	Pink Underwing Moth	E			The Pink Underwing Moth is found below the altitude of 600m in undisturbed, subtropical rainforest. It occurs in association with the vine *Carronia multisepalea*.	No suitable habitat was observed throughout the subject site.	Low	Low
Mammals								
Chalinolobus dwyeri	Large-eared Pied Bat	V	V	183	The Large-eared Pied Bat roosts on sandstone cliffs and fertile woodland valley habitat within close proximity of	No suitable high elevation habitat to support this species occurs on-site.	Low	Low

Scientific name	Common name	Status		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		National	QLD					
					each other. However, in South East Queensland habitat includes rainforest and moist eucalypt forest habitats at high elevations.			
Dasyurus hallucatus	Northern Quoll	E	-	331	The Northern Quoll occupies a diversity of habitats across its range which includes rocky areas, eucalypt forests and woodlands, rainforests, sandy lowlands and beaches, shrubland, grassland and desert. Northern Quoll habitat generally encompasses some form of rocky area for denning purposes with surrounding vegetated habitats used for foraging and dispersal. Eucalypt forest or woodland habitats usually have a high structural diversity containing large diameter trees, termite mounds or hollow logs for denning purposes. Dens are made in rock crevices, tree holes or occasionally termite mounds. Surveys in Queensland suggest that Northern Quolls are more likely to be present in high relief areas that have shallower soils, greater cover of boulders, less fire impact and were closer to permanent water.	No suitable denning habitat to support this species occurs on-site, or in the nearby vicinity.	Low	Low

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		National	**QLD**					
Dasyurus maculatus maculatus	Spot-tailed Quoll	E	V	75184	The Spot-tailed Quoll prefers mature wet forest habitat. Unlogged forest or forest that has been less disturbed by timber harvesting is also preferable. This predominantly nocturnal species rests during the day in dens. Habitat requirements include suitable den sites such as hollow logs, tree hollows, rock outcrops or caves. Individuals require an abundance of food such as birds and small mammals, and large areas of relatively intact vegetation through which to forage.	The site has been subjecting to high levels of disturbance and does not contain wet forest habitat. It is unlikely this species would occur.	Low	Low
Petauroides volans	Greater Glider	V	V	254	The Greater Glider is an arboreal nocturnal marsupial that is mostly restricted to eucalypt forests and woodlands, although it occurs in highest abundance in taller, montane, moist eucalypt forests with abundant (large) hollow-bearing trees for shelter and a variety of eucalypt species for feeding. Diet consists of eucalypt leaves, and occasionally flowers. Small home ranges and low dispersibility make this species sensitive to clearing and fragmentation, with low persistence in small forest fragments.	A variety of eucalypt species occur over site, however, given the historical logging activities of the site, it is unlikely that the site contains a suitable hollow density to support a greater glider population. It should be noted that WildNet records indicate this species has been sighted previously in the Springfield Lakes area.	Moderate	Low

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Petrogale penicillata	Brush-tailed Rock Wallaby	V	V	225	This species prefers rocky habitats, including loose boulder-piles, rocky outcrops, steep rocky slopes, cliffs, gorges and isolated rock stacks. It also utilises tree limbs. While it appears that most Brush-tailed Rock-wallaby colonies are on north-facing slopes and cliff lines, colonies have been found on south-facing cliffs in Kangaroo Valley, in the Macleay River Gorge, in the Warrumbungles and at Mt Kaputar, although usually in lower densities.	The site contains rocky areas which may support this species. However, there are no records of this species in the area.	Low	Low
Phascolarctos cinereus	Koala	V	V	85104	The Koala is found in a range of habitats, from coastal islands and tall eucalypt forests to low woodlands inland.	Suitable Koala habitat is present on-site and Koalas have been known to occur within close proximity to the site. No direct Koala observations were documented during field surveys, however, indirect observations in the form of scats was identified.	Known	Known
Potorous tridactylus tridactylus	Long-nosed Potoroo	V	V	66645	The Long-nosed Potoroo inhabits coastal heaths and dry and wet sclerophyll forests. Dense understorey with occasional open areas is an essential part of habitat, and may consist of grass-trees, sedges, ferns or heath, or of low shrub of	Suitable habitat is not located on-site.	Low	Low

Scientific name	Common name	Status		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		National	QLD					
					tea-trees or melaleucas. A sandy loam soil is also a common feature.			
Pteropus poliocephalus	Grey-headed Flying-fox	V	-	186	Species generally roosts in camps in trees adjacent to larger permanent watercourse. The Grey-headed flying fox requires foraging resources and roosting sites. It is a canopy-feeding frugivore and nectarivore, which utilises vegetation communities including rainforests, open forests, closed and open woodlands, Melaleuca swamps and Banksia woodlands. It also feeds on commercial fruit crops. The primary food source is blossom from Eucalyptus and related genera.	While suitable foraging vegetation occurs on-site, the species was not seen utilising this vegetation. In addition, there was no observed roosts on site, with the nearest known roost site located in Pilney Reserve (Barbara Street), 3.6 km north-east.	High	High
Plants								
Bosistoa transversa	Three-leaved Bosistoa	V	-	16091	The Three-leaved Bosistoa is conserved within Mt Warning National Park, Numbinbah Nature Reserve, Limpinwood Nature Reserve and Whian Whian State Forest. While population information is unavailable, it is thought to be common in its range. It generally grows in wet sclerophyll forest, dry sclerophyll forest and rainforest up to 3oo metres in	Rainforest/wet forest and the species that the Three-leaved Bosistoa is commonly associated with were not located on site.	Low	Low

Scientific name	Common name	Status		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		National	QLD					
					altitude. It is commonly associated with *Argyrodendron trifoliolatum, Syzygium hodgkinsoniae, Endiandra pubens, Dendrocnide photinophylla, Acmena ingens, Diploglottis australis and Diospyros mabacea*.			
Corchorus cunninghamii	Native Jute	E	E	14659	The Native Jute occurs in the ecotone of wet sclerophyll forest and dry to dry-subtropical rainforest (e.g. araucarian microphyll vine forest), and in Hoop Pine (*Araucaria cunninghamii*) plantations. It often occurs on hill crests, exposed slopes, ridges or upper slopes of hilly terrain on south or south-east. It also occurs on sheltered slopes, gullies and on lower slopes, depending on the topographic position of the sclerophyll-rainforest margin.	Preferred habitat not present on-site.	Low	Low
Cupaniopsis shirleyana	Wedge-leaf Tuckeroo	V	V	3205	The Wedge-leaf Tuckeroo occurs in a variety of dry rainforest vegetation types, including vine thicket communities on hillsides, stream beds and along riverbanks at altitudes up to 550 m above sea level. This species is also likely to occur on the margins of native vegetation in	Preferred habitat not present on-site.	Low	Low

Scientific name	Common name	Status		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		National	QLD					
					scrubby urbanised areas. Predominately found on dark brown sandy loams and sandy clay loams (pH 5-7.5) and rocky scree slopes. Generally, these soils have formed from volcanic parent materials (mainly granites and granodiorites, basalt and andesitic flows, and pyroclastics).			
Cupaniopsis tomentella	Boonah Tuckeroo	V	V	3322	No description available.	Little is known about species' habitat and distribution. Unlikely to occur on-site in a highly disturbed eucalypt woodland.	Low	Low
Cycas ophiolitica		E	E	55797	*Cycas ophiolitica* grows on hills and slopes in sparse, grassy open forest at altitude ranges from 80–400 m above sea level. Although this species reaches its best development on red clay soils near Marlborough, it is more frequently found on shallow, stony, infertile soils, which are developed on sandstone and serpentinite, and is associated with species such as *Corymbia dallachiana, C. erythrophloia, C. xanthope* and *Eucalyptus fibrosa*. *Cycas ophiolitica* has also been found on mudstone in association with *Corymbia dallachiana, C. erythrophloia* and *Eucalyptus crebra*, and on alluvial loams	Preferred habitat is not present on-site except for areas associated with Land Zone 10. Preferred associated species not present.	Low	Low

Scientific name	Common name	Status		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
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					with *Corymbia intermedia*, *Eucalyptus drepanophylla* and *E. tereticornis*.			
Dichanthium setosum	Bluegrass	V	-	14159	In Queensland, bluegrass has been reported from the Leichhardt, Morton, North Kennedy and Port Curtis regions. *Dichanthium setosum* is associated with heavy basaltic black soils and stony red-brown hardsetting loam with clay. It can be found in moderately disturbed areas such as cleared woodland, grassy roadside remnants, grazed land and highly disturbed pasture. The extent to which this species tolerates disturbance is unknown.	There are no local records of this species within the Queensland Wildlife Online sightings data, with the closest sighting in the Toowoomba and surrounds. This species is unlikely to occur on-site due to lack of suitable conditions.	Low	Low
Eucalyptus curtisii	Plunkett Mallee	-	NT	-	Has two growth forms that occur in different habitats. The shorter mallee form is more likely to occur as the only eucalypt species on poorly drained lowland sites in shrubland dominated by banksia, with an understorey of heath plants, and sometimes *E. conglomerata* may also be present. The larger growth form occurs as scattered individuals on better drained soils in the more open areas of mixed eucalypt forests. Commonly associated	Species has highly specific habitat requirements which are unlikely to be met on-site. Species has not been recorded on or near the site previously.	Low	Low

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		National	QLD					
					species include *Corymbia citriodora subsp. variegata*, *C. trachyphloia* and *Callitris endlicheri*, less commonly associated with *E. fibrosa, E. planchoniana* and *E. acmenoides. E. curtisii* occurs on sandy podsoils with impeded drainage, shallow stony soils, clay loams and stony clays with a surface layer of loose stones			
Fontainea venosa		V	V	24040	Occurs in notophyll vine forest and vine thicket with a mean annual rainfall of 1000-1100 mm on soils derived from and containing abundant andesitic rocks, often on rocky outcrops or along creeks.	Suitable habitat not present on-site.	Low	Low
Macadamia integrifolia	Macadamia Bush	V		7326	The Macadamia Nut grows in remnant rainforest. It prefers to grow in mild frost-free areas with reasonably high rainfall. Vegetation communities range from notophyll mixed forest, extremely tall closed forest, simple notophyll mixed very tall closed forest to simple microphyll-notophyll mixed mid-high closed forest with Araucaria and Argyrodendron emergents.	No suitable habitat to support this species occurs on-site.	Low	Low

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Macadamia tetraphylla	Rough-shelled Bush Nut	V			This species generally occurs in subtropical rainforest and complex notophyll vineforest, at the margins of the forests and mixed sclerophyll forest. It occurs in restricted habitat, growing on moderate to steep hillslopes on alluvial soils at well drained sites.	No suitable habitat to support this species occurs on-site.	Low	Low
Marsdenia coronata	Slender Milkvine		V		Restricted to south-east Queensland where it commonly grows in rainforest or moist areas of open forest, especially in eucalypt forest. It has been observed on rainforest margins. Also recorded from an area of natural grassland on the top of Mt Kandanga, Imbil State Forest	Preferred habitat is not located on-site.	Low	Low
Melaleuca irbyana	Swamp Tea-tree	-	E	-	Grows in flat areas that are periodically waterlogged, in eucalypt forest, mixed forest and Melaleuca woodland with a sparse and grassy understorey. It grows on poorly draining, heavy clay soils.	Preferred habitat is not located on-site. In addition, *M. irbyana* woodland in which this species is typically found is not known to be present on-site.	Low	Low
Notelaea ipsviciensis	Cooneana Olive	CE	E	81858	The Cooneana Olive survives as an understorey plant in degraded, eucalypt dominated dry sclerophyll vegetation communities. Soils in the area are of low fertility, depauperate and sandstone-based. This species prefers open	Site is outside of known species range.	Low	Low

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		National	QLD					
					woodland communities with open canopies. The known population is adjacent to subdivided, modified and developed land.			
Notelaea lloydii	Lloyd's Olive	V	V	15002	The species occurs on undulating to hilly terrain either in moist gullies or on gentle to steep dry slopes, but is rarely found on rocky outcrops. Soil types are mostly shallow, well drained and stony to very rocky in texture. Found in the ecotone between eucalypt open forests and vine thickets at 80-480 m above sea level (asl).	No suitable habitat to support this species occurs on-site.	Low	Low
Phaius australis	Lesser Swamp-orchid	E		5872	The Lesser Swamp-orchid is commonly associated with coastal wet heath/sedge land wetlands, swampy grassland or swampy forest and often where Broad-leaved Paperbark or Swamp Mahogany are found. Typically, the Lesser Swamp-orchid is restricted to the swamp-forest margins, where it occurs in swamp sclerophyll forest (Broad-leaved Paperbark/Swamp Mahogany/Swamp Box (*Lophostemon suaveolens*), swampy rainforest (often with sclerophyll emergent), or fringing open forest. It is	Suitable habitat to support this species is absent from site.	Low	Low

Scientific name	**Common name**	**Status**		**EPBC code**	**Description of preferred habitat**	**Analysis**	**Desktop Likelihood of occurrence (on-site)**	**Field Survey Confirmed Likelihood of occurrence (on-site)**
		National	**QLD**					
					often associated with rainforest elements such as Bangalow Palm (*Archontophoenix cunninghamiana*) or Cabbage Tree Palm (*Livistona australis*).			
Coleus habrophyllus *(Plectranthus habrophyllus)*		E	E	64589	Plants have been recorded growing on chert or sandstone outcrops, in open woodlands often in shaded situations near vine forest. Seven populations are known including: Oxley Creek, Greenbank; Opposum Creek, Springfield; Woogaroo Creek, Goodna; three populations within White Rock Conservation Park, incorporating Six Mile Creek Conservation Park near Ormeau (south of Beenleigh).	This species requires niche habitat requirements such a rocky outcrop, limited to no weeds with a relatively undisturbed understorey and shaded location. The population situated on Mountain Creek to the south of the subject site is located on a rocky outcrop facing south-east and contains limited to no weed incursion.	High	Moderate
Samadera bidwillii	Quassia	V	V	29708	Quassia commonly occurs in lowland rainforest or on rainforest margins, but it can also be found in other forest types, such as open forest and woodland. Quassia is commonly found in areas adjacent to both temporary and permanent watercourses in locations up to 510 m altitude. The species occurs on lithosols, skeletal soils, loam soils, sands, silts and sands with clay subsoils.	This species favours lowland rainforest or rainforest margins which are absent from the site, and no local records exist.	Low	Low

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Thesium australe	Austral Toadflax	V	V		Austral Toadflax is semi-parasitic on the roots of a range of grass species, notably *Themeda triandra* (Kangaroo Grass). It occurs in shrubland, grassland or woodland, often on damp sites.	No suitable habitat to support this species occurs on-site.	Low	Low
Reptiles								
Delma torquata	Collared Delma	V	V	1656	In general, the species occurs on rocky hillsides on basalt and lateritic soils supporting open eucalypt and Acacia woodland with a sparse understorey of shrubs and tussocks or semi-evergreen vine thicket.	Rocky hillsides present, however, no records exist for this species in the area.	Low	Low
Furina dunmalli	Dunmall's Snake	V	V	59254	Dunmall's Snake has been found in a broad range of habitats, including forests and woodlands on black alluvial cracking clay and clay loams dominated by Brigalow other Wattles, native Cypress or Bull-oak, and various Blue Spotted Gum, Ironbark, White Cypress Pine and Bull oak open forest and woodland associations on sandstone derived soils. Dunmall's Snake occurs primarily in the Brigalow Belt region in the south-eastern interior of Queensland. Records indicate sites at elevations between 200–500 m above sea	No suitable habitat to support this species occurs on-site.	Low	Low

Scientific name	Common name	Status		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		National	QLD					
					level. The snake is very rare or secretive with limited records existing. It has been recorded at Archokoora, Oakey, Miles, Glenmorgan, Wallaville, Gladstone, Lake Broadwater, Mount Archer, Exhibition Range National Park, roadside reserves between Inglewood and Texas, Rosedale, Yeppoon and Lake Broadwater Conservation Park.			
Saiphos reticulatus	Three-toed Snake-tooth Skink	V	-	88328	Found mostly in closed forest and possibly open layered Eucalyptus forest. Generally recorded in moist layered forest on loamy basaltic soils, but also found in closed forest overlying silica sand dunes at Cooloola. Within forests, this species is found in well-mulched, loose, friable rainforest soil in leaf litter, often immediately adjacent to fallen tree trunks. Much of the lowland closed forest within its range has been cleared for agriculture and grazing, pasture improvement, crop production, tropical fruit production, and native forest logging. Suitable habitat has generally been reduced to patches, especially in lowland areas.	No suitable habitat to support this species occurs on-site.	Low	Low

Listed migratory species (not listed above)

Scientific name	**Common name**	**EPBC code**	**Description of preferred habitat**	**Analysis**	**Desktop Likelihood of occurrence (on-site)**	**Field Survey Confirmed Likelihood of Occurrence**
Migratory marine birds						
Apus pacificus	Fork-tailed Swift	678	This species is almost exclusively aerial and mostly occur over inland plains but sometimes above foothills or in coastal areas.	No suitable habitat to support this species occurs on-site.	Low	Low
Migratory terrestrial species						
Cuculus optatus	Oriental Cuckoo	86651	Non-breeding habitat only: monsoonal rainforest, vine thickets, wet sclerophyll forest or open Casuarina, Acacia or Eucalyptus woodlands. Frequently at edges or ecotones between habitat types.	No suitable habitat to support this species occurs on-site.	Low	Low
Monarcha melanopsis	Black-faced Monarch	609	The Black-faced Monarch mainly occurs in rainforest ecosystems, including semi-deciduous vine thickets, complex notophyll vine forests, tropical (mesophyll) rainforest, subtropical (notophyll) rainforest, mesophyll (broadleaf) thicket/shrubland, warm temperate rainforest, dry (monsoon) rainforest and occasionally cool temperate rainforest.	No suitable habitat to support this species occurs on-site.	Low	Low
Monarcha trivirgatus	Spectacled Monarch	610	The Spectacled Monarchs natural habitats are subtropical or tropical moist lowland forests, subtropical or tropical mangrove forests, and subtropical or tropical moist montane forests. Its preference is for thick understorey areas.	No suitable habitat to support this species occurs on-site.	Low	Low
Motacilla flava	Yellow Wagtail	644	This species occupies a range of damp or wet habitats with low vegetation, from damp meadows, marshes,	No suitable habitat to support this species occurs on-site.	Low	Low

Scientific name	Common name	EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of Occurrence
			waterside pastures, sewage farms and bogs to damp steppe and grassy tundra.			
Myiagra cyanoleuca	Satin Flycatcher	612	Satin Flycatchers inhabit heavily vegetated gullies in eucalypt dominated forests and taller woodlands, and on migration occur in coastal forests, woodlands, mangroves and drier woodlands and open forests.	No suitable habitat to support this species occurs on-site.	Low	Low
Rhipidura rufifrons	Rufous Fantail	592	The Rufous fantail mainly inhabits wet sclerophyll forests, often in gullies dominated by Eucalypts such as *Eucalyptus microcorys*, *Eucalyptus pilularis*, *Eucalyptus resiniferia* and a number of other Eucalyptus species.	WildNet records indicate species has been previously observed in Springfield Lakes area.	Moderate	Low
Migratory wetland species						
Actitis hypoleucos	Common Sandpiper	59309	The Common Sandpiper utilises a wide range of coastal wetlands and some inland wetlands, including estuaries and deltas of streams, banks farther upstream; around lakes, pools, billabongs, reservoirs, dams and clay pans, and occasionally piers and jetties. They are mostly found in shallow water, around muddy margins or rocky shores and sometimes in muddy areas littered with rocks or snags. The species commonly utilises mangroves for foraging and roosting but is rarely seen on mudflats.	No suitable foraging or breeding habitat occurs on-site.	Low	Low
Calidris acuminata	Sharp-tailed Sandpiper	874	In Australia, the Sharp-tailed Sandpiper prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh, and beach cast algae / seaweed or other low vegetation. This	No suitable foraging or breeding habitat occurs on-site.	Low	Low

Scientific name	Common name	EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of Occurrence
			includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline salt lakes inland. They also occur in salt works and sewage farms. They use flooded paddocks, sedgelands and other ephemeral wetlands, but leave when they dry. They use intertidal mudflats in sheltered bays, inlets, estuaries or seashores, and also swamps and creeks lined with mangroves.			
Calidris melanotos	Pectoral Sandpiper	858	The Pectoral Sandpiper prefers shallow fresh to saline wetlands. The species is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands. Occasionally found further inland.	No suitable foraging or breeding habitat occurs on-site.	Low	Low
Gallinago hardwickii	Latham's Snipe	863	Latham's Snipe occurs in permanent and ephemeral wetlands. They usually inhabit open, freshwater wetlands with low, dense vegetation.	No suitable foraging or breeding habitat occurs on-site.	Low	Low
Pandion haliaetus	Osprey	952	Eastern Ospreys occur in littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands. They are mostly found in coastal areas but occasionally travel inland along major rivers.	No suitable foraging or breeding habitat occurs on-site.	Low	Low
Tringa nebularia	Common Greenshank	832	The Common Greenshank is found in a wide variety of inland wetlands and sheltered coastal habitats of varying salinity. The species is known to forage at the edges of wetlands in soft mud or mudflats.	No suitable foraging or breeding habitat occurs on-site.	Low	Low

Appendix D

SAT survey results

Appendix E

Flora and Fauna Species List

Native Flora Species:

Scientific Name	Common Name
Acacia concurrens	Black wattle
Acacia disparrima	Hickory Wattle
Acacia fimbriata	Brisbane Wattle
Acacia leiocalyx	Early Black Wattle
Acacia salicina	Sally Wattle
Adiantum atroviride	Maidenhair Fern
Allocasuarina littoralis	Black She-oak
Alloteropsis semialata	Cockatoo Grass
Alphitonia excelsa	Soap Tree
Angophora leiocarpa	Smooth-barked Apple
Angophora subvelutina	Broad-leaved Apple
Aristida vagans	Threeawn Speargrass
Breynia oblongifolia	Coffee Bush
Cassinia laevis	Cough Bush
Cassytha pubescens	Dodder Laurel
Cheilanthes distans	Bristle Cloak Fern
Chrysocephalum apiculatum	Yellow Buttons
Corymbia citriodora	Spotted Gum
Corymbia intermedia	Pink Bloodwood
Corymbia tessellaris	Moreton Bay Ash
Cymbopogon refractus	Barbed Wire Grass
Dianella caerulea	Blueberry Lilly
Dianella nervosa	Blue Lilly
Dockrillia linguiformis	Tongue Orchid
Dodonaea viscosa	Hop Bush
Eremophia debilis	Winter Apple
Eucalyptus acmenoides	White Mahogany
Eucalyptus carnea	Broad-leaved White Mahogany
Eucalyptus crebra	Narrow-leaved Ironbark
Eucalyptus fibrosa	Broad-leaved Red Ironbark

Eucalyptus grandis	Flooded Gum
Eucalyptus major	Grey Gum
Eucalyptus microcorys	Tallowwood
Eucalyptus moluccana	Gum-topped Box
Eucalyptus propinqua	Grey Gum
Eucalyptus resinifera	Red Stringybark
Eucalyptus seeana	Narrow-leaved Red Gum
Eucalyptus tereticornis	Forest Red Gum
Eustrephus latifolius	Wombat Berry
Gahnia aspera	Saw Sedge
Geitonoplesium cymosum	Scrambling Lilly
Glochidion ferdinandi	Cheese Tree
Glycine tabacina	Slender Glycine
Goodenia rotundifolia	Star Goodenia
Grevillea robusta	Silky Oak
Grevillea sp.	
Hardenbergia violacea	Native Sarsaparilla
Heteropogon contortus	Black Speargrass
Hybanthus stellarioides	Spade Flower
Imperata cylindrica	Blady Grass
Jacksonia scoparia	Dogwood
Jagera pseudorhus	Foambark
Juncus sp.	Rushes
Lepidosperma laterale	Variable Swordsedge
Leptospermum sp.	
Lobelia purpurascens	White Root
Lomandra longifolia	Long-leaved Matrush
Lomandra multiflora	Many Flowered Mat Rush
Lophostemon confertus	Brush Box
Lophostemon suaveolens	Swamp Box
Melia azedarach	White Cedar
Melichrus procumbens	Jam Tarts
Ottochloa gracillima	Graceful Grass

Parsonsia straminea	Monkey Rope Vine
Petalostigma pubescens	Quinine Bush
Platycerium bifurcatum	Elkhorn
Plectranthus parviflorus	Cockspur Flower
Poa labillardieri	Tussock Grass
Pteridium esculentum	Bracken Fern
Pyrrosia confluens	Robber Fern
Schefflera actinophylla	Umbrella Tree
Smilax australis	Barbed-wire Vine
Themeda triandra	Kangaroo Grass
Trema tomentosa	Poison Peach
Wahlenbergia gracilis	Small-Flowered Bluebell
Xanthorrhoea sp.	Grass Tree

Introduced Flora Species List

Scientific Name	Common Name
Ageratina adenophora	Crofton Weed
Ageratina riparia	Mistflower
Ageratum houstonianum	Blue Billygoat Weed
Ambrosia artemisiifolia	Annual Ragweed
Asparagus africanus	Climbing Asparagus Fern
Baccharis halimifolia	Groundsel
Bidens pilosa	Cobblers Pegs
Celtis sinensis	Chinese Elm
Chloris gayana	Rhodes Grass
Chloris virgata	Feathertop Rhodes Grass
Cinnamomum camphora	Camphor Laurel
Cirsium vulgare	Spear Thistle
Commelina diffusa	Wandering Jew
Conyza bonariensis	Flaxleaf Fleabane
Crassocephalum crepidioides	Thickhead
Cyanthillium cinereum	Vernonia
Delonix regia	Poinciana
Desmodium uncinatum	Silver-leaf Desmodium
Duranta erecta	Duranta
Gomphocarpus physocarpus	Balloon Cotton Bush
Hypochaeris radicata	Flatweed
Ipomoea cairica	Mile-a-minute
Lantan a camara	Lantana
Lantana montevidensis	Creeping Lantana
Leucaena leucocephala	Leucaena
Megathyrsus maximus	Guinea Grass
Melinis repens	Red Natal Grass
Nephrolepis cordifolia	Fishbone Fern
Ochna serrulata	Ochna
Opuntia stricta	Prickly Pear

Oxalis corniculata	Creeping Oxalis
Paspalum dilatatum	Paspalum Grass
Paspalum mandiocanum	Broad-leaved Paspalum
Passiflora foetida	Stinking Passionflower
Passiflora suberosa	Corky Passion Vine
Passiflora subpeltata	White Passionfruit
Pinus elliottii	Slash Pine
Psidium guajava	Guava
Schinus terebinthifolius	Broad-leaf Pepper Tree
Senecio madagascariensis	Fireweed
Senna pendula	Easter Cassia
Seteria sphacelata	Setaria
Sida cordifolia	Flannel Weed
Solanum mauritianum	Wild Tobacco Tree
Solanum seaforthianum	Brazilian Nightshade
Solanum torvum	Devils Fig
Sporobolus pyramidalis	Rat's Tail Grass
Syagrus romanzoffianum	Cocos Palm
Tagetes minuta	Stinking Roger
Tecoma stans	Yellow Bells
Themeda quadrivalvis	Grader Grass
Tradescantia fluminensis	Wandering Jew

Fauna Species List

Scientific Name	**Common Name**
Coracina novaehollandiae	Black-faced Cuckoo-shrike
Corvus orru	Torresian Crow
Coturnix ypsilophora	Brown Quail
Cracticus torquatus	Grey Butcherbird
Dacelo novaeguineae	Laughing Kookaburra
Dendrelaphis punctulata	Common Tree Snake
Eopsaltria australis	Eastern Yellow Robin
Gymnorhina tibicen	Australian Magpie
Lepus europaeus	Hare
Macropus agilis	Agile Wallaby
Macropus giganteus	Eastern Grey Kangaroo
Malurus cyaneus	Superb Fairy-wren
Malurus melanocephalus	Red-backed Fairy Wren
Manorina melanocephala	Noisy Minor
Merops ornatus	Rainbow Bee-eater
Milvus migrans	Black Kite
Myzomela sanguinolenta	Scarlet Honeyeater
Philemon corniculatus	Noisy Friarbird
Rhipidura fuliginosa	Grey Fantail
Rhipidura leucophrys	Willie Wagtail
Smicrornis brevirostris	Weebill
Taeniopygia bichenovii	Double-barred Finch
Trichoglossus chlorolepidotus	Scaly-breasted Lorikeet
Trichoglossus haematodus	Rainbow Lorikeet

Attachment A4

Wildlife Aerial Thermal Imagery Analysis

Wildlife Aerial Thermal Survey

Introduction

Saunders Havill Group were tasked with spotting *Petauroides volans* (Greater Glider). The following steps were undertaken in the preparation of this document.

1. Flight Planning
2. Field Data Collection
3. Desktop Processing
4. Survey Results

Details of the methodology undertaken for each of these phases is provided below.

I. Flight Planning and Approvals

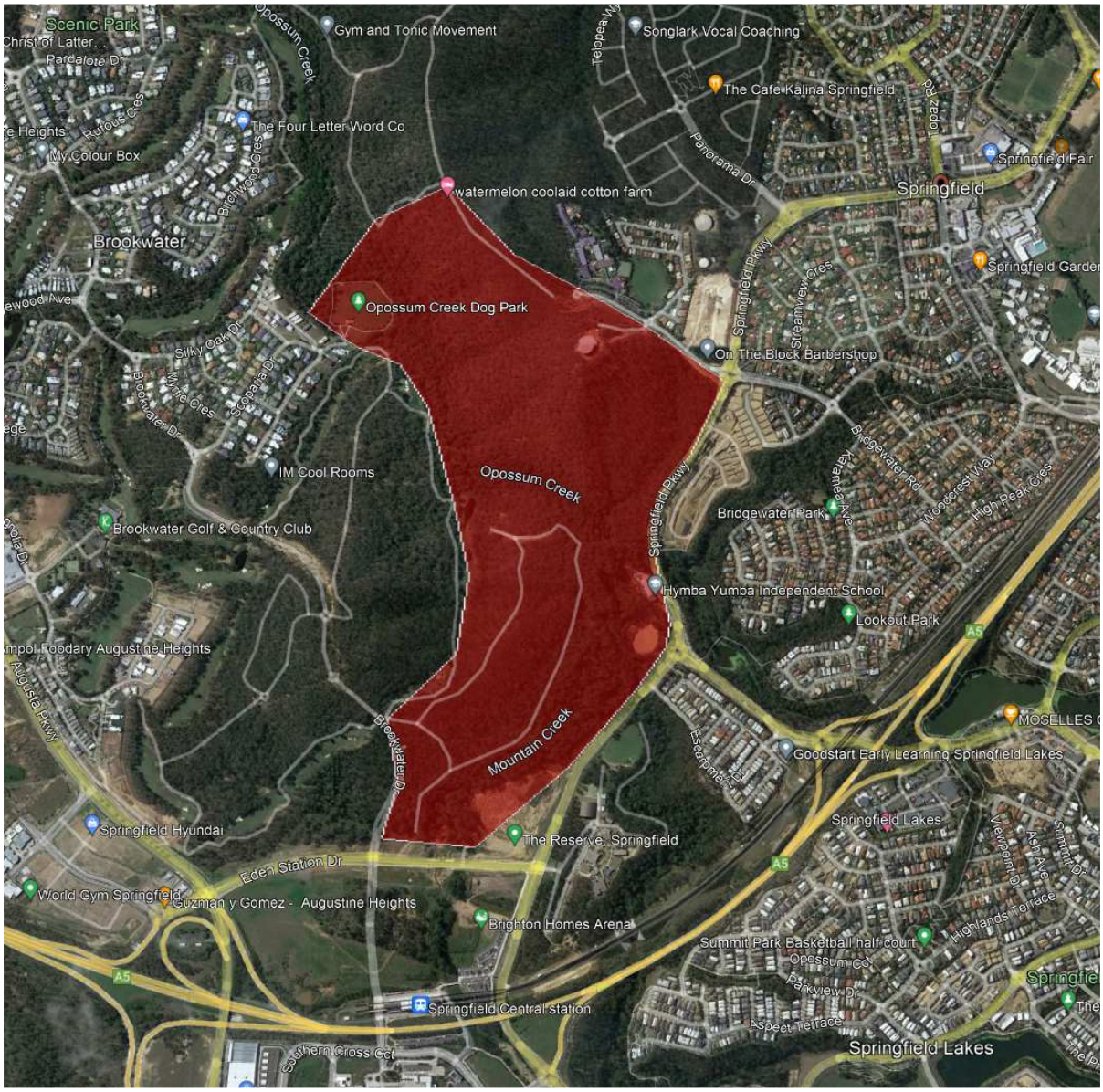
A detailed site assessment was conducted across the project area to identify suitability for Greater Glider thermal sensor spotting. Items included airspace, landfall and vegetation mass to determine suitability. Additional elements of influence regarding safe and successful flight also included risk management factors, CASA air laws and regulations and RPA standard operating procedures that may influence outcomes. The following stages were undertaken:

- CASA compliance
- Airspace validation
- Weather check
- Day time Site assessment
- Risk Assessment
- Flight approvals

2. Field data collection

2.1. Site information

Location	Eden Station, Springfield QLD
Local Goverment	Ipswich Council
Topography	Undulating Terrain
Land/Property Access	YES
Site Manager	Brett Wilson, Springfield City Group
Site Stage	Investigation
Area	100 ha (site Specific)



2.2. Flight information

The project was divided into 4 flight areas due to terrain and ability to keep the RPA within line of sight.

RP *Remote pilot locations / Take off and Landing Area*
ALT *Alternative Landing Sites*

Site assessment flight was performed during daylight conditions prior to surveying each project area to establish flight paths for RPA, assess terrain for obstacles and areas of possible interference.

Wildlife survey was conducted during night-time (7PM-2AM) to fully utilize the thermal sensor. With this method we were able to search areas otherwise obstructed by vegetation by targeting heat signatures.
A combination of Autonomous flight and Manual RPA operation was used to undertake this thermal wildlife survey.
A waypoint mission was planned within DJ Pilot 2, software integrated into DJI remote controller used to operate DJI M300RTK.
Continuous visual monitoring of screen displaying the thermal video feed from the sensor was used as a primary detection method.
When suspicious thermal signature was detected, the RPA was put into “hover mode” to maintain position without further outputs from the pilot.
Thermal and RGB still images were captured for further analysis during the desktop processing.
After confirming the features of the image to be wildlife, several still images were taken to capture the subject from different angles. Direct overhead still image was also captured to provide GPS location.
After performing the capture, the pilot resumed automated flight along the predetermined flight path.
Frequent stops were necessary to observe for suspicious thermal signatures (other than target species) and assess whether closer inspection is necessary. (ie. Fast moving heat signatures could be classified as hare, making a closer inspection unnecessary).
Each flight was limited by RPA battery power. After each landing to reload charged batteries, the RPA would autonomously return to the last break point in the flight and resume the survey.
A thermal and RGB video was also captured for each flight.

Flight line direction	North to South (adjusted to site specifics)
Flight line overlap (side)	40% (Survey line width +/- 25 meters)
Survey altitude (AGL)	45-65m AGL
Inspection altitude (AGL)	20-30m AGL
Detection method (a)	Hot spot alert
Detection method (b)	Shape detection
Detection method (c)	Characteristic trait
Detection method (d)	Visual inspection
Total flight area	100 ha
Initial site inspection	7 September 2023
Flight dates 1	13 September 2023 (Flights aborted due to rain)
Flight dates 2	20 September 2023
Total Flights	18

2.3. Equipment information

RPA	DJI M300 RTK
Payload 1 Sensor	DJI H20T
Payload 2 Spotlight	Gl60+
Software	DJI Pilot 2

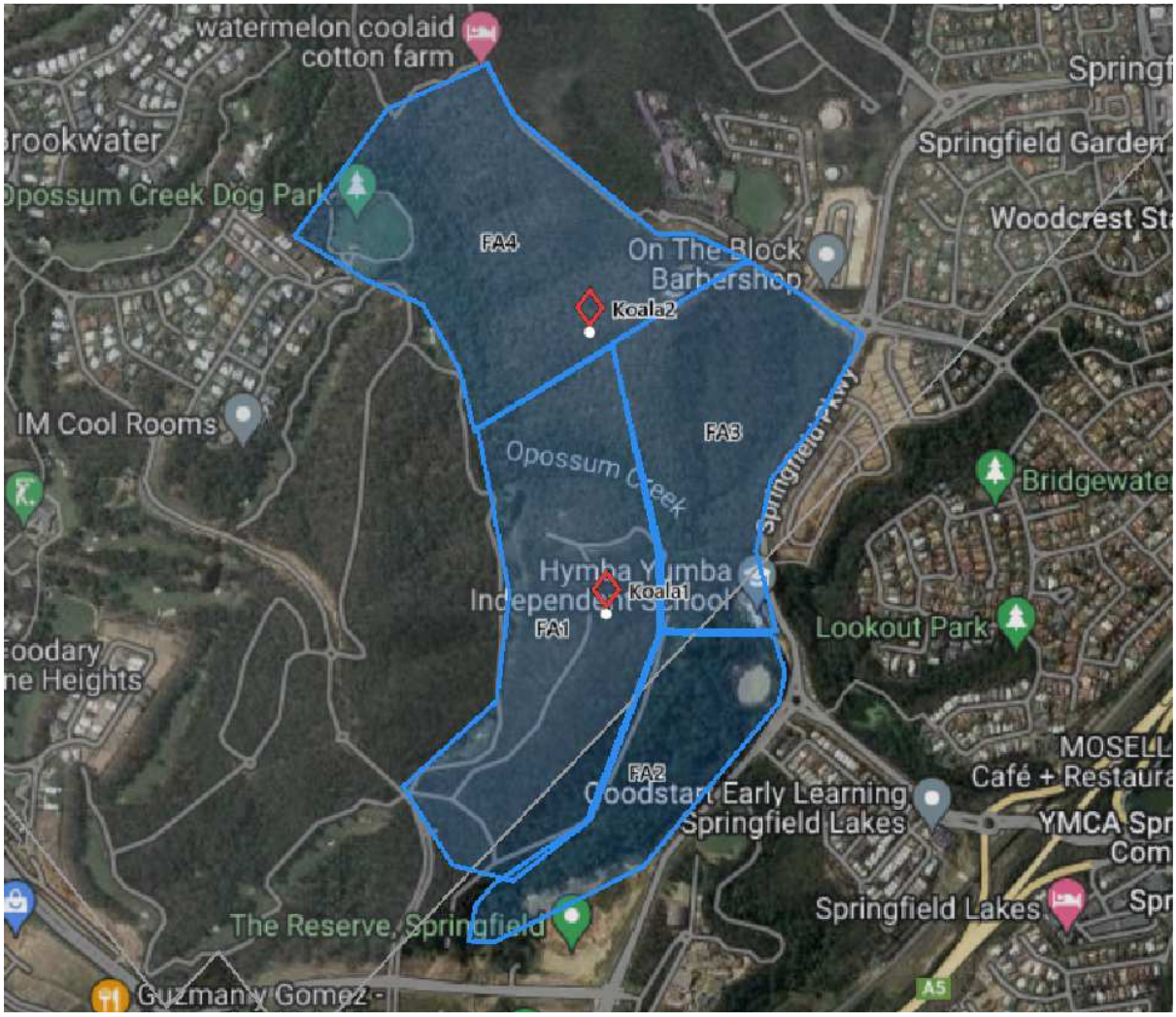
RPA	DJI M100
Payload 1 Sensor	DJI Zenmuse XT FLIR
Software	DJI Go

3. Desktop Processing

All survey data was captured onto SD card that is inserted into the RPA's sensor.

Each image that was captured directly overhead of target species is viewed and GPS coordinates from the image are used to create annotations for each finding.

A data set with all annotations is than exported as a KML file.



4. Survey Results

The aerial survey found several wildlife species within the entire project area. No target Species (Glider Greater) were detected.

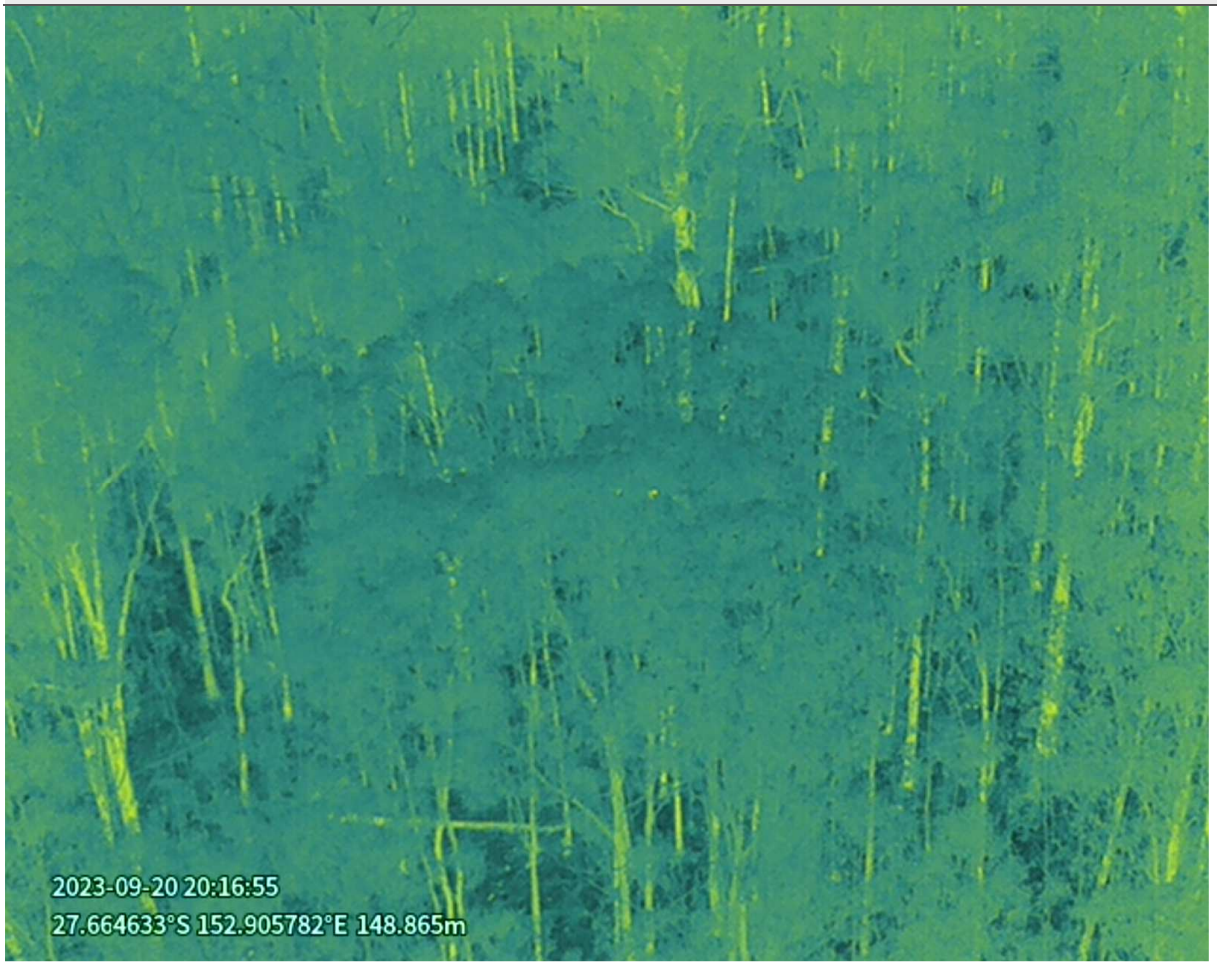
Subjects were confirmed whilst airborne using several techniques including visual inspection, statistical temperature evaluation/alert, characteristic behavioural traits and fauna type investigation methods. Whilst every effort is made to confirm species and location, it is noted that some species were difficult to identify due to position in vegetation and uncharacteristic behaviour.

4.I. Detection Evidence Examples

Example type 1 (Bat)	Raw Jpeg-R Thermal at distance as approaching (in flight video example). Standard in flight observation is in white hot and or black hot pallet with Isothermal properties activated. This allows the sensor to only show colour heat reflectance returns which isolate targets in the area.

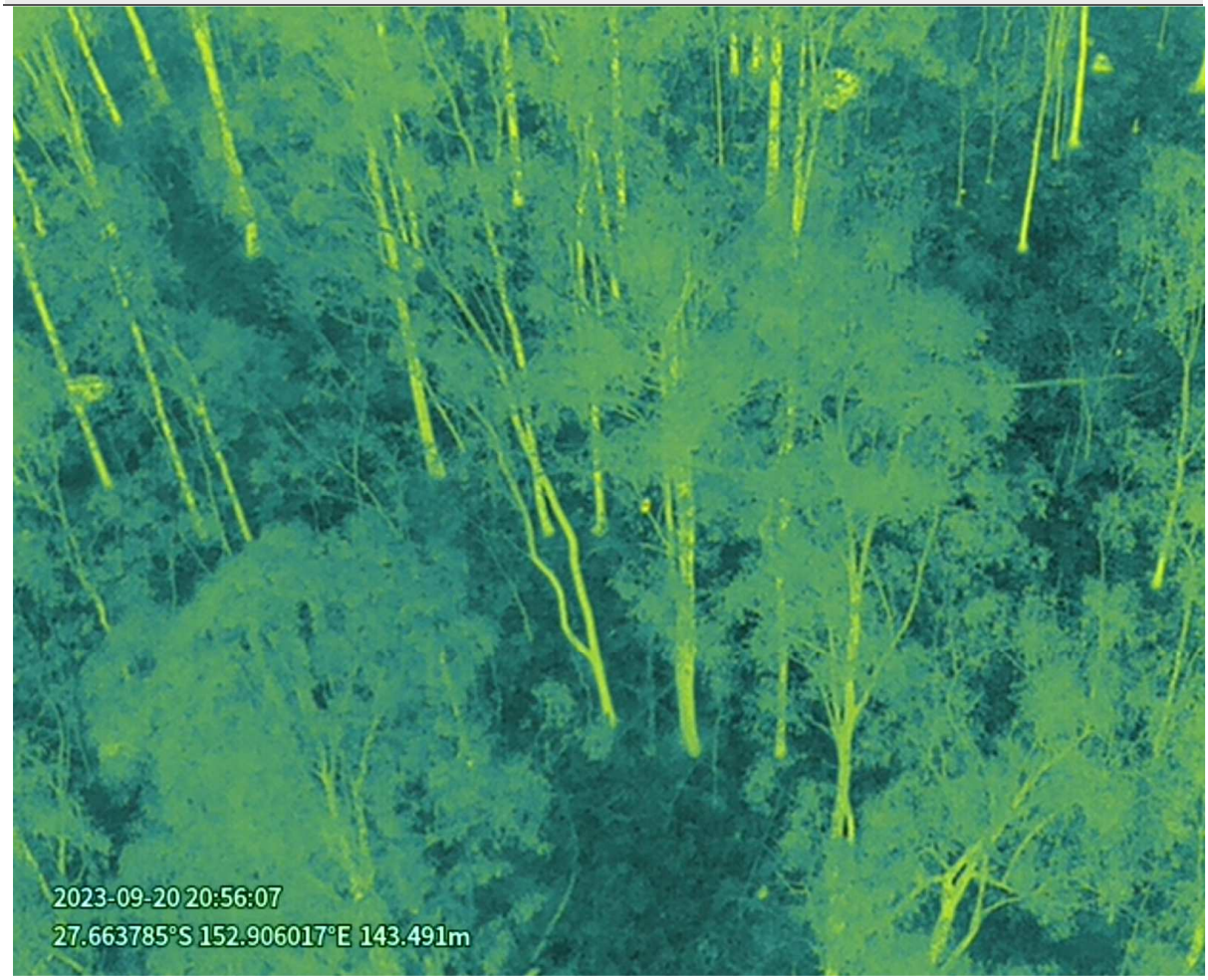
Example type 2 (Bat)	RGB image (30xzoom) at distance captured simultaneously with Thermal video feed.

	Raw Jpeg-R Thermal at distance as approaching (in flight video example).
Example type 2 (Crows)	Standard in flight observation is in Arctic pallet with Isothermal properties activated. This allows the sensor to only show colour heat reflectance returns which isolate targets in the area.



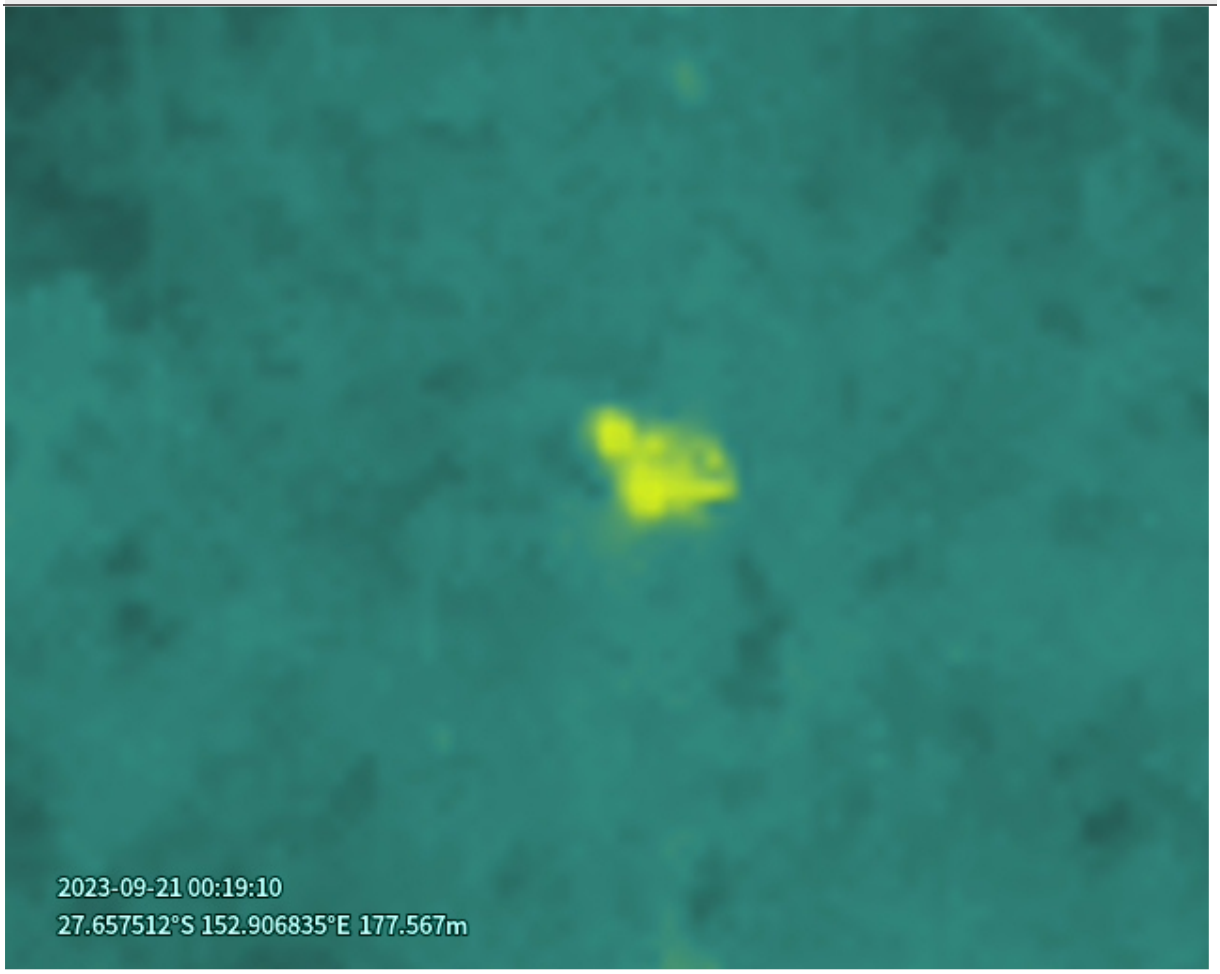
Example type 2 (Crows)	RGB image (30xzoom) at distance captured simultaneously with Thermal and RGB video feed.

Example type 3 (Koala)	Raw Jpeg-R Thermal at distance as approaching (In-flight pallet change to better understand the observed subject). In-flight, sensor settings can be adjusted to better observe head reflectance subjects for further interrogation, in this instance Arctic pallet allows easy identification of hot spots comparative to surrounding environment. Note the para-heliotropic angle allows the trees appear ghosted with trunks behind easily viewable showing a semi-transparent ability to look through vegetation in areas where canopy volume is denser. This angle is considered for all thermal flights to give the highest look potential for species being detected.



Example type 3 (Koala)	RGB image (30xzoom) at distance captured simultaneously with Thermal and RGB video feed.

Example type 4 (Lorikeets)	Raw Jpeg-R Thermal (standard look angle observed whilst in inspection flight mode). Shapes are identified easier when closer In-flight inspection using thermal zoom mode (up to 8x).



Example type 4 (Lorikeets)	RGB image (30xzoom) at distance captured simultaneously with Thermal and RGB video feed.

	Coordinates	File Location
Koala 1	27.6640644070 S 152.905990601 E	DJI_202309201929_006_7399-Eden-Station—Springfield 20230920 DJI_20230920204307_0001_Z 20:55:33
Koala 2	27.6589622500 S 152.905654907 E	DJI_202309202359_008_7399EdenStationSpringfield-EdenStationFA4 20230921 DJI_20230921003733_0003_Z 00:56:30

Attachment A5

Greater Glider Connectivity Analysis

1.00 Greater Glider Corridor Analysis

Notes:
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Legend

- Referral Area
- Other EPBC Projects
- Greater Glider regional ecosystems with a known or possible association with Queensland greater gliders
- Major roads
- Rail network
- Highway or 4-lane arterial road

Corridors for Analysis

- Corridor 1
- Corridor 2
- Corridor 3
- Corridor 4
- Connectivity assessment location
- Connectivity barrier locations

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0 200 400 600 m

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Address: 51/SP242316

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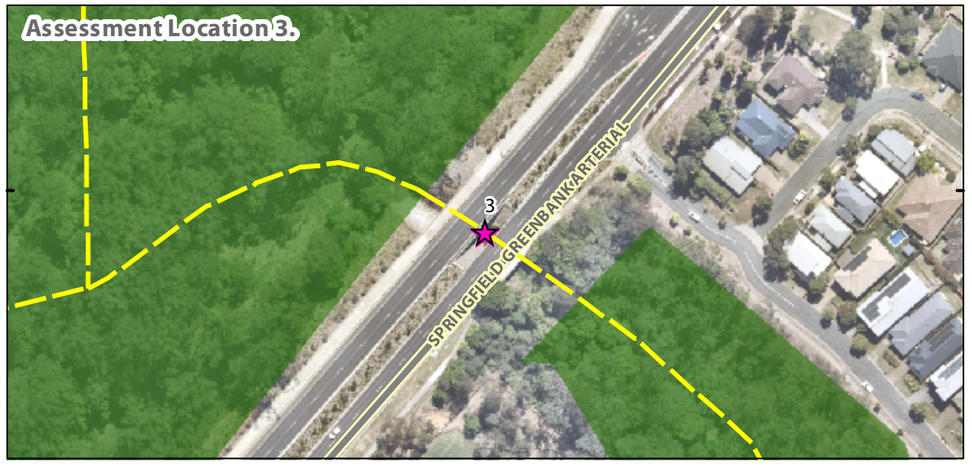
Issue	Date	Drawn	Checked
A	30/10/2025	TF	AW

1.01 Greater Glider Corridor Analysis (Corridor 1)



BARRIER ASSESSMENT

Photos are provided for the following locations:

1.Springfield Lakes Boulevard (-27.677007, 152.912897) –
Modified open parkland, street trees and detention basin adjoined by established residential communities.

2.Centenary Motorway and Rail Line (-27.673475, 152.908603) –
Two intersecting paths of major linear infrastructure. Vegetation between the Centenary Motorway and rail line is predominantly scattered regrowth with limited canopy coverage required for stepping stone connectivity. Approximate crossing distance from vegetation south of Centenary Motorway to north of the rail line is 135 metres.

3. Springfield Greenbank Arterial (-27.666898, 152.908576) –
Four-lane arterial road adjoined by non-remnant and remnant vegetation. Vegetation width approximately 100 metres at crossing location inclusive of regrowth and planted street tree vegetation. Approximate crossing distance is 60 metres. Vegetation broadens to the north-west of Springfield Greenbank Arterial.

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Legend

- Referral Area
- Other EPBC Projects
- Greater Glider regional ecosystems with a known or possible association with Queensland greater gliders
- Major roads
- Rail network

Corridors for Analysis

- Corridor 1
- Corridors 2-4
- Connectivity assessment location
- Connectivity barrier locations
- Greater Glider suitable Regional Ecosystems widths

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Address: 51/SP242316

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Issue	Date	Drawn	Checked
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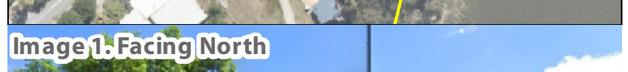
1.02 Greater Glider Corridor Analysis (Corridor 1)

Assessment Location 1.



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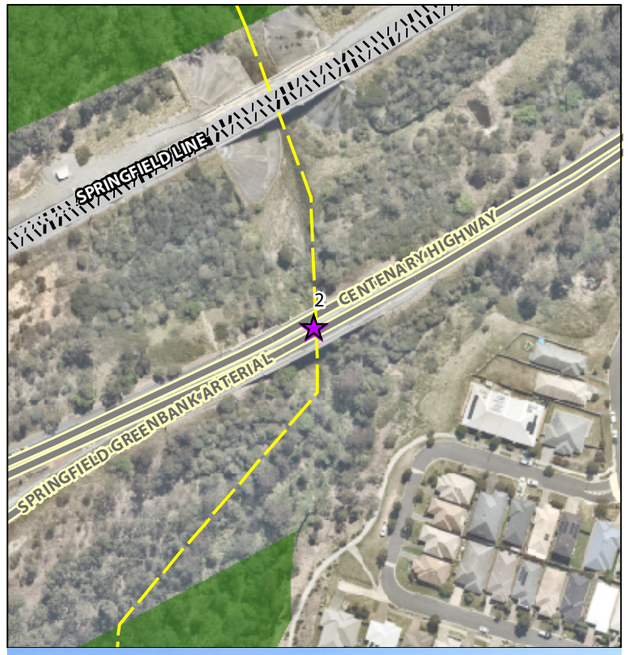
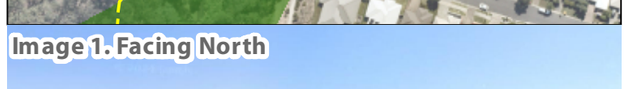
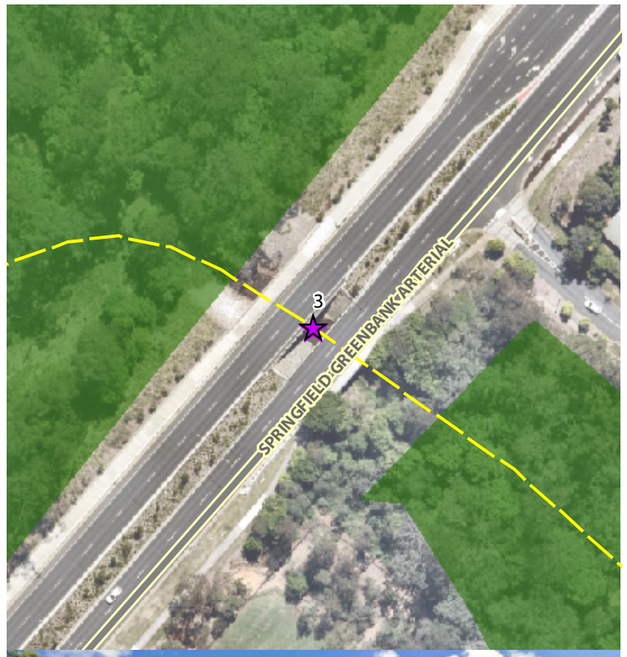
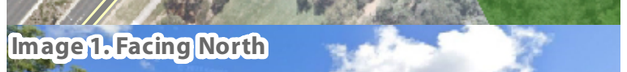




Assessment Location 3.





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Legend

- Referral Area
- Other EPBC Projects
- Greater Glider regional ecosystems with a known or possible association with Queensland greater gliders
- Major roads
- Rail network

Corridors for Analysis

- Corridor 1
- Corridors 2-4
- Connectivity assessment location
- Connectivity barrier locations

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Scenic Precinct

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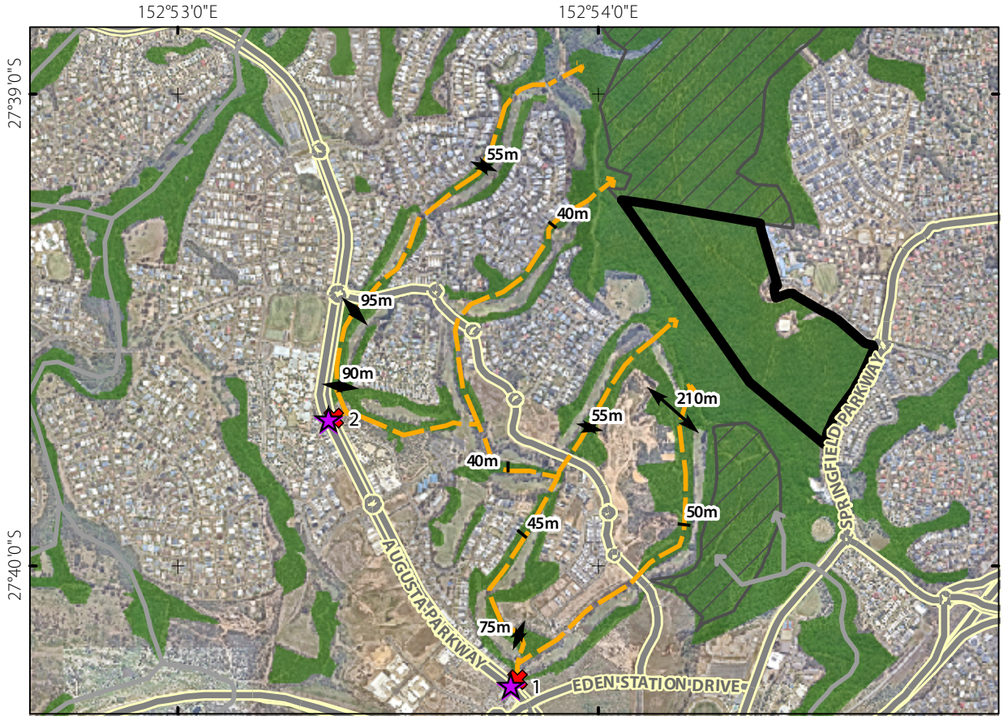
7399 E A01_1_2 SFA GG Corridors A

Issue	Date	Drawn	Checked
A	30/10/2025	TF	AW

1.03 Greater Glider Corridor Analysis (Corridor 2)



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Legend

- Referral Area
- Other EPBC Projects
- Greater Glider regional ecosystems with a known or possible association with Queensland greater gliders
- Major roads

Corridors for Analysis

- Corridor 2
- Corridors 1 & 3-4
- Connectivity assessment location
- Connectivity barrier locations
- Greater Glider suitable Regional Ecosystems widths

BARRIER ASSESSMENT

Corridor 2 is entirely a minor internal corridor associated with the Brookwater Golf Course. The linkages are comprised of golf fairway which is skirted by narrow strips of remnant and regrowth vegetation. Corridors are intersected at multiple locations by residential roads including Brookwater Drive and Grangewood Avenue.

Corridor connections terminate at Augusta Parkway to the south-west. Identified locations highlighted as Assessment Locations 1 (-27.670685, 152.896264) and 2 (-27.660633, 152.889095). Augusta Parkway and surrounding development areas represent a major barrier due to the absence of vegetation to the immediate south-west and south-east thus disconnecting the minor golf course corridors from major habitat connections to the south-east or south-west.

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SPRINGFIELD CITY GROUP

Scenic Precinct

0 200 400 600 m

Transverse Mercator
GDA 2020 | Zone 56

1:24,000 @ A3

Address: 51/SP242316

7399 E A01_2_1 SFA GG Corridors A

Issue	Date	Drawn	Checked
A	30/10/2025	TF	AW

1.04 Greater Glider Corridor Analysis (Corridor 2)

Assessment Location 1.

Assessment Location 2.

Notes:
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Legend

- Referral Area
- Other EPBC Projects
- Greater Glider regional ecosystems with a known or possible association with Queensland greater gliders
- Major roads

Corridors for Analysis

- Corridor 2
- Corridors 1 & 3-4
- Connectivity assessment location - No connectivity
- Connectivity barrier locations

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SPRINGFIELD CITY GROUP

Scenic Precinct

0 10 20 30 40 50 m

Transverse Mercator
GDA 2020 | Zone 56

1:2,500 @ A3

Address: 51/SP242316

7399 E A01_2_2 SFA GG Corridors A

Issue	Date	Drawn	Checked
A	30/10/2025	TF	AW

1.05 Greater Glider Corridor Analysis (Corridor 3)

BARRIER ASSESSMENT

Photos are provided for the following locations:

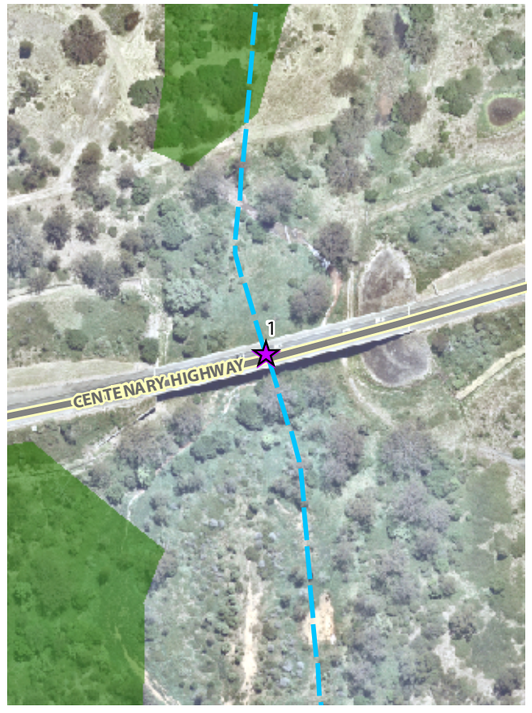
1. Centenary Highway (-27.675969, 152.870346) – Located at Woogaroo Creek bridge crossing. Scattered Eucalyptus tereticornis in floodplain gully area north and south of bridge may provide opportunity for refuge, however, limited canopy trees up to edge of bridge is likely to limit access due to compromised glide trajectories.

2. Centenary Highway (-27.671154, 152.885345) –
Non-remnant vegetation comprising fragmented weed and native trees. Limited mature canopy trees on either side of road.

3. Augusta Parkway (-27.647414, 152.879836) –
Retained eucalypt vegetation on southern side of road bisected by road with nearest vegetation located >100 m to the north-east of Augusta Parkway.

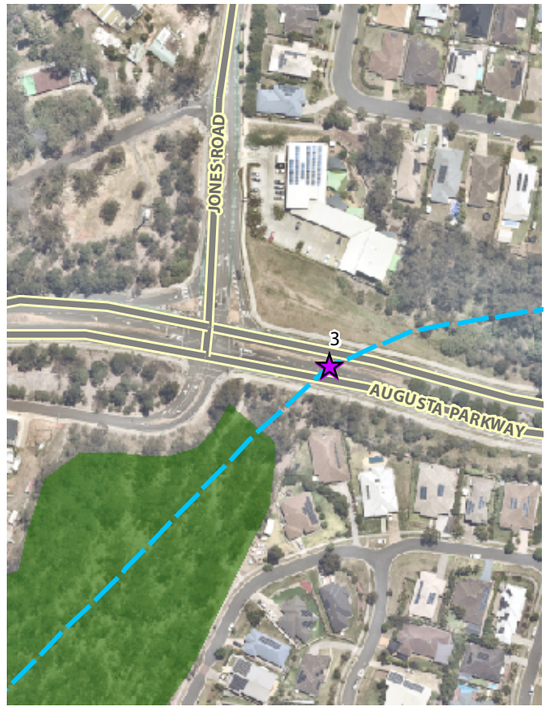
4. Augusta Parkway (-27.648425, 152.886188) –
Woogaroo Creek bridge crossing dominated by relatively young regrowth vegetation to the north and south of bridge with juvenile Ficus sp. street trees along centre island. Mature scattered eucalypts further south and north.

Assessment Location 1.



Assessment Location 2.

Assessment Location 3.



Assessment Location 4.

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Legend

- Referral Area
- Other EPBC Projects
- Greater Glider regional ecosystems with a known or possible association with Queensland greater gliders
- Major roads

Corridors for Analysis

- Corridor 3
- Corridors 1-2 & 4
- Connectivity assessment location
- Connectivity barrier locations
- Greater Glider suitable Regional Ecosystems widths

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SPRINGFIELD CITY GROUP

Scenic Precinct

0 500 1,000 m

Transverse Mercator
GDA 2020 | Zone 56

1:40,000 @ A3

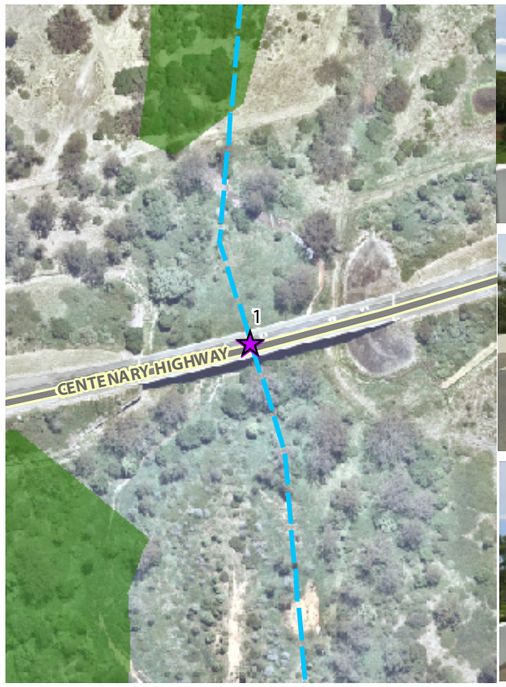
Address: 51/SP242316

7399 E A01_3_1 SFA GG Corridors A

Issue	Date	Drawn	Checked
A	30/10/2025	TF	AW

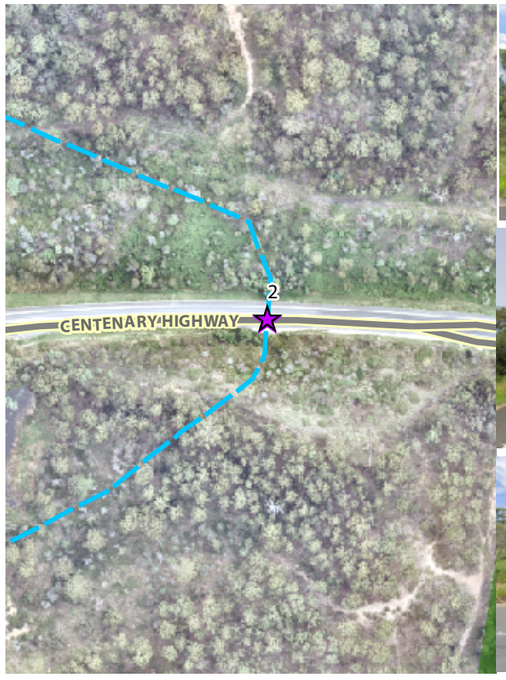
1.06 Greater Glider Corridor Analysis (Corridor 3)

Assessment Location 1.



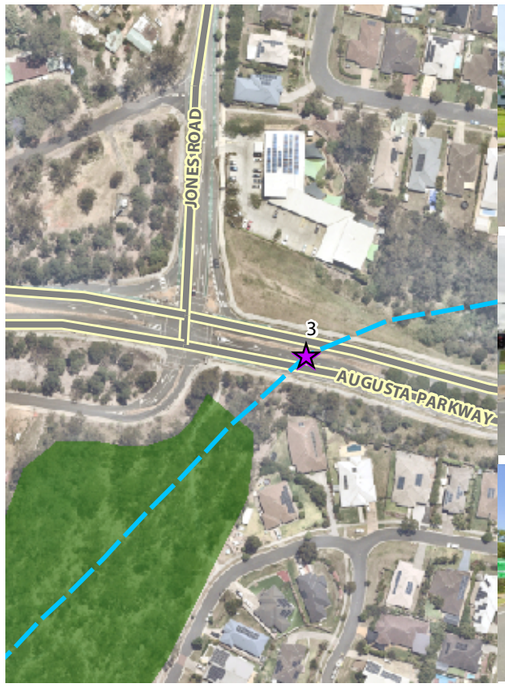
Images 1-3. North, Southwest, East

Assessment Location 2.



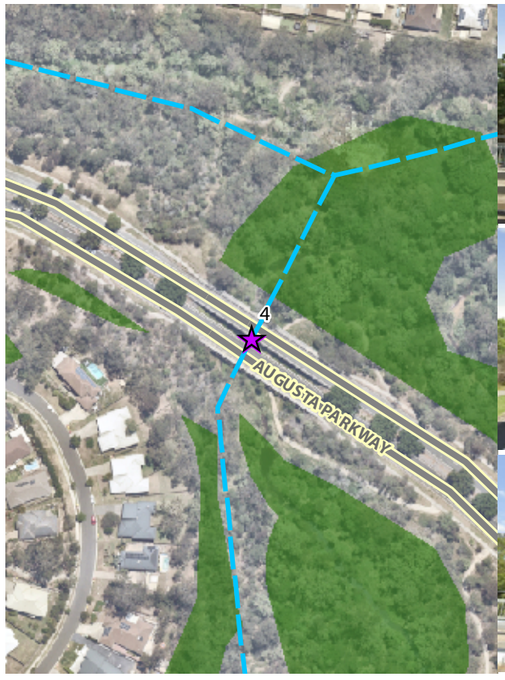
Images 1-3. North, East, South

Assessment Location 3.

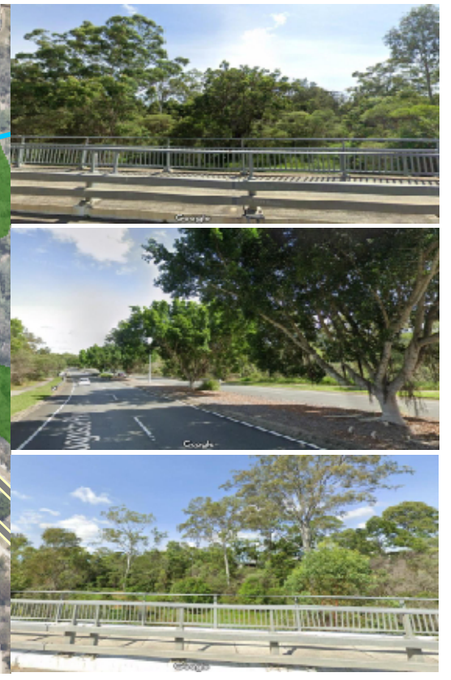


Images 1-3. Northeast, East, West

Assessment Location 4.



Images 1-3. North, Northwest, South



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Legend

- Referral Area
- Other EPBC Projects
- Greater Glider regional ecosystems with a known or possible association with Queensland greater gliders
- Major roads

Corridors for Analysis

- Corridor 3
- Corridors 1-2 & 4
- Connectivity assessment location
- Connectivity barrier locations

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Scenic Precinct

0 20 40 60 80 100 m

Transverse Mercator
GDA 2020 | Zone 56

1:3,000 @ A3

Address: 51/SP242316

7399 E A01_3_2 SFA GG Corridors A

Issue	Date	Drawn	Checked
A	30/10/2025	TF	AW

1.07 Greater Glider Corridor Analysis (Corridor 4)

Notes:
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Legend

- Referral Area
- Other EPBC Projects
- Greater Glider regional ecosystems with a known or possible association with Queensland greater gliders
- Major roads

Corridors for Analysis

- Corridor 4
- Corridors 1-3
- Connectivity assessment location
- Connectivity barrier locations
- Greater Glider suitable Regional Ecosystems widths

BARRIER ASSESSMENT

Rural residential properties dominate the landscape to the north while to the east, west and south is highly developed with medium to low density residential communities and major infrastructure. Fragmented vegetation patches are interspersed with modified planted vegetation typical of rural residential properties providing limited value for greater gliders and compromising dispersal. Lower scale roads are a minor barrier, however, vegetation patches diminish in size and become progressively fragmented and ultimately remain unconnected to tracts of land with Greater Glider records.

Photos are provided for the following locations:

1. Meier Road, Camira (-27.636109, 152.911590) –

Fragmented rural residential properties located to the south-west and north-east of Meier Road with a mix of retained eucalypt trees and planted ornamental trees and shrubs.

2. Cairns Avenue and Hayes Road, Camira (-27.629625, 152.908448) –

Fragmented rural residential properties located to the south-west and north-east of Meier Road with a mix of retained eucalypt trees and planted ornamental trees and shrubs.

3. Jones Road, Bellbird Park (-27.635855, 152.884409) –

Thin strip of vegetation located south-west of Jones Road surrounded by cleared areas and residential communities.

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Scenic Precinct

0 200 400 600 m

Transverse Mercator
GDA 2020 | Zone 56

1:20,000 @ A3

Address: 51/SP242316

7399 E A01_4_1 SFA GG Corridors A

Issue	Date	Drawn	Checked
A	30/10/2025	TF	AW

1.08 Greater Glider Corridor Analysis (Corridor 4)

Assessment Location 1.

Assessment Location 2.

Assessment Location 3.

Notes:
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Legend

- Referral Area
- Other EPBC Projects
- Greater Glider regional ecosystems with a known or possible association with Queensland greater gliders
- Major roads

Corridors for Analysis

- Corridors 1-3
- Corridor 4
- Connectivity assessment location
- Connectivity barrier locations

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Scenic Precinct

0 10 20 30 40 50 m

Transverse Mercator
GDA 2020 | Zone 56

1:2,000 @ A3

Address: 51/SP242316

7399 E A01_4_2 SFA GG Corridors A

Issue	Date	Drawn	Checked
A	30/10/2025	TF	AW

Attachment A6

Greater Springfield Fauna Spotter Catcher Analysis

Springfield EPBC Approval Areas

Notes:
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Legend

EPBC Approval Areas

Issue	Date	Description	Drawn	Checked
A	8/02/2023	Preliminary	TC	LT

0 500 1,000 m

Transverse Mercator | GDA 2020 | Zone 56 | 1:30,000 @ A3

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Springfield, Qld

Address / RPD: Springfield, Qld

8/02/2023 | Springfield E EPBC Approvals 01 A

Summary

SHG ID	EPBC	Project	Greater Glider (Y/N)
7243	2013/7057	Spring Mountain	N
8473	2014/7306	Springview Village One	N
7927	2017/7875	Woogaroo	N
7399	2016/7676	First Nine	N

SHG ID	EPBC	Project	Stage/Phase	Duration (days)	Month/year	Greater Glider (Y/N)
7243	2013/7057	Spring Mountain		14	Oct-2016	N
				4	Nov-2016	N
				4	Nov-2016	N
				2	Nov-2016	N
				3	Dec-2016	N
				15	Feb-2017	N
				19	Mar-2017	N
			Village 8 & Services Corridor	6	Apr-2017	N
			Village 8 & 15	8	May-2017	N
			Village 11, 8 and 6-8 Crossing	7	Jul-2017	N
			Village 7 and Grande Avenue Wetlands	8	Aug-Sept 2017	N
			Village 8 (western Batter) & Mountain Creek Sewer Alignment	2	Dec-2017	N
			Mountain Creek Sewer Alignment	2	Jan-2018	N
			Village 10 & 11	6	Feb-2018	N
			Town Centre Gully	10	Aug-2018	N
			Town Centre Gully & Crossing 5	5	Sep-2018	N
			Town Centre Gully	1	Oct-2018	N
			Village 17 access Track	1	Oct-2018	N
			Village 14	5	Oct-2018	N
			Village 8 & Local Park	2	Nov-2018	N
			Village 15	1	Nov-2018	N
			Town Centre Gully West, Stage 2	4	Apr-2019	N
			Village 15 Borrow Pit & Road 1501	5	May-2019	N
			Village 15	1	Jul-2019	N
			Village 17	4	Jul-2019	N
			Village 15	1	Aug-2019	N
			Village 16 Area B	4	Aug-2019	N
			Town Centre Gully West, Stage 3	2	Oct-2019	N
			Village 15 LOS	1	Oct-2020	N
			Village 14	2	Nov-2020	N
			Village 13 Sports Oval		Jul-2021	N

SHG ID	EPBC	Project	Stage/Phase	Duration (days)	Month/year	Greater Glider (Y/N)
8473	2014/7306	Springview Village One	Phase 1 early works	3	Jul-2018	N
			Phase 1 early works	2	Jul-2018	N
			Phase 2	9	Jul-2019	N

Woogaroo

SHG ID	EPBC	Project	Duration (days)	Month/year	Greater Glider (Y/N)
7927	2017/7875	Woogaroo	22	Sept-Nov 2021	N

SHG ID	EPBC	Project	Stage/Phase	Duration (days)	Month/year	Greater Glider (Y/N)
7399	2016/7676	First Nine	Springfield Town Centre North, Springfield Central & Brookwater	20	Mar-Apr-2018	N
			Springfield Town Centre North, Springfield Central & Brookwater	22	May-2018	N
			Springfield Town Centre North, Springfield Central & Brookwater	15	Jun-2018	N
			Springfield Town Centre North	1	Sep-2018	N

Attachment A7

Impact Area Raw Transect Data

Habitat Quality Site Assessment Template..... **PLEASE NOTE - YELLOW INDICATES AN AUTO POPULATED FIELD**

For all environmental offset applications you must:

- Complete form (Environmental Offsets Delivery Form 1– Notice of Election and Advanced Offsets Details)
- Complete any other forms relevant to your application
- Provide the mandatory supporting information identified on the forms as being required to accompany your application

This form is useful for undertaking a **habitat quality analysis** of an impact and/or offset/advanced offset site.
Please note that this form should be completed individually for each assessment unit under consideration.

Is this Assessment for:	An Impact Site	☑	An Offset Site	☐	an Advanced Offset Site	☐

Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Job Number	7399	Project Name	Scenic Precinct

Part B - Site Data

Property		Date	16/03/2020

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
	AU1 - T1	12.9-10.2	Southeast Queensland

Landscape Photo- Please attach or insert north, south, east and west photos in the spaces provided from row 231-355 below and include details such as Time and Mapping Coordinates in the following row.

Site description and Location (including details of discrete polygons within the assessment unit)

12.9-10.2 dominant RE. E. crebra and C. citriodora dominant with E. tereticornis and E. moluccana.

Part C - Native Species Richness: (*list species below)

Tree species richness:			
Total number of species	14		
Scientific Name	*Eucalyptus crebra (EDL) [R]*	Common Name	Narrow-leaved Grey Ironbark
Scientific Name	*Corymbia citriodora (EDL) [R]*	Common Name	Spotted Gum
Scientific Name	*Eucalyptus moluccana*	Common Name	Gum-topped Box
Scientific Name	*Allocasuarina littoralis*	Common Name	Black She-oak
Scientific Name	*Eucalyptus tereticornis*	Common Name	Forest Red Gum
Scientific Name	*Alphitonia excelsa*	Common Name	Soap Tree
Scientific Name	*Lophostemon suaveolens*	Common Name	Swamp Box
Scientific Name	*Angophora leiocarpa*	Common Name	Smooth-barked Apple
Scientific Name	*Eucalyptus fibrosa*	Common Name	Broad-leaved Red Ironbark
Scientific Name	*Corymbia intermedia*	Common Name	Pink Bloodwood
Scientific Name	*Lophostemon confertus*	Common Name	Brush Box
Scientific Name	*Acacia leiocalyx*	Common Name	Early Flowering Black Wattle
Scientific Name	*Acacia concurrens*	Common Name	Black Wattle
Scientific Name	*Allocasuarina sp.*	Common Name	Hickory Wattle
Scientific Name		Common Name	
Scientific Name		Common Name	

Shrub species richness:			
Total number of species	5		
Scientific Name	*Alphitonia excelsa*	Common Name	Soap Tree
Scientific Name	*Acacia concurrens*	Common Name	Black Wattle
Scientific Name	*Acacia leiocalyx*	Common Name	Early Flowering Black Wattle
Scientific Name	*Jacksonia scoparia*	Common Name	Dogwood
Scientific Name	*Acacia fimbriata*	Common Name	Brisbane Wattle
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	6		
Scientific Name	*Cymbopogon refractus*	Common Name	Barbed Wire Grass
Scientific Name	*Aristida vagans*	Common Name	Threeawn Speargrass
Scientific Name	*Ottochloa gracillima*	Common Name	Graceful Grass
Scientific Name	*Heteropogon contortus*	Common Name	Black Speargrass
Scientific Name	*Themeda triandra*	Common Name	Kangaroo Grass
Scientific Name	*Alloteropsis semialata*	Common Name	Cockatoo Grass
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	11		
Scientific Name	*Goodenia rotundifolia*	Common Name	Star Goodenia
Scientific Name	*Dianella caerulea*	Common Name	Blue Flax-lily
Scientific Name	*Gahnia aspera*	Common Name	Saw Sedge
Scientific Name	*Lomandra longifolia*	Common Name	Long-leaved Matrush
Scientific Name	*Lobelia purpurascens*	Common Name	White Root
Scientific Name	*Xanthorrhoea sp.*	Common Name	Grass Tree
Scientific Name	*Cyperus gracilis*	Common Name	Slender Sedge
Scientific Name	*Melichrus procumbens*	Common Name	Jam Tarts
Scientific Name	*Adiantum atroviride*	Common Name	Maidenhair Fern
Scientific Name	*Hybanthus stellarioides*	Common Name	Spade Flower
Scientific Name	*Eustrephus latifolius*	Common Name	Wombat Berry
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	5.00%		
Scientific Name	*Oxalis corniculata*	Common Name	Creeping Oxalis
Scientific Name	*Passiflora foetida*	Common Name	Stinking Passionflower
Scientific Name	*Passiflora suberosa*	Common Name	Corky Passion Vine
Scientific Name	*Lantana camara*	Common Name	Lantana
Scientific Name	*Lantana montevidensis*	Common Name	Creeping Lantana
Scientific Name	*Desmodium uncinatum*	Common Name	Silver Leaf Desmodium
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters):	117.00		
1	4.00	26	
2	2.50	27	
3	2.00	28	
4	2.50	29	
5	0.70	30	
6		31	
7		32	
8		33	
9		34	
10		35	
11		36	
12		37	
13		38	
14		39	
15		40	
16		41	
17		42	

18		43	
19		44	
20		45	
21		46	
22		47	
23		48	
24		49	
25		50	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5	Average
Native perennial grass cover	5.00%	15.00%	15.00%	5.00%	5.00%	9.00%
Native other grass						
Native forbs and other species	75.00%	25.00%	15.00%	10.00%	10.00%	27.00%
Native shrubs		3.00%				3.00%
Non-native grass						
Non native forbs and shrubs						
Litter	20.00%	57.00%	70.00%	90.00%	75.00%	62.40%
Rock						
Bare Ground						
Cryptogram						

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	380	Non- Eucalypt Large tree DBH benchmark used:	NA
Number of large eucalypt trees:	6	Number of large non eucalypt trees:	0
Total Number Large Trees:	6		

Large Tree Number	Species of Large Tree	DBH	Large Tree Number	Species of Large Tree	DBH
1	*Corymbia citriodora*	560			
2	*Eucalyptus fibrosa*	410			
3	*Eucalyptus crebra*	390			
4	*Corymbia citriodora*	390			
5	*Corymbia citriodora*	410			
6	*Corymbia citriodora*	400			

Median Tree Canopy Height Measurements	Canopy:	18.00	Sub-canopy:	14.00	Emergent:	-

Percentage of ecologically dominant layer species regenerating:	100

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	Canopy:	81.90	Sub-canopy:	65.60	Emergent:	-
Shrub canopy cover %	6.20					

Layer	Start	End	Interval	Layer	Start	End	Interval
T1	0.00	5.10	5.10	T2	2.20	10.70	8.50
T1	8.70	40.10	31.40	T2	13.20	28.00	14.80
T1	46.40	62.10	15.70	T2	31.70	39.10	7.40
T1	65.40	80.40	15.00	T2	57.20	77.40	20.20
T1	85.30	100.00	14.70	T2	81.70	85.20	3.50
T1				T2	88.80	100.00	11.20
T1				T2			
T1				T2			
T1				T2			
T1				T2			
T1				T2			
T1				T2			
T1				T2			
T1				T2			
T1				T2			

Layer	Start	End	Interval	Layer	Start	End	
Shrub	35.30	36.20	0.90	Shrub			
Shrub	43.10	43.90	0.80	Shrub			
Shrub	52.60	57.10	4.50	Shrub			
Shrub				Shrub			

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count
Corymbia citriodora	18
Eucalyptus crebra	19
Eucalyptus moluccana	9
Eucalyptus tereticorns	3
Eucalyptus fibrosa	4
Lophostemon suaveolens	1
Corymbia intermedia	2
Lophostemon confertus	3

Part J: SAT Survey Results

SAT Survey ID				
Tree Number	Scientific Name	Common Name	DBH	Scat (Y/N)
1	*Eucalyptus tereticornis*	Forest Red Gum	190	N
2	*Eucalyptus crebra*	Narrow-leaved Grey Ironbark	230	N
3	*Eucalyptus tereticornis*	Forest Red Gum	220	Y
4	*Eucalyptus crebra*	Narrow-leaved Grey Ironbark	200	N
5	*Eucalyptus crebra*	Narrow-leaved Grey Ironbark	320	N
6	*Corymbia citriodora*	Spotted Gum	210	N
7	*Eucalyptus crebra*	Narrow-leaved Grey Ironbark	240	N
8	*Lophostemon suaveolens*	Swamp Box	210	N
9	*Eucalyptus moluccana*	Gum-topped Box	140	N
10	*Eucalyptus crebra*	Narrow-leaved Grey Ironbark	230	N
11	*Eucalyptus tereticornis*	Forest Red Gum	190	N
12	*Corymbia citriodora*	Spotted Gum	130	N
13	*Eucalyptus crebra*	Narrow-leaved Grey Ironbark	160	N
14	*Eucalyptus crebra*	Narrow-leaved Grey Ironbark	220	N
15	*Eucalyptus crebra*	Narrow-leaved Grey Ironbark	210	N
16	*Eucalyptus tereticornis*	Forest Red Gum	180	N
17	*Corymbia citriodora*	Spotted Gum	180	N
18	*Allocasuarina littoralis*	Black She-oak	110	N
19	*Corymbia intermedia*	Pink Bloodwood	220	N
20	*Eucalyptus crebra*	Narrow-leaved Grey Ironbark	340	N
21	*Eucalyptus tereticornis*	Forest Red Gum	190	N
22	*Corymbia citriodora*	Spotted Gum	160	N
23	*Lophostemon confertus*	Brush Box	140	N
24	*Eucalyptus moluccana*	Gum-topped Box	250	N
25	*Eucalyptus crebra*	Narrow-leaved Grey Ironbark	260	Y
26	*Eucalyptus tereticornis*	Forest Red Gum	130	N
27	*Eucalyptus crebra*	Narrow-leaved Grey Ironbark	160	N
28	*Eucalyptus fibrosa*	Broad-leaved Red Ironbark	200	N
29	*Eucalyptus tereticornis*	Forest Red Gum	130	N
30	*Eucalyptus moluccana*	Gum-topped Box	180	N
Total				2/30

Attach Landscape Photos Here

North

South

East

West

(FORM COMPLETE)

Please save and forward completed form/s together with Offsets Delivery Form 5 that can be accessed here: QLD Environmental Offsets

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Habitat Quality Site Assessment Template..... **PLEASE NOTE - YELLOW INDICATES AN AUTO POPULATED FIELD**

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- Complete form (Environmental Offsets Delivery Form 1– Notice of Election and Advanced Offsets Details)
- Complete any other forms relevant to your application
- Provide the mandatory supporting information identified on the forms as being required to accompany your application

This form is useful for undertaking a **habitat quality analysis** of an impact and/or offset/advanced offset site.
Please note that this form should be completed individually for each assessment unit under consideration.

