
# Annual Compliance Report

9 July 2022 to 8 July 2023 (Year 5) EPBC 2014/7306

Springview Village One, Springfield, Ipswich City, Queensland
Stockland Development Pty Ltd

6 October 2023

Job No: 8473 E

Stockland | kalina
SpringSdd

# Document control

Document: Annual Compliance Report 9 July 2022 to 8 July 2023 (Year 5) EPBC 2014/7306, prepared by Saunders Havill Group for Stockland Development Pty Ltd.

## Document Issue

| Issue | Date | Prepared By | Checked By |
|---|---|---|---|
| A | 06.10.2023 | TM | AW |

Prepared by

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# 1. Introduction

Saunders Havill Group (SHG) have prepared this Annual Compliance Report (ACR) for the Springview Village One project at Springfield, Queensland on behalf of Stockland Development Pty Limited (Stockland). In 2018, the Springview Village One project was rebranded Kalina Springfield and all project references use the latter name herein.

This report provides an assessment of the project's compliance with the approval granted under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (ref EPBC 2014/7306) and is specifically required by condition 10 of the approval granted on 14 September 2016 (refer **Appendix A**). The reporting period for this ACR is the twelve months ending on 8 July 2023.

Kalina Springfield is located approximately 2.5 kilometres (km) north of Springfield Central and is adjacent to existing urban development comprising residential housing and Springfield Anglican College in the Ipswich City local government area (refer **Figure 1**). Within the project area, an impact to no more than 39.75 ha of Matters of National Environmental Significance (MNES) habitat being Koala habitat was permitted under the approval conditions. A land-based offset accompanied this clearing to counterbalance the impacts and is located in the locality of Calvert, approximately 40 km west of the project.

## 1.1. Approval summary

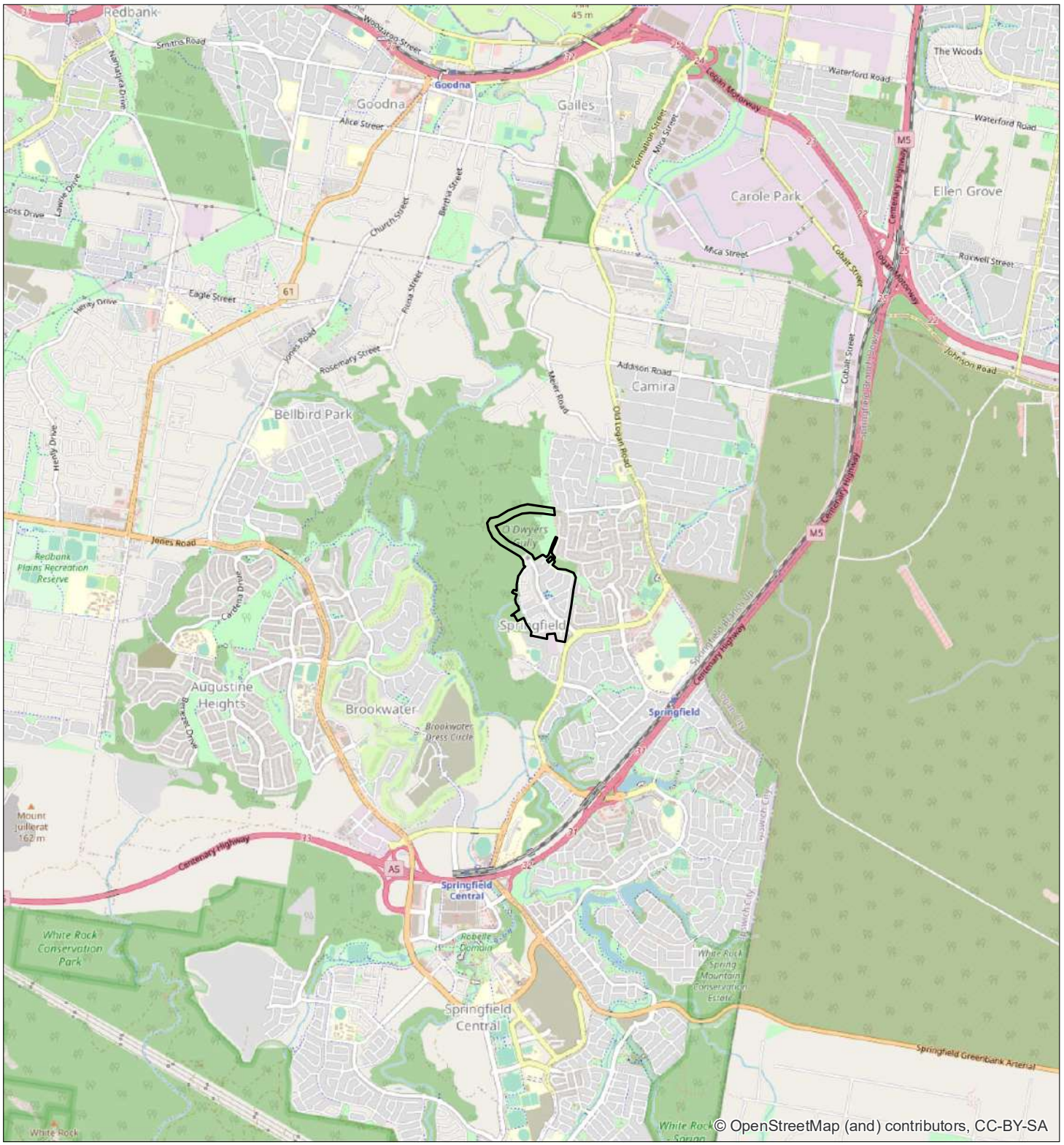
There are three approval documents issued under the EPBC Act relevant to the project:

1. *Approval* dated 12 June, 2016.
2. *Notice of Transfer of Approval* dated 16 June, 2017.
3. *Variation to Conditions Attached to Approval* dated 12 June, 2018.

**Table 1** summarises the approval details under the EPBC Act relevant to Kalina Springfield. The approval was granted by the Australian Government Department of Agriculture, Water, and the Environment. The approval is currently administered by the Department of Climate Change, Energy, the Environment and Water (the Department).

**Table 1: EPBC Act approval summary**

| | |
|---|---|
| Department reference | EPBC 2014/7306 |
| Approval holder, ACN | Stockland Development Pty Limited, 000 064 835 |
| Approval date | 14 September 2016 |
| Expiry date of approval | 30 September 2041 |
| Approved action | To develop Springview Village One residential development at Lot 43 on SP2442290 at the junction of Mur Boulevard and Panorama Drive, Springfield, Queensland as described in the referral received by the Department on 15 August 2014. |
| Controlling provision | Approved - listed threatened species and communities (sections 18 & 18A) |
| Address | Mur Boulevard, Springfield Queensland 4300 |




**Legend**

EPBC Act approved Clearance Area

***Figure 1***

*Site Context*

EPBC 2014/7306
Kalina Springfield - Residential Development

Stockland
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***File ref.*** 8473 E Figure 1 ACR5 Site Context A
***Date*** *10/08/2023*
***Project*** *Kalina Annual Compliance Report #5*

0 0.5 1 2 km

N

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

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*Layer Source:* *© State of Queensland 2023*

## 1.2. Declaration of accuracy

In making this declaration, I am aware that sections 490 and 491 of the EPBC Act make it an offence in certain circumstances to knowingly provide false or misleading information or documents. The offence is punishable on conviction by imprisonment or a fine, or both. I declare that all the information and documentation supporting this compliance report is true and correct in every particular. 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 | Murray Saunders |
| Position | Director |
| Organisation | Saunders Havill Group (ABN 24 144 972 949) |
| Date | 6 October 2023 |

# 2. Description of activities – impact area

The Kalina Springfield project is a residential development situated in Springfield, a suburb of Ipswich City. The development encompasses the establishment of residential land parcels and open space areas, and construction is ongoing.

Works on-site commenced on 9 July 2018. Clearing commenced with a high level of diligence by Stockland to minimise possible harm to Koala and other fauna potentially residing on-site where a Fauna Spotter Catcher attended at all times. Furthermore, minimising disturbances to neighbours was also an ongoing priority.

A total of 436 residential allotments and 370 dwellings have been created during the first five years of construction (refer **Figure 2**). During the reporting period, the following activities were under construction or established in the project area:

- creation of residential land parcels (refer **Photo set 1**);
- construction of dwellings (refer **Photo set 1**);
- planting for landscaping purposes (refer **Photo 2**).

No new vegetation clearing was completed or commenced during this reporting period. Evidence remains from the clearing that occurred during the 2021-2022 reporting period (refer **Photo 3**). All clearing was completed in accordance with approvals from state and/or local administering authorities in place, where applicable.

Ongoing stability and rehabilitation efforts within landscaping and drainage areas to mitigate potential impacts on the surrounding environment were observed during the site inspection on 1 August 2023. These were in satisfactory condition. The stability and rehabilitation activities were completed with approvals from state and / or local administering authorities in place, where applicable. Minor defects were observed including some litter and damaged boundary fences. Refer to **Photo 4, 5, and 6** for the status of rehabilitation works in association with the gully line along the northern interface, and **Photo 7** for the status of rehabilitation works at the Lotus Place bund.

Sediment and erosion control measures continued to be observed within and bounding the works extent (refer **Photo 8** and **9**). Observed sediment and erosion control measures were concentrated along the interface between the retained bushland area and works extent, and in association with utility infrastructure e.g. drainage culverts and stormwater basins.