Is this Assessment for:	An Impact Site	☑	An Offset Site	☐	an Advanced Offset Site	☐

Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Job Number	7399	Project Name	Scenic Precinct

Part B - Site Data

Property		Date	16/03/2020

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
	AU1 - T1	12.9-10.2	Southeast Queensland

Landscape Photo- Please attach or insert north, south, east and west photos in the spaces provided from row 231-355 below and include details such as Time and Mapping Coordinates in the following row.

Site description and Location (including details of discrete polygons within the assessment unit)

12.9-10.2 dominant. E. crebra and C. citriodora dominant with E. moluccana. Moderately disturbed by weed encroachment and evidence of clearing.

Part C - Native Species Richness: (*list species below)

Tree species richness:			
Total number of species	11		
Scientific Name	*Eucalyptus crebra (EDL) [R]*	Common Name	Narrow-leaved Grey Ironbark
Scientific Name	*Corymbia citriodora (EDL) [R]*	Common Name	Spotted Gum
Scientific Name	*Eucalyptus moluccana (EDL) [R]*	Common Name	Gum-topped Box
Scientific Name	*Allocasuarina littoralis*	Common Name	Black She-oak
Scientific Name	*Eucalyptus acmenoides*	Common Name	White Mahogany
Scientific Name	*Alphitonia excelsa*	Common Name	Soap Tree
Scientific Name	*Lophostemon suaveolens*	Common Name	Swamp Box
Scientific Name	*Angophora leiocarpa*	Common Name	Smooth-barked Apple
Scientific Name	*Eucalyptus fibrosa*	Common Name	Broad-leaved Red Ironbark
Scientific Name	*Acacia concurrens*	Common Name	Black Wattle
Scientific Name	*Acacia disparrima*	Common Name	Hickory Wattle
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Shrub species richness:			
Total number of species	6		
Scientific Name	*Alphitonia excelsa*	Common Name	Soap Tree
Scientific Name	*Acacia concurrens*	Common Name	Black Wattle
Scientific Name	*Acacia leiocalyx*	Common Name	Early Flowering Black Wattle
Scientific Name	*Jacksonia scoparia*	Common Name	Dogwood
Scientific Name	*Acacia fimbriata*	Common Name	Brisbane Wattle
Scientific Name	Species 1	Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	5		
Scientific Name	*Cymbopogon refractus*	Common Name	Barbed Wire Grass
Scientific Name	*Aristida vagans*	Common Name	Threeawn Speargrass
Scientific Name	*Ottochloa gracillima*	Common Name	Graceful Grass
Scientific Name	*Heteropogon contortus*	Common Name	Black Speargrass
Scientific Name	*Themeda triandra*	Common Name	Kangaroo Grass
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	14		
Scientific Name	*Goodenia rotundifolia*	Common Name	Star Goodenia
Scientific Name	*Dianella caerulea*	Common Name	Blue Flax-lily
Scientific Name	*Gahnia aspera*	Common Name	Saw Sedge
Scientific Name	*Lomandra longifolia*	Common Name	Long-leaved Matrush
Scientific Name	*Lobelia purpurascens*	Common Name	White Root
Scientific Name	*Xanthorrhoea sp.*	Common Name	Grass Tree
Scientific Name	*Cyperus gracilis*	Common Name	Slender Sedge
Scientific Name	*Melichrus procumbens*	Common Name	Jam Tarts
Scientific Name	*Adiantum atroviride*	Common Name	Maidenhair Fern
Scientific Name	*Hybanthus stellarioides*	Common Name	Spade Flower
Scientific Name	*Eustrephus latifolius*	Common Name	Wombat Berry
Scientific Name	*Parsonsia straminea*	Common Name	Monkey Rope
Scientific Name	*Lomandra multiflora*	Common Name	Many Flowered Mat Rush
Scientific Name	*Lepidosperma laterale*	Common Name	Variable Swordsedge

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	25.00%		
Scientific Name	*Oxalis corniculata*	Common Name	Creeping Oxalis
Scientific Name	*Passiflora foetida*	Common Name	Stinking Passionflower
Scientific Name	*Passiflora suberosa*	Common Name	Corky Passion Vine
Scientific Name	*Lantana camara*	Common Name	Lantana
Scientific Name	*Lantana montevidensis*	Common Name	Creeping Lantana
Scientific Name	*Desmodium uncinatum*	Common Name	Silver Leaf Desmodium
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters):	159.00		
1	2.00	26	
2	6.00	27	
3	2.00	28	
4	3.00	29	
5	1.50	30	
6	1.40	31	
7		32	
8		33	
9		34	
10		35	
11		36	
12		37	
13		38	
14		39	
15		40	
16		41	
17		42	
18		43	
19		44	

20		45	
21		46	
22		47	
23		48	
24		49	
25		50	

Part F - Native perennial grass cover, organic litter:

Ground Cover	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5	Average
Native perennial grass cover	0.00%	0.00%	5.00%	0.00%	0.00%	1.00%
Native other grass	0.00%	0.00%	0.00%	0.00%	0.00%	
Native forbs and other species	8.00%	35.00%	10.00%	70.00%	5.00%	25.60%
Native shrubs	0.00%	0.00%	0.00%	0.00%	0.00%	
Non-native grass	0.00%	0.00%	0.00%	0.00%	0.00%	
Non native forbs and shrubs	0.00%	0.00%	0.00%	0.00%	25.00%	5.00%
Litter	78.00%	65.00%	80.00%	30.00%	70.00%	64.60%
Rock	8.00%	0.00%	3.00%	0.00%	0.00%	2.20%
Bare Ground	4.00%	0.00%	2.00%	0.00%	0.00%	1.20%
Cryptogram	0.00%	0.00%	0.00%	0.00%	0.00%	

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	380	Non- Eucalypt Large tree DBH benchmark used:	NA
Number of large eucalypt trees:	2	Number of large non eucalypt trees:	0
Total Number Large Trees:	2		

Large Tree Number	Species of Large Tree	DBH	Large Tree Number	Species of Large Tree	DBH
1	*Corymbia citriodora*	450			
2	*Corymbia citriodora*	400+340			

Median Tree Canopy Height Measurements	Canopy:	17.00	Sub-canopy:	14.00	Emergent:	-

Percentage of ecologically dominant layer species	67

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	Canopy:	75.90	Sub-canopy:	52.50	Emergent:	-
Shrub canopy cover %				8.30		

Layer	Start	End	Interval	Layer	Start	End	Interval
T1	0.00	9.10	9.10	T2	0.00	11.40	11.40
T1	15.80	37.00	21.20	T2	13.10	19.20	6.10
T1	45.50	83.50	38.00	T2	27.50	30.70	3.20
T1	88.00	90.20	2.20	T2	37.10	41.50	4.40
T1	94.60	100.00	5.40	T2	48.20	56.90	8.70
T1				T2	70.40	75.60	5.20
T1				T2	83.40	96.90	13.50
T1				T2			
T1				T2			
T1				T2			
T1				T2			
T1				T2			
T1				T2			
T1				T2			
T1				T2			

Layer	Start	End	Interval	Layer	Start	End	
Shrub	17.30	19.10	1.80	Shrub			
Shrub	28.30	34.30	6.00	Shrub			
Shrub	77.30	77.80	0.50	Shrub			
Shrub				Shrub			

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are

Part I: GHFF Stem Count

Species Name	Stem Count
Eucalyptus moluccana	13
Corymbia citriodora	8
Eucalyptus fibrosa	3
Eucalyptus crebra	7
Eucalyptus acmenoides	6
Lophostemon suaveolens	1
Eucalyptus carnea	3
Corymbia intermedia	1

Part J: SAT Survey Results

SAT Survey ID				
Tree Number	Scientific Name	Common Name	DBH	Scat (Y/N)
1	*Corymbia citriodora*	Spotted Gum	210	N
2	*Corymbia citriodora*	Spotted Gum	250	N
3	*Eucalyptus fibrosa*	Broad-leaved Red Ironbark	160	N
4	*Eucalyptus fibrosa*	Broad-leaved Red Ironbark	100	N
5	*Eucalyptus carnea*	Broad-leaved White Mahogany	100	Y
6	*Eucalyptus moluccana*	Gum-topped Box	200	Y
7	*Corymbia citriodora*	Spotted Gum	190	N
8	*Eucalyptus moluccana*	Gum-topped Box	140	N
9	*Eucalyptus carnea*	Broad-leaved White Mahogany	130	N
10	*Corymbia citriodora*	Spotted Gum	190	N
11	*Eucalyptus moluccana*	Gum-topped Box	170	N
12	*Eucalyptus fibrosa*	Broad-leaved Red Ironbark	130	N
13	*Eucalyptus carnea*	Broad-leaved White Mahogany	240	N
14	*Eucalyptus carnea*	Broad-leaved White Mahogany	160	N
15	*Angophora leiocarpa*	Smooth-barked Apple	200	N
16	*Eucalyptus crebra*	Narrow-leaved Grey Ironbark	350	N
17	*Eucalyptus moluccana*	Gum-topped Box	110	N
18	*Eucalyptus moluccana*	Gum-topped Box	100	N
19	*Corymbia citriodora*	Spotted Gum	150	N
20	*Eucalyptus carnea*	Broad-leaved White Mahogany	190	N
21	*Eucalyptus carnea*	Broad-leaved White Mahogany	160	N
22	*Eucalyptus moluccana*	Gum-topped Box	270	N
23	*Corymbia citriodora*	Spotted Gum	190	N
24	*Corymbia citriodora*	Spotted Gum	300	N
25	*Eucalyptus acmenoides*	White Mahogany	200	N
26	*Eucalyptus moluccana*	Gum-topped Box	250	N
27	*Acacia disparrima*	Hickory Wattle	130	N
28	*Acacia disparrima*	Hickory Wattle	140	N
29	*Eucalyptus crebra*	Narrow-leaved Grey Ironbark	320	N
30	*Eucalyptus carnea*	Broad-leaved White Mahogany	110	N
Total				2/30

Attach Landscape Photos Here

North

South

East

West

(FORM COMPLETE) Please save and forward completed form/s together with Offsets Delivery Form 5 that can be accessed here: QLD Environmental Offsets

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Please note that this form should be completed individually for each assessment unit under consideration.

Is this Assessment for:	An Impact Site	☑	An Offset Site	☐	an Advanced Offset Site	☐

Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Job Number	7399	Project Name	Scenic Precinct

Part B - Site Data

Property		Date	16/03/2020

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
		12.9-10.2	Southeast Queensland

Landscape Photo- Please attach or insert north, south, east and west photos in the spaces provided from row 231-355 below and include details such as Time and Mapping Coordinates in the following row.

Site description and Location (including details of discrete polygons within the assessment unit)

Part C - Native Species Richness: (*list species below)

Tree species richness:			
Total number of species			
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Shrub species richness:			
Total number of species			
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species			
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species			
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot			
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters):			
1		26	
2		27	
3		28	
4		29	
5		30	
6		31	
7		32	
8		33	
9		34	
10		35	
11		36	
12		37	
13		38	
14		39	
15		40	
16		41	
17		42	
18		43	
19		44	

20		45	
21		46	
22		47	
23		48	
24		49	
25		50	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5	Average
Native perennial grass cover						
Native other grass						
Native forbs and other species						
Native shrubs						
Non-native grass						
Non native forbs and shrubs						
Litter						
Rock						
Bare Ground						
Cryptogram						

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :		Non- Eucalypt Large tree DBH benchmark used:	
Number of large eucalypt trees:		Number of large non eucalypt trees:	
Total Number Large Trees:	0		

Large Tree Number	Species of Large Tree	DBH	Large Tree Number	Species of Large Tree	DBH
1					
2					
3					
4					
5					
6					

Median Tree Canopy Height Measurements	Canopy:		Sub-canopy:		Emergent:	

Percentage of ecologically dominant layer species regenerating:	100

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	Canopy:	0.00	Sub-canopy:	0.00	Emergent:	
Shrub canopy cover %				0.00		

Layer	Start	End	Interval	Layer	Start	End	Interval
T1				T2			
T1				T2			
T1				T2			
T1				T2			
T1				T2			
T1				T2			
T1				T2			
T1				T2			
T1				T2			
T1				T2			
T1				T2			
T1				T2			
T1				T2			
T1				T2			
T1				T2			

Layer	Start	End	Interval	Layer	Start	End	
Shrub				Shrub			
Shrub				Shrub			
Shrub				Shrub			
Shrub				Shrub			

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count

Part J: SAT Survey Results

SAT Survey ID	SAT 3			
Tree Number	Scientific Name	Common Name	DBH	Scat (Y/N)
1	*Eucalyptus moluccana*	Gum-topped Box	230	N
2	*Eucalyptus crebra*	Narrow-leaved Grey Ironbark	330	N
3	*Eucalyptus acmenoides*	White Mahogany	200	N
4	*Corymbia citriodora*	Spotted Gum	220	N
5	*Eucalyptus moluccana*	Gum-topped Box	190	N
6	*Eucalyptus acmenoides*	White Mahogany	210	N
7	*Eucalyptus moluccana*	Gum-topped Box	160	N
8	*Eucalyptus carnea*	Broad-leaved White Mahogany	200	N
9	*Eucalyptus carnea*	Broad-leaved White Mahogany	240	N
10	*Corymbia citriodora*	Spotted Gum	150	N
11	*Corymbia citriodora*	Spotted Gum	100	N
12	*Eucalyptus carnea*	Broad-leaved White Mahogany	140	N
13	*Eucalyptus moluccana*	Gum-topped Box	350	N
14	*Eucalyptus carnea*	Broad-leaved White Mahogany	150	N
15	*Eucalyptus moluccana*	Gum-topped Box	220	N
16	*Eucalyptus acmenoides*	White Mahogany	150	N
17	*Eucalyptus crebra*	Narrow-leaved Grey Ironbark	320	N
18	*Eucalyptus carnea*	Broad-leaved White Mahogany	150	N
19	*Eucalyptus moluccana*	Gum-topped Box	190	N
20	*Eucalyptus crebra*	Narrow-leaved Grey Ironbark	280	N
21	*Eucalyptus moluccana*	Gum-topped Box	240	N
22	*Eucalyptus acmenoides*	White Mahogany	210	N
23	*Eucalyptus moluccana*	Gum-topped Box	230	N
24	*Eucalyptus moluccana*	Gum-topped Box	350	N
25	*Eucalyptus carnea*	Broad-leaved White Mahogany	140	N
26	*Eucalyptus carnea*	Broad-leaved White Mahogany	200	N
27	*Lophostemon confertus*	Brush Box	150	N
28	*Eucalyptus crebra*	Narrow-leaved Grey Ironbark	220	N
29	*Eucalyptus carnea*	Broad-leaved White Mahogany	160	N
30	*Corymbia citriodora*	Spotted Gum	240	N
Total				0/30

Attach Landscape Photos Here

North

South

East

West

(FORM COMPLETE) Please save and forward completed form/s together with Offsets Delivery Form 5 that can be accessed here: QLD Environmental Offsets
Version 1.0 - December - 2014 © - State of Queensland, Department of Environment and Heritage Protection

Attachment A8

Rosevale Offset Management Plan – ROA 4

ROSEVALE OFFSET MANAGEMENT PLAN

(EPBC2020/8651)

SCENIC PRECINCT

31 OCTOBER 2025

[VERSION 5.1 - OMP]

Montauban Environmental Offsets

VERSION NUMBER AND DATE	PERSON RESPONSIBLE
VERSION 1.1 – OCTOBER 2021	CS & MG
VERSION 2.1 – MAY 2022 (OMP COVERSION)	GT / CS
VERSION 3.1 – DECEMBER 2022 (OMP AMENDMENTS)	GT / CS
VERSION 4.1 – FEBRUARY 2024 (OMP V4)	MD / AD
VERSION 5.1 – OCTOBER 2025 (OMP V5)	AW

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ACRONYMS AND ABBREVIATIONS

ACR	Annual Compliance Report
AU	Assessment Unit
DCCEEW	Department of Climate Change, Energy and the environment and Water (Cth)
DEHP	Department of Heritage and Protection (Qld – former)
DES	Department of Environment and Science (Qld – former)
DETSI	Department of Environment, Tourism, Science and Innovation (Qld)
DILGP	Department of Infrastructure, Local Government and Planning (Qld)
DoEE	Department of Environment and Energy (Commonwealth – former)
DPI	Department of Primary Industries
DSDILGP	Department of State Development, Infrastructure, Local Government and Planning (Qld)
EDL	Ecologically Dominant Layer
EOP	EPBC Act Environmental Offset Policy (2012)
EPBC Act	Environmental Protection and Biodiversity Conservation Act 199
FHA	Foraging Habitat Assessment
GHFF	Grey-headed Flying-fox
ha	Hectare
KHA	Koala Habitat Area
km	Kilometres
LGA	Local Government Area
MEO	Montauban Environmental Offsets
m	Metre
mm	Millimetre
MSES	Matters of State Environmental Significance
NJKHT	Non-juvenile Koala Habitat Tree
OMP	Offset Management Plan
PA	Planning Act 2016 (Qld)
PR	Planning Regulation 2017 (Qld)
QFES	Queensland Fire and Emergency Services
RAI	Relative Abundance Index
RE	Regional Ecosystem
RMP	Rehabilitation Management Plan
ROA	Rosevale Offset Area
SARA	State Assessment Referral Agency (part of DILGP)
SAT	Spot Assessment Technique
SEQ	South East Queensland
SEQERF	Southeast Queensland Ecological Restoration Framework
SHG	Saunders Havill Group
SPP	State Planning Policy 2017 (Qld)
SRRC	Scenic Rim Regional Council
VDEC	Voluntary Declaration
VMA	*Vegetation Management Act 1999* (Qld)
WONS	Weeds of National Significance

DECLARATION OF ACCURACY

In making this declaration, I am aware that section 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the *Environment Protection and Biodiversity Conservation Regulations 2000*. The offence is punishable on conviction by imprisonment or a fine, or both. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed _____

Full name (please print) _____

Organisation (please print) Montauban Environmental Offsets

Date _____/_____/_____

491 Providing false or misleading information to authorised officer etc.

(1) A person is guilty of an offence if the person:

(a) provides information or a document to another person (the ***recipient***); and

(b) knows the recipient is:

(i) an authorised officer; or

(ii) the Minister; or

(iii) an employee or officer in the Department; or

(iv) a commissioner;

performing a duty or carrying out a function under this Act or the regulations; and

(c) knows the information or document is false or misleading in a material particular.

(2) The offence is punishable on conviction by imprisonment for a term not more than 1 year, a fine not more than 60 penalty units, or both.

Note: Subsection 4B(3) of the *Crimes Act 1914* lets a court fine a body corporate up to 5 times the maximum amount the court could fine a person under this subsection

1. INTRODUCTION

This document is the Offset Management Plan (OMP) for Montauban Environmental Offsets (MEO) Rosevale Offset Property and area specifically assigned to cater for impacts associated with the Springfield City Group's Scenic Precinct Project. The impact is located at Springfield College Drive, Springfield, Queensland 4300 within Lot 51 on SP242316, part of Lot 1 on RP863336 and part of Lot 50 on SP242316. Springfield The offset area utilised for EPBC 2020/8651 is referred to as Rosevale Offset Area 4 (ROA 4).

The Rosevale Offset Property is located at Tarome Road, Tarome in South East Queensland and includes a combination of approved and proposed offset areas for Matters of National Environmental Significance. The Rosevale offset property is a wholly owned >800 ha land holding for which a number of EPBC biodiversity offsets are proposed in a broad aggregation of conservation outcomes. MEO propose to utilise most of the 800 ha property for MNES restoration offsets of which EPBC 2020/8651 will include 51.8 ha.

The OMP has been specifically prepared to respond to the Commonwealth Government's Department of Climate Change, Environment, Energy and Water (DCCEEW) comments in response to the draft Preliminary Documentation packages prepared for EPBC 2020/8651. This OMP has been generally prepared in accordance with the EPBC Act – *Environmental Offset Policy* (October 2012).

The ROA 4 has been selected and designed to compensate for at least 100% of impacts on habitat defined as critical for the Koala, Grey-headed Flying-fox (GHFF), Swift Parrot and Regent Honeyeater from resulting from the Scenic Precinct development. The offset proposal is a direct land-based solution which consists of establishment of new habitat and restoration of regrowth and remnant habitat.

It is noted a combined impact and offset assessment for Springfield City Group's EPBC 2020/8651 (Scenic Precinct) and EPBC 2020/8629 (Peninsula Precinct) has been completed for the Swift Parrot and Regent Honeyeater. Planting obligations will be delivered across both the ROA 4 (Scenic Precinct) and adjoining ROA 3 (Peninsula Precinct). Both offsets will be delivered concurrently to achieve the proposed offset outcomes.

STRUCTURE OF THE OFFSET MANAGEMENT PLAN

Section 1: Introduction
Section 2: Overview of Proposed Offset Area
Section 3: Environmental Outcomes and Objectives
Section 4: Offset Site Suitability
Section 5: Baseline Surveys
Section 6: Offset Design Consideration and Amendments
Section 7: Rosevale Offset Area 4 Management Actions
Section 8: Adaptive Management Framework
Section 9: Risk Management
Section 10: Reference List
Section 11: Appendices

Appendices

Appendix A: MNES Habitat Quality Gain Tables
Appendix B: EPBC Offset Calculator Sheets
Appendix C: Suitably Qualified Field Ecologist – Curriculum Vitae
Appendix D: Habitat Quality Raw Data
Appendix E: Baseline Camera Monitoring – Raw Data
Appendix F: Rehabilitation Management Plan ROA 4

PURPOSE OF THE MANAGEMENT PLAN

The purpose of this OMP is to:

- Provide details and timing on the legally binding mechanism to secure the ROA 4 values at the Offset property;
- Provide baseline values for a range of key habitat quality indicators in the offset ROA 4 for repetitive use in measuring and monitoring habitat improvement commitments;
- Outline the specific management actions and tasks to be undertaken in the offset area for managing threats, pests and improving habitat values for the Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater;
- Outline restrictions and operational controls on existing agricultural and grazing land uses;
- Establish robust and scientifically driven metrics, monitoring and reporting procedures to ensure the offset delivery achieves the predicted conservation gain for the species;
- Assign responsibilities for tasks, actions, operational controls, measuring, reporting, corrective actions and funding for all works at the Rosevale offset property;
- Identify, account for and manage risks associated with all or part of the offset outcomes not succeeding through definition of an Adaptive Management Framework and corrective action triggers.

OFFSET MANAGEMENT PLAN LIMITATIONS

The OMP aligns with relevant principles and sections of the *Environmental Management Plan Guidelines* (2014), however, is designed for on-ground implementation and not specific value assessment against the EPBC Offset Assessment Guide (OAG). The assessment of values for Risk of Loss and Quality are included and justified within the technical information provided in the Preliminary Documentation prepared by Saunders Havill (2025). A summary of the EPBC Offset Assessment Guide is provided further into this OMP. Quality value changes in this assessment are derived from specific actions listed in this OMP and thus where applicable assessment metrics have been listed in the measurement targets of Management Action Tables included in Section 7.

RESPONSIBLE PARTIES FOR OFFSET MANAGEMENT PLAN

Excluding the regulatory role completed by the Commonwealth Government for the assessment and approval of the offset and the Queensland Government for registering and declaring the Voluntary Declaration the following entities retain key responsibilities for implementation of this OMP:

Springfield City Group Pty Ltd (Project Proponent)

Springfield City Group Pty Ltd are the owner and operational developer of the Scenic Precinct Project. Responsibilities include:

- Obtaining and complying with all conditions of the EPBC approval for the project.
- Entering into a commercial agreement with Montauban Environmental Offsets for the delivering of EPBC compliant offsets.
- Commissioning the preparation of Annual Compliance Reports as triggered within approved project conditions.

Montauban Environmental Offsets Pty Ltd (Offset Provider)

Montauban Environmental Offsets Pty Ltd (MEO) is a purpose-built environmental offset company. Responsibilities include:

- All on-ground implementation of the OMP.
- Monitoring and reporting on OMP actions, tasks and outcomes.
- Appointment of relevant experts or experienced contractors to undertake management actions within the ROA 4.
- Engaging suitably qualified person(s) to undertake monitoring surveys prescribed in the OMP and RMP.
- Undertaking corrective actions for any non-compliance activities and required adaptive management.
- Managing stakeholder relationships including adjoining grazing operations and Scenic Rim Regional Council.
- Commission a review and amendments to the approved OMP as required.

Saunders Havill (Environmental Consultant)

Saunders Havill Group provide the tertiary trained and experienced field ecologists in support of approval and ongoing compliance for the Rosevale offset property and Environmental Management Zones. Responsibilities to be carried out as appointed by the Proponent include:

- Collection, interrogation and analysis of robust scientifically justified survey data for use as the baseline values at the offset property.
- Repeating surveys as set out in this OMP or as per conditions of approval for measuring improvement outcomes.
- Preparation and lodgment of the Legally Binding Mechanism (VDEC) with the Queensland Government.
- Offset monitoring reports against reporting framework in this OMP and approval conditions.

LEGALLY BINDING MECHANISM

The Offset Area (as finalised through the EPBC Act Approval) will be legally secured through a Voluntary Declaration (VDEC) declared under the Queensland Government's *Vegetation Management Act 1999* (VMA). A VDEC protects land and values and is binding on future owners. The Queensland Government describes the benefits of the VDEC as "*One of the strengths of a declaration is that it provides greater protection to areas of land containing environmentally valuable native vegetation*."

The declaration and management plan will be noted on the land title, which informs prospective buyers of current declarations and management plans and where copies are available. This information is important to the property market as future owners will be bound by the plan and declaration (Queensland Government, 2017).

The legally securing of the land will be made through declaring the areas as having High Nature Conservation Values. Based on the VMA criteria the Offset Area will be declared as achieving items (d) and (f) below:

To be considered for declaration as an area of high nature conservation value, the area must be one or more of the following:

a) *a wildlife refugium—an area where a species or a group of species has retreated due to a threatening process (e.g. climatic change);*
b) *a centre of endemism—an area containing concentrations of species that are largely restricted to the area;*
c) *an area containing a vegetation clump or corridor that contributes to the maintenance of biodiversity;*
d) *an area that makes a significant contribution to the conservation of biodiversity;*
e) *an area that contributes to the conservation value of a wetland, lake or spring; or*
f) *another area that contributes to the conservation of the environment.*

The VDEC will be lodged and legally secured by evidence of encumbrance on Registered Land Title prior to the commencement of any clearing works on the Impact Site. As noted, this protects the vegetation by way of purpose-built regulation on the title so all future landowners are aware of the restrictions prior to purchase.

PROJECT DESCRIPTION – IMPACT SITE

DESCRIPTION OF THE ACTION

Springfield City Group Pty Ltd ('the Proponent') seeks to develop a mixed density residential community on land located at Springfield College Drive, Springfield, legally described as Lot 51 on SP242316, part of Lot 1 on RP863336 and part of Lot 50 on SP242316. The proposed action includes mixed-density residential dwellings, recreation and conservation, internal road network, childcare centre and supporting infrastructure.

Contextually, the site is located within Springfield, Ipswich and lies within the Springfield Structure Plan (SSP) area. The SSP sets out the broader planning framework for land within the structure plan boundary. The Scenic

Precinct will be developed in accordance with the SSP. The SSP designate the land as community residential and open space.

The site abuts Opossum Creek to the west and south, vacant land parcels to the north, Springfield Anglican College, residential areas and Springfield College Drive to the east. It is located approximately 1.5 km north of Springfield Central and 15.3 km south-east of Ipswich Town Centre. The site consists of remnant eucalypt woodland vegetation, mapped as Category B (remnant) under the *Vegetation Management Act 1999* (VMA). The surrounding landscape contains a matrix of mixed uses, including new residential developments, open space and future developments. The parcel south of the project area containing Lot 163 SP303741 contains EPBC Referral 2020/8629 (Peninsula Precinct).

The project design has been guided by physical constraints, *in situ* ecological values informed by specialist consultant reports and land use zoning. Approximately half of the background land parcel is zoned as Community Residential and the remaining as Open Space under the SSP. As such, the location of the community residential use is considered to be aligned with on-ground values and the planning intent of the area. The proposed park and open space area is located to provide a buffer to the adjoining Opossum Creek values located west of the site.

The proposed development footprint will necessitate the disturbance of approximately 24.20 hectares (ha) of vegetation. The proposed development will include a mixed precinct comprising:

- Town Business;
- Retail;
- Childcare;
- Utilities;
- Parklands;
- Roads and infrastructure;
- Place(s) of worship;
- Education; and
- Town Residential.

IMPACT AREA VALUES

The site contains 24.20 ha of remnant vegetation mapped under the *Vegetation Management Act 1999* (VMA) which is mapped across the entirety of the site. The remnant vegetation is mapped as composite RE12.9-10.2/12.9-10.7/12.9-10.19 (65/20/15%) which are classed under the VMA as 'Least Concern', 'Of Concern' and 'Least Concern', respectively.

The dominant RE was identified to be 'Least Concern' RE12.9-10.2 due to the dominance of *Corymbia citriodora* (Spotted Gum) and *Eucalyptus crebra* (Narrow-leaved Ironbark) (Plan 1).

Elements of RE12.9-10.7 and RE12.9-10.19 were present as indicated by the presence of other canopy species including *Eucalyptus moluccana* (Gum-topped Box), *Eucalyptus fibrosa* (Broad-leaved Ironbark), *Eucalyptus tereticornis* (Forest Red Gum), *Eucalyptus acmenoides* (White Mahogany) and *Angophora leiocarpa* (Smooth-barked Apple). The understorey contained a mix of *Acacia* species including *Acacia concurrens* (Black Wattle), *Acacia leiocalyx* (Early Flowering Black Wattle), *Acacia disparrima* (Hickory Wattle), *Acacia fimbriata* (Brisbane Wattle), and *Alphitonia excelsa* (Soap Tree). The ground layer was dominated by native forbs and grasses such as *Aristida vagans* (Threeawn Speargrass), *Themeda triandra* (Kangaroo Grass), *Cymbopogon refractus* (Barbed

Wire Grass), *Heteropogon contortus* (Black Speargrass), and contained an abundance of leaf litter. The ground layer was largely devoid of weeds except for isolated areas of *Lantana camara* (Lantana) and *Lantana montevidensis* (Creeping Lantana) infestations. The canopy height and coverage of the confirmed 'remnant' RE12.9-10.2 is consistent with the remnant status definition.

MNES IMPACT

The Controlled Action decision was based on the determination of potential impacts on the following Matters of National Environmental Significance (MNES):

Listed threatened species and ecological communities (sections 18 & 18A) protected under Part 3 of the EPBC Act, specifically:

- Koala (*Phascolarctos cinereus* – combined populations of Qld, NSW and the ACT) listed as Vulnerable
- Grey-headed Flying-fox (*Pteropus poliocephalus*) listed as Vulnerable

Through detailed surveys and analysis two of these matters (Koala and Grey-headed Flying-fox) have been determined as likely to be impacted and triggering EPBC Act environmental offsets. An additional two (2) species have been determined to have critical habitat impacted as per Conservation Advice and also require environmental offsets:

- Swift Parrot (*Lathamus discolor*)
- Regent Honeyeater (*Anthochaera phrygia*)

The proposed action will result in the direct clearing and loss of 24.20 ha of habitat for the Koala and GHFF and the loss of 1,755 habitat features for the Swift Parrot and 1,891 habitat features for the Regent Honeyeater. Refer to Plan 1 for the proposed action impact plan and assessment units. Details on the impact on MNES are detailed in Table 1.

It is noted a combined impact and offset assessment for EPBC 2020/8651 (Scenic Precinct) and EPBC 2020/8629 (Peninsula Precinct) has been completed for the Swift Parrot and Regent Honeyeater as planting obligations will be delivered across both the ROA 4 offset area (Scenic Precinct) and adjoining ROA 3 offset area (Peninsula Precinct).

1. Impact Site Assessment Units

Montauban Environmental Offsets

1:4,500

0 50 100 m

N W E S

Co-ordinate System: GDA2020 MGA Zone 56

References:
© State of Queensland, 2022
© Nearmap, 2025

Project: Rosevale Offset Area 4

Date: 23/10/2025

10559 E 01 OMP_S Impact Site Assessment Units A

DISCLAIMER:
THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWING BY ANY THIRD PARTY CANNOT BE ACCEPTED .

Legend

- Qld DCDB
- Impact Site
- **AU 1**: Remnant RE 12.9-10.2 [24.2 ha]

2. OVERVIEW OF PROPOSED OFFSET AREA

OFFSET AREA DESCRIPTION AND TENURE

The Rosevale Offset Property is located on Tarome Road, Tarome. The Rosevale Offset Property is and is approximately 9.5 km north-west of Aratula and located in the Scenic Rim Regional Council Local Government. The offset site associated with this property, Rosevale Offset Area 4 (ROA 4), is located approximately 52 km south-west of the Scenic Precinct Project area, where MNES habitat impacts are proposed (**Plan 2**). The ROA 4 site was identified to achieve the offset required under the EPBC Act Preliminary Documentation.

Rosevale Offset Property is contained on the following allotments:

- Part of Lot 1/CC3571
- Lot 103/CH311061
- Lot 115/SP167206
- Lot 116/SP167206
- Lot 211/CH311636
- Lot 229/CH312601
- Lot 24/CH312265
- Lot 230/CH312495
- Lot 4/RP31137
- Lot 71/CH311061
- Lot 72/CH311061
- Lot 77/CH311086
- Lot 9/CH311910
- Lot 86/RP234513
- Lot 68/CH311061

For this offset strategy, the proposed offset area (ROA 4) is contained on the following allotments of the offset property:

- Part of Lot 1/CC3571
- Lot 77/CH311086

The land tenure of Rosevale is freehold, where it retains a rural land use zoning under the Scenic Rim Planning Scheme 2020. The offset property can be accessed via Moorang Lane off Tarome Road – both of which are rural roads. From the northern to the southern boundary the offset site spans 3.5 km and west to west covers 3.6 km. The offset site is currently zoned as Rural and is located adjacent to a core Biodiversity Corridor under the local government planning scheme, discussed in the following sections. The site context and site aerial of the offset site are provided in **Figure 1** and **Figure 2,** respectively. Key details relating to the offset site are in **Table 1**.

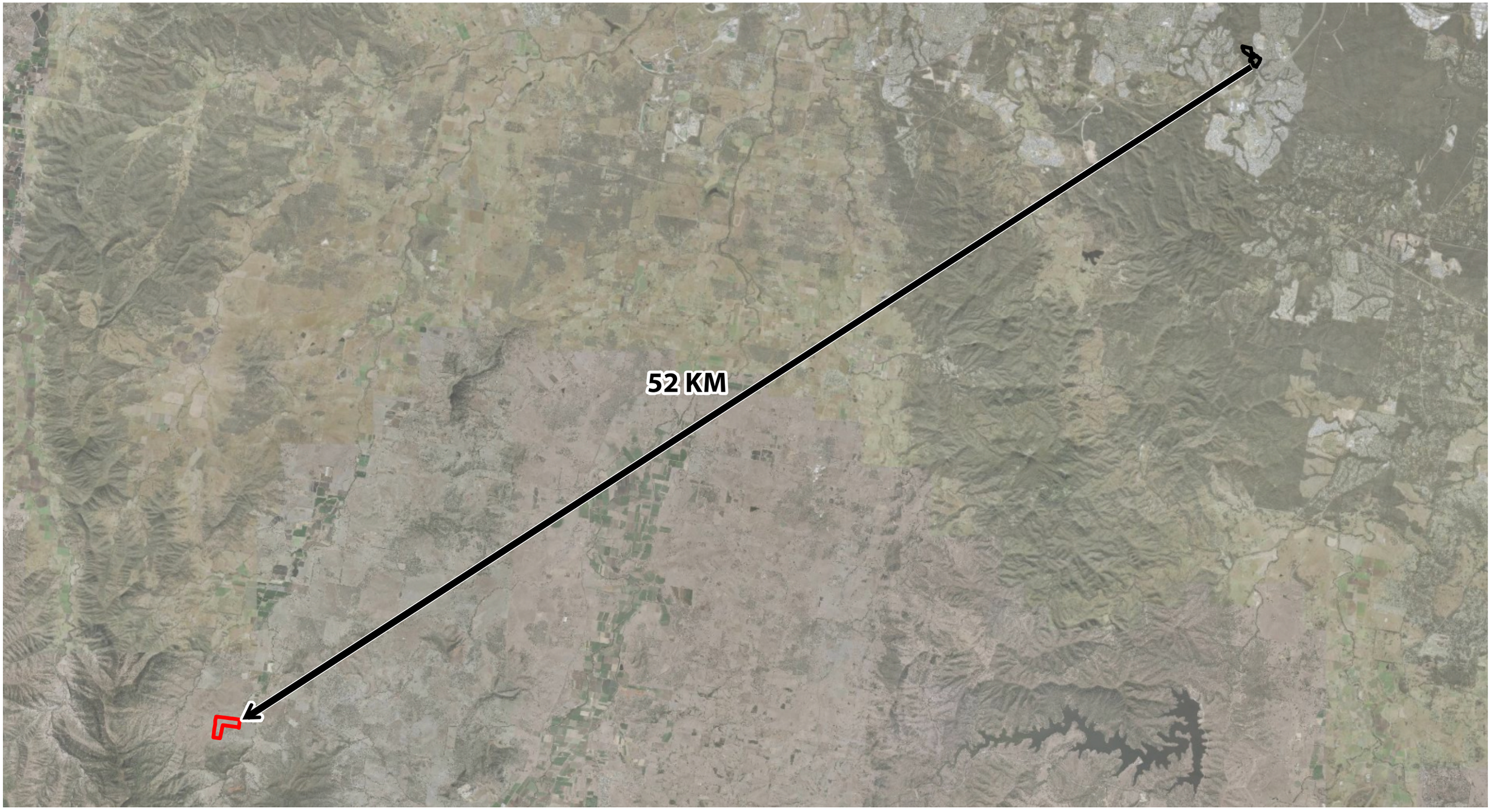
Table 1: Rosevale Offset Area 4 (ROA 4) Summary

Offset Site Address	1 Moorang Lane, Moorang, Queensland, 4340
Lot / Plan	Lot 77 on CH311086 and part of Lot 1 on CC3571
Area	51.8 ha of a 154.59 area
Tenure	Freehold
Current Land Use	Cattle grazing and cropping
Local Government Area	Scenic Rim Regional Council

The Scenic Precinct Offset Area forms part of the broader Rosevale Offset Property and is referred to throughout the OMP as the Rosevale Offset Area 4 (ROA 4) or Scenic Precinct Offset Area. The entirety of the Rosevale Offset Property totals to approximately 800 ha of the land, the majority of which is associated with a number of proposed EPBC biodiversity offsets with a broad aggregation of conservation outcomes. The ROA 4 area on-site associated with the Scenic Precinct (EPBC 2020/8651) will account for 51.8 ha of the Rosevale Offset Property.

The Rosevale Offset Property comprises of mixed vegetation values, ranging from cleared open paddocks and dead plantation trees, through to regrowth and remnant open eucalypt forest. The ROA 4 site consists of entirely open paddocks and dead plantation trees, designated entirely as non-remnant which has been assessed throughout the report as two assessment units (AUs). The majority of ROA 4 is flat land with a constructed dam towards the center at the western boundary which contains a mapped drainage feature that connects to the Bremer River north of the site. Currently habitat values within ROA 4 are significantly limited with only scattered large trees in the south adjoining mapped regrowth (Category C) vegetation and State mapped Koala Habitat Area.

2. Offset Property Context Plan



Montauban Environmental Offsets

1:160,000

0 1 2 4 km

N W E S

Co-ordinate System: GDA2020 MGA Zone 56

References:
© State of Queensland, 2022

Project: Rosevale Offset Area 4

Date: 28/10/2025

10559 E 02 OMP_S Offset Property Context Plan A

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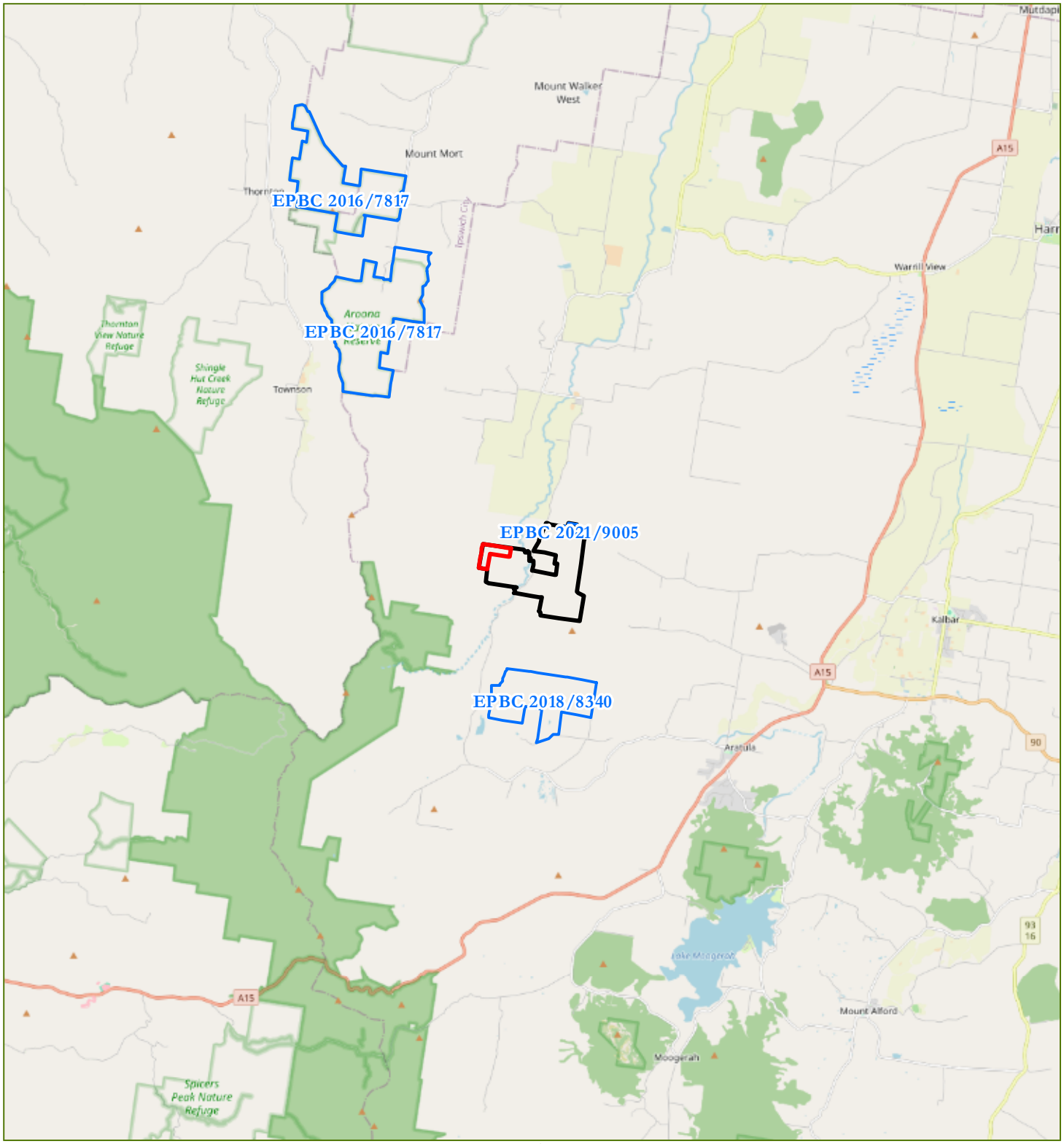
Legend

- Impact Site
- Offset Area



Legend

- Offset Properties
- Offset Area
- Existing Approved Offset

Figure 1

Offset Property Context

File ref.	10559 E Figure 1 OMP_S Site Context A
Date	23/10/2025
Project	Rosevale Offset Area 4 - Scenic Precinct

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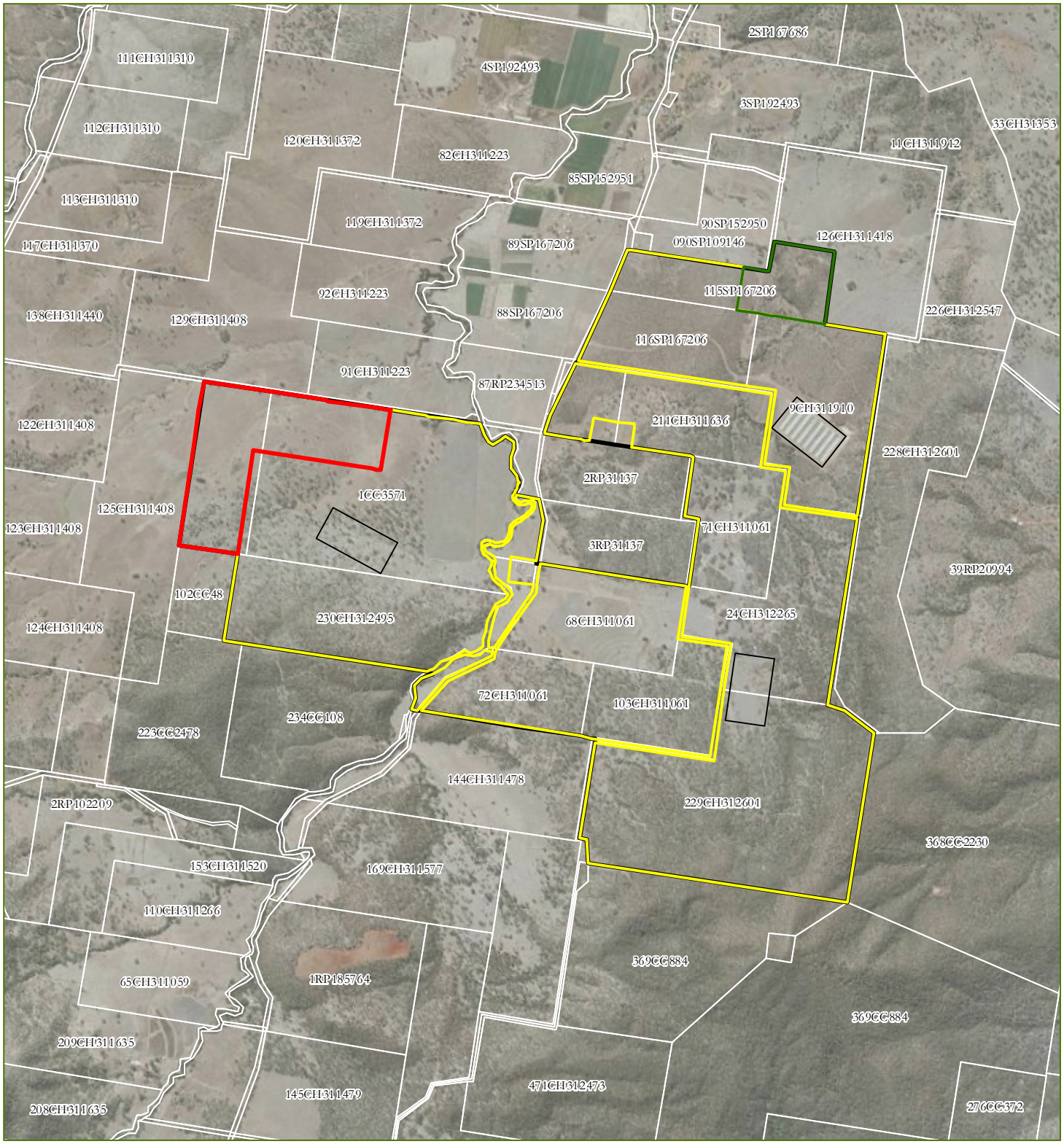
0 2 4 6 8 km

Scale (A4): 1:200,000 [GDA 2020 MGA Z56]

Montauban Environmental Offsets

Layer Source: © State of Queensland 2025



Legend

- Qld DCDB
- Approved Offset Boundary
- Future Offset Boundary
- Offset Area
- Proposed Poultry Shed
- Offset Properties

Figure 2

Offset Property Aerial

File ref. 10559 E Figure 2 OMP_S Site Aerial A
Date 23/10/2025
Project Rosevale Offset Area 4 - Scenic Precinct

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N

0 200 400 600 800 1,000 m

Scale (A4): 1:30,000 [GDA 2020 MGA Z56]

Montauban Environmental Offsets

Layer Source: © State of Queensland 2025

OFFSET AREA VALUES

The offset property, Rosevale, comprises of mixed vegetation values, ranging from cleared open paddocks and dead plantation trees, through to regrowth and remnant open eucalypt forest. The offset area for this project, ROA 4, consists of mainly of open paddocks and regrowth vegetation.

TOPOGRAPHY

The Rosevale offset property is characterised by a high point located in the southern portion of the site (Lot 77/CH311086) which slopes to the north, where a low point is associated with a drainage feature which flows into the Bremer River to the north. The balance of the offset property is considered flat, with some undulating areas where there are cleared gully lines. The topography of ROA 4 is largely flat due to its location on the flats adjacent Bremer River.

WATER RESOURCE(S)

The Rosevale offset property contains numerous man-made farm dams which have been utilised for historic cropping and agricultural purposes. Natural water resources on-site are defined by the Bremer River which straddles the eastern boundary of the western parcels of the Rosevale offset property (Lot 230/CH312495 and Lot 1/CC3571). Additional to this major waterway, a network of mapped watercourses and drainage features as defined under the *Vegetation Management Act 1999* are observed throughout much of the Rosevale Offset Property. In regard to water resources in the ROA 4 offset, a mapped low-risk DPI waterway traverses through the centre of the lot which flows into the Bremer River to the north, a reservoir is present along the western boundary connecting to this drainage feature and two constructed dams are present at the northern extent. Refer to Plan 3 for identification of the water resources on the offset property.

The Rosevale offset property encompasses up to the low bank of the Bremer River with the low-bank un-allocated state land which is not within the proposed offset area. In its current state much of the Bremer River's vegetation is in a modified state due to cattle grazing activities. In the broader Rosevale Offset site holdings, offset management actions adjacent to the waterway will include weed management and rehabilitation plantings. Weed management adjacent to aquatic systems will be conducted by certified rehabilitation specialists with management to reduce run-off of chemicals and the use of aquatic safe herbicides advised. Additionally, research indicates that vegetation surrounding waterways benefits the aquatic system by reducing water temperature and helping filter out sediment and nutrients before it enters the waterway (Stephens, T. & Wright-Stow, A, 2017). The replenishment of native canopy and ground cover vegetation as well as the removal of grazing cattle and management of feral animals which exacerbate erosion such as Feral Pigs and Rusa Deer is anticipated to stabilise banks and ultimately improve water quality by limiting sediment run off into the aquatic system.

LANDSCAPE CONTEXT VALUES

The offset property is located approximately 9 km north-west of Aratula and adjoins a large tract of remnant vegetation associated with Mount Fraser to the south and Main Range National Park to the west. The offset property and restoration efforts will improve and promote east-west connectivity into the National Park,

providing critical habitat refugia for native fauna. Presently, the offset property forms part of a greater than 10,000 ha contiguous landscape of native regrowth and remnant vegetation.

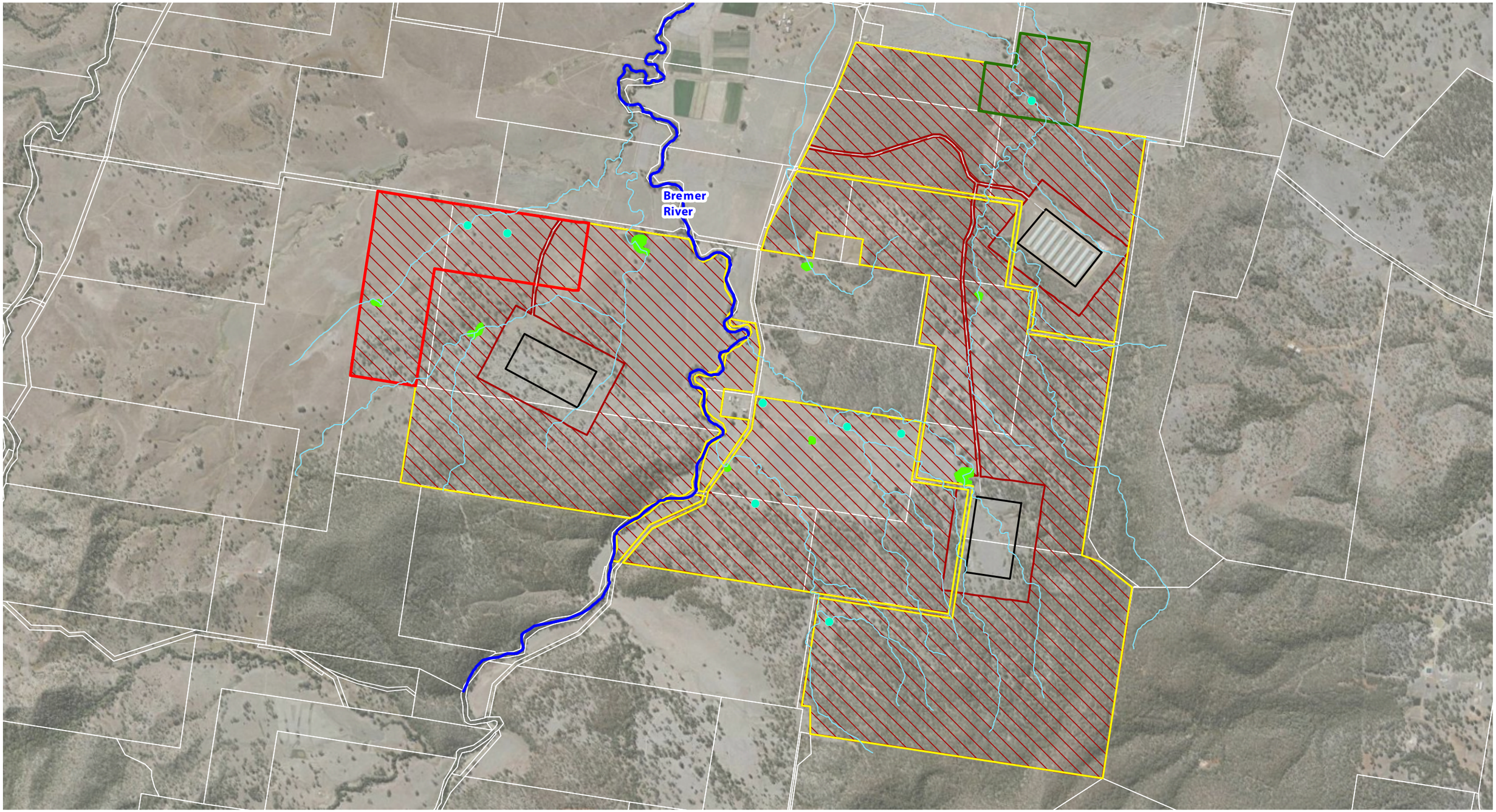
It is important that the offset area matches the environment of the impact area both from a vegetation perspective and landscape standpoint. For this reason, it is a benefit that both the impact and offset property occur within the same Interim Biogeographic Sub Region (SEQ 02 Moreton Basin Sub-region) as sought in draft Updated Offset Guideline material (Figure 3). The impact site and offset site are also located within the same Southeast Queensland bioregion (SEQ Bioregion 12) established and mapped by the Queensland Government. Furthermore, both the impact and offset properties are located within the same sub-region of Bioregion 12 mapped under the Southeast Queensland Biodiversity Planning documents (Figure 4) therefore experiencing similar climatic, landform, geological, topographical, vegetation and biota patterns. It is also noted that the impact and the offset property are located in adjacent Local Government Areas.

The ROA 4 is located adjacent to land which contains a State Riparian Corridor that is associated with Bremer River (Figure 5) with essential habitat for Koala and State mapped Koala Habitat Areas mapped directly adjacent the southern and eastern boundaries. Therefore, enhancing the environmental values within the currently largely cleared offset area would improve the waterway corridor and increase safe movement opportunity and foraging habitat for Koala, GHFF, Swift Parrot and Regent Honeyeater.

It has also been highlighted that offset property connects to vegetation that falls within the Regional Biodiversity Corridor 101 described as *Kangaroo Mountain to Rosewood Corridor: Extends from Kangaroo Mountain (Main Range National Park) through to Mt Walker and Rosewood Regional* (5 km) (Figure 6). Similarly, Moorang Wildlife Corridor, south of the offset site, forms a direct connection to the vegetation within the offset site. Therefore, all habitat protection and habitat creation is supported by this strategic intent of the land. It is also importantly noted that the land is not located within an area at threat of new development expansion, road or rail upgrades or extractive resource uses.

Review of publicly available data (Queensland WildNet & Atlas of Living Australia) indicate that there are numerous historical and recent Koala sightings surrounding the site (Plan 5). Atlas of Living Australia (2023) identifies 64 Koala sightings within 10 km of the offset area, 38 of which are from the past 13 years. This data indicates that the vegetation on and surrounding the offset property is suitable habitat for the Koala, and more importantly, the creation and enhancement of the east-west corridor connection to the Main Range National Park and improvement of the Bremer River corridor is an important outcome in achieving a positive conservation gain for the species and the genetic diversity of the koala population in the Aratula and Scenic Rim locality.

3. Offset Property Water Resources



Montauban Environmental Offsets

1:18,000

0 100 200 300 400 m

N W E S

Co-ordinate System: GDA2020 MGA Zone 56

References:
© State of Queensland, 2022

Project: Rosevale Offset Area 4

Date: 28/10/2025

10559 E 04 OMP_5 Offset Property Water Resources A

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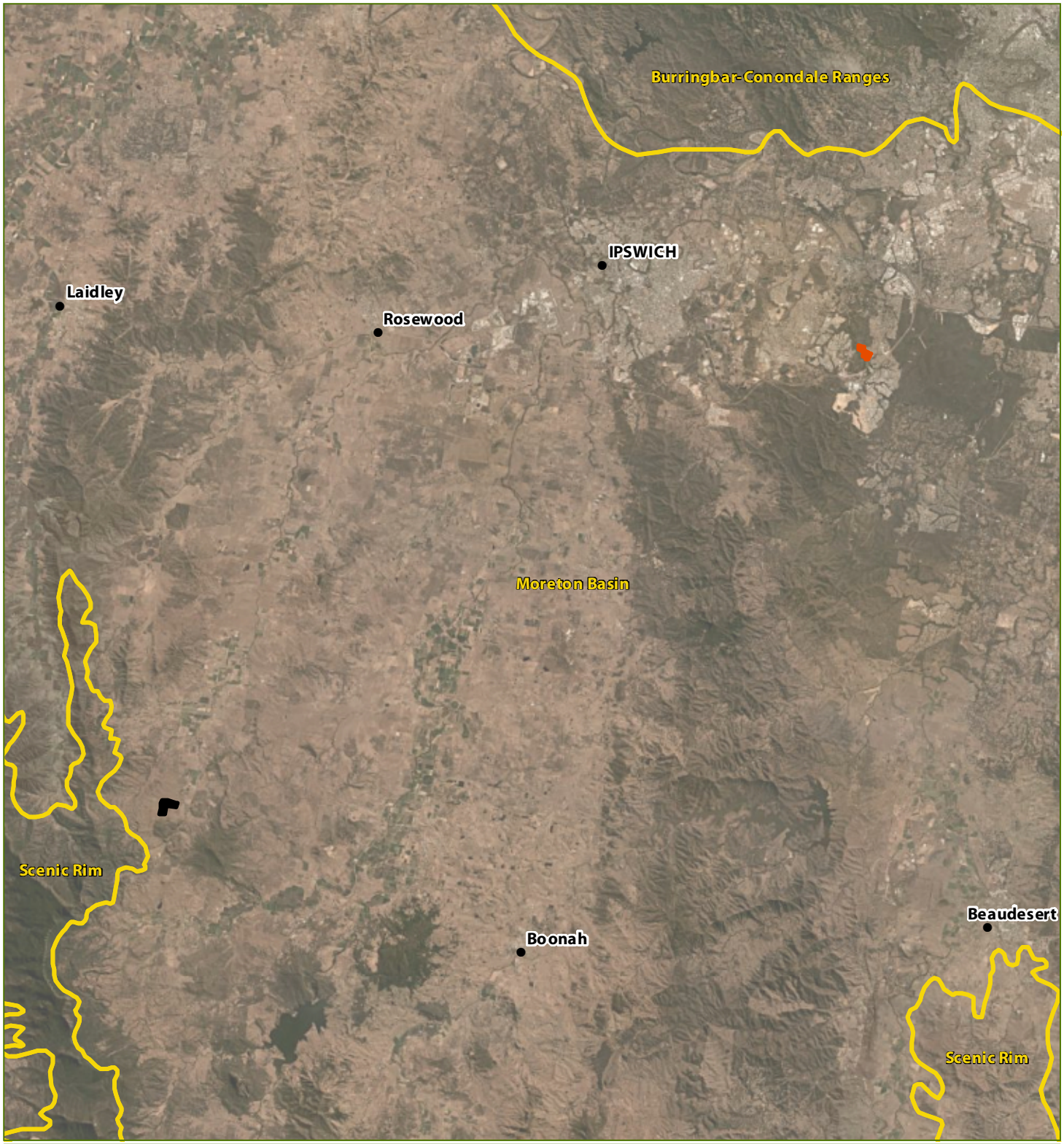
Legend

- Qld DCDB
- Approved Offset Boundary
- Future Offset Boundary
- Offset Area
- Proposed Chicken sheds
- Poultry shed access track

Water Resources

- Major Watercourse
- Creeks and Drainage Features
- Dams
- Reservoirs



Legend

- IBRA - Subregions
- Offset Area
- Impact site

Figure 3

Interim Biographical Regionalisation of Australia - Moreton Basin Sub-Region

File ref. 10559 E Figure 3 OMP_S IBRA A
Date 23/10/2025
Project Rosevale Offset Area 4 - Scenic Precinct

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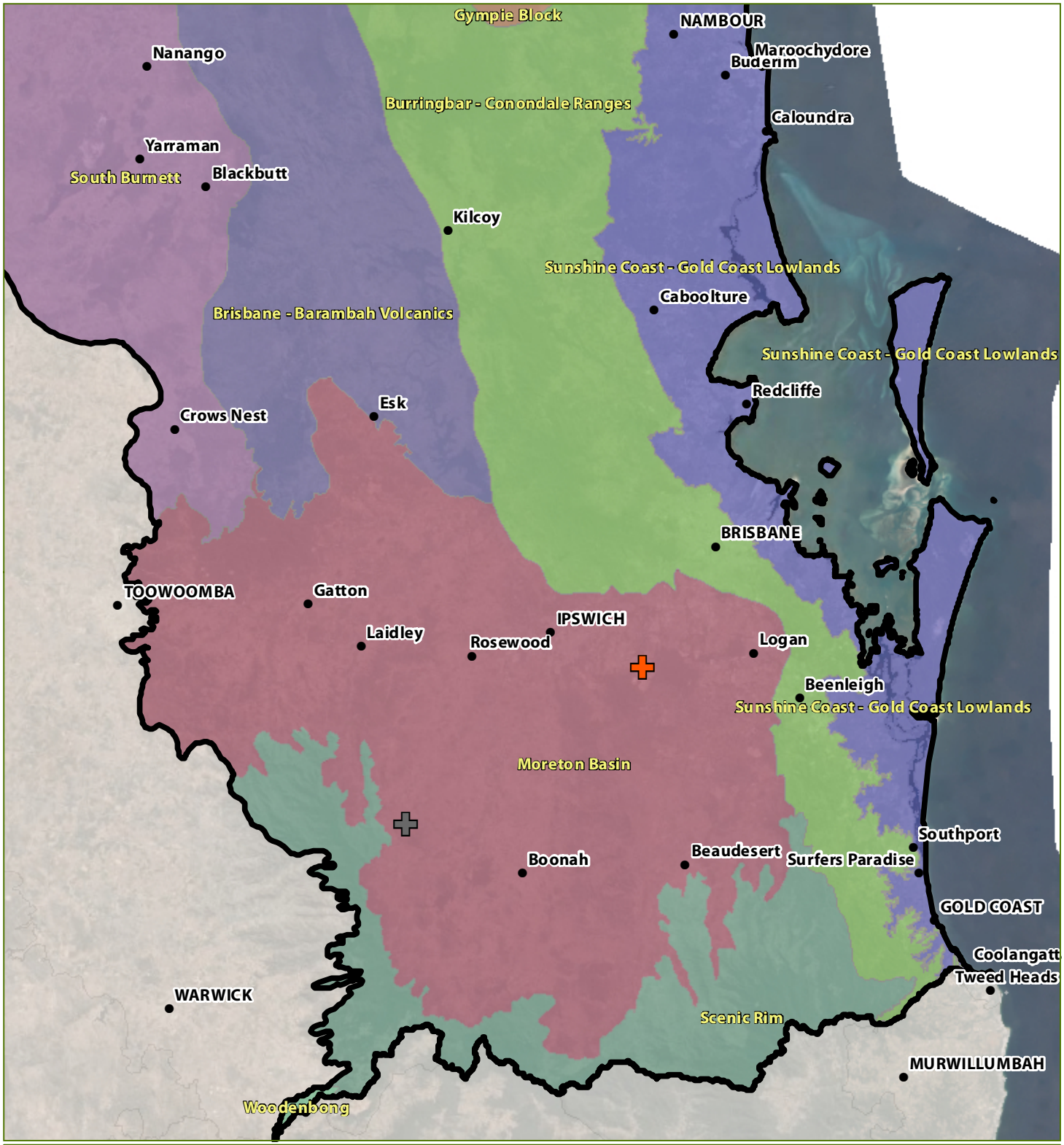
N

0 2 4 6 8 10 km

Scale (A4): 1:350,000 [GDA 2020 MGA Z56]

Montauban Environmental Offsets

Layer Source: © State of Queensland 2025



Legend

- South East Queensland Bioregion
- Offset Properties location
- Impact site location

Figure 4

South East Queensland - Bioregion 12 Biographical Subregions

File ref.	10559 E Figure 4 OMP_S Bioregion 12 A
Date	23/10/2025
Project	Rosevale Offset Area 4 - Scenic Precinct

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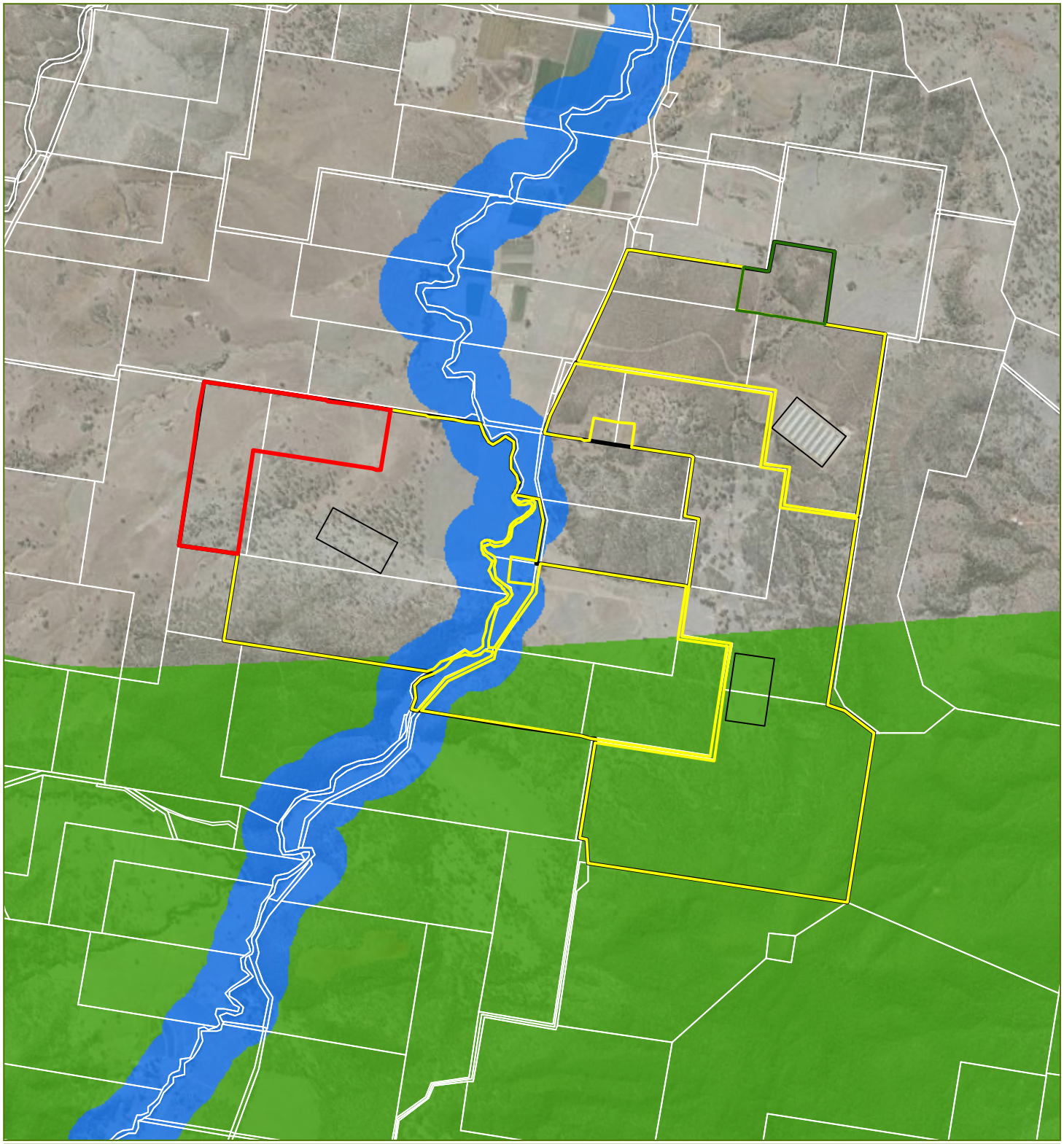
Scale (A4):1:1,000,000 [GDA 2020 MGA Z56]

Montauban Environmental Offsets

Layer Source: © State of Queensland 2025



Legend

- Qld DCDB
- Approved Offset Boundary
- Future Offset Boundary
- Offset Area
- Proposed Poultry Shed
- State Corridor Buffer
- Regional Corridor Buffer

Figure 5

South East Queensland Bioregional Planning Assessment - Corridor Mapping (Site Context)

File ref. 10559 E Figure 5 OMP_S BPA Site A
Date 23/10/2025
Project Rosevale Offset Area 4 - Scenic Precinct

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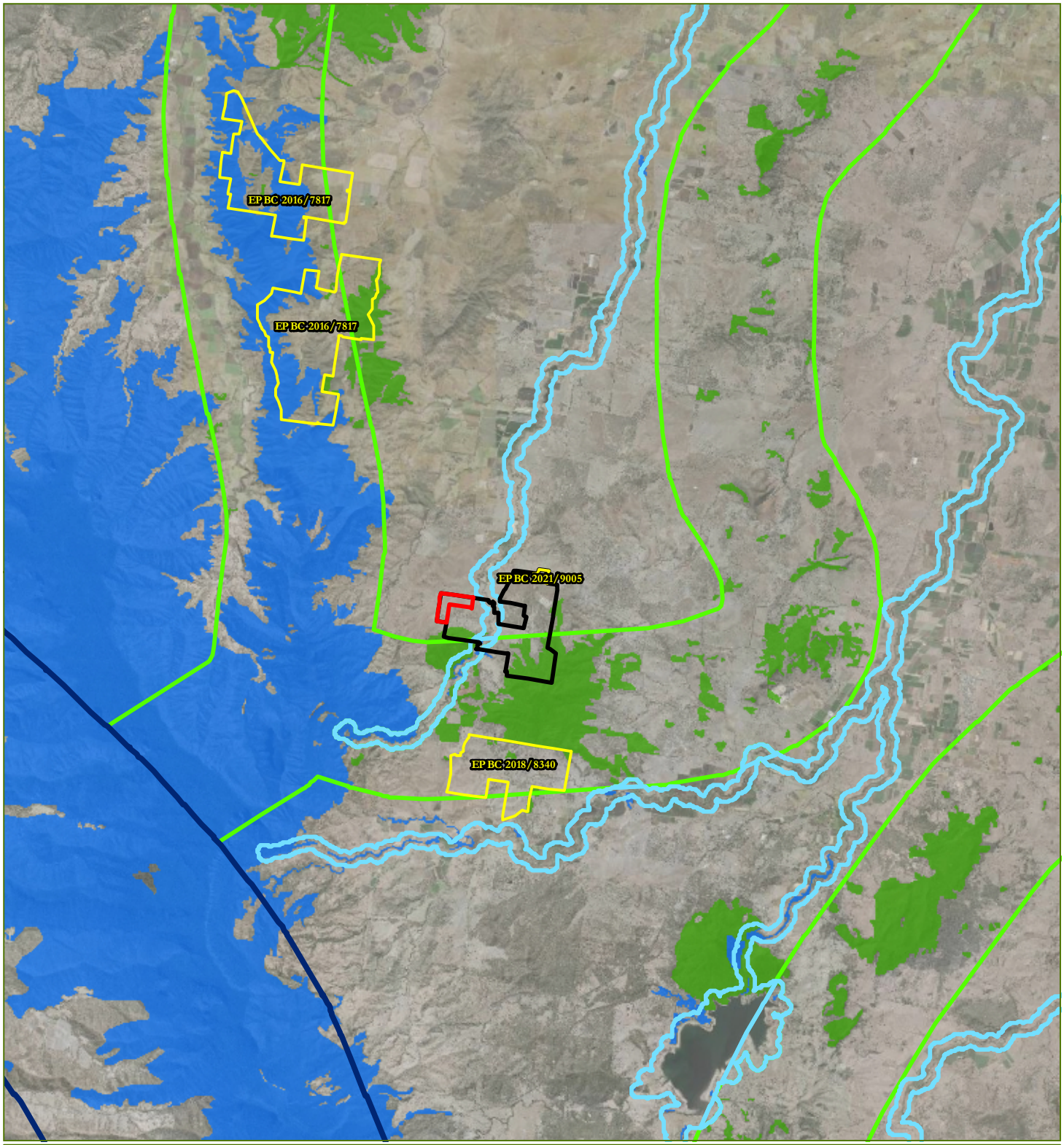
Scale (A4): 1:30,000 [GDA 2020 MGA Z56]

Montauban Environmental Offsets

Layer Source: © State of Queensland 2025



Legend

- Qld DCDB
- Offset Properties
- Offset Area
- Existing Approved Offset
- State Corridor (Terrestrial)
- State Corridor (Riparian)
- Regional Corridor (Terrestrial)
- State Vegetation
- Regional Vegetation

Figure 6

South East Queensland Bioregional Planning Assessment - Corridor Mapping

File ref. 10559 E Figure 6 OMP_S BPA Corridors A
Date 23/10/2025
Project Rosevale Offset Area 4 - Scenic Precinct

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N

0 2 4 6 km

Scale (A4): 1:175,000 [GDA 2020 MGA Z56]

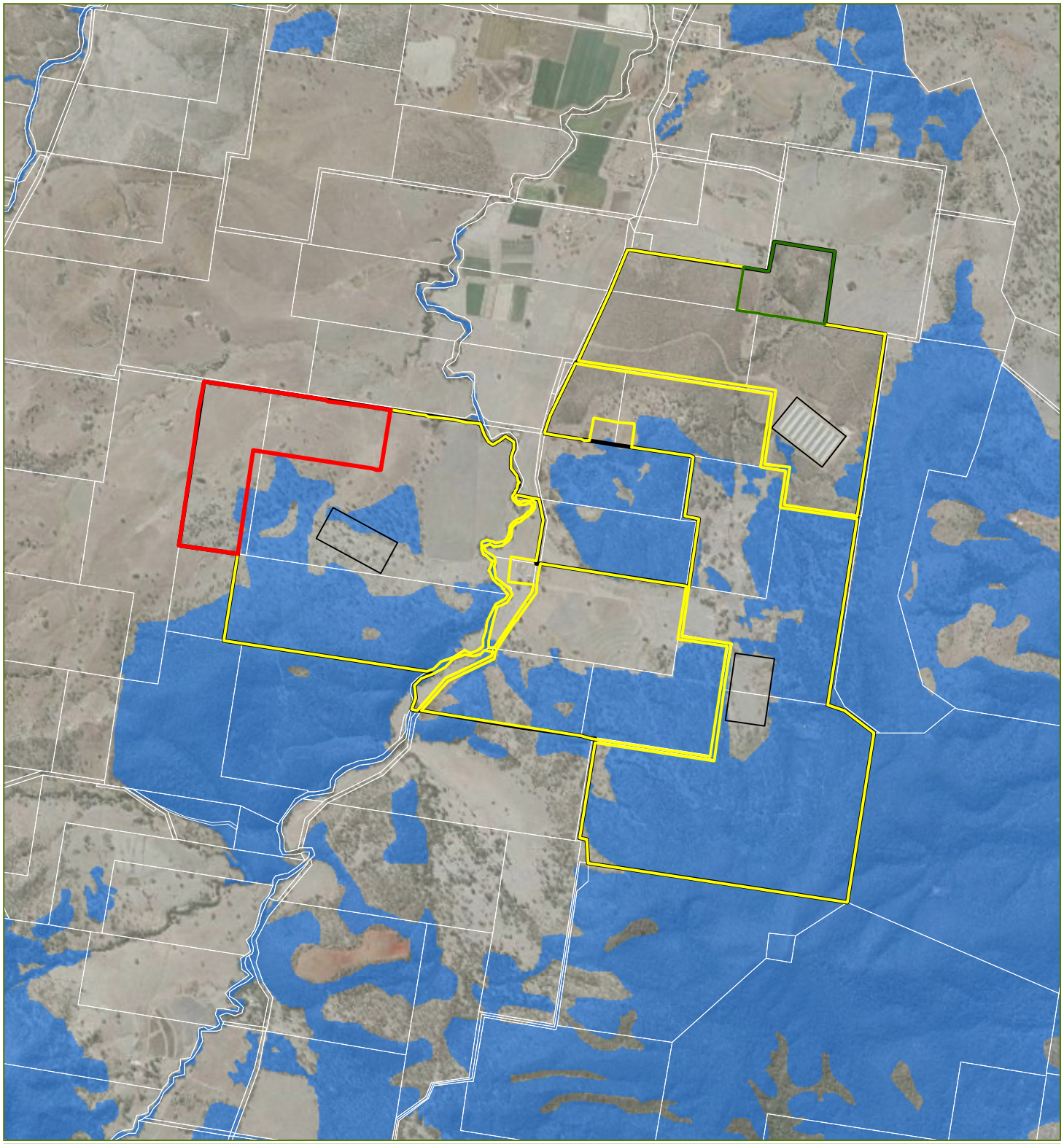
Montauban Environmental Offsets

Layer Source: © State of Queensland 2025

Surrounding state and local ecological value mapping to the offset site is considered significant to the conservation benefits it can provide. Locally the Rosevale offset property builds on a large cluster of vegetation mapped as 'Essential Habitat' for the Koala by the Queensland Government (Figure 7). The mapping of vegetated strands and fragments within the Rosevale offset property and surrounding the offset property strongly indicates that in providing protected and created habitat through this project it will ultimately also from part of the essential habitat network for the Koala. Where vegetation does occur on the offset property it is mapped as Core Koala Bushland under the Queensland Governments *South East Queensland Koala Conservation Strategy – 2020-2025* (Figure 8). Only a small portion of the south of ROA 4 contains KHA mapping, however, there are more significant patches surrounding ROA 4. The revegetation and management of ROA 4 will therefore benefit surrounding KHA by reducing fragmentation and increasing safe fauna movement.

The unique characteristics of soil, land zone, topography, elevation and geographical region indicate that additional habitat creation through the offset works will also be mappable as Core Koala Bushland under the State within 12-15 years of planting. Under the Scenic Rim Regional Council's *Biodiversity Strategy -2015-2025* the offset property contains a mix of areas mapped as 'Core Nodes' and 'Landscape Linkage' areas. Therefore, further supporting that uplift of the surrounding unmapped areas will eventually add to the network of connected vegetation and formalise a fauna refuge in perpetuity. In solidifying this area for offset purposes and rehabilitating the area, the Rosevale offset property will help link key stepping-stone nodes, as identified by SRRC, to the very large Main Range and Border Range National Parks (Figure 9).

Similarly, Moorang Wildlife Corridor, south of the offset site, forms a direct connection to the vegetation within the Rosevale Offset Property. As of October 2022, Scenic Rim Regional Council committed to a 50 percent increase in funding for their Environmental Grants Program. This budget increase benefits community groups and landholders that are working towards enhancing the Scenic Rims natural environment, preserving habitat for rare and threatened species and improving the quality of Scenic Rim waterways. This is inclusive of landholders who are working to reduce/eliminate wild pigs spreading weed seeds and eroding riparian areas in the Moorang area. Additionally, in April 2023, SRRC also introduced a biannual baiting program for Wild Dog controls where large land holdings can more readily access bait to manage feral species. These programs are set up to work most effectively where neighbouring properties coordinate. Therefore, the enhancement of the Rosevale Offset Site via the Project and intended management action of wild dog and feral pig control coincides with SRRC Biodiversity Strategy and stops the vegetation on-site becoming a haven for feral animals.



Legend

- Qld DCDB
- Approved Offset Boundary
- Future Offset Boundary
- Offset Area
- Proposed Poultry Shed
- Offset Properties
- VMA Essential Habitat

Figure 7

Qld Vegetation Management Essential Habitat

File ref. 10559 E Figure 7 OMP_S EHAB A
Date 23/10/2025
Project Rosevale Offset Area 4 - Scenic Precinct

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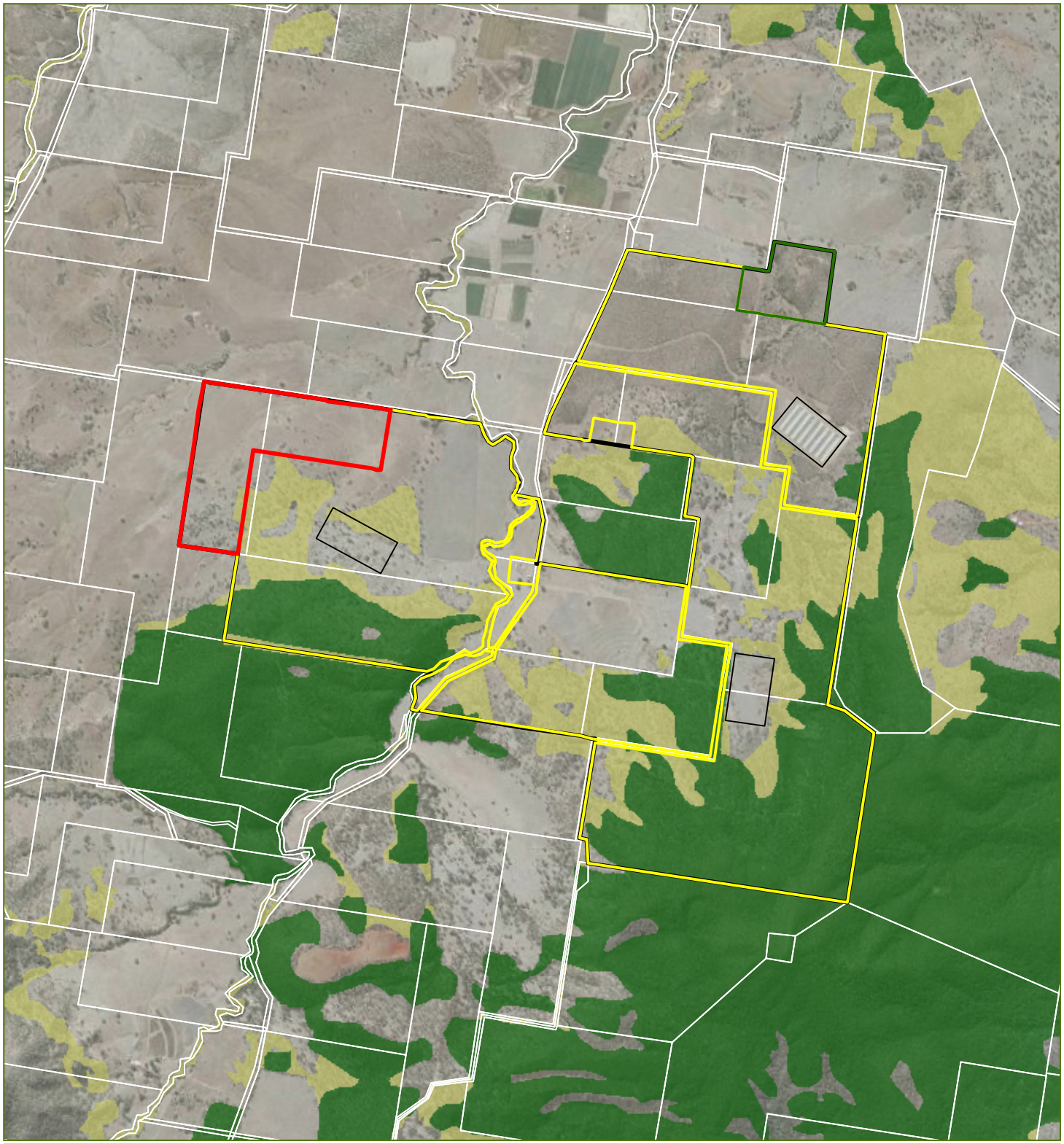
Scale (A4): 1:30,000 [GDA 2020 MGA Z56]

Montauban Environmental Offsets

Layer Source: © State of Queensland 2025



Legend

- Qld DCDB
- Approved Offset Boundary
- Future Offset Boundary
- Offset Area
- Proposed Poultry Shed
- Offset Properties

Koala Habitat Areas

- Core Remnant Koala Habitat Areas
- Core Regrowth Koala Habitat Areas

Figure 8

Qld Koala Habitat Areas

File ref. 10559 E Figure 8 OMP_S Koala 2019 A
Date 23/10/2025
Project Rosevale Offset Area 4 - Scenic Precinct

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Scale (A4): 1:30,000 [GDA 2020 MGA Z56]

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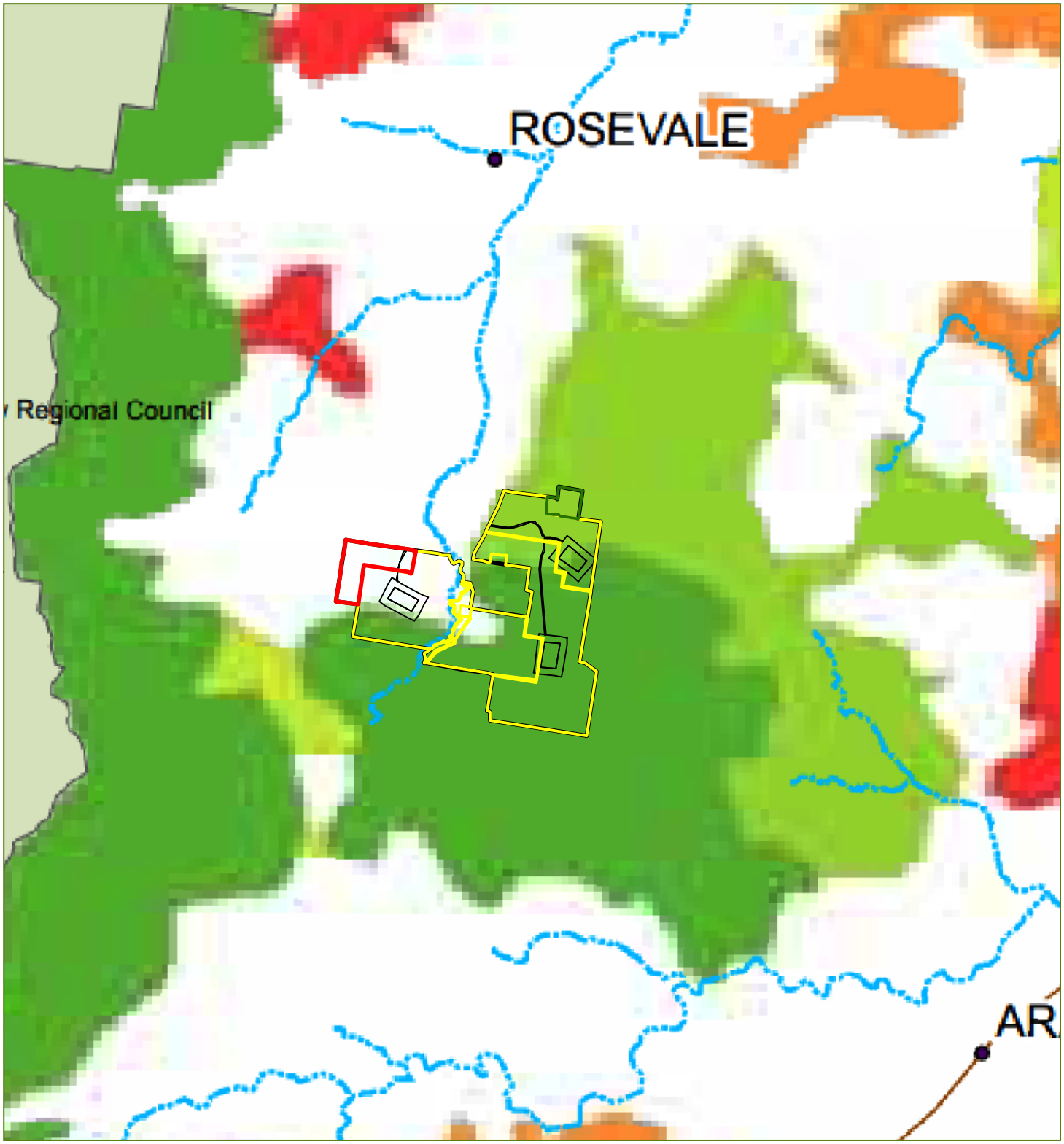

Legend

- Approved Offset Boundary
- Future Offset Boundary
- Offset Area
- Proposed Poultry Shed, 100m buffer area & access tracks
- Offset Properties
- Core
- Core Node
- Grassy Woodland
- Woodland Node
- Stepping Stone

Figure 9

Scenic Rim Regional Council
Biodiversity Management Framework
for the Scenic Rim Region

File ref. 10559 E Figure 9 OMP_S Local Mapping A
Date 23/10/2025
Project Rosevale Offset Area 4 - Scenic Precinct

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N

0 1 2 3 km

Scale (A4): 1:80,000 [GDA 2020 MGA Z56]

Montauban Environmental Offsets

Layer Source: © State of Queensland 2025

CURRENT MANAGEMENT ARRANGEMENTS

Presently, the Rosevale offset property is utilised for poultry farming, hardwood plantation, cattle grazing and cropping. A description of the current management arrangements is included below.

Refer to **Plan 4** for the location of the current management arrangements.

HARDWOOD PLANTATION

The offset property contains approximately 110 ha of land which has historically been utilised for hardwood plantation. The hardwood plantation consisted of native eucalypt species, which were planted in 2009, and then harvested and sold for commercial uses. The hardwood plantation management arrangement is a popular use in the surrounding area. The most recent hardwood plantation was impacted during a property maintenance burn which damaged the plantation stock, and it was unable to be harvested for commercial purposes. The financial incentive of hardwood plantation surrounding the poultry farming operations deems this a viable land management arrangement.

Refer to **Plan 4** or the hardwood plantation management area.

CATTLE GRAZING

The rural designation, undulating landscape and historically cleared open paddocks of the offset property provide for suitable cattle grazing practices. The offset property has cattle carrying capacity of approximately 300 head of cattle. The cattle grazing management arrangement compliments the poultry farming and hardwood plantation land uses, with no loss in cattle grazing capacity. The cattle grazing management practices occurs over the entirety of the Rosevale offset property.

CROPPING

The western offset property parcel (Lot 1 / CC3571) which is bound by the Bremer River on the eastern property boundary and offset property parcel Lot 77 / CH311086 contains suitable land type and topography to facilitate agricultural cropping. Given the accessibility to water (Bremer River) and compatibility for cropping uses, the flat land on Lot 1 / CC 3571 is suitable for an intensive management action, which compliments other compatible land uses on the offset property. The ability to undertake agricultural cropping on the offset property allows the landholder to provide feed for or fatten the cattle on-site. Cropping activities which overlap with the ROA 4 offset will be discontinued once approved and management activities begin.

Refer to **Plan 4** for the location of the cropping use on the offset property.

POULTRY FARMING

Presently, the Rosevale Offset Property retains existing poultry farming operations which have been occurring on the offset property since 2018. The poultry farming operations consist of 8 commercial broiler sheds with a capacity of approximately 360,00 birds and are 1.6 km north-east of the proposed ROA 4 offset. Furthermore, a Development Application has been approved for an additional 8 sheds (360,000 birds) which will be constructed in the next 2 years, one of which is planned south-east of ROA 4. For the existing poultry farm access roads are currently present and future proposed access is proposed to the approved poultry farms. These are considered a part of current management actions due to the increase of anthropogenic activity and vehicle

movement within these areas. This current management arrangement results in an intensive agricultural function on a large portion of land, which is retained and utilised for other compatible uses.

Under the Department of Agriculture and Fisheries *Development of Meat Chicken Farms in Queensland* (2016), "fixed setback distances" are established and maintained between the meat chicken farm and sensitive land uses. However, sensitive land uses referred to in this act are defined as community facilities, accommodation and dwellings, not environmental areas (Queensland Planning Provision, v4.0, 2014). This DAF document also indicates that these "are included largely to permit a simple, conservative evaluation of required buffer distances" and highlights the need for site-specific evaluation of setbacks in relation to sensitive land uses. Site-specific separation distances are heavily based on the dispersion of odours from their source. Regardless, a 100 m buffer area from the poultry farms to the offset site is provided to minimise the impacts of human activity, odour, dust, noise and light on intended offset areas conservation values.

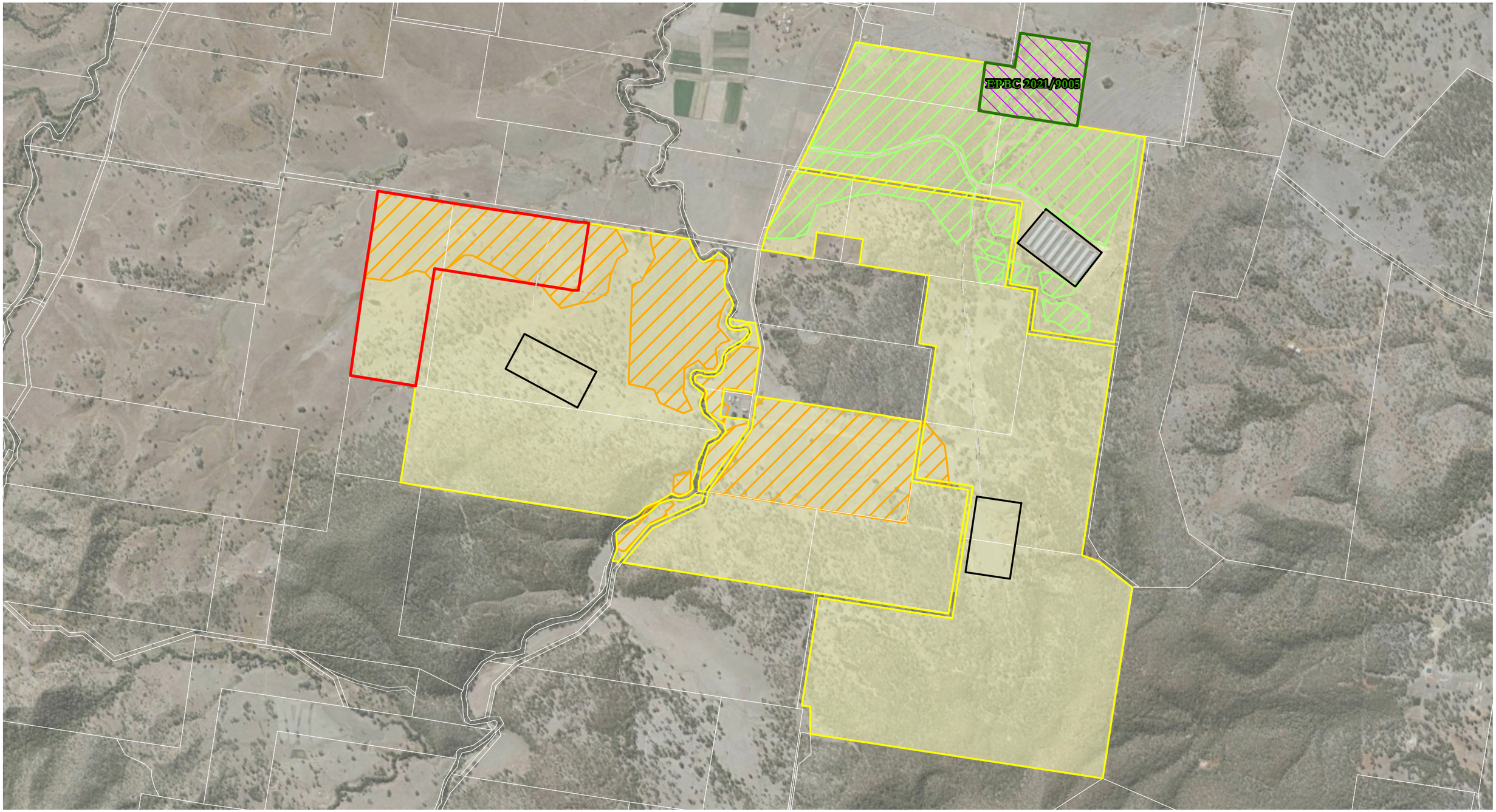
The current Rosevale Property Offset Property land holdings contain an existing operational poultry farm with 2 additional facilities approved and proposed over the area, none of which are within the boundaries of ROA 4. Refer to Plan 4 for the location of the poultry farming operations on the offset property. However, one of the new facilities is proposed approximately 300 m east of the offset area for the Scenic Project. Despite already approving environmental offsets for MNES (Koala) at the Rosevale Offset Property on the 2nd of November 2022 (EPBC 2021/9005) and an another offset for Koala, GHFF and Greater Glider in 2022, 2.6 km south of the Rosevale Offset property (EPBC 2018/8340), the Department has subsequently raised concerns around the potential incompatible dual use of the land holding for a poultry operation and environmental offsets.

No detailed commentary has been provided to support the specific incompatibility concerns, however, based on the information collected and considered in this OMP, no overt conflicts or impacts have been identified which out weight or impair the conservation gain opportunities the property provides. Currently the majority of the 51.8 ha ROA 4 contain very limited canopy coverage and therefore safe fauna movement is largely absent as Koalas are required to traverse large expanses of ground to move between foraging trees. With the implementation of the management actions in this Offset Management Plan, safe fauna movement would be reinstated across the area which limits the threats from wild dogs due to the provision of consistent foraging trees.

Importantly, it is noted that at no stage were offsets proposed over any areas with existing or proposed infrastructure supporting the poultry operation. The Rosevale Offset land holdings cover approximately 800 ha of land spread over 16 registered allotments. From the northern boundary to the southern boundary the land covers 3.5 km and measures 3.6 km east to west. The existing poultry farm infrastructure at the site including sheds, tanks, office, storage, access tracks, diversion swales and basins covers a maximum area of 8.75 ha or a little over 1% of the site. Allowing for the remaining facilities to be completed and including existing farmhouses, pump stations, cattle yards and sheds the total portion of the land utilised by infrastructure would be less than 27 ha or approximately 3.7% of the total land area. None of this land has been proposed for use within any approved or lodge offset proposal.

The balance of the land is currently used for cropping on the flat lightly undulating creek plain zones and cattle grazing throughout. Both of these uses will cease with approval and commencement of offset actions where they overlap with the proposed offset area.

4. Offset Property Current Management Activities



Montauban Environmental Offsets

N
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1:18,000

0 200 400 m

Co-ordinate System: GDA2020 MGA Zone 56

References:
© State of Queensland, 2022

Project: Rosevale Offset Area 4

Date: 23/10/2025

10559 E 03 OMP_S Offset Property Current Management A

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Legend

- Qld DCDB
- Approved Offset Boundary
- Future Offset Boundary
- Offset Area
- Proposed Chicken sheds
- Poultry shed access track
- Cattle Grazing
- Pest and Weed Management Activities
- Historical Hardwood Plantation Area
- Historical Cropping Area

CURRENT THREATS

The offset property contains a variation in agricultural uses and land types from existing remnant vegetation through to open cropping land. Several flora and fauna species observed directly or indirectly (scats, prints, etc) within the Offset Property are listed under the *Biosecurity Act 2014*, Schedule 2 Part 2 as a restricted matter – invasive biosecurity matter as well as Scenic Rim Regional Council declared pest animals or weeds (Table 2). Several of the identified restricted species form the basis of management requirements due to their direct impact to MNES listed species or indirect impact to the habitat required to support these species.

The Scenic Rim Regional Council also lists Feral Goats (*Capra hircus*) and Fire Ants (*Solenopsis Invicta*) as declared pest animals, with neither of these identified as occurring on-site. Should their presence be detected in future surveys then they will be adopted into the pest management program, which is designed with adaptive management measures for flexibility. Fire Ants in particular have strict biosecurity measures required to stop their spread, with sightings needing to be immediately reported to Biosecurity Queensland.

Table 2: Offset property restricted invasive matters identified as threats to MNES.

Biosecurity Act 2014 Restricted Matter	Direct / Indirect Impact	Restricted Category	SRRC Declared Pest Animals or Weeds
Lantana (*Lantana camara*)	Direct – limit Koala movement	3	Yes
Feral Cat (*Felis catus*)	Direct – opportunistic predators	3,4,6	Yes
Wild dogs (*Canis familiaris dingo, Canis familiaris dingo X Canis familiaris, Canis familiaris*)	Direct – Key threatening process to Koala	3,4,6	Yes
Feral Pig (*Sus scrofa*)	Indirect – habitat damage	3,4,6	Yes
European Fox (*Vulpes vulpes*)	Direct – opportunistic predators	3,4,5,6	Yes
Feral Rusa Deer (*Cervus timorensis*)	Indirect – habitat damage	3,4,6	Yes
European Rabbit (*Oryctilagus cuniculus*)	Indirect – habitat damage		Yes

Wild dogs (*Canis familiaris dingo, Canis familiaris dingo X Canis familiaris, Canis familiaris*) are considered direct threats to the MNES target species (Table 3). This conclusion is based on several federal government documents including:

- Conservation Advice for *Phascolarctos cinereus* (Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory
- National Wild Dog Action Plan 2020 – 2030

Medium priority threats to Koala and Grey-headed Flying Fox include feral cat (*Felis catus*) and European fox (*Vulpes vulpes*). These species are not listed as a key threatening process to either of the MNES species however both are known to be opportunistic predators with significant impacts to native species.

It is also acknowledged that although they aren't listed as a direct threatening process to the target MNES species for the Project, feral pig (*Sus scrofa*) are opportunistic omnivores and will consume a wide range of animals including small mammals and birds. Feral Pigs are also widely known to cause significant environmental destruction to soil and vegetation via digging, spreading weeds and consumption, particularly surrounding waterbodies. Therefore, the presence of Feral Pigs within the offset site cause destruction of current habitat value and water resources, and indirectly impacting essential habitat areas for the listed MNES. This is similarly the case for feral rusa deer (*Cervus timorensis*) which are known to damage native vegetation, spread weed seeds and foul water and European rabbit (*Oryctilagus cuniculus*) which impact native vegetation.

Other identified specific threats within the ROA 4 include:

- Ploughing and re-harvesting the land for hay
- Cattle grazing
- Due to the use of the offset area as largely cropping land, it is not immediately impacted by significant weed infestations. Regardless, many invasive species, in particular *Lantana camara*, a declared restricted matter under the *Biosecurity Act 2014* and SRRC, occur all around the offset area and more broadly over the Offset Property. Once the cropping use is ceased and native vegetation is established across ROA 4, it is anticipated weed sources will be an ongoing challenge with the offset area. Therefore, weed management has been thoroughly addressed.

Table 3: Offset property major threats MNES species

MNES Offset Target Species	Major threats to MNES present within offset property
Koala (*Phascolarctos cinereus*)	• Encounter mortality from dogs (*Canis familiaris dingo, Canis familiaris dingo X Canis familiaris, Canis familiaris*) • *Lantana camara* adversely affects the ability of Koalas to move between trees • Habitat clearing and degradation of habitat
Grey-headed Flying-fox (*Pteropus poliocephalus*)	• Barbed wire fencing (entanglement) • Habitat clearing and degradation of habitat
Swift Parrot (*Lathamus discolor*)	• Predation by feral cats (*Felis catus*) and European Fox (*Vulpes vulpes*) • Habitat clearing and degradation of habitat
Regent Honeyeater (*Anthochaera phrygia*)	• The primary threats to the Regent Honeyeater relate to the species' small population size, habitat loss and fragmentation, competition, and degradation of remnant habitat. However, given that feral cats are opportunistic hunters it is likely they are also a threat to Regent Honeyeater. • Habitat clearing and degradation of habitat

CONSERVATION BENEFITS OF THE ROSEVALE OFFSET PROPERTY

The MEO Rosevale offset property provides conservation benefit from a state and local planning and landscape context due to its relatively short distance from the proposed impact area (Plan 2). Additionally, a number of approved EPBC offsets for Koala and GHFF are present within 5 km of the site, indicating the area has been identified to contain values to support these MNES. The nearest existing offset for impacts on Koala Habitat has been approved for the Barrams Road project in Ripley (EPBC referral 2021/9005) on the Rosevale Offset Site. The Rosevale Landholding is also 2 km north of and connected by a large tract of remnant vegetation to a large MNES offset for impacts on Koala, Grey-headed Flying-fox and Greater Glider habitat associated with approved Audale offset (EPBC 2018/8340). Furthermore, the ROA 4 site is also approximately 5 km south-east of the large QTFN Koala and GHFF Offset site (EPBC Referral numbers 2016/7817 & 2016/7724). Furthermore, the closest conservation area is Moorang Wildlife Corridor, approximately 700 m south of the site, which forms a part of a regional corridor that connects through to a State corridor associated with Main Range National Park 3 km south-west of the site.

The offset site is considered to have the capacity to meet the offset requirements, connection to existing highly connected vegetation to provide habitat, and dominated by non-remnant areas that will act as receiving areas for rehabilitation and an increase in habitat value across the offset site. In addition, the location of the offset site adjacent to a state riparian biodiversity corridor and the same sub-bioregion as the impact site ensures the land will continue to provide habitat and fauna connectivity within the greater landscape. Upon EPBC Approval, the offset will be legally secured by a Voluntary Declaration (VDEC) under the State Vegetation Management Act. Further, regional, state and landscape contextual values of ROA 4 and the broader Rosevale Offset Property are discussed in the following sections.

Although located within reasonable proximity of a number of MNES impact areas occurring in South East Queensland the broad conservation benefits of the MEO Rosevale offset property are realised through its achievement of multi-jurisdictional biodiversity outcomes. The major offset property is located within the same bioregional and sub-bioregional as three of the largest housing supply areas in South East Queensland, including the City of Greater Springfield and the Greater Ripley, Greater Flagstone and Yarrabilba Priority Development Areas (PDAs). To implement long planned infrastructure outcomes and housing targets these major development areas will continue to see reductions in MNES habitat through both direct and indirect impacts. The Rosevale Offset Project will protect and improve existing values and significantly reinstate and create new habitat strategically located within the same sub bio-regional ecological context where MNES habitat is being reduced (refer Figure 3 and Figure 4).

MEO's Rosevale offset property is large in scale (over 800 ha) and can cater for both very large and or and aggregation of smaller impacts within a single consolidated offset area and land holding. The site is diverse in existing environmental values with Assessment Units covering existing remnant vegetation, both immature and advanced regrowth vegetation and open paddocks designation for new habitat creation. Existing trees and habitat features provide the ideal foundation for seed harvest and expansion through revegetation. Additionally, the site includes ecosystems ranging from lower ridges, through foothills, flood plains and riparian waterways associated with the Bremer River and its tributaries. Evidence of MNES habitat features and species are observed over all parts of the site and through the surrounding fragmented and connected landscape.

Importantly, the land holding is owned outright by MEO and managed by full time employees with co-existing rural business uses. MEO intends to utilise the bulk of the suitable areas on the site for biodiversity offsets; this is evidenced by the approval of EPBC referral 2021/9005 and the submission of three separate EPBC projects

currently seeking to utilise the land for offset outcomes. Ownership of the Rosevale offset property holding provides greater direct commercial control from the proponent and the conditions of approval onto the Rosevale offset property to ensure offset outcomes are achieved and de-risks inadvertent third party non-compliant uses from occurring.

3. ENVIRONMENTAL OUTCOMES AND OBJECTIVES

This OMP identifies outcomes focused on management actions pursuant the EPBC Act, for the provision of Koala (*Phascolarctos cinereus*), Grey-headed Flying Fox (*Pteropus poliocephalus*), *Lathamus discolor* (Swift Parrot) and *Anthochaera phrygia* (Regent Honeyeater) habitat offset. The management objections for the ROA 4 offset, in alignment with EOP will:

- Deliver an overall conservation outcome that improves the viability of habitat for the Koala, GHFF, Swift Parrot and Regent Honeyeater.
- Provide a direct offset that is in proportion to the level of statutory protection that applies to Koala, GHFF, Swift Parrot and Regent Honeyeater habitat.
- Be of a size and scale proportionate to the residual impacts on Koala habitat, GHFF, Swift Parrot and Regent Honeyeater habitat.
- Effectively account for and manage the risks of the offset not being successful within the required management timeframe.
- Provide a conservation gain additional to what is already required by a duty of care or to any environmental planning laws at any level of Government.
- Be efficient, effective, timely, transparent, scientifically robust, and reasonable with appropriate transparent governance arrangements in place for measuring, monitoring, auditing and enforcing the management of the ROA 4 offset.

The MHQA baseline scores and proposed Environmental Outcomes including interim milestone targets for each MNES over the 20-year offset period are provided at Appendix A for Koala and Grey-headed Flying-fox, and Table 10 and Table 11 for the Swift Parrot and Regent Honeyeater.

Further information on the suitability of the ROA 4 in achieving the proposed environmental outcomes is presented in Sections 4 and 5 with regards to the conservation benefits and current values.

The achievement of environmental outcomes within the offset area will be measured using the baseline survey methodologies described in Section 5 and management actions to be implemented, described in Section 7 which includes implementation of a detailed Rehabilitation Management Plan. The management actions detailed in this OMP aim to achieve the offset targets conditioned in the EPBC Act approval that endeavour to protect, restore, and reconnect areas of Koala, GHFF, Swift Parrot and Regent Honeyeater habitat. The offset areas have been selected to represent populations that are genetically diverse and distinct and are free of disease of have very low incidence of disease.

The approval holder must apply assisted natural regeneration, reconstructive plantings and threat mitigation to achieve the outcomes outlined in the subsections below.

COMPLETION CRITERIA AND PERFORMANCE TARGETS

The management framework designed to achieve the proposed environmental outcomes summarised above are detailed in Section 7 of this OMP.

A summary of the management actions and their completion criteria required to achieve the environmental outcomes are provided in Table 4. The management actions will result in a net gain of the overall habitat quality for koala and grey-headed flying-fox over the period of effect of the offset through active management, maintenance, monitoring and reporting.

This OMP includes completion criteria and performance targets that evidence protection or improvement of habitat for MNES. For the purpose of the plan:

a) **completion criteria** are longer term time-bound values, specified for measurable parameters, that if attained and maintained ensure the plan's environmental outcomes are achieved; and

b) **performance targets** are time-bound short- and medium-term targets guided by prescribed management measures, for management interventions and environmental condition, that are used to monitor, evaluate, review and improve the effectiveness of the plan to offset impacts.

Tracking of progress against the environmental outcomes will be measured at milestone monitoring years using the baseline survey methodologies detailed in Section 5. A schedule of monitoring and reporting is provided in Section 3.

Table 4: Completion Criteria and Performance Targets

Management Action	OMP Section	Performance Target	Completion Criteria	Responsibility
Legally Secure Offset Area	Page 2	N/A	The offset site will be secured by Voluntary Declaration under the *Vegetation Management Act 1999* following approval and prior to the commencement of impact site activities. The declaration will be in perpetuity.	Proponent
1 – Feral Animal Management	Section 7.1	• Complete offset area-specific baseline feral animal abundance surveys during Year 1. • Suppress the occurrence of feral animal species including non-native vertebrate predators (namely wild dogs, European foxes and feral cats) and herbivores (wild pigs and deer) for the life of the offset.	Minimise mortality to MNES attributed to predator species to the greatest extent possible within the ROA 4 and impacts to MNES habitat for the life of the offset.	MEO / engaged pest management contractor
2 – Weeds of National Significance (WONS) Management	Section 7.2	All WONS will receive initial treatment within Year 1 of the offset to allow for planting works to commence.	Reduce WONS to below 5% within ROA 4 by the end of Year 2, with a particular focus on *Lantana camara* and maintained below 5% for the life of the offset.	MEO / engaged rehabilitation contractor
3 – Fencing and Stock Management and Discontinuation of Cropping	Section 7.3	• All internal fencing within the ROA 4 area is to be fenced with fauna friendly livestock exclusion fencing OR removed entirely, followed by the removal of livestock from the ROA 4, and maintained for the life of the offset.	• Nil stock breaches into offset area from years 2-20 (post completion of all fencing). • No reporting of stock impacts as justification for not achieving environmental outcomes and interim milestone targets.	MEO

Management Action	OMP Section	Performance Target	Completion Criteria	Responsibility
		• Unnecessary barbed wire fencing with potential entanglement impact to fauna will be removed from within ROA 4. • Discontinue cropping activities following the legal securement of the offset area.		
4 – Access and Trespass Management	Section 7.4	• Maintain ROA 4 and offset property boundary fencing to manage external access for the life of the offset. • No new access tracks throughout ROA 4 unless to support offset outcomes.	No authorised access and incompatible activities from external sources.	MEO
5 – Regeneration and Restoration Management Strategy	Section 7.5	• Collect seed stock required for planting during Year 1. • Commence propagation with external nursery during Year 1. • Commence site preparation works in Year 1. • Commence broadscale planting in Year 2. • Establish photo monitoring and quadrat monitoring locations following the completion of broadscale planting. • Implement the RMP (**Appendix F**) for the life of the offset.	• Rehabilitated areas are established, regenerated and mapped as remnant vegetation under Queensland's VMA successor legislation by year 20 which requires 70% of canopy height and 50% of expected cover according to the relevant Regional Ecosystem benchmark to be reached. • Site condition metrics for Koala and Grey-headed Flying-fox improves in accordance with environmental outcomes (see **Table 8** and **Table 9** and **Appendix A**). • Planting density of non-juvenile preferred foraging trees for Swift Parrot and Regent Honeyeater proposed in **Table 10** and **Table 11** and prescribed in the Rehabilitation	MEO / engaged rehabilitation contractor

Management Action	OMP Section	Performance Target	Completion Criteria	Responsibility
			Management Plan (**Appendix** F) are achieved by Year 20.	
6 – Bushfire Management	Section 7.6	• Develop and implement a Bushfire Management Plan during Year 1 in consultation with the local Queensland rural fire service, Scenic Rim Regional Council and adjoining landowners. • Maintain existing bushfire breaks between adjacent landholders, particularly along the property boundaries where the State Planning Policy bushfire hazard mapping indicates there is a 'high' or 'very high' risk of bushfire occurring.	• No record of high intensity fires in the offset area. • No record of MNES injury or death from fire. • Vegetation composition and restoration regime is not negatively affected by prescribed fire regimes.	MEO / engaged bushfire consultant

SUMMARY OF REPORTING FRAMEWORK

A range of report types will be prepared as part of the overall offset monitoring. The report types, timing and responsible party for each of the reports are detailed in **Table 5** below. These reports are referenced further in **Section 7** where relevant to the particular management actions.

Table 5:Summary of Monitoring Reports required

Report	Purpose	Frequency	Responsible party
Offset Area Annual Report *Details implementation of management actions against the OMP and RMP.*	Designed to document all offset activities completed and/or commissioned by the Offset Provider and demonstrated against the timeframes and completion criteria of the OMP. Required as part of the commercial agreement between the Proponent.	Annually following the legal securement of the offset area	Offset Provider
Milestone Survey Report *Details the results of MHQA, GHFF FHA and swift parrot and regent honeyeater foraging habitat assessment.*	Designed to demonstrate increase in value of offset area for Matters of National Environmental Significance (koala, grey-headed flying-fox, swift parrot and regent honeyeater) as proposed under the OMP.	Five-yearly at Years 5, 10, 15 and 20	Suitably qualified Ecologist as appointed by the Offset Provider
Photo Monitoring Report *Qualitative monitoring report showing photos of the offset area, commentary on rehabilitation progress and recommended adaptive management measures.*	Designed to provide regular assessment of the offset area and feedback to engaged rehabilitation contractors to guide on-ground works.	Quarterly during Year 1 Bi-annually from Years 2 to 5 Annually from Years 6 to 10	Suitably qualified Rehabilitation Contractor, Landscape Consultant or Ecologist as appointed by Offset Provider
Rehabilitation Monitoring Report *Details the results of the quadrat monitoring program, assessment against the performance indicators (Appendix 02) and recommendations for adaptive management.*	Designed to provide a data-driven method to document and measure rehabilitation progress/success to further inform on-ground activities.	Quarterly during Year 1 Bi-annually from Years 2 to 5 Annually from Years 6 to 10	Suitably qualified Ecologist as appointed by Offset Provider
Annual Compliance Report *Required to be prepared as part of the approved project decision notice.*	Designed to document activities and demonstrate compliance against the EPBC approval conditions for the project. Other subsidiary reporting may be included as evidence of compliance with approval conditions.	Annually, timing specified in approval conditions	Suitably qualified person as appointed by the Proponent

OAG PARAMETERS

The habitat scores derived for the offset area have been used to assess whether the proposed offset property could be viewed as suitable in respect to meeting the offset obligation for the proposed action, using the Commonwealth's Offset Assessment Guide (OAG) calculator. Values for the other parameters used in the calculator for Koala and Grey-headed Flying-fox are summarised in **Table 6** and in **Table 7** for the Swift Parrot and Regent Honeyeater.

Table 6: Offset Assessment Guide Parameters – Koala and Grey-headed Flying-fox

Parameter	Rationale
Quantum of Impact (Area)	14.52 ha for Koala and 16.94 ha for Grey-headed Flying-Fox.
Quantum of Impact (Quality)	A score of 6 for Koala and 7 for Grey-headed Flying-fox.
Risk Related Time Horizon	The proposed offset area will be legally secured via the VDEC mechanism; hence, the maximum score of 20 years.
Time Until Ecological Benefit	Measures prescribed in this Offset Management Plan are expected to achieve the predicted increase in habitat quality over a period of 20 years.
Start Area	51.8 ha
Start Quality	Refer **Table 8** and **Table 9**.
Risk of Loss without Offset	It is understood risk of loss is to be set at 0% without any comprehensive evidence to the contrary.
Risk of Loss with Offset	It is understood risk of loss is to be set at 0% without any comprehensive evidence to the contrary.
Confidence in Result (Risk of Loss)	As risk of loss is set at 0%, a high score of 90% is used for confidence in result.
Future Quality without Offset	Existing habitat quality is expected to be maintained if the current land use / management regime is continued, Under management for grazing over 20 years and without the offset, current habitat quality for Koala and Grey-headed Flying-fox is unlikely to improve, and some attributes may deteriorate where regrowth is subject to periodic clearing for cattle grazing and/or maintenance/fire regimes that are not compatible with ecosystem improvement are employed. Refer **Table 8** and **Table 9**.
Future Quality with Offset	Refer **Table 8** and **Table 9**.
Confidence in Result (Future Quality)	85% for all Assessment Units. This high level of confidence is supported by a detailed Rehabilitation Management Plan developed for the offset area. This is described in **Section 7** and provided at **Appendix F**.

Table 7: Offset Assessment Guide Parameters (Feature-based)– Swift Parrot and Regent Honeyeater

Parameter	Rationale
Quantum of Impact	Swift Parrot – 1755 features at Scenic impact site and 3339 features at Peninsula impact site for a combined impact of 5094. Regent Honeyeater – 1891 features at Scenic impact site and 2756 at Peninsula impact site for a combined impact of 4647.
Risk Related Time Horizon	The proposed offset area will be legally secured via the VDEC mechanism; hence, the maximum score of 20 years.
Start Value	Refer **Table 10** and **Table 11.**
Future Value Without Offset	Existing habitat quality is expected to be maintained if the current land use / management regime is continued. Under management for grazing over 20 years and without the offset, current habitat quality for Swift Parrot and Regent Honeyeater is unlikely to improve, and some attributes may deteriorate where regrowth is subject to periodic clearing for cattle grazing and/or maintenance/fire regimes that are not compatible with ecosystem improvement are employed. Refer **Table 10** and **Table 11.**
Future Value With Offset	Refer **Table 10** and **Table 11**
Confidence in Result (Future Quality)	85% for all Assessment Units. This high level of confidence is supported by a detailed Rehabilitation Management Plan developed for the offset area. This is described in **Section 7** and provided at **Appendix F**.

IMPACT COMPENSATION AND SCORING UPLIFT

A summary of proposed habitat quality uplift and the EPBC Act offset assessment guide impact compensation are included in **Table 8** to **Table 11**, below. The completed EPBC Act offset assessment guide calculator sheets are included at **Appendix B**.

Table 8: Koala impact compensation and scoring uplift (ROA 4)

Assessment Unit	Area (ha)	Habitat Quality Score		Offset Acquittal
		Baseline	Future	
AU1	45.1	3	7	101.47%
AU2	6.7	4	7	11.31%
Total	**51.8**			**112.78%**

Table 9: Grey-headed Flying-fox impact compensation and scoring uplift (ROA 4)

Assessment Unit	Area (ha)	Habitat Quality Score		Offset Acquittal
		Baseline (rounded score)	Future	
AU1	45.1	2	8	130.46%
AU2	6.7	4	8	12.92%
Total	**51.8**			**143.38%**

Table 10: Swift Parrot impact compensation (ROA 3 and ROA 4)

Assessment Unit	Start value	Future value without offset	Future value with offset (inclusive of 90% survival rate)	Impact compensation
SCENIC – AU1	0	0	20,205	90.45%
SCENIC – AU2	0	0	603	2.70%
PENINSULA – AU1	1113	1113	14,469	59.79
PENINSULA – AU2	434	434	740	1.36
Total	**1547**	**1547**	**36,017**	**154.30%**

Note:
Start value inputted as the existing number of non-juvenile preferred foraging trees
Future value without offset inputted as the existing number of non-juvenile preferred foraging trees
Future value with offset inputted as net total of preferred foraging trees (*i.e.,* number to be planted inclusive of a 90% survival rate + number of existing)

Table 11: Regent Honeyeater impact compensation (ROA 3 and ROA 4)

Assessment Unit	Start value	Future value without offset	Future value with offset (inclusive of 90% survival rate)	Impact compensation
SCENIC – AU1	0	0	19,801	97.16%
SCENIC – AU2	0	0	591	2.90%
PENINSULA – AU1	0	0	0	0%
PENINSULA – AU2	0	0	300	1.47%
Total	**0**	**0**	**20,692**	**101.54%**

Note:
Start value inputted as the existing number of non-juvenile preferred foraging trees
Future value without offset inputted as the existing number of non-juvenile preferred foraging trees
Future value with offset inputted as net total of preferred foraging trees (*i.e.,* number to be planted inclusive of 0.75 adjusted weighting for the count of supporting species and 90% survival rate + number of existing)

4. OFFSET SITE SUITABILITY

MNES HABITAT SUITABILITY

Analysis of threatened species records and regional ecosystem mapping across the offset site and surrounding area presents positive data on the potential for the region to provide significant conservation benefit to MNES listed species.

KOALA

Within the offset property, vegetated areas contain a dominant mix of locally important koala tree species as listed in Table 35 of the ANU *A review of Koala Habitat Assessment Criteria and Methods* (8.17 South East QLD, Table 35, Page 58). The ROA 4 is mostly devoid of vegetation with the exception of scattered large trees within the north-eastern extent and a patch of regrowth vegetation within the southern extent. A combination of existing Koala records from the ALA database (**Plan 5**), evidence of koala usage via SAT surveys and recorded presence of the species utilising vegetation within the offset property provide strong confidence in the value of the proposed restoration of ROA 4 for the Koala. Although the offset area itself contains limited vegetation and therefore limited koala habitat, there is State KHA mapped directly south and west of ROA 4 (**Figure 8**). Both of these vegetation patches are contained within a proposed offset area for a separate EPBC project. Ultimately, improving vegetation coverage and species diversity, and reducing potential threats within ROA 4 as a part of this project is highly conducive to improving habitat for Koala within the region. Restoring vegetation within this area improve Koala movement opportunities and provide a wider area of foraging and breeding habitat.

Further supporting evidence for the site to contain a high potential to support this species is pre-clear mapping (**Figure 10**) and actual on-site vegetation communities surrounding ROA 4. The Rosevale Offset Property contains a broad distribution of the following regional ecosystem types (code plus dominant Species), which are dominated by Koala habitat and foraging trees:

12.3.3 – *Eucalyptus tereticornis, Eucalyptus crebra, Eucalyptus moluccana*

12.8.17 - *Eucalyptus melanophloia, Eucalyptus crebra, Eucalyptus tereticornis, Corymbia intermedia*

12.8.16 – *Eucalyptus melliodora, Eucalyptus crebra, Eucalyptus tereticornis*

12.8.14 – *Eucalyptus eugenioides, Eucalyptus biturbinata, Eucalyptus melliodora*

The majority of ROA 4 contains Category X (non-remnant) vegetation due to the historical and current land use for cropping and grazing activities. However, pre-clear mapping indicates that Endangered RE 12.3.3 and Least Concern RE 12.8.17 were previously mapped across the area (**Figure 10**). In addition, a small patch of Category C (regrowth) vegetation described as least concern RE 12.8.17/12.8.14 is located within the south-eastern corner of the ROA 4 site. The rehabilitation and restoration activities proposed with this project will implement vegetation from these regional ecosystems.

GREY-HEADED FLYING-FOX

Underlined flora species in the above regional ecosystems are additionally listed as significant food plants for the Grey-headed Flying-fox (Eby & Law 2008). Although ROA 4 contains limited vegetation with exception to some scattered trees in the north-eastern extent and a patch of regrowth in the southern extent, the surrounding landscape contains over 500 ha of foraging vegetation for the species. Therefore, improvement of ROA 4 via management measures proposed with this project, re-planting, stock management, pest control and removal of internal barbwire fences where stock has been removed, has the potential to increase safe foraging habitat for Grey-headed Flying Fox (GHFF) and protect it in perpetuity. This species is known to the region, with GHFF recorded foraging within vegetation associated with the approved Aroona Offset Site (EPBC 2016/7817), which is 5 km north of ROA 4. Furthermore, the Rosevale offset property is located approximately 14 km from the Mount French GHFF roosting camp [288], 31 km from the Laidley Plainlands Roost [372] and 36km from the Kooralbyn roost [551] (refer Plan 5).

Records under the National Flying Fox web viewer vary with the most recent surveys confirmed at the Kooralbyn and Laidley site. All the sites, excluding Laidley, which is under Ipswich City Council jurisdiction, are listed as active under the Scenic Rim Regional Council Flying-Fox Management Strategy 2023-2028 (SRRC, 2023a). The DCCEEW species profile and threats database for GHFF indicates that this species is capable of nightly flights of up to 50 km from their roost to forage in a variety of different feeding areas. Therefore, the surrounding roosts are all within a reasonable distance from the offset area that it is likely GHFF would forage within the current foraging habitat present surrounding ROA 4.

SWIFT PARROT

Swift Parrots are usually seen in small parties of up to 30 birds, or occasionally in flagger flocks (of several hundred birds) around sources of abundant food. Swift Parrots breed in Tasmania and then move to mainland Australia in Autumn for the non-breeding season. They feed preferentially in the largest trees available (Kennedy and Overs, 2001) and on psyllid lerps, seeds and fruit (Kennedy and Tzaros, 2005). Commonly used lerp infested trees include Inland Grey Box (*E. macrocarpa*), Grey Box (*E. moluccana*), Blackbutt (*E. pilularis*), and Yellow Box (*E. melliodora*). Preferred foraging tree species include winter flowering species such as Swamp Mahogany (Eucalyptus robusta), Spotted Gum (*Corymbia maculata* or *C. citriodora*), Red Bloodwood (*C. gummifera*), Forest Red Gum (*E. tereticornis*), Mugga Ironbark (*E. sideroxylon*), and White Box (*E. albens*) (DCCEEW, 2024).

A review of State vegetation mapping indicates that the pre-clear Regional Ecosystems mapped for the Offset Area include commonly used foraging species for the Swift Parrot, including *Eucalyptus tereticorni*s and *E. melliodora*. Due to historical clearing for agriculture activities, mature eucalypts are currently sparse within the Category X (non-remnant) vegetation areas located within the offset area.

No Swift Parrot populations or individuals have been recorded within 10 km of the offset area. A search of the ALA database using a 10 km search radius from the offset area returned no records for the species, however, there are several records for the species within 40 km buffer. A regional habitat analysis combining potential habitat and records of this species is shown on Plan 7.

Field surveys identified one preferred foraging species, *Eucalyptus tereticornis* (Forest Red Gum) scattered within the current open paddock offset area. Given the proposed reconstruction of Regional Ecosystems that

support foraging species, and the highly mobile nature of the winter foraging Swift Parrot with records in the vicinity, the proposed offset is considered suitable to support the matter.

REGENT HONEYEATER

The Regent Honeyeater is endemic to mainland south-eastern Australia. It has a patchy distribution which extends from south-east Queensland, through New South Wales and the Australian Capital Territory, to central Victoria. Records are widely distributed across its range, however, is only found regularly at a few localities in NSW and Victoria where most of the sightings have been recorded. There are four known key breeding areas, three in New South Wales and one in Victoria.

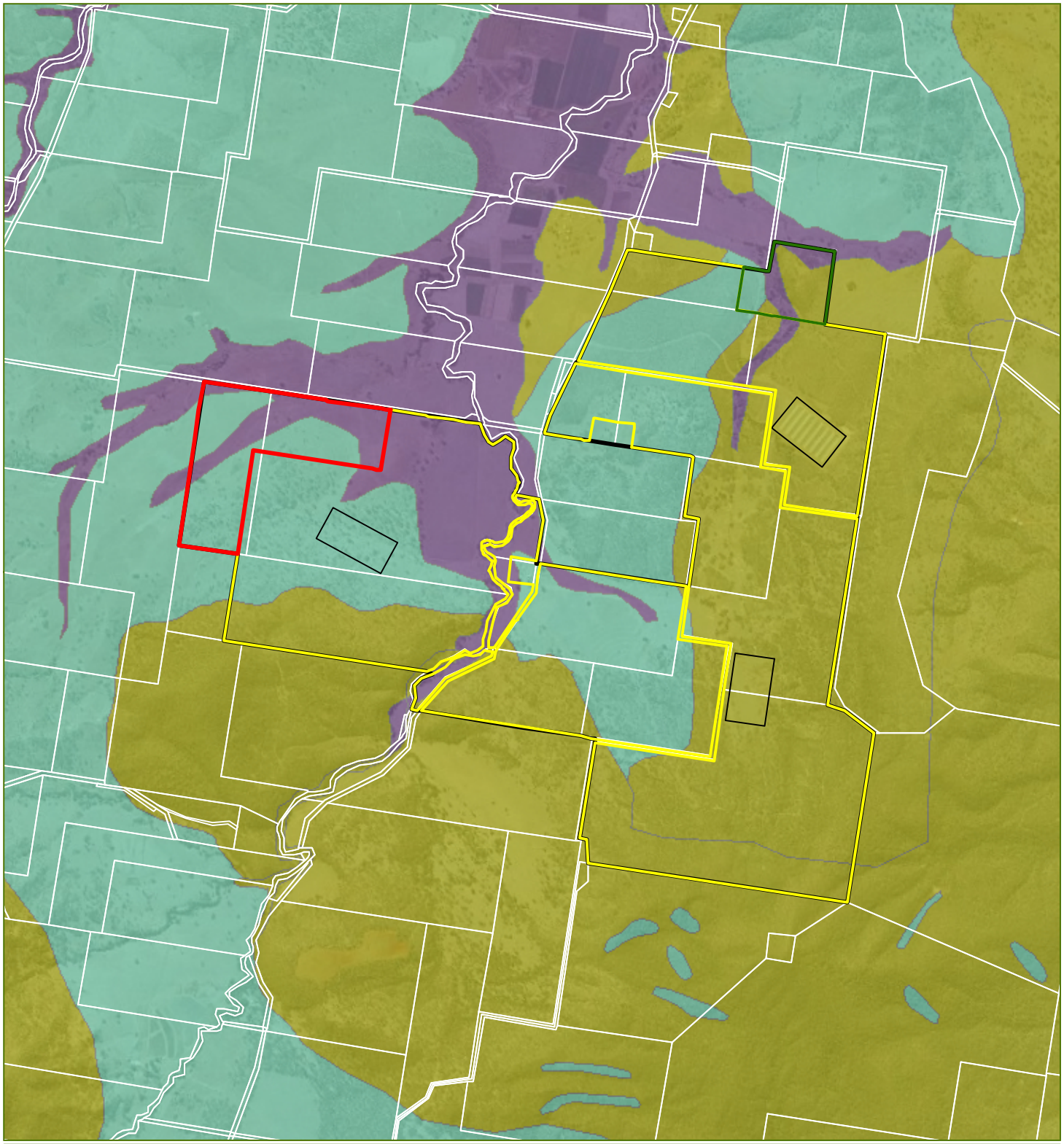
The species mostly inhabits inland slopes of the Great Dividing Range, in areas of low to moderate relief with moist, fertile soils. It is most commonly associated with box-ironbark eucalypt woodland and dry sclerophyll forest, but also inhabits riparian vegetation such as sheoak (*Casuarina* sp.) where it feeds on needle-leaved mistletoe and sometimes breeds. It sometimes utilises lowland coastal forest, which may act as a refuge when its usual habitat is affected by drought. It also uses a range of other habitats including remnant patches in farmland and urban areas, roadside reserves and travelling stock routes.

Like other species of honeyeater, the Regent Honeyeater utilises a variety of food resources. Its diet primarily consists of nectar, but also includes invertebrates (mostly insects) and their exudates (e.g. lerps and honeydew), and occasionally fruit. Its time spent foraging for nectar ranges from 10% to 90% depending on availability. Nectar is obtained chiefly from eucalypts and mistletoe, and Regent Honeyeaters appear reliant on select species which provide reliable nectar flows. Regent Honeyeaters prefer taller and larger diameter trees for foraging, as these typically produce more nectar (Franklin et al., 1989; Webster & Menkhorst 1992; Menkhorst et al., 1999; Oliver 2000). Preferred foraging tree species for the Regent Honeyeater include *Eucalyptus sideroxylon, Eucalyptus melliodora, Eucalyptus albens, Eucalyptus leucoxylon, Corymbia maculata/citriodora*, *Eucalyptus robusta*. Mistletoe species important for foraging include *Amyema cambagei, A. miquelii* and *Dendropthoe vitellina*.

A review of State vegetation mapping indicates that the pre-clear Regional Ecosystems mapped for the Offset Area include eucalypt foraging species that could be utilised by the Regent Honeyeater. Due to historical clearing for agriculture activities, mature eucalypts are currently sparse within the Category X (non-remnant) vegetation areas located within the offset area.

No Regent Honeyeater populations or individuals have been recorded within 10 km of the offset area. A search of the ALA database using a 10 km search radius from the offset area returned no records for the species, however, there are records for the species within 40 km of the offset area indicating broader foraging patterns. A regional habitat analysis combining potential habitat and records of this species is provided in Plan 8.

Given the proposed reconstruction of Regional Ecosystems that support foraging species, and the highly mobile nature of the winter foraging Regent Honeyeater with records in the vicinity, the proposed offset is considered suitable to support the matter.



Legend

- Qld DCDB
- Approved Offset Boundary
- Future Offset Boundary
- Offset Area
- Proposed Poultry Shed, 100m buffer area & access tracks
- Offset Properties

Biodiversity Status of Pre-Clear Regional Ecosystems

- Endangered
- Of Concern
- Not of Concern

Figure 10

Qld Pre-Clear Vegetation and Biodiversity Status Mapping

File ref. 10559 E Figure 10 OMP_S PreClear A
Date 23/10/2025
Project Rosevale Offset Area 4 - Scenic Precinct

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N

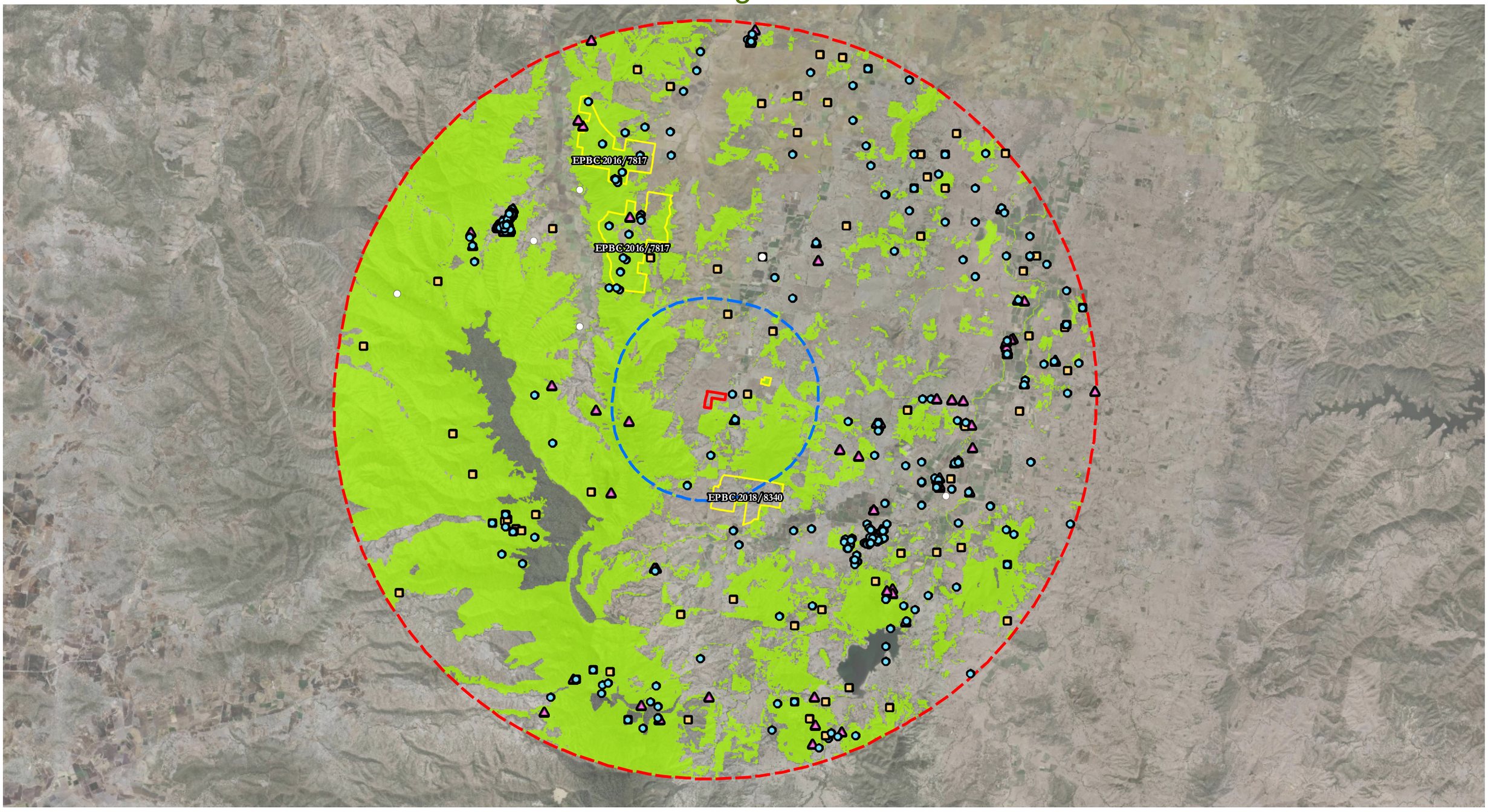
0 200 400 600 800 1,000 m

Scale (A4): 1:30,000 [GDA 2020 MGA Z56]

Montauban Environmental Offsets

Layer Source: © State of Queensland 2025

5. Koala Context Assessment - Wider Region



Montauban Environmental Offsets

1:200,000
0 1 2 4 km

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S

Co-ordinate System: GDA2020 MGA Zone 56

References:
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Project: Rosevale Offset Area 4

Date: 23/10/2025

10559 E 05 OMP_S Koala Regional Context Assessment A

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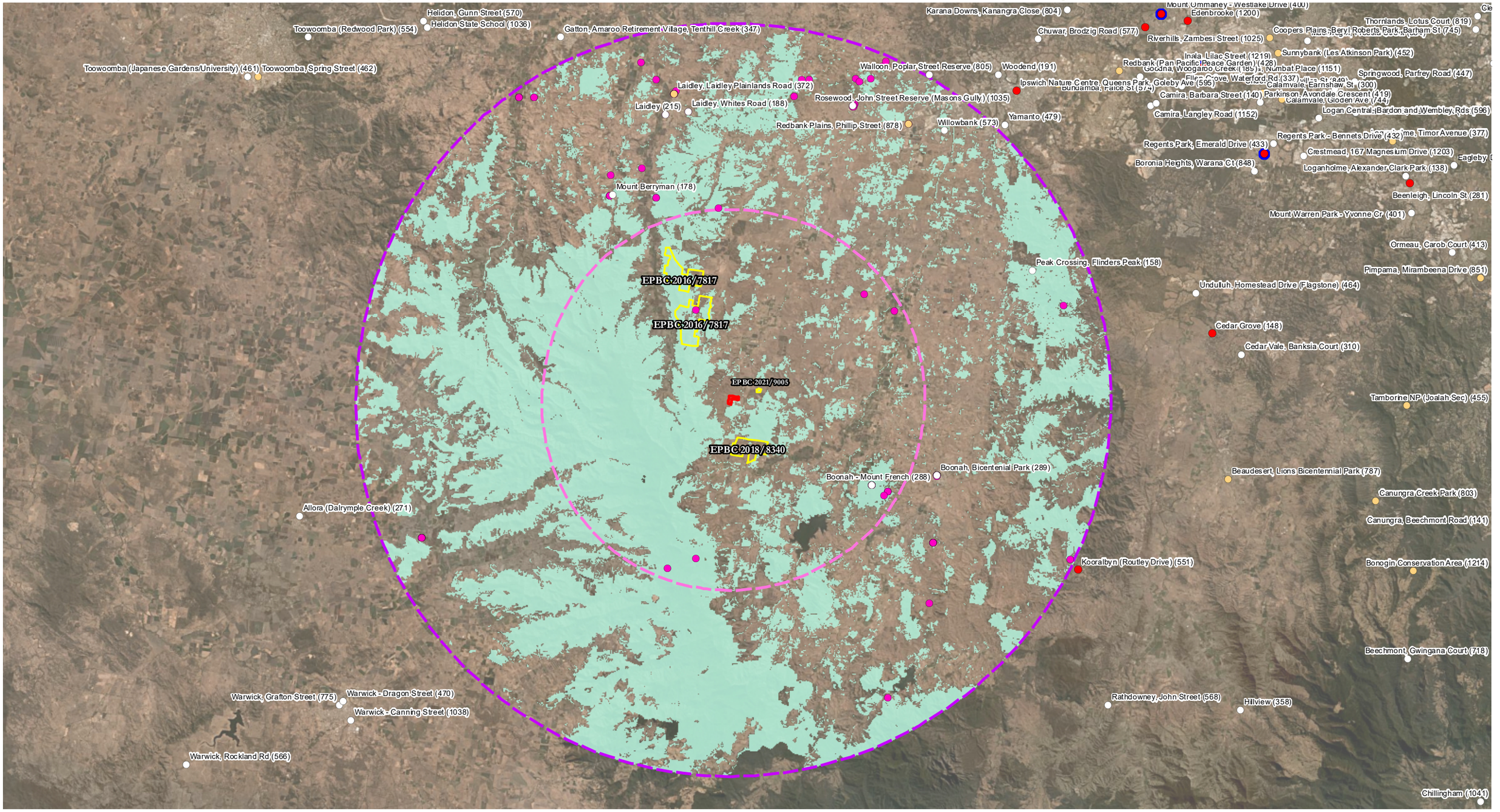
Legend

- Offset Area
- 5km Offset Area Buffer
- 20km Offset Area Buffer
- Potential Koala habitat within 20km of Offset Area - 44.2%
- Existing Approved Koala Offset

Koala Records within 20km of Site (ALA, 2025)

- Koala (*Phascolarctos cinereus*) Records within 20km of Offset Area recorded within the last 5 years - 185
- Koala (*Phascolarctos cinereus*) Records within 20km of Offset Area recorded between 5 and 20 years ago - 343
- Koala (*Phascolarctos cinereus*) Records within 20km of Offset Area recorded without a sighting date - 33
- Koala (*Phascolarctos cinereus*) Records within 20km of Offset Area recorded over 20 years ago - 87

6. Grey-headed Flying-fox Context Assessment - Wider Region



Montauban Environmental Offsets

1:400,000

0 2 4 6 8 km

N W E S

Co-ordinate System: GDA2020 MGA Zone 56

References:
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Project: Rosevale Offset Area 4

Date: 23/10/2025

10559 E 06 OMP_S GHFF Regional Context Assessment A

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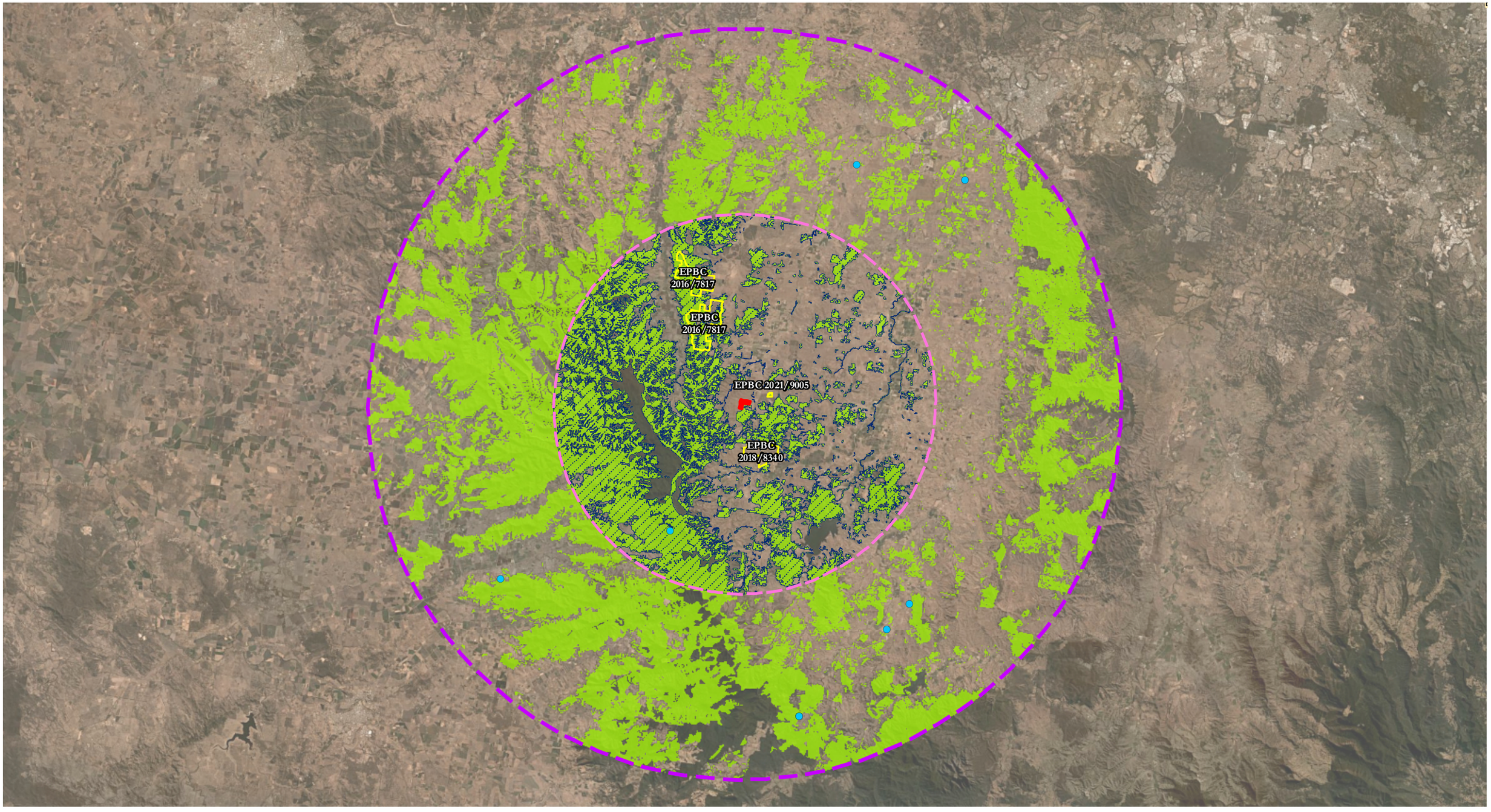
Legend

- Offset Area
- Existing Approved Grey-headed Flying-fox Offset
- Offset Area 40km Buffer
- Offset Area 20km Buffer
- Offset site 40km buffer area - Potential and Known Grey-headed Flying-fox Foraging Habitat [43%]
- Grey-headed Flying-fox records within 40km of offset area - 121

National Flying-fox monitoring data (Fed Gov. 2024.)

- Grey-headed Flying-fox roost inactive within recent surveys [8 within 40km of offset area]
- Grey-headed Flying-fox roost active within recent surveys [2 within 40km of offset area]
- Grey-headed Flying-fox roost active within recent surveys with a population level of 3 or above [1 within 40km of offset area]
- Nationally significant Grey-headed Flying-fox roost active within recent surveys
- Nationally significant Grey-headed Flying-fox roost active within recent surveys with a population level of 3 or above

7. Swift Parrot Context Assessment - Wider Region



Montauban Environmental Offsets

1:400,000

0 2 4 6 8 km

N W E S

Co-ordinate System: GDA2020 MGA Zone 56

References:
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Project: Rosevale Offset Area 4

Date: 23/10/2025

10559 E 07 OMP_S SP Regional Context Assessment A

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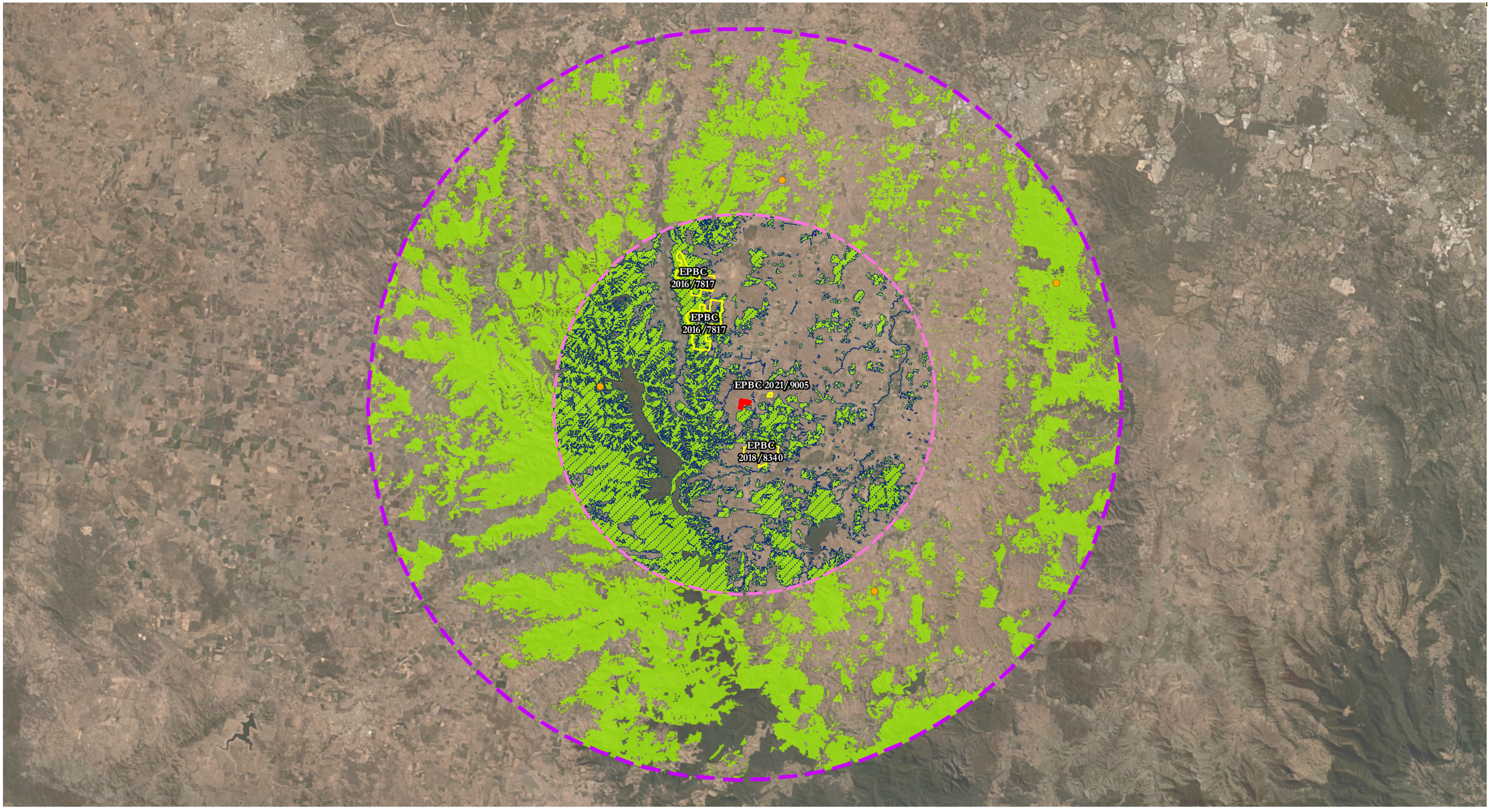
Legend

- Offset Area
- Existing Approved Swift Parrot Offset
- Offset Area 40km Buffer
- Offset Area 20km Buffer
- Swift Parrot records within 40km of offset area [8]
  Note: Records are generalised on a grid system for protection of the species.
- Potential and known Swift Parrot foraging habitat within 40km of Offset Area
- Potential and known Swift Parrot foraging habitat within 20km of Offset Area [41.5%]

8. Regent Honeyeater Context Assessment - Wider Region



Montauban Environmental Offsets

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Project: Rosevale Offset Area 4

Date: 23/10/2025

10559 E 08 OMP_S RH Regional Context Assessment A

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Legend

- Offset Area
- Existing Approved Regent Honeyeater Offset
- Offset Area 40km Buffer
- Offset Area 20km Buffer
- Regent Honeyeater records within 40km of offset area [5]
  Note: Records are generalised on a grid system for protection of the species.
- Potential and known Regent Honeyeater foraging habitat within 40km of Offset Area
- Potential and known Regent Honeyeater foraging habitat within 20km of Offset Area [39.5%]

OFFSET SUITABILITY AND COMPLIANCE ANALYSIS

The objective of this OMP is to outline appropriate management actions which achieve the offset outcomes specified within the EPBC Act and provide an overall improved conservation outcome and net gain in MNES habitat and thereby ensuring the long-term viability of Koala, GHFF, Swift Parrot and Regent Honeyeater populations.

The implementation of this OMP will enhance habitat for MNES through improvements to vegetation, reduction and key threats and provision of shelter and safe movement opportunity. Table 12 lists the principles of the EPBC Act Environmental Offsets Policy and describes how the proposed offset strategy has been developed to adhere to these principles.

Table 12: Compliance with EPBC Act Environmental Offsets Policy Principles

Principle	Offset Strategy Compliance
Deliver an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environment law and affected by the proposed action	The offset area delivers a conservation gain for the Koala, GHFF, Swift Parrot and Regent Honeyeater through the creation of 45.1 ha of new habitat and assisted regeneration of 6.7 ha of regrowth vegetation. a) The revegetation zone proposed for the Scenic Project includes 45.1 ha of area located on the alluvial rich soils and MNES assisted rehabilitation within 6.7 ha of existing regrowth vegetation. The land is currently seeded for the growth of hay grass during season and directly grazed outside of harvest. b) Trees adjoining to the south include preferred Koala and GHFF species and contains State mapped Koala Habitat Area. Additionally, trees within the north along the Moorang Lane road reserve are dominated by large *Eucalyptus tereticornis* which are preferred foraging species for the Swift Parrot. c) Koala scat has been consistently found in the trees in the road reserve to the north, in vegetation to the south and along the Bremer River to the north and west showing all surrounding areas are used by the species. Further, where vegetation occurs over the wider Rosevale property Koalas have been observed. d) The area proposed for revegetation is mapped as RE 12.8.17 and RE12.8.14 described as mixed woodland dominated by eucalypt species on Cainozoic igneous rocks. Dominant trees species within these ecosystems contain preferred foraging trees for the Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater. e) Averting the direct and indirect losses via declaring the land a Voluntary Declaration area for High Value Conservation under the Queensland *Vegetation Management Act 1999* will remove current cropping and grazing practices and prevent incompatible land uses. f) In isolation, the 45.1 ha replanting zone will connect the Moorang Lane road reserve trees to the regrowth Koala habitat to the south within the site. The location of ROA 4 adjacent to several EPBC offset properties will create a major habitat node along the Bremer River

Principle	Offset Strategy Compliance
	which presently only retains a narrow strand of vegetation on either bank. g) As part of the balance offset the land holding contributes nearly 800 ha in conservation land containing large tracts of cleared land which will connect and improve areas of regrowth and remnant vegetation with the Bremer River and major surrounding tracts of bushland which ultimately connect with the Main Range Nation Park.
be built around direct offsets but may include other compensatory measures	The offset area includes legally securing the land area and undertaking necessary management to complete revegetation in a cleared paddock and assisted rehabilitation of regrowth areas to achieve 112.78 % of the offset required for Koala impacts and 143.38 % of the offset for Grey-headed Flying-fox. The combined impact and offset assessment for Springfield City Group's EPBC 2020/8651 (Scenic Precinct) and EPBC 2020/8629 (Peninsula Precinct) for the Swift Parrot and Regent Honeyeater will achieve 101.54% of offset requirements for Regent Honeyeater and 154.30% of offset requirements for the Swift Parrot. Planting obligations will be delivered across both the ROA 4 offset area (Scenic Precinct) and adjoining ROA 3 offset area (Peninsula Precinct) and will be delivered concurrently to achieve the proposed offset outcomes. A minimum of 100% of the offset required is built around direct offsets.
be in proportion to the level of statutory protection that applies to the protected matter	Within this application the Koala and the GHFF are assessed as Vulnerable. Under the International Union for Conservation of Nature (IUCN) data the probability of annual extinction is 0.2 %. The Swift Parrot and Regent Honeyeater are assessed as Critically Endangered with an annual extinction probability of 6.8 %. This factor applies through the meta data of the Offset Guide assessment calculation sheets for which each species has been assessed as achieving greater than 100% offset through the proposed offset area (Appendix B).
be of a size and scale proportionate to the residual impacts on the protected matter	Direct and indirect impacts for the protected matters have been calculated at the impacts site using the Modified Habitat Quality Assessment (MHQA) for the Koala and the Foraging Habitat Assessment (FHA) methods for Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater. Within the OAG the Quantum Impact for each species is listed as: • Koala (14.52 QI ha) • Grey-headed Flying-fox (16.94 QI ha)

Principle	Offset Strategy Compliance
	• Swift Parrot (3339 habitat features impacted at Peninsula and 1755 features at Scenic for combined offset assessment) • Regent Honeyeater (2756 habitat features impacted at Peninsula and 1891 features at Scenic for combined offset assessment) To achieve the offset required for these impacts, the offset area provides a direct land-based outcome over 51.8 ha entirely through habitat recreation activities on historically cleared land devoid of native vegetation. The percentage of the impacts acquitted through this offset is: • Koala – 112.78% • Grey-headed Flying-fox – 143.38% • Swift Parrot – 154.30% • Regent Honeyeater – 101.54%
effectively account for and manage the risks of the offset not succeeding	The offset area forms part of the balance land of a much larger offset strategy covering nearly 800 ha of land. At this scale resourcing required to deliver, maintain and manage the risks is significantly increased compared to smaller offsets area. This OMP identifies 7 key risks / threats to some, or all, of the offset principles and outcomes not being achieved. These are: • Wildfire • Drought • Shifting habitat range • Plant stock failure • Feral animal control • Weeds of National Environmental Significance (WONS) increasing, and • Livestock control, access and trespass management Each of these risks have influenced the specific management actions proposed in the relevant assessment units where the risk may occur and more importantly the monitoring, measuring of success and adaptive management for the offset succeeding. Further, the offset provider intends to engage third party, suitably qualified professional(s) to ensure that the management outcomes of the offset land are achieved and risk of the offset not succeeding is mitigated. Repetitive monitoring and survey replication is to be a feature of the OMP to ensure adaptive management changes are made as soon as identified and throughout the life of the offset. In addition to completion criteria, interim milestones will be developed for each management measure.
be additional to what is already required, determined by law or	The Scenic Precinct project occurs in the Springfield Structure Plan area declared by the State Government as a priority area for development.

Principle	Offset Strategy Compliance
planning regulations or agreed to under other schemes or programs	There are few environmental controls at the impacts site with the Queensland Government's *Environmental Offset Act 2014* not being applicable. There are no guidelines or controls around offset or rehabilitation for the Grey-headed Flying-fox, Koala, Swift Parrot and Regent Honeyeater. The offset area is currently utilised for various rural activities and is not protected or managed for conservation purposes. The southern allotments of the offset property fall within the mapped extent of *Regional Biodiversity Corridor 101 described as Kangaroo Mountain to Rosewood Corridor: Extends from Kangaroo Mountain* (Main Range National Park) through to Mt Walker and Rosewood. Regional (5 km). All habitat protection and habitat creation is supported by this strategic intent and importantly the land is not located within an area at threat of new development expansion, new road or rail upgrades or extractive resource uses. Similarly, Moorang Wildlife Corridor, south of the offset property, forms a direct connection to the vegetation within the offset site. As of October 2022, *Scenic Rim Regional Council* committed to a 50 percent increase in funding for their Environmental Grants Program. This budget increase benefits community groups and landholders that are working towards enhancing the Scenic Rims natural environment, preserving habitat for rare and threatened species and improving the quality of Scenic Rim waterways. This is inclusive of landholders who are working to reduce/eliminate wild pigs spreading weed seeds and eroding riparian areas in the Moorang area. However, this is not required by law and is instead encouragement to improve land values across the region. Considering the majority of the properties surrounding the offset area are used for cropping and agriculture and how large, time consuming and expensive a task managing revegetated areas can be, it is considered entirely beneficial that 51.8 ha of land be offset under this project. Therefore, without the triggering of the EPBC Act and subsequent requirement to obtain approval, the offset as proposed in the OMP is not required for any of the protected matters under State or Local legislation. Additionally, the offset area would not be protected in perpetuity for conservation purposes.
be efficient, effective, timely, transparent, scientifically	Through conditions of approval the offset area will be legally secured prior to the commencement of any clearing on the impact site. The offset area and its value (as finalised through the EPBC Act Approval) will be legally secured through a Voluntary Declaration (VDEC) declared under the Queensland Government's *Vegetation Management Act 1999*. A VDEC protects land and values and is binding on future owners. The declaration

Principle	Offset Strategy Compliance
	and management plan will be noted on the land title, which informs prospective buyers of current declarations and management plans and where copies are available. This information is important to the property market as future owners will be bound by the plan and declaration. The legally securing of the land will be made through declaring the area as having High Nature Conservation Values. The VDEC will be lodged and legally secured by evidence of encumbrance on Registered Land Title prior to the commencement of any clearing works on the Impact Site. The OMP schedules a list of existing or specifically designed scientific methodologies for the measuring of base line and improved outcomes for the protected matters. Detailed baseline studies have been occurring over the approved offset areas and are used to inform the outcomes of this version of the OMP. The OMP also requires the use of tertiary trained and experienced experts along with appropriately certified and experienced contractors for the implementation of a host of actions.
have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced	The offset property is owned by a large rural enterprise who has a variety of rural activities occurring on-site. The third party offset provider will fund all actions listed as approved in an offset management plan. An executed legal contract (Offset Provider Deed) is in place outlining the legal and committed relationship of the funding and delivery of the offset outcomes. Clearly articulated goals are set within this OMP for each proposed action within each Assessment Unit or Environmental Management Zone. Collectively, these goals link directly to the achievement of the overall conservation gain for the protected matters as designed, assessed and calculated through the selection and delivery of the offset. The management actions and implementation schedule to be included in the offset management plan are designed to be measured, monitored, audited and enforced year upon year during the life of the offset.

5. BASELINE SURVEYS

A number of technical survey methodologies have been deployed at the offset area to assist in the assessment of baseline values and informing offset outcomes. Surveys were completed by a suitably qualified field ecologist (**Appendix C**). These are documented in detail in this section and include:

- Assessment Unit delineation
- Koala Habitat – Modified Quality Habitat Assessment Tool
- Grey-headed Flying-fox – Foraging Habitat Assessment
- Swift Parrot – Foraging Habitat Assessment
- Regent Honeyeater – Foraging Habitat Assessment
- Baseline Weed Surveys
- Baseline Pest Surveys

Refer to **Table 13** and the subsections below for specific details on survey dates for each method applied.

Table 13: Baseline field surveys methods summary

Date	Temperature	Rainfall (mm)	Methods implemented
20 April 2023	10.1°C min – 27.3°C max	0	Tranche 1 camera installation, weed surveys
24 April 2023	12.8°C min – 27.3°C max	0	Weed surveys
27 April 2023	No data available min – 24.6°C max	0	Weed surveys
4 May 2023	4.5°C min – 27.4°C max	0	Tranche 1 camera collection
5 May 2023	8.0°C min – 25.5°C max	0	Weed surveys
15 May 2023	15.3°C min – 23.1°C max	8.8	Tranche 2 camera installation
11 August 2023	2.7°C min – 28.2°C max	0	Tranche 2 camera collection, Tranche 3 camera installation
2 November 2023	9.7°C min – 29.0°C max	0	Tranche 3 camera collection
21 February 2024	18.9°C min – 31.9°C max	0	MHQA transects, SATs, stem density counts
1 October 2025	12.5°C min – 31.6°C max	No data available	MHQA transects, SATs, stem density counts

Source: Bureau of Meteorology station 040004 Amberley AMO QLD (Temperature) and 40400 Moorang (Rainfall).

ASSESSMENT UNITS

The broader Rosevale offset property is characterised by three broad assessment units (AUs) (**Plan 9**):

- Assessment Unit 1 – Historically cleared open paddocks and dead plantation trees
- Assessment Unit 2 – Regrowth eucalypt forest
- Assessment Unit 3 – Remnant eucalypt forest

The ROA 4 is delineated into Assessment Unit 1 (Non-remnant Paddock RE 12.8.17/12.8.14) and Assessment Unit 2 (Sparse Regrowth RE 12.8.17/12.8.14). Refer to Plan 10 for the ROA 4 Assessment Units.

Assessment Unit 1 – Non-remnant Paddock RE12.8.17/12.8.14

AU 1 consists of historically cleared open paddocks. This AU is characterised by its lack of structural complexity with a generally absent native tree, shrub and forb species presence and is dominated by native grass species such as, *Heteropogon refractus, Imperata cylindrica* and *Themeda triandra* (Photo Plate 1). This AU contains sporadic weed infestations with *Lantana camara* infestations observed throughout the area. AU 1 contains limited habitat values for MNES.

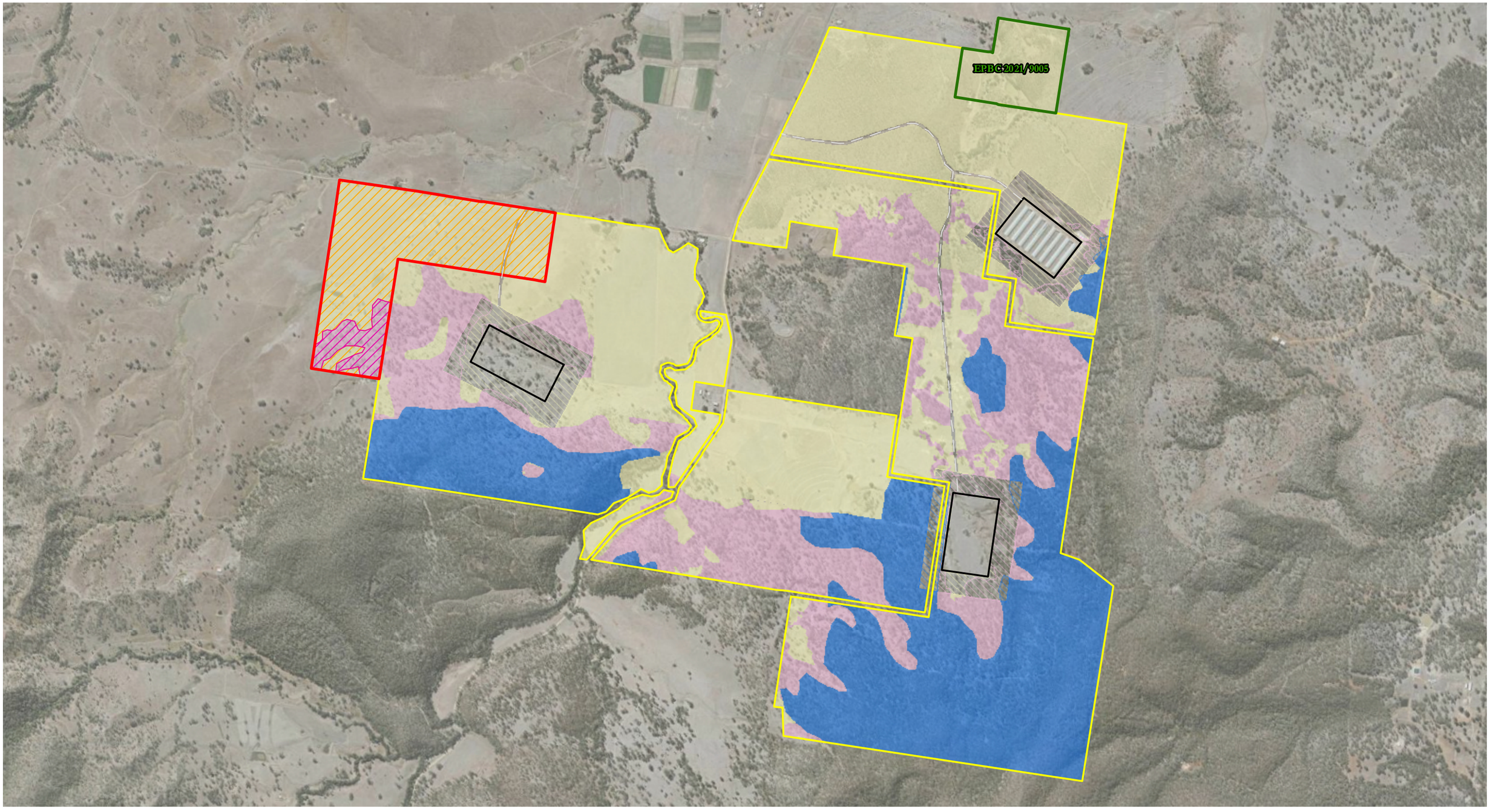
Assessment Unit 2 – Sparse Regrowth RE12.8.17/12.8.14

AU 2 consists of sparse regrowth dominated by RE12.8.17. The area contains a characteristic of regrowth vegetation including small-stemmed eucalypt trees with a sparse overstorey (Photo Plate 2). The vegetation is dominated by *Eucalyptus crebra* with E*. melanophloia, Corymbia tessellaris, C. intermedia* and *Acacia leiocalyx*.

Photo Plate 1: AU1 – Non-remnant Paddock Vegetation

Photo Plate 2: AU2 – Sparse Regrowth Vegetation

9. Offset Property Assessment Units



Montauban Environmental Offsets

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0 100 200 300 400 m

N W E S

Co-ordinate System: GDA2020 MGA Zone 56

References:
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Date: 23/10/2025

10559 E 09 OMP_S Offset Property Assessment Units A

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Legend

- Approved Offset Boundary
- Future Offset Boundary
- Offset Area
- Proposed Chicken sheds
- Poultry shed access track

Vegetation Assessment Units (Offset Property)

- **AU-1:** Non-Remnant Vegetation [327.4 ha]
- **AU-2:** Regrowth Vegetation [145.6 ha]
- **AU-3:** Remnant Vegetation [179.3 ha]

Vegetation Assessment Units (Offset Area)

- AU-1: Non-Remnant Vegetation [45.1 ha]
- AU-2: Regrowth Vegetation [6.7 ha]

Vegetation Assessment Units (Poultry Shed Buffers)

- **AU-1:** Non-Remnant Vegetation
- **AU-2:** Regrowth Vegetation
- **AU-3:** Remnant Vegetation

10. Offset Site Assessment Units

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10559 E 10 OMP_S Offset Site Assessment Units A

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0 50 100 150 m

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Legend

- Offset Area
- Poultry shed access track
- Future Track to be excluded [0.5 ha]

Assessment Units

- Assessment Unit 1: Non-remnant RE 12.8.17/12.8.14 [45.1 ha]
- Assessment Unit 2: Regrowth RE 12.8.17/12.8.14 [6.7 ha]

KOALA HABITAT - MODIFIED HABITAT QUALITY ASSESSMENT TOOL

The ROA 4 has been assessed using a modified version of the Queensland State Governments *"Guide to determining terrestrial habitat quality: A toolkit for assessing land based offsets under the Queensland Environmental Offsets Policy"* Version 1.2 April 2017. The purpose of this guideline is to provide a methodology for proponents to determine the habitat quality of a site under the Queensland Environmental Offsets framework. The guideline is a step-by-step methodology explaining how to measure habitat quality for land-based offsets. This methodology has been adopted and tailored/modified to assess the impacts and offsets relating to MNES.

The traditional terrestrial habitat quality assessment assesses three (3) core indicators—site condition, site context and species habitat index.

The Modified Habitat Quality Assessment (MHQA) combines the three (3) core indicators into two (2) (site condition and site context) with each Site Condition being weighted 30% of the final score and Site Context being weighted 30% of the final score. The balance of the weighting (40 %) has been attributed to the third indicator which is independent of the traditional habitat quality assessment, being species stocking rate. The species stocking rate has been added to the MHQA to better incorporate MNES, and for the purpose of this project, the vulnerable-listed Koala MNES. The following section details the methodology utilised to assess the site condition, site context and species stocking rate under the MHQA.

A total of three (3) MHQA transects were completed across the offset area within the delineated assessment units (Plan 10).

Site Condition (30 %)

Assessing site condition is an integral step in determining specific quantification of impacts, while also determining whether an offset property is suitable to establish a desired capacity to support the prescribed environmental matters being offset. The on-site condition is a key element of habitat quality and has a direct influence on the biodiversity it supports. Site condition is assessed using a suite of attributes to describe the structure and function of the vegetation community, and is benchmarked against the expected range for a relatively undisturbed community.

The site condition assessment under the MHQA is assessed using fifteen (15) condition characteristics. Each condition characteristic and the relevant scoring and benchmark percentage is provided in Table 14.