**Photo set 1: New builds during the reporting period.**

**Photo 2: New landscaping along south-western interface.**

**Photo 3: Old cleared area with retained vegetation borders where the road is proposed to continue.**

**Photo 4:** **Progress of rehabilitation areas in drainage areas in the north.**

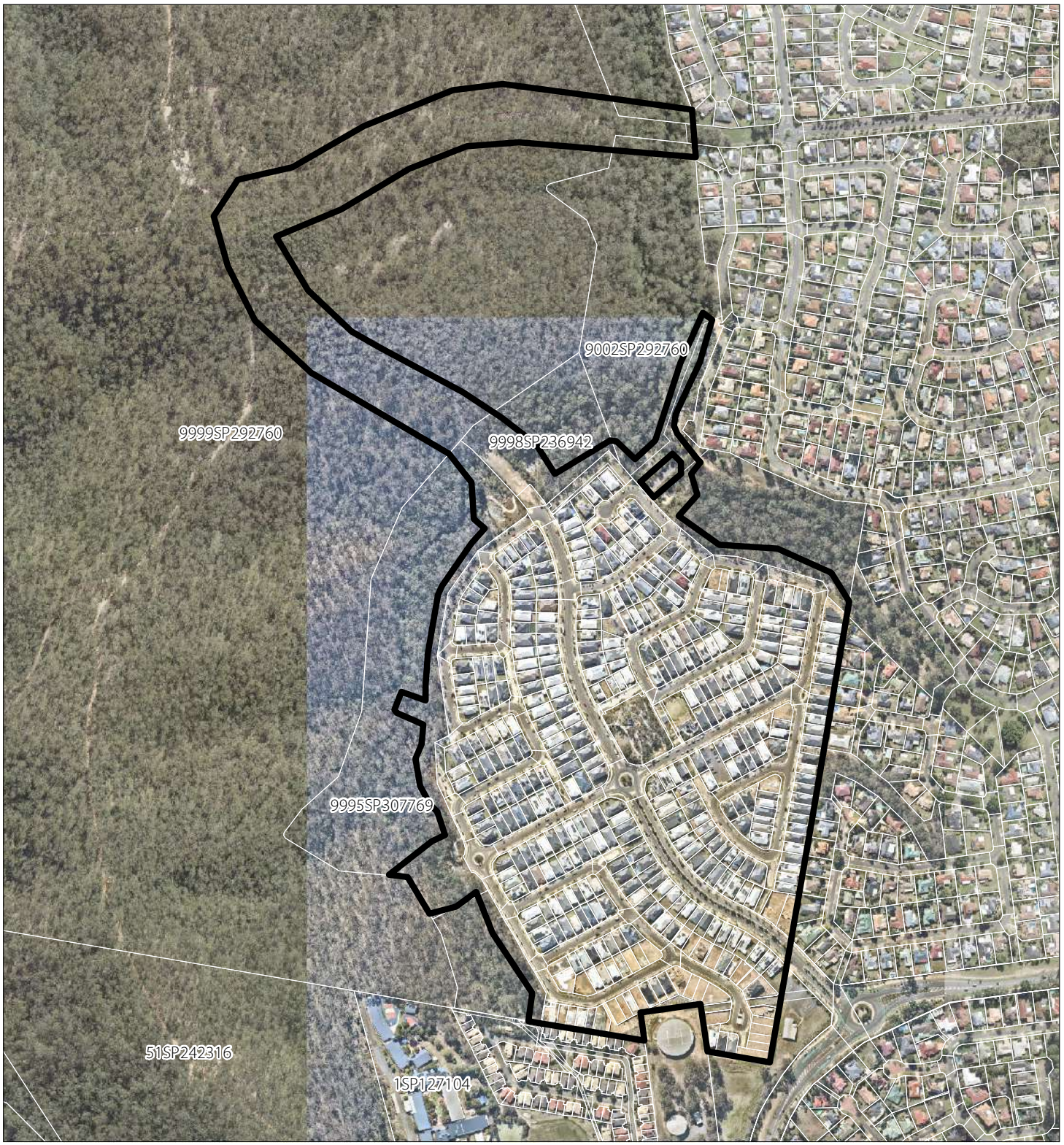
**Photo 5:** **Rehabilitation progressing in the northern drainage interface.**

**Photo 6: Rehabilitation progressing in the northern drainage interface.**

**Photo 7: Progress of rehabilitation area at Lotus Place.**

**Photo 8: Erosion and sediment controls adjacent an outlet.**

**Photo 9: Erosion and sediment controls.**




**Legend**

Qld DCDB

EPBC Act approved Clearance Area

***Figure 2***

*Site Aerial*

EPBC 2014/7306
Kalina Springfield - Residential Development

Stockland it's your place

***File ref.*** 8473 E Figure 2 ACR5 Site Aerial A
***Date*** *10/08/2023*
***Project*** *Kalina Annual Compliance Report #5*

0 50 100 200 300 *m*

N

*Scale (A4): 1:7,000 [GDA 1994 MGA Z56]*

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*Layer Source:* 

## 2.1. Koala habitat

The Kalina Springfield project was deemed a controlled action based on impacts to the vulnerable-listed Koala species. Field survey effort conducted across the site during the referral process determined that Koalas occur on-site infrequently and at an implied low usage. This finding has been supported by subsequent Fauna Spotter Catcher reports undertaken for clearing works in 2018 and 2019 which showed Koalas were not observed during pre-clearance surveys. These documents are provided in the first and second annual compliance reports (available on the Kalina Stockland website).

During the 2021-2022 reporting period, Fauna Spotter Catcher inspections were undertaken for clearing in February and April 2022. These surveys failed to locate any Koalas in the survey location during the pre-clearance survey or while clearing works were underway. In this reporting period (2022-2023), no Fauna Spotter Catcher inspections were undertaken as no vegetation clearing occurred.

Surveys to ascertain Koala usage and presence continue to be undertaken as part of annual surveys which have been completed on the development area periphery. The results are discussed in **Sections 2.1.1** and **2.1.2**.

### 2.1.1 Unmanned aerial vehicle thermal imagery survey

During the 2018 to 2019 reporting period (*i.e.*, ACR Year 1), subsequent to the commencement of on-site clearing works, an aerial survey using a mounted thermal camera was deployed to identify the presence of *Phascolarctos cinereus* (Koala). A CASA qualified pilot operated the unmanned aerial vehicle (UAV) (*i.e.*, drone) and completed pre- and post-flight procedures as required by their licence. The UAV survey was completed on 2 November 2018. The survey identified no Koalas on-site or in the immediate vicinity.

The UAV survey has not been completed since as it was deemed unnecessary in assisting the understanding of Koala presence/absence at this stage. Alternate surveys, specifically Spot Assessment Technique (SAT) surveys and opportunistic sightings, were considered to provide sufficient information in understanding presence/absence where usage is low and detectable through implementing this survey method.

### 2.1.2 SAT survey

Surveys were undertaken across the site and surrounding vegetation to measure Koala activity using the SAT, originally developed by the Australian Koala Foundation. The SAT method involves identifying a non-juvenile tree of any species within the site that is either observed to have a Koala or scats or is known to be a food tree or otherwise important for Koalas and recording any evidence of Koala usage of that tree including presence, identifiable scratches, or scats. The nearest non-juvenile tree is then identified, and the same data recorded 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 2 minutes of searching for scats, the base of the trunk is observed for scratches and the crown for Koala.

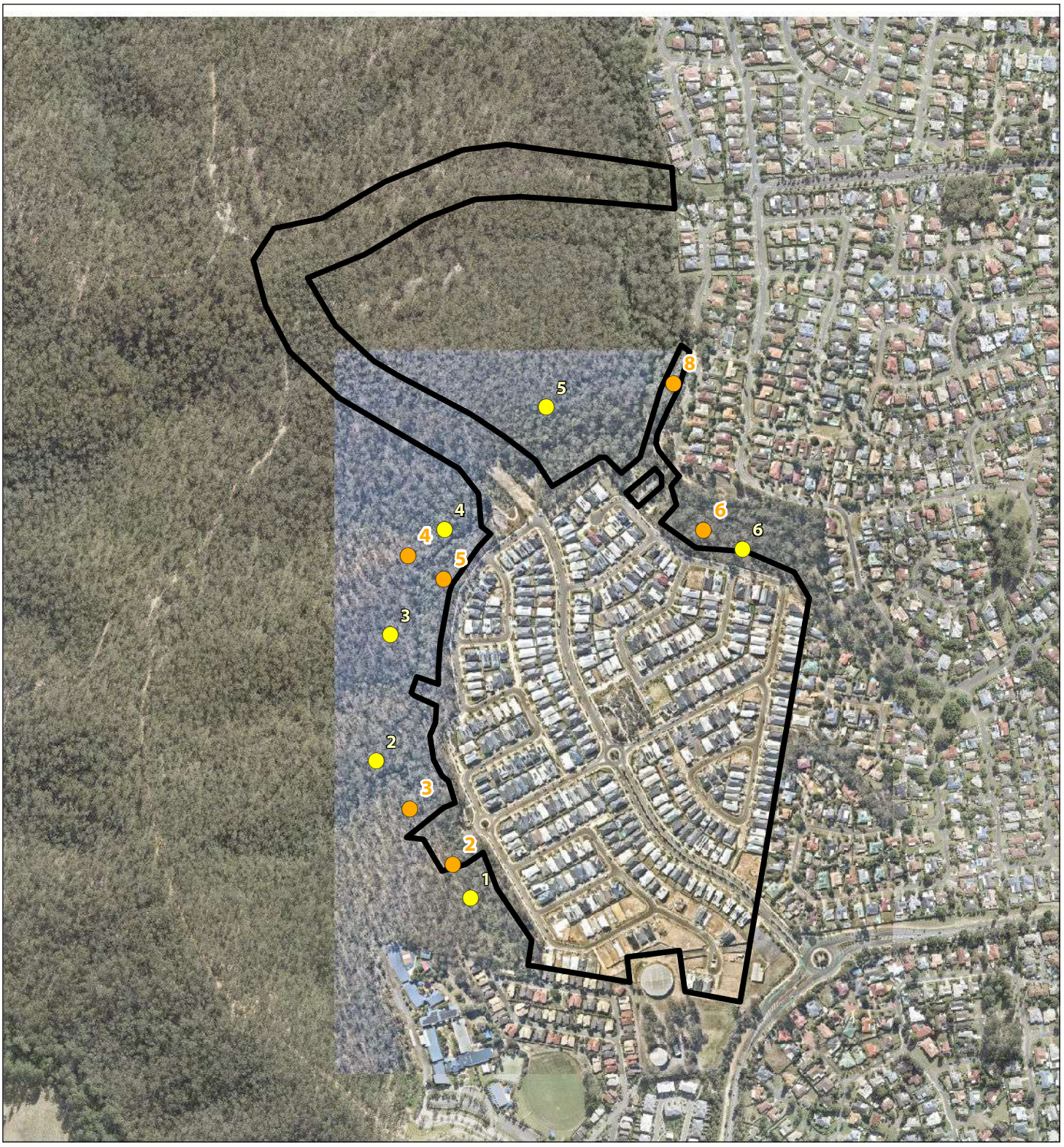
A total of six (6) SAT surveys were completed within retained vegetation areas to the west, north and north-east of the project area on 1 August 2023 (refer **Figure 3**). The locations surveyed during this reporting period were completed at different locations than those completed in the preceding years. The results of the SAT surveys over the five reporting periods completed to date are provided in **Table 2**.

All surveys produced low Koala activity results as defined within the Australian Koala Foundation Koala activity classification table using the East Coast (med-high) benchmark assessment category[1]. Detailed results of the SAT survey for this reporting period are provided in **Appendix B** and four (4) trees were recorded with Koala faecal pellets during the survey effort. Vegetation characteristics associated with SAT survey locations are shown in **Photos 10-15.**

**Table 2: SAT survey results summary**

| SAT survey site ID | 2023 reporting period | | 2022 reporting period | | 2021 reporting period | | 2020 reporting period | | 2019 reporting period | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Evidence of Koala activity (%) | Koala use (east coast med-high) | Evidence of Koala activity (%) | Koala use (east coast med-high) | Evidence of Koala activity (%) | Koala use (east coast med-high) | Evidence of Koala activity (%) | Koala use (east coast med-high) | Evidence of Koala Activity (%) | Koala use (east coast med-high) |
| **1** | 6.67 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0.00 | Low |
| **2** | 0.00 | Low | 0.00 | Low | 0.00 | Low | 0.00 | Low | 6.67 | Low |
| **3** | 3.33 | Low | 0.00 | Low | 0.00 | Low | 10.00 | Low | 6.67 | Low |
| **4** | 0.00 | Low | 0.00 | Low | 0.00 | Low | 3.33 | Low | 0.00 | Low |
| **5** | 0.00 | Low | 0.00 | Low | 3.33 | Low | 0.00 | Low | 0.00 | Low |
| **6** | 3.33 | Low | 0.00 | Low | 6.67 | Low | 0.00 | Low | 3.33 | Low |
| **7** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 3.33 | Low |
| **8** | N/A | Low | 0.00 | Low | 6.67 | Low | 13.33 | Low | 0.00 | Low |

[1] 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), pg. 774-780.