Table 14: Koala site condition scoring attributes (BioCondition Manual)

Site condition attribute	*Scoring and benchmark percentage*			
*(1) Recruitment of woody perennial species in ecologically dominant layer in EDL**	Score	0	3	5
	Benchmark	<20%	≥20-75%	≥75%
(2) Native plant species richness – trees	Score	0	2.5	5
	Benchmark	<25%	≥25-90%	≥90%
(3) Native plant species richness – shrubs	Score	0	2.5	5
	Benchmark	<25%	≥25-90%	≥90%
	Score	0	2.5	5

Site condition attribute	*Scoring and benchmark percentage*				
(4) Native plant species richness – grasses	Benchmark	<25%	≥25-90%		≥90%
(5) Native plant species richness – forbs	Score	0	2.5		5
	Benchmark	<25%	≥25-90%		≥90%
(6) Tree canopy height	Score	0	3		5
	Benchmark	<25%	≥25-70%		≥70%
(7) Tree canopy cover	Score	0	2	3	5
	Benchmark	<10%	≥10%-<50%	≥200%	≥50-200%
(8) Shrub canopy cover	Score	0	3		5
	Benchmark	<10%	≥10%-<50% or ≥200%		≥50-<200%
(9) Native perennial grass cover	Score	0	1	3	5
	Benchmark	<10%	≥10-50%	≥50-90%	≥90%
(10) Organic litter	Score	0	3		5
	Benchmark	<10%	≥10%-50% or ≥200%		≥50-<200%
(11) Large trees	Score	0	5	10	15
	Benchmark	0%	0-50%	≥50-100%	≥100%
(12) Coarse woody debris	Score	0	2		5
	Benchmark	<10%	<50% or ≥200%		≥50% or <200%
(13) Non-native plant cover	Score	0	3	5	10
	Benchmark	>50%	≥25-50%	≥5-25%	<5%
(14) Quality and availability of food and foraging habitat	Score	1	5		10
	Benchmark	SC1-13 attributes = <27/80 (<33% of benchmark)	SC1-13 attributes = >27/80-<54/80 (33% of benchmark)		SC1-13 attributes = >54/80
(15) Quality and availability of shelter	Score	1	5		10
	Benchmark	SC1-13 attributes = <27/80 (<33% of benchmark)	SC1-13 attributes = >27/80-<54/80 (33% of benchmark)		SC1-13 attributes = >54/80 (≥66% of benchmark)

Assessment methodology of the above condition characteristics mostly do not differ from the traditional terrestrial habitat quality assessment. In developing the MHQA to better incorporate MNES, two (2) species habitat index characteristics, being, (1) quality and availability of food and foraging habitat, and (2) quality and availability of shelter have been added to the site condition indicator. The two Koala habitat index attributes are based on the balance site condition attributes as listed, being species recruitment through to non-native plant cover, where the scores for each of these attributes are summed to provide a data driven condition attribute score out of 80. Scoring for quality and availability of food and shelter is then attributed as follows; the bottom 33% (or <27/80) scores 1, the middle 33% (or between 27/80 and 54/80) scores 5 and the top 33% (or >54/80) scores 10. Site condition drivers therefore determine the habitat quality indices of food and shelter in a repeatable metric.

Site Context (30 %)

The site context assessment considers the landscape characteristics adjoining the site. Site context is measured using a suite of attributes to describe the location of the habitat within the surrounding landscape and the influence of its associated threats. This assessment also considers the influence of adjacent vegetated areas and ecological corridors. Under the MHQA, site context is measured using seven characteristics. In developing the MHQA, three species habitat index characteristics were nominated to form part of the site context characteristics: role of site location to overall species population in the state, threats to the species, and species mobility capacity. The seven characteristics are listed below with details of how each are measured in accordance with the *Guide to determining terrestrial habitat quality: A toolkit for assessing land based offsets under the Queensland Environmental Offsets Policy* (version 1.2).

- Size of patch – Measured as the area of vegetation in which the assessment unit(s) is contained, and add on all other directly connecting areas of koala habitat. The calculation of the area of the patch size uses the method outlined in the BioCondition assessment manual v2.2 that considers the patch to be areas connected by corridors greater than 200 m wide within a 1 km radius of the site. This methodology includes use of a "segmentation" process that removes areas connected to the assessment area by narrow corridors (Plan 11).
- Connectedness – Relates to the capacity that the species have to disperse through the landscape. This attribute is calculated using GIS by measuring the length koala habitat along the boundary of the site, calculated as a percentage (Plan 11).
- Context – The context score is calculated by GIS to quantify the amount of vegetation immediately surrounding the assessment site. It is measured as the percentage of koala habitat within a 1 km radius of the site (Plan 11)
- Ecological corridors – This attribute is as per the methods of the Guide to determining terrestrial habitat quality V1.2 and is used to determine if a site is located within or shares a boundary with an ecological corridor that facilitates long term ecosystem function by connecting large patches of remnant vegetation with sufficient tract size (corridor width in relation to the fragmentation of the landscape) (EHP 2014). These corridors support the habitat of MNES by providing opportunity for long term dispersal of habitat species following landscape level changes in climate. Although the ecological corridors allow for the dispersal of MNES themselves, for example, Koala, this is not their primary function when assessing the attribute. An 'ecological corridor' is represented as any 'Riparian' or 'Terrestrial' feature within the 'CORR_TYPE' attribute table of the 'Queensland biodiversity and vegetation offsets special features' map. The mapping can also be viewed on Queensland Globe in the 'Statewide Biodiversity Corridors' layer (Figure 5 and Figure 6).
- Role of site location to species overall population in the state – This attribute is based on the observed role of the site in relation to the overall population of the species. The scoring table considers the species' use of the site – such as whether it is used for feeding and/or nesting and the effect that damage to or removal of the site would have to the likelihood of the species' overall population survival.
- Threats to the species – This attribute identifies the presence and severity of threatening processes observed at or adjacent to the site which may include clearing associated with development, creation of a barrier to movement, introduction or spread of disease or pathogens, risk of high-intensity fires, degradation of habitat from hydrological change and introducing or increasing mortality attributed to vehicle strike or dog attacks. The highest threat level is given to a site if it isolated from other Koala

habitat, or if major roads without exclusion measures, or residential encroachment is within 1500 m of the site boundary.

- Species mobility capacity – Scored based on the presence and severity of factors that would contribute to a reduction in the mobility of the species such as barriers that would result in a long-term reduction in genetic fitness or access to important resources. Examples of mobility limited factors include roads, large, cleared areas and weed infestations. Under the Habitat Quality Guideline, this is measured in terms of a percentage reduction

Unlike the traditional habitat quality assessment methodology where site connectedness is assessed against the surrounding remnant vegetation only, the MHQA site connectedness is assessed against the surrounding MNES habitat, in this instance, Koala habitat. Whilst remnant eucalypt forest vegetation is critical habitat for Koala, equally Koalas can utilise areas of non-remnant vegetation or high value regrowth vegetation that does not yet achieve remnant status. Therefore, site context under the MHQA accounts for surrounding Koala habitat rather than remnant vegetation.

Contiguous habitat values suitable to the Koala within the landscape was determined using the combination of the Unsupervised Classification tool within ESRI's ArcGIS software and the most recently available aerial photograph from Nearmap.com. The Unsupervised Classification tool can determine vegetation areas through the near infrared (NIR) composite band of the Landsat 8 imagery available online. The tool is able to create a dataset of vegetation areas without the analyst's intervention providing a rapid method for mapping habitat areas over large regions such as South East Queensland. Nearmap.com aerial image is used for calibration purposes, particularly when dealing with smaller scale EPBC assessment areas. The dataset created by the Unsupervised Classification tool is revised using the latest aerial imagery available from Nearmap.com at scale of 1:40,000 and provides a more accurate depiction of Koala habitat.

Scoring attributes extracted from the Habitat Quality Guideline are provided in Table 15.

Table 15: Koala site context scoring attributes

Site context attribute	Scoring and benchmark percentage				
Size of patch	0	2	5	7	10
	<5 ha	5-25 ha	26-100 ha	101-200 ha	>200 ha
Connectedness	0	2	4		5
	0-10%	>10-<50%	50-75%		>75% or >500 ha
Context	0	2	4		5
	<10% habitat	>10-30% habitat	>30-75% habitat		>75% habitat
Ecological corridors	0	4	6		
	Not within	Sharing a common boundary	Within (whole or part)		
	1	4	5		

Site context attribute	Scoring and benchmark percentage			
Role of the site location to species overall population in the state	Not or unlikely to be critical to survival of the koala	Likely to be critical to survival of the koala	Critical to the survival of the koala	
Threats to the species	1	7	15	
	High threat level	Moderate threat level	Low threat level	
Species mobility capacity	1	4	7	10
	Severely restricted (76-100% reduction)	High restricted (51-75% reduction)	Moderately restricted (26-50% reduction)	Minor restriction (0-25% reduction)

Species Stocking Rate (40 %)

The MHQA incorporates species stocking rate as an attribute not discussed under the traditional terrestrial habitat assessment methodology. Species stocking rates are estimates of the koala carrying capacity of the site at the time of undertaking the survey. Given the discreet nature of the koala and limited to no published literature on habitat carrying capacity of the species, the species stocking rate scoring methodology has been derived through the collation of site-specific surveys and surrounding contextual habitat analysis. Species stocking rate is calculated using the following parameters:

- Species presence on or adjacent to the site – whether or not evidence of koala has been recorded within or adjoining the site. Evidence may be direct in the form of observation of koalas, or indirect via the presence of scats.
- Species usage of the site (habitat type and evidenced usage) – the type of habitat includes vegetation structure such as whether it contains remnant, regrowth or non-remnant vegetation values, and evidenced usage is the confirmed presence or use of the species within the habitat. Both factors are used to inform the species usage of the site. Depending on the level of variability in vegetation and usage patterns across the site, this characteristic may be scored differently for assessment units.
- Approximate density of the species on the site – measured through the use of Spot Assessment Technique (SAT) (Phillips *et al.* 2011) and targeted searches with a high probability of detection, including UAV drone surveys. The combination of methods produces a higher reliability of data when extrapolating koala density. The SAT method is an industry recognised technique for identifying presence/absence of koala and measuring activity. SAT survey results are interpreted using the broad population categories provided in the Australian Koala Foundation Koala activity level classification table to infer an activity level or approximate density. These categories being 'East Coast (low)', 'East Coast (med-high)' and 'Western (med-high)' are shown in Table 16. Depending on the population category applied, koala activity is described as 'low', 'moderate', or 'high'.
- Role/importance of species population on site – the extent to which the site is considered a key source population for breeding, dispersal, is necessary for maintaining genetic diversity or near the limit of the species range.

Baseline Koala activity levels were determined through utilising the Spot Assessment Technique (SAT) (Phillips et al. 2011). The SAT method is an industry recognised technique for identifying presence/absence of Koala at a site. Results from the SAT surveys are compared against current available published scientific literature to identify an estimated Koala carrying capacity (stocking rate) to be determined.

While the SAT survey methodology is considered an informative technique when estimating SEQ Koala activity levels, there are a number of limitations. The abundance and density of Koalas cannot be directly determined through this method. However, fixed amount of sampling gives fixed proportion of population, and the value of index usually increases with population density. Additionally, stable populations have higher rate of faecal pellet deposition (Lunney *et al.* 1998), leading to bias occupational rate where multiple SAT sites can be occupied by only the one animal (Phillips and Hopkins 2008).

For subjective criteria where it is unclear whether a particular attribute score is achieved, the precautionary approach is applied to favour the higher score. Table 17 outlines the attributes utilised to assess species stocking rate.

Table 16: Koala Activity Level Classification (Phillips and Callaghan 2011)

Activity	East Coast (low)	East Coast (med-high)	Western (med-high)
Low	<3.33%	<22.5%	<35.8
Moderate	3.33-12.6%	22.5-32.8%	35.8-46.7
High	>12.6%	>32.8	>46.7

Table 17: Koala Species Stocking Rate Scoring

Attribute	Scoring and criteria				
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score (/10)	0	5	10	
		No	Yes – adjacent to site	Yes – on-site	
Species usage of the site (habitat type and evidenced usage)	Score (/15)	0	5	10	15
		Not habitat	Dispersal habitat	Foraging habitat	Breeding habitat
Approximate density (per ha)	Score (/30)	0	10	20	30
		0%	Low	Medium	High
Role/importance of species population on site*	Score (/15)	0	5	10	15
		0	5-15	20-35	40-45
Total SSR	/70				
SSR Score	/4				

*Species Stocking Rate supplementary table – Total supplementary score 0 = 0, 5-15 = 5, 20-35 = 10, 40-45 = 15			
Key source population for breeding	Score (/10)	0	10
		No	Yes/Possibly
Key source population for dispersal	Score (/5)	0	5
		No	Yes/Possibly
Necessary for maintaining genetic diversity	Score (/15)	0	15
		No	Yes/Possibly
Near the limit of the species range	Score (/15)	0	15
		No	Yes

Scoring Weight Justification

Site Condition and Site Context were given a weighted score out of three (3), while Species Stocking Rate was given a weighted score out of four (4).

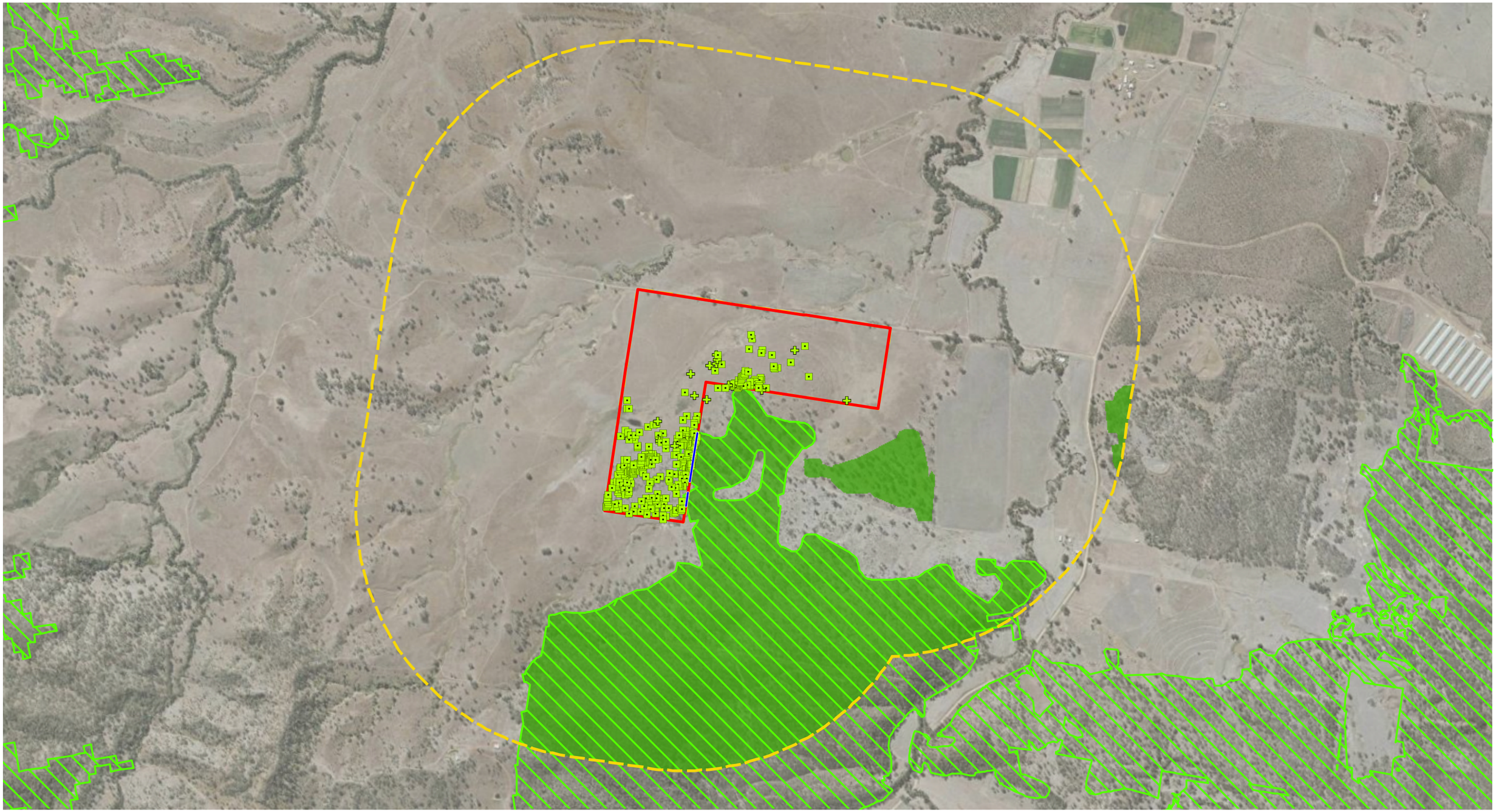
Species Stocking Rate was assigned the highest weighting as it is considered the greatest determinant of site suitability for the Koala. Species Stocking Rate is an important component when assessing the overall habitat quality of a site as it indicates species usage.

Site Condition and Site Context were assigned the equal weighting (scored out of 3). The Koala is known to occupy a variety of habitats, ranging from non-remnant regrowth eucalypt forest/woodland through to old growth remnant forest/woodland, however, the site condition of the habitat is considered to directly influence the long-term Koala carrying capacity. Site Context is considered an important component when assessing the Koala as it directly relates to the long-term survival rate of the species. The proximity of the site to other areas of suitable habitat, the movement pattern through the landscape of the Koala (and/or barriers inhibiting

movement) and threats to the species are important attributes to assess when considering the overall functionality of the site.

It is considered that the provision of this weighted scoring most accurately quantifies the ecological requirements of the Koala, which will then assist in determining the suitability of the offset area in terms of its capacity to support the Koala.

11. Koala Context Assessment



Montauban Environmental Offsets

1:15,000

0 100 200 300 m

N W E S

Co-ordinate System: GDA2020 MGA Zone 56

References:
© State of Queensland, 2022

Project: Rosevale Offset Area 4

Date: 23/10/2025

10559 E 11 OMP_S Koala Context Assessment A

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Legend

- Offset Area
- 1km Buffer
- Percentage of Offset Area boundary length supporting a koala critical habitat connection off and on site - 6%
- Percentage of Koala Critical habitat within 1km of Offset Area (22%)
- Size of Koala critical habitat patch >200m corridor connectivity (>500 ha)

GPS Tree Plot

- Non-juvenile Koala Habitat Tree
- Dead / Stag Tree

The habitat quality scores for each AU were determined using a combination of Site Condition, Site Context and Species Stocking Rate technical data and scoring. The scores for Site Condition are derived directly from the MHQA tool data. These scores are then used to determine the scores for Quality and Availability of Food and Foraging Habitat, and Quality and Availability of Shelter.

Refer to **Table 18** for a summary of the results. The detailed results are presented in **Table 19 / Table 20** for AU1 and **Table 21 / Table 22** for AU2. The complete raw data for site condition is provided at **Appendix D**.

Table 18: MHQA Final Weighted Scores Summary – Koala

MHQA Final Weighting	AU1	AU2
Site Condition (/3)	0.51	1.80
Site Context (/3)	1.50	1.66
Species Stocking Rate (/4)	0.57	0.57
AU Score	**2.58**	**4.03**

Site Condition

The AUs defined on-site reflect the differing states of the vegetation on-site (**Plan 10**). AU2 achieved the highest score for site condition—**1.80 out of 3.** The scores in this area relative to the other assessment unit was evident from the higher species richness, tree canopy height and tree canopy cover. Comparatively, AU1 is substantially more disturbed, achieving a site condition score of **0.51 out of 3**.

Site Context

- *Size of patch* – The size of patch attribute was calculated using GIS and determined the offset area to be part of a patch size of larger than 1000 ha. This achieved a score of **10 out of 10** (>200 ha Koala Habitat as per the *Queensland BioCondition Assessment* methodology) (**Plan 11**).
- *Connectedness* – Connectedness was calculated using GIS, with the percentage of offset area boundary length supporting a Koala critical habitat connection off and on-site calculated at 6 %, and consequently this attribute scored a **0 out of 5** as per the *Queensland BioCondition Assessment* methodology (**Plan 11**).
- *Context* – Existing critical Koala habitat within a 1 km buffer of the site was calculated at 22 %, and therefore the context attribute achieved a score of **2 out of 5** as per the *Queensland BioCondition Assessment* methodology (**Plan 11**).
- *Ecological Corridors* – A score of **0 out of 6** was given to the Ecological Corridors as the site partially located within a riparian corridor (**Figure 5**).
- *Role of site location to species overall population in the State* – This attribute achieved a score of **5 out of 5** noting the site's importance for Koala.
- *Threats to the species* – A score of **7 out of 15** was attributed recognising a moderate level of threats, supported by the existing threats such as habitat clearing within agricultural land use areas and the presence of wild and domestic dogs on the property.
- *Species mobility capacity* – The Koala is considered a relatively immobile species, requiring land for movement, and covering relatively small distances on-ground compared to other highly mobile fauna.

A score of **4 out of 10** was assigned to AU1 and AU2 noting the presence of only scattered trees to support mobility.

Species Stocking Rate

Evidence of Koala was recorded within the AU2 only through the detection of scats during SAT surveys. The presence of scats demonstrate that Koalas utilise the landscape and that the offset area has the capacity to support ecological gain for the Koala.

The species stocking rate for Koala scored **15 out of 40** for AU1 (**Table 20**) and **40 out of 70** for AU2 (**Table 22**) reflecting the varying capacity of the resources within the offset area to support Koala. Further details on the assessment are provided below:

- *Presence detected on or adjacent to site* – No evidence of Koala was detected within the offset area, however, evidence was detected in the adjoining ROA 3 therefore this attribute was assigned a score of **5 out of 10** for the site scale.
- *Species usage of the site* – Due to the absence of evidenced usage, AU1 and AU2 were scored a **0 out of 15**.
- *Approximate density* – AU1 and AU2 were assigned a **0 out of 10** noting the absence of evidence or use. It is anticipated that the capacity of these non-remnant assessment units to support Koala will improve with weed management and active regeneration.
- *Role/importance of species population on-site* – Using the precautionary principle, the offset area is considered a key source for population for dispersal therefore was scored a **5 out of 15** for all AU1 and AU2.

Table 19: Koala MHQA – Assessment Unit 1 ROA 4

Assessment Unit - Regional Ecosystem	AU 1 – Non-remnant Paddock RE12.8.17/12.8.14					
	RE12.8.17 Benchmark	Transect 2	Transect 3	Average of Transect(s)	% Benchmark	Score
SITE CONDITION						
Recruitment of woody perennial species in EDL	100	0	0	0	0	0
Native plant species richness - trees	7	1	0	0.5	7.14	0
Native plant species richness - shrubs	5	3	1	2	40.00	2.5
Native plant species richness - grasses	12	2	3	2.5	20.83	0
Native plant species richness - forbs	27	2	3	2.5	9.26	0
Tree canopy height (Canopy)*	19	23	0	11.5	60.53	3
Tree canopy height (Sub-canopy)*	10	0	0	0	0.00	0
					*Average tree canopy height	1.5
Tree canopy cover (Canopy)**	48	18	0	9	18.75	2
Tree canopy cover (Sub-canopy)**	20	0	0	0	0.00	0
					**Average tree canopy cover	1
Shrub canopy cover	5	0.9	0	0.45	9.00	0

Assessment Unit - Regional Ecosystem	AU 1 – Non-remnant Paddock RE12.8.17/12.8.14					
	RE12.8.17 Benchmark	Transect 2	Transect 3	Average of Transect(s)	% Benchmark	Score
Native grass cover*	32	25	13	19	59.38	3
Organic litter*	21	0	0	0	0.00	0
Large trees (euc plus non-euc) (per ha)	24	2	2	2	8.33	5
Coarse woody debris (per ha)	234	47	19	33	14.10	2
Non-native plant cover	0	75	85	80	80.00	0
Quality and availability of food and foraging habitat	NA	1	1	1	-	1
Quality and availability of shelter	NA	1	1	1	-	1
					Site Condition Score (/100)	17
					Overall Site Condition Score - out of 3	0.51
SITE CONTEXT						
Size of patch	10	10	10	10		10
Connectedness	5	0	0	0		0
Context	5	2	2	2		2

Assessment Unit - Regional Ecosystem	AU 1 – Non-remnant Paddock RE12.8.17/12.8.14					
	RE12.8.17 Benchmark	Transect 2	Transect 3	Average of Transect(s)	% Benchmark	Score
Ecological Corridors	6	0	0	0		0
Role of site location to species overall population in the state	5	5	5	5		5
Threats to the species	15	7	7	7		7
Species mobility capacity	10	4	4	4		4
					Site Context Score (/56)	38
					Overall Site Context Score - out of 3	2.04
SPECIES STOCKING RATE						
Koala Stocking Rate (utilising SSR & SSR Supplementary Table(s)	70	10	10	10		10
					Species Stocking Rate Score (/70)	10.00
					Overall Species Stocking Rate Score - out of 4	0.57
Overall Assessment Unit Score						2.58

Table 20: Koala MHQA – Assessment Unit 1 Species Stocking Rate ROA 4

Species Stocking Rate attributes	
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	5/10 (adjacent to site)
Species usage of the site (habitat type and evidenced usage)	0/15 (no habitat)
Approximate density (per ha)	0/30 (nil presence)
Role/importance of the species population on site*	5/15 (key source population for dispersal)
Total Species Stocking Rate Score	**10/70**
Species Stocking Rate Score – out of 4	0.57

*Species Stocking Rate supplementary table attributes	
Key source population for breeding	0/10
Key source population for dispersal	5/5 (precautionary)
Necessary for maintaining genetic diversity	0/15
Near the limit of the species range	0/15

Table 21: Koala MHQA – Assessment Unit 2 ROA 4

Assessment Unit - Regional Ecosystem	AU 2 – Sparse Regrowth RE12.8.17/12.8.14			
	RE12.8.17 Benchmark	Transect 1	% Benchmark	Score
SITE CONDITION				
Recruitment of woody perennial species in EDL	100	100	100	5
Native plant species richness - trees	7	5	71.43	2.5
Native plant species richness - shrubs	5	4	80.00	2.5
Native plant species richness - grasses	12	5	41.67	2.5
Native plant species richness - forbs	27	0	0.00	0
Tree canopy height (Canopy)*	19	21	110.53	5
Tree canopy height (Sub-canopy)*	10	11	110.00	5
			*Average tree canopy height	5
Tree canopy cover (Canopy)**	48	22.4	46.67	2
Tree canopy cover (Sub-canopy)**	20	43.7	218.50	3
			**Average tree canopy cover	2.5
Shrub canopy cover	5	3.1	62.00	5
Native grass cover*	32	69	215.63	5

Assessment Unit - Regional Ecosystem	AU 2 – Sparse Regrowth RE12.8.17/12.8.14			
	RE12.8.17 Benchmark	Transect 1	% Benchmark	Score
Organic litter*	21	13	61.90	5
Large trees (euc plus non-euc) (per ha)	24	10	41.67	5
Coarse woody debris (per ha)	234	118	50.43	5
Non-native plant cover	0	25	25.00	5
Quality and availability of food and foraging habitat	NA	5	-	5
Quality and availability of shelter	NA	5	-	5
			Site Condition Score (/100)	60
			Overall Site Condition Score - out of 3	1.80
SITE CONTEXT				
Size of patch	10	10		10
Connectedness	5	0		4
Context	5	2		4
Ecological Corridors	6	0		6

Assessment Unit - Regional Ecosystem	AU 2 – Sparse Regrowth RE12.8.17/12.8.14			
	RE12.8.17 Benchmark	Transect 1	% Benchmark	Score
Role of site location to species overall population in the state	5	5		5
Threats to the species	15	7		7
Species mobility capacity	10	4		10
			Site Context Score (/56)	31
			Overall Site Context Score - out of 3	1.66
SPECIES STOCKING RATE				
Koala Stocking Rate (utilising SSR & SSR Supplementary Table(s)	70	10		10
			Species Stocking Rate Score (/70)	10.00
			Overall Species Stocking Rate Score - out of 4	0.57
Overall Assessment Unit Score				4.03

Table 22: Koala MHQA – Assessment Unit 2 Species Stocking Rate ROA 4

Species Stocking Rate attributes	
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	5/10 (adjacent to site)
Species usage of the site (habitat type and evidenced usage)	0/15 (no habitat)
Approximate density (per ha)	0/30 (nil presence)
Role/importance of the species population on site*	5/15 (key source population for dispersal)
Total Species Stocking Rate Score	**10/70**
Species Stocking Rate Score – out of 4	0.57

*Species Stocking Rate supplementary table attributes	
Key source population for breeding	0/10
Key source population for dispersal	5/5 (precautionary)
Necessary for maintaining genetic diversity	0/15
Near the limit of the species range	0/15

GREY-HEADED FLYING-FOX FORAGING HABITAT ASSESSMENT TOOL

The offset area has been assessed using a GHFF Foraging Habitat Assessment (GHFF FHA) tool developed by the Saunders Havill Group (2019) which adopts characteristics of the Queensland State Governments *"Guide to determining terrestrial habitat quality: A toolkit for assessing land based offsets under the Queensland Environmental Offsets Policy"* Version 1.2 April 2017, while also integrating published scientific literature on GHFF foraging habitat.

The traditional terrestrial habitat quality assessment assesses three (3) core indicators—site condition, site context and species habitat index.

The GHFF FHA tool combines the aspects of the three (3) core indicators and published scientific literature into two (2) (site condition and site context) with site condition being weighted with 40 % and site context weighted at 30 % of the final score. The balance of the weighting (30 %) has been attributed to the third indicator which is independent of the traditional habitat quality assessment, being species stocking rate. The species stocking rate assessment incorporated in the GHFF FHA tool is focussed on 'foraging habitat' for GHFF rather than GHFF stocking rates (presence/absence of the species). This assessment of 'foraging habitat' for species stocking rate has been incorporated in the GHFF FHA tool as Grey-headed Flying-fox roosting camp or species presence was not observed on-site, however, suitable foraging habitat for the species was evident. Therefore, the density of foraging habitat available on-site is considered an appropriate assessment benchmark for species stocking rate.

The following section details the methodology utilised to assess the site condition, site context and species stocking rate under the GHFF FHA.

Site Condition (40 %)

Assessing site condition is an integral step in determining specific quantification of impacts, while also determining whether an offset property is suitable to establish a desired capacity to support the prescribed environmental matters being offset. The on-site condition is a key element of habitat quality and has a direct influence on the biodiversity it supports. Site condition is assessed using a suite of attributes to describe the structure and function of the vegetation community and is benchmarked against the expected range for a relatively undisturbed community.

The site condition assessment under the GHFF FHA is assessed using six (6) condition characteristics being:

- Vegetation condition;
- Species richness (canopy trees);
- Flower scores (average);
- Timing of biological shortages;
- Quality of foraging habitat (trees >0.65 wt p*r); and
- Non-native plant cover.

Assessment methodology of the above condition characteristics is outlined below:

- Vegetation condition – This condition characteristic is assessed using the Queensland *Vegetation Management Act 1999* vegetation community status definition, being Category B (remnant), Category C (high-value regrowth) and Category X (non-remnant). This characteristic is scored from a desktop mapping perspective and verified on-ground during assessment. Refer to Table 23.
- Species richness (canopy trees) – This condition characteristic is assessed using a 100 m X 20 m plot following the contour of the land when possible. Within the plot, all canopy tree and subcanopy tree specimens are recorded. It should be noted that non-GHFF foraging species are also documented. Refer to Table 24.
- Flower scores (average) – This condition characteristic is assessed by analysing and cross-referencing the species recorded in the 'species richness (canopy trees)' characteristic with the published literature, specifically the information within *Ranking the feeding habitat of Grey-headed flying foxes for conservation management* (Eby and Law 2008) and the *National Recovery Plan for the Grey-headed Flying-fox* (DAWE, 2021) and determining the flower score of the recorded canopy species. The individual score for each flowering GHFF foraging tree is then divided by the number of species recorded (GHFF foraging and non-GHFF foraging trees) to produce an average. The benchmark values for this condition characteristic have been derived from the findings published by Eby and Law (2008) (Ranking the feeding habitat of Grey-headed flying foxes for conservation management). Refer to Table 25.
- Timing of biological shortages – This condition characteristic is assessed by analysing and cross referencing the species recorded in the 'species richness (canopy trees)' characteristic with the published literature, specifically the information within Ranking the feeding habitat of Grey-headed flying foxes for conservation management (Eby and Law 2008) and the *National Recovery Plan for the Grey-headed flying-fox* (DAWE, 2021) and determining the ability of the canopy species in the vegetation community to produce foraging habitat during biological shortages (food shortages, pregnancy and birthing, lactation, mating and conception, migration paths and fruit industries). It should be noted that this condition characteristic is weighted and 'food shortages' has been weighted heavier than the balance of the characteristics which are equal, as 'food shortages' is recognised as a major issue. Refer to Table 26.
- Quality of foraging habitat – This condition characteristic is assessed by analysing and cross-referencing the species recorded in the 'species richness (canopy trees)' characteristic with the published literature, specifically the information within Ranking the feeding habitat of Grey-headed flying foxes for conservation management (Eby and Law 2008) and the *National Recovery Plan for the Grey-headed flying-fox* (DAWE, 2021) and determining which canopy species recorded contain a flower score greater than 0.65 wt p*r and is recognised as a significant food plant by Eby and Law (2008). It should be noted that species recorded that are not prescribed a value by Eby and Law (2008) but are recognised as GHFF foraging trees, have been given an average weighted value of related species or, in the case of *Eucalyptus crebra* (Narrow-leaved Ironbark) been prescribed a value of 0.65 and classified as a significant food plant given its importance as a winter flowering species as acknowledged in the *National Recovery Plan for the Grey-headed Flying-fox* (DAWE, 2021). Refer to Table 27.
- Non-native plant cover – This condition characteristic is assessed using a 100 m X 20 m plot following the contour of the land when possible. All non-native plant cover was assessed by estimating the cover of exotic species over the 100 m X 20 m plot. Refer to Table 28.

It should be noted that for on-ground assessment purposes, the 100 m X 20 m plot utilised for the GHFF FHA overlaps with the on-ground condition characteristics of the Koala MHQA. Refer to the **Figure 11** below for location of GHFF FHA within the MHQA Plot.

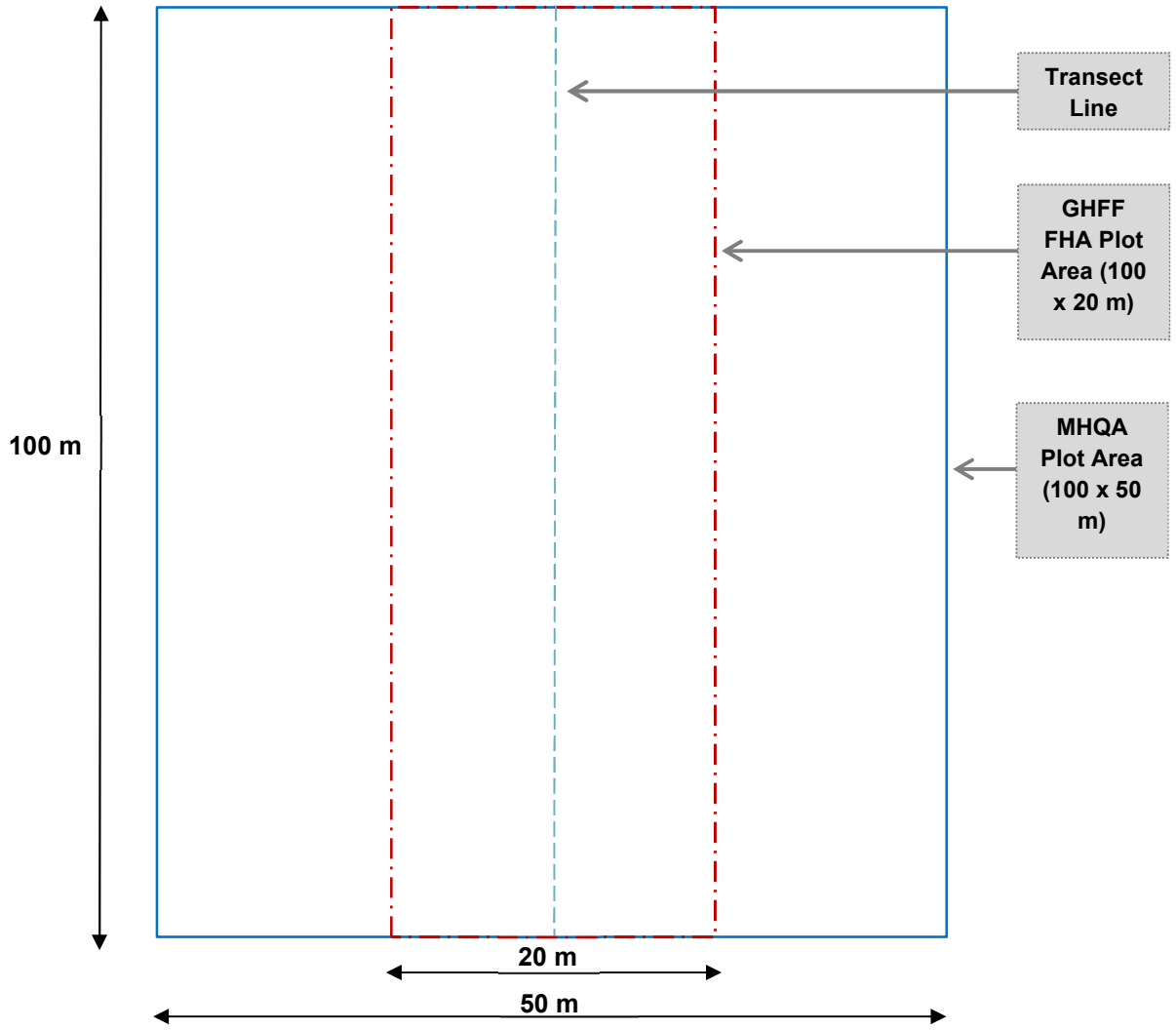


Figure 11: MHQA and GHFF FHA Plot Location Diagram

Site Context (30 %)

The site context assessment deals with the site and its adjacent surroundings. Site context is measured using a suite of attributes to describe the location of the habitat within the surrounding landscape and the influence of its associated threats. This assessment also considers the influence of adjacent vegetated areas and ecological corridors. Under the GHFF FHA, site context is measured using the following six (6) characteristics:

- Size of patch (**Plan 12**);
- Connectedness (active GHFF roost camps in a 20 km radius) (**Plan 12**);
- Context (percentage of GHFF foraging habitat in a 20 km radius) (**Plan 12**);
- Ecological corridors (refer **Plan 12**);

- Role of site location to species overall population in the state (active GHFF national flying-fox monitoring viewer 'level 3' roost camps in a 20 km radius) (Plan 12); and
- Threats to the species.

The assessment methodology of the above context characteristics is outlined below:

- Size of patch – This context characteristic is assessed using a modified version of the traditional habitat quality assessment with the directly connected patch of GHFF foraging habitat to site measured. This context characteristic is measured using GIS. The benchmark values for this context characteristic are those used in the traditional habitat quality assessment (Table 29).
- Connectedness – This context characteristic is assessed by analysing the number of active GHFF roost camps (over the past year of monitoring (2023-2024)) within a 20 km radius of the site. For consistency purposes this assessment is to utilise the data provided on the national flying-fox monitoring viewer (Australian Government) (Table 30).
- Context – This context characteristic is assessed using a modified version of the traditional habitat quality assessment with the percentage of GHFF foraging habitat within a twenty (20) kilometre buffer of the site measured. This context characteristic is measured using GIS (Table 31).
- Ecological corridors – This context characteristic is assessed using the traditional habitat quality assessment methodology which involves determining the proximity of the site to state, bioregional, regional or sub-regional corridors (Table 32).
- Threats to species – This context characteristic is assessed by analysing the published scientific literature regarding threats to GHFF and determining the number and severity of the threatening processes observed at or adjacent to the site (Table 33).
- Role of site location to species overall population in the state (active GHFF national flying-fox monitoring viewer 'level 3' roost camps in a 20 km radius) – This context characteristic is assessed by analysing the number of active GHFF roost camps level 3 or greater (over the past year of monitoring (2023-2024)) within a 20 km radius of the site. For consistency purposes this assessment is to utilise the data provided on the national flying-fox monitoring viewer (Australian Government) (Table 34).

Species Stocking Rate (30 %)

The GHFF FHA incorporates species stocking rate as an attribute not discussed under the traditional terrestrial habitat assessment methodology. As discussed above, species stocking rate for GHFF associated with this proposed action is related to the density of GHFF foraging habitat at the site at the time of undertaking the survey.

Baseline GHFF foraging tree surveys were undertaken by utilising the stem count methodology provided in the *Methodology for surveying and mapping regional ecosystems and vegetation communities in Queensland* (version 5.0) (Neldner et al. 2019). The methodology detailed in Neldner et al. (2019) uses a plot area of 50 X 10 m. For the purposes of this assessment, the area was modified to 100 X 20 m to align with the MHQA plot, however, the actual count assessment method remains the same.

This methodology involves assigning the strata for canopy (T1) and subcanopy (T2) and then counting the number of individual tree specimens within the 100 m X 20 m plot. A tree that branches into two or more stems above 30 cm above the ground is counted as one individual. The stem density of canopy species recorded within

the 0.2 ha plot is multiplied by five (5) to produce a stem density per ha. This number is then compared to the benchmark stem density per ha based on the sum of the T1 and T2 stem density taken from the relevant regional ecosystem technical description as per the *Technical Descriptions of Regional Ecosystems of Southeast Queensland* (Ryan 2019). Refer to **Table 35** for benchmark scoring values for species stocking rate.

Table 23: GHFF FHA Vegetation Condition Scoring

Score	Description
5	Category X / non-remnant
10	Category C / regrowth
20	Category B / remnant

Table 24: GHFF FHA Species Richness Scoring

Score	Description
0	0 GHFF foraging species
5	1 – 3 GHFF foraging species
10	4 – 6 GHFF foraging species
20	> 6 GHFF foraging species

Table 25: GHFF FHA Flower Score (average) Scoring

Score	Description
2	0.01 – 0.25
5	0.26 – 0.50
8	0.51 – 0.75
10	0.76 – 1.00

Table 26: GHFF FHA Timing of Biological Shortages Scoring

Score	Description
2.5	Food shortages
1.5	Pregnancy and birthing
1.5	Lactation
1.5	Mating and conception
1.5	Migration paths
1.5	Fruit industries
Total (/10)	Combine total of above

Table 27: GHFF FHA Quality of Foraging Habitat (trees >0.65 wt p*r) Scoring

Score	Description
0	0 significant GHFF foraging tree species
5	1 – 3 significant GHFF foraging tree species
10	4 – 6 significant GHFF foraging tree species
20	> 6 significant GHFF foraging tree species

Table 28: GHFF FHA Non-Native Plant Cover Scoring

Score	Description
1	> 50 % non-native plant cover
5	25 – 50 % non-native plant cover
10	5 – 25 % non-native plant cover
20	< 5 % non-native plant cover

Table 29: GHFF FHA Size of Patch Scoring

Score	Description
0	< 5 hectares
2	5 – 25 hectares
5	26 – 100 hectares
7	101 – 200 hectares
10	> 200 hectares

Table 30: GHFF FHA Connectedness Scoring

Score	Description
0	< 1 active Grey-headed Flying-fox camp within a 20 km radius
3	1 – 3 active Grey-headed Flying-fox camp within a 20 km radius
6	4 – 6 active Grey-headed Flying-fox camp within a 20 km radius
10	> 6 active Grey-headed Flying-fox camp within a 20 km radius

Table 31: GHFF FHA Context Scoring

Score	Description
0	< 10 % Grey-headed Flying-fox foraging habitat within a 20 km radius
3	10 – 30 % Grey-headed Flying-fox foraging habitat within a 20 km radius

6	31 – 75 % Grey-headed Flying-fox foraging habitat within a 20 km radius
10	> 75 % Grey-headed Flying-fox foraging habitat within a 20 km radius

Table 32: GHFF FHA Ecological Corridors Scoring

Score	Description
0	Not within an ecological corridor
6	Sharing a common boundary with an ecological corridor
10	Within an ecological corridor

Table 33: GHFF FHA Threats to Species Scoring

Score	Description
1	High level threat to the species
5	Moderate level threat to the species
10	Low level threat to the species

Table 34: GHFF FHA Role of Site Location to Species Overall Population in the State Scoring

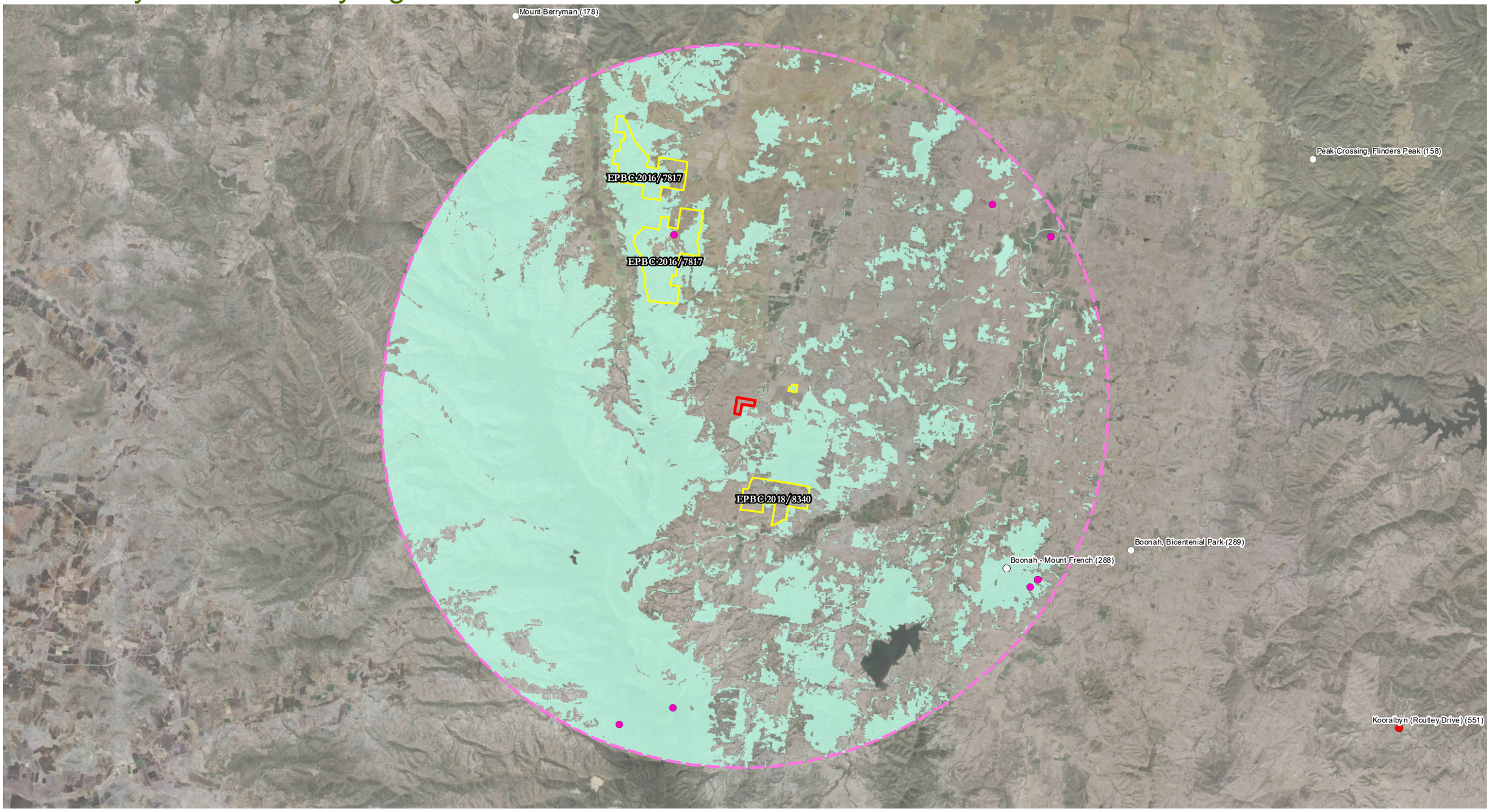
Score	Description
1	1 – 2 active level 3 Grey-headed Flying-fox camp within a 20 km radius
6	2 – 4 active level 3 Grey-headed Flying-fox camp within a 20 km radius
10	> 4 active level 3 Grey-headed Flying-fox camp within a 20 km radius

Table 35: GHFF Species Stocking Rate Scoring

	Stem density per hectare
Score	**RE12.8.17**
2	0-73
4	74-314
6	315-532
8	533-568
10	569-592
8	593-628
6	629-846

4	847-1088
2	>1089

12. Grey-headed Flying-fox Context Assessment



Montauban Environmental Offsets

1:210,000

2000 m

N W E S

Co-ordinate System: GDA2020 MGA Zone 56

References:
© State of Queensland, 2022

Project: Rosevale Offset Area 4

Date: 23/10/2025

10559 E 12 OMP_S GHFF Context Assessment A

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Legend

- Offset Area
- Existing Approved Grey-headed Flying-fox Offset
- Offset Area 20km Buffer
- Grey-headed Flying-fox records within 20km of offset area - 25
- Potential and Known Grey-headed Flying-fox Foraging Habitat Within 20km of Offset Area [48%]

National Flying-fox monitoring data (Fed Gov. 2024.)

- Grey-headed Flying-fox roost inactive within recent surveys [1 within 20km of offset area]
- Grey-headed Flying-fox roost active within recent surveys
- Grey-headed Flying-fox roost active within recent surveys with a population level of 3 or above
- Nationally significant Grey-headed Flying-fox roost active within recent surveys
- Nationally significant Grey-headed Flying-fox roost active within recent surveys with a population level of 3 or above

Site Condition (40%)

The baseline site condition characteristics for GHFF are summarised in Table 36.

Site Context (30%)

The baseline site context characteristics for GHFF are shown on Plan 12 with results summarised in Table 36.

A 'moderate' level of threats to GHFF are present within the offset area including the presence of barbed-wire.

Species Stocking Rate (30%)

The baseline species stocking rate scores is determined by the stem density of GHFF foraging species. The offset area species stocking rate results for GHFF are summarised in Table 36.

Table 36: GHFF FHA – Assessment Summary

		Maximum Score	Assessment Unit – Regional Ecosystem			
			AU 1 Non-remnant Paddock RE 12.8.17		AU 2 Sparse Regrowth RE 12.8.17	
Site Condition (40%)	Vegetation Condition	20	5	AU 1 is mapped as Category X	5	AU2 is mapped as Category X
	Species Richness	20	5	T2 – 1 GHFF species T3 – 0 GHFF species Average – 0.50 GHFF species	5	T1 – 1 GHFF species
	Flower Score	10	5	T2 – 0.64 T3 – 0 Average – 0.32	5	T1 – 0.64
	Timing of Biological Shortages	10	4.25	T2 – 8.5 T3 – 0 Average – 4.25	10	T1 – 10
	Quality of Foraging Habitat	20	5	T2 – 1 species T3 – 0 species Average – 0.5 species	5	T1 – 2 species
	Non-native Plant cover	20	1	T2 – 75% T3 – 85% Average – 80%	5	T1 – 25%

		Maximum Score	Assessment Unit – Regional Ecosystem			
			AU 1 Non-remnant Paddock RE 12.8.17		AU 2 Sparse Regrowth RE 12.8.17	
	Site Condition Score	**100**	**21**		**35**	
	Site Condition Score – out of 4	**4.00**	**1.05**		**1.40**	
Site Context (30%)	Size of Patch	**10**	**10**	Patch size is greater than 200 ha	**10**	Patch size is greater than 200 ha
	Connectedness	**10**	**0**	0 active camps within 20 km	**0**	0 active camps within 20 km
	Context	**10**	**6**	48%	**6**	48%
	Ecological Corridors	**10**	**0**	Not within a corridor	**0**	Not within a corridor
	Roles of the site location to the species overall population in the state	**10**	**0**	0 active level 3 GHFF camps within a 20 km radius	**0**	0 active level 3 GHFF camps within a 20 km radius
	Threats to species	**10**	**5**	A low level of threats is prescribed noting the presence of barbed wire.	**5**	A low level of threats is prescribed noting the presence of barbed wire.

		Maximum Score	Assessment Unit – Regional Ecosystem			
			AU 1 Non-remnant Paddock RE 12.8.17		AU 2 Sparse Regrowth RE 12.8.17	
	Site Context Score	60	21		21	
	Site Context Score – out of 3	3.00	1.05		1.05	
Species Stocking Rate (30%)	GHFF Foraging Tree Density per hectare	-	1	T2 – 0 T3 – 0 Average – 0	4	T1 – 175
	Species Stocking Rate Score	10	1		4	
	Species Stocking Rate – out of 3	3.00	0.0		1.20	
Total			2.06		3.65	

SWIFT PARROT FORAGING HABITAT ASSESSMENT

To quantify baseline habitat and future value for the swift parrot, a feature-based assessment method was utilised. The method involves calculating the number of individual habitat features located within the offset area and the number that will be reinstated as part of the offset.

A habitat feature for the Swift Parrot is defined as a non-juvenile tree (*i.e.,* ≥100 mm DBH) which is a preferred foraging tree species identified under the *National Recovery Plan for the Swift Parrot* (DCCEEW, 2024). Listed preferred foraging tree species include:

- *Eucalyptus leucoxylon* (yellow gum)
- *Eucalyptus tricarpa* (red ironbark)
- *Eucalyptus sideroxylon* (mugga ironbark)
- *Eucalyptus macrocarpa* (grey box)
- *Eucalyptus albens* (white box)
- *Eucalyptus melliodora* (yellow box)
- *Eucalyptus robusta* (swamp mahogany)
- *Eucalyptus tereticornis* (forest red gum)
- *Eucalyptus pilularis* (blackbutt)
- *Corymbia maculata* (spotted gum). It is noted that in Queensland *Corymbia citriodora* is recognised synonymously with *Corymbia maculata*.

The methodology, comprising four (4) steps is described below with details as to how the calculations have been used to inform the OAG and rehabilitation program.

1. Baseline tree density

In order to understand the existing foraging habitat value for the Swift Parrot and the planting capacity of the offset area, the existing density of trees is required to be calculated and extrapolated.

The baseline density of all trees including preferred foraging trees was extrapolated from stem density data collected at three (3) MHQA transects (Plan 10). The two (2) AUs and associated transect site numbers are as follows:

- AU1 represents Non-remnant paddock RE12.8.17/12.8.14 habitat (Transects 2 and 3).
- AU2 represents Sparse Regrowth RE RE12.8.17/12.8.14 habitat (Transect 1).

Stem density data at each MHQA transect was collected in accordance with the stem count methodology provided in the *Methodology for surveying and mapping regional ecosystems and vegetation communities in Queensland (version 5.0)* (Neldner *et al.* 2019). The methodology detailed in Neldner et al. (2019) uses a plot area of 50 X 10 m. For the purposes of this assessment, the area was modified to 100 X 20 m to align with the MHQA plot, however, the actual count assessment method remains the same.

This methodology involves counting the number of individual non-juvenile tree specimens within each 100 m X 20 m plot (0.2 ha) including those that are listed as preferred foraging species for the Swift Parrot. A tree that branches into two or more stems 30 cm above the ground is counted as one individual.

For each AU, the number of non-juvenile trees and separately, of non-juvenile preferred foraging trees, was averaged across all habitat quality transects within the corresponding AU to produce the mean number of trees

and preferred foraging trees within a 100 X 20 m plot area (0.2 ha), the same as that used for the GHFF FHA. The average stem density of non-juvenile trees and non-juvenile preferred foraging trees recorded within the 0.2 ha plot was multiplied by five (5) to produce an estimate of the number of trees and preferred foraging trees per ha. This was then multiplied by the area of the AU to determine an estimate of non-juvenile trees and non-juvenile preferred foraging trees within each AU.

2. Planting capacity

The planting capacity or number of trees (all species) that can be supported within each AU was determined based on a planting density of 1 tree per 10 m^2 or 1000 trees per hectare for non-remnant paddock and 1 per 50 m^2 or 200 trees per hectare for sparse regrowth, proposed in accordance with the South East Queensland Ecological Restoration Framework (SEQERF) (Chenoweth EPLA, 2012). The proposed density of trees per hectare depending on the AU was multiplied by the size of the AU (in hectares) to determine the maximum planting capacity. Waterbodies were excluded from potential planting areas.

Each AU was assigned a planting palette of tree species developed based on the ground-truthed pre-clear regional ecosystem mapping and local availability of seed stock. Each planting palette comprises a mix of preferred foraging species for the Swift Parrot, other eucalypt trees and pioneer species such as *Acacia* sp. Preferred foraging tree species comprise a percentage of the total planting palette where it is suitable for the pre-clear RE and/or consistent with the local seed stock.

3. Preferred foraging species planting

The number of preferred foraging trees that will be planted per AU is calculated as the planting capacity multiplied by the percentage of preferred foraging trees. Where there are multiple species of preferred foraging tree species, these are added together to produce a total number of preferred foraging tree species to be planted.

A 90% survival rate is applied to both the on-ground planting value and the adjusted value to receive the total number of preferred and/or supporting foraging species proposed to be successfully delivered as a result of the offset. A detailed Rehabilitation Management Plan (RMP) (Appendix F) has been prepared which proposes an intensive maintenance and monitoring program to ensure the 90% survival rate is achieved. The RMP includes details on the proposed planting palettes and planting, maintenance and monitoring methodologies.

4. Net total of preferred foraging trees

The final step is to determine the net total of preferred foraging trees that will be located within each AU combining the proposed offset and baseline data. This is calculated as the total count of preferred foraging trees to be planted inclusive of a 90% survival rate, plus the baseline count of non-juvenile preferred foraging trees.

For the purposes of the OAG calculator, the net total of preferred foraging trees inclusive of a 90% survival rate of planted trees is inputted as the 'Future value with offset.'

The baseline estimate of preferred foraging species present within the ROA 4 is presented below.

One (1) preferred foraging species for the Swift Parrot was recorded within ROA 3 and ROA 4 being *Eucalyptus tereticornis* (Forest Red Gum). It is estimated a total of 1,547 non-juvenile preferred foraging trees are present within ROA 3 and ROA 4 (Table 37).

Table 37: Swift Parrot baseline stem density (preferred foraging species) for ROA 3 and ROA 4

AU	AU Area (ha)	Plot #	Count of preferred foraging trees (100 X 20 m plot)	Mean number per AU (100 X 20 m plot)	Estimate per hectare	Estimate per AU
ROA 4						
1	44.9	2	0	0	0	0
1		3	0			
2	6.7	1	0	0	0	0
ROA 3						
1	86.8	1	0	6	30	1113
1		2	1			
1		3	0			
1		4	23			
2	11.0	5	31	25.5	128	434
2		6	20			
					Total site (92.1 ha)	**1547**

The results of the feature-based offset analysis utilising the combined offset planting approach for ROA 3 and ROA 4 is provided in Table 38.

Key foraging species to be reinstated within the ROA 3 and ROA 4 include *Eucalyptus tereticornis* (Forest Red Gum) and *Eucalyptus melliodora* (Yellow Box). Out of the total planting capacity of 83,340 trees, a total of 38,300 are proposed to be consist of preferred foraging trees for the Swift Parrot. Using a 90% survival rate, a total of 34,470 are proposed to be delivered within across the ROA 3 and ROA 4, resulting in a net total of 36,017 preferred foraging trees to protected and reinstated as a result of the offset.

A detailed Rehabilitation Management Plan is provided with this analysis to guide on-site planting works, maintenance and monitoring regime to ensure a high survival rate is achieved (Appendix F). The analysis and planting percentages of preferred foraging species is consistent with the RMP to ensure offset actions are completed as proposed in this analysis.

Table 38: Swift Parrot Feature-based Offset Analysis

Site	AU	Area (ha)	Mapped Status	On-ground Status	Planting Rate	Total Tree Plantings	Foraging Species Proportion planted			Foraging Species Count – Planted	90% survival rate
							E. melliodora	E. tereticornis	Combined		
ROA 4 (Scenic)	AU1	44.9	Cat X	Paddock	1/10 m^2	44990	0.40	0.10	0.50	22450	20205
	AU2	6.7	Cat C High	Sparse regrowth	1/50 m^2	1340	0.40	0.10	0.50	670	603
ROA 3 (Peninsula)	AU1	37.1	Cat X	Paddock	1/10 m^2	37100	0	0.40	0.40	14840	13356
	AU2	3.4	Cat X/Cat C	Sparse regrowth	1/50 m^2	680	0.40	0.10	0.50	340	306
Total						**83340**				**38300**	**34470**

REGENT HONEYEATER FORAGING HABITAT ASSESSMENT

To quantify baseline and future habitat value for the Regent Honeyeater, a feature-based assessment method was utilised. The method involves calculating the number of individual habitat features located within the offset area and the number that will be reinstated as part of the offset.

A habitat feature for the Regent Honeyeater is defined as a non-juvenile tree (*i.e.,* ≥100 mm DBH) which is a preferred foraging tree species identified under the *National Recovery Plan for the Regent Honeyeater* (DoE, 2016). Listed preferred foraging tree species include:

- *Eucalyptus leucoxylon* (yellow gum)
- *Eucalyptus sideroxylon* (mugga ironbark)
- *Eucalyptus albens* (white box)
- *Eucalyptus melliodora* (yellow box)
- *Eucalyptus robusta* (swamp mahogany)
- *Corymbia maculata* (spotted gum). It is noted that in Queensland *Corymbia citriodora* is recognised synonymously with *Corymbia maculata*.

In addition, the Recovery Plan identifies tree species with potential to provide important nectar flows at different times of year which specifically lists *Eucalyptus fibrosa* (Broad-leaved Ironbark) and *Eucalyptus eugenioides* (White Stringybark). These species were also considered in the analysis, however, were weighted at 0.75 noting their reduced importance relative to the listed preferred foraging species.

The methodology, comprising four (4) steps is described below with details as to how the calculations have been used to inform the OAG and rehabilitation program.

1. Baseline tree density

In order to understand the existing foraging habitat value for the regent honeyeater and the planting capacity of the offset area, the existing density of trees is required to be calculated and extrapolated.

The baseline density of all trees including preferred foraging trees was extrapolated from stem density data collected at three (3) MHQA transects (Plan 10). The two (2) AUs and associated transect site numbers are as follows:

- AU1 represents Non-remnant paddock RE12.8.17/12.8.14 habitat (Transects 2 and 3).
- AU2 represents Sparse Regrowth RE RE12.8.17/12.8.14 habitat (Transect 1).

Stem density data at each MHQA transect was collected in accordance with the stem count methodology provided in the *Methodology for surveying and mapping regional ecosystems and vegetation communities in Queensland (version 5.0)* (Neldner *et al.* 2019). The methodology detailed in Neldner et al. (2019) uses a plot area of 50 X 10 m. For the purposes of this assessment, the area was modified to 100 X 20 m to align with the MHQA plot, however, the actual count assessment method remains the same.

For each AU, the number of non-juvenile trees and separately, of non-juvenile preferred foraging trees, was averaged across all habitat quality transects within the corresponding AU to produce the mean number of trees and preferred foraging trees within a 100 X 20 m plot area (0.2 ha), the same as that used for the GHFF FHA. The average stem density of non-juvenile trees and non-juvenile preferred foraging trees recorded within the 0.2 ha plot was multiplied by five (5) to produce an estimate of the number of trees and preferred foraging trees

per ha. This was then multiplied by the area of the AU to determine an estimate of non-juvenile trees and non-juvenile preferred foraging trees within each AU.

2. Planting capacity

The planting capacity or number of trees (all species) that can be supported within each AU was determined based on a planting density of 1 tree per 10 m^2 or 1000 trees per hectare for non-remnant paddock and 1 per 50 m^2 or 200 trees per hectare for sparse regrowth, proposed in accordance with the SEQERF (Chenoweth EPLA, 2012). The proposed density of trees per hectare depending on the AU was multiplied by the size of the AU (in hectares) to determine the maximum planting capacity. Waterbodies were excluded from potential planting areas.

Each AU was assigned a planting palette of tree species developed based on the ground-truthed pre-clear regional ecosystem mapping and local availability of seed stock. Each planting palette comprises a of preferred and supporting foraging species for the Regent Honeyeater, other eucalypt species and pioneer species such as *Acacia* sp. Preferred and supporting foraging tree species comprise a percentage of the total planting palette where it is suitable for the pre-clear RE and/or consistent with the local seed stock.

3. Preferred foraging species planting

The number of preferred and supporting foraging trees that will be planted per AU is calculated as the planting capacity multiplied by the percentage of preferred and/or supporting foraging trees. Where there are multiple species of key or supporting foraging tree species, these are added together to produce a total number of foraging tree species to be planted.

As supporting species have a weighting of 0.75, this is applied to the total count of supporting trees to be planted to produce an adjusted estimate to trees to be planted according to their value.

A 90% survival rate is applied to both the on-ground planting value and the adjusted value to receive the total number of preferred and/or supporting foraging species proposed to be successfully delivered as a result of the offset. A detailed Rehabilitation Management Plan (Appendix F) has been prepared which proposes an intensive maintenance and monitoring program to ensure the 90% survival rate is achieved. The RMP includes details on the proposed planting palettes and planting, maintenance and monitoring methodologies.

The total of preferred and supporting foraging trees without a 0.75 weighting or survival rate being applied reflects the total number of trees that will be planted as part of the offset.

4. Net total of preferred foraging trees

The final step is to determine the net total of preferred foraging trees that will be located within each AU combining the proposed offset and baseline data. This is calculated as the total count of preferred and/or foraging trees to be planted inclusive of a 90% survival rate, plus the baseline count of non-juvenile preferred foraging trees.

For the purposes of the OAG calculator, the net total of preferred foraging trees inclusive of a 90% survival rate of planted trees is inputted as the 'Future value with offset.'

The baseline estimate of preferred foraging species present within the ROA 4 is presented below.

There are currently no preferred foraging species for the Regent Honeyeater within ROA 3 and ROA 4 (Table 39).

Table 39: Regent Honeyeater baseline stem density (preferred foraging species) for ROA 3 and ROA 4

AU	AU Area (ha)	Plot #	Count of preferred foraging trees (100 X 20 m plot)	Mean number per AU (100 X 20 m plot)	Estimate per hectare	Estimate per AU
ROA 4						
1	44.9	2	0	0	0	0
1		3	0			
2	6.7	1	0	0	0	0
ROA 3						
1	86.8	1	0	0	0	0
1		2	0			
1		3	0			
1		4	0			
2	11.0	5	0	0	0	0
2		6	0			
					Total site (92.1 ha)	**0**

The results of the feature-based offset analysis utilising the combined offset planting approach for ROA 3 and ROA 4 is provided in Table 40. Foraging species to be reinstated within the ROA 3 and ROA 4 include preferred foraging species *Eucalyptus melliodora* (Yellow Box) and supporting foraging species *Eucalyptus eugenoides* (Thin-leaved Stringybark). Out of the total planting capacity of 46,240 trees, a total of 24,398 are proposed to be consist of foraging trees for the Regent Honeyeater. Using a 90% survival rate, a total of 21,959 are proposed to be delivered within across the ROA 3 and ROA 4 (Table 40).

A detailed Rehabilitation Management Plan is provided with this analysis to guide on-site planting works, maintenance and monitoring regime to ensure a high survival rate is achieved (Appendix F). The analysis and planting percentages of preferred foraging species is consistent with the RMP to ensure offset actions are completed as proposed in this analysis.

Noting the reduced value of supporting foraging species *E. eugenioides* for the purposes of the OAG, an adjusted value has been calculated which applies a 0.75 value to all *E. eugenioides* planted (Table 41). Applying a 90% survival rate to the adjusted total of trees, the 'future value of the offset' input for the OAG is calculated as 20,692.

Table 40: Regent Honeyeater Feature-based Offset Analysis – Planting Actual

Site	AU	Area (ha)	Mapped Status	On-ground Status	Planting Rate	Total Tree Plantings	Foraging Species Proportion planted			Foraging Species Count – Planted	90% survival rate
							E. melliodora	E. eugenioides	Combined		
ROA 4 (Scenic)	AU1	44.9	Cat X	Paddock	1/10 m^2	44990	0.40	0.12	0.52	23348	21013
	AU2	6.7	Cat C High	Sparse regrowth	1/50 m^2	1340	0.40	0.12	0.52	697	627
ROA 3 (Peninsula)	AU1	37.1	Cat X	Paddock	1/10 m^2	37100	0	0	0	0	0
	AU2	3.4	Cat X/Cat C	Sparse regrowth	1/50 m^2	680	0.40	0.12	0.52	354	318
Total						**46240**				**24398**	**21959**

Table 41: Regent Honeyeater Feature-based Offset Analysis – Adjusted for OAG

Site	AU	Area (ha)	Total Tree Plantings	Foraging Species Proportion planted			Number of E. melliodora	Number of E. eugenioides (0.75 value)	Foraging Species Count Total	90% survival rate	Future value with offset
				E. melliodora	E. eugenioides	Combined					
ROA 4 (Scenic)	AU1	44.9	44990	0.40	0.12	0.52	17960	4041	22001	19801	19801
	AU2	6.7	1340	0.40	0.12	0.52	536	121	657	591	591
ROA 3 (Peninsula)	AU1	37.1	37100	0	0	0	0	0	0	0	0
	AU2	3.4	680	0.40	0.12	0.52	272	61	333	300	300
Total			**46240**						**22991**	**20692**	**20692**

BASELINE WEED SURVEYS

INTRODUCTION

The entire Rosevale Offset Property has been surveyed for weed presence with a focus on Weeds of National Significance (WONS) due to their known adverse impacts on MNES habitat. Thirty-two (32) invasive species are identified by DCCEEW as weeds of national significance based on their invasiveness, potential for spread and identified socioeconomic and environmental impacts (Australian State of the Environment, 2021). Of the 32 WONS species, *Lantana camara* (Lantana), *Opuntia tomentosa* (Velvety Tree Pear) and *Senecio madagascariensis* (Fireweed) were identified during walk overs of the Rosevale Offset Property. No weed species on the National Environmental Alert list were identified however several species declared under the *Scenic Rim Regional Council Planning Scheme*; *Sporobolus pyramidalis* (Giant Rat's Tail Grass), *Baccharis hamifolia* (Groundsel), *Senecio madagascariensis* (Fireweed), *Sporobolus africanus* (Parramatta Grass) and *Opuntia stricta* (Common Prickly Pear). As well as two (2) potentially adverse invasives; *Celtis sinensis* (Chines Celtis), *Lantana montevidensis* (Creeping Lantana) and *Lantana camara* (Lantana).

Although preliminary site surveys and observations over the Rosevale offset property recorded a number of weed species both federally and locally listed as well as general pastural invasive, the most prevalent and potentially impactful to MNES is *Lantana camara* (Lantana). The Department of Agriculture and Fisheries (2023) indicates more than 1400 native species are negatively affected by Lantana invasion, including many endangered and threatened species. This largely occurs through the suppressive effect of Lantanas aggressive growth form, generally adversely impacting species richness and some soil faunal assemblages.

Lantana infestations suppress and inhibit the natural regeneration of regrowth vegetation on-site which directly limits the growth rates and regeneration of non-juvenile koala habitat trees and other species who forage and inhabit these including Grey-headed Flying-fox. Additionally, in areas blanket layers of *Lantana camara* form a barrier to terrestrial species, which would include limiting the Koalas ability to access areas containing NJKHTs. Further, as Lantana is a woody shrub with thin, combustible canes, it has been observed to create hotter bushfires, which significantly alters native vegetation communities and pastures (DAF, 2023). It is noted that under the Conservation Advice for Koala, increased intensity/frequency of bushfire is a listed key threatening process. Although this largely refers to the impacts caused by Climate Change, the presence of Lantana within bushland can significantly increase the extremity of bushfire and thus the impact it has directly on Koala and other listed species habitat; GHFF, Regent Honeyeater and Swift Parrot all rely on eucalypt bushland for foraging. For this reason, the Queensland Governments '*South East Queensland Koala Conservation Strategy 2022 – 2025*' lists management of invasive weeds in both Action Area 1: Habitat Protection and Action Are 3: Threat Management (DES, 2020). Impact management of invasive flora, particularly Lantana, a Weed of National Significance (WONS), is therefore considered a key direct action to addressing threats on Koala and other listed species that share the same habitat requirements.

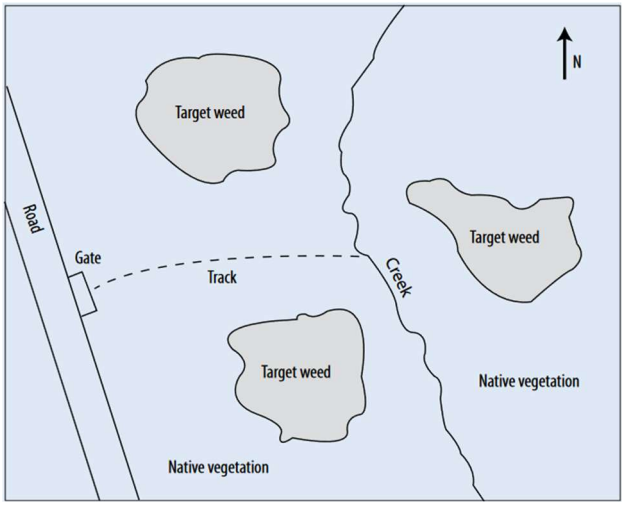
METHODOLOGY

Baseline weed extent mapping assessments were undertaken across the Rosevale Offset Property on 20th, 24th, 27th April and 5th May 2023 utilising an antenna-based GPS system to determine the extent of weed cover of WONS.

The primary weed species located within ROA 1 is *Lantana camara* (Lantana) which is classed as a WONS.

The percentage cover of WONS was determined using a method detailed in the *Guidelines for Monitoring Weed Control and recovery of native vegetation* (Auld 2009). In this method, weed areas are mapped on-ground followed by an estimation of the percentage cover of weeds.

Using an antenna-based GPS system, the spatial extent or patches of WONS within the offset area was mapped on-ground as polygons to produce a 'mud map' of the site (Insert 1).



Insert 1. Example 'Mud map'. Extract from Auld (2009) – Figure 1.

An antenna-based GPS system was used to accurately delineate the areas on-ground. Weed mapping assessments of the offset property were conducted across seven days with observed WONS estimated and categorised into percentages. The mapping was undertaken using GPS units with polygons or descriptive points taken to visually represent on-ground invasive values. On ground estimates assigned a percentage to the invasive species observed, with ranges including little to no weeds (0%), 0 – 20%, 20 – 40%, 40 – 60%, 60 – 80%, and 80 – 100% (Table 42). A diagrammatic representation of 5%, 25% and 50% cover is provided in Figure 14.

The weed coverage and densities plan of the offset property will provide a guide to the areas requiring the most significant weed management.

Table 42: Classes for vegetation cover

Class	Percentage range
1	0
2	0-20
3	20-40
4	40-60
5	60-80
6	80-100

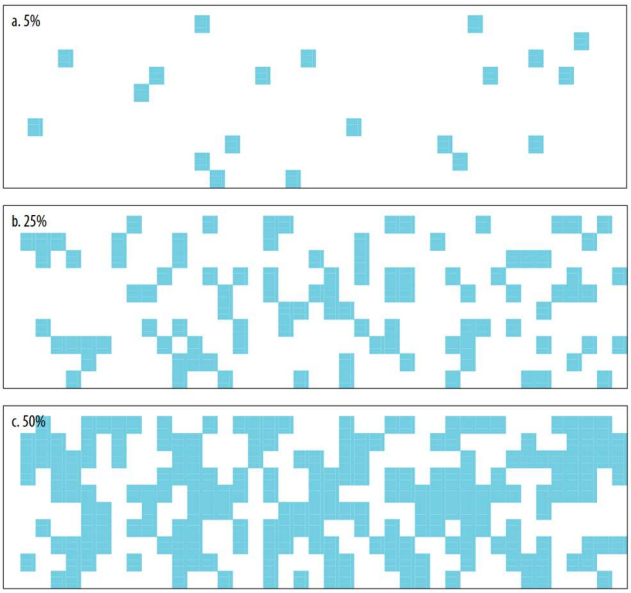
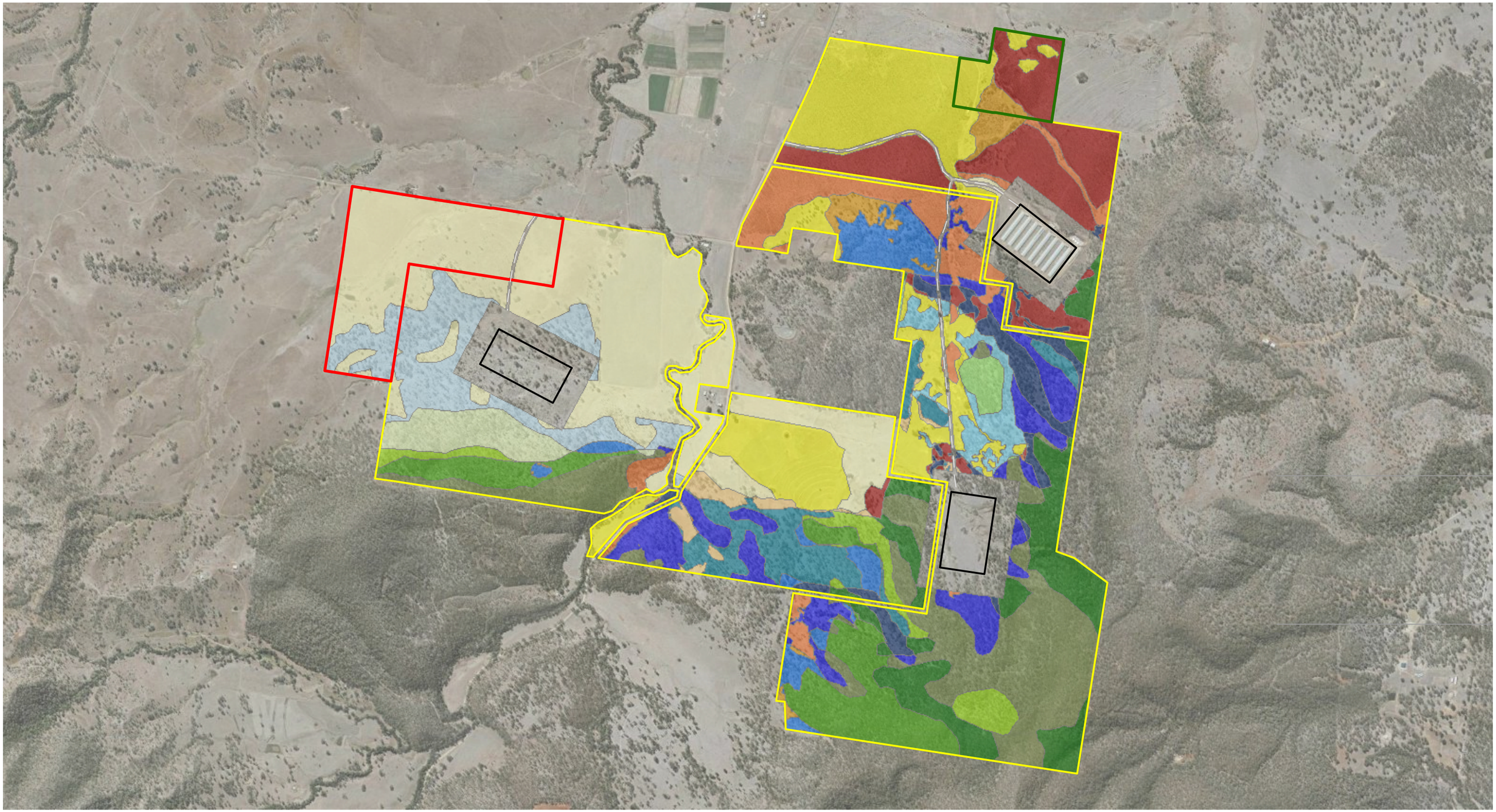


Figure 7. Shaded areas represent percent cover.

Insert 2. Extract from Auld (2009) – Figure 7.

Surveys to estimate the weed cover using the vegetation cover classes proposed by Auld (2009) will be used in milestone assessments at Years 5, 10, 15 and 20 of the offset in addition to MHQA transects which also involve a component of weed cover estimation. Results and progress against the management and monitoring actions will be reported on as part of the Annual Compliance Report.

13. Baseline Weed Mapping



Montauban Environmental Offsets

1:18,000

0 100 200 300 400 m

N W E S

Co-ordinate System: GDA2020 MGA Zone 56

References:
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Project: Rosevale Offset Area 4

Date: 23/10/2025

10559 E 13 OMP_S Baseline Weeds A

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Legend

- Approved Offset Boundary
- Future Offset Boundary
- Offset Area
- Proposed Chicken sheds
- Poultry shed access track

Weed Coverage percentages

AU1	AU2	AU3
AU1 - Little to no weed coverage (18%)	AU2 - Little to no weed coverage (23%)	AU3 - Little to no weed coverage (8%)
AU1 - 0-20% weed coverage (31%)	AU2 - 0-20% weed coverage (8%)	AU3 - 0-20% weed coverage (3%)
AU1 - 20-40% weed coverage (4%)	AU2 - 20-40% weed coverage (18%)	AU3 - 20-40% weed coverage (7%)
AU1 - 40-60% weed coverage (5%)	AU2 - 40-60% weed coverage (14%)	AU3 - 40-60% weed coverage (20%)
AU1 - 60-80% weed coverage (18%)	AU2 - 60-80% weed coverage (24%)	AU3 - 60-80% weed coverage (38%)
AU1 - 80-100% weed coverage (24%)	AU2 - 80-100% weed coverage (13%)	AU3 - 80-100% weed coverage (24%)

During ground-truthing and delineation of weed management areas all weed species were recorded. These are listed in Table 12 below. Two (2) species of WONS were recorded within the offset area being *Lantana camara* (Lantana) and *Senecio madagascariensis* (Fireweed). Seven (7) species of Category 3 restricted weeds listed under the Queensland *Biosecurity Act 2014* were recorded. The dominant weed species across the offset area is *Lantana camara* with occurrences of other weeds species scattered at low densities or confined to waterway environments at a cover less than 5%.

The spatial extent of weed dominated areas within the broader property are shown on Plan 13. This shows weed coverage within the ROA 4 is described as containing little to no weeds. The total estimated area of WONS across within AU1 is 4.5 ha based on a percentage cover of 10% and AU2 is 0.67 ha based on a percentage cover of 10%.

As ROA 4 has been historically cleared and currently used for cropping and cattle grazing WONS are relatively low (~10%) on average across the majority of the open paddock area. Therefore, impacts from Lantana on MNES habitat are not as significant at this stage. However, *Lantana camara* was noted to significant throughout the banks of the Bremer River and throughout the understorey where vegetation occurs within ROA 4. Therefore, once ploughing and cropping activities are discontinued there is a risk Lantana infestation may spread. Thus, control of the dense infestations and then continued suppression of Lantana and retaining low levels of weeds is proposed for ROA 4. Additionally, general weed management of other WONS and SRRC declared invasive species will occur as needed throughout the course of the offset life in order to prevent impacts to regenerative plantings.

Table 12: Weed species recorded within the offset area

Species Name	Common Name	Listing
Ageratum houstonianum	Blue Billygoat weed	
Ambrosia artemisiifolia	Annual Ragweed	Category 3 – restricted
Baccharis halimifolia	Groundsel	Category 3 – restricted
Bidens pilosa	Cobbler's Pegs	
Celtis sinensis	Chinese Elm	Category 3 – restricted
Chloris gayana	Rhodes Grass	
Corymbia torelliana	Cadaghi	
Gomphocarpus physocarpus	Balloon Cotton Bush	
Gomphrena celosioides	Gomphrena Weed	
Heliotropium amplexicaule	Blue Heliotrope	
Lantana camara	Lantana	WONS, Category 3 – restricted
Macroptilium lathyroides	Phasey Bean	
Megathyrsus maximus	Guinea Grass	
Melinis repens	Red Natal Grass	
Passiflora suberosa	Corky Passion	
Schinus terebinthifolia	Broad-leaved Pepper	Category 3 – restricted
Senecio madagascariensis	Fireweed	WONS, Category 3 – restricted
Senna pendula	Easter Cassia	
Setaria phacelata	South African Pigeon Grass	
Sida cordifolia	Flannel Weed	
Solanum chrysotrichum	Giant Devil's Fig	
Solanum chrysotrichum	Devil's Fig	
Solanum mauritianum	Wild Tobacco	
Sporobolus pyramidalis	Giant Rat's Tail Grass	Category 3 – restricted

Verbena bonariensis	Purple-top Verbena	

BASELINE FERAL ANIMAL SURVEYS

INTRODUCTION

Targeted fauna surveys have been utilised throughout the offset site to determine the presence of species as well as understand the relative abundance of terrestrial fauna species, with a particular focus on Wild Dogs, which are identified as a key threatening process to Koala. Other notable pest species, such as European fox and feral cat, were also a secondary focus due to their potential direct impact to MNES via opportunistic predation. Additionally, herbivorous pest species with potential indirect impacts to MNES due to habitat destruction (i.e., feral pigs, European rabbit and feral deer) were also surveyed for throughout the ROA 4 offset.

Guidelines for tracking feral animal abundance

At present, DCCEEW does not have a published guideline for detecting feral animals. However, there are State guidelines available for the implementation of feral animal monitoring focusing on wild dogs including the Guide for camera trapping wild dogs, foxes and feral cats (Department of Primary Industries, NSW Government 2018).

For successful monitoring of feral animal abundance, camera trapping is frequently utilised and remains the industry standard. Camera traps have the advantage of obtaining a wide range of significant information based on the set up. Automatic camera systems are triggered by an animal passing in front of a sensor that detects movement, changes in ambient light, or a thermal differential (Moen & Lindquist 2004). Cameras allow for the detection of species that are difficult to study due to their elusive or nocturnal habits (Mace et al. 1994). Camera deployment is less time consuming, less costly, and less invasive than long-term direct observation of animals. They are also beneficial in studying animals in inaccessible or difficult to access locations such as dens and nest cavities, or in rugged terrain (Mace et al. 1994). In addition, they enable the collection of valuable information about multiple species within any given community (Rosellini et al. 2008) and provide data that is more permanent and less disputable than data gathered by direct observation. Furthermore, camera trapping allows consistent and repeatable surveys to be completed by placing the same cameras in the same locations using the same settings for the same length of time and set with the same bait. The repeatability of motion sensor camera trapping means it is an appropriate method to monitor changes of the abundance of feral animals over time.

METHODOLOGY

Design and Procedure

Motion sensor cameras were deployed across the entire proposed Rosevale Offset Property and within the ROA 1 offset area in order to provide baseline data. Baseline surveys including the use of baited camera trapping and trail cameras (non-baited) targeting wild dogs and pest herbivore species such as wild pigs and deer, were completed over multiple years and seasons. Focus was given to the eastern portion of the property where existing chicken sheds are present as the Department has identified concerns with the presence of this practice, as well as adjacent to property boundaries and existing tracks where Wild Dogs are most often seen. Property-wide baseline data allows for feral animal abundance and trends to be ascertained at the broader landscape scale and allow for management actions to be targeted over the broader properties. The following installation methods were applied:

- Cameras should not be placed on an animal trail if results are to be used to compare relative abundance, however, animal trails are a good place to site cameras for inventory surveys.
- Avoid heavily vegetated areas as vegetation can cause false triggering or obscure animals in images.
- Securely attach camera 30-50 cm from the ground on a tree or post, directed downward towards the bait which should be 1.5-2 m from the camera and in the centre of the camera frame.
- Camera traps should be deployed for as long as possible with a recommended minimum of four nights but ideally for longer than two weeks and up to five weeks.
- Ensure the camera programming is consistent across all cameras to be deployed.
- Cameras can be baited with vegetable based and/or meat-based baits depending on the target species and personal choice.
- For general monitoring purposes, cameras can be set up along cleared tracks utilised by wild dogs, with or without bait.
- Baseline feral animal management surveys were conducted by suitably qualified field ecologists (details located at Appendix C).

Fourteen camera traps were set up within the broader offset property across 3 different survey periods in 2023 – April to May, May to August and August to November (Plan 14). With a total of one hundred and eight-seven (187) survey nights through Autumn, Winter and Spring. The cameras were systematically located to capture a representative of Offset Property. Cameras were attached 30-100 cm from the ground on a tree or post and directed towards landscape features and baited in order to target evidence of wild dogs and other potential threats to known MNES in the broader area. Each trap site considered the pre-clear regional ecosystem communities as well as current on-site conditions, including density of vegetation and habitat features.

Motion sensor cameras were deployed across the entire proposed offset area for determining baseline data, within the approved offset area within Lot 115 on SP167206 and more recently on the eastern side of the existing chicken sheds adjacent to property boundaries and existing tracks. The varying survey periods and camera deployment was to determine the baseline survey results with reference to the *Terrestrial Vertebrate Fauna Survey Guidelines for Queensland June 2022 (V 4.0)* for completing terrestrial fauna surveys. Motion sensor cameras were attached 30 – 50 cm from the ground on a tree or post, directed downward towards a bait station attached to a tree or post 1.5 – 2m from the camera and in the centre of the camera frame. Table 5 outlines the camera trap survey periods and details of baits utilised across the offset property.

Section 5.2 of *Terrestrial Vertebrate Fauna Survey Guidelines for Queensland June 2022 (V 4.0)* refers to bait type and the use of peanut butter and oats as a good general-purpose bait for the survey of small to medium sized mammals, although the use of other baits or additives can increase detection rates of some target species. It is also considered that habitat with dense vegetation may render some survey techniques, particularly those that rely on search effort, less effective due to reduced visibility.

Table 5:Summary of survey periods for motion sensor camera deployment across the offset property.

Camera Deployment Period	Number of Cameras Deployed	Camera Deployment Date	Camera Pick-up Date	Baits Utilised	Number of Days Recording
1.	6	20th April, 2023	4th May, 2023	Peanut butter & oats	15
2.	4	15th May, 2023	11th August, 2023	Chicken necks	89
3.	4	11th August, 2023	2nd November, 2023	No-baits	83

Camera monitoring locations and timing

While it is noted in the approval conditions define seasonal monitoring requirements across summer, winter, autumn and spring, broadscale camera trapping has been completed over the majority of 2023 which is considered to cover the life cycle of the primary target pest species being wild dog. This period encompasses part of the wild dog breeding season which occurs typically from April to June 2024 (Queensland Government, 2024).

As stated in Section 4.6 of *Terrestrial Vertebrate Fauna Survey Guidelines for Queensland June 2022 (V 4.0)* the patterns of faunal activities and estimates of relative abundance, or presence-absence of species, varies temporally in response to the time of day (day versus night), seasonal changes (spring versus winter) as well as between years (drought versus wet). It is noted that in South-east Queensland, the optimal time and conditions for vertebrate surveys are in Spring (mid-September – mid-December) as temperatures begin to warm up and particularly after the first storms when animal activity peaks. The second most suitable survey period is in Autumn (late February – April) when high summer temperatures begin to drop and before the onset of colder overnight temperatures.

Cameras were deployed generally in accordance with these guidelines, however, for significantly longer periods of time to optimise data collection and results.

The guidelines for Generic Survey Methods for a Site (Section 8 of the Guidelines) recommend a minimum camera trapping is for one camera per site for four nights, particularly for recording presence / absence and relative abundance, partly for reptiles, and small terrestrial mammals and more suitable to medium to large terrestrial mammals. Between April 2023 – November 2023, data was recorded for a total of one hundred and eight-seven (187) nights, well above the minimum amount recommended.

The location of baseline pest camera monitoring is shown on **Plan 14.**

14. Baseline Pest Camera Monitoring

Camera Number	Longitude	Latitude
Monitoring Period 1		
1	152.4559	-27.9193
2	152.4770	-27.9277
3	152.4825	-27.9261
4	152.4808	-27.9217
5	152.4819	-27.9175
6	152.4859	-27.9102
Monitoring Period 2		
1	152.4835	-27.9092
2	152.4858	-27.9093
3	152.4884	-27.9073
4	152.4854	-27.9073
Monitoring Period 3		
1	152.4828	-27.9136
2	152.4837	-27.9178
3	152.4896	-27.9203
4	152.4888	-27.9247

Montauban Environmental Offsets

1:18,000

0 100 200 300 400 m

N W E S

Co-ordinate System: GDA2020 MGA Zone 56

References:
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Project: Rosevale Offset Area 4

Date: 23/10/2025

10559 E 14 OMP_S Baseline Pest Camera A

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Legend

- Approved Offset Boundary
- Future Offset Boundary
- Offset Area
- Proposed Chicken sheds
- Poultry shed access track
- Monitoring Period 1 Camera
- Monitoring Period 2 Camera
- Monitoring Period 3 Camera

Site Camera Deployment 1 – April to May 2023

Six cameras were deployed across the entire proposed offset area to determine baseline data. Each trap site considered the pre-clear regional ecosystem communities as well as current on-site conditions, including density of vegetation and habitat features. Motion cameras were deployed between the 20th April through to the 4th May, 2023, totally fifteen (15) days of assessment. All motion cameras were deployed with non-meat-based baits including peanut better and oats for general results. The results varied across the site with common species including *Trichosurus vulpecula* (Common Brushtail Possum), *Phascogale tapoatafa* (Brush-tailed Phascogale), and *Macropus rufogrisues* (Red-necked Wallaby) recorded in most of the results in each camera. Up to ten (10) *Sus scrofa* (Feral Pig) was also recorded at Camera 3, which was deployed adjacent to an existing dam. Four (4) wild dogs have been detected on Camera 4 and two (2) European foxes were recorded during this survey period. Details of each camera installation and location are provided in Table 43.

Table 43: Camera summary – deployment period 1 (20th April to 4th May 2023)

ID	Latitude	Longitude	Photo	Description of location
1	-27.91929828940	152.45585257800		Camera 1 was deployed in Lot 1 on CC3571 within Category C vegetation mapped as containing a composite Least Concern Regional Ecosystem community containing 80% RE12.8.17 and 20% RE12.8.14.
2	-27.92774891030	152.47698854800		Camera 2 was deployed along the northern boundary of Lot 103 on CH311018 on the edge of Remnant Least Concern RE12.8.17 and High Value Regrowth also containing Least Concern RE12.8.17.

ID	Latitude	Longitude	Photo	Description of location
3	-27.92606866940	152.48254838200		Camera 3 was deployed in Lot 24 on CH312265 adjacent to an existing dam. Vegetation is currently mapped as containing High Value Regrowth containing a composite Of Concern Regional Ecosystem community containing 45% RE12.8.16, 30% RE12.8.17, and 25% RE12.8.14.
4	-27.92166466160	152.48081831600		Camera 4 was deployed on the western boundary of Lot 71 on CH311061. The vegetation directly west is mapped as a composite Of Concern Regional Ecosystem community containing 45% Of Concern RE12.8.16, 30% Least Concern RE12.8.17 and 25% Least Concern RE12.8.14. A cleared dirt track occurs along the property boundary which was utilised for the camera deployment.
5	-27.91754789670	152.48192522400		Camera 5 was deployed in the southern portion of Lot 211 on CH3114636 and is located in Category C High Value Regrowth vegetation containing a composite Of Concern Regional Ecosystem community containing 45% Of Concern RE12.8.16, 30% Least Concern RE12.8.17 and 25% Least Concern RE12.8.14.
6	-27.91020562720	152.48594307400		Camera 6 was deployed adjacent to an existing dam in Lot 115 on SP167206 within an approved offset area. The vegetation is mapped as Endangered Remnant Regional Ecosystem containing 90% Endangered RE12.3.3 and 10% Least Concern RE12.3.7.

Site Camera Deployment 2 – May to August 2023

Four camera traps were deployed within the approved offset are within part of Lot 115 on SP167206, Montauban Offset. Each trap site considered the pre-clear regional ecosystem communities as well as current on-site conditions, including density of vegetation and habitat features. All cameras were deployed from the 15th May, 2023 through to 11th August, 2023 (total eighty-nine days).

All cameras throughout the survey period were baited with meat-based bait (chicken necks). These were placed in cleared areas adjacent to slashed vehicle tracks to detect any movement of wild dogs and increase the general detection of fauna movement and abundance. The placement of cameras throughout the second deployment also considered site conditions including habitat features, proximity to water, density of vegetation and opportunity for fauna movement. No wild dogs were recorded throughout this survey period. Details of each camera installation and location are provided in Table 44.

Table 44: Camera summary – deployment period 2 (15th May to 11th August 2023)

ID	Latitude	Longitude	Photo	Description of location
1	-27.90915479060	152.48351207300		Camera 1 was deployed in the western portion of the offset area within an area previously mapped as containing Least Concern RE12.8.17. This area has historically been managed as forestry, including plantings of *Eucalyptus saligna* (Syndey Blue Gum) however due to site conditions has not been successful. The area contains some scattered remains of the forestry planting amongst a ground layer dominated by both native and exotic pastoral grasses and scattered patches of *Lantana camara* (Lantana). Woody debris is high within the area due to the failed forestry plantings.
2	-27.909333594	152.485766808		Camera 2 was deployed within an area previously mapped as containing a composite Regional Ecosystem community mapped as containing 90% Endangered RE12.3.3 and 10% Least Concern RE12.3.7. This camera was placed offset to the existing dam amongst regrowth vegetation representing the pre-clear regional ecosystem community. It is noted that a slashed vehicle track surrounds the dam

ID	Latitude	Longitude	Photo	Description of location
				which is considered as a high use area for vertebrate fauna, including increasing recordings of wild dogs.
3	-27.90730013040	152.488363183		Camera 3 was deployed towards the northeast corner of the approved offset area near the boundary between the mapped Endangered RE and the Of Concern RE. Although the location of the camera is shown in the composite Endangered RE (Camera 2), site conditions suggest that the camera is within the Of Concern Composite RE containing 45% Of Concern RE12.8.16, 30% Least Concern RE12.8.17 and 25% Least Concern RE12.8.14. This area has historically been managed as forestry plantings however contains some regrowth species consistent with the pre-clear regional ecosystem communities. The camera has been placed offset to the property boundary which contains a slashed vehicle track for maintenance purposes. It is noted that the adjacent property is mostly cleared and is managed for cattle grazing.
4	-27.90734306100	152.48536560700	N/A	Camera 4 was also deployed with vegetation like Camera 2 including within an area previously containing a composite Regional Ecosystem community mapped as containing 90% Endangered RE12.3.3 and 10% Least Concern RE12.3.7.

Site Camera Deployment 3 – August to November 2023

Four camera traps were deployed within the approved offset are within part of Lot 115 on SP167206, Montauban Offset. Each trap site considered the pre-clear regional ecosystem communities as well as current on-site conditions, including density of vegetation and habitat features. All cameras were deployed from the

15th May, 2023 through to 11th August, 2023 (total eighty-nine days). Cameras were then moved to areas surrounding the Approved Offset area, south and east of the existing chicken shed from the 11th August, 2023 through to 2nd November, 2023 (eighty-three days). Five (5) dogs were observed through this survey period. Details of each camera installation and location are provided in **Table 45**.

Table 45: Camera summary – deployment period 3 (11th August to 2nd November 2023)

ID	Latitude	Longitude	Photo	Description of location
1	-27.91361530610	152.48276964700		Camera 1 was deployed in the Southeast corner of Lot 116 on SP167206 adjacent to an existing track and vegetation associated with a mapped waterway. The camera is in non-remnant vegetation.
2	-27.91779423900	152.48374456700		Camera 2 was deployed on the northern property boundary of Lot 71 on CH311061 adjacent to an existing dam. The vegetation is mapped as Category C High Value Regrowth containing a Of Concern composited regional ecosystem community containing 45% Of Concern RE12.8.16, 30% Least Concern RE12.8.17 and 25% Least Concern RE12.8.14. Vegetation within this portion of the site contains established *Eucalyptus moluccana* (Gum Topped Box) with a relatively open understorey and shrub layer. The paddock appears to be regularly grazing from cattle.

ID	Latitude	Longitude	Photo	Description of location
3	-27.92034623730	152.48955937600		Camera 3 was deployed on the northeast corner of Lot 24 on CH312265 within Least Concern Remnant vegetation containing 85% Least Concern RE12.8.17 and 25% Least Concern RE12.8.14.
4	-27.92471553210	152.48883771500		Camera 4 was deployed on the boundary of Lot 24 on CH312265 on the edge of Remnant vegetation containing 85% Least Concern RE12.8.17 and 25% Least Concern RE12.8.14 and Category C High Value Regrowth. The camera is set up along an existing track.

Camera Trap Surveys – Feral Animal Management

The raw camera monitoring data is provided at **Appendix E**.

Table 46**Table 46** includes a summary of the species identified during the camera trap survey periods. **Plan 14** shows the locations of the camera trap deployment. The results varied across the site with common species including *Trichosurus vulpecula* (Common Brushtail Possum), *Macropus giganteus* (Eastern Grey Kangaroo), *Phascogale tapoatafa* (Brush-tailed Phascogale), and *Macropus rufogrisues* (Red-necked Wallaby) recorded in most of the results in each camera during camera deployment period 1. Multiple *Sus scrofa* (feral pig) were also recorded at Camera 3 which was situated adjacent to an existing dam (**Photo Plate 3**). Four (4) *Canis familiaris* (wild dog) were detected on Camera 4 (**Photo Plate 4**) and a *Vulpes vulpes* (European red fox) was recorded at Cameras 2 and 3 (**Photo Plate 5**). No wild dogs were recorded during camera deployment period 2. Eight (8) wild dogs were detected during camera deployment period 3 (**Table 47**).

The raw camera monitoring data is provided at **Appendix E**.

Table 46: Species recorded on motion cameras

Species	Common Name	Camera Deployment 1	Camera Deployment 2	Camera Deployment 3
Anas superciliosa	Pacific Black Duck	✓		
Chenonetta jubata	Australian Wood Duck	✓		
Egretta novaehollandie	White-faced Herron	✓		
Ardea ibis	Cattle Egret	✓		
Ardea intermedia	Intermediate Egret	✓		
Gallinula tenebrosa	Dusky Moorhen	✓		
Vanellus miles	Masked Lapwing	✓	✓	
Centropus phasianinus	Pheasant Coucal	✓		
Gymnorhina tibicen	Australian Magpie	✓	✓	✓
Corvus orru	Torresian Crow	✓	✓	✓
Strepera graculina	Pied Currawong	✓	✓	
Tachyglossus aculeatus	Echidna	✓	✓	
Phascogale tapoatafa	Brush-tailed Phascogale	✓		
Isoodon macrourus	Northern Brown Bandicoot	✓	✓	
Trichosurus vulpecula	Common Brushtail Possum	✓	✓	✓
Macropus rufogriseus	Red-necked Wallaby	✓	✓	✓
Macropus parryi	Whiptail Possum	✓	✓	✓
Macropus giganteus	Eastern Grey Kangaroo	✓	✓	✓
Sus scrofa	Feral Pig	✓		
Canis familiaris	Wild Dog	✓		✓
Bos taurus	Cattle	✓		✓
Vulpes vulpes	European Red Fox	✓		

Table 47: Motion sensor camera feral animal results

Site Camera Deployment	Number of Cameras Deployed	Total Days Recording (number of camera x number of days)	Total wild dogs records	Total foxes recorded	Total feral pigs recorded
1.	6	90	4	2	6
2.	4	356	0	0	0
3.	4	332	8	0	2
Total	**14**	**778**	**12**	**2**	**8**

Photo Plate 3: Feral pigs (*Sus scrofa*) recorded during deployment 1.

Photo Plate 4: Wild dog evidence recorded on the offset property.

Photo Plate 5: European red fox (*Vulpes vulpes*) recorded during deployment 1.

Feral Animal Relative Abundance Index

The motion sensor camera detection survey (recorded number of occurrences over days of camera deployment) was utilised to provide relative abundance over the Offset Area, reducing bias and increasing repeatability. A relative abundance index (RAI) is then calculated for feral animal abundance, using the formula RAI= D/TN x 100, where D is numbers of detections and TN is the total number of camera-trap nights (all cameras combined). This methodology ensures that the surveys are representative of the entire area and are repeatable for future monitoring requirements. RAIs are completed for predator pest species (wild dogs and foxes combined) and herbivorous pest species (feral pig).

Based on the total survey period twelve (12) wild dogs, two (2) European red foxes and eight (8) feral pigs were detected via motion camera at various locations throughout the site (Table 47). A total of fourteen (14) cameras were deployed throughout this period and totals seven hundred and seventy-eight (778) camera nights.

The baseline RAI of predator pest species (wild dogs and European red foxes) on site is therefore 1.79. The RAI for wild dogs only is 1.16.

The baseline RAI of herbivorous pest species (feral pigs) which have potential to damage MNES habitat is 1.02.

6. OFFSET DESIGN CONSIDERATION AND AMENDMENTS

POULTRY FARM MITIGATION OF POTENTIAL IMPACTS

During office and onsite discussions concerns raised by the Department around incompatible land uses focused more towards potential indirect impacts of poultry farm operations, relating to:

1. Access and Traffic and Machinery Management
2. Noise
3. Light
4. Surface and Stormwater Management
5. Odour

The Poultry Industry and any approved facilities are extensively regulated by the *National Environmental Management System for the Meat Chicken Industry – Version 2*, in relation to legal requirements, natural resources and amenity, operation, design and management and monitoring, recording and reviewing. The Processors Grower's Manual, the RSPCA Meat Chicken Farming Scheme Standard and the RSPCA Operation Manual which these facilities adhere to, outline standard operational procedures that drive the necessary completion of a Site Based Environmental Management Plan (SBEMP), which covers the above potential impacts and management in detail.

Each of these potential indirect threats or incompatible land use activity are discussed in relation to impacts on MNES within this section of the OMP along with a number of other offset design amendments.

It is noted that in South East Queensland the poultry operations are specifically considered as a preferred land use for the preservation of biodiversity values because of the small footprint of the activity. One of the original Queensland Government koala protection legislation tools – *State Planning Policy 1/97 – Conservation of Koalas in the Koala Coast* states the following under compatible land uses:

> *Compatible development*
>
> *5.7 Development proposals would be compatible with conserving koala habitat values if all the following criteria are met:*
>
> *little or no clearing of habitat would be required;*
>
> *for sites in the Koala Conservation Area, minimal additional night-time traffic movements would be generated on the road network in the Koala Conservation Area;*
>
> *any impedance or threats to the movement of koalas through or across the site would be minimised;*
>
> *there would be no other significant detrimental environmental impacts on the koala habitat values in the surrounding area; and*
>
> *koala habitat values would be substantially maintained or enhanced.*
>
> *5.8 The Koala Coast's proximity to a large urban population and major tourist destinations should provide opportunities for a range of activities that can be designed in ways that are consistent with the above criteria and conserve the environmental qualities of the area. Some examples are small-scale*

individual manufacturing, distribution or storage enterprises; home-based businesses; and 'nature-based' recreation/tourism facilities and activities (including those enabling people to experience koalas in their natural habitat). Intensive poultry farming is an example of agricultural development which, if properly planned and managed, is able to meet these criteria. Similar agri-businesses might also be appropriate.

(SPP 1/97 – Page 6 – Underlining added)

The result of State Planning policy 1/97 sees large clusters of poultry operations located amongst core koala habitat in the Redlands and Logan areas. No evidence or research has been documented that these areas have a higher degree of wild dog and fox populations due to these activities, however koala records have been observed to remain high at these locations.

OFFSET DESIGN CONSIDERATIONS

Despite concluding that conflicts or impairment of MNES habitat is unlikely to occur and that the outcomes committed to through the offset site management actions will not be defrayed by the adjoining poultry operations out of caution the offset design has been amended to exclude any land within 100 m of any poultry farm use area from future offset usage. In some areas this offset zone already contains areas of MNES habitat and evidence of usage (koala scat). The purpose and benefits of this design change are:

1) To create a clear and expanded area of delineation between uses through the 100 m setback.
2) Ameliorate any potential indirect outcomes of the poultry operation (light, noise, etc) through the separation
3) Avoid offset activities (new plantings, etc) occurring immediately adjacent to operational areas
4) Importantly, with approval the land allotments will be reconfigured to place the poultry facilities on their own separate title. The benefits of this are:
    a. No confusion or overlap on what uses are permissible or prohibited on each land title.
    b. Legally securing measures for offset areas can encumber the entire title on which offset are proposed.

Operational Management and Controls:

1. Road, Traffic and Machinery Management

Potential activities associated with the poultry operation include:

- Staff access
- Truck access for bird change over / feed
- Access for maintenance
- Daily machinery activities (tractor / UTV) movements

Potential impacts associated with these activities if unregulated include:

- Animal vehicle conflict
- Noise
- Light

- dust

The existing poultry facilities are accessed off Tarome Road, which is a rural road containing a mix of dirt and bitumen stretches along the farm boundary. A single gravel entry road accesses the shed area from Tarome Road and is controlled via a security gate to prevent unlawful access. Vehicles using the access track regularly are limited to staff with a daily role at the poultry operations. 2.5 people are employed on this basis and weekly access is limited to entry and exit to the worksite. Intermittingly maintenance works, refuelling trucks etc will utilise the track. Larger trucks to load and transport market mature chickens occur in approximately 6 week cycles subject to conditions. There are typically two chicken transports cycles approximately targeting the 35th and 48th day.

The facility does not operate functionally at nighttime with hours of operation generally between 7am and 6pm. There is no permanent external lighting requirements at the facility. The Site Based Environmental Management Plan includes a raft of management protocols generally designed around safety and public nuisance, however, serve to provide additional management to any even low risk potential for MNES conflicts. Actions outlined in relation to this item include:

- Security to prevent unlawful access.
- Max speed limit on-site set to 20 km (All vehicles at site observed as much slower than this limit)
- Truck exhaust brakes prohibited (Air brakes strictly prohibited)
- All farm machine fitted with Manufacturer specified exhaust equipment

The access track is a typical on farm gravel road, equivalent to most tracks on large scale rural properties, containing 3m of gravel and grass swale edges (Photo Plate 6). The track does not encumber movement by a koala any more than an access track required to maintain offset activities. Any tracks providing access to the poultry operations are excluded to a width of 15m from the offset calculations. The land will be encumbered by the legally securing mechanism to ensure future management control, however as the tracks will not be planted with new habitat trees the land area is excluded from calculations.

Photo Plate 6: Current gravel farm tracks on-site reflecting proposal for future poultry farming access tracks

NOISE MANAGEMENT

For broiler facilities which utilise fully enclosed and sealed sheds noise is not a known impact as part of the operation as birds cannot be heard external to the facilities they are housed. The performance, behaviour and growth of the birds is highly sensitive to noise and a number of mechanical inclusions and methods are deployed to muffle motors and fans, including the use of acoustic enclosures. Some noise would be expected during the construction of the remaining shed facilities, however this is a quick and temporary process. Once operational remaining noise generating activities relate to vehicle movements, loading and unloading and maintenance of machinery, which are all very intermittent and not beyond those occurring on adjacent properties with cattle yards and transport. Intermittingly the low hum of the ventilation fans occurs in direct response to temperature conditions and can only be heard at or downwind of the fan locations when they are running.

Matters of National Environmental Significance and evidence of MNES usage has been consistently located on-site, specifically koala scat recorded in vegetation adjacent to the existing shed facilities. Noise is not considered to impair offset use of the land, particularly with the inclusion of the 100m setback to offset activities.

LIGHT MANAGEMENT

The poultry farm, hours of operation are 7 am until 6 pm and the facility is not staffed overnight. Not permanent external lighting occurs or is proposed. On remote occasions when there is an issue or staff commence early or

work late vehicle lights will occur on the track, however this is rare and not considered additional to undertaking nighttime ecological surveys.

No aspects of the operations lighting will influence any outcomes or usage of the offset for MNES.

SURFACE & STORMWATER MANAGEMENT

The risks associated with surface and stormwater for poultry operations links to nitrogen and phosphorus contamination directly for the shed pad moving to run off to sensitive environments. Although both of these chemicals occur naturally in vegetated areas and waterways excessive quantities can lead to impacts resulting in native plant dieback and algae populations in waterways.

Surface and Stormwater fun off in the poultry industry is governed by the *QLD Environmental Protection policy (Water and Wetland Biodiversity) 2019* which stipulates the following minimum parameters:

- No worsening of stormwater discharges into downstream properties
- No worsening of flood plain extents
- No increased risk of contamination of downstream receiving waters

Additionally, the *Scenic Rim Regional Council Planning Scheme* regulates the poultry use through the codes and policies. Both regulations result in a number of internal and external controls. Internal controls include:

- Concrete nib walls surrounding the base of the sheds to prevent run off entering the shed areas and to contain water within.
- Used bedding or litter is removed from the site
- During shed wash downs no water is discharged from the shed area – temperature controls and ventilation fans are used to evaporate the water.

Externally the shed areas are located away from waterways and contain permitter diversion drains to prevent run-off into the shed areas. Rainwater felling directly within the shed area is directed through a treatment drain made up of:

- Grassed swales in between each shed area, directed to:
- Vegetated filters strips at either end of the swale areas, discharging to
- Detention basins sized to capture retain and treat on-site run off

An extensive water quality monitoring program is mandated by the regulations to ensure not net increase in pollutants occurs beyond the detention basin system. All of these facilities occur immediately surround the shed infrastructure meaning a further 100m set back is applied to any offset activities.

ODOUR MANAGEMENT

The poultry industry has long been associated as a major producer of odour pollution, primarily in connection with the impact this has on neighbouring homes, users and other sensitive receptors. Historically odour sources within the poultry industry was attributed to:

- Decomposition of manure often mixed with bedding and debris (usually occurs when wet)

- Poorly stored and spoiled feed supplies
- Dead animal removal and storage

Significant advancement and controls now apply to major poultry operations which remove or minimise these odour producing activities. Poultry sheds located on the Rosevale site are fully insulated, temperature-controlled facilities. Every aspect of the operation is regulated.

Odour caused through the decomposition of manure mixed with bedding is created when water is added resulting in an ammonia smell (known as 'wet litter'). This outcome is neither good for surrounding nuisance odour levels nor healthy for the birds and thus a raft of innovations and management protocols exist to remove and limit this outcome, including:

- Sealed, controlled and ventilated sheds preclude impacts of rain or high moisture content increasing the humidity within the shed facility maintaining the optimal conditions to keep bedding areas dry.
- Daily inspections occur to ensure the temperature and humidity are maintained the bedding areas are tilled and replaced. Litter is maintained in a dry and friable condition.
- Spent litter is disposed off-site via covered trucks.
- Feed is stored directly within the sealed ventilation sheds.
- Dead birds are collected daily in all sheds. Dead birds must be removed and located in a cold room where they are stored in sealed containers prior to contractor off site removal (minimum twice weekly).

Of particular concern during discussions with the Department appeared to be the potential for the odour emanating from the poultry sheds to additionally attract wild dogs and foxes, known threats to the Koala. This risk is noted for free range chickens which are directly exposed to the threat, however there is not easily identifiable research linking evidence of this same threat occurring for insulated and contained broiler sheds.

ATTRACTION OF WILD DOGS

Wild dogs are known to the site and broader areas, like most rural locations in South-East Queensland. Wild dogs have been recorded at the offset property including over 3km away from the existing shed facilities. They are also known to the Audale Offset site 2km to the south and the Aroona Station Offset site 4.5km to the north-west. Based on preliminary assessment of Wild Dogs and other pest species within the Offset Property via infrared fauna cameras across 3 separate survey periods (April – May, May – August and August – November), only nine (9) Wild Dogs were recorded over 778 camera nights by a total of 14 cameras (refer Table 21). Based on the relative abundance index (RAI) the total abundance of wild dogs within the Rosevale Offset Property is 1.16. The relative number of sightings across the survey time is not considered to suggest there are significantly more Wild Dogs within the area as a result of poultry farming activity. This is particularly true when compared to the pest species results from the Aroona Offset Site (EPBC 2016/7818) annual compliance reporting. This offset site is 5 km north of the Rosevale Offset Property and does not have poultry farming within or adjacent to the approved area. Regardless, prior to management of the area, abundance of dogs across the offset area was recorded at 3 in 2019, 10 in 2020 and 8 in 2021. These numbers are similar to the recordings on-site despite no poultry farming being present. Therefore, it can be inferred that the presence of the poultry farms has not increased wild dog presence. Similarly, only 2 foxes were recorded within the Rosevale Offset Property during baseline surveys. This is again similar to or less than the recorded numbers at the approved Aroona Offset which recorded 2 in 2019, 3 in 2020 and 6 in 2021.

Furthermore, poultry farms biosecurity measures and pest control are often based around disease control and controlling rodents with fencing and specialised shed design keeping out unwanted pest species. Much of the literature surrounding Wild Dogs refers to their impacts on sheep, cattle and goats rather than poultry farming as there is a lot more opportunity for predation on these animals than on chickens contained in sheds. Additionally, Wild dogs and European Fox are known throughout the region regardless of the presence of agricultural farming as they also predate on other invasive species; European Hare, Feral Pig as well as native mammals; Kangaroos, Wallabies, Bandicoots, etc. European Fox in particular are opportunistic feeders and therefore are not particular in the areas they choose to live.

Both of these species widely known to be a threat to livestock and native fauna, hence their inclusion in the *Biosecurity Act 2014* and *Scenic Rim Regional Council Declared Pest Animals or Weeds*. In 2022 Scenic Rim Regional Council identified a spike in Wild Dog populations around national parks, particularly within the Canungra locality where large areas for breeding are present (Sheehan and Forbes, 2022). These areas are identified as being an epicentre for Wild Dog populations as there tends to be no formal control programs in place as these are often associated with agricultural activities. Cattle farming surrounding the proposed offset property, although not by law required to control Wild Dogs, European Fox, Feral Pigs, etc., outside of General Biosecurity Obligations outlined in the *Biosecurity Act*, likely undertake their own pest control procedures. Additionally in mid-April 2023, SRRC introduced the 1080 baiting programme to assist owners of larger land holdings in managing pest animals and guides landowners through the legislative requirements of baiting (SRRC, 2023c). Although again not under law to do so, the programmes roll out will benefit those at the centre of agricultural production as they make easier to gain access to control methods and ultimately have been proposed to work best when neighbouring properties are in co-ordination. Therefore, the encouragement of agricultural landholders in the region to control pests benefits the Rosevale Offset Property and the proposed efforts associated with the ROA 4 offset.

7. ROSEVALE OFFSET AREA 4 MANAGEMENT ACTIONS

There are six (6) management actions identified as relevant and necessary for the ROA 4 to achieve outcomes which will benefit the impacted MNES and/or their potential foraging habitat. The management actions focus on the recreation of habitat for the impacted protected matters, while also reducing threats. Although there may be overlap between some of the management actions, all management actions are considered to contribute to the improvement of MNES habitat at the offset area and over the broader site.

Where logical, performance indicators have been transcribed from the Offset Assessment Chapter included in the Preliminary Documentation Submission (Saunders Havill, 2025). This includes the use of the *Modified Quality Habitat Assessment* (MHQA) method to set benchmarks and targeted improvements within the offset area.

Management actions have been proposed with consideration of the National recovery plan for the Koala *Phascolarctos cinereus* (combined populations of Queensland, New South Wales and the Australian Capital Territory) (DAWE, 2022) and National recovery plan for the Grey-headed Flying-fox *Pteropus poliocephalus* (DAWE, 2021), National Recovery Plan for the Regent Honeyeater (*Anthochaera phrygia*) (DoE, 2016) and National Recovery Plan for the Swift Parrot *Lathamus discolor* (2024). Additionally, relevant threat abatement plans (for predation by European red fox and predation by feral cats), site-specific desktop and field assessments and numerous peer-reviewed papers and studies relevant to the relevant threatened species has been utilized to inform the proposed management actions.

Actions to be completed in accordance with this OMP include:

- Management Action 1: Feral Animal Control (primarily targeting Wild Dogs)
- Management Action 2: Weeds of National Significance Control (prevention and management)
- Management Action 3: Stock Management and Cropping Discontinuation
- Management Action 4: Access and Trespass Management
- Management Action 5: MNES Habitat Restoration
- Management Action 6: Bushfire Management

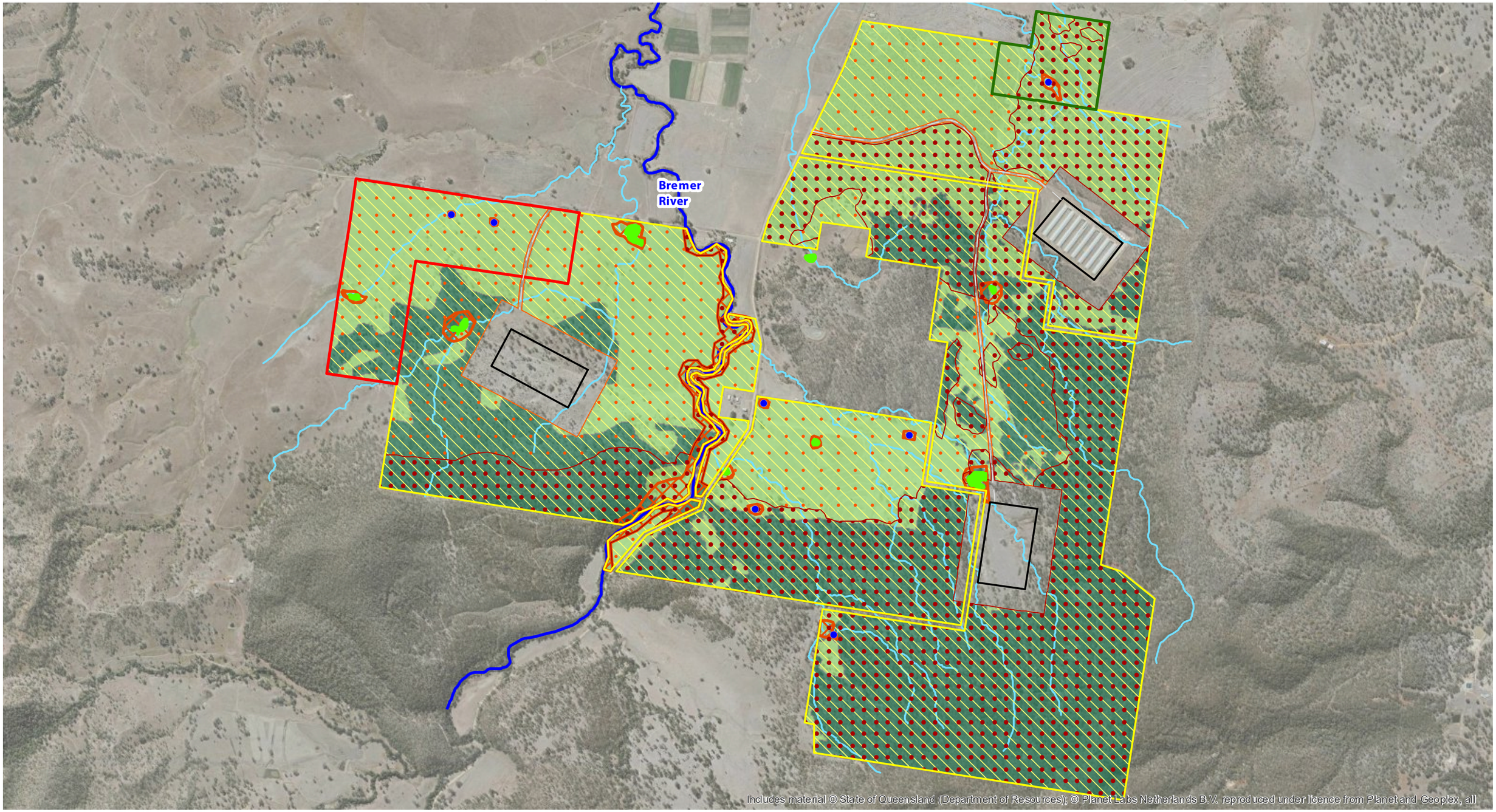
The following detailed information is included in the following sections:

- Management action justification;
- Management action location;
- Management action tasks and completion criteria;
- Management action risk reduction measures;
- Management action timing and preliminary completion criteria;
- Management action responsibility;
- Management action monitoring; and
- Management action risks and adaptive management.

Several proposed management activities relevant to habitat improvement will be undertaken across the entire Offset Property including feral animal control, weed management and land use management; whilst some more targeted actions will focus on specific areas within the proposed offset area (refer Plan 15).

A description of each of these proposed management measures and how they benefit MNES species is provided in Table 29. It should be noted that all management measures are to be completed across the entirety of the ROA 4.

15. Offset Property Preliminary Indicative Map of Proposed Management Actions



Montauban Environmental Offsets

References:
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Project: Rosevale Offset Area 4

Date: 23/10/2025

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Co-ordinate System: GDA2020 MGA Zone 56

Legend

- Approved Offset Boundary
- Future Offset Boundary
- Offset Area
- Proposed Chicken sheds
- Poultry shed access track

Water Resources

- Major Watercourse
- Creeks and Drainage Features
- Dams
- Reservoirs

- Feral Animal Control - Focal
- Feral Animal Control - General
- General Weed Management
- Significant Weed Management

- MNES Habitat Assisted Rehabilitation
- MNES Habitat Restoration

Table 48: Proposed management and mitigation measures for the relevant MNES

Justification	Proposed Action
Management Action 1 – Feral Animal Management	
Wild dogs, Feral Cats, and European Fox are considered direct threats to the MNES target species. This conclusion is based on several federal government documents including: • DCCEEW Conservation Advice for *Petauroides volans* (greater glider (southern and central)), • DCCEEW Conservation Advice for *Phascolarctos cinereus* (Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory • Threatened Species Scientific Committee Conservation Advice for Swift Parrot (*Lathamus discolor*) and; • Department of Environment Threat Abatement Plans for Predation by Feral Cats, European Foxes and Feral Pigs.	Baseline pest monitoring has occurred (**Plan 14**) and will continue to occur in order to identify evidence of feral or unwanted pest with periodical surveys and monitoring of feral animal populations, locations and dispersal patterns within the Offset property. Survey methods to identify species presence include direct observation, remote sensor camera and sand traps for print record. These surveys will develop a baseline of feral animal populations, identify 'hot spots', and key activity periods (e.g. dusk). Due to their known impacts to Koala, Wild Dogs are considered the highest priority for control within the offset site. The baseline RAI of predator pest species (wild dogs and European red foxes) on site is therefore 1.79. The baseline RAI of herbivorous pest species (feral pigs) which have potential to damage MNES habitat is 1.02. This allows abundance of Wild Dogs within the offset property to be tracked and indicates whether management has decreased abundance.
Koala Feral animals including the wild dog are common in the proposed offset area and have the potential to impose negative pressures on the koala, with dogs representing a key mortality threat to koalas. **Swift Parrot** Predation of native wildlife by cats on the Swift Parrot is a listed threatening process under federal and state (NSW and Vic) legislation.	A purpose-built offset property Pest Management Action Plan will be developed specifying techniques to be utilised (trapping, shooting, baiting). Best-fit methods for control and monitoring of management programs will be guided by relevant threat abatement plan and recommended DAF Monitoring Techniques for Vertebrate Pests (Wild Dogs, Feral Cats and Foxes). In order to work effectively this approach will involve adaptive management to pest management, which considers each method relative to the base line data collected to determine the most effective pest management measures for the offset property.
Presence of foxes, wild dogs, and feral cats is an impact to all targeted MNES, with particular impact of wild dog on Koala, and feral cat and fox on Swift Parrot.	Where practical and appropriate; participate in pest management planning and stakeholder engagement with immediate land holders to foster joint sub regional scale action plan and ensure effective pest management in the locality of the offset area.

Justification	Proposed Action
	Key targets for this management action include: • Suppressing the occurrence of feral animal species (predators and herbivores) within the ROA 4. • Minimising MNES injury and mortality and impacts to regenerating MNES habitat to the greatest extent possible within the ROA 4 for the life of the offset.
Management Action 2 – Weeds of National Significance Control (reduction and management)	
The entirety of the Rosevale Offset Property was surveyed for weed presence with a focus on Weeds of National Significance (WONS) due to their known adverse impacts. Thirty-two (32) invasive species are identified by DCCEEW as weeds of national significance based on their invasiveness, potential for spread and identified socioeconomic and environmental impacts (Australian State of the Environment, 2021). Of the 32 WONS species, *Lantana camara* (Lantana), *Opuntia stricta* (Prickly Pear) and *Senecio madagascariensis* (Fireweed) were identified during walk overs of the Rosevale Offset Property. No weed species on the National Environmental Alert list were identified however several species declared under the *Scenic Rim Regional Council Planning Scheme*; *Sporobolus pyramidalis* (Giant Rat's Tail Grass), *Baccharis hamifolia* (Groundsel), *Senecio madagascariensis* (Fireweed), *Sporobolus africanus* (Parramatta Grass) and *Opuntia tomentosa* (Velvety Tree Pear). As well as two (2) potentially adverse invasives; *Celtis sinensis* (Chines Celtis), *Lantana montevidensis* (Creeping Lantana) and *Lantana camara* (Lantana). Although preliminary site surveys and observations over the Rosevale offset property recorded a number of weed species both federally and locally listed as well as general pastural invasive, the most prevalent and potentially impactful to MNES is Lantana camara (Lantana). The Department of Agriculture and Fisheries (2023) indicates more than 1400 native species are negatively affected by Lantana invasion, including many endangered and threatened species. This largely occurs through the suppressive effect of Lantanas aggressive growth form, generally adversely impacting species	Baseline weed monitoring utilising an Antenna based GPS system was conducted across the Offset Property which involved mapping the full extent (as description polygons) of all WONS, namely *Lantana camara*. This data will form the basis for targeted weed management activities across the site. As noted, the ROA 4 offset contains minimal weeds due to cropping and ploughing activities. However, where vegetation is present such as patches of regrowth, the understory contains Lantana. It is therefore a heightened risk that spread of Lantana will occur across ROA 4 once cropping and ploughing activities are ceased as a result of the offset. Therefore, the weed action management measure is largely to reduce current WONS infestations (Lantana, Velvety Tree Pear, Fireweed), prevent the spread of Lantana and manage general weed species that may inhibit growth of revegetation plantings. Following the exclusion of cattle and ceasing of ploughing and cropping, detailed weed management control activities within the ROA 4 will occur in accordance with the RMP (**Appendix F**) combining a range of management techniques from the SEQERF and other relevant guidelines (e.g. DAF, 2017, Gray et al. 2006). Post major weed removal operations, periodical weed maintenance rotations for removal / suppression of Lantana regeneration will occur with the same

Justification	Proposed Action
richness and some soil faunal assemblages, including many endangered and threatened species. This largely occurs through the suppressive effect of Lantanas aggressive growth form, generally adversely impacting species richness and some soil faunal assemblages. Additionally, in areas blanket layers of Lantana camara form a barrier to terrestrial species, which would include limiting the Koalas ability to access areas containing and over-canopy of NJKHTs. Further, as Lantana is a woody shrub with thin, combustible canes, it has been observed to create hotter bushfires, which significantly alters native vegetation communities and pastures (DAF, 2023). It is noted that under the Conservation Advice for Koala, increased intensity/frequency of bushfire is a listed key threatening process. Although this largely refers to the impacts caused by Climate Change, the presence of Lantana within bushland can significantly increase the extremity of bushfire and thus the impact it has directly on Koala and other listed species habitat; GHFF, Greater Glider, Regent Honeyeater and Swift Parrot all rely on Eucalypt bushland for foraging and breeding. For this reason, the Queensland Governments 'South East Queensland Koala Conservation Strategy 2022 – 2025' lists management of invasive weeds in both Action Area 1: Habitat Protection and Action Area 3: Threat Management (DES, 2020). Impact management of invasive flora, particularly Lantana, a Weed of National Significance (WoNS), is therefore considered a key direct action to addressing threats on Koala and other listed species that share the same habitat requirements. *Lantana camara* occurs on the Rosevale offset property both in open paddock areas as isolated clusters and thickets, as the dominant understory amongst regrowth and remnant vegetation and as a prolific shrub in gully lines. Within open areas existing farm practices result in periodical pesticide application limiting spread, however, this does not occur to the extent of entire eradication as the costs of treatment to result in an economical return for the grazing benefit are non-existent. Baseline weed data indicates WONS cover is relatively low ~10% of the ROA 4. The highly invasive and spreading nature of the species, coupled with the inactive management in areas	environmental considerations as the wholesale removing of weeds applied. Follow-up maintenance activities are to occur for a minimum of 2-5 years. As is the case with feral animal management plans, weed suppression activities incorporate adaptive management principles into weed management methods to streamline overall management to the most effective control types.

Justification	Proposed Action
would result in progressive increases particularly as local climatic events align with optimal germination and seeding periods. Within the ROA 4 offset, Lantana infestation is generally low due to the cropping land use and continued ploughing and re-seeding of the area with non-native grasses (**Plan 13**). Within regrowth vegetation at the southern extent of the site, Lantana is present in the understory. This evidences that as cropping use ceases as a result of the Offset and native plantings are established then preventing the encroachment of surrounding Lantana sources will be an ongoing challenge. Hence weed management being a priority management action in order to prevent impacts to Koala habitat and movement and GHFF foraging habitat. **Presence of WONS is an impact to all targeted MNES, particularly Koala.**	
Management Action 3 – Livestock Removal & Control and Cropping Discontinuation	
Livestock grazing is known to reduce the densities and biodiversity of flora species within a region, therefore reducing potential habitat for a wide range of fauna species. Although, there is some limited research that intensive cattle grazing can result in some positive biodiversity outcomes in regard to control of invasive species. However, for these conservation outcomes to be met it has been noted that a number of circumstances need to occur. For instance, stock must be controlled to graze areas needing treatment and excluded from sensitive wet areas where soil is most vulnerable to trampling. Stock must also be assured to be consuming the desired weed species and not native plant species intended for regeneration (Charles Sturt University, 2012). In general, clear treatment goals, control areas and monitoring programs need to be implemented for this system to work and the cost and benefits considered when compared to other weed treatments, such as slashing or burning. Overall, it is generally agreed that cattle farming has higher adverse effects to conservation rather than benefits due to re-engineering the landscape, removing potential for native species regrowth and ultimately supports predator species.	Cattle densities will be reduced from the offset area and fauna-fencing will be secured where required to prevent cattle entering the ROA 4. Areas with observed high localized grazing impacts, will be rehabilitated to re-establish native foraging and habitat trees for Koala and GHFF. Reinstatement of native vegetation layers will require a holistic management approach combining management of weeds and existing vegetation. Cropping and ploughing will be discontinued with the areas remediated for revegetation management. Key management actions to reduce the risk of livestock control and access and trespass management impacts on the Rosevale offset property include: • Ownership of the land by the offset provider and therefore any residual grazing or cropping activities will be secondary land uses to the approved offset outcomes.

Justification	Proposed Action
The offset area has been subject to varying levels of cattle grazing. This has degraded vegetation with native regrowth inhibited by trampling and feeding, therefore reducing the extent, connectivity and quality of foraging and breeding habitat for the targeted MNES within the offset area. Similarly, the area of ROA 4 currently utilized for cropping evidently inhibits potential native regrowth and therefore will be discontinued in order to allow for regrowth. Reduction of cattle densities, discontinuation of cropping, removal of fencing with a risk of entanglement to native fauna and replenishment of native species will increase habitat availability for Koala and GHFF. **Cattle grazing and ploughing activities are an impact to habitat for all targeted MNES habitat.**	• Implementation of a legally binding mechanism (Voluntary Declaration under the Vegetation Management Act 1999) which provides protection of existing and created habitat values. The Voluntary Declaration applies the regulations of the Vegetation Management Act 1999 to the land title which remains regardless of the transfer of ownership or sale of the land; and • Fauna friendly livestock exclusion fencing around the perimeter of the ROA 4. • Reduction of barbwire fencing within ROA 4 in order to manage risk of native fauna entanglement.
Management Action 4 – Access and Trespass Management	
Unlawful access and trespassing can lead to impacts to native flora including trampling, compacting, and weed spread which ultimately leads to suppressing of native regrowth and potential habitat or connectivity vegetation for native species. Furthermore, trespassing often results in fence destruction, which allows for free movement of cattle, further impacting potential habitat for threatened species. **Access and trespassing have potential to impact habitat for all targeted MNES.**	The Rosevale offset property is surrounded to the north, east and west by large cattle grazing operations. The impacts of unlawful access and trespassing mimic those listed in the 'Livestock Control and Cropping Discontinuation' management action above (trampling, compacting, weed spread, fence destruction). Without a system for identifying and preventing or controlling access and trespassing the actions established for on-site stock management will be undermined.
Management Action 5 – MNES Habitat Restoration	
According to the relative statutory documents (i.e., conservation advice and national recovery plans), all 5 of the targeted MNES species referred to in this OMP are significantly impacted by habitat clearing and fragmentation.	MNES habitat restoration will occur through the transitioning of grassed grazing areas (ROA 4) into vegetated ecosystems supporting habitat for the koala. In total 45.12 ha ha is proposed for MNES habitat restoration and 6.67 ha is proposed for assisted

Justification	Proposed Action
The ROA 4 site consists of open paddocks and dead plantation trees, designated as non-remnant and regrowth which has been assessed throughout the report as two assessment units (AUs). The majority of ROA 4 is flat land with two constructed dams within the north which contains a mapped drainage feature and a reservoir at the western boundary. Currently habitat values within ROA 4 are significantly limited with only scattered large trees in the north where the drainage feature runs and along the southern boundary where the offset site adjoins regrowth and mapped core Koala Habitat Area (KHA). On-ground delineation of vegetation characteristics was able to categorize the offset area into two assessment units containing non-remnant (AU-1) vegetation (45.12 ha) and regrowth vegetation (6.67 ha) (Plan 10). In its current state these areas offer minimal in the way of direct foraging or breeding habitat for Koala or GHFF, with only scattered vegetation at the southern extent of ROA 4. Therefore, current vegetation is not great enough to provide significant steppingstone habitat. Thus, restoration and assisted rehabilitation of these areas will provide a significant area of new habitat for these species and improve safe movement opportunities for fauna. Rehabilitation activity on-site will contribute to functional ecological habitat and corridors due to the surrounding landscape containing known and potential habitat for both Koala and GHFF. **Koala** The Koala has a specialist diet, feeding on the leaves of select species of *Eucalyptus, Lophostemon, Corymbia, Angophora* and occasionally *Melaleuca* and *Leptospermum*. Consequently, koalas are reliant on access to stands of forest and woodland that support those key food-tree species. Habitat protection and habitat restoration are Action Areas 1 and 2 respectively within the South East Queensland Koala Conservation Strategy 2020 – 2025. Rehabilitation therefore a key action that will improve koala habitat values within the	rehabilitation. This will increase foraging habitat for MNES within 20 year via planting out the entire offset area, mapped currently as non-remnant, with non-juvenile Koala habitat trees and allowing regrowth to naturally regenerate. The rehabilitation program will be undertaken by suitably qualified personnel and will include measures to ensure the maintenance and survival of new breeding and foraging trees in the offset areas. Restoration is a high cost and high labor-intensive task from preparation to commencement through to the first 5 years of establishment. Only planning and preparation works are proposed within year 1 of the offset while beginning communication with a local nursery for stock will be conducted. All rehabilitation planting is to be completed by the end of Year 2. All revegetation and planting species are to be in accordance with the technical regional ecosystem description and a Rehabilitation Management Plan. This staged process of rehabilitation is recommended under the SEQ Restoration Framework Manual (Chenoweth EPLA, 2012) and SER Australasia National Restoration Standards (SERA, 2017). Under these guidelines it is suggested that larger sites be broken into a number of different management zones with progress occurring at different stages within each zone. Therefore, allowing for each zone to get the same amount of care and management practices. As these zones move to maintenance and the time required for each zone is reduced these can be consolidated. Additionally, the Victorian Government Department of Sustainability and Environment Native Vegetation Revegetation Planting Standards (DSE, 2006) indicates that staged or successive plantings which result in more than one age class allows for better natural recruitment, higher vegetation complexity and easier adaptive management.

Justification	Proposed Action
offset area. Specifically, reinstating the natural RE communities has the potential to increase habitat connectivity and increase the availability of key resources including food and shelter trees for the koala. **Grey-headed Flying-Fox** Grey-headed Flying-fox requires foraging resources and roosting sites to persist. The species is known to feed primarily on the nectar and pollen in eucalypt flowers and fleshy subtropical rainforest fruits, and around 100 species of plant have been recorded in their diet. Under the National Recovery Plan for GHFF, recovery objective 1 lists enhancing and rehabilitating native vegetation on public and private lands as a way to increase foraging habitat critical to the species survival. Rehabilitation is therefore a key action that will improve GHFF foraging values within the offset area. **Regent Honeyeater** The Regent Honeyeater's diet primarily consists of nectar, but also includes invertebrates (mostly insects) and their exudates (e.g., lerps and honeydew), and occasionally fruit. Nectar is obtained chiefly from eucalypts and mistletoe, and regent honeyeaters appear reliant on select species which provide reliable nectar flows. Strategy 1 of the National Recovery Plan for Regent Honeyeater is focused on improving the extent and quality of habitat for this species. Rehabilitation of degraded areas were foraging habitat was once present and likely formally used by Regent Honeyeater, as indicated by surrounding habitat and pre-clear vegetation, is therefore a key action that will improve Regent Honeyeater foraging values within the offset area.	Benchmarks for rehabilitation efforts are derived from the definition of remnant vegetation under the *Vegetation Management Act 1999*. Vegetation can be mapped as remnant vegetation and associated essential habitat for Koalas if the canopy is 70% of the height, 50% of the cover and similar species composition of the appropriate pre-clearing RE (Queensland Government 2015). Therefore, the final benchmark at 20 years for rehabilitation is 70% of the reference benchmark cover (for canopy, shrub and ground-layer) and 50% of the reference benchmark height (for canopy and shrub layer) of the appropriate RE. All revegetation and planting species are to be in accordance with the technical regional ecosystem for the dominant RE being RE12.8.17 with elements of RE 12.8.14. The Queensland Herbarium descriptions are provided below: • RE 12.8.17 is described as: Mixed woodland with combinations of Eucalyptus crebra, E. melanophloia, E. tereticornis, Corymbia tessellaris, C. intermedia, and commonly containing Angophora subvelutina and E. melliodora, with a grassy ground layer. Usually occurs on mid and lower slopes of hills on Cainozoic igneous rocks, especially basalt. Not a Wetland. (BVG1M: 11a). • RE 12.8.14 is described as: Eucalyptus eugenioides, E. biturbinata, E melliodora +/- E. tereticornis, Corymbia intermedia, E. crebra open forest Allocasuarina torulosa is a common understorey species. Localised occurrences of Eucalyptus laevopinea, E. quadrangulata and E. banksii may occur. Occurs on Cainozoic igneous rocks, especially basalt. Not a Wetland (BVG1M: 11a). The Queensland Herbarium BioCondition benchmarks (v3.6) for regional ecosystem RE 12.8.17 indicate a benchmark for remnant canopy tree height as 19 m and 10 m for subcanopy, and the remnant tree canopy coverage is 48% with sub-canopy coverage as 20% and shrub canopy coverage as 5%. Therefore, once the AU1 and AU2 reach 70% of these prescribed heights and 50% of these prescribed canopy coverages it can be considered remnant.

Justification	Proposed Action
Swift Parrot Swift Parrots breed in Tasmania and then move to mainland Australia in Autumn for the non-breeding season. They feed preferentially in the largest trees available (Kennedy and Overs, 2001) and on psyllid lerps, seeds and fruit (Kennedy and Tzaros, 2005). Favored feed trees include winter flowering species such as Swamp Mahogany (*Eucalyptus robusta*), Spotted Gum (*Corymbia citriodora*), Red Bloodwood (*C. gummifera*), Forest Red Gum (*E. tereticornis*), Mugga Ironbark (*E. sideroxylon*), and White Box (*E. albens*). Swift Parrots are known to utilise similar foraging habitat vegetation to GHFF (Birds Australia, 2011), therefore providing new habitat for GHFF also benefits Swift Parrots. **Restoration efforts will provide foraging and dispersal habitat for all MNES species.**	The rehabilitation planting will be completed to reflect the mapped dominant pre-clear regional ecosystem on-site RE 12.8.17 with elements of RE 12.8.14 via incorporating the following eucalypt species into revegetation: • *Eucalyptus melliodora* (Yellow Box) • *Eucalyptus eugenioides* (Thin-leaved Stringybark) • *Eucalyptus crebra* (Narrow-leaved Ironbark) • *Eucalyptus melanophloia* (Silver-leaved Ironbark) • *Eucalyptus tereticornis* (Forest Red Gum) • *Corymbia tessellaris* (Moreton Bay Ash) • *Corymbia intermedia* (Pink Bloodwood) • *Angophora subvelutina* (Rough-barked Apple) Of the above, *E. melliodora* and *E. eugenioides* are identified as foraging trees for the regent honeyeater and swift parrot with *E. tereticornis* as a foraging species for the swift parrot only. Planting will occur in accordance with the prescribed methodology in the RMP with a higher number of trees to be planted within EMZ 1. Within particularly disturbed areas of non-remnant vegetation, the objectives of this plan are long term and may take longer than 15 years after commencement of implementation, particularly as the Queensland Herbarium quotes that in general it takes 30 years for a disturbed site to regain remnant status. However, the goal of regeneration actions are often to re-establish an ecosystem to a point where it is self-sustaining and able resilient to disturbance (Chenoweth EPLA, 2012). The SEQERF indicates that in order to achieve the self-sustaining ecosystem at least 2-5 years of implementation and maintenance needs to occur. Thus, the offset project provides a sufficient maintenance and implementation period which sets the revegetation areas towards remnant status following the completion of maintenance. Interim benchmarks via MHQA transects are to be conducted at regular intervals which will inform the progress of the rehabilitation/revegetation efforts towards achieving this

Justification	Proposed Action
	plan's outcomes. Given this, adaptive management approaches can also be employed to redirect restoration approaches, if interim benchmarks are not being met. The aim to plant vegetation by the end of Year 2 is not anticipated to impact the conservation benefits or outcomes of the restoration efforts by Year 20. Several studies on the benefits of revegetation, including one from La Trobe University in association with the Victorian State Governments Department of Energy, Environment and Climate Action (DEECA), have indicated that the benefits of revegetation are realized within the first 15 years of planting, particularly for bird and nectar foraging species (DEECA, 2020). This study in particular accredits the success of revegetation to a well-thought-out monitoring program and species selection, which is intended for ROA 4. A range of monitoring techniques are proposed as part of the offset program to allow for an effective monitoring regime that will promote adaptive management and high achieving offset outcomes. This includes methods prescribed under the RMP and habitat quality monitoring methods under the OMP.
Management Action 6 – Bushfire Management	
Uncontrolled wildfire is considered a key threat to Koala populations with impacts ranging from mortality and injury to loss or altered habitat resulting in a reduction in food source and in some cases increased exposure to predators. The purpose of management actions is centred on reducing the risk and severity of bushfires that may occur within the ROA 4 to prevent immediate impacts on Koala and MNES habitat and long-term through impacts to restoration activities.	Management actions to reduce the risk of bushfire impacts within ROA 4 include: • Maintain existing bushfire breaks between adjacent landholders, in particular along the boundaries where the State Planning Policy bushfire hazard mapping indicates there is a 'high' or 'very high' risk of bushfire occurring; • Cooperate with the local Queensland rural fire service, Scenic Rim Regional Council and adjoining land owners to minimise bushfire risk at a regional scale; and • Undertake a feasibility assessment on insurance for plant stock replacement.

ACTION 1: FERAL ANIMAL MANAGEMENT

MANAGEMENT ACTION JUSTIFICATION

A core role of management action 1 will be for the ongoing control and reduction in identified primary pest species know to be a direct threat to listed MNES, namely wild dogs with a secondary focus on European Foxes, and Feral Cat over the Rosevale offset property for the offset period. Other pest species, which have indirect impacts on the ecosystems that support the MNES species, should be managed as seen fit in order to reduce their impact to rehabilitation efforts. This includes non-native vertebrate pest species being the feral pig, European rabbit and feral Rusa Deer identified on-site, all of which are known to damage native vegetation, spread weed seeds and foul water. Refer to **Figure 12** for non-native feral animals requiring prioritisation.

Fauna surveys were conducted within the broader offset property to determine the presence of pest species, with a particular focus on wild dogs due to their known threat to Koala. Motion sensor cameras were deployed across the entire proposed Rosevale Offset Property in order to provide broad baseline data. Focus was given to existing tracks and animals trails and the eastern portion of the offset property where existing chicken sheds are present as the Department identified concerns with the presence of this practice within the property in terms of pest management.

In July 2024, the SRRC adopted the Scenic Rim Region Biosecurity Plan 2023–2028. This five-year overarching strategy outlines renewed targets and priorities for how the region will meet its responsibilities under the *Biosecurity Act 2014* by strengthening coordination, community participation, awareness and enforcement to minimise threats from feral animals.

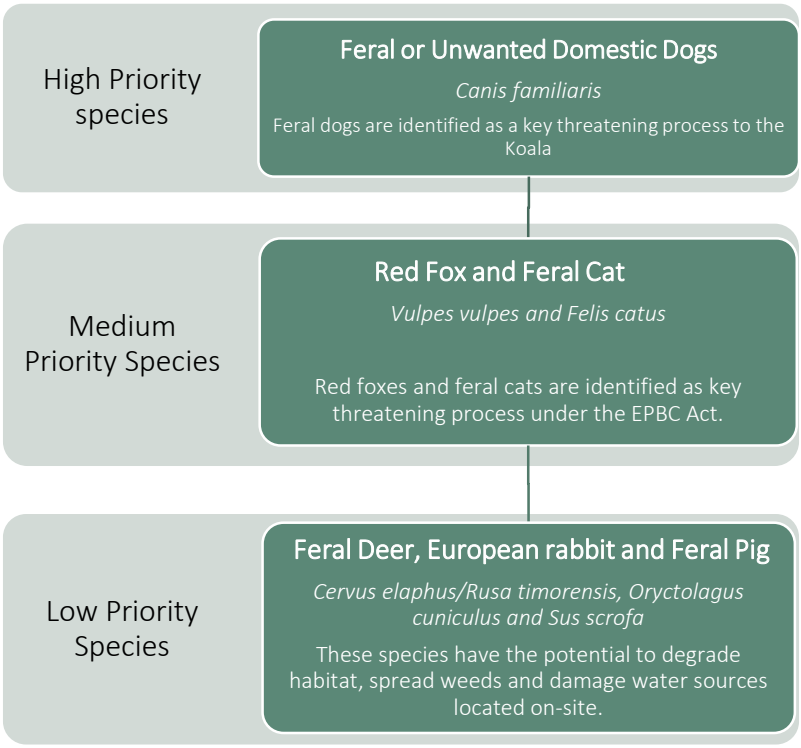


Figure 12: Feral Animal Management Prioritisation

Wild Dogs

The Department of Agriculture and Fisheries (DAF) lists feral dogs as abundant and widespread throughout the Scenic Rim region. Wild dogs (*Canis familiaris dingo, Canis familiaris dingo X Canis familiaris, Canis familiaris*) are listed as declared pest animals by Scenic Rim Regional Council, with the local council website documenting that the impact of wild dog activity has increased in the past 10 years due mainly to the increasing population in the region. Further, residents are increasingly engaged in raising livestock and poultry, resulting in a readily available food sources for wild dogs (SRRC, 2021). The Scenic Rim Regional Council currently runs baiting, shooting and trapping programs throughout the region. Most wild dog baiting uses meat baits infused with sodium fluoroacetate, commonly called 1080; an environmentally responsible option for invasive species control due to its minimal impact on native animals (NWDAP, 2020). Dogs and foxes are highly susceptible to 1080, and the small amount required to target these species poses a minimal threat to non-target species.

Property-wide baseline survey results identified nine (9) dogs during the survey period. A total of fourteen (14) cameras were been throughout this period which equates to a total of seven hundred and seventy-eight (778) camera nights. The total RAI of wild dogs within the property is calculated as 1.16.

European Fox

European Fox is listed as a major threat to the survival of several of the listed species Conservation Advice. DAF lists foxes as being widespread across Australia due to being highly adaptable and opportunistic feeders. Scenic Rim Regional Council also lists this species as being abundant throughout the region, with trapping programs widely conducted (SRRC, 2023d). The Australian Government's 2022-2023 Threatened Species Action Plan includes targets to manage foxes in important habitats for threatened species. The Queensland Government sites several control methods for this species, including shooting, trapping, fencing, baiting, and livestock guardian dogs, combined with land management (Business Queensland, 2021) (refer Table 28). Evidence of European Fox was recorded on the offset property. Under SRRCs Biodiversity Strategy 2015 – 2025 local council has set forth an objective to support land managers in the control of pest animals, including foxes and cats. Indicating the acknowledgement that these pest species are currently a problem in the region.

Feral Cats

The DCCEEW state that feral cats pose a significant threat to many nationally listed threatened species. This species is known to predate on native species, spread diseases and reduce viable habitat for species most at risk. It is recorded that they are a threat to more than 120 nationally listed threatened species, including Greater Glider and Swift Parrot, and have been implicated in 28 mammal extinctions (DCCEEW, 2023). For this reason, predation by feral cats has been listed as a Key Threatening Process (KTP) under the *Environment Protection and Biodiversity Conservation Act 1999*. Scenic Rim Regional Council declare feral cats as a pest animal within the area with it noted that they are scattered throughout the region and trapping is an on-going activity. Feral cats were not captured on the infrared cameras places on-site; however, scats have been recorded and the presence of the poultry farms indicate it is likely this pest species is present within the area. Additionally, research from the National Land & Water Resources Audit, Canberra indicates that feral cat occurrence, abundance and distribution within south-east Queensland is "common/widespread."

The Australian Government's 2022-2023 *Threatened Species Action Plan* highlights that in order to tackle the impacts of feral cats' engagement and collaboration from the Australian Government with private and agricultural sectors is necessary. Therefore, the proposal to implement feral cat and fox management for this

project, into a large area of potential threatened species habitat corresponds with both local and federal government objectives concerning the species. Feral Cat control tools currently available include shooting, trapping, fencing, baiting and grooming traps. DCCEEW indicate that the most effective form of feral cat control over large areas is poison baiting.

Feral Pig

Feral pigs (*Sus scrofa*) are opportunistic omnivores and will consume a wide range of animals including small mammals and birds. Feral Pigs are also widely known to cause significant environmental destruction to soil and vegetation via digging, spreading weeds and consuming vegetation.

According to the SRRC website (SRRC, 2023b), feral pigs are found mostly in isolated areas and trapping is conducted when reported sightings are received. Within the region, Feral Pig populations have increased due to increased animal husbandry, and availability of food sources such as feed lots and the feeding of livestock like horses on rural residential blocks. Following identification of feral pig activity, trapping programs are initiated with varied success rates ranging from 100% removal to dispersal and subsequent reduction in feral pig numbers.

Feral pigs were confirmed to occur within the broader offset property during property-wide baseline camera monitoring and present a threat to the proposed habitat restoration.

Feral Deer

Feral deer such as Red deer (*Cervus elaphus*) and Rusa deer (*Rusa timorensis*) pose significant threats to ecological restoration through their browsing of seedlings and under-storey plants, ring-barking and bark-stripping of young trees, trampling of regenerating vegetation and disturbance of soil through wallowing or hard-hoofed movement. These behaviours reduce vegetation recruitment, alter species composition and degrade habitat structure; moreover, the soil disturbance they cause can create bare patches that facilitate invasive weeds, undermining restoration efforts. Ecological restoration therefore faces a heightened risk of failure if deer populations are unmanaged, particularly in planting or natural regeneration areas where plant establishment is critical.

The Scenic Rim Biosecurity Plan 2023-2038 recognises the Council and landholders' responsibility under the Queensland *Biosecurity Act 2014* and emphasises the shared General Biosecurity Obligation to minimise the impact of invasive animals, including feral deer.

While specific site-based case studies for red deer or rusa deer within the region are limited in public documentation, national research and regional control programs in SEQ indicate that rusa deer can maintain home-ranges of a few hundred hectares in peri-urban and bushland fringe settings (making them locally manageable) and hence pose a realistic threat to restoration success within ROA 4.

Current Biosecurity Obligations

Presently, under the *Biosecurity Act 2014*, there is the General Biodiversity Obligation (GBO) for landholders to manage biosecurity risks that are under their control and take reasonable and practical steps in doing so. To determine the extent of management and to determine if it is necessary to take reasonable and practical steps in managing the biosecurity risk, the landholder is required to assess the risk and its potential harm (i.e., extensive productivity loss). Currently, the landholder does not undertake feral animal control as it is assessed

under the 'general biosecurity obligation' of the Biosecurity Act 2014, that feral animal threat to productivity does not have a positive cost benefit to the current land use (i.e., the expenditure to undertake feral animal control would not result in enough economic gain in productivity to warrant implementation).

Biosecurity control and pest management surrounding poultry production is generally focused on preventing or minimising the introduction and spread of an infectious disease and food safety pathogens. Biosecurity management is conducted under a biosecurity or pest management program. Pest animal control is often localised to prevention of feral animals entering the poultry sheds and coming in contact with the fowl, with localised baiting often utilised (Business Queensland, 2022). Therefore, the control of pest species such as feral cat, dogs and foxes is likely not actively occurring if it is cheaper to provide preventative measures excluding their entry rather than active management (shooting, trapping, monitoring). Therefore, feral animals sighted throughout the offset property are likely not actively managed unless within proximity to the poultry sheds. It is therefore ultimately a requirement that pest management occur across a broader area to abate and manage these species and prevent associated impacts to native fauna and flora. The implementation of a targeted Pest Management Program for the offset site, which liaises with surrounding landholders, will provide certain, detailed, and active reduction of pest species in the local area.

PROPOSED ACTION

A dedicated Pest Management Program (PMP) is proposed to manage non-native vertebrate pest species within the ROA 4. Key management measures for the control of feral or unwanted domestic dogs and other identified invasive species across the offset areas include:

- A property wide feral animal management program specifying techniques (trapping, baiting, shooting) to be utilised will be completed within 12 months of the approval decision. Where possible and practicable, adjacent land holders will be consulted for the potential of collaboration in a localised landscape-wide pest management effort. As vertebrate pest management is best achieved on a wide scale, this will occur across adjacent offset holdings at a minimum.
- Annual pest monitoring by a suitably qualified person, with evidence of pest animals GPS recorded.
- Stratified camera trap monitoring to implement directed animal control when pests are recorded.
- Cooperative participation in pest management planning and implementation with local land managers (government departments, local governments and utility providers) to ensure effective pest management in the locality of the offset areas.
- Installation of signage at access points to inform any persons interacting with the area of feral animal control being undertaken within the ROA 4.

The following structured approach ensures scientific integrity, regulatory compliance, and ongoing accountability in managing vertebrate pest species within the offset area.

1. Baseline monitoring to establish pest animal presence and levels of activity.
2. Biannual monitoring and control of pest animals as outlined above for the offset period.
3. Dedicated annual and 5-yearly reporting for inclusion in the Annual Compliance Report.
4. Adaptive management to ensure best control outcomes.

The Pest Management Program is to occur across the entire offset area, with potential focus areas of highest activity that are identified by the appointed pest expert to be implemented.

Refer to Table 49 for the non-native pest control actions proposed.

Table 49: Non-native Pest Control Actions

Item	Details
Proposed Action	Year 1: Offset Area-specific Detailed Monitoring Programme 1. Remote sensor camera deployment as per the National Wild Dog Action Plan and the Queensland Wild Dog Management Strategy. a. Camera deployment within the offset area to be a minimum of 22 nights biannually (summer and winter seasons). b. Cameras to be placed in fauna through-way locations for optimal pest detection, including existing farm tracks, fauna trails and water bodies. c. Motion detection camera locations are to be recorded with hand-held GPS units. d. GPS coordinates and photos to be recorded and mapped for annual reporting. e. Monitoring locations to be fixed and repeated. f. Consistent timing and effort for monitoring must be applied across monitoring events. g. All incidental observations of pest species are to be recorded and included in reporting. h. Reporting must include a count of species recorded. i. Target pest species (herbivores and predators) for monitoring and control include but are not limited to: i. Dogs ii. Foxes iii. Cats iv. Pigs v. Goats vi. Deer 2. Field survey datasheets will detail the time of year of the monitoring event, record observed scats or tracks, photo locations and notes of any evidence of positive and/or negative changes in pest occurrence. 3. Transfer GPS data to spatial data programs to generate pest occurrences and collate all data in excel spreadsheets and save all digital photos to file for ongoing monitoring and reporting purposes. 4. Where pest presence is detected, targeted control programs will be implemented on completion of the monitoring. The collected data will inform locations for intensive control efforts outlined below. 5. The Pest Management Program will use the baseline data to build a calendar of annual activities based around varying control methods, seasons and species recorded.

Item	Details
	Years 2-20: Intensive Pest Management 1. Implement the Pest Management Program using the baseline data, based on a calendar of activities around ongoing biannual monitoring, varying control methods, seasons and species recorded. 2. Best practice management measures will be implemented, and will include for: a. Dogs – biannual control (Mar-May breeding and Sep-Nov weening) i. Shooting – dawn ii. Cage trap – set evening, clear morning iii. Foothold / padded-jaw / offset laminated jaw traps – set evening, clear morning iv. Leg hold trap – set evening, clear morning v. Collarum® neck restraint – set evening, clear morning vi. Baiting with / without infra-red sensing cameras – set as required b. Foxes – biannual control (winter/spring breeding and autumn migration) i. Shooting – dawn ii. Cage trap – set evening, clear morning iii. Padded-jaw / offset laminated jaw traps – set evening, clear morning iv. Leg hold trap – set evening, clear morning v. Baiting with / without infra-red sensing cameras – set as required c. Cats – biannual control i. Shooting – nocturnal more productive ii. Wire 'treadle-type' box traps – baited and set evening, clear morning iii. Rubber-jawed leg-hold traps - baited iv. Baiting with / without infra-red sensing cameras – set as required d. Pigs – annual control targeting ≥ 70% of population i. Shooting – outside of trapping and baiting ii. Fenced trapping - set evening, clear morning – pre-feeding and then triggered iii. Baiting with / without infra-red sensing cameras – set as required – can pre-feed to attract e. Goats – annual control targeting ≥ 35% of population i. Mustering – diurnal ii. Shooting – diurnal iii. Fenced trapping – water source attractant and one-way gate iv. Judas collar – should other control measures fail f. Deer – manage in response to an incursion i. Shooting – diurnal

Item	Details
	v. Self-mustering trap - set evening, clear morning and euthanise 3. Adapt methods and locations as needed based on outcomes of the ongoing management plan according to a defined set of criteria. 4. Report annually on methods implemented and results of management techniques as part of Annual Compliance Reporting. Year 5: Compile findings in a Milestone Report of five years of the Pest Management Program (as outlined below). Year 10: Compile findings in a Milestone Report of ten years of the Pest Management Program (as outlined below). Year 15: Compile findings in a Milestone Report of fifteen years of the Pest Management Program (as outlined below). Year 20: Compile findings in a Milestone Report of twenty years of the Pest Management Program (as outlined below).

MANAGEMENT ACTION COMPLETION CRITERIA

Timing	Completion Criteria
Year 1	Complete offset area-specific baseline pest monitoring to supplement property-wide data.
Year 2 – 20	Implement the Pest Management Program to ensure: • Suppression of feral animal species (predators and herbivores) and their impacts within the ROA 4. • Minimise MNES injury and mortality to the greatest extent possible within the ROA 4 for the life of the offset.
Years 5, 10, 15	Complete review of PMP based on available data and endorsed guidelines and including a review of management techniques and adaptive management strategies where appropriate.

MANAGEMENT ACTION RESPONSIBILITY

The Offset Provider is responsible for establishing, funding, and resourcing the Pest Management Program. To ensure effective implementation, the following are required:

1. Detailed Pest Surveys: Offset Area-specific baseline and ongoing targeted surveys must be conducted by a suitably qualified pest management practitioner or suitably qualified Ecologist.
2. All contractors for all pest control measures will be suitably qualified.
3. Pest control contractors will be responsible for the upkeep of appropriate training for all pest control staff.

4. Pest control contractors will be responsible for the data collection and upkeep of all pest control and monitoring data and provide the data to the proponent when available and required for reporting annually and in 5-yearly summaries of previous outcomes.
5. Lethal controls will consist of best practice management measures as outlined.

MANAGEMENT ACTION MONITORING

The effectiveness of pest management actions will be measured and monitored through a structured process:

1. Detailed Offset Area-specific Baseline Survey (Year 1) – Establishes initial pest population data and report.
2. Annual scheduled Pest Surveys and Control (Years 2–20) reported.
3. Progressive reporting will consist of annual reports and also 5-yearly summaries of previous pest management outcomes.
4. Annual Compliance Reports – Each survey's findings and pest management outcomes etc. will be included in the annual and 5-yearly reporting to be adopted into Annual Compliance Reports.

A suitably qualified person will complete monitoring for non-native vertebrate pests before the end of Years 5, 10, 15 and 20 of the offset with the aim of demonstrating a reduction in:

- Incidental sighting and records of feral animals on-site (at or below the baseline survey results for Wild Dogs);
- Feral animal scat / track or imprint evidence at targeted survey locations;
- Site population census on infrared drone and baited remote sensor camera surveys;
- Scalp collection or animal kills on diurnal hunting (Shooting) events;
- Stock losses over the property; and
- Occurrence of injury or mortality on MNES attributed to vertebrate pest species.

The following non-native predator monitoring methodology will be implemented by a suitably qualified person in accordance with the baseline survey methodology detailed in Section 5:

- Desktop Assessment
    - Review previous survey mapping and camera locations, field datasheets, photos and notes.
- Field Survey
    - Grid-based motion detection camera deployment for minimum of 22 nights within the offset area at Years 5, 10, 15 and 20. Motion detection camera locations are to be recorded with hand-held GPS. GPS coordinates and photos to be recorded. New camera monitoring locations will be established during Year 1 of the offset within the offset area to enable the collection of offset area-specific data to be repeated for the life of the offset.
    - Field datasheet will detail the time of year of the monitoring event, record observed scats or tracks, photo location and notes of any evidence of positive and/or negative changes in non-native predator occurrence.

- A GPS will be used to locate the presence of non-native predator species, with a focus on species identified during baseline field surveys via notable tracks or scats.
- Transfer GPS data to spatial data programs to generate non-native predator occurrences and collate all data in excel spreadsheets and save all digital photos to file for ongoing monitoring and reporting purposes.
- Where non-native predator presence is detected, targeted trapping and baiting programs will be triggered.

MANAGEMENT ACTION REPORTING

- Milestone pest monitoring survey results will be reported by the suitably qualified person in the 5, 10, 15 and 20 Year Milestone Report. This will provide detail on survey methodologies and detected predator abundance with reference to the baseline survey data.
- Implementation of the Pest Management Program and results of pest management program will be detailed annually by the Offset Provider in Offset Area Annual Reports.
- OAARs and/or Milestone Reports will be included in the relevant Annual Compliance Report.

MANAGEMENT ACTION RISKS AND ADAPTIVE MANAGEMENT

Without intervention and active management, the risk of feral animal impacts on MNES and their habitat are assessed as 'high' (refer Section 9). This is based on regional and local government data on feral animals combined with evidence of livestock predation recorded on-site and an abundance of research in the surrounding area indicating the prevalence of feral dogs, European fox and feral cats. The pest management strategies incorporate intensive implementation methods and three major data collection survey events for confirming base case and successful reduction of pest management impacts.

The PMP will use a combination of pest management monitoring data collected from pest management contractors and monitoring data collected through annual or 5-yearly surveys to inform site management. Major survey and review periods for review of the OMP are set at Years 5, 10 and 15 to ensure the program achieves long-term reduction and does not respond to specific stochastic events such a contextual fluctuation in pest populations such as wild dogs.

Triggers for adaptive management include:

1. Following positive records from pest monitoring, implemented control efforts do not yield expected pest animal kills.
2. Feral animals are recorded during scheduled monitoring post-control efforts.
3. Opportunistic observations of feral animal activity, including sightings of animals, their tracks or scats during general offset site management works.

Adaptive management measures include:

1. Spatially and temporally expanding monitoring efforts (i.e., more sites, more often in more locations) to ensure greater site coverage.

2. Increasing frequency of monitoring and control events relevant to target species beyond existing events outlined earlier.
3. Sporadic controls triggered by ad hoc pest animal sightings, including pest species additional to those detected and identified as target species for pest management upon completion of baseline pest surveys.
4. Working more closely with adjoining land holders on landscape scale controls.
5. Applying multiple control measures in unison to improve control efficacy.

If monitoring data indicate that the PMP is not meeting its timing, responsibility, monitoring and control targets, the Program will be adjusted using the following strategies:

1. Spatially and temporally expanding monitoring efforts (i.e., more sites, more often in more locations) to ensure greater site coverage.
2. Increasing frequency of monitoring and control events beyond those outlined above.
3. Sporadic controls triggered by ad hoc pest animal sightings, including pest species additional to those detected and identified as target species for pest management upon completion of baseline pest surveys.
4. Working more closely with adjoining land holders on landscape scale controls.
5. Applying multiple control measures in unison to improve control efficacy.
6. Review responsibility where lapsed and advise alternative roles and / or personnel.

This adaptive management approach ensures regulatory compliance, continuous improvement, long-term effectiveness, and alignment with broader conservation and threat abatement goals.

ACTION 2: WEEDS OF NATIONAL SIGNIFICANCE MANAGEMENT

MANAGEMENT ACTION JUSTIFICATION

Preliminary site surveys and observations over the Rosevale offset property recorded a number of weed species, with the most prevalent and inhibitive to Koala movement and habitat restoration being *Lantana camara*. The Department of Agriculture and Fisheries (2023) indicates more than 1400 native species are negatively affected by Lantana invasion, including many endangered and threatened species. This largely occurs through the suppressive effect of Lantanas aggressive growth form, generally adversely impacting species richness and some soil faunal assemblages.

Lantana infestations suppress and inhibit the natural regeneration of regrowth vegetation on-site which directly limits the growth rates and regeneration of non-juvenile koala habitat trees and other species that forage and inhabit these (GHFF, Greater Glider, Regent Honeyeater and Swift Parrot). Additionally, in areas blanket layers of *Lantana camara* form a barrier to terrestrial species, which would include limiting the Koalas ability to access areas containing and over-canopy of NJKHTs. Further, as Lantana is a woody shrub with thin, combustible canes, it has been observed to create hotter bushfires, which significantly alters native vegetation communities and pastures (DAF, 2023). It is noted that under the Conservation Advice for Koala, increased intensity/frequency of bushfire is a listed key threatening process. Although this largely refers to the impacts caused by Climate Change, the presence of Lantana within bushland can significantly increase the extremity of bushfire and thus the impact it has directly on Koala and other listed species habitat; GHFF, Regent Honeyeater and Swift Parrot all rely on eucalypt bushland for foraging. For this reason, the Queensland Governments 'South East Queensland Koala Conservation Strategy 2022 – 2025' lists management of invasive weeds in both Action Area 1: Habitat Protection and Action Area 3: Threat Management (DES, 2020). Impact management of invasive flora, particularly Lantana, a Weed of National Significance (WONS), is therefore considered a key direct action to addressing threats on Koala and other listed species that share the same habitat requirements.

Lantana camara occurs within the ROA 4 both in open paddock areas as isolated clusters and thickets (Photo Plate 7), as the dominant understorey amongst regrowth and remnant vegetation and as a prolific shrub in gully lines. As ROA 4 has been historically cleared and currently used for cropping and cattle grazing WONS are relatively low ~10% on average across the majority of the open paddock area. The highly invasive and spreading nature of the species, coupled with the inactive management in areas would result in progressive increases particularly as local climatic events align with optimal germination and seeding periods. Therefore, once ploughing and cropping activities are discontinued there is a high-risk Lantana infestation will spread throughout. Thus, control of the dense infestations and then continued suppression of Lantana and retaining low levels of weeds is the goal for ROA 4. Additionally, general weed management of other WONS and SRRC declared invasive species will occur as needed throughout the course of the offset life in order to prevent impacts to regenerative plantings.

The Scenic Rim Regional Council Biosecurity Plan 2023-2028 (SRRC, 2024) sets out the aim to control declared pest plants within the region. This plan includes information and strategies for landholders to effectively manage pest species. *Lantana camara* is listed as a declared pest plant within the Scenic Rim region and restricted invasive species under the Queensland *Biosecurity Act 2014*. Under the Queensland *Biosecurity Act 2014* it requires everyone to take all reasonable and practical steps to minimise the risks associated with invasive plants and animals under their control (referred to as a GBO). The GBO states that reasonable and practical is

dependent on the current land use practices undertaken by the landholder. The GBO is a risk ratings-based approach, where risks are managed appropriately based on their threat to the land use practices.

Photo Plate 7: Examples of significant Lantana invasion within ROA 4 (*top*) and scattered throughout paddock space (*bottom*).

PROPOSED ACTION

- Implement the Rehabilitation Management Plan (Appendix F).
- In accordance with the RMP, manage weeds of national significance (WONS), SRRC declared weeds and other weeds such which may have an impact on habitat regeneration is to occur in the entire ROA 4, with a particular focus on suppression of the spread of *Lantana camara*.
- Prevent the further spread or establishing of new *Lantana camara* outbreaks within the ROA 4 by excluding cattle and controlling pest species from the offset management zone.

MANAGEMENT ACTION COMPLETION CRITERIA

Timing	Completion Criteria
Year 1	Implement the RMP and ensure WONS are treated within 12-months of the commencement of the offset
Year 2	Reduce WONS to <5% by the end of Year 2
Year 3 – 20	Maintain WONS cover at <5% for the life of the offset

MANAGEMENT ACTION RESPONSIBILITY

The Offset Provider will be responsible for establishing, resourcing and funding all weed management actions of the OMP and RMP including management and monitoring actions.

MANAGEMENT ACTION MONITORING

A number of monitoring actions relating to the presence of WONS and weeds generally are proposed as part of the implementation of the OMP and RMP.

Completion of baseline WONS surveys providing an actual mapped extent of infestations and occurrences in hectares to be used as the benchmark for measuring improvement.

A rehabilitation monitoring program including weed monitoring is detailed in the RMP which proposes a monitoring frequency of quarterly in Year 1 of the offset, bi-annually in Years 2-5 and annually for Years 6-10 until planted trees become semi-mature. An initial baseline setup is also proposed prior to the commencement of any weed treatment works occurring. Refer to **Appendix F** for further details regarding the weed monitoring methodology. This is proposed as additional to the MHQA surveys.

A suitably qualified person will complete monitoring for WONS before the end of Years 5, 10, 15 and 20 of the offset to track against the interim milestone and completion criteria in the environmental outcomes (see **Appendix A**).

MANAGEMENT ACTION REPORTING

- The Offset Provider is responsible for preparing and issuing Offset Area Annual Reports to the proponent within contracted timeframes for inclusion in the Approved Project Annual Compliance Report.
- Photo Monitoring Reports and Rehabilitation Monitoring Reports to be prepared at frequencies specified in the RMP by a suitably qualified person (**Appendix F**).

- Milestone weed monitoring survey results will be reported by the suitably qualified person in the 5, 10, 15 and 20 Year Milestone Report. This will provide detail on survey methodologies and detected WONS and other weed presence with reference to the baseline survey data.
- Implementation of the weed management actions within the RMP will be detailed annually by the Offset Provider in OAARs.
- Reporting, or a sample of, will be included in the relevant Annual Compliance Report.

MANAGEMENT ACTION RISKS AND ADAPTIVE MANAGEMENT

The dominant WONS species present within the offset area is Lantana with some occurrence Fireweed. A range of other exotic grass and herbaceous species are present, indicative of the high level of disturbance.

In the event weed management targets are not met within the prescribed timeframes of the OMP and the RMP, adaptive management will be triggered which includes:

- Adopting different management techniques
- Increasing the use of successful techniques
- Increasing the intensity/frequency of management program
- Changing the timing or locality of proposed target treatment locations or events

ACTION 3: STOCK MANAGEMENT AND CROPPING DISCONTINUATION

MANAGEMENT ACTION JUSTIFICATION

The Rosevale offset property has historically been utilised for agricultural uses, including, cattle grazing and pastural cropping. The property has retained extensive pasture paddocks consisting of native grasses and artificially improved introduced pastures. Cattle grazing is consistently observed on the Rosevale offset property, with the intensity of grazing directly related to the density of pasture available (i.e., correlated with rainfall) and the beef market prices. Given the climatic season within recent years providing higher rainfall for vigorous pasture growth and increased beef prices, the head of cattle on the Rosevale offset property have likely increased.

It is observed that there is some limited research that intensive cattle grazing can result in some positive biodiversity outcomes, such as to control invasive species. Additionally, for these conservation outcomes to be met it has been noted that a number of circumstances need to occur. For instance, stock must be controlled to graze areas needing treatment and excluded from sensitive wet areas where soil is most vulnerable to trampling. Stock must also be assured to be consuming the desired weed species and not native plant species intended for regeneration (Charles Sturt University, 2012). In general, clear treatment goals, control areas and monitoring programs need to be implemented for this system to work and the cost and benefits considered when compared to other weed treatments, such as slashing or burning. Overall, it is generally agreed that cattle farming has higher adverse effects to conservation rather than benefits due to re-engineering the landscape, removing potential for native species regrowth and ultimately supports predator species.

The risks of ongoing cattle grazing on the land could vary from low to medium to high subject to the future maintenance or expansion of the grazing use, which is driven by a number of economic factors, however primarily the rise and fall of the beef market. Regardless of the long term, the current highest and best use for the land is the continuation of cattle grazing. No reduction in risk or improvement in condition or value of the Koala and Grey-headed Flying-fox habitat will occur without direct intervention and a change in use (such as this offset outcome).

The risks of continued cropping are not significant outside of the area this activity is occurring. Impacts from this activity are generally straightforward where the land being utilized cannot support a woodland ecosystem. Tilling and ploughing of the land, if done correctly, often doesn't significantly impact soil health in the same way grazing does due to the intention to produce a healthy crop. Therefore in discontinuing cropping and preparing the area for revegetation this generally creates a direct benefit to conservation as long as management and monitoring are undertaken correctly and consistently, as per the guidance within this OMP.

PROPOSED ACTION

The removal of degrading activities being grazing from stock and cropping will be discontinued within ROA 4. The following actions will be completed:

- The perimeter of the offset property will be fenced with fauna friendly livestock exclusion fencing to exclude livestock from ROA 4. Where existing barbed wire fencing is retained, it will be retrofitted to replace the top strand with plain wire. Refer to **Plan 16** for the location of property-wide and offset area-specific stock exclusion fencing.
- Unnecessary barbed wire fencing with potential entanglement impact to fauna will be removed from within ROA 4.
- Cropping and ploughing activities will be discontinued within ROA 4 and the area remediated to reflect natural pre-agricultural conditions.

MANAGEMENT ACTION COMPLETION CRITERIA

Timing	Completion Criteria
Year 1	• Exclude stock from ROA 4 and discontinue cropping within the first year of the offset, prior with the intent to complete prior to the commencement of offset works. • Removed unnecessary barbed wire fencing from within the ROA 4 and retrofit any retained fencing, within the first year of the offset commencing.
Year 2 – 20	• Nil stock breaches into offset area (post completion of all fencing). • No reporting of stock impacts as justification for not achieving environmental outcomes and interim milestone targets.

MANAGEMENT ACTION RESPONSIBILITY

The Offset Provider will be responsible for establishing, resourcing and funding the construction, monitoring, maintenance and reporting of all fencing (using fencing contractors where deemed appropriate) used to exclude cattle from ROA 4.

The Offset Provider will discontinue cropping and resource/fund the remediation works on all previously cropped lands within ROA 4.

MANAGEMENT ACTION MONITORING

Monitoring of fence lines and livestock absence will be completed by the Offset Provider as part of routine monitoring to be completed quarterly for the first year and then annually from Years 2-20.

MANAGEMENT ACTION REPORTING

The Offset Provider is responsible for preparing and issuing Offset Area Annual Reports to the proponent within contracted timeframes for inclusion in the Approved Project Annual Compliance Report.