**Legend**

- EPBC Act approved Clearance Area
- SAT location (2022)
- SAT location (2023)

***Figure 3***

*SAT Surveys*

EPBC 2014/7306
Kalina Springfield - Residential Development

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***File ref.*** 8473 E Figure 3 ACR5 SAT Surveys A
***Date*** *6/10/2023*
***Project*** *Kalina Annual Compliance Report #5*

0 50 100 200 300 *m*

*Scale (A4): 1:8,000 [GDA 1994 MGA Z56]*

N

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**Photo 6: Vegetation within SAT 1 – two (2) scats found.**

**Photo 7: Vegetation within SAT 2 – no scats found.**

**Photo 8: Vegetation within SAT 3 – one (1) scat found.**

**Photo 13: Vegetation within SAT 4 – no scats found.**

**Photo 14: Vegetation within SAT 5 – no scats found.**

**Photo 95: Vegetation within SAT 6 – one (1) scat found.**

# 3. Description of activities – offset area

## 3.1. Offset area description

The 65 ha offset area in accordance with Condition 2 of the EPBC Act approval occurs across one land parcel that comprises confirmed Koala habitat. The offset parcel (described as 230/CH311791) is situated within Ipswich City local government area (refer **Figure 4**). Under Ipswich City Council's (ICC) Nature Conservation Strategy, the site is mapped as Core Habitat, and is within a large contiguous vegetation area of predominantly eucalypt forest. The offset area was legally secured on 6 June 2018 using the Voluntary Declaration (VDec) process administered under the *Vegetation Management Act 1999*. The securement of the offset occurred after the action was referred to the Department. As part of the VDec application, an Offset Management Plan (OMP) was prepared and implemented across the offset area. The VDec and OMP can be accessed online: https://www.stockland.com.au/residential/qld/kalina/news-and-events/offset-management-plan.

## 3.2. Key milestones and outcomes

The primary outcomes and milestone for the offset area outlined in Condition 3a and 3b of the approval are as follows:

> Outcome #1: *By 20 years after the commencement of construction, there must be a gain in Koala habitat quality to nine across the whole offset area.*
>
> Outcome #2: *For the life of the approval, the approval holder must ensure no net loss in the extent of Koala habitat in the offset area.*
>
> Milestone #1: *By five years after the commencement of construction, a gain in Koala habitat quality to nine must be achieved in more than 50% of the offset area through rehabilitation.*

Five years after commencement of the action is 8 July 2023, which is encompassed in this reporting period. A separate Year Five Milestone Report was prepared which discusses the outcomes of management actions and compliance with Milestone #1, and is available at **Appendix C**.

## 3.3. Offset area actions

To meet the primary outcomes and milestone, existing threats to the offset area were identified and management actions designed to improve Koala habitat quality to a nine out of ten were implemented across the entirety of the offset area. Existing key threats to Koalas and Koala habitat within the offset area identified in the OMP include:

- wild dog attacks;
- habitat degradation through weed invasion, of particular concern *Lantana camara* (Lantana) and *Opuntia stricta* (Common Prickly Pear);
- unauthorised public access;
- erosion caused by vehicular access and loss of vegetation cover; and
- habitat loss from fire.

The assessment of habitat improvement works also includes interim site condition assessments to determine variation in site condition since the baseline assessments in 2018. These data were used in the Year Five Milestone Report. The quality of vegetation will be measured across future years through continued habitat improvement monitoring assessments to measure the success of vegetation management efforts.

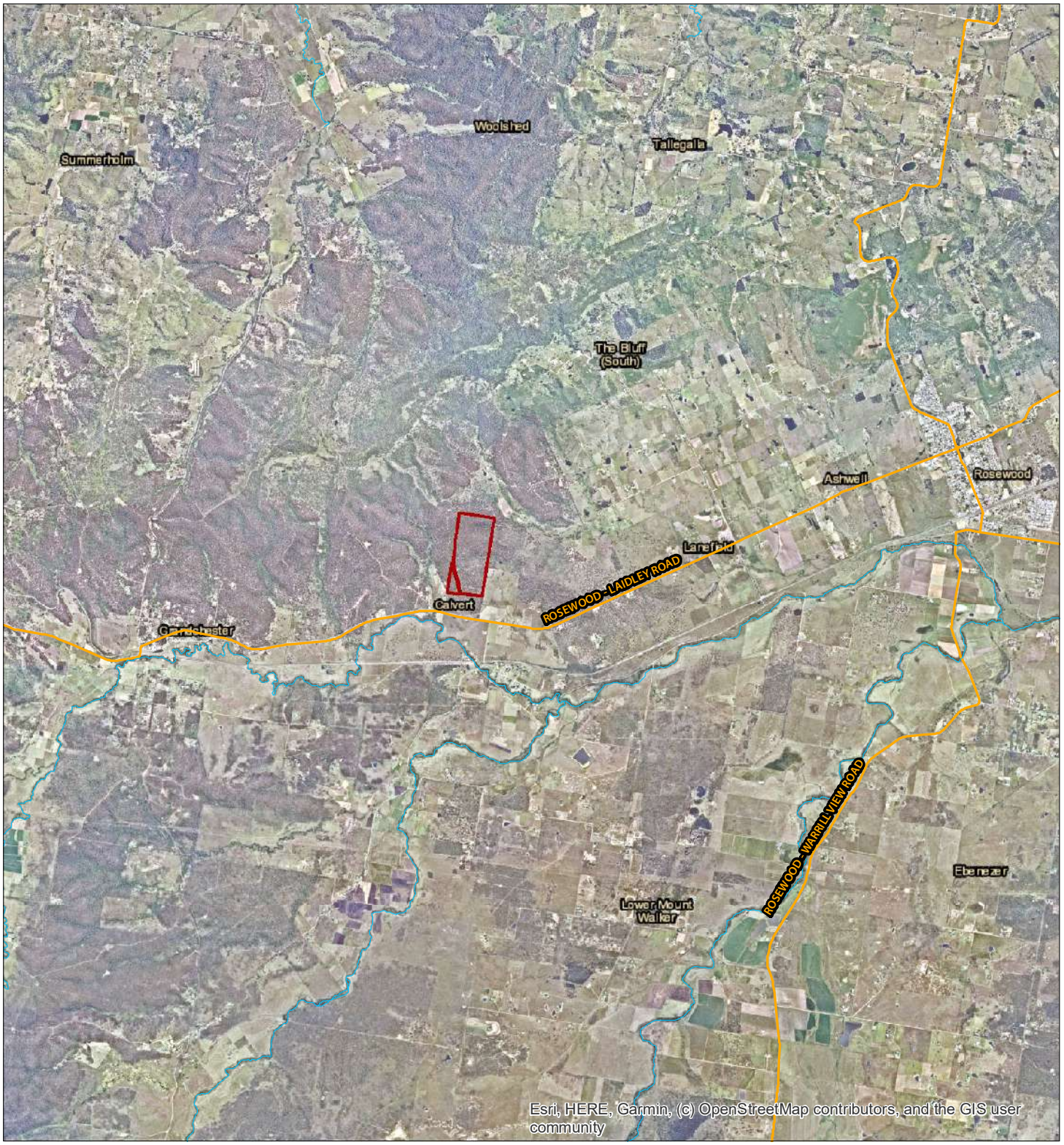
The current quality and extent of vegetation are influenced by several factors, including the presence and intensity of invasive flora and fauna, and vegetation community characteristics e.g. species diversity, canopy cover, ecologically dominant layer. The OMP identifies several management actions to be undertaken to improve Koala habitat quality across the offset area and meet the primary outcomes for the offset area, as follows:

1. Weed management.
2. Infill planting.
3. Erosion mitigation.
4. Access infrastructure.
5. Fire management.
6. Fencing.
7. Wild dog management.

Details on the progress of these actions is provided in **Table 3**. This table is reviewed annually as part of the Annual Compliance Report in accordance with condition 10 of the approval and the resultant status of actions discussed accordingly. The table will be reviewed in conjunction with the Offset Management Plan Annual Report – June 2023 prepared by Cherish the Environment Foundation Limited (refer **Appendix D**).

Five (5) photo reference points were established during the 2019 ACR reporting period to assist in assessing the ongoing monitoring of site condition. A map of the reference sites and geo-referenced photo points is contained in the Offset Management Plan Annual Report – June 2023 located at **Appendix D**.

It is noted that during this reporting period, the site and wider South East Queensland region experienced both higher and lower than average rainfall. The period of June 2021 to March 2022 received higher than usual rainfall, attributed to the declared La Nina climatic event which resulted in significant levels of rainfall across eastern Australia. March 2023 to June 2023 experienced below average rainfall. Rainfall affects vegetation growth, soil erosion and weed regrowth. These effects have been managed during the reporting period, as detailed within **Table 3**.




**Legend**

- Calvert offset site
- Major road
- Watercourse

***Figure 4***

*Legally Secured Offset Area*

EPBC 2014/7306
Kalina Springfield - Residential Development

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***File ref.*** 8473 E Figure 4 ACR5 Legally Secured Offset Area A
***Date*** *10/08/2023*
***Project*** *Kalina Annual Compliance Report #5*

0 0.5 1 2 3 km

N

*Scale (A4): 1:85,000 [GDA 1994 MGA Z56]*

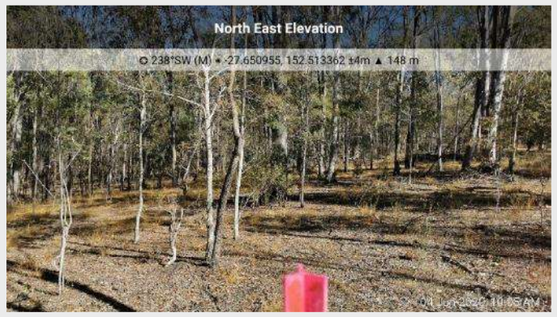
saunders havill group



*Layer Source:* 

**Table 3: Summary of offset area actions during reporting period.**

| Management action | Monitoring action | Improvement proposed | Timeframe | | Progress to June 2023 | Evidence of progress |
|---|---|---|---|---|---|---|
| | | | Trigger-based | Progress to 2023 | | |
| Erosion mitigation | Inspect completed mitigation measures. | • Repair significant erosion points where possible and feasible.<br>• Repair work involves re-profiling and re-directing overland water flow away from erosion path using cross drainage.<br>• Cross-drainage to be located along all permanent access tracks at appropriate intervals.<br>• Allow for future maintenance of cross-drainage throughout the site. | • approximately one month post completion; and<br>• approximately two weeks post first minor rainfall event; and<br>• approximately two weeks post first major rainfall event. | • Assessment and mitigation actions complete. Inspections post severe rain events completed.<br>• Major rain event in January 2023 did not result in obvious erosion. | The previous diversions and increases in ground cover due to stock removal, in combination with a drier reporting period, have resulted in no evidence of significant erosion.<br><br>Rainfall recorded at Amberley BoM site (19 km from site) shows that monthly rainfall was 112% lower than average in June 2022, with only 12.6 mm. Rainfall fluctuated between July – Dec 2022; rain was higher than average in July and October (49% and 39% higher), and much higher in September (91% higher), but lower than average in August and December (38% and 43% lower), and much lower in November (92% lower).<br><br>January 2023 had slightly higher (26%) than average rainfall with 150 mm, the maximum monthly rainfall this reporting period. February was much lower (144%) than average. March – May 2023 all had close to average rainfall, then June was again much lower (141%) than average, with only 7.8 mm and the minimum monthly rainfall during this reporting period.<br><br>Monthly rainfall was only higher than 80mm four times during this reporting period, with a total of 770mm, much drier than the 2021 – 2022 reporting period which contained the La Nina event and had 1822 mm. | - |
| Access infrastructure | Inspect existing and new access infrastructure. | • Construction and/or re-opening of tracks to facilitate weed management, infill planting establishment and maintenance, fence line construction and maintenance, pest management and fire protection activities | Existing access infrastructure:<br>• approximately two weeks post major rainfall event.<br>New access infrastructure:<br>• approximately one month post completion; and<br>• approximately two weeks post first minor rainfall event; and<br>• approximately two weeks post first major rainfall event. | • Maintenance tracks and cross drainage maintained x 2.<br>• Downed vegetation removed, access maintained.<br>• Inspections post severe rain events completed. | Inspections immediately following severe rain events were conducted to assess and ensure any erosion could be repaired.<br><br>No repairs were required. Tracks are now on a scheduled maintenance program. | - |

| Management action | Monitoring action | Improvement proposed | Timeframe | | Progress to June 2023 | Evidence of progress |
|---|---|---|---|---|---|---|
| | | | Trigger-based | Progress to 2023 | | |
| Weed management | Assess weed infestations and success of weed reduction measures. | • An intensive, 5-year weed management program is proposed for remnant and regrowth parts of the offset area<br>• Primary weed treatment process to commence as soon as practical, with follow-up weed treatment undertaken annually<br>• After first 3-years, required management intensity should reduce significantly<br>• Weed management will occur in two phases throughout the approval period:<br>○ Intensive weed management until year 6; and<br>○ Ad-hoc weed management from year 6 until the end of the approval period. | Weed reduction measures:<br>• approximately six months post completion. | • Inspections to assess regrowth conducted.<br>• Increase in overall ground vegetation, including weeds consequent to ongoing rainfall conditions. Weed treatment is ongoing and will be ramped up once sufficient rainfall is received in Spring 2023. | There are currently emergent weeds and lantana regrowth following ongoing above average rainfall. Further weed treatment will be required in the coming months particularly in gully areas of the property. | 4 June 2020:<br>RE12.9-10.7 Regrowth – Dry conditions, weed free<br>  <br>29 May 2021:<br>Increase in leaf and ground cover<br>  <br>30 June 2022<br>Increase in leaf and ground cover.<br>  |
| Fire management | Assess suitability of fire breaks and access tracks. | • At this stage in the project, fire management activities have been limited to fire exclusion and asset protection. | • approximately one month post fire event | • Boundary firebreaks slashed x 2 along with access tracks and inter-rows of the in-fill | Slashing of all boundary and maintenance tracks as well as inter-rows of the in-fill plantings has continued to be maintained to reduce fuel loads. There have been no fires in | - |

| Management action | Monitoring action | Improvement proposed | Timeframe: Trigger-based | Timeframe: Progress to 2023 | Progress to June 2023 | Evidence of progress |
|---|---|---|---|---|---|---|
| | | • Prescribed burning is restricted within the V-Dec area until a Fire Management Plan is developed (to be reviewed/endorsed or similar by the rural fire brigade or other relevant stakeholder prior to implementation) | | plantings. Cool Burn planned for Autumn 2024. | or near the site. A cool burn is planned for autumn 2023 to assist with revegetation. | |
| Infill planting | Assess success of infill planting. | • A small, one hectare patch of open, grassy area in south-east corner of 230CH311971 will require infill planting<br>• Approximately 400 trees typical of regional ecosystems 12.9-10.2 and 12.9-10.3 will be planted in the area | • approximately six months post completion | • Completed and maintained weed free. | The infill area is established and trees continue to grow steadily with reasonable growth due to wet conditions. The area is maintained weed free in the rows and slashed between the rows to reduce both competition and fire risk.<br><br>Post-plant weed control was conducted in January 2021, May 2021, May 2022, and February 2023. Post-plant spray has been effective (weeds and grass along the tree rows is dead or dying). Planted trees are healthy and show no signs of spray damage. | <u>4 June 2020:</u><br>RE12.9-10.2 Regrowth – Infill area, dry conditions<br>  <br><br><u>29 May 2021:</u><br>Increase in tree growth and ground cover<br>  <br><br><u>30 June 2022:</u><br>Steady increase in tree growth<br>  |

| Management action | Monitoring action | Improvement proposed | Timeframe | | Progress to June 2023 | Evidence of progress |
|---|---|---|---|---|---|---|
| | | | Trigger-based | Progress to 2023 | | |
| Pest and animal management | Assess presence of pests and suitability of boundary fencing.<br><br>Undertake pest management. | • There is no internal fencing on the property – boundary fencing will be constructed, repaired and maintained to exclude domestic stock and pests<br>• Pest animals such as wild dogs will be addressed via a control program that will be implemented at the discretion of the landholder<br>• The fencing is schedules to be established / constructed within 12-months of the V-Dec being certified and must be in place for the duration of the approval<br>• A wild dog control program will occur ad hoc during the approval period | • ad hoc as part of property management | • Boundary fencing installed so the entire site excludes stock.<br>• Wildlife cameras at strategic locations to monitor for species richness. No feral species, e.g. wild dogs or pigs, captured on camera. | There continues to be no evidence of wild dog or pig presence across the site. | - |

# 4. EPBC approval conditions compliance table

The EPBC approval conditions for the Kalina Springfield, Springfield are replicated in **Table 4** with a designation on compliance or non-compliance if the condition was applicable during the reporting period, and evidence and comments as necessary. A copy of the EPBC approval and conditions is provided in **Appendix A**.

**Table 4: EPBC approval conditions compliance table**

| Condition number / reference | Condition | Is the project compliant with this condition? | Evidence / comments |
|---|---|---|---|
| **1** | The approval holder must not clear more than 39.75 hectares of Koala habitat. Clearing must not occur outside of the clearance area. | Compliant | The approval holder has not cleared more than 39.75 ha of Koala habitat since the commencement of the action. Clearing has not occurred outside of the clearance area. |
| **2** | To compensate for the loss of Koala habitat, the approval holder must:<br>a) secure, prior to the commencement of construction, a minimum of 65 hectares of Koala habitat within the offset area; and<br>b) provide the Department with relevant evidence on securing the offset area and the offset attributes clearly defining the location and boundary of the offset within 10 business days of lodgement of the offset with the Titles Office. | Compliant | a) An offset site, accounting for 65 ha (located at 40-160 Harrison Road, Calvert QLD 4340 (230/CH311791)), was secured prior to the commencement of construction. Clearing works began on 9 July 2018 and the offset site was secured on 6 June 2018.<br>b) The Department was notified of the offset securement and provided with relevant evidence on 7 June 2018. The Queensland Government Department of Natural Resources, Mines and Energy administers the VDec process and land titles, and therefore notification to the Titles Office would have occurred on 7 June 2018 at the latest. |

| Condition number / reference | Condition | Is the project compliant with this condition? | Evidence / comments |
|---|---|---|---|
| **3** | To compensate for the impacts to Koala habitat, the approval holder must achieve the following outcomes and milestones as compared to baseline values for Koala habitat quality and extent:<br>a) Outcomes<br>• By 20 years after the commencement of construction, there must be a gain in Koala habitat quality to nine across the whole offset area; and<br>• For the life of the approval, the approval holder must ensure no net loss in the extent of Koala habitat in the offset area.<br>b) Milestones<br>• By five years after the commencement of construction, a gain in Koala habitat quality to nine must be achieved in more than 50% of the offset area through rehabilitation. | Not applicable/compliant | a) The 20-year outcome has not surpassed and is due to occur in 2038. No net loss of Koala habitat in the offset area has occurred to date.<br>b) The 5-year milestone anniversary date occurred on 8 July 2023. A Year Five Milestone Report was prepared addressing the project's compliance with Condition 3b of the approval and is located at **Appendix C.** The assessment and report demonstrate that the offset area has achieved a koala habitat quality score of 9 / 10 over at least 50% of the offset rea.<br>Habitat quality monitoring and habitat improvement works are continually being undertaken across the offset area in accordance with the prescribed management activities under the OMP. Site condition assessments were completed in July and August 2018 to record baseline site condition with year five surveys completed in April 2023 at the pre-established assessment locations to track the progress in site condition. The OMP describes baseline site condition (refer to the Stockland Kalina development website) and is also provided in the Year Five Milestone Report. |
| **4** | The approval holder must have an Offset Management Plan in place. The Offset Management Plan must:<br>a) include monitoring and be designed so that the results are adequate to inform adaptive management and demonstrate whether the outcomes and milestones required by these conditions are on track to be achieved | Compliant | An OMP is in place and has applied to the offset area since 6 June 2018. The OMP was developed to respond to condition 4.<br>a) Monitoring timeframes have been scheduled to occur both trigger-based and recurring. An inspection is completed annually to support the progress towards outcomes and milestones, as dictated in condition 3, and ensure they are achieved. |

| Condition number / reference | Condition | Is the project compliant with this condition? | Evidence / comments |
|---|---|---|---|
| | (before they are due) and have been achieved (at the time they are due);<br>b) include contingency measures to mitigate the risks of not achieving the outcomes and milestones required by these conditions;<br>c) be prepared in consultation with a suitably qualified person, and include written evidence of how the suitably qualified person's advice has been considered;<br>d) be in accordance with the Koala Habitat Offset Report; and<br>e) demonstrate how the plan is consistent with the Koala Conservation Advice. | | b) Contingency measures to mitigate the risk of not achieving the outcomes and milestones in condition 3 are included within Sections 5, 7 and 9 of the OMP (refer to Stockland Kalina development website).<br>c) Cherish the Environment Foundation Limited prepared the OMP in consultation with Saunders Havill Group who have experience in coordinating offset management plans seeking to deliver an improvement of Koala habitat.<br>d) The Koala Habitat Offset Report and OMP propose consistent management actions and the latter expands upon key parameters (e.g. timing of events, monitoring, and reporting) relating to demonstrating compliance.<br>e) The Koala Conservation Advice was reviewed as part of preparing the OMP. The Koala Conservation Advice identifies the main threats to the Koala as loss and fragmentation of habitat, vehicle strike, disease, and predation by dogs. The OMP and VDec support the protection of Koala habitat from fragmentation and loss. Pest and animal management measures have also been incorporated into the OMP and progress on these management measures is reviewed annually. Further, no formed roads intersect the offset site. |

| Condition number / reference | Condition | Is the project compliant with this condition? | Evidence / comments |
|---|---|---|---|
| **5** | The Offset Management Plan must be implemented. Unless otherwise agreed to in writing by the Minister, the approval holder must publish the Offset Management Plan on their website prior to the commencement of construction and the Offset Management Plan must remain on the website for the life of the approval. The results of the Offset Management Plan must be included in the annual compliance report required under condition 10. | Compliant | The OMP was implemented in 2018 and has continued to be implemented across all reporting periods to the date of this annual compliance report.<br><br>An OMP Annual Report presenting the results of management and monitoring actions over the offset site in accordance with the OMP during each reporting period has been completed. The 2019, 2020, 2021, and 2022 OMP Annual Reports were provided in the respective Annual Compliance Reports. The OMP Annual Report – June 2023 is provided at **Appendix D**.<br><br>The OMP was published on the approval holders' website prior to the commencement of construction and remains published on the approval holders' website to date (located at https://www.stockland.com.au/residential/qld/kalina/news-and-events/offset-management-plan). |
| **6** | If, at any time during the life of the approval, the approval holder identifies that the outcomes or milestones required under these conditions are not on track to be achieved, the approval holder must report to the Department in writing within 20 business days of becoming aware. The report must state the cause, the response measures (including timeframes for reporting the success of those measures to the Department) and the actions to prevent further occurrences. | Compliant | The approval holder did not identify that the outcomes or milestones required under these conditions were not on track to being achieved. Therefore, no report notifying the Department was completed during the reporting period. |