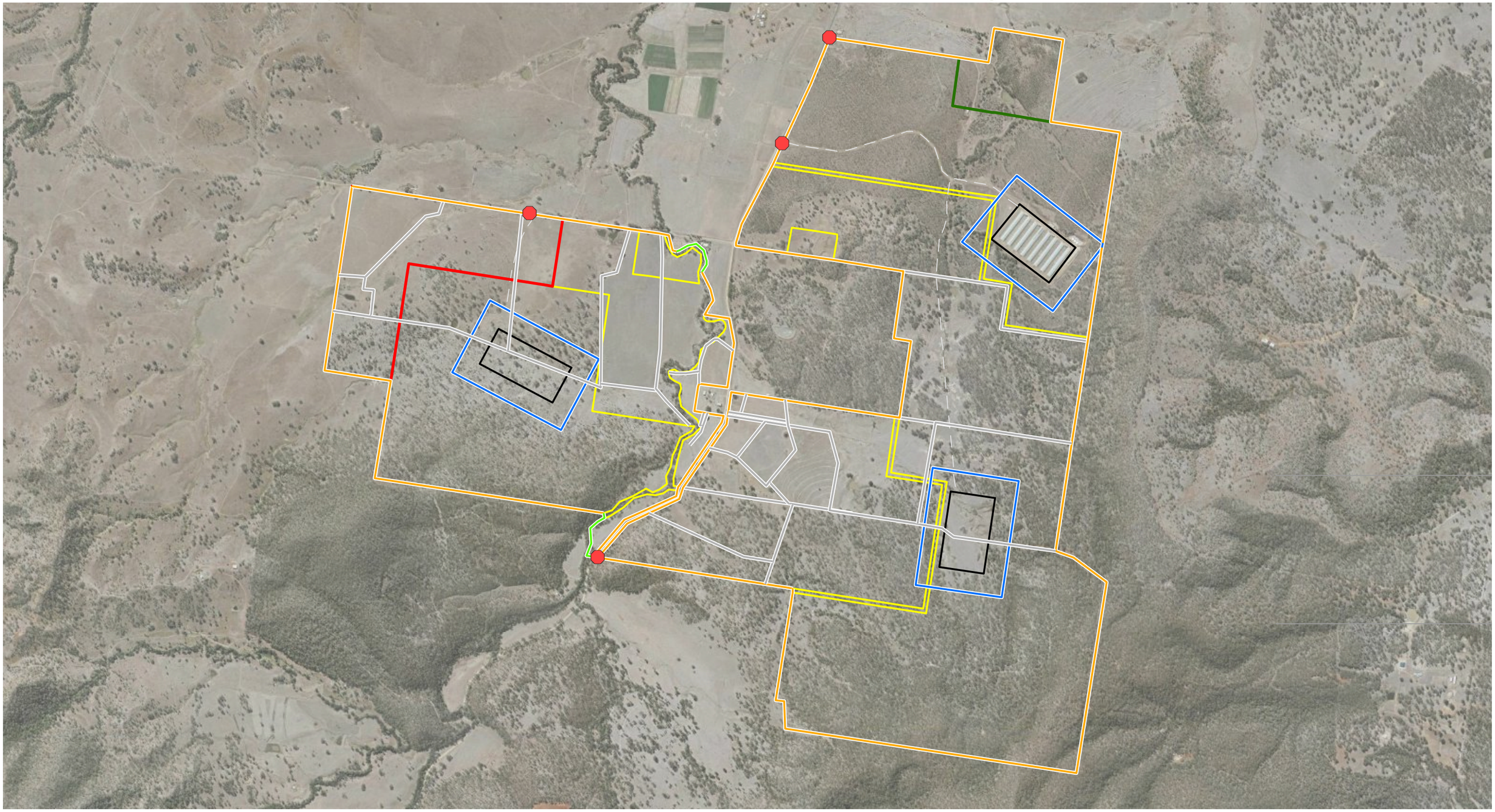
Documented evidence of fence monitoring and maintenance rectifications will be reported within OAARs.

MANAGEMENT ACTION RISKS AND ADAPTIVE MANAGEMENT

Providing the right type of fencing is installed in the correct location and monitored the risk of failure is extremely low.

While unlikely to occur with the proposed management framework, any breach of cattle accessing the ROA 4 would be identified through the general course of offset establishment or maintenance or as part of the cattle operator's routine stock checks. Damage as a result of a short-term breach is likely to be minimal and reversible through reinstatement works.

16. Offset Property and ROA 4 Stock Exclusion Fencing



Montauban Environmental Offsets

1:18,000

0 100 200 300 400 m

N W E S

Co-ordinate System: GDA2020 MGA Zone 56

References:
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Project: Rosevale Offset Area 4

Date: 23/10/2025

10559 E 16 OMP_S ROA Stock Exclusion A

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Legend

- Approved Offset Boundary
- Future Offset Boundary
- Offset Area
- Proposed Chicken sheds
- Poultry shed access track

Stock Exclusion Fencing

- Existing farm fence to remove
- Existing boundary fence to be retrofitted as fauna friendly
- New fauna friendly boundary fence
- New fauna exclusion fencing
- Signage locations

ACTION 4: ACCESS AND TRESPASS MANAGEMENT

MANAGEMENT ACTION JUSTIFICATION

The Rosevale offset property is surrounded to the north, east and west by large cattle grazing operations. The impacts of unlawful access and trespassing mimic those listed in the 'Stock Management' management action section of this management plan (trampling, compacting, weed spread, fence destruction). Without a system for identifying and preventing or controlling access and trespassing the actions established for on-site stock management will be undermined.

PROPOSED ACTION

- The ROA 4 will be fenced using property-wide perimeter fencing and maintained for the life of the offset. Offset property perimeter fencing will separate land use activities from adjoining properties.
- Ensure no new access tracks throughout ROA 4 unless to support offset outcomes.
- Notify adjoining land owners of purpose and outcomes of ROA 4.

MANAGEMENT ACTION COMPLETION CRITERIA

Timing	Preliminary Completion Criteria
Year 1	Inspection and rectification of all external fence boundaries adjoining ROA 4
Year 1	Notification of ROA 4, purpose and outcomes to all adjoining land owners (where applicable)
Year 1 – 20	• Maintain ROA 4 / offset property boundary fencing to prevent unauthorised access to ROA 4 • No new access tracks through ROA 4 unless to support offset outcomes

MANAGEMENT ACTION RESPONSIBILITY

The Offset Provider is responsible for funding and undertaking all actions relating to access and trespass management.

MANAGEMENT ACTION MONITORING

- Evidence of erected fencing and notification to adjoining landowners (where applicable);
- Fence monitoring as per Management Action 3: Livestock Control and Cropping Discontinuation; and
- No evidence of stock or illegal access influence in outcomes scheduled for the ROA 4 habitat improvement.

MANAGEMENT ACTION REPORTING

The Offset Provider is responsible for preparing and issuing Offset Area Annual Reports to the proponent within contracted timeframes for inclusion in the Approved Project Annual Compliance Report.

MANAGEMENT ACTION RISKS AND ADAPTIVE MANAGEMENT

Factors to reduce the risk of impacts from unauthorised access on the Rosevale offset property include:

- Ownership of the land by the offset provider and therefore any residual grazing activities will be secondary land uses to the approved offset outcomes;
- Implementation of a legally binding mechanism (Voluntary Declaration under the *Vegetation Management Act 1999*) which provides protection of existing and created habitat values. The Voluntary Declaration applies the regulations of the *Vegetation Management Act 1999* to the land title which remains regardless of the transfer of ownership or sale of the land; and
- Fauna friendly livestock exclusion fencing around the perimeter of the ROA 4.

Given there is no legal requirement for access through the land holding (e.g. no formal access easement) if necessary, enforcement options are available, however, it is considered extremely unlikely this would be required provided alternative access points are established which do not conflict with the offset outcomes.

ACTION 5: REHABILITATION AND RESTORATION MANAGEMENT

MANAGEMENT ACTION JUSTIFICATION

MNES habitat restoration will occur throughout the entirety of ROA 4, transitioning 45.12 ha of grassed grazing areas and 6.67 ha of regrowth vegetation into vegetated ecosystems supporting habitat for MNES. The MNES habitat restoration will:

- Be in accordance with the pre-clear regional ecosystem(s), being composite RE 12.8.17/12.8.14;
- Expand the available MNES habitat through planting of broad hectare cleared land that adjoins mapped Koala Habitat Area with NJKHTs;
- Expand the available GHFF foraging habitat through planting of broad hectare cleared land with foraging species;
- Expand the available foraging habitat for the Regent Honeyeater and Swift Parrot by planting preferred foraging species;
- Support natural regeneration in regrowth vegetation through weed and pest management and;
- Provide new connectivity with surrounding habitat for the protected matters which adjoins the bioregional conservation corridor.

45.12 ha of AU 1 is proposed for MNES habitat reconstruction and 6.67 ha of AU 2 is proposed for reconstruction with assisted natural regeneration. This will increase foraging and dispersal habitat for Koala and Grey-headed Flying Fox within 20 years via planting non-juvenile Koala habitat trees and allowing regrowth to naturally regenerate via suppression and management of weeds. The rehabilitation program will be undertaken by suitably qualified personnel and will include measures to ensure the maintenance and survival of new breeding and foraging trees in the offset areas.

Restoration is a high cost and high labor-intensive task from preparation to commencement through to the first 5 years of establishment. Only planning and preparation works are proposed within Year 1 of the offset while beginning communication with a local nursery for stock will be conducted. However, all rehabilitation plantings are to be completed by the end of Year 2. This staged process of rehabilitation is recommended under the *SEQ Restoration Framework Manual* (Chenoweth EPLA, 2012) and SER Australasia *National Restoration Standards* (SERA, 2017). Under these guidelines it is suggested that larger sites be broken into a number of different management zones with progress occurring at different stages within each zone. Therefore, allowing for each zone to get the same amount of care and management practices. As these zones move to maintenance and the time required for each zone is reduced these can be consolidated.

Additionally, the Victorian Government Department of Sustainability and Environment *Native Vegetation Revegetation Planting Standards* (DSE, 2006) indicates that staged or successive plantings which result in more than one age class allows for better natural recruitment, higher vegetation complexity and easier adaptive management.

Benchmarks for rehabilitation efforts are derived from the definition of remnant vegetation under the *Vegetation Management Act 1999*. Vegetation can be mapped as remnant vegetation and associated essential habitat for Koalas if the canopy is 70% if the height, 50% of the cover and similar species composition of the appropriate pre-clearing RE (Queensland Government 2015). Therefore, the final benchmark at 20 years for

rehabilitation is 70% of the reference benchmark cover (for canopy, shrub and ground-layer) and 50% of the reference benchmark height (for canopy and shrub layer) of the appropriate RE.

All revegetation and planting species are to be in accordance with the technical regional ecosystem for the dominant RE being RE12.8.17 with elements of RE 12.8.14. The Queensland Herbarium descriptions are provided below:

- RE 12.8.17 is described as: Mixed woodland with combinations of *Eucalyptus crebra, E. melanophloia, E. tereticornis, Corymbia tessellaris, C. intermedia*, and commonly containing *Angophora subvelutina* and *E. melliodora*, with a grassy ground layer. Usually occurs on mid and lower slopes of hills on Cainozoic igneous rocks, especially basalt. Not a Wetland. (BVG1M: 11a).
- RE 12.8.14 is described as: *Eucalyptus eugenioides, E. biturbinata, E. melliodora* +/- *E. tereticornis, Corymbia intermedia, E. crebra* open forest. *Allocasuarina torulosa* is a common understorey species. Localised occurrences of *Eucalyptus laevopinea, E. quadrangulata* and *E. banksii* may occur. Occurs on Cainozoic igneous rocks, especially basalt. Not a Wetland. (BVG1M: 11a).

The Queensland Herbarium BioCondition benchmarks (v3.6) for regional ecosystem RE 12.8.17 indicate a benchmark for remnant canopy tree height as 19 m and 10 m for subcanopy, and the remnant tree canopy coverage is 48% with sub-canopy coverage as 20% and shrub canopy coverage as 5%. Therefore, once the AU1 and AU2 reach 70% of these prescribed heights and 50% of these prescribed canopy coverages it can be considered remnant.

The rehabilitation planting will be completed to reflect the mapped dominant pre-clear regional ecosystem on-site RE 12.8.17 with elements of RE 12.8.14 via incorporating the following eucalypt species into revegetation:

- *Eucalyptus melliodora* (Yellow Box)
- *Eucalyptus eugenioides* (Thin-leaved Stringybark)
- *Eucalyptus crebra* (Narrow-leaved Ironbark)
- *Eucalyptus melanophloia* (Silver-leaved Ironbark)
- *Eucalyptus tereticornis* (Forest Red Gum)
- *Corymbia tessellaris* (Moreton Bay Ash)
- *Corymbia intermedia* (Pink Bloodwood)
- *Angophora subvelutina* (Rough-barked Apple)

Of the above, *E. melliodora* and *E. eugenioides* are identified as foraging trees for the regent honeyeater and swift parrot with *E. tereticornis* as a foraging species for the swift parrot only.

Planting will occur in accordance with the prescribed methodology in the RMP with a higher number of trees to be planted within EMZ 1.

Within particularly disturbed areas of non-remnant vegetation, the objectives of this plan are long term and may take longer than 15 years after commencement of implementation, particularly as the Queensland Herbarium quotes that in general it takes 30 years for a disturbed site to regain remnant status. However, the goal of regeneration actions are often to re-establish an ecosystem to a point where it is self-sustaining and able resilient to disturbance (Chenoweth EPLA, 2012). The SEQERF indicates that in order to achieve the self-

sustaining ecosystem at least 2-5 years of implementation and maintenance needs to occur. Thus, the offset project provides a sufficient maintenance and implementation period which sets the revegetation areas towards remnant status following the completion of maintenance. Interim benchmarks via MHQA transects are to be conducted at regular intervals which will inform the progress of the rehabilitation/revegetation efforts towards achieving this plan's outcomes. Given this, adaptive management approaches can also be employed to redirect restoration approaches, if interim benchmarks are not being met.

The aim to plant vegetation by the end of Year 2 is not anticipated to impact the conservation benefits or outcomes of the restoration efforts by Year 20. Several studies on the benefits of revegetation, including one from La Trobe University in association with the Victorian State Governments Department of Energy, Environment and Climate Action (DEECA), have indicated that the benefits of revegetation are realized within the first 15 years of planting, particularly for bird and nectar foraging species (DEECA, 2020). This study in particular accredits the success of revegetation to a well-thought-out monitoring program and species selection, which is intended for ROA 4.

MANAGEMENT ACTION LOCATION

- The ROA 4 contains 45.12 ha of non-remnant vegetation (AU1) which is to undergo habitat reconstruction and 6.67 ha of regrowth vegetation (AU2) which will undergo reconstruction and assisted natural regeneration techniques in accordance with the RMP (**Appendix F**).
- Plantings will also occur in the adjoining offset area under EPBC 2020/8629 to deliver the combined offset for the Regent Honeyeater and Swift Parrot (refer **Plan 17**).

MANAGEMENT ACTION COMPLETION CRITERIA

Timing	Preliminary Completion Criteria
Year 1	Complete Site Preparation work in accordance with RMP including: • Tilling / cultivating grazed grass areas for treatment of pasture grass seedbank in preparation for planting • Undertake soil testing for both the modified planting soil and for the planting locations • Commence seed collection and propagation in coordination with an external nursery
Year 2	Complete all offset area planting in accordance with planting palettes and densities proposed in the RMP by the end of Year 2
Years 1 – 20	Implement the RMP to ensure performance indicators are achieved particularly the mortality rate of plants (focusing on trees) is <10%

MANAGEMENT ACTION RESPONSIBILITY

The Offset Provider is responsible for:

- Funding the appointment of trained and experienced Bushland Regenerators or Revegetation contractors for the completion of all rehabilitation activities in accordance with the RMP (site preparation, planting, establishment and maintenance)
- Commissioning and funding tertiary trained Ecologists and Landscape Consultants for the survey, monitoring and reporting of interim and milestone revegetation outcomes.

MANAGEMENT ACTION MONITORING

A range of monitoring techniques are proposed as part of the offset program to allow for an effective monitoring regime that will promote adaptive management and high achieving offset outcomes. This includes methods prescribed under the RMP and habitat quality monitoring methods under the OMP.

Rehabilitation Management Plan

Monitoring methods to track rehabilitation progress against the RMP will comprise a mix of informal and formal monitoring methods to track progress against the proposed environmental outcomes for each MNES and objectives of the RMP. A range of performance indicators have been nominated. All monitoring will be undertaken by a suitably qualified Rehabilitation Contractor/Landscape consultant and/or Ecologist.

The utilisation of performance indicators as part of monitoring program is proposed as a way of measuring rehabilitation success during the establishment and maintenance phases of the offset. A table of performance indicators is provided in Appendix 02 of the RMP and forms the basis of the monitoring framework. Performance indicators are metrics by which the rehabilitation success of the offset area will be assessed in a meaningful and regularised approach and will be primarily used to assist with on-ground activities such as planting success and the identification of degrading factors that may be negatively affecting the offset area.

Performance indicator targets represent aspirational targets developed based on the proposed planting palette and densities, BioCondition benchmarks (v3.6) for the relevant regional ecosystems and anticipated response of performance indicators to the proposed rehabilitation regime.

Informal or qualitative monitoring techniques will be employed as part of the offset monitoring. Informal monitoring methods are less time-consuming and technical and form an important tool for determining ecological restoration success. Informal monitoring will occur through site inspections at prescribed monitoring intervals and will include the following techniques:

1) Photo monitoring, and
2) Visual assessment.

Formal monitoring of rehabilitation works involves collecting quantitative data at prescribed monitoring intervals using a combination of monitoring methods and techniques. Formal monitoring provides data that cannot be measured by informal observations and can be easily compared against quantitative performance indicators. This will include:

- MHQA transects at 5-yearly intervals (5, 10, 15 and 20 years) following the commencement of the offset. Transects will be repeated at baseline locations before the end of the relevant monitoring interval (e.g. before the end of Year 5) and will be completed in accordance with the baseline survey methodologies described in the OMP. Further details are provided in the subsection below.
- 10 x 10 metre / 100 m^2 plots (quadrats) to be completed quarterly for the first year following the completion of planting, bi-annually until the end of Year 5 and annually until the end of Year 10. This monitoring method is considered additional to the MHQA monitoring.

Refer to **Appendix F** for further details regarding the proposed monitoring methodology within the RMP and performance indicators.

Habitat Quality Monitoring

Achievement of the Environmental Outcomes as outlined in **Section 3** and **Appendix A** will be demonstrated through the replicated surveys completed in accordance with the MHQA methodology (Koala), GHFF FHA Tool and Swift Parrot and Regent Honeyeater Foraging Habitat Assessment methodologies.

The suitably qualified person as appointed by the Offset Provider will complete MHQA surveys before the end of Years 5, 10, 15 and 20 of the offset to assess against the interim milestones and environmental outcomes (**Section 3** and **Appendix A**).

This will include:

- MHQA transects including stem density counts to be completed at baseline sampling locations and methodology described in **Section 5**. For Regent Honeyeater and Swift Parrot, stem density data collected at 100 x 20 m plots will be extrapolated per the baseline survey methodology to confirm the approximate number of non-juvenile preferred foraging species established within the offset area.
- Establishment of additional stem density monitoring plots (100 x 20 m area) within the offset area if deemed necessary to increase the resolution of extrapolated data for the GHFF FHA and Swift Parrot and Regent Honeyeater Foraging Habitat Assessment.
- Direct and indirect surveys to target Koala presence, including Spot Assessment Technique surveys, motion triggered camera trapping and spotlighting.

MANAGEMENT ACTION REPORTING

The results of informal (photo monitoring and visual assessment) and formal monitoring (10 x 10 m quadrats) will be detailed in quarterly/bi-annual/annual monitoring reports. Following each photo monitoring event, a Photo Monitoring Report will be prepared which will include the following information:

- Photo set at each monitoring location.
- Commentary on mortality rate and presence of WONS/other weeds at a minimum with any additional relevant observations to inform adaptive management such as species-specific responses or herbivory.
- Adaptive management (if required).

The results of the quadrat surveys will be detailed in a Rehabilitation Monitoring Report for each monitoring event and will be prepared by a suitably qualified Ecologist.

These reports will include a summary of overall success rate (namely of tree species), any degrading factors at the site that may or are currently affecting survival success and any recommended adaptive management measures.

MANAGEMENT ACTION RISKS AND ADAPTIVE MANAGEMENT

The potential for large scale revegetation to fail can occur from controllable factors (poor soil preparation, planting stock or maintenance regime) or external events (extreme frost, pest invasion, drought, flood or major wind). Potential losses from these factors will be mitigated in several ways:

1) Contractual obligations of appointed bushland regenerators or revegetation contractors will ensure retention of funds and minimum success rates. The contractor will be responsible for replacement and re-establishing failed stock or areas.
2) Contractor and Offset Provider will investigate insurance for major external events.
3) Implementation of a detailed RMP which prescribes industry standard and widely used regeneration methods to promote successful rehabilitation outcomes.
4) Species to be planted are consistent with the pre-clear and ground-truthed regional ecosystem communities which considers underlying land form and soil specifications required for the species.
5) Intensive monitoring program using qualitative and quantitative monitoring methods prescribed under the RMP to allow for early identification of potential issues (e.g. higher than anticipated mortality rate) and enabling effective adaptive management.
6) Identification of corrective action triggers for adaptive management framework have been detailed (refer below and also Appendix F – RMP).

Adaptive Management Framework – Corrective action triggers

Multiple corrective action triggers for adaptive management are proposed under the performance indicators detailed in Appendix 02 the RMP. This includes:

- Native plant mortality >10%
- WONS cover >5%
- Number of non-juvenile stems of swift parrot foraging species (*E. melliodora, E. eugenioides* and *E. tereticornis*) not increasing as proposed
- Number of non-juvenile stems of regent honeyeater foraging species (*E. melliodora* and *E. eugenioides*) not increasing as proposed

A survival rate of 90% of tree species is proposed to be achieved for the offset area with a focus on species identified as preferred or supporting foraging species for the Critically Endangered Regent Honeyeater and Swift Parrot.

Where survival rates are observed to be less than 90% as per qualitative and quantitative monitoring methods, this may indicate the presence of a degrading factor not previously identified or considered at the site and may

require adaptive management measures to be considered and implemented. Degrading factors are to be identified as part of regular monitoring and will form the basis for actioning adaptive management.

Adaptive management measures may include a combination of the following:

- Identify and address the degrading factor (e.g. soil issue, pests, species failure).
- Remedial plantings in areas of dieback to bolster survival rates to above 90%.
- Introduce a different species *i.e.,* if one plant species consistently dies on a site, consider using in its place a species that is performing well.
- Adjust planting methods such as using advanced tube stock or direct seeding, modifying site preparation techniques.
- Modify weed management techniques or frequency where WONS exceed 5%.

Example from another offset area

The Rosevale offset property contains one currently approved offset (ROA 1) associated with EPBC 2021/9005, located in the north-eastern part of the offset property. The ROA 1 offset is approximately 17 ha in size and contains a mix of planting and assisted natural regeneration rehabilitation areas.

Plantings within ROA 1 are currently 1-2 years old and demonstrating a varying levels of success confirmed through recent inspections and photo monitoring. Refer to Photo Plate 8. Some losses have been reported, attributed to ongoing wet weather and site inundation, however, are being rectified through remedial plantings.

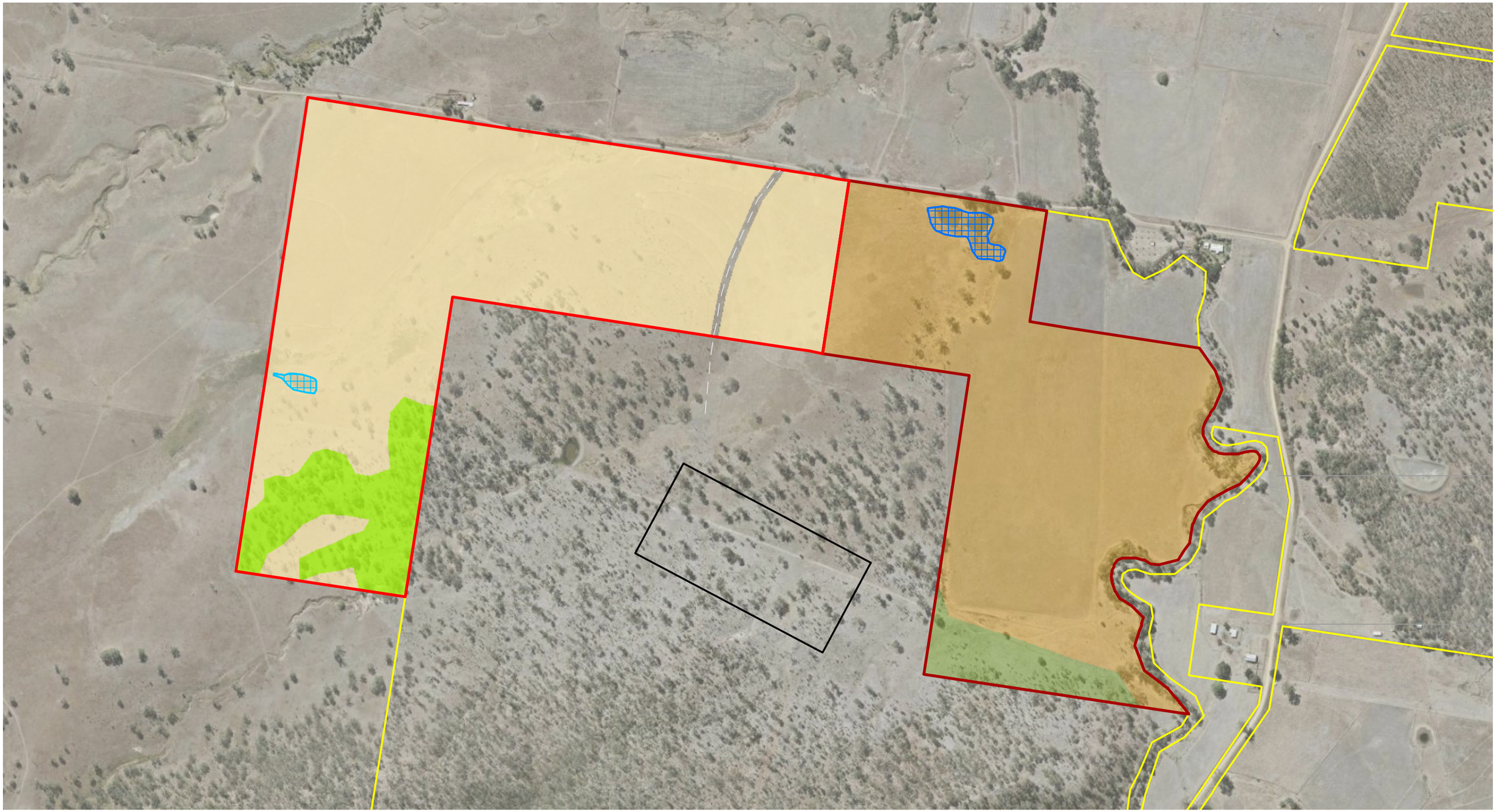
Despite the presence of failed plantation within the offset property there is also evidence of successful plantation within the ROA 1 offset comprising *Eucalyptus saligna*, a species which is not endemic to the area, and is at least 10 years old (Photo Plate 9). While the success of *E. saligna* is surprising given its lack of endemicity, it is regarded as highly adaptable to conditions such as poor soils and unfavourable climate. It is likely the parts of the offset property containing failed plantation species comprised species incorrectly suited to the site or species with lower tolerance.

There is considered to be limited evidence in the contemporary history of the offset property to suggest the proposed planting dominated offset and proposed planting success rate would not succeed particularly with the implementation of the intensive management and monitoring regime proposed under the RMP and adaptive management framework.

Photo Plate 8. Plantings within ROA 1

Photo Plate 9. Successful *Eucalyptus saligna* plantation within ROA 1.

17. ROA 3 and ROA 4 Planting Areas



Montauban Environmental Offsets

1:7,000

0 50 100 150 200 m

N W E S

Co-ordinate System: GDA2020 MGA Zone 56

References:
© State of Queensland, 2022

Project: Rosevale Offset Area 4

Date: 28/10/2025

10559 E 17 OMP_S Planting Areas A

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Legend

- Approved Offset Boundary
- Future Offset Boundary
- Proposed Chicken sheds
- Poultry shed access track
- ROA 4 Offset Area
- ROA 4 Waterbodies [0.2 ha] - No Planting
- ROA 3 Offset Area
- ROA 3 Waterbodies [0.8 ha] - No Planting

Offset Planting Area - ROA 4

- ROA 4 Assessment Unit 1: Non-remnant RE 12.8.17/12.8.14 [44.9 ha]
- ROA 4 Assessment Unit 2: Regrowth RE 12.8.17/12.8.14 [6.7 ha]

Offset Planting Area - ROA 3

- ROA 3 Assessment Unit 1: Non-remnant RE 12.3.3 [37.1 ha]
- ROA 3 Assessment Unit 2: Regrowth RE 12.8.17/12.8.14 [3.4 ha]

ACTION 6: BUSHFIRE MANAGEMENT

MANAGEMENT ACTION JUSTIFICATION

Uncontrolled wildfire is considered a key threat to Koala populations with impacts ranging from mortality and injury to loss or altered habitat resulting in a reduction in food source and in some cases increased exposure to predators. The purpose of management actions is centred on reducing the risk and severity of bushfires that may occur within the ROA 4 to prevent immediate impacts on Koala and MNES habitat and long-term through impacts to restoration activities.

Prescribed low-intensity burning as a bushfire management technique is widely employed and generally agreed upon as an effective means of reducing widespread and severe bushfire risk particularly when implemented in line with Indigenous cultural burning practices. The National Recovery Plan for Koala (DAWE, 2022) acknowledges the scope of impacts of prescribed burning on Koala population dynamics is not well understood. While the risk of bushfire can be reduced through prescribed burning regimes, it is acknowledged in the National Recovery Plan that the effectiveness of this is determined by the scale and severity of the bushfire, as exemplified in the 2019-2020 summer bushfires affecting areas that were considered low risk to bushfire.

The Rosevale offset property is mapped as containing high and very high-risk fuel loads for wildfire in both State Government and Scenic Rim Regional Council mapping attributed to its historical use as a native plantation site. The last recorded bushfire within the vicinity of the offset property occurred in January 2022. The bushfire was contained by Queensland Fire and Emergency Services (QFES) with no recorded damage to people or property. The ROA 4 was not impacted by this bushfire.

The Rosevale offset property retains limited vegetation interspersed with open pasture land and includes a system of boundary line firebreaks and access tracks for the protection of stock and farming infrastructure. This fire management system will be maintained as the offset property transitions from open pasture to MNES habitat restoration as specific offset activities are sequentially completed.

PROPOSED ACTION

- Bushfire Management Plan will be prepared and implemented to manage fuel loads.
- Management actions will occur across ROA 4 to monitor and manage fuel loads and along the boundaries of ROA 4 where firebreaks are required (**Management Actions 3 and 5**).

MANAGEMENT ACTION COMPLETION CRITERIA

Timing	Completion Criteria
Year 1	• Develop Bushfire Management Plan • Maintain existing firebreaks within ROA 4
Year 1 – 20	• Monitor and maintain fuel loads within the ROA 4

Timing	Completion Criteria
	• Maintain firebreaks

MANAGEMENT ACTION RESPONSIBILITY

The Offset Provider is responsible for:

- Liaising and coordinating with Queensland rural fire service and SRRC to develop BMP and implement bushfire management measures; and
- Maintaining existing bushfire breaks; and
- Installing additional plantings required to account for losses as a result of uncontrolled bushfire.

MANAGEMENT ACTION MONITORING

- Fuel loads and bushfire breaks will be monitored annually by the Offset Provider as required depending on seasonal variation in fuel loads.
- Additionally, an annual assessment of seasonal bushfire risk will be completed to determine if adaptive management is required.
- Monitoring of this management action will be implemented from Year 1 onwards.

MANAGEMENT ACTION REPORTING

The Offset Provider is responsible for preparing and issuing Offset Area Annual Reports to the proponent within contracted timeframes for inclusion in the Approved Project Annual Compliance Report.

MANAGEMENT ACTION RISKS AND ADAPTIVE MANAGEMENT

Management actions to reduce the risk of bushfire impacts within ROA 4 include:

- Maintain existing bushfire breaks between adjacent landholders, in particular along the boundaries where the State Planning Policy bushfire hazard mapping indicates there is a 'high' or 'very high' risk of bushfire occurring;
- Cooperate with the local Queensland rural fire service, Scenic Rim Regional Council and adjoining land owners to minimise bushfire risk at a regional scale; and
- Undertake a feasibility assessment on insurance for plant stock replacement.

The overall assessment of bushfire risk is that their occurrence is unlikely within the life of the offset and consequences of such an event would be moderate. Without intervention and management, bushfire is evaluated as a low risk to this offset project. Refer to Section 9 for more details.

Notwithstanding the above, in the event a bushfire does occur within the ROA 4, adaptive management will involve:

- The provision of additional plantings where bushfire has occurred and damage or losses to plantings has resulted.
- Review of the adequacy of risk management measures to determine factors that may have resulted in the bushfire occurring and an assessment of any other management measures that could be implemented to reduce the risk further.

8. ADAPTIVE MANAGEMENT FRAMEWORK

This Offset Management Plan includes an adaptive management framework to be used as a governing principle and set of actions within specific management activities. Adaptive management is an iterative process designed to promote learning from the outcomes of management action implementation and using that knowledge gained from monitoring to identify issues and implement corrective actions. Continuously monitoring and adjusting strategies will allow the Offset Provider and engaged contractors and consultants to respond effectively to changing conditions and uncertainties to ensure the proposed Environmental Outcomes are achieved. The iterative nature of the adaptive management process is summarised in Figure 13.

A review of the OMP by a suitably qualified person is proposed to occur at Years 5, 10 and 15 to review the effectiveness of management actions and proposed corrective actions and identify if any amendments are required to ensure ongoing effectiveness.

Figure 13: Adaptive Management Process

CORRECTIVE ACTION TRIGGERS

As part of the adaptive management framework, corrective actions and triggers have been defined for management actions where appropriate to identify when management actions need to be adjusted as informed by monitoring.

The need for corrective actions will be identified through monitoring proposed under the OMP, RMP (Appendix F) and PMP. Table 50 provides a detailed summary of the corrective actions which will be implemented.

Table 50: Triggers and Corrective Actions (including timeframes)

Triggers	Monitoring method	Corrective Actions	Timeframes for Corrective Actions
Trees and plantings showing signs of ill health or decline	• Photo monitoring and visual assessment • Quadrat surveys	• Identify and address the degrading factor (e.g. soil issue, pests, species failure). • Remove ill or dead plantings, undertake any remediation works and re-establishment planting. • Remedial plantings in areas of dieback to bolster survival rates to above 90%. • Introduce a different species *i.e.,* if one plant species consistently dies on a site, consider using in its place a species that is performing well. • Adjust planting methods such as using advanced tube stock or direct seeding, modifying site preparation techniques.	• MEO to engage the suitably qualified professional within one month of detection to implement corrective actions. • Implement recommended mitigation measures within six months of detection. • Remove ill or dead plantings and undertake remediation works within six months of detection.
WONS not reduced to 5% cover by end of Year 2 and not maintained below 5% for life of offset	• Photo monitoring and visual assessment • Quadrat surveys • MHQA surveys	• Immediately treat all WONS, particularly Lantana camara, with delicate methods to avoid impacts to restoration works (mechanically or chemically dependent on circumstances). • Undertake an investigation of the potential source point of seeding. • Additional treatment and removal works are to be followed up during the next potential growth period to avoid any regeneration and potential seeding events. • Modify weed management techniques or frequency.	• Within three months of detection, noting that treatment during non-growth periods may be ineffective and are best targeted during growth periods for greater effectiveness. • Within three months of detection. • Within six months of initial detection.

Triggers	Monitoring method	Corrective Actions	Timeframes for Corrective Actions
Plant failure (>10% of stock) during the establishment period (2 – 5 years)	• Photo monitoring and visual assessment • Quadrat surveys	*Identification of issue* • Identify and address the degrading factor (e.g. soil issue, pests, species failure). *Follow-up procedure* • Remove ill or dead plantings, undertake any remediation works and re-establishment planting. • Remedial plantings in areas of dieback to bolster survival rates to above 90%. • Undertake soil testing to determine what rate of soil ameliorants or fertilizers may be required to improve the chemical balance of the soils for improved plant growth. • Introduce a different species *i.e.,* if one plant species consistently dies on a site, consider using in its place a species that is performing well. • Adjust planting methods such as using advanced tube stock or direct seeding, modifying site preparation techniques. • Should the planting fail again, the contractor is to engage a suitably qualified professional to identify the likely cause of plant failure.	*Identification of issue* • Rapid identification of issue within one month of detection. *Follow-up procedure* • Within three months or the next appropriate planting period (whichever comes first) of detection. • Apply in alignment with the recommendations made by the suitably qualified rehabilitation contractor and RMP.
Coarse woody debris is failing to become present naturally	• MHQA surveys	• The selective removal of limbs, shrubs, or trees (particularly from the shrub layer were forming dense thickets)	• At the 5, 10, 15 and 20 year MHQA monitoring events.

Triggers	Monitoring method	Corrective Actions	Timeframes for Corrective Actions
		• Importation of felled native timber from known impact areas where it would ordinarily be mulched and sent to land fill	
Growth rates not as expected	• Photo monitoring and visual assessment • Quadrat surveys • MHQA surveys	• Engage a suitably qualified professional to review the plantings and advise on reason for growth rate and methods to increase growth rates through other interventions. • Undertake soil testing to determine what rate of soil ameliorants or fertilizers may be required to improve the chemical balance of the soils for improved plant growth.	• Within three months of detection
Stochastic or nuisance events	• Regular site inspections by Offset Provider	• While such events (e.g. Fire, flood, drought, vandalism etc) are rare and can be managed by the contractor, where events take place, rectification works are required, to be guided by the relevant plan. • An event may be considered an incident where reporting to the DCCEEW is required.	• Rectification works are to be implemented within one month of the event. • Incidents to be reported to the DCCEEW according to timeframes specified within approval.
Ongoing presence of pest fauna (e.g. wild dogs) leading to destruction of regenerating habitat or MNES mortality attributed to feral animals	• Pest management • Photo monitoring and visual assessment • Quadrat surveys • MHQA surveys	• Where recurrent pest animal species are detected through prescribed camera monitoring events, engage pest management contractor to increase frequency and management techniques to target particular pest species. • If pest presence continues despite targeted management, review PMP to determine if management measures	• Within three months of continued presence identification.

Triggers	Monitoring method	Corrective Actions	Timeframes for Corrective Actions
		should be revised to include more site specific measures including targeted baiting and/or trapping.	
Monitoring and reporting illustrates that **Environmental Outcomes**, **Completion Criteria** and **Performance Indicators** under the RMP are not being achieved or are unlikely to be achieved by the end of the 20 year management timeframe and other corrective actions are not showing success	• Photo monitoring and visual assessment • Quadrat surveys • MHQA surveys	• Review corrective actions implemented to date and determine if these can be repeated or modified to achieve outcomes. • Consider extending offset timeframe to meet completion criteria. • Commence a review of the OMP and subsidiary plans where applicable (RMP, PMP, BMP). • Revise plans where appropriate and submit to the Minister for approval where required.	• Within six months of detection.

9. RISK MANAGEMENT

A limited number of risks associated with climate change, pest control, large scale rehabilitation and grazing land uses are evaluated for the Offset property. Risks are generally described and assessed against the likelihood and consequence model outlined in the Commonwealth Government's Department of Environment – *Environmental Management Plan Guidelines* (2014). The following risk factors are considered in more detail in this OMP:

- Risk 1: Wildfire;
- Risk 2: Drought;
- Risk 3: Shifting habitat range;
- Risk 4: Plant stock failure;
- Risk 5: Feral animal control;
- Risk 6: Weeds of National Environmental Significance increased infestations; and
- Risk 7: Livestock control and access and trespass management.

Table 51: Risk Rating Table (DAWE, 2022)

RISK MATRIX	
Likelihood (L): A qualitative measure of likelihood how likely is it that this event/circumstances will occur both before and 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
Consequence (C): Qualitative measure of what will be the consequence/result if the issue does occur	
Minor	Minor incident of environmental damage that can be reversed (*e.g. short-term delays to achieving strategy objectives, implementing low-cost, well-characterised corrective actions*)
Moderate	Isolated but substantial instances of environmental damage that could be reversed with intensive efforts (*e.g. short-term delays to achieving strategy objectives, implementing well-characterised, high cost/effort corrective actions*)
High	Substantial instances of environmental damage that could be reversed with intensive efforts (*e.g. medium-long term delays to achieving objectives, implementing uncertain, high-cost/effort corrective actions*)
Major	Major loss of environmental amenity and real danger of continuing (*e.g. strategy objectives are unlikely to be achieved, with significant legislative, technical, ecological and/or administrative barriers to attainment that have no evidenced mitigation strategies*)
Critical	Severe widespread loss of environmental amenity and irrecoverable environmental damage (*e.g. strategy objectives are unable to be achieved, with no evidenced mitigation strategies*)
Final Risk Rating (R): A function of multiplying Likelihood (L) and Consequence (C)	

		Consequence				
		Minor	Moderate	High	Major	Critical
Likelihood	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

RISK 1: WILDFIRE

The Rosevale offset property retains limited existing vegetation, however, given its historical use as a native plantation site, it is reflected as high and very high-risk fuel loads for wildfire in both State Government and Scenic Rim Regional Council mapping (**Figure 14**). The last recorded bushfire within the vicinity of the offset property occurred in September 2023 approximately 3.5 km north-west of ROA 4. The bushfire was contained by Queensland Fire and Emergency Services (QFES) with no recorded damage to people or property. The ROA 4 was not impacted by this bushfire.

The ROA 4 offset largely open pastureland interspersed with scattered trees and regrowth vegeation, and includes a system of boundary line firebreaks and access tracks for the protection of stock and farming infrastructure. This fire management system will be maintained as the offset property transitions from open pasture to MNES habitat restoration as specific offset activities are sequentially completed.

The overall assessment of bushfire risk is that their occurrence is **unlikely** within the life of the offset and consequences of such an event would be **moderate**. Without intervention and management, bushfire is evaluated as a **low risk** to this offset project. Refer to **Table 52** for the initial risk rating calculation.

Table 52: Bushfire Risk Rating (Initial Risk Rating)

Final Risk Rating (R): A function of multiplying Likelihood (L) and Consequence (C)						
		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

Through the implementation of the management actions listed in **Section 7** and corrective actions listed in **Section 8**, the residual risk rating for this offset project is that it is **rare** that it would occur within the life of the offset and the consequences of such an event would be **moderate**. With intervention and management, the residual risk of a bushfire is evaluated as a **low risk** to this offset project. Refer to **Table 53** for the residual risk rating calculation.

Table 53: Bushfire Risk Rating (Residual Risk Rating)

Final Risk Rating (R): A function of multiplying Likelihood (L) and Consequence (C)						
		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

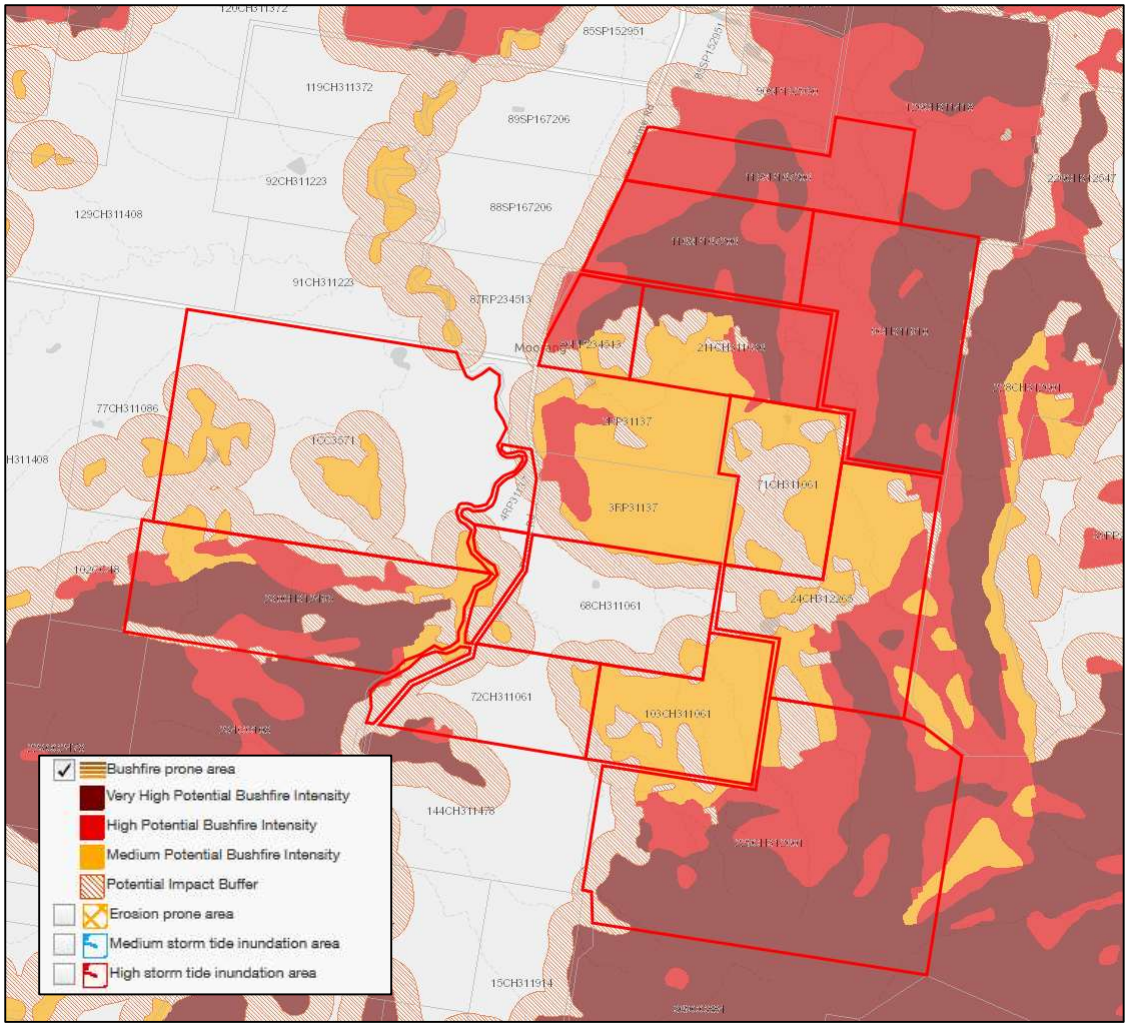

Figure 14: State Planning Policy bushfire hazard mapping (source: Queensland Government 2023)

RISK 2: DROUGHT

In May 2019 the Queensland Government declared the Scenic Rim Regional Council amongst a number of Local Government Areas as a drought area for the purposes of accessing funding and concessions for rural land holders. As of November 2023, this drought declaration has been removed as a result of the last few years of La Nina weather events, however, it remains that the Scenic Rim region has previously undergone significant drought.

On average yearly rainfall received in Boonah (nearest rain data collection centre) totals 741.0 mm. However as of November 2023 only 448.8 mm of rainfall has been recorded throughout the local area, well below the median yearly average. In contrast, the year of 2020 resulted in 786.4.00 mm of rain recorded, while 2021 resulted in 1,387.6 mm and 2022 resulted in 1556.2 mm.

The Climate Change Adaptation Strategies for the Koala prepared by Christine Adams-Hosking concluded that the highest probability of koala presence occurred at a mean annual rainfall of 700mm (Adams-Hosking et al. 2011). Therefore, despite potential drought conditions, the offset property rainfall is not significantly lower than the optimal range to support MNES presence.

The overall assessment of drought risk is that its occurrence is **likely** within the life of the offset and consequences of such an event would be **moderate**. Without intervention and management, drought is evaluated as a **medium risk** to this offset project. Refer to **Table 54** for the initial risk rating calculation.

Table 54: Drought Risk Rating (Initial Risk Rating)

Final Risk Rating (R): A function of multiplying Likelihood (L) and Consequence (C)						
		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

Mitigation measures to reduce the risk of drought impacts on the Rosevale offset property include:

- Ensure offset design includes restoration and connection to higher moisture content soils associated with gully lines;
- Maintain site dams and waterbodies for use in offset MNES habitat restoration activities and as water sources for native animals; and
- Consider small 'turkey' dams as part of upper ridge rehabilitation for the purposes of water access for fauna and the creation of patches of high moisture soils and vegetation.

Through the implementation of the mitigation measures listed above, the residual risk rating for this offset project is that it is **likely** that it would occur within the life of the offset and the consequences of such an event

would be **moderate**. With intervention and management, the residual risk of a drought is evaluated as a **medium risk** to this offset project. Refer to **Table 55** for the residual risk rating calculation.

Table 55: Drought Risk Rating (Residual Risk Rating)

Final Risk Rating (R): A function of multiplying Likelihood (L) and Consequence (C)						
		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

RISK 3: SHIFTING HABITAT RANGE

A number of contemporary case studies and research papers have investigated the combined weather characteristics of climate change on the current and future distribution of suitable Koala habitat into the future. Koalas are considered to be at risk of these factors because of their low tolerance to adapt to environmental changes combined with the number of existing non-climatic related threats already well documented. More recently both species and their habitat have been affected nationally by the 2019-2020 bushfires. GHFF are also considered to be affected by climate change, however, most studies relate to the increased temperatures at the camp and roosting sites, with less material available on their foraging range. The proposed offset provides foraging habitat and thus not directly influence temperatures at the roosting locations, which periodically shift for a range of factors.

The Climate Change Adaptation Strategies for the Koala by Christine Adams-Hosking applied climate change distribution models for the koala and five of its essential eucalypt food trees to a conservation prioritisation framework ('Zonation'), to determine which Queensland local government areas (LGAs) were the highest priority for koala conservation and adaptation. The study included current (2011) and future predicted koala habitat distribution in 2070 showing a substantial migration eastward. The study further concludes that:

"*The highest probability of koala presence occurred at a mean maximum summer temperature of approximately 27oC and a mean annual rainfall of approximately 700 mm" (Adams-Hosking, C., Grantham, H. S., Rhodes, J.R., McAlpine, C. and Patrick T. Moss (2011). Modelling climate-change-induced shifts in the distribution of the koala. Wildlife Research, 38, 122–130).*

As previously stated, the Rosevale offset property average rainfall in 2023 thus far is 448.8 mm, down on the annual rainfall average of 741 mm. However, these results have occurred during a time of El Niño weather event which brings expected lower than average rainfalls. Additionally, the mean recorded minimum and maximum annual temperatures for the region are 13.1°C to 27.1°C thus even with predicted temperature increases the Rosevale offset property would remain around the noted 27°C mean maximum parameter of the study. The land is also located within the current and 2070 Koala habitat distribution maps based on the A1F1 climate change scenario (Adams-Hosking, et al. 2011).

At the site scale the offset design is founded in the re-establishment of connected Koala habitat along gully lines and through higher moisture content soils. The design will connect existing low range and foothill habitat with gully lines and contiguous koala habitat within a known biodiversity corridor which contains all necessary habitat criteria.

The overall assessment of shifting habitat range risk is that its occurrence is **unlikely** within the life of the offset and consequences of such an event would be **high**. Without intervention and management, shifting habitat range is evaluated as a **low risk** to this offset project. Refer to **Table 56** for the initial risk rating calculation.

Table 56: Shifting Habitat Range Risk Rating (Initial Risk Rating)

Final Risk Rating (R): A function of multiplying Likelihood (L) and Consequence (C)						
		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

Mitigation measures to minimise the risk of shifting habitat range on the Rosevale offset property include implementing the offset design described above.

Through the implementation of the measures listed above, the residual risk rating for this offset project is that it is **unlikely** that it would occur within the life of the offset and the consequences of such an event would be **high**. With intervention and management, the residual risk of a shifting habitat range is evaluated as a **low risk** to this offset project. Refer to **Table 57** for the residual risk rating calculation.

Table 57: Shifting Habitat Range Risk Rating (Residual Risk Rating)

Final Risk Rating (R): A function of multiplying Likelihood (L) and Consequence (C)						
		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

RISK 4: PLANT STOCK FAILURE

The entirety of the ROA 4 requires significant MNES habitat restoration activities. In projects that include wholesale restorations works, the risk exists for planting stock to fail in large volumes due to:

- Poor soil quality or incompatible match of soils to replanted vegetation types;
- Weather related impacts – frost / prolonged dry periods, excessive heat or cool periods;
- Poor quality planting stock or the sourcing of planting stock from a different geographic region; and
- Lack of appropriate planting area preparation – weed removal / pasture seed removal / cultivation, etc.

The majority of these challenges are expected to be managed through the use of experienced bushland regeneration experts and contractors with relevant insurance and payment retentions. Failure of planting stock is primarily an economic impact for this project as the ROA 4 will not achieve committed condition improvement and habitat expansion targets without rectification of planting works.

The overall assessment of plant stock failure risk is that its occurrence is **possible** within the life of the offset and consequences of such an event would be **major**. Without intervention and management, plant stock failure is evaluated as a **high risk** to this offset project. Refer to **Table 58** for the calculation of risk rating.

Table 58: Plant Stock Failure Risk Rating (Initial Risk Rating)

Final Risk Rating (R): A function of multiplying Likelihood (L) and Consequence (C)						
		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

Through the implementation of the management actions detailed in **Section 7** and corrective actions listed in **Section 8** the residual risk rating for this offset project is that it is **unlikely** that it would occur within the life of the offset and the consequences of such an event would be **moderate**. With intervention and management, the residual risk of plant stock failure is evaluated as a **low risk** to this offset project. Refer to **Table 59** for the residual risk rating calculation.

Table 59: Plant Stock Failure Risk Rating (Residual Risk Rating)

Final Risk Rating (R): A function of multiplying Likelihood (L) and Consequence (C)						
		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

RISK 5: FERAL ANIMAL CONTROL

The Department of Primary Industries (DPI) lists feral dogs as abundant and widespread throughout the Scenic Rim region. Wild dogs (*Canis familiaris dingo, Canis familiaris dingo X Canis familiaris, Canis familiaris*) are listed as declared pest animals by Scenic Rim Regional Council, with the local council website documenting that the impact of wild dog activity has increased in the past 10 years due mainly to the increasing population in the region. Further, residents are increasingly engaged in raising livestock and poultry, resulting in a readily available food sources for wild dogs (SRRC 2021). The SRRC currently runs baiting, shooting and trapping programs throughout the region. Evidence of wild dog predation on livestock was recorded on the offset property. Research by Pest Animal Management QLD (2020) found that the Scenic Rim region contains an abundance of wild dogs, with evidence indicating that calf predation has increased significantly.

The overall assessment of feral animal control risk is that its occurrence is **possible** within the life of the offset and consequences of such an event would be **moderate**. Without intervention and management, feral animal control is evaluated as a **medium risk** to this offset project. Refer to **Table 60** for the calculation of risk rating.

Table 60: Feral Animal Control Risk Rating (Initial Risk Rating)

Final Risk Rating (R): A function of multiplying Likelihood (L) and Consequence (C)						
		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

Through the implementation of the management actions listed in **Section 7** and corrective actions listed in **Section 8** the residual risk rating for this offset project is that it is **possible** that it would occur within the life of the offset and the consequences of such an event would be **minor**. With intervention and management, the

residual risk of feral animal control is evaluated as a **low risk** to this offset project. Refer to **Table 61** for the residual risk rating calculation.

Table 61: Feral Animal Control Risk Rating (Residual Risk Rating)

Final Risk Rating (R): A function of multiplying Likelihood (L) and Consequence (C)						
		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

RISK 6: WEEDS OF NATIONAL SIGNIFICANCE INCREASED INFESTATIONS

Preliminary and baseline surveys and observations over the Rosevale offset property recorded a number of weed species, with the most prevalent and inhibitive to Koala movement and other threatened species habitat restoration being WONS species *Lantana camara*. Lantana is listed as a WONS by the Commonwealth Government. The Scenic Rim Region Biosecurity Plan 2023-2028 identifies Lantana camara as a key invasive species and details information and strategies for landholders to effectively manage the species.

The overall assessment of WONS increased infestation risk is that its occurrence is **highly likely** within the life of the offset and consequences of such an event would be **high**. Without intervention and management, WONS increased infestations is evaluated as a **high risk** to this offset project. Refer to **Table 62** for the calculation of risk rating.

Table 62: Weeds of National Significance Increased Infestations Risk Rating (Initial Risk Rating)

Final Risk Rating (R): A function of multiplying Likelihood (L) and Consequence (C)						
		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

Through the implementation of the management actions listed in **Section 7** and the corrective actions listed in **Section 8**, the residual risk rating for this offset project is that it is **unlikely** that it would occur within the life of the offset and the consequences of such an event would be **minor**. With intervention and management, the residual risk of increased infestations of WONS is evaluated as a **low risk** to this offset project. Refer to **Table 63** for the residual risk rating calculation.

Table 63: Weeds of National Significance Increased Infestations Risk Rating (Residual Risk Rating)

Final Risk Rating (R): A function of multiplying Likelihood (L) and Consequence (C)						
		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

RISK 7: LIVESTOCK CONTROL AND ACCESS AND TRESPASS MANAGEMENT

The Rosevale offset property has historically been utilised for agricultural uses, including cattle grazing. The property has retained extensive pasture paddocks consisting of native grasses and artificially improved introduced pastures. It is generally known that cattle farming can have adverse effects on conservation due to re-engineering the landscape, removing potential for native species regrowth and attraction of predator species.

Grazing cattle will be excluded from the ROA 4 through the installation of property-wide stock exclusion fencing which will also function to prevent unauthorised access and activities.

The overall assessment of livestock control and access and trespass management risk is that its occurrence is **possible** within the life of the offset and consequences of such an event would be **high**. Without intervention and management, livestock control and access and trespass management are evaluated as a **medium risk** to this offset project. Refer to **Table 64** for the calculation of risk rating.

Table 64: Livestock Control and Access and Trespass Management Risk Rating (Initial Risk Rating)

Final Risk Rating (R): A function of multiplying Likelihood (L) and Consequence (C)						
		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

Through the implementation of the management actions listed in **Section 7** and corrective actions listed in **Section 8**, the residual risk rating for this offset project is that it is **unlikely** that it would occur within the life of the offset and the consequences of such an event would be **minor**. With intervention and management, the residual risk of unauthorised livestock control, access or trespass is evaluated as a **low risk** to this offset project. Refer to **Table 65** for the residual risk rating calculation.

Table 65: Livestock Control and Access and Trespass Management Risk Rating (Residual Risk Rating)

Final Risk Rating (R): A function of multiplying Likelihood (L) and Consequence (C)						
		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

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APPENDIX A: MNES HABITAT QUALITY GAIN TABLES

Table 1: AU1 Management Summary Koala – Non-remnant Paddock RE 12.8.17/12.8.14 (ROA 4)

Attribute	Current Score	Year 5	Year 10	Year 15	Year 20	Time until estimated benefit	Justifications / Management Actions	Monitoring	Adaptive Management
Recruitment of woody perennial species	0	3	3	3	5	20 Years	Recruitment of a minimum of six tree species (>75% of the recruitment of woody perennial species in EDL benchmark) utilising the management actions 1, 3, 4, 5 and 6 outlined in **Table 4** and the management actions of the OMP.	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Recruitment was established to be '0'. If improvement towards 75% has not been achieved at the 10-year mark (with 28.5% recruitment being aimed for by year 10), then then remedial actions to improve recruitment will be applied. These include refining weed and fire control methods and increasing remedial plantings.
Native plant species richness – Trees	0	2.5	5	5	5	10 years	Establish a minimum of seven tree species (100% of the tree species richness benchmark). All the expected tree species to be present as a result of specific management actions, utilising the management actions 1, 3, 4, 5 and 6 outlined in **Table 4.**	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Tree species richness is currently at 7.14% of the benchmark. Recruitment of tree species is to be greater than 28.5% at 5 years or greater than 90% at 10 years (seven tree species), then remedial actions to improve the prospect of achieving 100% in 20 years will be applied. This may include remedial plantings of advanced stock or extending the life of the offset to reach minimum objectives.

Attribute	Current Score	Year 5	Year 10	Year 15	Year 20	Time until estimated benefit	Justifications / Management Actions	Monitoring	Adaptive Management
Native plant species richness – Shrubs	2.5	2.5	5	5	5	10 years	Establish a minimum of five shrub species (100% of the shrub species richness benchmark). All the expected shrub species to be present as a result of specific management actions, utilising the management actions 1, 3, 4, 5 and 6 outlined in **Table 4.**	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Shrub species richness is currently at 40% of the benchmark. Maintaining 40% of the benchmark by Year 5 has been set to check the progress of species richness. If the shrub species richness has not maintained 40% by year 5 and then greater than 90% at 10 years than remedial actions to improve the prospect of achieving 100% in 20 years will be applied. These include remedial plantings.
Native plant species richness – Grass	0	0	2.5	5	5	15 Years	All the expected grass species to be present as a result of specific management actions, utilising the management actions 1, 3, 4, 5 and 6 outlined in **Table 4.**	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Grass species richness is currently at 20.83% of the benchmark. If the grass species richness has not improved to greater than 90% at 15 years than remedial actions to improve the prospect of achieving 100% in 20 years will be applied. These include remedial plantings.
Native plant species richness – Forbs	0	0	2.5	5	5	15 Years	All the expected forb species to be present as a result of specific management actions, utilising the management actions 1,	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-	Forb species richness is currently at 9.26% of the benchmark. If the forb species richness has not improved to greater than 90% at 15 years, then

Attribute	Current Score	Year 5	Year 10	Year 15	Year 20	Time until estimated benefit	Justifications / Management Actions	Monitoring	Adaptive Management
							3, 4, 5 and 6 outlined in **Table 4.**	10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	remedial actions to improve the prospect of achieving 100% in 20 years will be applied. These include remedial plantings.
Tree Canopy Height	1.5	1.5	3	3	5	20 Years	A median tree height greater than 70% of the benchmark will be achieved as a result of the management actions 1, 3, 4, 5 and 6 outlined in **Table 4.**	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Tree canopy height is currently at 60.53% (EDL) and 0% (sub-canopy) of the benchmark. If the tree height has not transitioned towards 70% at year 15 than the prospect of extending the management period may be investigated. By Year 20 species plantings to be a minimum of 13.3 m height (70% of the tree canopy height benchmark).
Tree Canopy Coverage	1	1	2	2	5	20 Years	Canopy coverage to be greater than 50% of the benchmark will be achieved as a result of the management actions 1, 3, 4, 5 and 6 outlined in **Table 4.**	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Tree canopy cover is currently at 18.75% (EDL) and 0% (sub-canopy) of the benchmark. Recruitment of tree species is to be greater than 20% at 15 years. If canopy cover has not reached 30% at 15 years, then remedial actions to improve the prospect of achieving

Attribute	Current Score	Year 5	Year 10	Year 15	Year 20	Time until estimated benefit	Justifications / Management Actions	Monitoring	Adaptive Management
									50% in 20 years will be applied. This may include remedial plantings of advanced stock or extending the life of the offset to reach minimum objectives.
Shrub Canopy Coverage	0	0	3	5	5	15 Years	Shrub canopy coverage to reach greater than 50% of the benchmark will be achieved as a result of the management actions 1, 3, 4, 5 and 6 outlined in **Table 4.**	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Shrub canopy cover is currently at 9% of the benchmark. Recruitment of tree species is to be maintained at greater than 50% at 10 years. If it is not maintained at 50% at 10 years, then remedial actions to improve the prospect of maintaining 50% in 15 years will be applied. This may include remedial plantings of advanced stock or extending the life of the offset to reach minimum objectives.
Native Perennial Grass Cover	3	3	5	5	5	10 years	Native grass cover to achieve 100% of the benchmark by management actions 1, 3, 4, 5 and 6 outlined in **Table 4.**	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	It is anticipated that native perennial grass cover will achieve 100% of the benchmark by Year 10, currently reflecting 59.38% of the benchmark. If monitoring indicates native grass is not heading in an upward direction to 100% by Year 5 then remedial

Attribute	Current Score	Year 5	Year 10	Year 15	Year 20	Time until estimated benefit	Justifications / Management Actions	Monitoring	Adaptive Management
									actions will be applied. These include refining weed and fire control methods to ensure native grass cover is maintained.
Organic Litter	0	0	3	3	5	20 Years	Organic litter to be between 50 and 200% of the benchmark achieved as a result of the management actions 1, 3, 4, 5 and 6 outlined in **Table 4.**	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Organic litter is currently at 0% of the benchmark. If organic litter has not improved to greater than 25% at 15 years, then remedial actions to improve the prospect of achieving 50% in 20 years will be applied. These include refining weed and fire control methods to ensure organic litter is maintained.
Large Trees	5	5	5	5	5	Immediate	Between 0 and 50% of the benchmark for large trees will reached as a result of management actions 1, 3, 4, 5 and 6 outlined in **Table 4.**	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	As a result of large-scale historical clearing and on-going cropping and land grazing activities only 2 large trees are present within the AU1 area (8.33% of the benchmark). The large trees benchmark for the pre-clear regional ecosystem is 380 mm. It is estimated this would take longer than 20 years for the planted eucalypts to reach the large tree threshold, particularly

Attribute	Current Score	Year 5	Year 10	Year 15	Year 20	Time until estimated benefit	Justifications / Management Actions	Monitoring	Adaptive Management
									given that vegetation within lower rainfall regions tend to grow more slowly. However, the management actions applied on-site will establish a remnant ecosystem and protect an area in perpetuity where there is a high likelihood that large trees will establish.
Coarse Woody Debris	2	2	2	5	5	15 Years	Course woody debris greater than 50% and less than 200% of the benchmark will be achieved as a result of management actions 1, 3, 4, 5 and 6 outlined in **Table 4.**	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Coarse woody debris is currently 14.10% of the benchmark due to current pastoral practices. If monitoring indicates that coarse woody debris is not transitioning to between 50 and 200% by year 10 then remedial actions will be applied. These include a review of actions that impact on coarse woody debris such as fire regimes and importing native tree debris if necessary.
Weed Cover	0	5	10	10	10	10 Years	Weed coverage will reduce to less than 5% over the course of 10 years by the specific management actions, 3, 4, 5 and 6, outlined in	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects	Weed coverage is currently 80% of the benchmark. If improvement to 5% has not been achieved at the 10-year mark, then remedial actions to

Attribute	Current Score	Year 5	Year 10	Year 15	Year 20	Time until estimated benefit	Justifications / Management Actions	Monitoring	Adaptive Management
							Table 4 and following sections of this OMP.	to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	reduce weed cover will be applied. This would include refining weed control methods.
Quality and Availability of food and foraging habitat	1	1	5	5	10	20 Years	Quality and Availability of food and foraging habitat will be achieved as a result of management actions 1, 2, 3, 4, 5 and 6 outlined in **Table 4.**	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality and availability of food and foraging habitat is currently poor. All site condition remedial actions also apply to this criterium achieving a high rating.
Quality and Availability of Shelter	1	1	5	5	10	20 Years	Quality and Availability of shelter will be achieved as a result of management actions 1, 2, 3, 4, 5 and 6 outlined in **Table 4.**	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality and availability of shelter is currently poor. All site condition remedial actions also apply to this criterium achieving a high rating.
Site Condition Score	**17**	27.5	61	71	**90**				
Overall Site Condition Score out of 3	**0.51**	0.83	1.83	2.13	**2.70**				
Size of Patch	10	10	10	10	10	NA	NA	NA	NA
Connectedness	0	0	0	0	0	NA	NA	NA	NA
Context	2	2	2	2	2	NA	NA	NA	NA

Attribute	Current Score	Year 5	Year 10	Year 15	Year 20	Time until estimated benefit	Justifications / Management Actions	Monitoring	Adaptive Management
Ecological Corridors	0	0	0	0	0	NA	NA	NA	NA
Role of site location to species overall population in the state	5	5	5	5	5	Immediate	The role of the site location to species overall population is not anticipated to change.	NA	The role of the location to the species overall population in the state is not anticipated to change.
Threats to the species	7	7	7	7	7	Immediate	Threats to species will be reduced to less than 5% of the Year 1 baseline survey by specific management actions 2 & 6 outlined in **Table 4**.	Baseline attributes are established. This criterium is reliant upon the suppression and control of identified pest species on-site, in particular wild dogs and European fox. Pest monitoring will be evaluated as per the pest management program.	The control of pest species will suppress threats for the life of the offset, however, is not anticipated to provide a measurable uplift for the species.
Species Mobility Capacity	4	4	4	7	10	20 Years	Species mobility capacity will improve to limited restriction by specific management actions 1 through 6 outlined in **Table 4**.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Species mobility is currently restricted by the absence of habitat and presence of invasive flora and fauna. All site condition remedial actions, as well as threat reductions also apply to this criterium achieving a high rating.
Site Context Score	**28**	28	28	31	**34**				
Overall Site Context Score out of 3	**1.50**	1.50	1.50	1.66	**1.82**				

Attribute	Current Score	Year 5	Year 10	Year 15	Year 20	Time until estimated benefit	Justifications / Management Actions	Monitoring	Adaptive Management
Presence	5	5	5	10	10	15 Years	It is anticipated that under the management actions specified in management actions 1 to 6 outlined in **Table 4** Koala activity will be recorded on-site.	Baseline SAT attributes are established. Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Due to the very minimal vegetation present on-site SAT surveys indicated no presence of Koala within the ROA 4 offset boundaries. However, within the wider Rosevale Offset Property Koala have been recorded. Therefore, once the reconstruction plantings have reached sufficient heights and canopy connectivity is overall improved presence should significantly improve. All site condition remedial actions, as well as threat reductions also apply to this criterium achieving a high rating.
Usage	0	0	0	15	15	15 Years	It is anticipated that under the management actions specified in management actions 1 to 6 outlined in **Table 4** Koala activity will be recorded providing evidence of breeding as per the conservation advice.	Baseline SAT attributes are established. Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	SAT surveys currently indicate no usage of the assessment unit by Koala. If usage levels are not transitioning toward low level at the 10-year mark and habitat does not contain breeding values, then broader Koala population surveys will be undertaken to ascertain potential external causes and the

Attribute	Current Score	Year 5	Year 10	Year 15	Year 20	Time until estimated benefit	Justifications / Management Actions	Monitoring	Adaptive Management
									management actions re-visited accordingly.
Approximate Density	0	0	0	10	10	15 Years	It is anticipated that under the management actions specified in management actions 1 to 6 outlined in **Table 4** Koala activity will be recorded providing an approximate density level increase to low.	Baseline SAT attributes are established. Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	SAT surveys currently indicate no usage of the assessment unit by Koala. If usage levels are not transitioning toward low level at the 10-year mark, then broader Koala population surveys will be undertaken to ascertain potential external causes and the management actions re-visited accordingly. If Koala activity has not improved to low level by 20 years, then the management period may be extended, and further remedial actions applied in consideration of other scoring improvements relative to potential external factors impacting on Koala activity.
Role of the Population	5	5	5	5	5	Immediate	N/A not anticipated to change	N/A not anticipated to change	N/A not anticipated to change
SSR Score out of 70	**10**	10	10	40	**40**				
SSR Score out of 4	**0.57**	0.57	0.57	2.29	**2.29**				

Attribute	Current Score	Year 5	Year 10	Year 15	Year 20	Time until estimated benefit	Justifications / Management Actions	Monitoring	Adaptive Management
Total Habitat Quality Scores	2.58	2.90	3.90	6.08	6.81				

Table 2: AU2 Management Summary Koala – Sparse Regrowth RE 12.8.17/12.8.14 (ROA 4)

Attribute	Current Score	Year 5	Year 10	Year 15	Year 20	Time until estimated benefit	Justifications / Management Actions	Monitoring	Adaptive Management
Recruitment of woody perennial species	5	5	5	5	5	Immediate	Recruitment of a minimum of six tree species (>75% of the recruitment of woody perennial species in EDL benchmark) utilising the management actions 1, 3, 4, 5 and 6 outlined in **Table 4** and the management actions of the OMP.	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Recruitment was established to be 100%. Maintain at 75% the 10-year mark (with 28.5% recruitment being aimed for by year 10), then then remedial actions to improve recruitment will be applied. These include refining weed and fire control methods and increasing remedial plantings.
Native plant species richness – Trees	2.5	2.5	5	5	5	10 years	Establish a minimum of seven tree species (100% of the tree species richness benchmark). All the expected tree species to be present as a result of specific management actions, utilising the management actions 1, 3, 4, 5 and 6 outlined in **Table 4.**	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Tree species richness is currently at 71.43% of the benchmark. Recruitment of tree species is to be greater than 28.5% at 10 years as specified above. Maintain a score of 2.5 has also been set at Year 5 to check the progress of canopy species richness. If the sub-canopy layer species richness has not improved to greater than 90% at 10 years (seven tree species), then remedial actions to improve the prospect of achieving 100% in 20 years will be applied. This

Attribute	Current Score	Year 5	Year 10	Year 15	Year 20	Time until estimated benefit	Justifications / Management Actions	Monitoring	Adaptive Management
									may include remedial plantings of advanced stock or extending the life of the offset to reach minimum objectives.
Native plant species richness – Shrubs	2.5	2.5	5	5	5	10 years	Establish a minimum of five shrub species (100% of the shrub species richness benchmark). All the expected shrub species to be present as a result of specific management actions, utilising the management actions 1, 3, 4, 5 and 6 outlined in **Table 4.**	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Shrub species richness is currently at 80% of the benchmark. Maintaining above 40% of the benchmark by Year 5 has been set to check the progress of species richness. If the shrub species richness has not maintained 40% by year 5 and then greater than 90% at 10 years than remedial actions to improve the prospect of achieving 100% in 20 years will be applied. These include remedial plantings.
Native plant species richness – Grass	2.5	2.5	2.5	5	5	15 Years	All the expected grass species to be present as a result of specific management actions, utilising the management actions 1, 3, 4, 5 and 6 outlined in **Table 4.**	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Grass species richness is currently at 41.67% of the benchmark. If the grass species richness has not improved to greater than 90% ay 15 years than remedial actions to improve the prospect of achieving 100% in 20 years will be applied. These include remedial plantings.

Attribute	Current Score	Year 5	Year 10	Year 15	Year 20	Time until estimated benefit	Justifications / Management Actions	Monitoring	Adaptive Management
Native plant species richness – Forbs	0	0	2.5	5	5	15 Years	All the expected forb species to be present as a result of specific management actions, utilising the management actions 1, 3, 4, 5 and 6 outlined in **Table 4.**	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Forb species richness is currently at 0.00% of the benchmark. If the forb species richness has not improved to greater than 95% at 15 years, then remedial actions to improve the prospect of achieving 100% in 20 years will be applied. These include remedial plantings.
Tree Canopy Height	5	5	5	5	5	Immediate	A median tree height greater than 70% of the benchmark will be achieved as a result of the management actions 1, 3, 4, 5 and 6 outlined in **Table 4.**	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Tree canopy height is currently at 110.53% (EDL) and 110% (sub-canopy) of the benchmark. If the tree height has not maintained above 70% at year 15 than the prospect of extending the management period may be investigated. By Year 20 species plantings to be a minimum of 13.3 m height (70% of the tree canopy height benchmark).
Tree Canopy Coverage	2.5	2.5	2.5	2.5	5	20 Years	Canopy coverage to be greater than 50% of the benchmark will be achieved as a result of the management	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-	Tree canopy cover is currently at 46.67% (EDL) and 218.50% (sub-canopy) of the benchmark. Recruitment of tree species is to be

Attribute	Current Score	Year 5	Year 10	Year 15	Year 20	Time until estimated benefit	Justifications / Management Actions	Monitoring	Adaptive Management
							actions 1, 3, 4, 5 and 6 outlined in **Table 4.**	10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	greater than 20% at 15 years. If canopy cover has not maintained above 30% at 15 years, then remedial actions to improve the prospect of achieving 50% in 20 years will be applied. This may include remedial plantings of advanced stock or extending the life of the offset to reach minimum objectives.
Shrub Canopy Coverage	5	5	5	5	5	Immediate	Shrub canopy coverage to reach greater than 50% of the benchmark will be achieved as a result of the management actions 1, 3, 4, 5 and 6 outlined in **Table 4.**	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Shrub canopy cover is currently at 62% of the benchmark. Recruitment of tree species is to be maintained at greater than 50% at 10 years. If it is not maintained at 50% at 10 years, then remedial actions to improve the prospect of maintaining 50% in 15 years will be applied. This may include remedial plantings of advanced stock or extending the life of the offset to reach minimum objectives.
Native Perennial Grass Cover	5	5	5	5	5	Immediate	Native grass cover to achieve 100% of the benchmark by management actions 1, 3, 4, 5 and 6 outlined in **Table 4.**	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-	It is anticipated that native perennial grass cover will be maintained above 100% of the benchmark by Year 10. If monitoring indicates

Attribute	Current Score	Year 5	Year 10	Year 15	Year 20	Time until estimated benefit	Justifications / Management Actions	Monitoring	Adaptive Management
								10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	native grass is not maintained at or above 100% by Year 5 then remedial actions will be applied. These include refining weed and fire control methods to ensure native grass cover is maintained.
Organic Litter	5	5	5	5	5	Immediate	Organic litter to be between 50 and 200% of the benchmark achieved as a result of the management actions 1, 3, 4, 5 and 6 outlined in **Table 4.**	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Organic litter is currently at 61.90% of the benchmark. If organic litter is not maintained to greater than 25% at 15 years, then remedial actions to improve the prospect of achieving 50% in 20 years will be applied. These include refining weed and fire control methods to ensure organic litter is maintained.
Large Trees	5	5	5	5	5	Immediate	Between 0 and 50% of the benchmark for large trees will reached as a result of management actions 1, 3, 4, 5 and 6 outlined in **Table 4.**	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	10 large trees are present within the AU2 area (41.67% of benchmark). It is estimated this would take longer than 20 years for regrowth and planted eucalypts to reach the large tree threshold, particularly given that vegetation within lower rainfall regions tend to grow more slowly.

Attribute	Current Score	Year 5	Year 10	Year 15	Year 20	Time until estimated benefit	Justifications / Management Actions	Monitoring	Adaptive Management
									However, the management actions applied on-site will establish a remnant ecosystem and protect an area in perpetuity where there is a high likelihood that large trees will establish.
Coarse Woody Debris	5	5	5	5	5	Immediate	Course woody debris greater than 50% and less than 200% of the benchmark will be achieved as a result of management actions 1, 3, 4, 5 and 6 outlined in **Table 4.**	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Coarse woody debris is currently 50.43% of the benchmark. If monitoring indicates that coarse woody debris does not maintain between 50 and 200% by year 10 then remedial actions will be applied. These include a review of actions that impact on coarse woody debris such as fire regimes and importing native tree debris if necessary.
Weed Cover	5	10	10	10	10	5 Years	Weed coverage will reduce to less than 5% over the course of 10 years by the specific management actions, 3, 4, 5 and 6, outlined in **Table 4.**	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Weed coverage is currently 25% of the benchmark. If 5% has not been achieved at the 10-year mark, then remedial actions to reduce weed cover will be applied. This would include refining weed control methods.

Attribute	Current Score	Year 5	Year 10	Year 15	Year 20	Time until estimated benefit	Justifications / Management Actions	Monitoring	Adaptive Management
Quality and Availability of food and foraging habitat	5	5	5	5	10	20 Years	Quality and Availability of food and foraging habitat will be achieved as a result of management actions 1, 2, 3, 4, 5 and 6 outlined in **Table 4.**	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality and availability of food and foraging habitat is currently moderate. All site condition remedial actions also apply to this criterium achieving a high rating.
Quality and Availability of Shelter	5	5	5	5	10	20 Years	Quality and Availability of shelter will be achieved as a result of management actions 1, 2, 3, 4, 5 and 6 outlined in **Table 4.**	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality and availability of shelter is currently moderate. All site condition remedial actions also apply to this criterium achieving a high rating.
Site Condition Score	60	65	72.5	77.5	90				
Overall Site Condition Score out of 3	1.80	1.95	2.18	2.33	2.70				
Size of Patch	10	10	10	10	10	NA	NA	NA	NA
Connectedness	0	0	0	0	0	NA	NA	NA	NA
Context	2	2	2	2	2	NA	NA	NA	NA
Ecological Corridors	0	0	0	0	0	NA	NA	NA	NA
Role of site location to species overall	5	5	5	5	5	Immediate	The role of the site location to species	NA	The role of the location to the species overall population in the state is

Attribute	Current Score	Year 5	Year 10	Year 15	Year 20	Time until estimated benefit	Justifications / Management Actions	Monitoring	Adaptive Management
population in the state							overall population is not anticipated to change.		not anticipated to change.
Threats to the species	7	7	7	7	7	Immediate	Threats to species will be reduced to less than 5% of the Year 1 baseline survey by specific management actions 2 & 6 outlined in **Table 4**.	Baseline attributes are established. This criterium is reliant upon the suppression and control of identified pest species on-site, in particular wild dogs and European fox. Pest monitoring will be evaluated as per the pest management program.	The control of pest species will suppress threats for the life of the offset, however, is not anticipated to provide a measurable uplift for the species.
Species Mobility Capacity	7	7	7	7	10	20 Years	Species mobility capacity will improve to limited restriction by specific management actions 1 through 6 outlined in **Table 4**.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Species mobility is currently restricted by the absence of habitat and presence of invasive flora and fauna. All site condition remedial actions, as well as threat reductions also apply to this criterium achieving a high rating.
Site Context Score	**31**	31	31	31	**34**				
Overall Site Context Score out of 3	**1.66**	1.66	1.66	1.66	**1.82**				
Presence	5	5	5	10	10	15 Years	It is anticipated that under the management actions specified in management actions 1 to 6 outlined in **Table 4** Koala activity will be recorded on-site.	Baseline SAT attributes are established. Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Due to the very minimal vegetation present on-site SAT surveys indicated no presence of Koala within the ROA 4 offset boundaries. However, within the

Attribute	Current Score	Year 5	Year 10	Year 15	Year 20	Time until estimated benefit	Justifications / Management Actions	Monitoring	Adaptive Management
									wider Rosevale Offset Property Koala have been recorded. Therefore, once the reconstruction plantings have reached sufficient heights and canopy connectivity is overall improved presence should significantly improve. All site condition remedial actions, as well as threat reductions also apply to this criterium achieving a high rating.
Usage	0	0	0	15	15	15 Years	It is anticipated that under the management actions specified in management actions 1 to 6 outlined in **Table 4** Koala activity will be recorded providing evidence of breeding as per the conservation advice.	Baseline SAT attributes are established. Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	SAT surveys currently indicate no usage of the assessment unit by Koala. If usage levels are not transitioning toward low level at the 10-year mark and habitat does not contain breeding values, then broader Koala population surveys will be undertaken to ascertain potential external causes and the management actions re-visited accordingly.
Approximate Density	0	0	0	10	10	15 Years	It is anticipated that under the management actions specified in management actions 1 to 6 outlined in **Table 4**	Baseline SAT attributes are established. Koala SAT surveys will be completed by suitably qualified	SAT surveys currently indicate no usage of the assessment unit by Koala. If usage levels are not transitioning toward

Attribute	Current Score	Year 5	Year 10	Year 15	Year 20	Time until estimated benefit	Justifications / Management Actions	Monitoring	Adaptive Management
							Koala activity will be recorded providing an approximate density level increase to low.	professionals at 5, 10, 15 and 20 years.	low level at the 10-year mark, then broader Koala population surveys will be undertaken to ascertain potential external causes and the management actions re-visited accordingly. If Koala activity has not improved to low level by 20 years, then the management period may be extended, and further remedial actions applied in consideration of other scoring improvements relative to potential external factors impacting on Koala activity.
Role of the Population	5	5	5	5	5	Immediate	N/A not anticipated to change	N/A not anticipated to change	N/A not anticipated to change
SSR Score out of 70	10	10	10	40	40				
SSR Score out of 4	0.57	0.57	0.57	2.29	2.29				
Total Habitat Quality Scores	4.03	4.18	4.41	6.27	6.81				

Table 3: AU1 Management Summary GHFF – Non-remnant Paddock RE 12.8.17/12.8.14 (ROA 4)

	T2	T3	Average Score	AU Score	Year 5 score	Year 10 score	Year 15 score	Year 20 score	Justification / Management Actions / Timing	Monitoring	KPIs and Adaptive Management
	Raw Data	Raw Data									
Vegetation Condition	Cat X	Cat X	**5**	**5**	**5**	**5**	**10**	**10**	It is expected that with management actions 1, 3, 4, 5 and 6, outlined in **Table 4** the assessment unit 'Vegetation Condition' will readily attain regrowth status within 15 years and on the way to remnant status by Year 20.	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	The assessment unit is to reach regrowth status in 15 years and be progressing towards remnant status by 20 years as per VMA definitions, which require 70% of height and 50% of expected cover to be reached. If the vegetation is not progressing toward regrowth status at 10 years, then remedial actions will be applied. This may include remedial plantings of advanced stock or extending the life of the offset to reach minimum objectives.
Species Richness	1	0	**0.5**	**5**	**10**	**10**	**20**	**20**	It is expected that with management actions 1, 3, 4 & 5 outlined in **Table 4** the assessment unit 'Species Richness' will improve to at least two foraging species by year 5 and seven by year 15 which will then be maintained through to year 20.	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Species richness within the assessment unit is to achieve at least three foraging species by year 5 and seven by year 15. If the species diversity does not reflect this requirement at year 10, then remedial actions will be applied. This may include remedial plantings of advanced stock or extending the life of the offset to reach minimum objectives.
Flower Score	0.64	0	**0.32**	**5**	**8**	**8**	**8**	**8**	It is expected that with management actions, 1, 3, 4, 5 & 6, outlined in **Table 4** the assessment unit 'Flower Score' will increase by Year 5 with the establishment of plantings.	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Increase of flower scores by year 5 will be achieved by increasing winter flowering and foraging species on-site by two. If an increase in winter flowering species does not reflect this requirement at year 5, then remedial actions will be applied. These include remedial plantings of advanced stock.

	T2	T3	Average Score	AU Score	Year 5 score	Year 10 score	Year 15 score	Year 20 score	Justification / Management Actions / Timing	Monitoring	KPIs and Adaptive Management
	Raw Data	Raw Data									
Timing of Biological Shortages	8.5	0	**4.25**	**4.25**	**10**	**10**	**10**	**10**	It is expected that with management actions 1, 3, 4, 5 & 6 outlined in **Table 4** the assessment unit 'Timing of Biological shortages' will improve to cover all shortages based on flora species presence by year 5.	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	No biological shortages to be present after trees meet semi-mature state (10 years). If the species present do not reflect this requirement at year 10, then remedial actions will be applied. This may include remedial plantings of advanced stock or extending the life of the offset to reach minimum objectives.
Quality of Foraging Habitat	1	0	**0.5**	**5**	**10**	**10**	**20**	**20**	It is expected that with management actions 1, 3, 4, 5 & 6 outlined in **Table 4** will result in the increase of two foraging habitat tree species by year 5 and seven by year 15 which will then be maintained through to year 20.	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality of foraging habitat within the assessment unit is to achieve at least two species by year 5 and five by year 15. If the species present do not reflect this requirement at year 10, then remedial actions will be applied. This may include remedial plantings of advanced stock or extending the life of the offset to reach minimum objectives.
Non-native Plant Cover	75%	85%	**70.00%**	**1**	**10**	**20**	**20**	**20**	Non-native plant cover within AU1 is moderate. It is anticipated that the weed management actions of 3, 4, 5 and 6 outlined in **Table 4** and following sections of this OMP will improve non-native plant cover to below 5% within 10 years.	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	If improvement to 25% has not been achieved by Year 5 and <5% by Year 10 then remedial actions to reduce weed cover will be applied. These include refining the weed control methods.
Site Condition Score				**25.25**	**53**	**63**	**88**	**88**			

	T2	T3	Average Score	AU Score	Year 5 score	Year 10 score	Year 15 score	Year 20 score	Justification / Management Actions / Timing	Monitoring	KPIs and Adaptive Management
	Raw Data	Raw Data									
MAX Site Condition Score				100	100	100	100	100			
Site Condition Score - out of 4				1.01	2.12	2.52	3.52	3.52			
Size of patch	Patch size is greater than 200ha	Patch size is greater than 200ha	10	10	10	10	10	10	NA	NA	NA
Connectedness	No active camps within 20km	No active camps within 20km	0	0	0	0	0	0	NA	NA	NA
Context	31-75%	31-75%	6	6	6	6	6	6	NA	NA	NA
Ecological Corridors	Not within an ecological corridor	Not within an ecological corridor	0	0	0	0	0	0	NA	NA	NA
Role of site location to species overall population in the state	0	0	0	0	0	0	0	0	NA	NA	NA
Threats to the species	5	5	5	5	10	10	10	10	The proposed ROA 4 site is currently utilised for agriculture and therefore contains barbwire fencing which is a recognised threat to flying foxes. With	Baseline attributes and pest monitoring has been established. This criterium is largely reliant upon the management of barbwire fencing within ROA 4.	The control or removal of barbwire fencing internally within ROA 4 will provide an immediate and large reduction in threats. Further, pest management as

	T2	T3	Average Score	AU Score	Year 5 score	Year 10 score	Year 15 score	Year 20 score	Justification / Management Actions / Timing	Monitoring	KPIs and Adaptive Management
	Raw Data	Raw Data									
									management action 4 and 5 outlined in **Table 4** barbwire fencing will be removed internally where cattle are removed and therefore the assessment unit 'Threats' will reduced to low within 5 years.		outlined previously will continue to reduce potential threats.
Site Context Score				21	26	26	26	26			
MAX Site Context Score				*60*	*60*	*60*	*60*	*60*			
Site Context Score - out of 3				1.05	1.30	1.30	1.30	1.30			
GHFF Foraging Tree Density	0	0	0	0	4	6	8	10	The entirety of the offset is to consist of MNES habitat restoration activities as per management actions 1, 3, 4, 5 & 5 in **Table 4**. These actions will together improve stem densities within AU1 to greater than 569 per hectare by year 20.	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Stem densities within the assessment unit is to achieve between 569-592 per hectare by year 20. If the stem density does not achieve 315 by year 10 then remedial actions will be applied. These include remedial plantings of stock.
Species Stocking Rate Score				0	4	6	8	10			
MAX Species Stocking Rate Score				*10*	*10*	*10*	*10*	*10*			
Species Stocking Rate Score - out of 3				0.00	1.20	1.80	2.40	3.00			

	T2	T3	Average Score	AU Score	Year 5 score	Year 10 score	Year 15 score	Year 20 score	Justification / Management Actions / Timing	Monitoring	KPIs and Adaptive Management
	Raw Data	Raw Data									
Total				2.06	4.62	5.62	7.22	7.82			

Table 4: AU2 Management Summary GHFF – Sparse Regrowth RE 12.8.17/12.8.14 (ROA 4)

	T1 Raw Data	Average Score	AU Score	Year 5 score	Year 10 score	Year 15 score	Year 20 score	Justification / Management Actions / Timing	Monitoring	KPIs and Adaptive Management
Vegetation Condition	Cat X	5	5	5	5	10	10	It is expected that with management actions 1, 3, 4, 5 and 6, outlined in **Table 4** the assessment unit 'Vegetation Condition' will readily attain regrowth status within 15 years and on the way to remnant status by Year 20.	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	The assessment unit is to reach regrowth status in 15 years and be progressing towards remnant status by 20 years as per VMA definitions, which require 70% of height and 50% of expected cover to be reached. If the vegetation is not progressing toward regrowth status at 10 years, then remedial actions will be applied. This may include remedial plantings of advanced stock or extending the life of the offset to reach minimum objectives.
Species Richness	1	1.00	5	10	10	20	20	It is expected that with management actions 1, 3, 4 & 5 outlined in **Table 4** the assessment unit 'Species Richness' will improve to at least two foraging species by year 5 and seven by year 15 which will then be maintained through to year 20.	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Species richness within the assessment unit is to achieve at least three foraging species by year 5 and seven by year 15. If the species diversity does not reflect this requirement at year 10, then remedial actions will be applied. This may include remedial plantings of advanced stock or extending the life of the offset to reach minimum objectives.
Flower Score	0.64	0.60	5	8	8	8	8	It is expected that with management actions, 1, 3, 4, 5 & 6, outlined in **Table 4** the assessment unit 'Flower Score' will increase by Year 5 with the establishment of plantings.	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Increase of flower scores by year 5 will be achieved by increasing winter flowering and foraging species on-site by two. If an increase in winter flowering species does not reflect this requirement at year 5, then remedial actions will be applied. These include remedial plantings of advanced stock.