| Condition number / reference | Condition | Is the project compliant with this condition? | Evidence / comments |
|---|---|---|---|
| **7A** | If the Minister is not satisfied that the outcomes or milestones required by these conditions are likely to be achieved, or is not satisfied that there is sufficient evidence that the outcomes or milestones required by these conditions are likely to be achieved, the Minister may (in writing) request the approval holder to submit a plan for the Minister's approval, to monitor, manage, avoid, mitigate, offset, record or report on, impacts to Koala habitat. | Not applicable | The approval holder has not received a request from the Minister to submit a plan to monitor, manage, avoid, mitigate, offset, record or report on, impacts to Koala habitat. |
| **7B** | The Minister may set a timeframe in which the plan must be submitted, and may designate that the plan must be prepared or reviewed by a suitably qualified person. | Not applicable | The approval holder has not received a request from the Minister to submit a plan specified in condition 7A, therefore a timeframe was not set by the Minister to submit the plan. |
| **7C** | If the Minister approves the plan in writing then the approval holder must implement that plan (or a revised version if approved in writing by the Minister or otherwise allowed under these conditions).<br><br>Note: Cost recovery does not apply to a plan required under this condition. | Not applicable | The approval holder has not received a request from the Minister to submit a plan specified in condition 7A. This condition is not applicable. |
| **8** | Within 20 business days after the commencement of construction, the approval holder must advise the Department in writing of the actual date of the commencement of construction. | Compliant | The actual date of the commencement of construction was 9 July 2018. The Department was notified of the commencement of construction on 19 July 2018. |
| **9** | The approval holder must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement | Compliant | The Saunders Havill Group records and holds all relevant information for this EPBC approval on behalf of the approval holder. Electronic records of all material are held collectively by the Saunders Havill Group and |

| Condition number / reference | Condition | Is the project compliant with this condition? | Evidence / comments |
|---|---|---|---|
| | the Offset Management Plan required by this approval, and make them available upon request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the Department's website. The results of audits may also be publicised through the general media. | | approval holder and will be made available upon request in accordance with section 458 of the EPBC Act, or if required to verify compliance with the conditions of approval. |
| **10** | Within three months of every 12 month anniversary of the commencement of construction, the approval holder must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of the Offset Management Plan as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the Department at the same time as the compliance report is published. Reports must remain on the website for the period this approval has effect. The approval holder may cease preparing and publishing compliance reports required by this condition with written agreement of the Minister to do so. | Compliant | The anniversary of the commencement of the action is 9 July, annually. The annual deadline for publishing the report addressing compliance with each of the conditions of the approval (*i.e.*, this Annual Compliance Report) is 8 October. When this deadline is a non-business day in Brisbane, the next business day is taken to be the deadline. Documentary evidence providing proof of the date of publication will be provided to the Department when the report is published.<br><br>The Annual Compliance Report for the 12-month period ending 8 July 2023 (*i.e.,* Year 5) is to be published on the Stockland Kalina development website by 8 October 2023. The Department will be notified of the report publication and provided with evidence on the day of its publication.<br><br>The approval holder and Saunders Havill Group have not become aware of a potential or suspected non-compliance with the conditions during the reporting period. |

| Condition number / reference | Condition | Is the project compliant with this condition? | Evidence / comments |
|---|---|---|---|
| **11** | Upon the direction of the Minister, the approval holder must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the Minister. The independent auditor must be approved by the Minister prior to the commencement of the audit. Audit criteria must be agreed to by the Minister and the audit report must address the criteria to the satisfaction of the Minister. | Not applicable | The Minister has not provided a direction to complete an independent audit of compliance. |
| **12** | If, at any time after five years from the date of this approval, the approval holder has not substantially commenced the action, then the approval holder must not substantially commence the action without the written agreement of the Minister. | Not applicable | The action commenced on 9 July 2018. |

# 5. Appendices

## Appendix A

EPBC approval and conditions granted 14 September 2016

## Appendix B

SAT survey results 2023 – raw data

## Appendix C

Year Five Milestone Offset Report

## Appendix D

Offset Management Plan – Annual Report June 2023

# Appendix A

## EPBC approval and conditions granted

## 14 September 2016

## Approval

**Springview Village One, Springfield, Ipswich City, Queensland (EPBC 2014/7306)**

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

**Proposed action**

| | |
|---|---|
| **person to whom the approval is granted** | Cherish Enterprises Pty Ltd<br>ACN: 052 055 811 |
| **proposed action** | To develop Springview Village One residential development at Lot 43 on SP2442290 at the junction of Mur Boulevard and Panorama Drive, Springfield, Queensland as described in the referral received by the Department on 15 August 2014 [See EPBC Act referral 2014/7306]. |

**Approval decision**

| Controlling Provision | Decision |
|---|---|
| Listed threatened species and communities (sections 18 & 18A) | Approve |

**conditions of approval**

This approval is subject to the conditions specified below.

**expiry date of approval**

This approval has effect until 30 September 2041.

**Decision-maker**

| | |
|---|---|
| **name and position** | James Barker<br>Assistant Secretary<br>Assessments (QLD, Vic, Tas) and Sea Dumping Branch |
| **signature** |  |
| **date of decision** | 14 / 9 / 2016 |

**Conditions attached to the approval**

1. The **approval holder** must not clear more than 39.75 hectares of **Koala habitat.** Clearing must not occur outside of the **clearance area**.

2. To compensate for the loss of **Koala habitat**, the **approval holder** must:

   a) **secure**, prior to the **commencement of construction**, a minimum of 65 hectares of **Koala habitat** within the **offset area**; and

   b) provide the **Department** with relevant evidence on securing the **offset area** and the **offset attributes** clearly defining the location and boundary of the offset within 10 **business days** of lodgement of the offset with the **Titles Office**.

3. To compensate for the impacts to **Koala habitat**, the **approval holder** must achieve the following outcomes and milestones as compared to **baseline values** for **Koala habitat quality** and **extent**:

   a) Outcomes

      - By 20 years after the **commencement of construction**, there must be a gain in **Koala habitat quality** to nine across the whole **offset area**; and

      - For the life of the approval, the **approval holder** must ensure no net loss in the **extent** of **Koala habitat** in the **offset area.**

   b) Milestones

      - By five years after the **commencement of construction**, a gain in **Koala habitat quality** to nine must be achieved in more than 50% of the **offset area** through rehabilitation.

4. The **approval holder** must have an Offset Management Plan in place. The Offset Management Plan must:

   a) include monitoring and be designed so that the results are adequate to inform adaptive management and demonstrate whether the outcomes and milestones required by these conditions are on track to be achieved (before they are due) and have been achieved (at the time they are due);

   b) include contingency measures to mitigate the risks of not achieving the outcomes and milestones required by these conditions;

   c) be prepared in consultation with a **suitably qualified person**, and include written evidence of how the **suitably qualified person**'s advice has been considered;

   d) be in accordance with the **Koala Habitat Offset Report**; and

   e) demonstrate how the plan is consistent with the **Koala Conservation Advice**.

5. The Offset Management Plan must be implemented. Unless otherwise agreed to in writing by the **Minister**, the **approval holder** must publish the Offset Management Plan on their website prior to the **commencement of construction** and the Offset Management Plan must remain on the website for the life of the approval. The results of the Offset Management Plan must be included in the annual compliance report required under condition 10.

6. If, at any time during the life of the approval, the **approval holder** identifies that the outcomes or milestones required under these conditions are not on track to be achieved, the **approval holder** must report to the **Department** in writing within 20 **business days** of becoming aware. The report must state the cause, the response measures (including timeframes for reporting the success of those measures to the **Department**) and the actions to prevent further occurrences.

7A. If the **Minister** is not satisfied that the outcomes or milestones required by these conditions are likely to be achieved, or is not satisfied that there is sufficient evidence that the outcomes or milestones required by these conditions are likely to be achieved, the **Minister** may (in writing) request the **approval holder** to submit a plan for the **Minister**'s approval, to monitor, manage, avoid, mitigate, offset, record or report on, impacts to **Koala habitat**.

7B. The **Minister** may set a timeframe in which the plan must be submitted, and may designate that the plan must be prepared or reviewed by a **suitably qualified person**.

7C. If the **Minister** approves the plan in writing then the **approval holder** must implement that plan (or a revised version if approved in writing by the **Minister** or otherwise allowed under these conditions).

Note: Cost recovery does not apply to a plan required under this condition.

8. Within 20 **business days** after the **commencement of construction**, the **approval holder** must advise the **Department** in writing of the actual date of the **commencement of construction**.

9. The **approval holder** must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the Offset Management Plan required by this approval, and make them available upon request to the **Department**. Such records may be subject to audit by the **Department** or an independent auditor in accordance with section 458 of the **EPBC Act**, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the **Department**'s website. The results of audits may also be publicised through the general media.

10. Within three months of every 12 month anniversary of the **commencement of construction**, the **approval holder** must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of the Offset Management Plan as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the **Department** at the same time as the compliance report is published. Reports must remain on the website for the period this approval has effect. The **approval holder** may cease preparing and publishing compliance reports required by this condition with written agreement of the **Minister** to do so.

11. Upon the direction of the **Minister**, the **approval holder** must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the **Minister**. The independent auditor must be approved by the **Minister** prior to the commencement of the audit. Audit criteria must be agreed to by the **Minister** and the audit report must address the criteria to the satisfaction of the **Minister**.

12. If, at any time after five years from the date of this approval, the **approval holder** has not **substantially commenced** the action, then the **approval holder** must not **substantially commence** the action without the written agreement of the **Minister**.

**Definitions**

**Approval holder**: means the person to whom the approval is granted, or any person acting on their behalf, or to whom approval is transferred under section 145B of the **EPBC Act**.

**Baseline values**: baseline **extent** is 65 hectares and baseline **Koala habitat quality** is seven, as described in the **Koala Habitat Offset Report**.

**Business days**: measured in relation to the doing of any action, any day other than a Saturday, a Sunday, or a public holiday that occurs in Queensland.

**Clearance area**: the area labelled as 'Referral Area' in Map 1.

**Commencement of construction**: any preparatory works required to be undertaken including clearing vegetation, the erection of any onsite temporary structures and the use of heavy equipment for the purposes of breaking the ground for road construction, buildings or infrastructure.

**Department**: the Australian Government Department administering the **EPBC Act**.

**EPBC Act:** the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).

**EPBC Act Environmental Offsets Policy**: Department of Sustainability, Environment, Water, Population and Communities (2012). *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy (October 2012).* Commonwealth of Australia, Canberra.

**EPBC Act offsets assessment guide**: the *offsets assessment guide* tool and *how to use the offsets assessment guide* document that accompany the **EPBC Act Environmental Offsets Policy**.

**Extent**: the coverage of **Koala habitat** measured in hectares.

**Koala**: *Phascolarctos cinereus* (combined populations of Queensland, New South Wales and the Australian Capital Territory) listed as a threatened species under the **EPBC Act**.

**Koala Conservation Advice**: Threatened Species Scientific Committee (2012). *Approved Conservation Advice for* Phascolarctos cinereus *(combined populations of Queensland, New South Wales and the Australian Capital Territory).* Commonwealth of Australia, Canberra.

**Koala habitat**: habitat containing tree species whose leaves are consumed by the **Koala**, including *Eucalyptus moluccana, Eucalyptus propinqua, Eucalyptus tereticornis, Corymbia citriodora,* and *Lophostemon confertus.*

**Koala habitat Quality**: means the **Koala habitat** quality score comprised of site condition, site context and species stocking rate calculated in accordance with the requirements of the **EPBC Act offsets assessment guide**.

**Koala Habitat Offset Report**: the document provided to the **Department** named '*Koala Habitat Offset Report - 40-100 Harrison Road, Calvert*'. Prepared by Cherish the Environment Foundation (Appendix J to *'Response to Request for Additional Information - Springview Village One, Springfield, QLD (EPBC 2014/7306)*, dated 6 June 2016).

**Minister**: the Australian Government Minister administering the **EPBC Act** and includes a delegate of the **Minister**.

**Offset area**: the area labelled as 'Offset Area' in Map 2.

**Offset attributes**: means electronic files including '.xls' files and ESRI shapefiles containing '.shp', '.shx' and '.dbf' files capturing the relevant attributes of the offset area/s, including the **EPBC Act** reference number, the physical address of the offset area/s, coordinates of the boundary points in decimal degrees, the **EPBC Act** protected matters that the offset area/s compensates for, any additional **EPBC Act** protected matters benefiting from the offset/s and the size of the offset area/s (in hectares).

**Secure**: means long-term protection under a legal mechanism that is establishing a covenant on the title as a voluntary declaration under the *Vegetation Management Act 1999* (Qld).

**Substantially commence/d**: means creation of residential allotments, roadways and infrastructure services (sewerage, electricity, water, stormwater) associated with the action. This does not include preparatory works.

**Suitably qualified person**: A person who has professional qualifications, training, skills and/or experience related to the **Koala** and can give authoritative independent assessment, advice and analysis on performance relative to the subject matter using the relevant protocols, standards, methods and/or literature.

**Titles Office**: means the relevant authority responsible for registering the land title transaction.

## Map 1: Clearance Area labelled as 'Referral Area'


SITE LOCALITY PLAN

0.1 0.05 0 0.1 0.2 0.3 Kilometres

A3 Scale 1:9,000

## Map 2: Offset Area


**OFFSET MAP**

**40-160 Harrison Road, Calvert, Queensland**
**Lot 230 CH311791 & Lot 1 CC2262**

**LEGEND**

Offset Area (Lot 230 CH311791)

Property Boundary

Printed 04 August, 2016 | Imagery: 2016 | Job 43797

Australian Government
Department of the Environment and Energy

# NOTICE OF TRANSFER OF APPROVAL

## Springview Village One, Springfield, Ipswich City, Queensland (EPBC 2014/7306)

This decision is made under (Section 145B) of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

## Proposed transfer of approval

| | |
|---|---|
| **Transferor (holder of approval)** | Cherish Enterprises Pty Ltd<br>ACN: 052 055 811 |
| **Transferee (person proposing to accept the transfer of approval)** | Stockland Development Pty Limited<br>ACN: 000 664 835 |
| **proposed action** | To develop Springview Village One residential development at Lot 43 on SP2442290 at the junction of Mur Boulevard and Panorama Drive, Springfield, Queensland, as described in the referral received by the Department on 15 August 2014<br>[See EPBC Act referral 2014/7306] |

## Transfer Decision

| | |
|---|---|
| **Person to whom the approval is transferred** | Stockland Development Pty Limited<br>ACN: 000 664 835 |
| **Proposed action** | To develop Springview Village One residential development at Lot 43 on SP2442290 at the junction of Mur Boulevard and Panorama Drive, Springfield, Queensland, as described in the referral received by the Department on 15 August 2014<br>[See EPBC Act referral 2014/7306] |

## Person authorised to make decision

| | |
|---|---|
| **Name and position** | Rod Whyte<br>Director<br>Post Approvals Section<br>Compliance and Enforcement Branch |
| **Signature** | |
| **Date of decision** | 16 June 2017 |

Australian Government
Department of the Environment and Energy

# VARIATION TO CONDITIONS ATTACHED TO APPROVAL

Springview Village One, Springfield, Ipswich City, Qld (EPBC 2014/7306)

This decision to vary conditions of approval is made under section 143 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

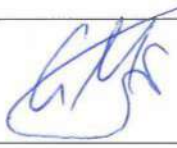
## Approved action

| | |
|---|---|
| **Person to whom the approval is granted** | Stockland Development Pty Limited<br><br>ACN: 052 055 811 |
| **Approved action** | To develop Springview Village One residential development at Lot 43 on SP2442290 at the junction of Mur Boulevard and Panorama Drive, Springfield, Queensland as described in the referral received by the Department on 15 August 2014 [See EPBC Act referral 2014/7306]. |

## Variation

| | |
|---|---|
| **Variation of conditions of approval** | The variation is:<br>Delete Map 1 and definition of 'Clearance area' attached to the approval and substitute with Map 1 and definition of 'Clearance area' specified below. |
| **Date of effect** | This variation has effect on the date the instrument is signed |

## Person authorised to make decision

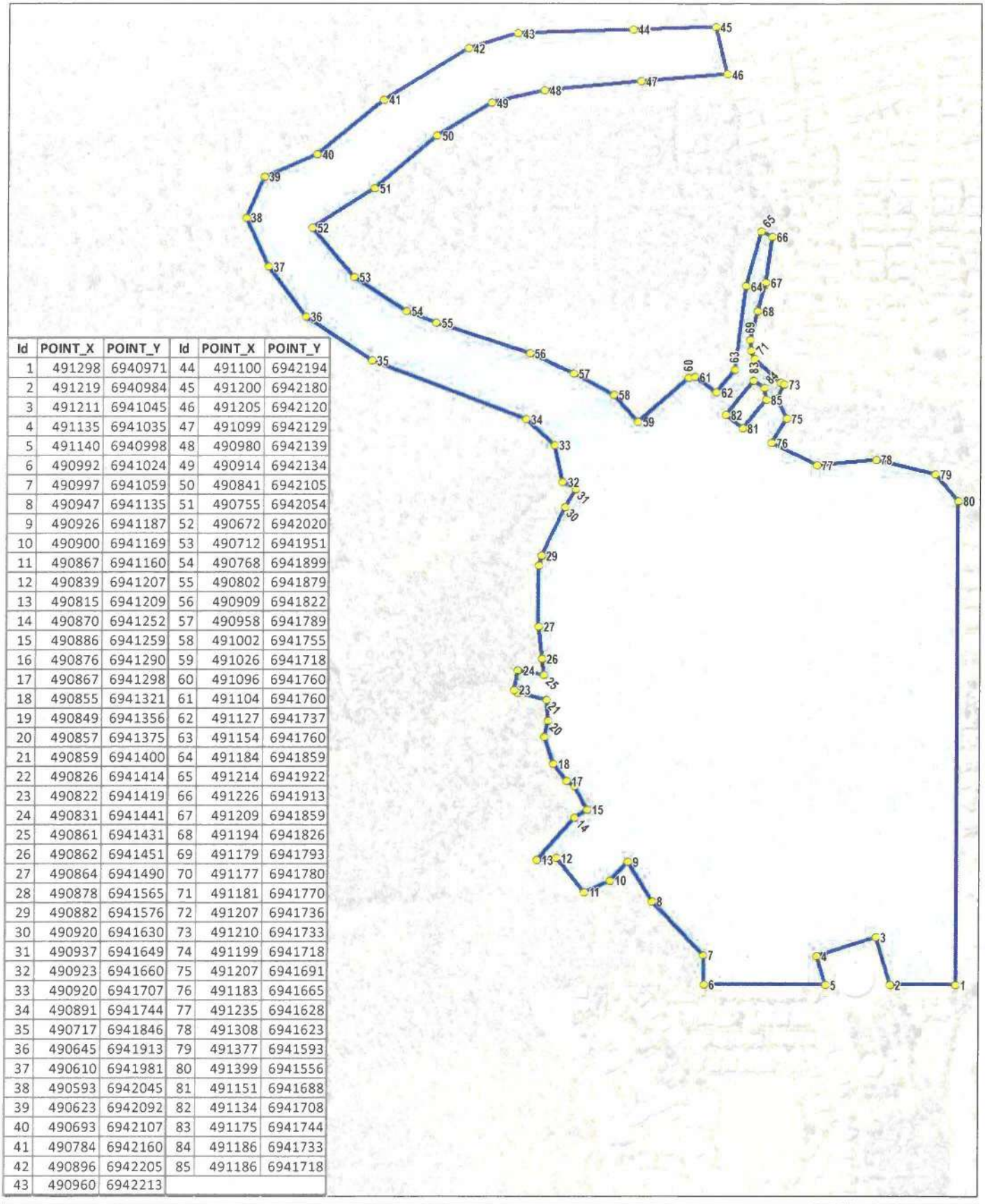
| | |
|---|---|
| **Name and position** | Greg Manning<br>Assistant Secretary<br>Assessments (WA, SA, NT) and Post Approvals Branch |
| **Signature** |  |
| **Date of decision** | 12 June 2018 |

## Definition

**Clearance area:** the area labelled as 'Clearance area' in Map 1.

**Map 1** attached to the approval

See over.




| Id | POINT_X | POINT_Y | Id | POINT_X | POINT_Y |
|---|---|---|---|---|---|
| 1 | 491298 | 6940971 | 44 | 491100 | 6942194 |
| 2 | 491219 | 6940984 | 45 | 491200 | 6942180 |
| 3 | 491211 | 6941045 | 46 | 491205 | 6942120 |
| 4 | 491135 | 6941035 | 47 | 491099 | 6942129 |
| 5 | 491140 | 6940998 | 48 | 490980 | 6942139 |
| 6 | 490992 | 6941024 | 49 | 490914 | 6942134 |
| 7 | 490997 | 6941059 | 50 | 490841 | 6942105 |
| 8 | 490947 | 6941135 | 51 | 490755 | 6942054 |
| 9 | 490926 | 6941187 | 52 | 490672 | 6942020 |
| 10 | 490900 | 6941169 | 53 | 490712 | 6941951 |
| 11 | 490867 | 6941160 | 54 | 490768 | 6941899 |
| 12 | 490839 | 6941207 | 55 | 490802 | 6941879 |
| 13 | 490815 | 6941209 | 56 | 490909 | 6941822 |
| 14 | 490870 | 6941252 | 57 | 490958 | 6941789 |
| 15 | 490886 | 6941259 | 58 | 491002 | 6941755 |
| 16 | 490876 | 6941290 | 59 | 491026 | 6941718 |
| 17 | 490867 | 6941298 | 60 | 491096 | 6941760 |
| 18 | 490855 | 6941321 | 61 | 491104 | 6941760 |
| 19 | 490849 | 6941356 | 62 | 491127 | 6941737 |
| 20 | 490857 | 6941375 | 63 | 491154 | 6941760 |
| 21 | 490859 | 6941400 | 64 | 491184 | 6941859 |
| 22 | 490826 | 6941414 | 65 | 491214 | 6941922 |
| 23 | 490822 | 6941419 | 66 | 491226 | 6941913 |
| 24 | 490831 | 6941441 | 67 | 491209 | 6941859 |
| 25 | 490861 | 6941431 | 68 | 491194 | 6941826 |
| 26 | 490862 | 6941451 | 69 | 491179 | 6941793 |
| 27 | 490864 | 6941490 | 70 | 491177 | 6941780 |
| 28 | 490878 | 6941565 | 71 | 491181 | 6941770 |
| 29 | 490882 | 6941576 | 72 | 491207 | 6941736 |
| 30 | 490920 | 6941630 | 73 | 491210 | 6941733 |
| 31 | 490937 | 6941649 | 74 | 491199 | 6941718 |
| 32 | 490923 | 6941660 | 75 | 491207 | 6941691 |
| 33 | 490920 | 6941707 | 76 | 491183 | 6941665 |
| 34 | 490891 | 6941744 | 77 | 491235 | 6941628 |
| 35 | 490717 | 6941846 | 78 | 491308 | 6941623 |
| 36 | 490645 | 6941913 | 79 | 491377 | 6941593 |
| 37 | 490610 | 6941981 | 80 | 491399 | 6941556 |
| 38 | 490593 | 6942045 | 81 | 491151 | 6941688 |
| 39 | 490623 | 6942092 | 82 | 491134 | 6941708 |
| 40 | 490693 | 6942107 | 83 | 491175 | 6941744 |
| 41 | 490784 | 6942160 | 84 | 491186 | 6941733 |
| 42 | 490896 | 6942205 | 85 | 491186 | 6941718 |
| 43 | 490960 | 6942213 | | | |

**Legend**

Background land parcels

Clearance Area coordinate points

Clearance Area

The approval holder must not clear more than 39.75 hectares of Koala habitat. Clearing must not occur outside of the Clearance Area with the exception of works for rehabilitation or landscape activities approved by Ipswich City Council that will ultimately improve Koala habtiat.