	T1	Average Score	AU Score	Year 5 score	Year 10 score	Year 15 score	Year 20 score	Justification / Management Actions / Timing	Monitoring	KPIs and Adaptive Management
	Raw Data									
Timing of Biological Shortages	10	**10**	**10**	**10**	**10**	**10**	**10**	It is expected that with management actions 1, 3, 4, 5 & 6 outlined in **Table 4** the assessment unit 'Timing of Biological shortages' will improve to cover all shortages based on flora species presence by year 5.	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality of foraging habitat within the assessment unit is to achieve at least two species by year 5. If the species present do not reflect this requirement at year 10, then remedial actions will be applied. This may include remedial plantings of advanced stock or extending the life of the offset to reach minimum objectives.
Quality of Foraging Habitat	**2**	**2**	**5**	**10**	**10**	**20**	**20**	It is expected that with management actions 1, 3, 4, 5 & 6 outlined in **Table 4** will result in the increase of two foraging habitat tree species by year 5 and seven by year 15 which will then be maintained through to year 20.	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality of foraging habitat within the assessment unit is to achieve at least two species by year 5 and five by year 15. If the species present do not reflect this requirement at year 10, then remedial actions will be applied. This may include remedial plantings of advanced stock or extending the life of the offset to reach minimum objectives.
Non-native Plant Cover	**25%**	**25%**	**5**	**10**	**20**	**20**	**20**	Non-native plant cover within AU1 is moderate. It is anticipated that the weed management actions of 3, 4, 5 and 6 outlined in **Table 4** and following sections of this OMP will improve non-native plant cover to below 5% within 10 years.	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	If not maintained 25% has not been achieved by the 5-year mark then remedial actions to reduce weed cover will be applied. These include refining the weed control methods.
Site Condition Score			**35**	**53**	**63**	**88**	**88**			

	T1	Average Score	AU Score	Year 5 score	Year 10 score	Year 15 score	Year 20 score	Justification / Management Actions / Timing	Monitoring	KPIs and Adaptive Management
	Raw Data									
MAX Site Condition Score			100	100	100	100	100			
Site Condition Score - out of 4			1.40	2.12	2.52	3.52	3.52			
Size of patch	Patch size is greater than 200ha	10	10	10	10	10	10	NA	NA	NA
Connectedness	No active camps within 20km	0	0	0	0	0	0	NA	NA	NA
Context	31-75%	6	6	6	6	6	6	NA	NA	NA
Ecological Corridors	Not within an ecological corridor	0	0	0	0	0	0	NA	NA	NA
Role of site location to species overall population in the state	0	0	0	0	0	0	0	NA	NA	NA
Threats to the species	5	5	5	10	10	10	10	The proposed ROA 4 site is currently utilised for agriculture and therefore contains barbwire fencing which is a recognised threat to flying foxes. With management action 4 and 5	Baseline attributes and pest monitoring has been established. This criterium is largely reliant upon the management of barbwire fencing within ROA 4.	The control or removal of barbwire fencing internally within ROA 4 will provide an immediate and large reduction in threats. Further, pest management as outlined previously will continue to reduce potential threats.

	T1	Average Score	AU Score	Year 5 score	Year 10 score	Year 15 score	Year 20 score	Justification / Management Actions / Timing	Monitoring	KPIs and Adaptive Management
	Raw Data									
								outlined in **Table 4** barbwire fencing will be removed internally where cattle are removed and therefore the assessment unit 'Threats' will reduced to low within 5 years.		
Site Context Score			24	29	29	29	29			
MAX Site Context Score			*60*	*60*	*60*	*60*	*60*			
Site Context Score - out of 3			1.20	1.45	1.45	1.45	1.45			
GHFF Foraging Tree Density	175	4	4	4	6	8	10	The entirety of the offset is to consist of MNES habitat restoration activities as per management actions 1, 3, 4, 5 & 5 in **Table 4**. These actions will together improve stem densities within AU1 to greater than 569 per hectare by year 20.	Baseline Site Condition attributes are established. Photo monitoring and quadrat monitoring methods to be implemented for Years 1-10. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Stem densities within the assessment unit is to achieve between 569-592 per hectare by year 20. If the stem density does not achieve 315 by year 10 then remedial actions will be applied. These include remedial plantings of stock.
Species Stocking Rate Score			4	4	6	8	10			
MAX Species Stocking Rate Score			*10*	*10*	*10*	*10*	*10*			
Species Stocking Rate Score - out of 3			0.00	1.20	1.80	2.40	3.00			

	T1	Average Score	AU Score	Year 5 score	Year 10 score	Year 15 score	Year 20 score	Justification / Management Actions / Timing	Monitoring	KPIs and Adaptive Management
	Raw Data									
Total			3.65	4.62	5.62	7.22	7.82			

APPENDIX B: EPBC OFFSET ASSESSMENT GUIDE CALCULATOR RESULTS

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Koala
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes		**Area**	24.2	Hectares	
			Quality	**6**	Scale 0-10	
			Total quantum of impact	14.52	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**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						
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

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	14.52	Adjusted hectares	ROA 4 - AU1	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	45.1	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	45.1	**Future area with offset (adjusted hectares)**	45.1	0.00	95%	0.00	0.00	14.73	101.47%	Yes	
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**3**	**Future quality without offset (scale of 0-10)**	**3**	**Future quality with offset (scale of 0-10)**	**7**	4.00	85%	3.40	3.27				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**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)**	**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																				
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																			

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	14.52	14.73	101.47%	**Yes**	$0.00	N/A	$0.00
Area of community	0				$0.00		$0.00
					$0.00	**$0.00**	**$0.00**

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Koala
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes		**Area**	24.2	Hectares	
			Quality	**6**	Scale 0-10	
			Total quantum of impact	14.52	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**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						
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

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	14.52	Adjusted hectares	ROA 4 - AU2	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	6.7	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	6.7	**Future area with offset (adjusted hectares)**	6.7	0.00	95%	0.00	0.00	1.64	11.31%	No	
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**4**	**Future quality without offset (scale of 0-10)**	**4**	**Future quality with offset (scale of 0-10)**	**7**	3.00	85%	2.55	2.45				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**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)**	**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																				
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																			

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	14.52	1.64	11.31%	**No**	$0.00	#DIV/0!	#DIV/0!
Area of community	0				$0.00		$0.00
					$0.00	**#DIV/0!**	**#DIV/0!**

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	GHFF
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes		**Area**	24.2	Hectares	
			Quality	**7**	Scale 0-10	
			Total quantum of impact	16.94	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**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						
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

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	16.94	Adjusted hectares	ROA 4 - AU1	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	45.1	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	45.1	**Future area with offset (adjusted hectares)**	45.1	0.00	95%	0.00	0.00	22.10	130.46%	Yes	
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**2**	**Future quality without offset (scale of 0-10)**	**2**	**Future quality with offset (scale of 0-10)**	**8**	6.00	85%	5.10	4.90				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**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)**	**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																				
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																			

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	16.94	22.10	130.46%	**Yes**	$0.00	N/A	$0.00
Area of community	0				$0.00		$0.00
					$0.00	**$0.00**	**$0.00**

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	GHFF
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes		**Area**	24.2	Hectares	
			Quality	**7**	Scale 0-10	
			Total quantum of impact	16.94	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**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						
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

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	16.94	Adjusted hectares	ROA 4 - AU2	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	6.7	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	6.7	**Future area with offset (adjusted hectares)**	6.7	0.00	95%	0.00	0.00	2.19	12.92%	No	
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**4**	**Future quality without offset (scale of 0-10)**	**4**	**Future quality with offset (scale of 0-10)**	**8**	4.00	85%	3.40	3.27				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**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)**	**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																				
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																			

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	16.94	2.19	12.92%	**No**	$0.00	#DIV/0!	#DIV/0!
Area of community	0				$0.00		$0.00
					$0.00	**#DIV/0!**	**#DIV/0!**

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Swift Parrot
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	Swift Parrot	5094		Count	
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
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

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start area and quality	Future area and quality without offset	Future area and quality with offset	Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																
Area of community	No				**Risk-related time horizon (max. 20 years)**	**Start area (hectares)**	**Risk of loss (%) without offset**	**Risk of loss (%) with offset**								
							Future area without offset (adjusted hectares) 0.0	**Future area with offset (adjusted hectares)** 0.0								
					Time until ecological benefit	**Start quality (scale of 0-10)**	**Future quality without offset (scale of 0-10)**	**Future quality with offset (scale of 0-10)**								
Threatened species habitat																
Area of habitat	No				**Time over which loss is averted (max. 20 years)**	**Start area (hectares)**	**Risk of loss (%) without offset** 0%	**Risk of loss (%) with offset** 0%								
							Future area without offset (adjusted hectares) 0.0	**Future area with offset (adjusted hectares)** 0.0								
					Time until ecological benefit	**Start quality (scale of 0-10)**	**Future quality without offset (scale of 0-10)**	**Future quality with offset (scale of 0-10)**								
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**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)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	5094	Count	ROA 3 and ROA 4	20	1547	1547	36017	34470	85%	29299.50	7860.23	154.30%	Yes		
Condition of habitat Change in habitat condition, but no change in extent	No															
Threatened species																
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															

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Regent Honeyeater
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	Regent Honeyeater	4647		Count	
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
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

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start area and quality	Future area and quality without offset	Future area and quality with offset	Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																
Area of community	No				**Risk-related time horizon (max. 20 years)**	**Start area (hectares)**	**Risk of loss (%) without offset**	**Risk of loss (%) with offset**								
							Future area without offset (adjusted hectares) 0.0	**Future area with offset (adjusted hectares)** 0.0								
					Time until ecological benefit	**Start quality (scale of 0-10)**	**Future quality without offset (scale of 0-10)**	**Future quality with offset (scale of 0-10)**								
Threatened species habitat																
Area of habitat	No				**Time over which loss is averted (max. 20 years)**	**Start area (hectares)**	**Risk of loss (%) without offset** 0%	**Risk of loss (%) with offset** 0%								
							Future area without offset (adjusted hectares) 0.0	**Future area with offset (adjusted hectares)** 0.0								
					Time until ecological benefit	**Start quality (scale of 0-10)**	**Future quality without offset (scale of 0-10)**	**Future quality with offset (scale of 0-10)**								
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**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)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	4647	Count	ROA 3 and ROA 4	20	0	0	20692	20692	85%	17588.20	4718.42	101.54%	Yes		
Condition of habitat Change in habitat condition, but no change in extent	No															
Threatened species																
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															

APPENDIX C: SUITABLY QUALIFIED FIELD ECOLOGIST – CURRICULUM VITAE

David Havill - Principal Ecologist

David Havill has significant practical experience in the areas of ecological site assessments (flora and fauna), weed management programs, large scale revegetation projects, wetland rehabilitation and waterway restoration. He has a strong understanding of the intricate workings of the *Vegetation Management Act 1999* and the complex codes and policies which influence site vegetation constraints. David's expertise relates to the on-site identification and spatial mapping of fauna and flora species including endangered, rare and vulnerable plants and animals. He has an accurate understanding of site survey processes and standards developed by the State and Commonwealth Governments. This provides the ability to challenge the various inaccuracies that occur within broad scale vegetation mapping developed by these Government agencies. David works closely with our in-house team of GIS, environmental planning, and landscape rehabilitation specialists to document findings of ecological survey and prepare targeted restoration and rehabilitation strategies. He has a strong understanding of construction techniques associated with development projects and has the ability to prepare practical flora and fauna management plans to assist in guiding the construction process within sensitive areas.

Qualifications

– Diploma of Arboriculture, Training for Trees Pty Ltd, #04453

– Bachelor of Applied Science (Natural Systems and Wildlife Management), The University of Queensland

APPENDIX D: HABITAT QUALITY RAW DATA

Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Transect ID	2	Job Number / Property	7399 - Scenic Offset

Part B - Site Data

Recorders	David Havill	Date	21.02.2024

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
1		Non-remnant RE12.8.17/12.8.14	12

Site description and Location (including details of discrete polygons within the assessment unit)
Transect 2 located in the northern portion of Lot 1 on CC3571 within cleared vegetation. The preclear regional ecosystem map has the Endangered Regional Ecosystem 12.3.3 described as Eucalyptus tereticornis (Forest Red Gum) woodland on Quaternary alluvium. The prevailing paddock is also indicative of the surrounding RE 12.8.17. This area is generally cleared of most vegetation values for rural grazing purposes. Plot alignment is 63° SE.

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	1			EDL / Dom / R
Scientific Name	*Eucalyptus tereticornis*	Common Name	Forest Red Gum	Dom / R
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	3		
Scientific Name	*Corymbia tessellaris*	Common Name	Mroton Bay Ash
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow Leaf Ironbark
Scientific Name	*Maclura cochinchinensis*	Common Name	Cockspur Thorn
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	2		
Scientific Name	*Heteropogon contortus*	Common Name	Black Spear Grass
Scientific Name	*Cynondon dactylon*	Common Name	Green Couch
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	2		
Scientific Name	*Fimbristylis ferruginea*	Common Name	A Fringe Rush
Scientific Name	*Juncus usitatus*	Common Name	Common Rush
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	75.00%		
Scientific Name	*Chloris gayana*	Common Name	Rhodes Grass
Scientific Name	*Ambrosia artemisiifolia*	Common Name	Annual Rag Weed
Scientific Name	*Gomphocarpus physocarpus*	Common Name	Balloon Cotton Bush
Scientific Name	*Verbena bonariensis*	Common Name	Purple Top
Scientific Name	*Setaria sphacelata*	Common Name	South African Pigeon Grass
Scientific Name	*Sporobolus fertilis*	Common Name	Giant Paramatta Grass
Scientific Name	*Cyperus polystachyos*	Common Name	Bunchy Sedge
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)	47.00		
1	2.40	26	
2	1.60	27	
3	0.50	28	
4	0.80	29	
5	0.60	30	
6	1.20	31	
7		32	
8		33	
9		34	
10		35	
11		36	
12		37	
13		38	
14		39	
15		40	
16		41	
17		42	
18		43	
19		44	
20		45	
21		46	
22		47	
23		48	
24		49	
25		50	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5	Average
Native perennial grass cover	0%	0%	30%	50%	45%	25%
Native other grass	0%	0%	0%	0%	0%	0%
Native forbs and other species	0%	15%	30%	40%	25%	22%
Native shrubs	0%	0%	0%	0%	0%	0%
Non-native grass	100%	85%	40%	10%	15%	50%
Non native forbs and shrubs	0%	0%	0%	0%	15%	3%
Litter	0%	0%	0%	0%	0%	0%
Rock	0%	0%	0%	0%	0%	0%
Bare Ground	0%	0%	0%	0%	0%	0%
Cryptogram	0%	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%	100%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	540	Number of large eucalypt trees:	Eucalyptus tereticornis (Forest Red Gum) - 990mm; **Total = 1**
Non- Eucalypt Large tree DBH benchmark used:	200	Number of large non eucalypt trees:	0
Total number of large trees recorded:	1		
Total Number Large Trees per ha:	2		

Median Tree Canopy Height Measurements	Canopy:	23	Sub-canopy:	NA	Emergent:	NA

Percentage of ecologically dominant layer species regenerating:	0.00

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	Canopy:	18.0%	Sub-canopy:	0.00%	Emergent:	NA
Shrub canopy cover %	0.90%					

Layer	Start	End	Interval	Layer	Start	End	Interval
T1	9.0	27.0	18.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0

T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0

Layer	Start	End	Interval	Layer	Start	End	Interval
Shrub	0.0	0.9	0.9	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count
Eucalyptus tereticornis	1
Eucalyptus crebra	1
TOTAL	**2**

Part J: SAT Survey Results

SAT Survey ID	No SAT Required			
Tree Number	**Scientific Name**	**Common Name**	**DBH**	**Scat (Y/N)**
Total				Nil

Attach Landscape Photos Here

North

South

East

West

Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Transect ID	3	Job Number / Property	7399 - Scenic Offset

Part B - Site Data

Recorders	David Havill	Date	21.02.2024

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
1		Non-remnant RE12.8.17/12.8.14	12

Site description and Location (including details of discrete polygons within the assessment unit)
Transect 3 located in the northern portion of Lot 77 on CH311086 within cleared vegetation. The preclear regional ecosystem map has the a composite Regional Ecosystem community containing 80% Least Concern RE12.8.17 and 20% Least Concern RE12.8.14. Vegetation has been completely cleared for rural purposes with no indicator species were recorded. The paddock is currently run with cattle and dominated by pastoral grasses, both native and exotic, with limited regrowth noted. Plot alignment is approximately 8° N.

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	0			EDL / Dom / R
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	1		
Scientific Name	*Corymbia tessellaris*	Common Name	Moreton Bay Ash
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	3		
Scientific Name	*Heteropogon contortus*	Common Name	Black Spear Grass
Scientific Name	*Arastida vagans*	Common Name	Threeawn Speargrass
Scientific Name	*Imperata cylindrica*	Common Name	Blady Grass
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	3		
Scientific Name	*Dianella caerulea*	Common Name	Blue Flax Lily
Scientific Name	*Glycine clandestina*	Common Name	Twining Glycine
Scientific Name	*Fimbristylis ferruginea*	Common Name	A Fringe Rush
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	85.00%		
Scientific Name	*Gomphocarpus physocarpus*	Common Name	Balloon Cotton Bush
Scientific Name	*Chloris gayana*	Common Name	Rhodes Grass
Scientific Name	*Heliotrpium amplexicaule*	Common Name	Blue Heliotrope
Scientific Name	*Bidens pilosa*	Common Name	Cobbler's Pegs
Scientific Name	*Cyperus polystachyos*	Common Name	Bunchy Sedge
Scientific Name	*Verbena bonariensis*	Common Name	Purple Top
Scientific Name	*Centella asiatica*	Common Name	Pennywort
Scientific Name	*Desmodium intortum*	Common Name	Greenleaf Desmodium
Scientific Name		Common Name	
Scientific Name		Common Name	

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)	19.00		
1	2.50	26	
2	0.60	27	
3	1.30	28	
4		29	
5		30	
6		31	
7		32	
8		33	
9		34	
10		35	
11		36	
12		37	
13		38	
14		39	
15		40	
16		41	
17		42	
18		43	
19		44	
20		45	
21		46	
22		47	
23		48	
24		49	
25		50	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5	Average
Native perennial grass cover	0%	25%	5%	35%	0%	13%
Native other grass	0%	0%	0%	0%	0%	0%
Native forbs and other species	0%	50%	0%	0%	0%	10%
Native shrubs	0%	0%	0%	0%	0%	0%
Non-native grass	20%	0%	80%	30%	70%	40%
Non native forbs and shrubs	80%	25%	15%	35%	30%	37%
Litter	0%	0%	0%	0%	0%	0%
Rock	0%	0%	0%	0%	0%	0%
Bare Ground	0%	0%	0%	0%	0%	0%
Cryptogram	0%	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%	100%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	540	Number of large eucalypt trees:	Eucalyptus tereticornis (Forest Red Gum) - 990mm; **Total = 1**
Non- Eucalypt Large tree DBH benchmark used:	200	Number of large non eucalypt trees:	0
Total number of large trees recorded:	1		
Total Number Large Trees per ha:	2		

Median Tree Canopy Height Measurements	Canopy:	NA	Sub-canopy:	NA	Emergent:	NA

Percentage of ecologically dominant layer species regenerating:	0.00

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	Canopy:	0.0%	Sub-canopy:	0.00%	Emergent:	NA
Shrub canopy cover %	0.00%					

Layer	Start	End	Interval	Layer	Start	End	Interval
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0

T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0

Layer	Start	End	Interval	Layer	Start	End	Interval
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count
Nil Trees	0
TOTAL	**0**

Part J: SAT Survey Results

SAT Survey ID	No SAT Required			
Tree Number	**Scientific Name**	**Common Name**	**DBH**	**Scat (Y/N)**
Total				Nil

Attach Landscape Photos Here

North

South

East

West

Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Transect ID	1	Job Number / Property	7399 - Scenic Offset

Part B - Site Data

Recorders	David Havill	Date	21.02.2024

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
2		Regrowth RE12.8.17/12.8.14	12

Site description and Location (including details of discrete polygons within the assessment unit)

Transect 1 located in the southern portion of Lot 77 on CH311086 within regrowth vegetation representing Least Concern Regional Ecosystem 12.8.17 described as a mixed woodland with combinations of Eucalyptus crebra, Eucalyptus melanophloia, Eucalyptus tereticornis, Corymbia tessellaris, Corymbia intermedia woodland on Cainozoic igneous rocks. Although containing native regrowth the vegetation is mapped as Category X (Non-remnant) under the Vegetation Management Act. The plot alignment direction is approxiametly 233° SW with the canopy vegetation dominated by *Eucalyptus crebra* (Narrow Leaf Ironbark) and patches of *Eucalyptus melanophloia* (Silver Leaf Ironbark). The shrub layer was relatively sparse however recruitment of canopy species was recorded. Also of note, the pre-clear vegetation also includes Least Concern Regional Ecosystem 12.8.14 mixed within RE12.8.17 however flora species only represented Least Concern RE12.8.17.

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	5			EDL / Dom / R
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow Leaf Ironbark	Dom / R
Scientific Name	*Eucalyptus melanophloia*	Common Name	Silver Leaf Ironbark	R
Scientific Name	*Corymbia tessellaris*	Common Name	Moreton Bay Ash	R
Scientific Name	*Corymbia intermedia*	Common Name	Pink Bloodwood	R
Scientific Name	*Acacia leiocalyx*	Common Name	Early Flowering Black Wattle	
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	4		
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow Leaf Ironbark
Scientific Name	*Corymbia intermedia*	Common Name	Pink Bloodwood
Scientific Name	*Eucalyptus melanophloia*	Common Name	Silver Leaf Ironbark
Scientific Name	*Corymbia tessellaris*	Common Name	Moreton Bay Ash
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	5		
Scientific Name	*Themeda triandra*	Common Name	Kangaroo Grass
Scientific Name	*Heteropogon contortus*	Common Name	Black Spear Grass
Scientific Name	*Panicum decompositum*	Common Name	Native Millet
Scientific Name	*Imperata cylindrica*	Common Name	Blady Grass
Scientific Name	*Cymbopogon refractus*	Common Name	Barbed Wire Grass
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	0		
Scientific Name	*Dianella caerulea*	Common Name	Blue Flax Lily
Scientific Name	*Glycine clandestina*	Common Name	Twining Glycine
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	25.00%		
Scientific Name	*Lantana camara*	Common Name	Lantana
Scientific Name	*Melinis repens*	Common Name	Red Natal Grass
Scientific Name	*Crotalaria lanceolata*	Common Name	Lance-leaved Rattlepod
Scientific Name	*Bidens pilosa*	Common Name	Cobbler's Pegs
Scientific Name	*Cyperus polystachyos*	Common Name	Bunchy Sedge
Scientific Name	*Dichondra repens*	Common Name	Kidney Weed
Scientific Name	*Tagetes minuuta*	Common Name	Stinking Roger
Scientific Name	*Verbena bonariensis*	Common Name	Purple Top
Scientific Name	*Senecio madagascariensis*	Common Name	Fireweed
Scientific Name	*Ambrosia artemisiifolia*	Common Name	Annual Ragweed
Scientific Name	*Emilia sonchifolia*	Common Name	Emilia
Scientific Name	*Gomphocarpus physocarpus*	Common Name	Balloon Cotton Bush
Scientific Name	*Desmodium intortum*	Common Name	Greenleaf Desmodium
Scientific Name	*Oxalis corniculata*	Common Name	Creeping Woodsorrel

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)	118.00		
1	2.50	26	
2	1.20	27	
3	1.60	28	
4	3.40	29	
5	5.60	30	
6		31	
7		32	
8		33	
9		34	
10		35	
11		36	
12		37	
13		38	
14		39	
15		40	
16		41	
17		42	
18		43	
19		44	
20		45	
21		46	
22		47	
23		48	
24		49	
25		50	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5	Average
Native perennial grass cover	90%	70%	85%	30%	70%	69%
Native other grass	0%	0%	0%	0%	0%	0%
Native forbs and other species	0%	0%	0%	5%	5%	2%
Native shrubs	0%	0%	0%	0%	0%	0%
Non-native grass	0%	0%	0%	30%	15%	9%
Non native forbs and shrubs	5%	10%	5%	15%	0%	7%
Litter	5%	20%	10%	20%	10%	13%
Rock	0%	0%	0%	0%	0%	0%
Bare Ground	0%	0%	0%	0%	0%	0%
Cryptogram	0%	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%	100%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	380	Number of large eucalypt trees:	*Corymbia intermedia* (Pink Bloodwood) - 390; 380; *Eucalyptus melanophloia* (Silver Leaf Ironbark) - 480mm; 420mm; *Eucalyptus crebra* (Narrow Leaf Ironbark) 590; **TOTAL = 5**
Non- Eucalypt Large tree DBH benchmark used:	200	Number of large non eucalypt trees:	0
Total number of large trees recorded:	5		
Total Number Large Trees per ha:	10		

Median Tree Canopy Height Measurements	Canopy:	21	Sub-canopy:	11	Emergent:	NA

Percentage of ecologically dominant layer species regenerating:	100.00

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	Canopy:	22.4%	Sub-canopy:	43.70%	Emergent:	NA
Shrub canopy cover %	3.10%					

Layer	Start	End	Interval	Layer	Start	End	Interval
T1	17.7	31.5	13.8	T2	0.0	5.8	5.8

T1	79.3	87.9	8.6	**T2**	14.0	20.1	6.1
T1			0.0	**T2**	22.2	30.5	8.3
T1			0.0	**T2**	31.2	39.3	8.1
T1			0.0	**T2**	57.8	61.4	3.6
T1			0.0	**T2**	62.6	68.1	5.5
T1			0.0	**T2**	83.6	87.4	3.8
T1			0.0	**T2**	87.4	89.9	2.5
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0

Layer	Start	End	Interval	Layer	Start	End	Interval
Shrub	72.3	73.2	0.9	**Shrub**			0.0
Shrub	91.8	93.1	1.3	**Shrub**			0.0
Shrub	93.1	94.0	0.9	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count
Corymbia intermedia	14
Eucalyptus melanophloia	11
Corymbia tessellaris	7
Eucalyptus crebra	3
TOTAL	**35**

Part J: SAT Survey Results

SAT Survey ID	No SAT Required			
Tree Number	**Scientific Name**	**Common Name**	**DBH**	**Scat (Y/N)**
1	*Eucalyptus melanophloia*	Silver Leaf Ironbark	300	Nil
2	*Eucalyptus melanophloia*	Silver Leaf Ironbark	240	Nil
3	*Eucalyptus melanophloia*	Silver Leaf Ironbark	330	Nil
4	*Eucalyptus crebra*	Narrow Leaf Ironbark	220	Nil
5	*Corymbia tessellaris*	Moreton Bay Ash	230	Nil
6	*Corymbia tessellaris*	Moreton Bay Ash	100	Nil
7	*Corymbia tessellaris*	Moreton Bay Ash	100	Nil
8	*Corymbia tessellaris*	Moreton Bay Ash	320	Nil
9	*Corymbia intermedia*	Pink Bloodwood	240	Nil
10	*Corymbia intermedia*	Pink Bloodwood	260	Nil
11	*Corymbia tessellaris*	Moreton Bay Ash	180	Nil
12	*Corymbia intermedia*	Pink Bloodwood	240	Nil
13	*Corymbia intermedia*	Pink Bloodwood	360	Nil
14	*Corymbia intermedia*	Pink Bloodwood	380	Nil
15	*Eucalyptus crebra*	Narrow Leaf Ironbark	140	Nil
16	*Corymbia intermedia*	Pink Bloodwood	340	Nil
17	*Corymbia tessellaris*	Moreton Bay Ash	140	Nil
18	*Corymbia tessellaris*	Moreton Bay Ash	150	Nil
19	*Corymbia tessellaris*	Moreton Bay Ash	180	Nil
20	*Corymbia intermedia*	Pink Bloodwood	140	Nil
21	*Corymbia intermedia*	Pink Bloodwood	160	Nil
22	*Corymbia tessellaris*	Moreton Bay Ash	340	Nil
23	*Eucalyptus melanophloia*	Silver Leaf Ironbark	240	Nil

24	*Eucalyptus melanophloia*	Silver Leaf Ironbark	340	Nil
25	*Corymbia intermedia*	Pink Bloodwood	280	Nil
26	*Corymbia intermedia*	Pink Bloodwood	260	Nil
27	*Corymbia intermedia*	Pink Bloodwood	280	Nil
28	*Eucalyptus crebra*	Narrow Leaf Ironbark	180	Nil
29	*Eucalyptus crebra*	Narrow Leaf Ironbark	260	Nil
30	*Eucalyptus crebra*	Narrow Leaf Ironbark	240	Nil
Total				Nil

Attach Landscape Photos Here

North

South

East

West

APPENDIX E: BASELINE CAMERA MONITORING – RAW DATA

10559 Motion Camera Survey Period Deployment 1 20th Aprill to 4th May 2023						
Camera ID	**Camera Name**	**Scientific Name**	**Common Name**	**Status**	**Number individuals**	**Date Recorded**
1	Camel	*Canis lupus familiaris*	Wild Dog	Feral animal	4	8th and 12th May 2023
1	Camel	*Bos taurus*	Domestic Cow	Non-native		-
1	Camel	*Macropus giganteus*	Eastern Grey Kangaroo	Native		-
2	Fly	*Phascogale tapoatafa*	Brush-tailed Phascogale	Native		-
2	Fly	*Bos taurus*	Domestic Cow	Non-native		-
2	Fly	*Macropus giganteus*	Eastern Grey Kangaroo	Native		-
2	Fly	*Trichosurus vulpecula*	Common Brushtail Possum	Native		-
2	Fly	*Macropus rufogriseus*	Red-necked Wallaby	Native		-
3	Possum	*Bos taurus*	Domestic Cow	Non-native		-
3	Possum	*Sus scrofa*	Wild Pig (multiple)	Feral animal	10	23rd March 2023
3	Possum	*Strepera graculina*	Pied Currawong	Native		-
3	Possum	*Centropus phasianinus*	Pheasant Coucal	Native		-
3	Possum	*Struthidea cinerea*	Apostlebird	Native		-
3	Possum	*Rhipidura leucophrys*	Willie Wagtail	Native		-
3	Possum	*Chenonetta jubata*	Australian Wood Duck	Native		-
3	Possum	*Vanellus miles*	Masked Lapwing	Native		-
3	Possum	*Gallinula tenebrosa*	Duskey Moorhen	Native		-
3	Possum	*Isoodon macrourus*	Northern Brown Bandicoot	Native		-
3	Possum	*Phaps chalcoptera*	Common Bronzewing	Native		-
3	Possum	*Macropus rufogriseus*	Red-necked Wallaby	Native		-
3	Possum	*Vulpes vulpes*	European Fox	Feral animal	2	28th March 2023
3	Possum	*Macropus giganteus*	Eastern Grey Kangaroo	Native		-
4	Eel	*Macropus giganteus*	Eastern Grey Kangaroo	Native		-
4	Eel	*Macropus rufogriseus*	Red-necked Wallaby	Native		-
5	Daisy	*Macropus rufogriseus*	Red-necked Wallaby	Native		-
5	Daisy	*Macropus giganteus*	Eastern Grey Kangaroo	Native		-
6	Wombat	Nil	Nil	-		-
10559 Motion Camera Survey Period Deployment 2 15th May to 11th August 2023						
Camera ID	**Camera Name**	**Scientific Name**	**Common Name**	**Status**	**Number individuals**	**Date Recorded**
2	Duck	*Macropus giganteus*	Eastern Grey Kangaroo	Native	-	-
2	Duck	*Macropus rufogriseus*	Red-necked Wallaby	Native	-	-
2	Duck	*Lepus europaeus*	European Hare	Non-native	-	-
2	Duck	*Ninox boobook*	Australian Boobook	Native	-	-
2	Duck	*Tachyglossus aculeatus*	Short-beaked Echidna	Native	-	-
3	Gecko	*Macropus giganteus*	Eastern Grey Kangaroo	Native	-	-
3	Gecko	*Macropus rufogriseus*	Red-necked Wallaby	Native	-	-
1	Prawn	*Macropus rufogriseus*	Red-necked Wallaby	Native	-	-
1	Prawn	*Macropus giganteus*	Eastern Grey Kangaroo	Native	-	-
1	Prawn	*Rattus fuscipes*	Bush Rat	Native	-	-
4	Squid	Nil	Nil	-	-	-
10559 Motion Camera Survey Deployment Period 3 11th August to 2nd November 2023						
Camera ID	**Camera Name**	**Scientific Name**	**Common Name**	**Status**	**Number individuals**	**Date Recorded**
1	Prawn	Nil	Nil	-		-
2	Gecko	*Bos taurus*	Domestic Cow	Non-native		-
2	Gecko	*Notamacropus parryi*	Whiptail Wallaby	Native		-
2	Gecko	*Macropus rufogriseus*	Red-necked Wallaby	Native		-
2	Gecko	*Macropus giganteus*	Eastern Grey Kangaroo	Native		-
2	Gecko	*Canis lupus familiaris*	Wild Dog	Feral animal	1	8th October 2023
2	Gecko	*Sus scrofa*	Wild Pig	Feral animal	2	15th August 2023 and 1st November 2023
3	Duck	*Canis lupus familiaris*	Wild Dog	Feral animal	6	16th, 17th, 19th, 23rd August 2023, 4th and 28th November 2023
3	Duck	*Macropus giganteus*	Eastern Grey Kangaroo	Native		-
3	Duck	*Macropus rufogriseus*	Red-necked Wallaby	Native		-
3	Duck	*Trichosurus vulpecula*	Common Brushtail Possum	Native		-
3	Duck	*Bos taurus*	Domestic Cow	Non-native		-
4	Squid	*Canis lupus familiaris*	Wild Dog	Feral animal	1	10th September 2023

KEY

Target pest species

APPENDIX F: REHABILITATION MANAGEMENT PLAN ROA 4

Rosevale Offset Area 4 - Scenic Precinct (EPBC 2020/8651)

Rehabilitation Management Plan

DWG NO.	DRAWING TITLE	ISSUE	DATE
7399 E 01 Scenic RMP A	COVER SHEET	A	29/10/2025
7399 E 02 Scenic RMP A	INTRODUCTION AND NOTES	A	29/10/2025
7399 E 03 Scenic RMP A	REHABILITATION ZONES	A	29/10/2025
7399 E 04 Scenic RMP A	DETAIL SHEET	A	29/10/2025
7399 E 05-06 Scenic RMP A	PLANTING SPECIES SCHEDULES	A	29/10/2025
7399 E 07 Scenic RMP A	SITE PREPARATION	A	29/10/2025
7399 E 08 Scenic RMP A	PLANTING NOTES	A	29/10/2025
7399 E 09 Scenic RMP A	MAINTENANCE AND MONITORING	A	29/10/2025
7399 E 10 Scenic RMP A	MONITORING AND ADAPTIVE MANAGEMENT	A	29/10/2025
7399 E A01 Scenic RMP A	APPENDIX 1. WEED TREATMENT AND REMOVAL	A	29/10/2025
7399 E A02 Scenic RMP A	APPENDIX 2. TABLE OF PERFORMANCE INDICATORS	A	29/10/2025
7399 E A03 Scenic RMP A	APPENDIX 3. PHOTO MONITORING LOCATIONS	A	29/10/2025
7399 E A04 Scenic RMP A	APPENDIX 4. PHOTO MONITORING REPORT	A	29/10/2025

Saunders Havill

PATHWAYS TO SUCCESS

Rosevale Offset Area 4 - Scenic Precinct (EPBC 2020/8651)

Rehabilitation Management Plan - *Introduction and Notes*

Introduction

This Scenic Precinct (EPBC 2020/8651) Rehabilitation Management Plan (RMP) has been prepared by Saunders Havill (SH) for Montauban Environmental Offsets and forms part of the Rosevale Offset Management Plan (OMP) for the Peninsula Precinct offset located at the Rosevale Offset Area 4 (ROA 4) within the Rosevale Offset Property.

The Rosevale Offset Area is located at Tarome Road, Tarome in South East Queensland and includes a combination of approved and proposed offset areas for Matters of National Environmental Significance.

The primary objective of this RMP is to provide a detailed guide for the creation of resilient, fully-functioning vegetation communities that achieve the Environmental Outcomes proposed under the OMP. Vegetation communities are to be rehabilitated in accordance with the composition and structure of the delineated Regional Ecosystems within each Environmental Management Zone to support the Koala, Grey-headed Flying-fox, Regent Honeyeater and Swift Parrot.

An intensive monitoring and maintenance regime is proposed to support a high survival rate of the plantings and high level of confidence in the proposed outcome.

This document should be read in conjunction with the Rosevale Offset Management Plan for ROA 4 (Scenic Precinct (EPBC 2020/8651)).

BACKGROUND

The Rosevale offset property is located on Tarome Road, Tarome. The Rosevale offset property is and is approximately 9.5 km north-west of Aratula and located in the Scenic Rim Regional Council Local Government. The offset site associated with this property, Rosevale Offset Area 4 (ROA 4), is located approximately 52 km south-west of the Scenic Precinct Project area, where MNES habitat impacts are proposed.

Rosevale Offset Property is contained on the following allotments:

- Part of Lot 1/CC3571
- Lot 103/CH311061
- Lot 115/SP167206
- Lot 116/SP167206
- Lot 211/CH311636
- Lot 229/CH312601
- Lot 24/CH312265
- Lot 230/CH312495
- Lot 4/RP31137
- Lot 71/CH311061
- Lot 72/CH311061
- Lot 77/CH311086
- Lot 9/CH311910
- Lot 86/RP234513
- Lot 68/CH311061

For this offset strategy, the proposed offset area (ROA 4) is contained on the following allotments of the offset property:

- Part of Lot 1/CC3571
- Lot 77/CH311086

The offset area contains multiple constructed farm dams which will be retained and utilised as part of the management of the offset.

Vegetation

The ROA 4 offset area is mapped as containing composite RE 12.8.17/12.8.14 with vegetation structure varying from open paddock to sparse regrowth.

RE 12.8.17 is described as: Mixed woodland with combinations of *Eucalyptus crebra, E. melanophloia, E. tereticornis, Corymbia tessellaris, C. intermedia*, and commonly containing *Angophora subvelutina* and *E. melliodora*, with a grassy ground layer. Usually occurs on mid and lower slopes of hills on Cainozoic igneous rocks, especially basalt. Not a Wetland. (BVG1M: 11a).

RE 12.8.14 is described as: *Eucalyptus eugenioides, E. biturbinata, E. melliodora +/- E. tereticornis, Corymbia intermedia, E. crebra* open forest. *Allocasuarina torulosa* is a common understorey species. Localised occurrences of *Eucalyptus laevopinea, E. quadrangulata* and *E. banksii* may occur. Occurs on Cainozoic igneous rocks, especially basalt. Not a Wetland. (BVG1M: 11a).

RE12.8.17 was ground-truthed as the dominant regional ecosystem within the offset area. Planting species containing RE 12.8.14 is proposed as part of the overall planting outcome with the dominant regional ecosystem to reflect RE 12.8.17.

The majority of the offset area has been cleared for grazing with areas of sparse regrowth located in the south-western portion of the offset area within EMZ 2.

Soils

The Atlas of Australia soils map the site as predominantly comprising Vertosols with areas mapped as containing Rudosols. The broader landscape is predominantly mapped as containing Rudosols.

Vertosols are defined by the Australian Soils Classification (ASC) as a soil type with very high-soil fertility and large water holding capacity. Vertosols are typically brown, grey or black soils which crack open when dry.

Rudosols generally have a low fertility and low water-holding capacity. These are often shallow, stony soils with little more than some minor organic matter accumulation on the surface and weathered parent material.

The presence of Vertosols is anticipated to support the broadscale planting requirements.

The Geological Survey of Queensland's 1:100,000 series Helidon sheet indicates that the site is located in an area which is underlain predominantly by shale, siltstone, sandstone and coal seams of the middle Jurassic – Late Jurassic.

REHABILITATION – APPROACHES

Rehabilitation or "Ecological Restoration" can be described as "the process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed" (source: Society for Ecological Restoration International). The following four ecological restoration approaches are listed under the SEQERF guidelines and are described in further detail on Sheet 03.

Ecological Restoration Approaches	
Natural Regeneration	
Applies:	To relatively large, intact and weed-free areas of native vegetation. Where native plants are healthy and capable of regenerating without human intervention. When native plant seed is stored in the soil or will be able to reach the site from nearby natural areas, by birds or other animals, wind or water. Where the plant community has a high potential for recovery after any short-live disturbance such as a fire or cyclonic winds. When preventative action is all that is required to avert on-going disturbances e.g. erection of fencing to prevent intrusion by cattle.
Role of planting:	Planting in such areas can work against the aims of restoration by interfering with natural regeneration.
Goal vegetation community:	The re-establishing plant community will be similar in structure, composition and diversity to the original vegetation.
Assisted Natural Regeneration	
Applies:	To natural areas where the native plant community is largely healthy and functioning. When native plant seed is still stored in the soil or will be able to reach the site from nearby natural areas, by birds or other animals, wind or water. Where the natural regeneration processes (seedling germination, root suckering, etc.) are being inhibited by external factors, such as weed invasion, soil compaction, cattle grazing, mechanical slashing, etc. When limited human intervention, such as weed control, minor amelioration of soil conditions, erection of fencing, cessation of slashing, etc. will be enough to trigger the recovery processes through natural regeneration. When the main management issue is weed infestation and/or current land use practices.
Role of planting:	Planting in such areas can work against the aims of restoration by interfering with natural regeneration except where species cannot return to site without direct intervention.
Goal vegetation community:	The re-establishing plant community will be substantially similar in structure, composition and diversity to the original vegetation.
Reconstruction	
Applies:	Where the site is highly degraded or altered. When the degree of disturbance has been so great and long-standing that the pre-existing native plant community cannot recover by natural means. To sites such as areas of fill, sites affected by stormwater flow, areas that have been drastically cleared, even though there may be a few remaining native trees or shrubs. When a greater degree of human intervention is required, such as weed control, cessation of grazing and/or slashing, amelioration of soil conditions such as importation of soils, drainage works or re-shaping of the landscape.
Role of planting:	Importation of native species to the area is required, either through planting or direct seeding (in some situations). natural regeneration and recruitment is insufficient to initially re-establish the original vegetation. Depending on the prevailing circumstances, the planting of a broad diversity of species from the target ecosystem may be unnecessary and the use of pioneers may be sufficient to re-establish ecological processes.
Goal vegetation community:	The re-establishing planted community should be similar to the original vegetation in structure, composition and diversity.
Fabrication (Type Conversion)	
Applies:	Where site conditions have been irreversibly changed. When it is not possible to restore the original native plant community. Where a better-adapted local plant community can be planted that will function within the changed conditions. In situations such as the construction of a wetland plant community to mitigate increased urban storm-water run-off.
Role of planting:	Revegetation (planting) is the major component in a fabrication program.
Goal vegetation community:	The re-establishing planted community should be similar to a naturally occurring plant community of the same type (e.g. a constructed freshwater wetland should resemble a natural system in terms of structure, composition and diversity).

Adapted from Gold Coast Council's 'Guideline for the preparation of a Rehabilitation Plan'

REHABILITATION - METHODOLOGY

Detailed assessment of site conditions prior to commencement of documentation is essential. As part of most rehabilitation scopes, it is worth considering an appropriate methodology for both compiling documentation and site works. This can be broken down into the following items:

- Site assessment
- Rehabilitation Design Documentation (this plan)
- Site Works
- Maintenance and monitoring

METHODOLOGY – SITE ASSESSMENT

Detailed assessment of site conditions prior to commencement of documentation is essential in the establishment of a site-specific ecological restoration methodology. In accordance with the SEQERF. The following checklist has formed part of the site assessment process and is detailed in the OMP:

- Describe the history and background of the site
- Describe the soil, drainage, topography and aspect
- Describe the native vegetation on the site and along site boundaries
- Describe the weeds on site
- Describe the vegetation dispersal and structure
- Describe the fauna use onsite
- Describe estimated native regeneration response.

The responses to the above checklist provides the basis of the proposed restoration approach primarily using reconstruction with elements of assisted natural regeneration for each management zone within this RMP.

Consideration should be made in the importance of integrating site-specific measures for fauna habitat and movement. With many fauna species having specific habitat requirements, foraging patterns and movement patterns. During the site assessment process, the following provisions should be taken into consideration:

- Fauna movement opportunities via easements, tracts, utility corridors and or infrastructure pathways;
- Diversity and type of fauna and distribution on site;
- Habitat opportunities e.g. Dense foliage, roosting areas, log hollows and potential nesting boxes;
- Fauna disturbance and vicinity of works to significant nesting areas and or fauna movement;
- Distribution of significant specialized food resources e.g. Koala trees; and
- Stage weed removal and or altering of weed control technique if the weeds are currently forming a significant fauna habitat.

For the sake of keeping this plan concise, site analysis results are compiled under a separate template, and may or may not be included in this set, however the analysis outcomes derive the Rehabilitation design methodology.

METHODOLOGY – REHABILITATION DESIGN

This documentation has been compiled through processes outlined in the SEQERF, site analysis and previous rehabilitation project experiences. The rehabilitation design—comprising distinct management zones—provides assessment managers, clients and contractors a clear methodology to assist the recovery of an ecosystem(s) that has been degraded, damaged or destroyed. Rehabilitation zones were identified through detailed site analysis and are described on *Sheet 03*.

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

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References:
South East Queensland Ecological Restoration Framework (2012)

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CLIENT: Montauban Environmental Offsets

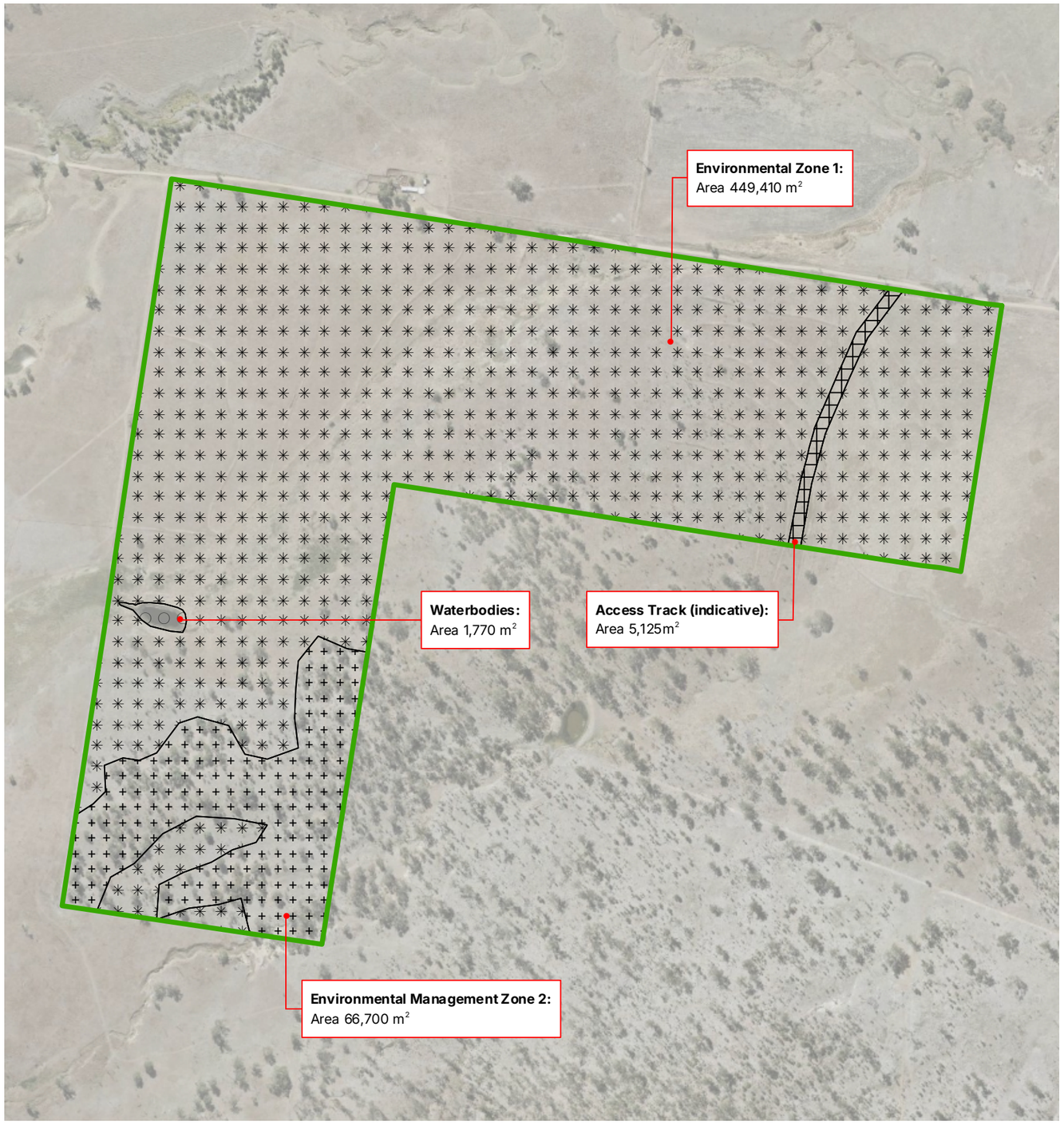
PROJECT: Rosevale Offset Area 4 - Scenic Precinct (EPBC 2020/8651)

DRAWING TITLE: REHABILITATION MANAGEMENT PLAN

DRAWING NO.: **7399 E 02 Scenic RMP A**

Rosevale Offset Area 4 - Scenic Precinct (EPBC 2020/8651)

Rehabilitation Management Plan - *Rehabilitation Zones*



MANAGEMENT ZONES LEGEND

Environmental Management Zone 1 – Non-remnant Paddock RE 12.8.17/12.8.14 (Reconstruction)

Existing native trees, shrubs and groundcovers to be protected and retained.

Appropriate (sensitive) weed management methodology within this zone to encourage natural regeneration, minimise damage to existing native vegetation, stabilise soil and minimise impacts to aquatic / semi-aquatic fauna.

Entire zone to be planted with a mixture of trees, shrubs and groundcovers, following weed management works at densities appropriate for providing foraging habitat for koala, grey-headed flying-fox, regent honeyeater and swift parrot. Any planting on creek bank to comply with 'Categories of channel vegetation' figure on Sheet 08. Species to be of local provenance and consistent with native species occurring naturally on site and/or regional ecosystems 12.8.17 and 12.8.14.

Refer to Rehabilitation Notes for additional details, plant species and densities.

Environmental Management Zone 2 – Sparse Regrowth RE 12.8.17/12.8.14 (Reconstruction)

Existing native trees, shrubs and groundcovers to be protected and retained.

Appropriate (sensitive) weed management methodology within this zone to encourage natural regeneration, minimise damage to existing native vegetation, stabilise soil and minimise impacts to aquatic / semi-aquatic fauna.

All rehabilitation works within creek riparian zone to adhere to Natural Channel Design guidelines. Weed management to comprise hand/manual removal techniques near waterway, or in lead up to rainfall to minimise harm to broader estuarine environment. Ongoing weed management throughout the maintenance period to reinforce primary weed removal. Any planting on creek bank to comply with 'Categories of channel vegetation' figure on Sheet 08.

Infill planting of bare areas beneath existing native canopy trees with a mixture of shrubs and groundcovers throughout, and trees installed at locations >3m from existing tree trunks. Infill planting is to occur utilising seedling trees, shrubs and groundcovers where required to supplement density of foraging tree species for koala, grey-headed flying-fox, regent honeyeater and swift parrot. Species to be of local provenance and consistent with native species occurring naturally on site and/or regional ecosystems 12.8.17 and 12.8.14.

Refer to Rehabilitation Notes for additional details, plant species and densities.

Waterbodies

No rehabilitation measures are proposed within this zone.

Access Track (indicative)

No rehabilitation measures are proposed within this zone. Groundcovers to be maintained to allow access for rehabilitation works and maintenance/monitoring activities.

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

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SCALE (A3)
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PROJECT
Rosevale Offset Area 4 -
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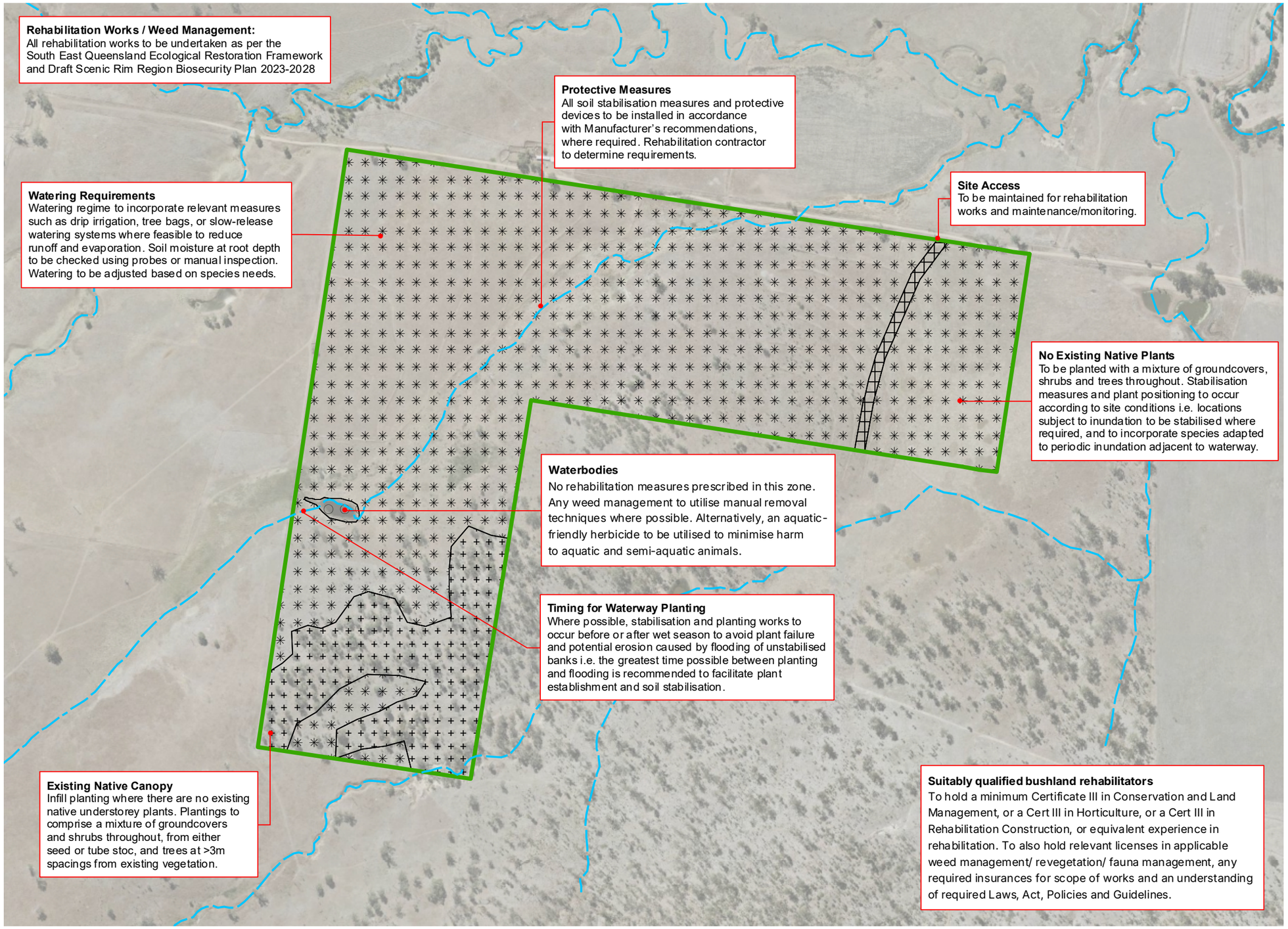
DRAWING TITLE
REHABILITATION
MANAGEMENT PLAN

DRAWING NO.
7399 E 03 Scenic RMP A

Rosevale Offset Area 4 - Scenic Precinct (EPBC 2020/8651)

Rehabilitation Management Plan - *Detail Sheet*



Rehabilitation Works / Weed Management:
All rehabilitation works to be undertaken as per the South East Queensland Ecological Restoration Framework and Draft Scenic Rim Region Biosecurity Plan 2023-2028

Protective Measures
All soil stabilisation measures and protective devices to be installed in accordance with Manufacturer's recommendations, where required. Rehabilitation contractor to determine requirements.

Watering Requirements
Watering regime to incorporate relevant measures such as drip irrigation, tree bags, or slow-release watering systems where feasible to reduce runoff and evaporation. Soil moisture at root depth to be checked using probes or manual inspection. Watering to be adjusted based on species needs.

Site Access
To be maintained for rehabilitation works and maintenance/monitoring.

No Existing Native Plants
To be planted with a mixture of groundcovers, shrubs and trees throughout. Stabilisation measures and plant positioning to occur according to site conditions i.e. locations subject to inundation to be stabilised where required, and to incorporate species adapted to periodic inundation adjacent to waterway.

Waterbodies
No rehabilitation measures prescribed in this zone. Any weed management to utilise manual removal techniques where possible. Alternatively, an aquatic-friendly herbicide to be utilised to minimise harm to aquatic and semi-aquatic animals.

Timing for Waterway Planting
Where possible, stabilisation and planting works to occur before or after wet season to avoid plant failure and potential erosion caused by flooding of unstabilised banks i.e. the greatest time possible between planting and flooding is recommended to facilitate plant establishment and soil stabilisation.

Existing Native Canopy
Infill planting where there are no existing native understorey plants. Plantings to comprise a mixture of groundcovers and shrubs throughout, from either seed or tube stoc, and trees at >3m spacings from existing vegetation.

Suitably qualified bushland rehabilitators
To hold a minimum Certificate III in Conservation and Land Management, or a Cert III in Horticulture, or a Cert III in Rehabilitation Construction, or equivalent experience in rehabilitation. To also hold relevant licenses in applicable weed management/ revegetation/ fauna management, any required insurances for scope of works and an understanding of required Laws, Act, Policies and Guidelines.

LEGEND

- Mapped Waterways
- Environmental Management Zone [523,000 m²]

Management Zones

- **Environmental Management Zone 1:** Non-remnant Vegetation (RE 12.8.17/12.8.14) [449,410 m ²]
- **Environmental Management Zone 2:** Regrowth Vegetation (RE 12.8.17/12.8.14) [66,700 m ²]
- Waterbodies
- Access Track (indicative)

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

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SCALE (A3)
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DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
7399 E 04 Scenic RMP A

Rosevale Offset Area 4 - Scenic Precinct (EPBC 2020/8651)

Rehabilitation Management Plan - *Planting Species Schedule (i)*

FINAL SPECIES PALETTE TO COMPRISE MAXIMUM DIVERSITY OF SPECIES FROM SCHEDULES. TO BE APPROVED BY ENVIRONMENTAL COORDINATOR.

NOTES

- Final species palette to comprise maximum diversity of species from schedules. To be approved by environmental coordinator and Scenic Rim Regional Council prior to installation.
- Area calculations are a maximum calculation for use as needed.
- Final on-ground planting numbers and densities subject to planting contractor requirements.

Environmental Management Zone 1 – Non-remnant Paddock RE 12.8.17/12.8.14 (Reconstruction)

Notes:

1) Trees 1 to be planted at a density of 1 tree per 10 m².
2) Setback trees 3 metres minimum from all property boundaries and services
3) Distribute plants in groups on site in random arrangement - to be confirmed with super-intendent on site
4) Plant species according to tolerances and site conditions
5) Plant quantities to be confirmed by rehabilitation supervisor according to site conditions. Unsuitable or unavailable species to be substituted with other species from this schedule.
6) Species consistent with RE 12.8.17/12.8.14 technical description.

SCIENTIFIC NAME	COMMON NAME	HABITAT VALUE	PLANT FORM	POT SIZE	PLANTING DENSITY	PERCENTAGE	QUANTITY
T1 / TREES							
*Eucalyptus melliodora**	Yellow Box	**RHE preferred SP preferred** Koala GHFF	Tree to 30 m	Tube	1 per 10 m²	40%	17960
*Eucalyptus eugenioides**	Thin-leaved Stringybark	**RHE preferred** Koala GHFF	Tree to 25 m	Tube	1 per 10 m²	12%	5388
Eucalyptus crebra	Narrow-leaved Ironbark	Koala GHFF	Tree to 35 m	Tube	1 per 10 m²	10%	4490
Eucalyptus tereticornis subsp. *Tereticornis**	Forest Red Gum	**SP preferred** Koala GHFF	Tree to 50 m	Tube	1 per 10 m²	10%	4490
Eucalyptus melanophloia	Silver-leaved Ironbark	Koala GHFF	Tree to 20 m	Tube	1 per 10 m²	5%	2245
Corymbia intermedia	Pink Bloodwood	Koala GHFF	Tree to 35 m	Tube	1 per 10 m²	8%	3592
Corymbia tessellaris	Moreton Bay Ash	Koala GHFF	Tree to 35 m	Tube	1 per 10 m²	8%	3592
Angophora subvelutina	Broad-leaved Apple	Koala GHFF	Tree to 20 m	Tube	1 per 10 m²	7%	3143
						TOTAL	**44,900**
T2 / SHRUBS							
Allocasuarina torulosa	Forest She-oak	N/A Pioneer	Tree to 8 m	Tube	1 per 10 m²	20%	8980
Brachychiton populneus	Kurrajong	N/A Pioneer	Tree to 20 m	Tube	1 per 10 m²	10%	4490
Jacksonia scoparia	Dogwood	N/A Pioneer	Shrub	Tube	1 per 10 m²	10%	4490
Acacia fimbriata	Brisbane Wattle	N/A Pioneer	Shrub	Tube	1 per 10 m²	12%	5388
Cassinia quinquefaria	Wild Rosemary	N/A Pioneer	Shrub	Tube	1 per 10 m²	12%	5388
Exocarpos cupressiformis	Native Cherry	N/A Pioneer	Shrub	Tube	1 per 10 m²	12%	5388
Dodonaea viscosa	Hop Bush	N/A Pioneer	Shrub	Tube	1 per 10 m²	6%	2694
Olearia elliptica	Sticky Daisy Bush	N/A Pioneer	Shrub	Tube	1 per 10 m²	6%	2694
Breynia oblongifolia	Coffee Bush	N/A Pioneer	Shrub	Tube	1 per 10 m²	6%	2694
Solanum stelligerum	Devil's Needles	N/A Pioneer	Shrub	Tube	1 per 10 m²	6%	2694
						TOTAL	**44,900**

GROUNDCOVERS							
Themeda triandra	Kangaroo Grass	N/A Other	Grass	Tube or seed	1 per 5 m²	5%	4490
Cymbopogon refractus	Barbed Wire Grass	N/A Other	Grass	Tube or seed	1 per 5 m²	5%	4490
Heteropogon contortus	Black Speargrass	N/A Other	Grass	Tube or seed	1 per 5 m²	5%	4490
Poa sieberiana var. sieberiana	Blue Tussock Grass	N/A Other	Grass	Tube or seed	1 per 5 m²	5%	4490
Dichanthium sericeum	Queensland bluegrass	N/A Other	Grass	Tube or seed	1 per 5 m²	5%	4490
Eragrostis brownii	Browns Lovegrass	N/A Other	Grass	Tube or seed	1 per 5 m²	5%	4490
Sarga leiocladum	Wild Sorghum	N/A Other	Grass	Tube or seed	1 per 5 m²	5%	4490
Panicum effusum	Hairy Panic	N/A Other	Grass	Tube or seed	1 per 5 m²	5%	4490
Aristida vagans	Threeawn Speargrass	N/A Other	Grass	Tube or seed	1 per 5 m²	5%	4490
Oplismenus aemulus	Australian Basket Grass	N/A Other	Grass	Tube or seed	1 per 5 m²	5%	4490
Gahnia aspera	Saw Sedge	N/A Other	Sedge	Tube or seed	1 per 5 m²	5%	4490
Lepidosperma laterale	Variable Swordsedge	N/A Other	Sedge	Tube or seed	1 per 5 m²	5%	4490
Lomandra longifolia	Spiny-headed Mat-rush	N/A Other	Sedge	Tube or seed	1 per 5 m²	5%	4490
Dianella caerulea	Blue Flax-lily	N/A Other	Herb	Tube or seed	1 per 5 m²	5%	4490
Eremophila debilis	Winter Apple	N/A Other	Prostrate shrub	Tube or seed	1 per 5 m²	5%	4490
Hardenbergia violacea	False Sarsparilla	N/A Other	Prostrate shrub	Tube or seed	1 per 5 m²	5%	4490
Eustrephus latifolius	Wombat Berry	N/A Other	Vine	Tube or seed	1 per 5 m²	5%	4490
Chrysocephalum apiculatum	Yellow Buttons	N/A Other	Herb	Tube or seed	1 per 5 m²	5%	4490
Glycine clandestina	Twining Glycine	N/A Other	Scrambling vine	Tube or seed	1 per 5 m²	5%	4490
Asperula *conferta*	Common Woodruff	N/A Other	Herb	Tube or seed	1 per 5 m²	5%	4490
						TOTAL	**89,800**

*Planting percentages required at prescribed rate to fulfil offset planting requirements for Regent Honeyeater and Swift Parrot.

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

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References:
South East Queensland Ecological Restoration Framework (2012)

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Montauban Environmental Offsets

PROJECT
Rosevale Offset Area 4 -
Scenic Precinct (EPBC 2020/8651)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
7399 E 05 Scenic RMP A

Rosevale Offset Area 4 - Scenic Precinct (EPBC 2020/8651)

Rehabilitation Management Plan - *Planting Species Schedule (ii)*

FINAL SPECIES PALETTE TO COMPRISE MAXIMUM DIVERSITY OF SPECIES FROM SCHEDULES. TO BE APPROVED BY ENVIRONMENTAL COORDINATOR.

NOTES

- Final species palette to comprise maximum diversity of species from schedules. To be approved by environmental coordinator and Scenic Rim Regional Council prior to installation.
- Area calculations are a maximum calculation for use as needed.
- Final on-ground planting numbers and densities subject to planting contractor requirements.

Environmental Management Zone 2 – Sparse Regrowth RE 12.8.17/12.8.14 (Reconstruction)

Notes:

1) Trees to be planted at a density of 1 tree per 50 m².
2) Setback trees 3 metres minimum from all property boundaries and services
3) Distribute plants in groups on site in random arrangement - to be confirmed with super-intendent on site
4) Plant species according to tolerances and site conditions
5) Plant quantities to be confirmed by rehabilitation supervisor according to site conditions. Unsuitable or unavailable species to be substituted with other species from this schedule.
6) Species consistent with RE 12.8.17/12.8.14 technical description.

SCIENTIFIC NAME	COMMON NAME	HABITAT VALUE	PLANT FORM	POT SIZE	PLANTING DENSITY	PERCENTAGE	QUANTITY
T1 / TREES							
*Eucalyptus melliodora**	Yellow Box	**RHE preferred SP preferred** Koala GHFF	Tree to 30 m	Tube	1 per 50 m²	40%	536
*Eucalyptus eugenioides**	Thin-leaved Stringybark	**RHE preferred** Koala GHFF	Tree to 25 m	Tube	1 per 50 m²	12%	161
Eucalyptus crebra	Narrow-leaved Ironbark	Koala GHFF	Tree to 35 m	Tube	1 per 50 m²	10%	134
Eucalyptus tereticornis subsp. *Tereticornis**	Forest Red Gum	**SP preferred** Koala GHFF	Tree to 50 m	Tube	1 per 50 m²	10%	134
Eucalyptus melanophloia	Silver-leaved Ironbark	Koala GHFF	Tree to 20 m	Tube	1 per 50 m²	5%	67
Corymbia intermedia	Pink Bloodwood	Koala GHFF	Tree to 35 m	Tube	1 per 50 m²	8%	107
Corymbia tessellaris	Moreton Bay Ash	Koala GHFF	Tree to 35 m	Tube	1 per 50 m²	8%	107
Angophora subvelutina	Broad-leaved Apple	Koala GHFF	Tree to 20 m	Tube	1 per 50 m²	7%	95
						TOTAL	**1,340**
T2 / SHRUBS							
Allocasuarina torulosa	Forest She-oak	N/A Pioneer	Tree to 8m	Tube	1 per 50 m²	20%	268
Brachychiton populneus	Kurrajong	N/A Pioneer	Tree to 20m	Tube	1 per 50 m²	10%	134
Jacksonia scoparia	Dogwood	N/A Pioneer	Shrub	Tube	1 per 50 m²	10%	134
Acacia fimbriata	Brisbane Wattle	N/A Pioneer	Shrub	Tube	1 per 50 m²	12%	160
Cassinia quinquefaria	Wild Rosemary	N/A Pioneer	Shrub	Tube	1 per 50 m²	12%	160
Exocarpos Cupressiformis	Native Cherry	N/A Pioneer	Shrub	Tube	1 per 50 m²	12%	160
Dodonaea viscosa	Hop Bush	N/A Pioneer	Shrub	Tube	1 per 50 m²	6%	80
Olearia elliptica	Sticky Daisy Bush	N/A Pioneer	Shrub	Tube	1 per 50 m²	6%	80
Breynia oblongifolia	Coffee Bush	N/A Pioneer	Shrub	Tube	1 per 50 m²	6%	80
Solanum stelligerum	Devil's Needles	N/A Pioneer	Shrub	Tube	1 per 50 m²	6%	80
						TOTAL	**1,336**

GROUNDCOVERS							
Themeda triandra	Kangaroo Grass	N/A Other	Grass	Tube or seed	1 per 10 m²	5%	335
Cymbopogon refractus	Barbed Wire Grass	N/A Other	Grass	Tube or seed	1 per 10 m²	5%	335
Heteropogon contortus	Black Speargrass	N/A Other	Grass	Tube or seed	1 per 10 m²	5%	335
Poa sieberiana var. sieberiana	Blue Tussock Grass	N/A Other	Grass	Tube or seed	1 per 10 m²	5%	335
Dichanthium sericeum	Queensland bluegrass	N/A Other	Grass	Tube or seed	1 per 10 m²	5%	335
Eragrostis brownii	Browns Lovegrass	N/A Other	Grass	Tube or seed	1 per 10 m²	5%	335
Sarga leiocladum	Wild Sorghum	N/A Other	Grass	Tube or seed	1 per 10 m²	5%	335
Panicum effusum	Hairy Panic	N/A Other	Grass	Tube or seed	1 per 10 m²	5%	335
Aristida vagans	Threeawn Speargrass	N/A Other	Grass	Tube or seed	1 per 10 m²	5%	335
Oplismenus aemulus	Australian Basket Grass	N/A Other	Grass	Tube or seed	1 per 10 m²	5%	335
Gahnia aspera	Saw Sedge	N/A Other	Sedge	Tube or seed	1 per 10 m²	5%	335
Lepidosperma laterale	Variable Swordsedge	N/A Other	Sedge	Tube or seed	1 per 10 m²	5%	335
Lomandra longifolia	Spiny-headed Mat-rush	N/A Other	Sedge	Tube or seed	1 per 10 m²	5%	335
Dianella caerulea	Blue Flax-lily	N/A Other	Herb	Tube or seed	1 per 10 m²	5%	335
Eremophila debilis	Winter Apple	N/A Other	Prostrate shrub	Tube or seed	1 per 10 m²	5%	335
Hardenbergia violacea	False Sarsparilla	N/A Other	Prostrate shrub	Tube or seed	1 per 10 m²	5%	335
Eustrephus latifolius	Wombat Berry	N/A Other	Vine	Tube or seed	1 per 10 m²	5%	335
Chrysocephalum apiculatum	Yellow Buttons	N/A Other	Herb	Tube or seed	1 per 10 m²	5%	335
Glycine clandestina	Twining Glycine	N/A Other	Scrambling vine	Tube or seed	1 per 10 m²	5%	335
Asperula *conferta*	Common Woodruff	N/A Other	Herb	Tube or seed	1 per 10 m²	5%	335
						TOTAL	**6,700**

*Planting percentages required at prescribed rate to fulfil offset planting requirements for Regent Honeyeater and Swift Parrot.

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

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References:
South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS				
ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	29/10/2025	CLIENT DRAFT	TF	AW

CLIENT: Montauban Environmental Offsets

PROJECT: Rosevale Offset Area 4 - Scenic Precinct (EPBC 2020/8651)

DRAWING TITLE: REHABILITATION MANAGEMENT PLAN

DRAWING NO.: **7399 E 06 Scenic RMP A**

Rosevale Offset Area 4 - Scenic Precinct (EPBC 2020/8651)

Rehabilitation Management Plan - *Site Preparation*

REHABILITATION TIMELINE

Specific timeframes for rehabilitation are described within the following sections of this RMP. The following timeframes for each phase of rehabilitation is recommended. It is noted timeframes may be subject to change depending on climate and site conditions. Where timeframes are required to change, the proposed schedule will be updated accordingly. Timing is taken from the legal securement of the offset area.

- Source and propagate seed – Years 1-2
- Site preparation (initial weed treatment, soil cultivation, controlled burns) – Years 1-2
- Broadscale planting works – Years 2-3
- Maintenance (watering, follow-up weed works) – Years 2-5 with potential to extend to Year 7 (minimum of 2-5 years for establishment)

It is noted some monitoring components are required to occur prior to the commencement of any site work and will be coordinated with the Offset Provider. Refer to Monitoring and Reporting Framework for full details of monitoring proposed.

METHODOLOGY – SITE PREPARATION

Prior to site works commencing, the site should be secured from degrading impacts such as grazing by stock, unauthorised access and rubbish. Some factors that may require immediate attention include:

- The presence of highly invasive weed species which may disperse further prior to substantial site works commencing
- The presence of weed species which may have a long-term impact on ecological communities such as exotic and weed varieties of vines
- Flammable materials (including weed thickets, grasses and vines)
- Damaging and easy access by 4WD, motorbikes and pedestrians into core retained vegetation and ecological restoration areas. This may require installation of temporary fencing if deemed appropriate Site works can be typically broken down into the following categories:
    - Primary Works
    - Follow-up Works
    - Maintenance Works (refer Methodology – Maintenance)

Primary Works

Primary works or initial works within the site or a section of the site will commonly involve a sequence of activities such as the control of all groundcover weeds, woody weeds in the understorey and exotic vines prior to the control of weed trees. Primary work has the effect of creating a large degree of disturbance which will stimulate the germination of native and exotic species. Therefore, continuing works should be scheduled shortly after the initial visit to allow for timely control of the newly regenerating weeds.

Highly invasive weeds, such as the Restricted Invasive Plants listed under the Biosecurity Act 2014, should be treated as a priority during primary works to alleviate competition on native flora species and inhibit spread into newly disturbed areas. For example, canopy smothering vines such as Cat's Claw Creeper can have a detrimental impact on native canopy trees and should be prioritised over less invasive herbs such as Blue Billy Goat Weed. Some weeds will also need to be treated in stages i.e. where the weed provides protection and habitat for native fauna or where it is providing bank stabilisation. For example, where Lantana is providing the only habitat for small birds, it should be removed in phases as native shrub habitat establishes.

Techniques used during primary work commonly involve spot spray, cut-scrape paint, cut-paint, scrape-paint, roll-hang and over spraying (source: SEQERF). *Refer to Weed Management notes for additional details.* Following completion of weed management, rehabilitation (such as assisted natural regeneration, construction and fabrication planting) can occur in areas unaffected by weed management activities or areas that primary weed management activities have concluded. Refer to Rehabilitation Works notes for additional details. At the end of primary work, the zone will have been comprehensively and systematically worked, ready for follow-up works.

Follow-up Works

At intervals, which will vary according to the type of weed impacting the site and growing conditions, follow-up work will be necessary. This generally involves the spot-spraying of newly germinating weeds and resprouting sections of woody weeds and vines. It is at this stage that observational visits should be made to the site to determine what progress the vegetation is making and decide when to implement further follow-up work. A site that receives badly timed, too frequent or too little follow-up will rapidly experience setbacks, as weed propagules will quickly become established in the newly disturbed areas. Germinating native seedlings may be swamped by weeds or damaged by inexperienced operators thereby exhausting the seed bank. Unless adequate follow-up can be ensured when planning restoration works, there is little point in commencing primary work, as time and resources are consumed with no substantial gain achieved (source: SEQERF).

METHODOLOGY – WEED NOTES

Weed management typically comprises a major part of rehabilitation site works. Weed management provides the basis of aiding natural regeneration and assisted natural regeneration. It also forms part of the preliminary work required for reconstruction and fabrication scopes.

Weed Management is to be undertaken in accordance with the SEQERF Primary, Follow-up and Maintenance works notes above. Weed management shall encompass all species declared at the commonwealth, state and local level, and any weeds that appear to be invasive at the site.

A total of 25 species of weed recorded within the offset area and surrounding areas within the broader offset property. Two (2) species of WONS were recorded within the offset area being Lantana camara (Lantana) and Senecio madagascariensis (Fireweed). Seven (7) species of Category 3 restricted weeds listed under the Queensland Biosecurity Act 2014 were recorded.

Critical skills for Weed Management include:

- Knowledge of relevant legislation
- Plant Identification skills
- Knowledge of different weed management techniques

Knowledge of Relevant Legislation

It is expected contractors have a depth of knowledge of relevant legislation to complete site rehabilitation works. This includes invasive plant classifications and control obligations under the Queensland *Biosecurity Act 2014* and local Biosecurity Plans (Refer to adjacent schedules for classification of weeds under the Act).

Bush regenerators must also comply with the requirements of the Workplace Health and Safety Act 2011 or, when working on Commonwealth lands, the Commonwealth's Occupational Health and Safety (Commonwealth Employment) Act 1991.

Contractors should also obtain all relevant permits required under State and Commonwealth legislation (e.g. Nature Conservation Act 1992, Fisheries Act 1994, Vegetation Management Act 1999, Biosecurity Act 2014). Contractors must also be aware of and adhere to cultural heritage protection obligations under the Aboriginal Cultural Heritage Act 2003 and where chemicals are in use, the Agricultural Chemicals Distribution Control Act 1966.

In addition to the above, contractors should also be familiar with local government body requirements (e.g. Local Codes, Policies and Guidelines).

RESTRICTED MATTERS (*BIOSECURITY ACT 2014*)

Category	Description
1	must be reported to an inspector within 24 hours if it is present in, or on, something in your possession or under your control or at a place where you are the occupier, unless an appropriately authorised officer has already been advised or you possess a permit for the restricted matter. Includes red imported fire ants, electric ants, Asian honey bees, and certain animal diseases, aquatic diseases and pathogens.
2	must be reported to an inspector within 24 hours if it is present in, or on, something in your possession or under your control or at a place where you are the occupier, unless an appropriately authorised officer has already been advised or you possess a permit for the restricted matter. includes certain noxious fish, weeds and pest animals
3	You must not distribute this restricted matter. It must not be given as a gift, sold, traded or released into the environment unless the distribution or disposal is authorised in a regulation or under a permit. Deliberate human distribution or disposal contrary to the legislation is a key source of spread into other areas. includes weeds, pest animals and noxious fish
4	You must not move this restricted matter to ensure that it does not spread into other areas of the state. includes specific weeds, pest animals and noxious fish
5	You must not possess or keep this restricted matter under your control. These pests have a high risk of negatively impacting on the environment. You may only keep this restricted matter under a permit of the *Biosecurity Act 2014* or another Act. includes weeds, pest animals and noxious fish
6	You must not feed this category of restricted matter. Feeding this restricted matter may cause their numbers to increase and negatively impact the economy or the environment. Feeding for the purpose of preparing for or undertaking a control program is exempted. Includes invasive animals such as feral deer, foxes, rabbits and wild dogs and noxious fish such as carp, gambusia and tilapia.
7	If you have these noxious fish in your possession, you must kill the restricted matter and dispose of the carcass by burying the whole carcass in the ground above the high tide water mark or placing it in a waste disposal receptacle. Includes noxious fish such as carp, weather loach, climbing perch and gambusia

Plant Identification Skills

Both native and weed species should be identified prior to primary weed removal works and ongoing throughout the follow-up and maintenance periods. This is to maximise natural regeneration and reducing likelihood of accidental weed spraying to native vegetation. Regenerating species to be treated and maintained in a similar manner to newly planted revegetation tube stock. If contractor is unsure of species, advice should be sought by botanist, specialist contractor or confirmed with Queensland Herbarium. Refer to indicative Weed Treatment schedules derived from Queensland Herbarium for an indication of weed species and treatments.

Site specific notes

Based on site-specific data, the following weed management methods and techniques are recommended:

- Stick rake, grubbing, ploughing or slashing major accessible areas of Lantana where not on a slope greater than 15% or where no existing native values occur.
- Apply broadscale herbicide and spot spray during high germination summer periods (Nov-March). Utilise organic based Lantana targeted herbicides which minimise impacts on native vegetation regenerating within and surrounding Lantana patches.
- Control methods applied will be guided by methods outlined in the DAF's Improved practices catalogue: Best management practice for maintaining and improving land condition on grazing lands (DAF, 2017).
- Cautionary options to reduce run off or contamination from herbicides will be utilised within proximity to the Bremer River. Spot spraying of glyphosate will limit potential for impact as it is known to breakdown immediately on contact with soil and has no residual effect (Gray et al. 2006). It is understood that permits from relevant state Environment Protection Authorities may be required if herbicides are to be sprayed on riverbanks. If seen fit, other forms of control, such as mechanical or fire management, may be utilised adjacent to the Bremer River to reduce potential impacts to waterbodies.

Knowledge of Different Weed Management Techniques

A range of weed management techniques are available to combat a variety of weeds and scenarios. Refer to adjacent schedules and Appendix A for weed management techniques.

WEED MANAGEMENT TECHNIQUES	
METHOD	**DESCRIPTION**
Herbicide	**The herbicide weed control techniques described below provide a range of proven methods that can be used on a restoration site.**
Cut - Scrape-Paint	Cut the stem of the plant close to the ground (approximately 1-2cm) ensuring that soil does not come in contact with the cut surface. The cut can be made at a slight angle in order to increase the surface area that is exposed to the chemical. Apply herbicide immediately to the cut stump using poison pot and brush or dripper bottle. Using a knife, scrape the sides of the stump thoroughly to expose the green tissue. Apply herbicide to the scraped stump. The chemical must be applied within 10 seconds of the cut or scrape being made in order for it to be fully effective.
Cut - Paint	Cut the stem of the plant close to ground level. Apply herbicide to the cut stump using poison pot and brush or dripper bottle. This method is best suited to easy-to-treat weeds such as small-leaved privet (Ligustrum sinense), provided that the diameter of the stem at ground level is less than approximately three centimetres. If a glyphosate-/ metsulfuron methyl herbicide mix is being used in the poison pot, a greater range of weeds can be controlled using this method e.g. Easter cassia.
Scrape - Paint	Scrape as much of the stem as possible (one side of the stem) using a knife and apply herbicide to the scrape. Leave a small section of the vine unscraped and then twist the vine so that the next scrape is made on the opposite side of the stem to the preceding scrape. Continue along the length of the vine, scraping and painting as much of the stem as possible, with scraping to be concentrated along the thicker stems close to the root of the plant. This is the best method to use for madeira vine, as it allows the chemical to translocate to the underground storage organs and aerial tubers which may be hanging in large clusters above head height. This avoids the potential problem of tubers from cut stems left hanging in the trees from dropping to the ground and sprouting. When scraping madeira vine stems a deep scrape is advisable – scrape right through to the fibrous, stringy section of the stem, taking care not to sever the vine. This method is also suitable for treatment of ochna.
Over-spraying	Over-spraying involves the use of knapsacks or power sprayers to treat large expanses of weed such as lantana thickets. The foliage must be covered with herbicide but not to the point of running off the plant. The dead plants remain in place and can be cut down at a later stage. Prior to over-spraying, any weeds that are growing closely around established native plants must be hand removed or treated by cut-scrape-paint.
Spot-spraying	A knapsack filled with an appropriate herbicide mix is used by the operator to selectively control environmental weeds. A keen eye and an ability to distinguish between the native and weed species likely to be present, especially at seedling stage, is essential. Marker dye is added to the chemical mix to allow the operator to see what has already been sprayed, thus covering the ground weeds comprehensively and thoroughly Glyphosate and metsulfuron methyl are the main herbicides used for spot-spraying in ecological restoration, together with the addition of a penetrant and/or surfactant and marker dye.
Splatter Gun	This small gas-powered injector kit is fitted into a knapsack for easy carrying and delivers large droplets in a stream over the weed. The gun is used to deliver a concentrated herbicide (glyphosate or metsulfuron methyl) across large dense expanses of weed. The method is used for species such as lantana (ratio of 1:9 of glyphosate:water). Splatter gun involves spraying strips at one to two metre intervals over the thicket. The herbicide is then translocated throughout the entire plant. The method does not require the whole plant to be covered as in over-spray.
Oil-hang	Vines such as mile-a-minute (Ipomoea cairica) which produce long stolons extending many metres along the surface of the ground, are suited to the roll-hang method. Locate the base of the plant and carefully pull up the runners and roll them up. The resulting roll of vine is then hung in the fork of a tree to dry out as if it is left on the ground it is likely to re-shoot. Where runners are climbing up into a tree they are cut off at head height prior to the runner being rolled up – there is no need to pull cut vines down from trees as this action is likely to damage the tree. The base of the vine is treated using the cut scrape-paint method.
Gouge-paint	This method applies to plant species that have a fleshy underground storage organ, such as the large tuber that is often found at the base of madeira vine. It is also particularly appropriate for the treatment of climbing asparagus (Protasparagus plumosus). If using this technique on climbing asparagus, first cut the stems that are growing into the canopy at head height and also at the base. The fleshy rhizome can then be gouged, or alternatively in the case of climbing asparagus, it may be struck several times firmly with the head of a pair of loppers, allowing the brown outer covering of the crown to peel away exposing the white fleshy inner section of the rhizome for application of herbicide. Gouge out sections of the fleshy base with a knife and apply herbicide using a paint pot and brush or dripper bottle within 10 seconds.
Basal Barking	This method involves mixing an oil-soluble herbicide in diesel/kerosene and painting or spraying the full circumference of the trunk or stem of the plant from ground level to a height of approximately 45cm. Basal bark application is suitable for thin-barked woody weeds including saplings, regrowth and multi-stemmed shrubs. The method will usually result in the mortality of difficult-to-control woody weeds at any time of the year, provided the bark is not wet or too thick to enable the herbicide to penetrate. The method should not be used in wet weather, adjacent to waterways or in areas where native trees and shrubs are located. The use should be restricted to situations where a weed is particularly difficult to control e.g. cherry guava and where other methods have been unsuccessful.
Stem Injection	Large woody weeds such as camphor laurel, coral trees (Erythrina spp, Privet Ligustrum spp) and umbrella trees are generally treated by stem-injection. Holes are drilled at regular intervals around the base of the tree and exposed roots using a drill. A tree injection syringe attached to a small capacity knapsack is used to fill the holes with the herbicide. Stem-injection of trees can also be undertaken using a hatchet to create cuts in a 'brickwork pattern' in trunks of trees for the application of herbicide (known as tree frilling). Frilling is more labour intensive than drilling. The greatest benefit of stem injection is that the trees can be left standing in situ as they die, provided there is no risk to humans or infrastructure from falling limbs. This creates convenient roosts for birds and other animals and prevents the formation of large amounts of debris on the ground and damage to understorey plants which would result if the trees were to be cut down using a chainsaw.
Wick Wiping	Wick wipers can be manually used with a sponge or wick applicator, attached to a container filled with herbicide or as an attachment towed by a tractor. The manual method can be used to selectively apply herbicide to the leaves of weeds growing in sensitive situations. The handheld container can leak, and generally spot spraying would be recommended. The use of a tractor drawn wick wiper is used to control taller growing species such as introduced grasses and to encourage the growth of lower growing species. This method could be used in preparation for planting.
Mechanical	**Mechanical weed control involves the use of powered and non-powered equipment such as brush cutters, chainsaws, slashers, shovels, pruners, saws, etc. These methods are best used in situations where there is a large, uninterrupted stand of weeds.**
Dig and Bag	Dig and remove tuberous/ rhizomatous root systems. Remove roots or whole plant in hard/ compacted soils. Place in suitable container and remove from site, dispose of by deep burial, burn or burial at a land fill, must not place declared weed species in recycling (mulch).
Hand-Pull	Remove totally from ground by hand (human). Perform when soil is moist. Applicable to small infestations or areas of environmental sensitivity (including sensitive watercourses, when frogs are breeding, or presence of threatened species).
General Mechanical	May involve use of machinery (e.g. brush cutter, chainsaw, slasher, dozer, excavator). Suitable for large infestations and weed trees. Initially cost-effective but requires immediate revegetation of site or matting/ mulch application and extensive maintenance periods. Generates excessive soil and vegetation disturbance.