*Map 1*

***File ref.*** *8473 E F08_05 Map 1*

***Date*** *17/05/2018*
***Project*** *8473 E*

0 25 50 100 150 200 250 m

N

*Scale (A4): 1:6,500 [ GDA 1994 MGA Z56 ]*

Stockland

saunders havill group

# Appendix B

## SAT survey results 2023 – raw data

Site: SAT 1

| Tree ID | Scientific name | Common name | DBH (mm) | Scat |
|---|---|---|---|---|
| **1** | *Eucalyptus fibrosa* | Broad-leaved Red Ironbark | 450 | Nil |
| **2** | *Eucalyptus fibrosa* | Broad-leaved Red Ironbark | 100 | Nil |
| **3** | *Corymbia citriodora* | Spotted Gum | 230 | Nil |
| **4** | *Lophostemon confertus* | Brush Box | 300 | Nil |
| **5** | *Eucalyptus moluccana* | Gum-topped Box | 150 | Nil |
| **6** | *Lophostemon confertus* | Brush Box | 180 | Nil |
| **7** | *Lophostemon confertus* | Brush Box | 200 | Nil |
| **8** | *Eucalyptus moluccana* | Gum-topped Box | 300 | Nil |
| **9** | *Corymbia citriodora* | Spotted Gum | 430 | Nil |
| **10** | *Corymbia citriodora* | Spotted Gum | 180 | Nil |
| **11** | *Eucalyptus siderophloia* | Grey Ironbark | 160 | Nil |
| **12** | *Corymbia citriodora* | Spotted Gum | 260 | Nil |
| **13** | *Eucalyptus moluccana* | Gum-topped Box | 170 | Yes |
| **14** | *Eucalyptus moluccana* | Gum-topped Box | 160 | Nil |
| **15** | *Lophostemon suaveolens* | Swamp Box | 100 | Nil |
| **16** | *Corymbia citriodora* | Spotted Gum | 180 | Nil |
| **17** | *Eucalyptus moluccana* | Gum-topped Box | 360 | Nil |
| **18** | *Eucalyptus moluccana* | Gum-topped Box | 280 | Nil |
| **19** | *Lophostemon suaveolens* | Swamp Box | 120 | Nil |
| **20** | *Eucalyptus moluccana* | Gum-topped Box | 250 | Yes |
| **21** | *Eucalyptus acmenoides* | White Mahogany | 350 | Nil |
| **22** | *Eucalyptus moluccana* | Gum-topped Box | 200 | Nil |
| **23** | *Lophostemon confertus* | Brush Box | 180 | Nil |
| **24** | *Lophostemon confertus* | Brush Box | 100 | Nil |
| **25** | *Eucalyptus moluccana* | Gum-topped Box | 390 | Nil |
| **26** | *Eucalyptus moluccana* | Gum-topped Box | 120 | Nil |
| **27** | *Corymbia citriodora* | Spotted Gum | 360 | Nil |
| **28** | *Eucalyptus moluccana* | Gum-topped Box | 130 | Nil |
| **29** | *Allocasuarina littoralis* | Black She-oak | 150 | Nil |
| **30** | *Eucalyptus moluccana* | Gum-topped Box | 260 | Nil |
| **Total scats recorded and percentage** | | | | **2 (6.67%)** |
| **Level of Koala usage (based on East Coast Med-High Activity Category)** | | | | **Low** |

Site: SAT 2

| Tree ID | Scientific name | Common name | DBH (mm) | Scat |
|---|---|---|---|---|
| **1** | *Eucalyptus crebra* | Narrow-leaved Ironbark | 300 | Nil |
| **2** | *Corymbia citriodora* | Spotted Gum | 120 | Nil |
| **3** | *Corymbia citriodora* | Spotted Gum | 200 | Nil |
| **4** | *Corymbia citriodora* | Spotted Gum | 100 | Nil |
| **5** | *Eucalyptus tereticornis* | Forest Red Gum | 100 | Nil |
| **6** | *Corymbia citriodora* | Spotted Gum | 180 | Nil |
| **7** | *Eucalyptus crebra* | Narrow-leaved Ironbark | 500 | Nil |
| **8** | *Corymbia citriodora* | Spotted Gum | 170 | Nil |
| **9** | *Corymbia citriodora* | Spotted Gum | 180 | Nil |
| **10** | *Corymbia citriodora* | Spotted Gum | 120 | Nil |
| **11** | *Corymbia citriodora* | Spotted Gum | 130 | Nil |
| **12** | *Corymbia citriodora* | Spotted Gum | 200 | Nil |
| **13** | *Corymbia citriodora* | Spotted Gum | 130 | Nil |
| **14** | *Eucalyptus moluccana* | Gum-topped Box | 180 | Nil |
| **15** | *Corymbia citriodora* | Spotted Gum | 130 | Nil |
| **16** | *Corymbia citriodora* | Spotted Gum | 150 | Nil |
| **17** | *Corymbia citriodora* | Spotted Gum | 100 | Nil |
| **18** | *Corymbia citriodora* | Spotted Gum | 180 | Nil |
| **19** | *Eucalyptus siderophloia* | Grey Ironbark | 390 | Nil |
| **20** | *Eucalyptus siderophloia* | Grey Ironbark | 320 | Nil |
| **21** | *Corymbia citriodora* | Spotted Gum | 150 | Nil |
| **22** | *Corymbia citriodora* | Spotted Gum | 300 | Nil |
| **23** | *Corymbia citriodora* | Spotted Gum | 160 | Nil |
| **24** | *Eucalyptus crebra* | Narrow-leaved Ironbark | 420 | Nil |
| **25** | *Eucalyptus crebra* | Narrow-leaved Ironbark | 300 | Nil |
| **26** | *Corymbia citriodora* | Spotted Gum | 190 | Nil |
| **27** | *Corymbia citriodora* | Spotted Gum | 190 | Nil |
| **28** | *Corymbia citriodora* | Spotted Gum | 200 | Nil |
| **29** | *Corymbia citriodora* | Spotted Gum | 260 | Nil |
| **30** | *Eucalyptus siderophloia* | Grey Ironbark | 150 | Nil |
| **Total scats recorded and percentage** | | | | **0 (0.00%)** |
| **Level of Koala usage (based on East Coast Med-High Activity Category)** | | | | **Low** |

Site: SAT 3

| Tree ID | Scientific name | Common name | DBH (mm) | Scat |
|---|---|---|---|---|
| **1** | *Eucalyptus fibrosa* | Broad-leaved Red Ironbark | 480 | Nil |
| **2** | *Eucalyptus moluccana* | Gum-topped Box | 210 | Nil |
| **3** | *Eucalyptus fibrosa* | Broad-leaved Red Ironbark | 320 | Nil |
| **4** | *Eucalyptus moluccana* | Gum-topped Box | 300 | Nil |
| **5** | *Corymbia citriodora* | Spotted Gum | 170 | Nil |
| **6** | *Eucalyptus moluccana* | Gum-topped Box | 160 | Nil |
| **7** | *Eucalyptus fibrosa* | Broad-leaved Red Ironbark | 400 | Nil |
| **8** | *Eucalyptus moluccana* | Gum-topped Box | 320 | Nil |
| **9** | *Eucalyptus fibrosa* | Broad-leaved Red Ironbark | 180 | Nil |
| **10** | *Corymbia citriodora* | Spotted Gum | 150 | Nil |
| **11** | *Corymbia citriodora* | Spotted Gum | 120 | Nil |
| **12** | *Eucalyptus fibrosa* | Broad-leaved Red Ironbark | 220 | Nil |
| **13** | *Eucalyptus fibrosa* | Broad-leaved Red Ironbark | 630 | Nil |
| **14** | *Eucalyptus fibrosa* | Broad-leaved Red Ironbark | 170 | Nil |
| **15** | *Corymbia citriodora* | Spotted Gum | 150 | Nil |
| **16** | *Eucalyptus fibrosa* | Broad-leaved Red Ironbark | 160 | Nil |
| **17** | *Corymbia citriodora* | Spotted Gum | 320 | Nil |
| **18** | *Eucalyptus fibrosa* | Broad-leaved Red Ironbark | 170 | Nil |
| **19** | *Eucalyptus fibrosa* | Broad-leaved Red Ironbark | 200 | Nil |
| **20** | *Eucalyptus moluccana* | Gum-topped Box | 100 | Nil |
| **21** | *Eucalyptus fibrosa* | Broad-leaved Red Ironbark | 200 | Nil |
| **22** | *Eucalyptus fibrosa* | Broad-leaved Red Ironbark | 600 | Yes |
| **23** | *Eucalyptus fibrosa* | Broad-leaved Red Ironbark | 550 | Nil |
| **24** | *Eucalyptus fibrosa* | Broad-leaved Red Ironbark | 140 | Nil |
| **25** | *Eucalyptus fibrosa* | Broad-leaved Red Ironbark | 240 | Nil |
| **26** | *Eucalyptus fibrosa* | Broad-leaved Red Ironbark | 380 | Nil |
| **27** | *Eucalyptus fibrosa* | Broad-leaved Red Ironbark | 110 | Nil |
| **28** | *Eucalyptus fibrosa* | Broad-leaved Red Ironbark | 100 | Nil |
| **29** | *Eucalyptus fibrosa* | Broad-leaved Red Ironbark | 200 | Nil |
| **30** | *Corymbia citriodora* | Spotted Gum | 190 | Nil |
| **Total scats recorded and percentage** | | | | **1 (3.33%)** |
| **Level of Koala usage (based on East Coast Med-High Activity Category)** | | | | **Low** |