Note: Table adapted from a table in SEQERF

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

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CLIENT: Montauban Environmental Offsets

PROJECT: Rosevale Offset Area 4 - Scenic Precinct (EPBC 2020/8651)

DRAWING TITLE: REHABILITATION MANAGEMENT PLAN

DRAWING NO.: **7399 E 07 Scenic RMP A**

Rosevale Offset Area 4 - Scenic Precinct (EPBC 2020/8651)

Rehabilitation Management Plan - *Planting Notes*

Burns and Soil Cultivation

Controlled cool burns – if weather allows, controlled cool burns are undertaken prior to cultivation or planting to remove grass and broadleaved plants. Qualified and experienced burning contractors are used in all instances, and in accordance with rural fire legislation, permit conditions and stakeholder/near neighbour notification requirements.

Cultivation of soil through ripping – this helps root penetration, increases moisture infiltration and retention around the planted tree's root zone and increases planting efficiency. In all instances, lines are ripped along contours. At no stage will downhill ripping be undertaken due to the high risk of channelling water in the rip lines and associated risk of serious erosion. The upper limit for contour ripping is 30 degrees. Below this, limits for contour ripping are to be set by the contractor, with operator safety being the primary consideration. Ripping must always take place during dry soil conditions, to enable effective soil fracture, and be completed several months before planting, to allow for settling of soil within the rip. Cultivation should not take place when soil moisture content is sufficient to allow the ripping implement to 'slice' through the soil without de-compacting it. Importantly:

- Ripping should always be undertaken with an angled steel plate affixed to the boot of the ripper to enable maximum soil decompaction at depth
- Minimum soil ripping depth is 30 cm – optimal soil ripping depth is 50 cm
- Ripped planting rows are spaced between 4 to 5 m apart to allow future vehicles access but retain planting density targets
- Machinery used to undertake ripping is typically a minimum D5 dozer, however, some high horsepower 4WD tractors or skid steers may also be suitable.

External Nursery

The Offset Provider will coordinate with local nurseries to source and propagate seedlings for planting. Species selection is critical in achieving the desired ecological restoration outcomes for rehabilitation sites. The planting palette proposed in this RMP has been derived from:

- Local Regional Ecosystem (RE) descriptions.
- Observed site native vegetation.
- Climatic and weather conditions observed on site (frost, salt-spray, etc.
- 'Pioneer' species are useful in site stabilisation and encouraging native regeneration (proposed to be planted in T2 subcanopy layer).
- Required foraging species to support regent honeyeater and swift parrot.
- Utilising flowering and fruiting species are useful to attract wildlife and result in introduction of seeds.
- Diverse vegetation layers (trees, shrubs, groundcovers).
- Species availability from seed propagation and or local nurseries.

Sourcing Seed Stock

Seed stock will be comprised of locally sourced seed stock where possible. Sourcing planting from local nurseries is the commonly chosen option and has the following benefits:

- Awareness of genetic considerations when collecting seed.
- Experience with breaking dormancy mechanisms in hard to germinate seeds.
- Highly successful propagation techniques.
- Ability to provide high quality stock to order
- Draw on industry resources.

Swift parrot and regent honeyeater foraging tree species (E. melliodora, E. eugenioides and E. tereticornis) are required to be planted at the densities and quantities prescribed in this RMP in order to meet the required offset outcomes for the species. Densities of the other species may be modified where unable to meet the seed stock requirements, however, the volume of tube stock to be planted should be the same.

METHODOLOGY – PLANTING

Primary weed management works, broad scale planting (reconstruction and fabrication) and assisted natural regeneration is proposed to be undertaken. Prior to installation, the following items should be considered:

- Timing of planting
- Site preparation
- Planting density
- Planting installation

Timing of Planting

The timing of planting should ideally be aligned with the wet season in SEQ (summer and autumn). This minimises the need for intensive watering to establishment planting. Planting between February to May is the most beneficial as it also seeks to avoid intense heat periods of summer. Furthermore, planting at flood-prone and frost-prone locations should aim for plant establishment prior to the onsite of flooding / frost events. Despite this, it is understood planting may occur at various times within rehabilitation areas due to development timing needs.

Site Preparation

Site or planting preparation includes:

- Fencing to exclude grazing animals and people (if required)
- Pre-spraying of exotic grasses and other weeds to planting areas
- Consideration of source of water for new planting (access tracks, temporary irrigation)
- Arranging delivery of mulch, jute netting and tree guards (if required)
- Treatment of heavily compacted soils by ripping and or application of gypsum
- Soil amelioration as required

Planting Density

The planting capacity or number of trees (all species) that can be supported within each EMZ was determined based on a planting density of 1 tree per 10 m2 or 1000 trees per hectare for non-remnant paddock and 1 per 50 m2 or 200 trees for sparse regrowth, proposed in accordance with the South East Queensland Ecological Restoration Framework (SEQERF). The proposed density of trees per hectare depending on the EMZ was multiplied by the size of the EMZ (in hectares) to determine the maximum planting capacity. Waterbodies were excluded from potential planting areas.

Each EMZ was assigned a planting palette of tree species developed based on the ground-truthed pre-clear regional ecosystem mapping and local availability of seed stock. Each planting palette comprises a mix of preferred foraging species for the Swift Parrot, other eucalypt trees and pioneer species such as *Acacia sp.* and *Allocasuarina sp.* Preferred foraging tree species comprise a percentage of the total planting palette where it is suitable for the pre-clear RE and/or consistent with the local seed stock.

Refer to plant schedule for the proposed species composition and planting densities.

Planting Installation

The following outlines the preferred installation methodology for revegetation works within the rehabilitation areas. It has been designed to maximise plant establishment success rates and minimize plant mortality. Revegetation works shall be either undertaken or directly supervised by an experienced and qualified contractor. All works shall be in accordance with the provisions of this RMP, and local government policies and Australian Standards.

Techniques are determined based on individual site conditions and will vary from bare seed, seed pods, drone seeding, seedling planting by ground machine, or spades/mattocks, or a combination of several techniques across the site.

Where cultivation has occurred, seedlings are planted into the prepared rip-lines. Seedlings should be planted in cultivated or uncultivated sites at a depth to make good contact with moist soil, and the soil then compressed around the seedling to remove any air pockets.

Planting should be of sufficient depth to ensure the entire root ball is buried with a minimum of five centimetres of natural ground covering the top of the root ball/potting mix. The stem of the seedling should be as vertical as possible.

Spreading bare seeds onto the top of the ground by hand or machine has a very low germination rate and requires high volumes of seed and good soil to seed contact to be successful. A high degree of pre-plant preparation is required before direct seeding is undertaken. Relatively flat open sites with little ground layer competition and sandy soils could be suitable for direct seeding by machine. Inaccessible sites with good pre-plant ground layer vegetation control could be suitable for drone dispersal.

Tube stock of native trees and shrubs should be planted into moist soil with good soil to seed contact at an optimum depth to maximise the seed germination. Seeds of the same species combined with various materials (e.g. clay) into a small pod shape can be used to reduce seed predation by insects, protect the seeds from adverse weather conditions, and increase germination. Inaccessible sites with good pre-plant ground layer vegetation control may be suitable for drone or manual dispersal of seed pods.

- Timing must occur during seasons of high rainfall and mild temperatures. Dry weather conditions, extreme high temperatures, and extreme low temperatures will have a negative impact on seed germination and seedling survival.
- Seedling types must be a variety of local provenance genetics to ensure future resilience and ecological benefits. Multiple seedlings can be grown in a solid tray or individually in 50mm tube stock pots. Transplanting the tallest, most mature seedlings with solid mature root ball density maximises the survival and early growth rate of the seedlings.
- Fertilising seedlings is important just prior to planting. Alternately a liquid fertilizer can be added to the water when the seedlings are soaked on the day of planting. A complete, slow-release fertiliser is recommended, and is to be administered appropriately during planting. Topdressing with slow-release fertiliser is preferred to avoid toxic levels of fertiliser accumulating in the plant hole around the plant roots.
- Moisture is a key element to reduce seedling transplant shock. The ground should have a full moisture profile, the seedlings should be soaked fully before planting, and there should be a high chance of rain after planting. Hand watering planted seedlings should be considered only as a last resort. Planting seedlings provides an opportunity to have the greatest control over forest design.
- Maps, including species combinations, will inform the planting contractors of the species mix for each planting site, the density and spacing of the seedlings and the specific location of each species mix across the site. Seedlings of the same species can be planted in small groups or spread randomly across the site.
- Quality control is undertaken at the time of planting. Clear instructions to planting contractor is required to ensure the planting quality standard is understood. This is usually best undertaken on the same day as contractor induction to make sure the planters understand the quality standards from day one. Any trees not planted correctly, or planted at the incorrect spacing, will need to be reworked at the contractor's cost. Further inspection of the planting work will be undertaken prior to completion of the planting work to ensure the standard and spacing requirements have been met. Invoices received from the planting contractor cannot be paid until the final inspection has been undertaken and any problems rectified. Work that does not meet the standard will need to be re-done as soon as possible at the expense of the contractor.

T2/shrub species are to be planted between T1 canopy tree rows. Ground covers are to be dispersed evenly throughout the area.

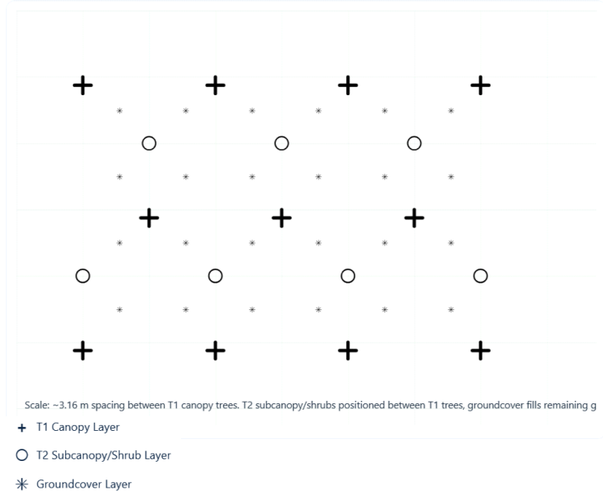

Figure 1: Proposed planting arrangement for complete reconstruction

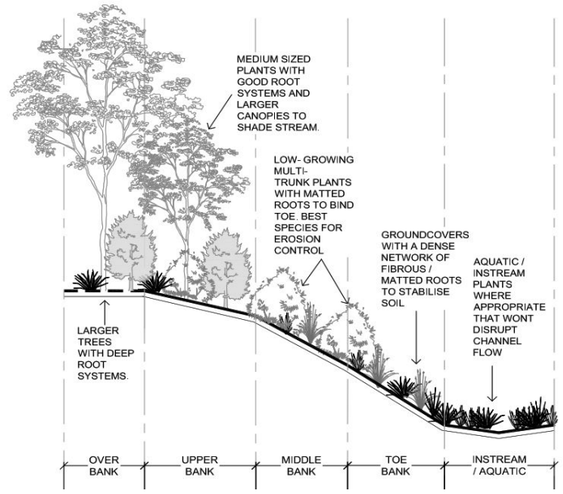

Figure 2: Categories of channel vegetation adapted from the Brisbane City Council Natural Channel Design Guidelines.

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BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

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PROJECT: Rosevale Offset Area 4 - Scenic Precinct (EPBC 2020/8651)

DRAWING TITLE: REHABILITATION MANAGEMENT PLAN

DRAWING NO.: 7399 E 08 Scenic RMP A

Rosevale Offset Area 4 - Scenic Precinct (EPBC 2020/8651)

Rehabilitation Management Plan - *Maintenance and Monitoring*

METHODOLOGY – MAINTENANCE

By the maintenance stage, the vegetation community is at a point where native plant species are germinating and establishing, and canopy formation is occurring. Weed density is starting to decrease as the native plants which have been encouraged during the previous restoration works are able to out-compete the weeds. One of the fundamental principles of ecological restoration is that it attempts to create or re-establish an ecosystem that is self-sustaining. Therefore, it is the underlying goal that maintenance will eventually be decreased to a minimum. While this is not always possible, due to factors such as the continual reintroduction of weed propagules to the site from nearby residential areas; unfavourable seasons or weather event; persistent weed species; or global influences such as the enhanced greenhouse effect, it should always be strived for (source: SEQERF).

Maintenance works may include minor ongoing weed management and infill planting depending on site conditions.

Watering regime

Watering is a critical component during the establishment phase of ecological restoration. Watering regime is to be adjusted based on site conditions, species, and seasonal variability. Indicative intensive watering regime is as below.

Establishment Phase (0–12 months)

- Frequency:
  - Weeks 1–4: Water every 2–3 days, especially in sandy or well-drained soils.
  - Weeks 5–12: Reduce to twice weekly, depending on rainfall and soil moisture.
  - Months 4–12: Weekly deep watering during dry spells.
- Volume:
  - Apply 10–20 litres per plant for trees and shrubs.
  - Groundcovers require less water, but will require full root zone saturation.
- Method:
  - Use drip irrigation, tree bags, or slow-release watering systems to minimise runoff and evaporation.
  - Avoid overhead watering to reduce disease risk.
- Seasonal Adjustments
  - Summer (Dec–Feb): Increase frequency due to high evapotranspiration.
  - Autumn/Winter (Mar–Aug): Reduce watering unless dry conditions persist.
  - Spring (Sep–Nov): Resume intensive watering as temperatures rise.
- Monitoring and Adaptation
  - Check soil moisture at root depth using probes or manual inspection.
  - Observe plant stress indicators: wilting, leaf drop, discoloration.
  - Adjust watering based on species needs.

Pest management

Non-native vertebrate pests will be managed as part of the broad management of the offset prescribed under the OMP. Management will target non-native vertebrate predator and herbivore species which have potential to damage regenerating habitat areas. This includes wild dogs, European red foxes, feral cats, feral pigs and deer.

Weed control

Intensive weed control maintenance will be undertaken for at least two years after planting is completed, or until the planted seedlings are tall enough to access full sunlight and adequate soil moisture free from adjacent competing plants. Ongoing weed maintenance activities will be completed throughout the life of the offset with a focus on WONS. Care should be taken to ensure weed control approaches do not impact planted seedlings and herbicide application is used precisely and selectively to ensure no dieback to the plantings or developing understorey. Herbicide application must be undertaken by licensed and experienced contractors, and in accordance with registered label conditions and safety data sheet requirements at all times. Mechanical methods will be used where appropriate.

MONITORING AND REPORTING FRAMEWORK

Monitoring

Monitoring methods to track rehabilitation progress will comprise a mix of informal and formal monitoring methods to track progress against the proposed environmental outcomes for each MNES and objectives of this RMP. All monitoring will be undertaken by a suitably qualified Rehabilitation Contractor/Landscape consultant and/or Ecologist.

The utilisation of performance indicators as part of monitoring program is proposed as a way of measuring rehabilitation success during the establishment and maintenance phases of the offset. A table of performance indicators is provided in Appendix 02 and forms the basis of the monitoring framework proposed in this RMP. Performance indicators are metrics by which the rehabilitation success of the offset area will be assessed in a meaningful and regularised approach and will be primarily used to assist with on-ground activities such as planting success and the identification of degrading factors that may be negatively affecting the offset area.

Performance indicator targets represent aspirational targets developed based on the proposed planting palette and densities, BioCondition benchmarks (v3.6) for the relevant regional ecosystems and anticipated response of performance indicators to the proposed rehabilitation regime.

The use of a targeted and regular monitoring program using performance indicators will provide a) comparable data during establishment and maintenance and b) consistent feedback and prompt when additional maintenance activities are required which can be communicated clearly and effectively to rehabilitation contractors. These metrics are additional to the prescribed habitat quality monitoring methods in the OMP.

A specific, repeatable methodology for obtaining planting data and provide benchmarks that align with offset objectives is proposed under the accompanying informal and formal monitoring methods, described below.

It is important for the long-term success of a habitat establishment project that both growth and survival are monitored at regular intervals. An intensive monitoring program is proposed whereby the offset area is monitored quarterly using informal and formal monitoring techniques for one year following planting during the initial establishment phase, then bi-annually until Year 5, then annually until Year 10.

Informal

Informal or qualitative monitoring techniques will be employed as part of the offset monitoring. Informal monitoring methods are less time-consuming and technical and form an important tool for determining ecological restoration success. Informal monitoring will occur through site inspections at prescribed monitoring intervals and will include the following techniques:

1. Photo monitoring, and
2. Visual assessment.

Photo monitoring

Photo monitoring is a cost-effective and objective method to visually assess plant survival and growth. Photo monitoring can be used to build a consistent reference point for rehabilitation progress and provide a visual time series of the offset area from a baseline state to a self-sustaining state. Permanent photo points will be established in the first year of the offset commencement prior to any works commencing on-site (weed management or planting) using a star picket marked with fluorescent yellow safety cap or painted timber stakes. This will enable photos to be taken of the site at regular intervals as it is being restored. Photo point locations will be spread between EMZ 1 and EMZ 2 at representative locations of each EMZ. Indicative photo monitoring locations are provided in Appendix 03 with locations to be finalised by the overseeing qualified Rehabilitation Contractor/Landscape Consultant and/or Ecologist.

Photo monitoring will use the following method to ensure adequate data collection and consistency across monitoring events as recommended by the *Guide to photo monitoring of ecological restoration projects* (OEH, 2018):

- Each photo will include the established star picket demarcating the photo point location to create a fixed reference object in the field of view.
- Point the photo towards an established compass bearing (e.g. 55° North) for the photo point location.
- Take multiple photos (left, right, centre) allowing for each image to overlap to create a panoramic view. This will increase the coverage and representativeness of the scene/subject.
- Always take the photo from the same point, and at the same height.
- Use the same camera or the same type of camera each time the photo is taken.
- Minimise sun glare and shadow in the photo and try to take photos at the same time of day.
- Identify key species that will be visible in the photo.
- Take along copies of the original photos for reference when returning to the photo points to help match the field of view contents.

Visual assessment

At each photo monitoring location, a visual assessment will also be completed whereby general observations and commentary relating to the performance indicators (refer Appendix 02) such as mortality rate, species, weed/WONS presence and other degrading factors are recorded.

Reporting

Following each photo monitoring event, a Photo Monitoring Report will be prepared which will include the following information:

- Photo set at each monitoring location.
- Commentary on mortality rate and presence of WONS/other weeds at a minimum with any additional relevant observations to inform adaptive management such as species-specific responses or herbivory.
- Adaptive management (if required).

Photo Monitoring Reports will be distributed to the rehabilitation contractor to instigate rectification works. An example Photo Monitoring Template is provided at Appendix 03.

After each monitoring event, photos will be transferred to a master photo monitoring data template, designed to show changes in each photo monitoring location between events. Refer to Appendix 03 for the master photo template located in the Photo Monitoring Report Template.

Formal

Formal monitoring of rehabilitation works involves collecting quantitative data at prescribed monitoring intervals using a combination of monitoring methods and techniques. Formal monitoring provides data that cannot be measured by informal observations and can be easily compared against quantitative performance indicators. This will include:

- MHQA transects at 5-yearly intervals (5, 10, 15 and 20 years) following the commencement of the offset. Transects will be repeated at baseline locations before the end of the relevant monitoring interval (e.g. before the end of Year 5) and will be completed in accordance with the baseline survey methodologies described in the OMP.
- 10 x 10 metre / 100 m^2 plots (quadrats) to be completed quarterly for the first year following the completion of planting, bi-annually until the end of Year 5 and annually until the end of Year 10. This monitoring method is considered additional to the MHQA monitoring.

Quadrat method

The use of a plot or quadrat is a widely used method for collecting vegetation composition data in a variety of environments. Variations of the method are described in various resources and utilise different size plots depending on factors such as the purpose of the study, time constraints and environmental factors (Hnatiuk et al. 2009; Thackway et al. 2008). The Wildflower Society of WA (Inc.) publication *Bushland Plant Survey, A Guide to Plant Community Survey for the Community* (Keighery, 1994) and the Department of Environment and Conservation resource *Establishing vegetation transects – Standard Operating Procedure No. 6.2* describe the use of a 10 x 10 m quadrat for vegetation monitoring.

Establishment of quadrat

A total of 4 quadrats will be established in EMZ 1 and 2 quadrats in EMZ 2. No specific number is prescribed under the published methods, with recommendation to increase the number of quadrats where feasible. The location of 4 in EMZ 1 and 2 in EMZ 2 will provide a representative and repeatable sample of the offset area. Indicative locations of the 10 x 10 m quadrats are shown on Appendix 03. Locations may be subject to change as part of the initial baseline set up depending on site factors.

During the initial set up of the quadrat each corner of the quadrat will be marked by a star picket or fence dropper and will be recorded using a GPS for ease in locating the quadrat for repeat surveys. A rope may be used to delineate the perimeter of the quadrat location. Refer to **Figure 3** for an example of the proposed set up.

Data will be interpreted as individual quadrats and averaged across quadrats to produce a mean set of values within each EMZ. Both forms of data representation will be used to inform management.

Figure 3. An example of an established 100 m2 quadrat (Clarke, 2009).

Data collection

Data within each quadrat will be collected against the performance indicators (refer Appendix 02) including:

- Native plant species richness (tree, shrub, groundcover)
- Number of juvenile and non-juvenile stems of eucalypt species
- Number of juvenile and non-juvenile stems of swift parrot foraging species (E. melliodora, E. eugenoides and E. tereticornis) and regent honeyeater foraging species (E. melliodora and E. eugenoides)
- Native plant mortality and rate of success of tree species (90% for foraging tree species or may trigger adaptive management)
- WONS weed cover (percentage)
- Other weed cover (percentage)
- Natural regeneration (yes/no)
- North/south/east/west photograph will be taken from the centre point of the quadrat

The first assessment will form the baseline post-planting result which will provide comparable data throughout the proposed monitoring timeframe.

Reporting

The results of the data collection will be detailed in a Rehabilitation Monitoring Report for each monitoring event and will be prepared by a suitably qualified Ecologist.

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

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References:
South East Queensland Ecological Restoration Framework (2012)

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Rehabilitation Management Plan - *Monitoring and Adapative Management*

Reporting and Monitoring - Summary

The results of informal (photo monitoring and visual assessment) and formal monitoring (10 x 10 m quadrats) will be detailed in quarterly/bi-annual/annual monitoring reports. These reports will include a summary of overall success rate (namely of tree species), any degrading factors at the site that may or are currently affecting survival success and any recommended adaptive management measures.

The reporting schedule for the monitoring program is summarised in the table below.

Report	Purpose	Frequency	Responsible party
Milestone Survey Report *Details the results of MHQA, GHFF FHA and swift parrot and regent honeyeater foraging habitat assessment.*	Designed to demonstrate increase in value of offset area for Matters of National Environmental Significance (koala, grey-headed flying-fox, swift parrot and regent honeyeater) as proposed under the OMP.	Five-yearly at Years 5, 10, 15 and 20	Suitably qualified Ecologist as appointed by the Proponent
Photo Monitoring Report *Qualitative monitoring report showing photos of the offset area, commentary on rehabilitation progress and recommended adaptive management measures.*	Function is to provide regular assessment of the offset area and feedback to engaged rehabilitation contractors to guide on-ground works.	Quarterly during Year 1 Bi-annually from Years 2 to 5 Annually from Years 6 to 10	Suitably qualified Rehabilitation Contractor, Landscape Consultant or Ecologist as appointed by MEO
Rehabilitation Monitoring Report *Details the results of the quadrat monitoring program, assessment against the performance indicators (Appendix 02) and recommendations for adaptive management.*	Designed to provide a data-driven method to document and measure rehabilitation progress/success to further inform on-ground activities.	Quarterly during Year 1 Bi-annually from Years 2 to 5 Annually from Years 6 to 10	Suitably qualified Ecologist as appointed by MEO

ADAPTIVE MANAGEMENT

Adaptive management is an ongoing, systematic approach for improving rehabilitation outcomes by learning from existing management techniques. It is a cyclic process that involves:

1. Identification of unsuccessful treatments and new threats during monitoring events
2. Investigation of new and alternative treatments
3. Implementation of new / alternative management strategies based on best available knowledge
4. Review of new / alternative management strategies during monitoring

Adopting an adaptive approach to rehabilitation works is recommended to maximise environmental outcomes for the site. Once an area is revegetated, the survival and growth of plants needs to be assessed, monitored and managed. Plans need to be adaptive in order to respond to identified issues on the site.

Multiple corrective action triggers for adaptive management are proposed under the performance indicators (refer Appendix 02). This includes:

- Native plant mortality >10%
- WONS cover >5%
- Number of non-juvenile stems of swift parrot foraging species (*E. melliodora, E. eugenioides* and *E. tereticornis*) not increasing as proposed
- Number of non-juvenile stems of regent honeyeater foraging species (*E. melliodora* and *E. eugenioides*) not increasing as proposed

A survival rate of 90% of tree species is proposed to be achieved for the offset area with a focus on species identified as preferred or supporting foraging species for the Critically Endangered regent honeyeater and swift parrot. This is required in order to achieve the proposed offset outcomes for the species under the OMP.

Where survival rates are observed to be less than 90% as per qualitative and quantitative monitoring methods, this may indicate the presence of a degrading factor not previously identified or considered at the site and may require adaptive management measures to be considered and implemented. Degrading factors are to be identified as part of regular monitoring and will form the basis for actioning adaptive management.

Adaptive management measures may include a combination of the following:

- Identify and address the degrading factor (e.g. soil issue, pests, species failure).
- Remedial plantings in areas of dieback to bolster survival rates to above 90%.
- Introduce a different species *i.e.,* if one plant species consistently dies on a site, consider using in its place a species that is performing well.
- Adjust planting methods such as using advanced tube stock or direct seeding, modifying site preparation techniques.
- Modify weed management techniques or frequency where WONS exceed 5%.

REHABILITATION TEAM RESPONSIBILITIES

It is critical for all parties to understand their responsibilities as part of the rehabilitation 'team'.

PARTY	DESCRIPTION
Proponent	Ensure all consultants, contractors, sub-contractors or others utilising the area are aware of the Rehabilitation Plan. Appoint appropriate consultants and contractors to undertake works as prescribed on the drawings. Provide security via an uncompleted works bond and maintenance bond for the cost of works if required. Cover costs of all resources to ensure works are completed as per approved plans.
Consultants	Brief proponent on their requirements in implementing and maintaining works as per the Rehabilitation Plan. Attend monitoring inspections. Undertake monitoring and reporting as per this plan. Be available to respond to technical queries to the approved documentation when on-site conditions require changes. Liaise with team throughout all stages of approval, initial works and maintenance of works.
Environmental Coordinator	Provide technical expertise via commentary on the approval of documentation. Attend monitoring inspections. Reduce and release securities held against works at the completion of successful milestone inspections. Be available to respond to technical queries to the approved documentation when on-site conditions require changes. Accept and review maintenance reports as dictated (if required in this plan).
Contractor	Ensuring implementation of works and compliance with this Rehabilitation Plan. Attend monitoring inspections. Has a minimum Certificate III in Conservation and Land Management, or a Certificate III in Horticulture, or a Certificate III in Rehabilitation Construction, or equivalent experience in rehabilitation. Hold relevant licenses in applicable weed management/ revegetation/ fauna management, any required insurances for scope of works and an understanding of required Laws, Act, Policies and Guidelines. Recommend changes to the documentation when specific experience or on-site conditions require so.

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Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

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Rehabilitation Management Plan - APPENDIX 01 *Weed Treatment and Removal (i)*

Queensland Herbarium Invasive Naturalised Plants In South East Queensland

Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control
1	Mimosaceae	Acacia boliviana (Bolivian wattle)	1	1	4	T/O	Mechanical or chain removal.	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
2	Mimosaceae	Acacia farnesiana (mimosa bush)	6	15	3	T/A	Mechanical removal of small plants.	
3	Mimosaceae	Acacia nilotica subsp. indica (prickly acacia)	3	3	4.4	T/A	Mechanical or chain removal.	
4	Cactaceae	Acanthocereus tetragonus (sword pear)	1	1	3	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
5	Polygonaceae	Acetosa sagittata (rambling dock)	4	18	4	V/U	Tubers: Dig up, bag and remove.	
6	Agavaceae	Agave americana (century plant)	4	9	4	S/OA	Dig out by hand or machine	
7	Agavaceae	Agave sisalana (sisal)	2	4	4	S/OA	Dig out by hand or machine	
8	Agavaceae	Agave vivipara var. vivipara (sisal)	2	3	4	S/OA	Dig out by hand or machine	
9	Asteraceae	Ageratina adenophora (crofton weed)	6	38	5	H/O	Hand pull and hang to dry.	
10	Asteraceae	Ageratina riparia (mistflower)	5	38	5	H/O	Hand pull and hang to dry.	
11	Asteraceae	Ageratum houstonianum (blue billygoat weed)	8	81	4	H/UO	N/A	
12	Simaroubaceae	Ailanthus altissima (tree of heaven)	1	3	4	T/O	Seedlings: Hand pull	
13	Amaranthaceae	Alternanthera philoxeroides (alligator weed)	1	3	5	Ha/U	Physical removal of plant should not be attempted	
14	Poaceae	Andropogon virginicus (whisky grass)	6	14	4	H/A	Hand pull or dig out small infestations.	
	Basellaceae	Anredera cordifolia (madeira vine)	8	16	5	V/O	Small Vines & Tubers: Hand pull. Bag and dispose.	
16	Asclepiadaceae	Araujia sericifera (mothvine)	9	38	4	V/O	Seedlings & Vines: Hand pull. Bag and remove fruit.	
17	Aristolochiaceae	Aristolochia elegans (Dutchman's pipe)	8	30	4	V/O	Stems: Hand pull; Fruit: Bag and remove.	
18	Poaceae	Arundo donax (giant reed)	1	4	4	H/O	Physical removal of small infestations.	
19	Asclepiadaceae	Asclepias curassavica (red cotton bush)	9	43	3	S/O	Hand pull; Slash	
20	Asparagaceae	Asparagus aethiopicus cv. Sprengeri (asparagus ground fern)	5	35	5	H/O	Dig out unwanted plants and dispose of at the appropriate council landfill. Remove the entire crown of underground stem of plant to prevent regrowth	
21	Asparagaceae	Asparagus africanus (ornamental asparagus, asparagus fern)	7	26	5	V/O	Dig out roots and dispose of at local council landfill site. Remove entire crown and underground stem to prevent regrowth	
22	Asparagaceae	Asparagus plumosus (asparagus fern)	4	8	4	V/O	Rhizomes: crown and hang to dry.	
23	Poaceae	Axonopus compressus (broad leaved carpet grass)	5	23	4	H/AO	Cut stems from roos.	
24	Asteraceae	Baccharis halimifolia (groundsel bush)	10	168	5	S/O	Seedlings: Hand pull	
25	Asteraceae	Bidens pilosa (cobbler's pegs)	10	110	4	H/U	Hand pull or cultivation.	
26	Poaceae	Brachiaria decumbens (signal grass)	4	14	4	H/A	Grazing	
27	Poaceae	Brachiaria mutica (para grass)	6	18	4	Ha/A	Grazing	
28	Crassulaceae	Bryophyllum daigremontianum x B. delagoense (hybrid mother-of millions)	6	15	5	H/O	Hand pull and dispose	
29	Crassulaceae	Bryophyllum delagoense (mother of millions)	8	38	5	H/O	Hand pull and dispose	
30	Crassulaceae	Bryophyllum pinnatum (resurrection plant)	6	17	4	H/O	Hand pull and dispose	
31	Buddlejaceae	Buddleja madagascariensis (buddleja)	5	6	3	S,V/O	N/A	
32	Cabombaceae	Cabomba caroliniana (cabomba, fanwort)	4	12	5	Ha/F	Mechanical removal of small infestations	
33	Caesalpiniaceae	Caesalpinia decapetala (thorny poinciana)	4	20	4	S,V/O	Seed-heads: Bag and remove.	
34	Brassicaceae	Cakile edentula (American sea rocket)	4	24	4	H/U	Manually grub and destroy.	
35	Commelinaceae	Callisia fragrans (purple succulent)	3	9	4	H/O	N/A	
36	Cannaceae	Canna indica (canna lily)	3	9	3	H/O	Dig out entire plant	
37	Sapindaceae	Cardiospermum grandiflorum (balloon vine)	7	31	4	V/O	Seedlings & Small Vines: Hand Pull	
38	Apocynaceae	Cascabela thevetia (syn. Thevetia peruviana) (yellow oleander)	5	9	3	ST/O	Hand pull small infesttions. Slashing can be used but should be followed up by herbicide application.	
39	Apocynaceae	Catharanthus roseus (pink periwinkle)	5	22	4	S/O	Hand pull	
40	Ulmaceae	Celtis sinensis (Chinese celtis)	8	19	5	T/O	Remove when small. Hand pull or dig out small seedlings. Combine dozing, burning and controlled grazing for large infestations	
41	Poaceae	Cenchrus ciliaris (buffel grass)	4	15	4	H/A	Hand or mechanical removal of young plants	
42	Poaceae	Cenchrus echinatus (Mossman river grass)	8	43	3	H/A	Hand or mechanical removal of young plants	
43	Solanaceae	Cestrum parqui (green cestrum)	6	36	4	S/O	Seedlings: Hand pull	
44	Caesalpiniaceae	Chamaecrista rotundifolia (round-leaf cassia)	6	14	3	ST/A	Seedlings: Hand pull	
45	Poaceae	Chloris gayana (Rhodes grass)	9	55	4	H/A	Hand pulling and removal and digging of larger clumps	
46	Asteraceae	Chrysanthemoides monilifera subsp. rotundata (bitou bush)	3	23	5	S/OA	N/A	
47	Lauraceae	Cinnamomum camphora (camphor laurel)	7	25	5	T/O	Seedlings: Hand pull	
48	Rubiaceae	Coffea arabica (coffee)	3	7	3	ST/A	Saplings: Hand pull	
49	Arecaceae	Colocasia esculenta (taro)	3	4	3	H/AO	Hand pull.	
50	Commelinaceae	Commelina benghalensis (hairy wandering jew)	4	7	4	H/O	Collect and Bag	
51	Asteraceae	Conyza bonariensis (flax-leaf fleabane)	7	38	3	H/U	Hand or mechanical removal of small infestations	
54	Poaceae	Cortaderia selloana (pampas grass)	2	1	4	H/O	Small Plants: dig out by hand or machine	
55	Asclepiadaceae	Cryptostegia grandiflora (rubber vine)	6	19	4	V/O	Scattered or medium-density infestations: Where possible, repeated slashing close to ground level is recommended.	
56	Poaceae	Cynodon dactylon (couch, Bahama grass introduced cultivars)	10	45	4	H/OA	Hand pull small infestations, removing all roots or smother with mulch.	
57	Cyperaceae	Cyperus brevifolius (Mullumbimby couch)	8	53	3	H/O	Each has to be dug out with a spade and the entire plant turned over, exposing the root system while making sure all aerial parts of the plant are completely covered.	
58	Cyperaceae	Cyperus involucratus (African sedge)	6	15	4	Ha/OF	Each has to be dug out with a spade and the entire plant turned over, exposing the root system while making sure all aerial parts of the plant are completely covered.	
59	Fabaceae	Desmodium intortum (greenleaf desmodium)	4	11	3	H/A	Hand pull or crown and dispose	
60	Fabaceae	Desmodium uncinatum (silverleaf desmodium)	5	14	4	H/A	Hand pull or crown and dispose	
61	Poaceae	Digitaria didactyla (Queensland blue couch)	9	70	4	H/A	Hand pull or cultivation	
62	Poaceae	Digitaria eriantha (pangola grass)	5	20	3	H/A	Hand pull or cultivation	
63	Verbenaceae	Duranta erecta (duranta)	6	14	4	ST/O	Shrubs: CS&P (1:1.5)	
64	Poaceae	Echinochloa colona (awnless barnyard grass)	9	44	3	H/A	Hand or mechanical removal of small infestations	
65	Poaceae	Echinochloa crus-galli (barnyard grass)	6	34	4	H/A	Hand pull or dig out small infestations.	
66	Hydrocharitaceae	Egeria densa (egeria waterweed)	2	7	4	Ha/F	Hand pulling, cutting and digging with machines effective	
67	Pontederiaceae	Eichhornia crassipes (water hyacinth)	4	8	5	Ha/OF	Mechanical removal of small infestations	
68	Poaceae	Eleusine indica (crowsfoot grass)	8	55	4	H/A	Pull and chip. Replant with native couch.	
69	Poaceae	Eragrostis curvula (African lovegrass)	7	29	4	H/U	Chipped out before they flower. When chipping out the plant ensure that the tussock crowns are removed, as this will prevent regrowth. If in seed, the stems must be cut and bagged first.	
70	Rosaceae	Eriobotrya japonica (loquat)	3	5	3	T/O	Seedlings: Hand pull	
71	Fabaceae	Erythrina crista-galli (cockspur coral tree)	2	4	4	T/O	N/A	
72	Myrtaceae	Eugenia uniflora (Brazilian cherry)	4	19	4	ST/O	N/A	
73	Euphorbiaceae	Euphorbia cyathophora (painted spuge)	8	20	3	H/O	Hand pull	
74	Euphorbiaceae	Euphorbia heterophylla (milk weed)	5	12	3	H/O?	Hand pull	
75	Agavaceae	Furcraea foetida (Cuban hemp)	3	4	4.3	S/OA	Dig out by hand or machine	
76	Agavaceae	Furcraea selloa (hemp)	1	2	4	S/OA	Dig out by hand or machine	
77	Caesalpiniaceae	Gleditsia triacanthos (honey locust)	7	12	4	T/O	For the control of dense infestations on grazing land, burning followed by spot spraying is an economical control method.	
78	Colchicaceae	Gloriosa superba (glory lily)	3	26	4	V/O	N/A	
79	Asclepiadaceae	Gomphocarpus physocarpus (balloon cotton bush)	10	132	4	S/OU	Slash in winter and burn cuttings. Wanderer Butterfly can also be used as biological control.	

= Weed Species Recorded on site

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BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

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References:

South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	29/10/2025	CLIENT DRAFT	TF	AW

CLIENT: Montauban Environmental Offsets

PROJECT: Rosevale Offset Area 4 - Scenic Precinct (EPBC 2020/8651)

DRAWING TITLE: REHABILITATION MANAGEMENT PLAN

DRAWING NO.: **7399 E A01_1 Scenic RMP A**

Rosevale Offset Area 4 - Scenic Precinct (EPBC 2020/8651)

Rehabilitation Management Plan - APPENDIX 01 *Weed Treatment and Removal (ii)*

Queensland Herbarium Invasive Naturalised Plants In South East Queensland								
Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control
80	Asteraceae	Gymnocoronis spilanthoides (Senegal tea)	3	4	5	Ha/F	Place plant material in a sealed plastic bag, leave in sunlight to rot then burn or dispose of at a council-approved land fill tip	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
81	Cactaceae	Harrisia martinii (harrisia cactus)	2	4	4	S/O	The use of the biological mealy-bug agent is recommended	
82	Zingiberaceae	Hedychium coronarium (wild ginger)	2	2	4	H/O	Small Plants: Hand pull and dispose	
83	Zingiberaceae	Hedychium gardnerianum (ginger lily)	1	3	4	H/O	Small Plants: Hand pull and dispose	
84	Malpighiaceae	Hiptage benghalensis (hiptage)	3	5	4	S,V/O	Hand pull small infestations.	
85	Acanthaceae	Hygrophila costata (Glush weed)	3	7	5	Ha/F	Hand pull smal infestations. Can be controlled by planting competitive native species.	
86	Poaceae	Hymenachne amplexicaulis cv. Olive (hymenachne)	1	1	4	Ha/A	A combined approach of different control methods including mechanical, chemical and biological with land management practices is most effective	
87	Acanthaceae	Hypoestes phyllostachya (polka-dot plant	3	5	4	H/O	Hand pull or crown and dispose	
88	Balsaminaceae	Impatiens walleriana (balsam)	2	6	4	H/O	N/A	
89	Convolvulaceae	Ipomoea cairica (mile-a-minute)	7	56	4	V/O	Vines & Runners: hand pull, roll up and hand up to dry.	
90	Convolvulaceae	Ipomoea indica (blue morning glory)	5	24	4	V/O	Vines and Runners: hand pull, roll up and hang to dry.	
91	Bignoniaceae	Jacaranda mimosifolia (jacaranda)	4	12	3	T/O	Seedlings: Hand pull	
92	Euphorbiaceae	Jatropha gossypiifolia (cotton-leaf physic nut, bellyache bush)	1	1	4	S/O	Hand pull	
93	Juncaceae	Juncus articulatus (jointed rush)	1	2	4	Ha/FO	Hand pull.	
94	Acanthaceae	Justicia betonica (squirreltail)	2	4	4	S/O	Hand pull smal infestations. Can be controlled by planting competitive native species.	
95	Sapindaceae	Koelreuteria elegans (Chinese rain tree)	1	1	3.6	T/O	Seedlings: Hand pull	
96	Verbenaceae	Lantana camara var. camara (lantana)	10	455	5	S/O	Seedlings: Hand pull	
97	Verbenaceae	Lantana montevidensis (creeping lantana)	8	62	5	S/O	Fire and/or mechanical control	
98	Mimosaceae	Leucaena leucocephala (leucaena)	6	14	4	ST/A	Small plants: Hand pull or mechanical removal	
99	Oleaceae	Ligustrum lucidum (tree privet)	5	9	5	T/O	Seedlings: Hand pull	
100	Oleaceae	Ligustrum sinense (Chinese privet)	4	11	5	T/O	Seedlings: Hand pull	
101	Liliaceae	Lilium formosanum (Taiwan lily)	5	10	4	H/O	Hand pull or crown and dispose	
102	Caprifoliaceae	Lonicera japonica (Japanese honeysuckle)	3	6	4	V/O	Vines and Runners: hand pull, roll up and hang to dry.	
103	Solanaceae	Lycium ferocissimum (African boxthorn)	1	5	4.4	S/O	N/A	
104	Bignoniaceae	Macfadyena unguis-cati (cat's claw creeper)	5	36	5	V/O	Tubers: crown or dig up, bag and remove.	
105	Fabaceae	Macroptilium atropurpureum (siratro)	8	39	4	V/A	N/A	
106	Fabaceae	Macrotyloma axillare (perennial horse gram)	4	12	3	V,H/A	N/A	
107	Poaceae	Melinis minutiflora (molasses grass)	5	17	5	H/A	Grazing or mowing	
108	Poaceae	Melinis repens (red Natal grass)	10	134	4	H/A	Grazing or mowing	
109	Mimosaceae	Mimosa pudica (common sensitive plant)	4	12	4	S/A	N/A	
110	Moraceae	Morus alba (white mulberry)	3	10	3	T/O	N/A	
111	Rutaceae	Murraya paniculata cv. Exotica (murraya)	6	26	4	S/O	Seedlings: Hand pull	
112	Haloragaceae	Myriophyllum aquaticum (parrot's feather)	3	15	4	Ha/F	N/A	
113	Brassicaceae	Nasturtium officinale (Qld use Rorippa nasturtium-aquaticum) (watercress)	7	19	4	Ha/FU	Manually grub and destroy.	
114	Fabaceae	Neonotonia wightii (glycine)	5	16	5	H/A	N/A	
115	Nymphaeaceae	Nymphaea caerulea subsp. zanzibarensis (blue lotus)	4	17	4	Ha/OF	Hand pull small infestations.	
116	Nymphaeaceae	Nymphaea mexicana (yellow waterlily)	2	4	4	Ha/OF	Hand pull small infestations.	
117	Ochnaceae	Ochna serrulata (ochna)	7	33	5	S/O	N/A	
118	Onagraceae	Oenothera drummondii subsp. drummondii (beach evening primrose)	3	17	4	H/O	Hand pull	
119	Oleaceae	Olea europaea (olive)	2	6	4	T/A	Seedlings: Hand pull	
120	Cactaceae	Opuntia aurantiaca (tiger pear)	1	2	4	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
121	Cactaceae	Opuntia imbricata (rope pear)	1	1	4	H/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
122	Cactaceae	Opuntia monacantha (drooping tree pear, syn. O. vulgaris)	2	3	4	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
123	Cactaceae	Opuntia stricta (common prickly pear)	7	67	4	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
124	Cactaceae	Opuntia tomentosa (velvet tree pear)	8	46	4	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
125	Poaceae	Panicum maximum (green panic and guinea grass)	8	78	5	H/A	Hand or mechanical removal of small infestations	
126	Asteraceae	Parthenium hysterophorus (parthenium weed)	6	14	4	H/U	Hand pulling of small areas is not recommended	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
127	Poaceae	Paspalum conjugatum (paspalum grass)	7	38	4	H/A	Cut below crown.	
128	Poaceae	Paspalum dilatatum (paspalum grass)	10	30	4	H/A	Hand pull or dig up	
129	Poaceae	Paspalum mandiocanum (broad leaf paspalum)	3	6	4	H/A	N/A	
130	Poaceae	Paspalum notatum (bahia grass)	4	10	4	H/A	Hand pull or dig up	
131	Passifloraceae	Passiflora edulis (passion fruit)	6	12	3	V/AO	Hand Pull	
132	Passifloraceae	Passiflora foetida (stinking passion flower)	7	50	4	V/O	Hand Pull	
133	Passifloraceae	Passiflora suberosa (cork passionflower)	8	166	4	V/O	N/A	
134	Passifloraceae	Passiflora subpeltata (white passion flower)	10	60	4	V/O	Stems: Hand pull	
135	Scrophulariaceae	Paulownia tomentosa (paulownia)	3	5	4	T/AO	Seedlings: Hand pull	
136	Poaceae	Pennisetum alopecuroides (swamp foxtail)	7	29	4	H/O	Hand Pull	
137	Poaceae	Pennisetum clandestinum (kikuyu grass)	4	12	4	H/A	Hand Pull	
138	Poaceae	Pennisetum purpureum (elephant grass)	2	9	4	H/O	Grazing or mechanical removal	
139	Poaceae	Pennisetum setaceum (fountain grass)	3	11	3	H/O	Hand Pull	
140	Verbenaceae	Phyla canescens (lippia, Condamine couch)	3	4	4	Ha/O	A combined approach of different control methods including chemical and mechanical with land management practices is most effective	
141	Poaceae	Phyllostachys aurea (fishpole bamboo)	1	2	4	S/O	N/A	
142	Phytolaccaceae	Phytolacca octandra (inkweed)	10	50	3	H/O	Hand pull or crown	
143	Pinaceae	Pinus elliottii (slash pine)	4	22	4	T/A	Seedlings: Hand pull; Saplings and Trees: cut close to ground or ring-bark	
144	Araceae	Pistia stratiotes (water lettuce)	3	8	4	Ha/OF	Mechanical removal of small infestations	
145	Mimosaceae	Prosopis pallida (algaroba)	2	2	4	ST/O	When using mechanical control methods, it is important to remove the bud zone of the root system (about 30 cm below the ground surface). If this is not removed, re-shooting can occur.	
146	Rosaceae	Prunus munsoniana (wild goose plum)	7	31	4	ST/A	Seedlings: Hand pull	
147	Myrtaceae	Psidium guajava and P. guineense (yellow guava and West Indes guava)	4	7	4	ST/AO	N/A	
148	Fabaceae	Pueraria lobata (kudzu)	3	4	4	V,S/O	Slash; Diminish by shading site	
149	Bignoniaceae	Pyrostegia venusta (flame vine)	1	1	4	V/O	N/A	
150	Rosaceae	Rhaphiolepis indica (Indian hawthorn)	3	10	4	ST/O	Seedlings: Hand pull	

= Weed Species Recorded on site

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

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References:

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AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	29/10/2025	CLIENT DRAFT	TF	AW

CLIENT: Montauban Environmental Offsets

PROJECT: Rosevale Offset Area 4 - Scenic Precinct (EPBC 2020/8651)

DRAWING TITLE: REHABILITATION MANAGEMENT PLAN

DRAWING NO.: **7399 E A01_2 Scenic RMP A**

Rosevale Offset Area 4 - Scenic Precinct (EPBC 2020/8651)

Rehabilitation Management Plan - APPENDIX 01 *Weed Treatment and Removal (iii)*

Queensland Herbarium Invasive Naturalised Plants In South East Queensland

Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control
150	Rosaceae	Rhaphiolepis indica (Indian hawthorn)	3	10	4	ST/O	Seedlings: Hand pull	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance
151	Euphorbiaceae	Ricinus communis (castor oil plant)	7	20	4	S/O	Seedlings: Hand pull	
152	Phytolaccaceae	Rivina humilis (baby pepper)	8	61	4	H/O	Hand pull and hang to dry.	
153	Rosaceae	Rubus bellobatus (kittatinny blackberry)	5	22	4	S/O	Slashing hinders growth, giving some control if plants are slashed before they seed	
154	Rosaceae	Rubus discolor (R. fruticosus complex, a blakberry)	4	10	4	S/OA	Slashing hinders growth, giving some control if plants are slashed before they seed	
155	Rosaceae	Rubus ellipticus (yellowberry)	4	26	4	S/O	Slashing hinders growth, giving some control if plants are slashed before they seed	
156	Acanthaceae	Ruellia malacosperma (ruellia)	5	16	4	H/O	N/A	
157	Ruppiaceae	Ruppia maritima (sea tassel)	2	8	4	Ha/F	Hand pull or dig up	
158	Alismataceae	Sagittaria graminea var. platyphylla (sagittaria arrowhead)	3	7	4	Ha/FO	Physical removal of small infestations.	
159	Lamiaceae	Salvia coccinea (red salvia)	9	46	4	H/O	remove small areas by hand or machine	
160	Salviniaceae	Salvinia molesta (salvinia)	8	57	5	Ha/F	Mechanical removal of small infestations; Salvinia weevil (Biological control)	
161	Caprifoliaceae	Sambucus canadensis (American elder)	3	7	3	ST/O	Vines and Runners: hand pull, roll up and hang to dry.	
162	Dracaenaceae	Sansevieria trifasciata (sansevieria)	2	7	3	H/O	Hand pull or dig up	
163	Anacardiaceae	Schinus terebinthifolius (broad-leaf pepper tree)	6	49	5	T/O	Seedlings: Hand pull	
164	Asteraceae	Senecio madagascariensis (fire weed)	6	28	4	H/U	Vines: Hand pull and remove; Runners: Roll up and hang to dry.	
165	Asteraceae	Senecio tamoides (Canary creeper)	3	8	4	V/O	Vines: Hand pull and remove; Runners: Roll up and hang to dry.	
166	Caesalpiniaceae	Senna pendula var. glabrata (Easter cassia)	7	33	4	ST/O	Seedlings: Hand pull	
167	Caesalpiniaceae	Senna septemtrionalis (arsenic bush, was S. floribunda)	6	25	4	S/O	Seedlings: Hand pull	
168	Poaceae	Setaria palmifolia (palm leaf setaria)	5	13	3	H/O	Hand pull or dig up	
169	Poaceae	Setaria sphacelata (South African pigeon grass)	9	41	4	H/A	Hand pull or dig up	
170	Malvaceae	Sida rhombifolia (Paddy`s lucerne)	9	69	4	S/U	Hand pull or dig out.	
171	Asteraceae	Sigesbeckia orientalis (Indian weed)	10	148	4	H/U	Hand pull or cultivation.	
172	Solanaceae	Solanum erianthum (a tobacco bush)	7	19	3	S/O	Hand pull	
173	Solanaceae	Solanum hispidum (giant devil's fig)	5	23	4	S/O	Hand pull	
174	Solanaceae	Solanum mauritianum (wild tobacco tree)	8	30	4	S/O	Seedlings: Hand pull	
175	Solanaceae	Solanum seaforthianum (Brazilian nightshade)	8	78	4	V/O	Hand pull	
176	Solanaceae	Solanum torvum (devil's fig)	6	39	4	S/O	Seedlings: Hand pull	
177	Asteraceae	Solidago canadensis var. scabra (Canadian goldenrod)	7	15	4	H/O	Hand pull and hang to dry.	
178	Bignoniaceae	Spathodea campanulata (African tulip tree)	1	1	3	T/O	N/A	
179	Asteraceae	Sphagneticola trilobata (Singapore daisy)	6	34	5	H/O	Hand pull	
180	Poaceae	Sporobolus africanus (Parramatta grass)	8	48	5	H/U	Hand or mechanical removal of small infestations	
181	Poaceae	Sporobolus fertilis (giant Parramatta grass)	9	27	5	H/U	Hand or mechanical removal of small infestations	
182	Poaceae	Sporobolus pyramidalis and S. natalensis (giant rat's tail grasses)	8	72	5	H/U?	Hand or mechanical removal of small infestations	
183	Poaceae	Stenotaphrum secundatum (buffalo grass)	3	23	3	H/AO	Hand or mechanical removal of small infestations	
184	Fabaceae	Stylosanthes scabra (shrubby stylo)	4	4	4.3	H/A	N/A	
185	Arecaceae	Syagrus romanzoffiana (queen palm)	4	10	4	T/O	Seedlings: Hand pull or crown; Trees: cut below growing point	
186	Asteraceae	Tagetes minuta (stinking roger)	8	32	3	H/U	Hand pull and hang to dry.	
187	Bignoniaceae	Tecoma capensis (Cape honeysuckle)	3	8	4	ST/O	N/A	
188	Bignoniaceae	Tecoma stans (yellow bells)	4	16	4	ST/O	N/A	
189	Poaceae	Themeda quadrivalvis (grader grass)	8	25	4	H/A	Hand pull or dig out small infestations.	
190	Acanthaceae	Thunbergia alata (black eyed susan)	5	22	4	H/O	N/A	
191	Acanthaceae	Thunbergia grandiflora (thunbergia, blue thunbergia)	2	3	5	V/O	N/A	
192	Acanthaceae	Thunbergia laurifolia (laurel clock vine)	1	1	4	V/O	N/A	
193	Fabaceae	Tipuana tipu (tipuana)	2	5	3	T/O	Seedlings: Hand pull	
194	Asteraceae	Tithonia diversifolia (Mexican sunflower)	5	11	4	H/O	N/A	
195	Commelinaceae	Tradescantia fluminensis (Qld use T. albiflora) (wandering jew)	5	9	4	H/O	N/A	
196	Commelinaceae	Tradescantia zebrina (zebrina)	3	12	4	H/O	N/A	
197	Tiliaceae	Triumfetta rhomboidea (Chinese burr)	7	44	4	H/U	Hand pull	
198	Asteraceae	Verbesina encelioides (crownbeard)	7	34	4	H/U	Vines: Hand pull and remove; Runners: Roll up and hang to dry.	
199	Iridaceae	Watsonia meriana var. bulbillifera (bulbil watsonia)	2	3	3	H/O	Dig up, bag and remove	
200	Asteraceae	Zinnia peruviana (wild zinnia)	6	33	3	H/O	Seedlings: Hand pull	

Explanatory notes.

Sub-region (Sr): Number of the ten sub-regions of the Southeast Queensland bioregion (Young and Dillewaard 1999) within which species recorded (Queensland Herbarium data).
Rec no. (R): Total number of records for species within study area, Queensland Herbarium CORVEG and HERBRECS data.
Scores (S): Based on panel data of invasiveness, 5 (highest) to 3 (moderate). ? indicate doubtful scores.

Life forms (LFS): T-tree (woody plant >5m), ST-small tree (2-5m), S-shrub (woody <2m), H-herb (grasses & forbes), Ha-aquatic herbs.
Source: A-agriculture, O-ornamental and landscaping, F-fish aquarium, U-unintentional introduction and/or contaminant.

Abbreviations: Control Methods

CS&P = cut scrape and paint

S&P = scrape and paint

C&P = cut and paint

F/I = frill or inject stem

Abbreviations: Herbicides

G = Glyphosate, eg. Roundup Biactive, Weedmaster Duo

MM = Metsulfuron methyl, eg, Brushoff

F = Fluroxypyr, eg. Starane

Abbreviations: Herbicide Dilution Rates for High Concentration Applications

GU = Glyphosate undiluted

G1 = 1 part water to 1 part glyhphosate

G1.5 = 1.5 parts water to 1 part glyphosate

G4 = 4 parts water to 1 part glyphosate

Abbreviations: Herbicide Spray Concentrations

G100 = 100mL glyphosate per 10L of water + surfuctant, eg 20mL LI 700 per 10L
G200 = 200mL glyphosate per 10L of water + surfuctant, eg 50mL LI 700 per 10L

G100 + MM = 100mL glyphosate + 1.5g metsulfuron methyl per 10L of water + wetting agent, eg. 2mL Agral per 10L water
G200 + MM = 200mL glyphosate + 1.5g metsulfuron methyl per 10L of water + wetting agent, eg. 2mL Agral per 10L water

MM = 1.5g metsulfuron methyl per 10L water + wetting agent, eg. 2mL Agral per 10L water

F100 = 100mL fluroxypyr per 10L water

F150 = 150mL fluroxypyr per 10L water

Other Abbreviations

= Locally non-indigenous native species

Ref. 1. Big Scrub Rainforest Landcare Group (2008), 'Common Weeds of Subtropical Rainforests of Eastern Australia: A practical manual on their identification and control'

Ref. 2. Department of Primary Industries and Fisheries (QLD), 'Weeds and pest animals and ants'.

Ref. 3. Holland et al. (1996), 'Suburban Weeds', DPI QLD.

Ref 4. Port Stephens Council (NSW), 'Weed Busters'.
Ref 5. Department of Primary Industries (NSW), 'Noxious and Environmental Weed Handbook, 3rd Edition'.
Ref 6. Department of Environment and Conservation, 'Florabase', (DEC- WA)

Ref 7. Vitelli, J.S. and Madigan, B.A. and Van Haaren, P.E. and Setter, S. and Logan, P. (2009) Control of the invasive liana, Hiptage benghalensis. Weed Biology and Management, 9 (1). pp. 54-62.

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Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

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AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	29/10/2025	CLIENT DRAFT	TF	AW

CLIENT
Montauban Environmental Offsets

PROJECT
Rosevale Offset Area 4 -
Scenic Precinct (EPBC 2020/8651)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
7399 E A01_3 Scenic RMP A

Rosevale Offset Area 4 - Scenic Precinct (EPBC 2020/8651)

Rehabilitation Management Plan - APPENDIX 02 *Table of Performance Indicators (i)*

Performance indicator	Method of data collection	Year 1 – Baseline (Month 3)	Year 1 – Month 6	Year 1 – Month 9	Year 1 – Month 12	Year 2a	Year 2b	Year 3a	Year 3b	Year 4a	Year 4b	Year 5a	Year 5b, 6, 7, 8, 9, 10
ENVIRONMENTAL MANAGEMENT ZONE 1. NON-REMNANT PADDOCK VEGETATION RE12.8.17/12.8.14													
1) Native plant species richness – Tree	Sample quadrats (10 * 10 m)	Nil	Nil	Nil	Nil	4	5	5	≥7	≥7	≥7	≥7	≥7
2) Native plant species richness – Shrub	Sample quadrats (10 * 10 m)	1	1	1	1	2	2	4	4	4	4	>4	>4
3) Native plant species richness – Groundcover	Sample quadrats (10 * 10 m)	Nil	2	2	4	6	6	7	7	7	7	>8	>8
4) Number of juvenile stems of eucalypt species	Sample quadrats (10 * 10 m)	≥6	≥6	≥6	≥6	3	3	2	2	2	2	2	2
5) Number of non-juvenile stems of eucalypt species	Sample quadrats (10 * 10 m)	Nil	Nil	Nil	Nil	3	3	5	5	≥6	≥6	≥6	≥6
6) Number of non-juvenile stems of **swift parrot** foraging species (*E. melliodora, E. eugenioides and E. tereticornis*)	Sample quadrats (10 * 10 m)	**Nil**	**Nil**	**Nil**	**Nil**	**2**	**2**	**3**	**3**	**4-5**	**4-5**	**4-5**	**4-5**
7) Number of non-juvenile stems of **regent honeyeater** foraging species (*E. melliodora and E. eugenioides*)	Sample quadrats (10 * 10 m)	**Nil**	**Nil**	**Nil**	**Nil**	**2**	**2**	**3**	**3**	**3-4**	**3-4**	**3-4**	**3-4**
8) Native plant mortality	Sample quadrats (10 * 10 m) / Photo monitoring	**<10%**	**<10%**	**<10%**	**<10%**	**<10%**	**<10%**	**<10%**	**<10%**	**<10%**	**<10%**	**<10%**	**<10%**
9) WONS weed cover	Sample quadrats (10 * 10 m)	**≥10%**	**≥10%**	**<10%**	**<10%**	**<10%**	**<1% CA trigger: >5%**	**<1% CA trigger: >5%**	**<1% CA trigger: >5%**	**<1% CA trigger: >5%**	**<1% CA trigger: >5%**	**<1% CA trigger: >5%**	**<1% CA trigger: >5%**
10) Other weed cover	Sample quadrats (10 * 10 m)	<5%	<5%	<5%	<5%	<5%	<5%	<5%	<5%	<5%	<5%	<5%	<5%
11) Natural regeneration (yes/no)	Sample quadrats (10 * 10 m) / Photo monitoring	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note:

- *Performance indicator targets represent aspirational targets developed based on the proposed planting palette and densities, BioCondition benchmarks (v3.6) for the relevant regional ecosystems and anticipated response of performance indicators to the proposed rehabilitation regime.*
- *Performance indicator targets in **bold** represent key attributes used for informing adaptive management. For weed management specifically, WONS cover above 5% represents an adaptive action trigger whereas WONS below 1% is the performance indicator target. A plant mortality rate (focusing on tree species) exceeding 10% will trigger adaptive management at all phases of the monitoring until Year 10.*

Rosevale Offset Area 4 - Scenic Precinct (EPBC 2020/8651)

Rehabilitation Management Plan - APPENDIX 02 *Table of Performance Indicators (ii)*

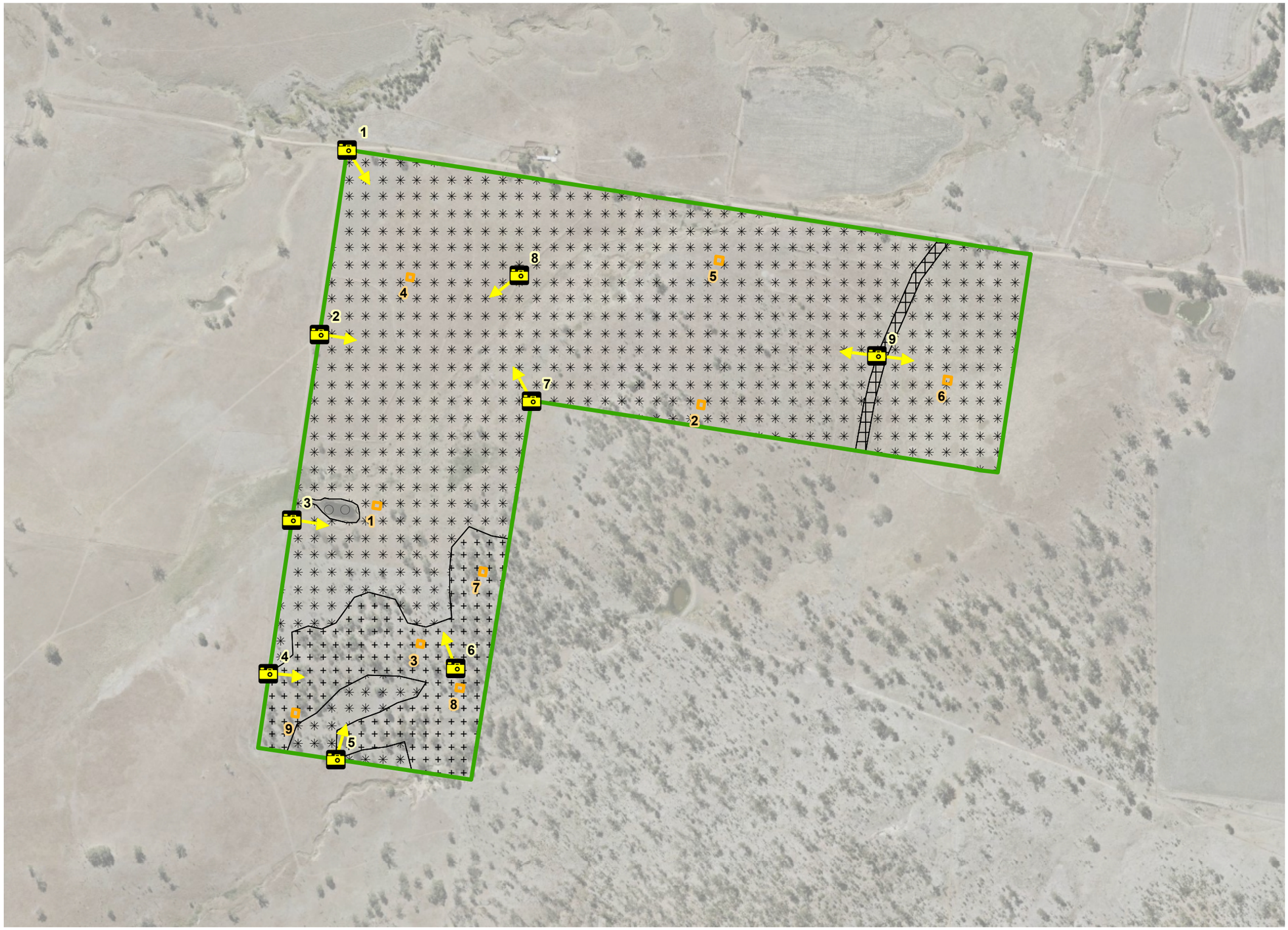
Performance indicator	Method of data collection	Year 1 – Baseline (Month 3)	Year 1 – Month 6	Year 1 – Month 6	Year 1 – Month 9	Year 2a	Year 2b	Year 3a	Year 3b	Year 4a	Year 4b	Year 5a	Year 5b, 6, 7, 8, 9, 10
ENVIRONMENTAL MANAGEMENT ZONE 2. SPARSE REGROWTH VEGETATION RE12.8.17/12.8.14													
1) Native plant species richness – Tree	Sample quadrats (10 * 10 m)	Nil	Nil	Nil	Nil	4	5	5	≥7	≥7	≥7	≥7	≥7
2) Native plant species richness – Shrub	Sample quadrats (10 * 10 m)	1	1	1	1	2	2	4	4	4	4	>4	>4
3) Native plant species richness – Groundcover	Sample quadrats (10 * 10 m)	Nil	2	2	4	6	6	7	7	7	7	>8	>8
4) Number of juvenile and non-juvenile stems of eucalypt species	Sample quadrats (10 * 10 m)	≥6	≥6	≥6	≥6	3	3	2	2	2	2	2	2
5) Number of non-juvenile stems of eucalypt species	Sample quadrats (10 * 10 m)	Nil	Nil	Nil	Nil	3	3	5	5	≥6	≥6	≥6	≥6
6) Number of non-juvenile stems of **swift parrot** foraging species (*E. melliodora, E. eugenioides and E. tereticornis*)	Sample quadrats (10 * 10 m)	**Nil**	**Nil**	**Nil**	**Nil**	**2**	**2**	**3**	**3**	**4-5**	**4-5**	**4-5**	**4-5**
7) Number of non-juvenile stems of **regent honeyeater** foraging species (*E. melliodora and E. eugenioides*)	Sample quadrats (10 * 10 m)	**Nil**	**Nil**	**Nil**	**Nil**	**2**	**2**	**3**	**3**	**3-4**	**3-4**	**3-4**	**3-4**
8) Native plant mortality	Sample quadrats (10 * 10 m) / Photo monitoring	**<10%**	**<10%**	**<10%**	**<10%**	**<10%**	**<10%**	**<10%**	**<10%**	**<10%**	**<10%**	**<10%**	**<10%**
9) WONS weed cover	Sample quadrats (10 * 10 m)	**≥10%**	**≥10%**	**<10%**	**<10%**	**<10%**	**<1% CA trigger: >5%**	**<1% CA trigger: >5%**	**<1% CA trigger: >5%**	**<1% CA trigger: >5%**	**<1% CA trigger: >5%**	**<1% CA trigger: >5%**	**<1% CA trigger: >5%**
10) Other weed cover	Sample quadrats (10 * 10 m)	<5%	<5%	<5%	<5%	<5%	<5%	<5%	<5%	<5%	<5%	<5%	<5%
11) Natural regeneration (yes/no)	Sample quadrats (10 * 10 m) / Photo monitoring	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note:

- *Performance indicator targets represent aspirational targets developed based on the proposed planting palette and densities, BioCondition benchmarks (v3.6) for the relevant regional ecosystems and anticipated response of performance indicators to the proposed rehabilitation regime.*
- *Performance indicator targets in **bold** represent key attributes used for informing adaptive management. For weed management specifically, WONS cover above 5% represents an adaptive action trigger whereas WONS below 1% is the performance indicator target. A plant mortality rate (focusing on tree species) exceeding 10% will trigger adaptive management at all phases of the monitoring until Year 10.*

Rosevale Offset Area 4 - Scenic Precinct (EPBC 2020/8651)

Rehabilitation Management Plan - *APPENDIX 03. Photo Monitoring Locations (indicative)*



LEGEND

- Environmental Management Zone [523,000 m²]
- Indicative Photo Monitoring Location
- Indicative 10x10m Quadrat Location

Management Zones

- **Environmental Management Zone 1:** Non-remnant Vegetation (RE 12.3.3) [449,410 m ²]
- **Environmental Management Zone 2:** Regrowth Vegetation (RE 12.8.17/12.8.14) [66,700 m ²]
- Waterbodies
- Access Track (indicative)

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N

SCALE (A3)
1:6,000

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0 25 50 100 150 200 m

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	29/10/2025	CLIENT DRAFT	TF	AW

CLIENT
Montauban Environmental Offsets

PROJECT
Rosevale Offset Area 4 - Scenic Precinct (EPBC 2020/8651)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
7399 E A03 Scenic RMP A

Rosevale Offset Area 4 - Scenic Precinct (EPBC 2020/8651)

Rehabilitation Management Plan - APPENDIX 04 *Photo Monitoring Report (i)*

Photo Monitoring Report

1.1. Project Particulars

Project	
Monitoring Event	
Address	
Client	
Client Contact	
Offset Provider	
Rehabilitation Contractor	
Environmental Coordinator	
Landscape Consultant	

1.2. Indicative Inspection Schedule

Milestone	Timing	Attendees
Baseline		
Year 1 – Q1		
Year 1 – Q2		
Year 1 – Q3		
Year 1 – Q4		
Year 2a		
Year 2b		
Year 3a		
Year 3b		
Year 4a		
Year 4b		
Year 5a		
Year 5b		
Year 6		
Year 7		
Year 8		
Year 9		
Year 10		

1.3. Purpose

The purpose of this Photo Monitoring Report is to provide ongoing monitoring of the rehabilitation works undertaken within the offset area.

Qualitative monitoring and evaluation are a critical component of any restoration project as information gained through these activities can rectify defects before they become large costly problems through the process of adaptive management.

Further, monitoring activities and appropriate documentation provide guidelines for subsequent work conducted in other areas that provide for greater opportunities of success at reduced resource inputs.

This Photo Monitoring Report will be distributed to the rehabilitation contractor to instigate rectification works.

The following details are captured in this report:

- Photo series at each monitoring location.
- Commentary on mortality rate and presence of WONS/other weeds at a minimum with any additional relevant observations to inform adaptive management such as species-specific responses or herbivory.
- Adaptive management (if required).

1.4. Methodology

1.4.1 Photo Monitoring

Photo monitoring will use the following method to ensure adequate data collection and consistency across monitoring events as recommended by the *Guide to photo monitoring of ecological restoration projects* (OEH, 2018):

- Each photo will include the established star picket demarcating the photo point location to create a fixed reference object in the field of view.
- Point the photo towards an established compass bearing (e.g. 55° North) for the photo point location.
- Take multiple photos (left, right, centre) allowing for each image to overlap to create a panoramic view. This will increase the coverage and representativeness of the scene/subject.
- Always take the photo from the same point, and at the same height.
- Use the same camera or the same type of camera each time the photo is taken.
- Minimise sun glare and shadow in the photo and try to take photos at the same time of day.
- Identify key species that will be visible in the photo.
- Take along copies of the original photos for reference when returning to the photo points to help match the field of view contents.

Refer to the following plan indicating the selected photo monitoring locations for the Offset Area (refer **Appendix 01 – Location Plan** in this report).

Permanent photo monitoring points have been established across the offset area as part of the monitoring programme implemented under the Rehabilitation Management Plan (RMP). The series of photos below

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References:
South East Queensland Ecological Restoration Framework (2012)

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CLIENT
Montauban Environmental Offsets

PROJECT
Rosevale Offset Area 4 -
Scenic Precinct (EPBC 2020/8651)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
7399 E A04_1 Scenic RMP A

Rosevale Offset Area 4 - Scenic Precinct (EPBC 2020/8651)

Rehabilitation Management Plan - APPENDIX 04 *Photo Monitoring Report (ii)*

demonstrate the progression of rehabilitation works from baseline (prior to commencement of works) to becoming a self-sustaining ecosystem.

1.4.2 Visual assessment

At each photo monitoring location, a visual assessment will also be completed whereby general observations and commentary relating to the performance indicators detailed in the RMP such as mortality rate, species, weed/WONS presence and other degrading factors are recorded.

After each monitoring event, photos will be transferred to a master photo monitoring data template, designed to show changes in each photo monitoring location between events. Refer to **Appendix 02** in this report for the master photo record.

1.5. Monitoring Form – Photo Point Location 1 (EMZ 1)

Project	
Monitoring Event #	
Date	
Site Inspection Attendees	
Weather Conditions	
Plant Species / Stock	
Plant Mortality	
Weed Management / Presence	
Herbivore damage	
Instability / Erosion Issues	

PHOTO SET. Photo Point Location 1 (Left, Centre, Right)

1.6. Findings and Adaptive Management

[Details on findings of photo monitoring, general observations, issues for rectification and recommendations for adaptive management]

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Montauban Environmental Offsets

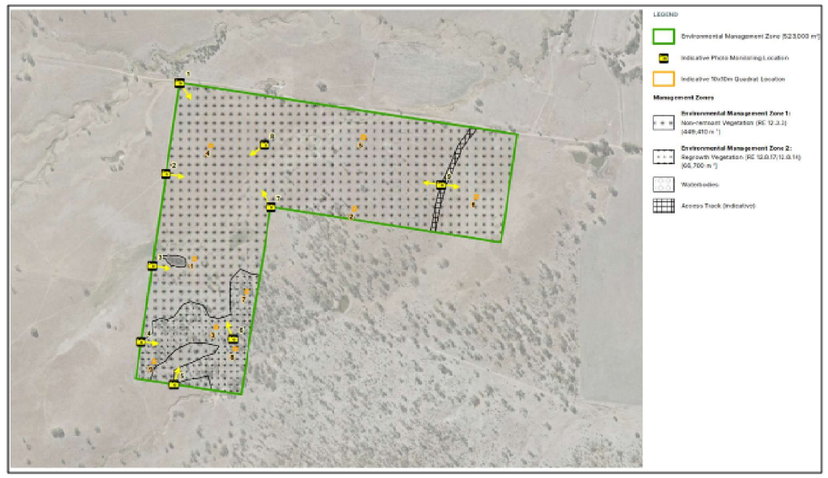
PROJECT
Rosevale Offset Area 4 -
Scenic Precinct (EPBC 2020/8651)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
7399 E A04_2 Scenic RMP A

Photo Monitoring Report

Appendix 01 – Location Plan



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References:

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Montauban Environmental Offsets

PROJECT

Rosevale Offset Area 4 -
Scenic Precinct (EPBC 2020/8651)

DRAWING TITLE

REHABILITATION
MANAGEMENT PLAN

DRAWING NO.

7399 E A04_3 Scenic RMP A

Photo Monitoring Report

Appendix 02 – Master Photo Point Record

Project Ref:
Offset Area:
EPBC Reference:
EMZ:
Photo Point #:
Bearing:
Latitude (decimal degrees):
Longitude (decimal degrees):

Baseline	Year 1 (Q1)	Year 1 (Q2)	Year 1 (Q3)
Date:	**Date:**	**Date:**	**Date:**
Description: Baseline photo prior to commencement of planting works.	**Description:** 3 months after planting works commenced.	**Description:** 6 months after planting works commenced.	**Description:** 9 months after planting works commenced.
LANDSCAPE	LANDSCAPE	LANDSCAPE	LANDSCAPE
Comments:	**Comments:**	**Comments:**	**Comments:**

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Montauban Environmental Offsets

PROJECT
Rosevale Offset Area 4 -
Scenic Precinct (EPBC 2020/8651)

DRAWING TITLE
REHABILITATION
MANAGEMENT PLAN

DRAWING NO.
7399 E A04_4 Scenic RMP A

Explanation of template fields

Field		Description
1	Project Ref	Internal reference number for project record keeping
2	Offset area	Name of the offset area
3	EPBC Reference	Referral number of EPBC project
4	EMZ	Environmental Management Zone within offset area
5	Photo Point #	Each of your photo points are to be given an identification number (e.g. PP1)
6	Bearing	Compass bearing of direction of photo (e.g. 90° North)
7	Latitude / Longitude	Enter data as Decimal Degrees and limit to 4 decimal places. e.g. -33.1234 and 150.1234. (Please do not enter as degrees, minutes, seconds format.)
8	Baseline (before)	This photo should capture pre-work condition of your selected monitoring location. Your baseline photo should be taken during your projects site assessment and planning activities.
9	Date	Enter the exact date the monitoring photo was taken.
10	Description	For each photograph, describe the scene. Include useful information such as targeted weed species and density, regeneration response, significant species, etc.
11	Comments	Where relevant, provide additional higher-level detail for each photo (e.g. unexpected weed responses, problems encountered, etc.)

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References:
South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

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A	29/10/2025	CLIENT DRAFT	TF	AW

CLIENT
Montauban Environmental Offsets

PROJECT
Rosevale Offset Area 4 -
Scenic Precinct (EPBC 2020/8651)

DRAWING TITLE
REHABILITATION
MANAGEMENT PLAN

DRAWING NO.
7399 E A04_5 Scenic RMP A

Attachment A9

Cultural Heritage Conservation Plan

QUEENSLAND GOVERNMENT
Environmental Protection Agency

288 Edward Street • Brisbane, Queensland • PO Box 2771 • BRISBANE GPO QLD 4001 • AUSTRALIA
Telephone (07) 3225 8443 • Facsimile (07) 3225 8723 • www.env.qld.gov.au

Enquiries Robert Neal
Telephone (07) 3225 8426
Your reference
Our reference 961RC256

25 June 1999

Chief Executive Officer
Ipswich City Council
PO Box 191
IPSWICH QLD 4305

Attention Mr Michael McMahon (A/Team Co-ordinator - Springfield)

Dear Mr McMahon

RE: Cultural Heritage Conservation Plan for the Springfield Development

I refer to your letter of 4 June 1999 requesting advice on the cultural heritage assessment and conservation plan for the Springfield Development. The following documents were supplied to this office and have been reviewed to develop an appropriate cultural heritage conservation plan for Springfield.

1. Alfredson, Gillian 1999. A Review of an Aboriginal Cultural Heritage Assessment and Clearance of the Springfield Development, Ipswich, Queensland. Unpublished Report. Chapel Hill: Alfredson Consulting Pty Ltd.
2. Satterthwait, Leonn 1998. An Aboriginal Cultural Heritage Assessment and Clearance of the Springfield Development, Ipswich, Queensland. Unpublished Report. Ipswich: The Ugarapul Tribal Aboriginal Corporation.
3. Correspondence from Dr Leonn Satterthwait, University of Queensland to Keilor Fox and McGhie dated 16 October 1998, 17 August 1998, 2 August 1998, 27 July 1998, 20 July 1998, 12 July 1998, and 5 July 1998,
4. Davies, SJ and A Stewart-Zerba 1994. A Cultural Heritage Assessment of the Proposed Camira Bypass Road and Rail Corridors from Richlands to Keidges Road, Redbank Plains, Moreton Shire, SEQ. St Lucia: UQASU Report No.233
5. Alfredson, Gillian 1991. Report on an Archaeological Inspection of a Proposed Integrated Development at Camira. Unpublished Report. Chapel Hill: Alfredson Consulting Pty Ltd.
6. Springfield Development Control Plan. Ipswich: Ipswich City Council. January 1997.
7. Springfield Master Concept Plan, Keilor Fox and McGhie. January 1999.

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Collectively, the above documentation provides a detailed record of the initiation, conduct, and results of a comprehensive investigation and assessment of the cultural heritage values of the Springfield Development.

Satterthwait (1998) identified 481 artefact find locations giving a find location density of 18 locations per square kilometre. On the basis of artifact density and proximity, Satterthwait identified 32 distinct areas within the Springfield Development area which may be described as archaeological sites. Satterthwait recommended the in situ protection of 63% (N= 20); collection 22% (N= 7); collection/protection for 14% (N=4); and no further action with respect to 3% (N= 1) which was previously disturbed.

Alfredson (1999) provides a peer review of Satterthwait's reports.

The cultural resource management plans developed by Satterthwait (1998) and reviewed by Alfredson (1999) were assessed by the Southern Region Cultural Heritage Program. Field inspection was also undertaken. The appropriate cultural heritage conservation plan for the Springfield Development was determined on these bases.

The thrust of the Environmental Protection Agency's heritage conservation planning in this instance is 'to ensure a good representative sample of the artefacts found on the Springfield Development are retained on-site'.

The following sites are considered to be adequately protected within proposed land allocations of the Master Concept Plan (January 1999): A, B, D, E, G, J, M, Q, U, X, Y, AA, DD, EE, GG.

The above sites are considered to be adequately protected within proposed land allocations of the Master Concept Plan (January 1999). To clarify, the areas of those sites that lie within the 'open space' or 'conservation' allocations as shown in the Master Concept Plan (January 1999) are considered to provide an adequate and appropriate representative sample of the known/identified archaeological heritage resources. The parts of the above sites which occur in zoning's other than 'open space' do not warrant protection or collection and should not pose constraint to development of the local area.

Some sites do not warrant protection or collection and should not pose constraint to development of the local area, as follows: C, F, G, I, K, O, R, S, T, W, Z, BB, CC, FF, and HH.

In some cases the proposed conservation area as shown in the Master Concept Plan is inadequate should be extended to provide additional protection for sites L, N and V.

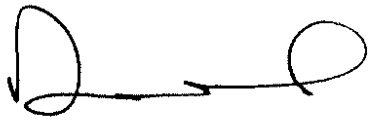
Site P should be systematically collected in accordance with the recommendations of Satterthwait (1998) and Alfredson (1999). The financial responsibilities for this exercise lie with the Springfield Land Corporation.

Site H lies outside the Springfield Development.

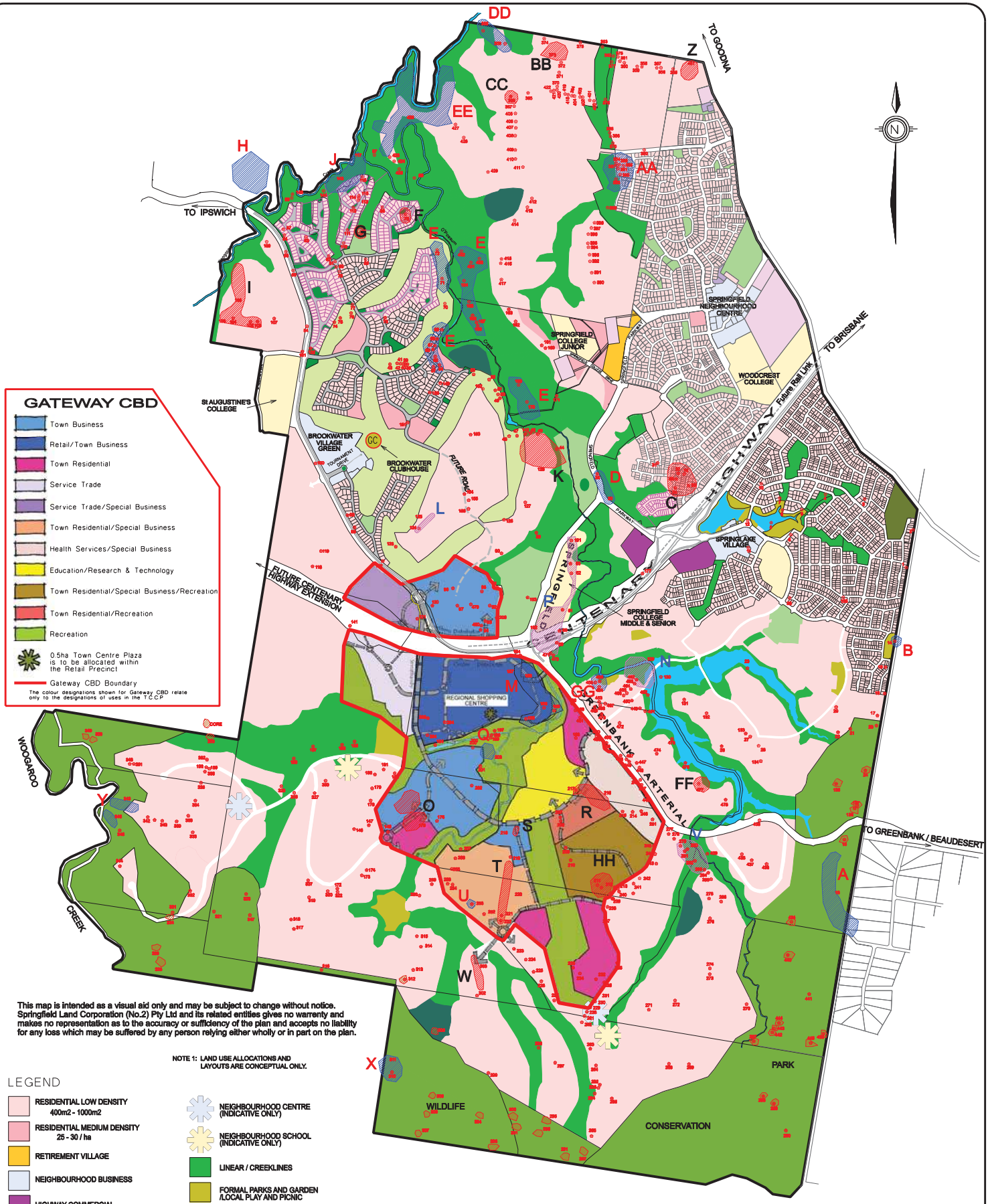
Should any Aboriginal, archaeological or historic sites, item or places may be identified, located or exposed during the course of the development, please cease operations and contact the Regional Manager (Cultural Heritage) on (07) 3225 8443.

The above cultural heritage conservation plan collates and summarises the information previously supplied to Keilor Fox & McGhie in our correspondence dated 1 June 1999, 9 June 1999 and 16 June 1999.

Yours sincerely



Robert Neal
Regional Manager - Cultural Heritage
Southern Region
Environmental Protection Agency



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NOTE 1: LAND USE ALLOCATIONS AND LAYOUTS ARE CONCEPTUAL ONLY.

LEGEND

- RESIDENTIAL LOW DENSITY 400m2 - 1000m2
- RESIDENTIAL MEDIUM DENSITY 25 - 30 / ha
- RETIREMENT VILLAGE
- NEIGHBOURHOOD BUSINESS
- HIGHWAY COMMERCIAL
- EDUCATION FACILITY
- COMMUNITY FACILITY
- PUBLIC UTILITIES
- COMMUNITY PARK
- GOLF COURSE
- F Artefact Sites E.P.A. Consider not Requiring Further Protection
- E Artefact Sites E.P.A. Consider Adequately Protected within Public Open Space
- L Artefact Sites E.P.A. Consider Requiring Additional Protection
- NEIGHBOURHOOD CENTRE (INDICATIVE ONLY)
- NEIGHBOURHOOD SCHOOL (INDICATIVE ONLY)
- LINEAR / CREEKLINES
- FORMAL PARKS AND GARDEN /LOCAL PLAY AND PICNIC
- DISTRICT 1 PARK-SPORTS GROUNDS AND COURTS
- DISTRICT 2 PARK
- LAKES
- WETLANDS
- WILDLIFE CONSERVATION PARK
- GC GOLF CLUBHOUSE
- Individual Artifacts
- Y KFM Interpretation of scatters from Satterthwait Report

CONCEPT PLAN CULTURAL HERITAGE ARTIFACTS

JUNE (2004)

Prepared By-

KEILAR FOX McGHIE

SURVEYING • TOWN PLANNING • MAPPING • LAND DEVELOPMENT

SPRINGFIELD LAND CORPORATION

CAD FILE: 02951719 PLAN No: IK 0295-17-062 SCALE 1:12,000 @ A1 (11/10/04)