Site: SAT 4

| Tree ID | Scientific name | Common name | DBH (mm) | Scat |
|---|---|---|---|---|
| **1** | *Eucalyptus siderophloia* | Grey Ironbark | 480 | Nil |
| **2** | *Lophostemon confertus* | Brush Box | 100 | Nil |
| **3** | *Lophostemon suaveolens* | Swamp Box | 100 | Nil |
| **4** | *Acacia disparrima* | Hickory Wattle | 100 | Nil |
| **5** | *Lophostemon confertus* | Brush Box | 100 | Nil |
| **6** | *Lophostemon confertus* | Brush Box | 160 | Nil |
| **7** | *Lophostemon suaveolens* | Swamp Box | 250 | Nil |
| **8** | *Lophostemon suaveolens* | Swamp Box | 180 | Nil |
| **9** | *Acacia disparrima* | Hickory Wattle | 100 | Nil |
| **10** | *Lophostemon confertus* | Brush Box | 100 | Nil |
| **11** | *Lophostemon suaveolens* | Swamp Box | 300 | Nil |
| **12** | *Lophostemon suaveolens* | Swamp Box | 120 | Nil |
| **13** | *Lophostemon suaveolens* | Swamp Box | 160 | Nil |
| **14** | *Lophostemon suaveolens* | Swamp Box | 170 | Nil |
| **15** | *Lophostemon suaveolens* | Swamp Box | 280 | Nil |
| **16** | *Lophostemon suaveolens* | Swamp Box | 180 | Nil |
| **17** | *Lophostemon suaveolens* | Swamp Box | 160 | Nil |
| **18** | *Lophostemon suaveolens* | Swamp Box | 200 | Nil |
| **19** | *Acacia disparrima* | Hickory Wattle | 120 | Nil |
| **20** | *Lophostemon suaveolens* | Swamp Box | 200 | Nil |
| **21** | *Eucalyptus siderophloia* | Grey Ironbark | 270 | Nil |
| **22** | *Lophostemon suaveolens* | Swamp Box | 180 | Nil |
| **23** | *Lophostemon suaveolens* | Swamp Box | 210 | Nil |
| **24** | *Eucalyptus tereticornis* | Forest Red Gum | 120 | Nil |
| **25** | *Eucalyptus siderophloia* | Grey Ironbark | 220 | Nil |
| **26** | *Lophostemon suaveolens* | Swamp Box | 160 | Nil |
| **27** | *Lophostemon confertus* | Brush Box | 160 | Nil |
| **28** | *Lophostemon suaveolens* | Swamp Box | 150 | Nil |
| **29** | *Eucalyptus siderophloia* | Grey Ironbark | 350 | Nil |
| **30** | *Eucalyptus siderophloia* | Grey Ironbark | 400 | Nil |
| **Total scats recorded** | | | | **0 (0.00%)** |
| **Level of Koala usage (based on East Coast Med-High Activity Category)** | | | | **Low** |

Site: SAT 5

| Tree ID | Scientific name | Common name | DBH (mm) | Scat |
|---|---|---|---|---|
| **1** | *Eucalyptus propinqua* | Small-fruited Grey Gum | 270 | Nil |
| **2** | *Eucalyptus propinqua* | Small-fruited Grey Gum | 260 | Nil |
| **3** | *Corymbia intermedia* | Pink Bloodwood | 200 | Nil |
| **4** | *Eucalyptus propinqua* | Small-fruited Grey Gum | 170 | Nil |
| **5** | *Eucalyptus propinqua* | Small-fruited Grey Gum | 160 | Nil |
| **6** | *Eucalyptus tereticornis* | Forest Red Gum | 250 | Nil |
| **7** | *Eucalyptus propinqua* | Small-fruited Grey Gum | 160 | Nil |
| **8** | *Lophostemon suaveolens* | Swamp Box | 170 | Nil |
| **9** | *Corymbia intermedia* | Pink Bloodwood | 320 | Nil |
| **10** | *Lophostemon confertus* | Brush Box | 110 | Nil |
| **11** | *Eucalyptus propinqua* | Small-fruited Grey Gum | 210 | Nil |
| **12** | *Eucalyptus moluccana* | Gum-topped Box | 140 | Nil |
| **13** | *Eucalyptus siderophloia* | Grey Ironbark | 270 | Nil |
| **14** | *Corymbia intermedia* | Pink Bloodwood | 280 | Nil |
| **15** | *Corymbia citriodora* | Spotted Gum | 180 | Nil |
| **16** | *Eucalyptus propinqua* | Small-fruited Grey Gum | 180 | Nil |
| **17** | *Eucalyptus propinqua* | Small-fruited Grey Gum | 200 | Nil |
| **18** | *Eucalyptus propinqua* | Small-fruited Grey Gum | 210 | Nil |
| **19** | *Eucalyptus acmenoides* | White Mahogany | 190 | Nil |
| **20** | *Lophostemon confertus* | Brush Box | 350 | Nil |
| **21** | *Corymbia intermedia* | Pink Bloodwood | 100 | Nil |
| **22** | *Corymbia intermedia* | Pink Bloodwood | 150 | Nil |
| **23** | *Corymbia citriodora* | Spotted Gum | 180 | Nil |
| **24** | *Eucalyptus propinqua* | Small-fruited Grey Gum | 200 | Nil |
| **25** | *Lophostemon confertus* | Brush Box | 120 | Nil |
| **26** | *Eucalyptus propinqua* | Small-fruited Grey Gum | 160 | Nil |
| **27** | *Eucalyptus acmenoides* | White Mahogany | 190 | Nil |
| **28** | *Eucalyptus siderophloia* | Grey Ironbark | 400 | Nil |
| **29** | *Eucalyptus propinqua* | Small-fruited Grey Gum | 100 | Nil |
| **30** | *Allocasuarina littoralis* | Black She-oak | 110 | Nil |
| **Total scats recorded and percentage** | | | | **0 (0.00%)** |
| **Level of Koala usage (based on East Coast Med-High Activity Category)** | | | | **Low** |

Site: SAT 6

| Tree ID | Scientific name | Common name | DBH (mm) | Scat |
|---|---|---|---|---|
| **1** | *Eucalyptus siderophloia* | Grey Ironbark | 200 | Nil |
| **2** | *Eucalyptus siderophloia* | Grey Ironbark | 280 | Nil |
| **3** | *Lophostemon suaveolens* | Swamp Box | 130 | Nil |
| **4** | *Lophostemon suaveolens* | Swamp Box | 150 | Nil |
| **5** | *Lophostemon suaveolens* | Swamp Box | 170 | Nil |
| **6** | *Lophostemon suaveolens* | Swamp Box | 120 | Nil |
| **7** | *Lophostemon suaveolens* | Swamp Box | 160 | Nil |
| **8** | *Eucalyptus siderophloia* | Grey Ironbark | 280 | Yes |
| **9** | *Eucalyptus siderophloia* | Grey Ironbark | 170 | Nil |
| **10** | *Eucalyptus propinqua* | Small-fruited Grey Gum | 160 | Nil |
| **11** | *Acacia concurrens* | Black Wattle | 100 | Nil |
| **12** | *Eucalyptus propinqua* | Small-fruited Grey Gum | 230 | Nil |
| **13** | *Lophostemon suaveolens* | Swamp Box | 140 | Nil |
| **14** | *Lophostemon suaveolens* | Swamp Box | 130 | Nil |
| **15** | *Eucalyptus propinqua* | Small-fruited Grey Gum | 260 | Nil |
| **16** | *Eucalyptus siderophloia* | Grey Ironbark | 200 | Nil |
| **17** | *Corymbia intermedia* | Pink Bloodwood | 150 | Nil |
| **18** | *Lophostemon suaveolens* | Swamp Box | 200 | Nil |
| **19** | *Eucalyptus propinqua* | Small-fruited Grey Gum | 110 | Nil |
| **20** | *Eucalyptus propinqua* | Small-fruited Grey Gum | 200 | Nil |
| **21** | *Lophostemon suaveolens* | Swamp Box | 160 | Nil |
| **22** | *Eucalyptus siderophloia* | Grey Ironbark | 280 | Nil |
| **23** | *Corymbia citriodora* | Spotted Gum | 350 | Nil |
| **24** | *Eucalyptus siderophloia* | Grey Ironbark | 180 | Nil |
| **25** | *Corymbia citriodora* | Spotted Gum | 280 | Nil |
| **26** | *Eucalyptus siderophloia* | Grey Ironbark | 170 | Nil |
| **27** | *Eucalyptus tereticornis* | Red Forest Gum | 200 | Nil |
| **28** | *Eucalyptus tereticornis* | Red Forest Gum | 450 | Nil |
| **29** | *Eucalyptus propinqua* | Small-fruited Grey Gum | 350 | Nil |
| **30** | *Lophostemon suaveolens* | Swamp Box | 130 | Nil |
| **Total scats recorded and percentage** | | | | **1 (3.33%)** |
| **Level of Koala usage (based on East Coast Med-High Activity Category)** | | | | **Low** |

# Appendix C

## Year Five Milestone Offset Report


# Year Five Milestone Offset Report

9 July 2018 to 8 July 2023 EPBC 2014/7306

Springview Village One, Springfield, Ipswich City, Queensland
Stockland Development Pty Ltd

6 October 2023

Job No: 11746 E

Stockland | kalina
SpringEdd

# Document control

Document: Year Five Milestone Offset Report 9 July 2018 to 8 July 2023 EPBC 2014/7306, prepared by Saunders Havill Group for Cherish the Environment Foundation Limited on behalf of Stockland Development Pty Ltd.

## Document Issue

| Issue | Date | Prepared By | Checked By |
|---|---|---|---|
| A | 06.10.2023 | TM | AW |

Prepared by

ABN 24 144 972 949
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# Figures



# Plans



# Tables

# Acronyms and abbreviations

| | |
|---|---|
| ACR | Annual Compliance Report |
| AU | Assessment Unit |
| CTEF | Cherish the Environment Foundation Limited |
| EPBC Act | *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) |
| ha | hectares |
| ICC | Ipswich City Council |
| km | kilometres |
| KHA | Koala Habitat Area |
| KHAT | Koala Habitat Assessment Tool |
| KPA | Koala Priority Area |
| m | metres |
| MNES | Matters of National Environmental Significance |
| RE | regional ecosystem |
| SAT | Spot Assessment Technique |
| SEQ | South East Queensland |
| SHG | Saunders Havill Group |
| VDec | Voluntary Declaration |
| VMA | *Vegetation Management Act 1999* (Queensland) |

Reference documents:

KHOR *Koala Habitat Offset Report, 40-100 Harrison Road, Calvert prepared by Cherish the Environment Foundation Limited*

OMP *Offset Management Plan, Koala Habitat Offset 40-100 Harrison Road Calvert EPBC 2014/7306, prepared by Cherish the Environment Foundation Limited*

Baseline data *Site Condition Assessment, Calvert 1 – Vegetation Offset September 2018, prepared by Private Forestry Service Queensland INC*

Year five data *Site Condition Assessment, Calvert 1 – Vegetation Offset April 2023, prepared by Forest Land Management Pty Ltd*

# 1. Introduction

Saunders Havill Group (SHG) were engaged by Cherish the Environment Foundation Limited (CTEF) to prepare this Year Five Milestone Offset Report on behalf of Stockland Development Pty Ltd as the approval holder for *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) approval (ref: EPBC 2014/7306). This report specifically addresses Condition 3b of the approval. Condition 3b of the approval states:

***b) Milestones***

- *By **five years** after the commencement of construction, a gain in Koala habitat quality to nine must be achieved in more than 50% of the offset area through rehabilitation.*

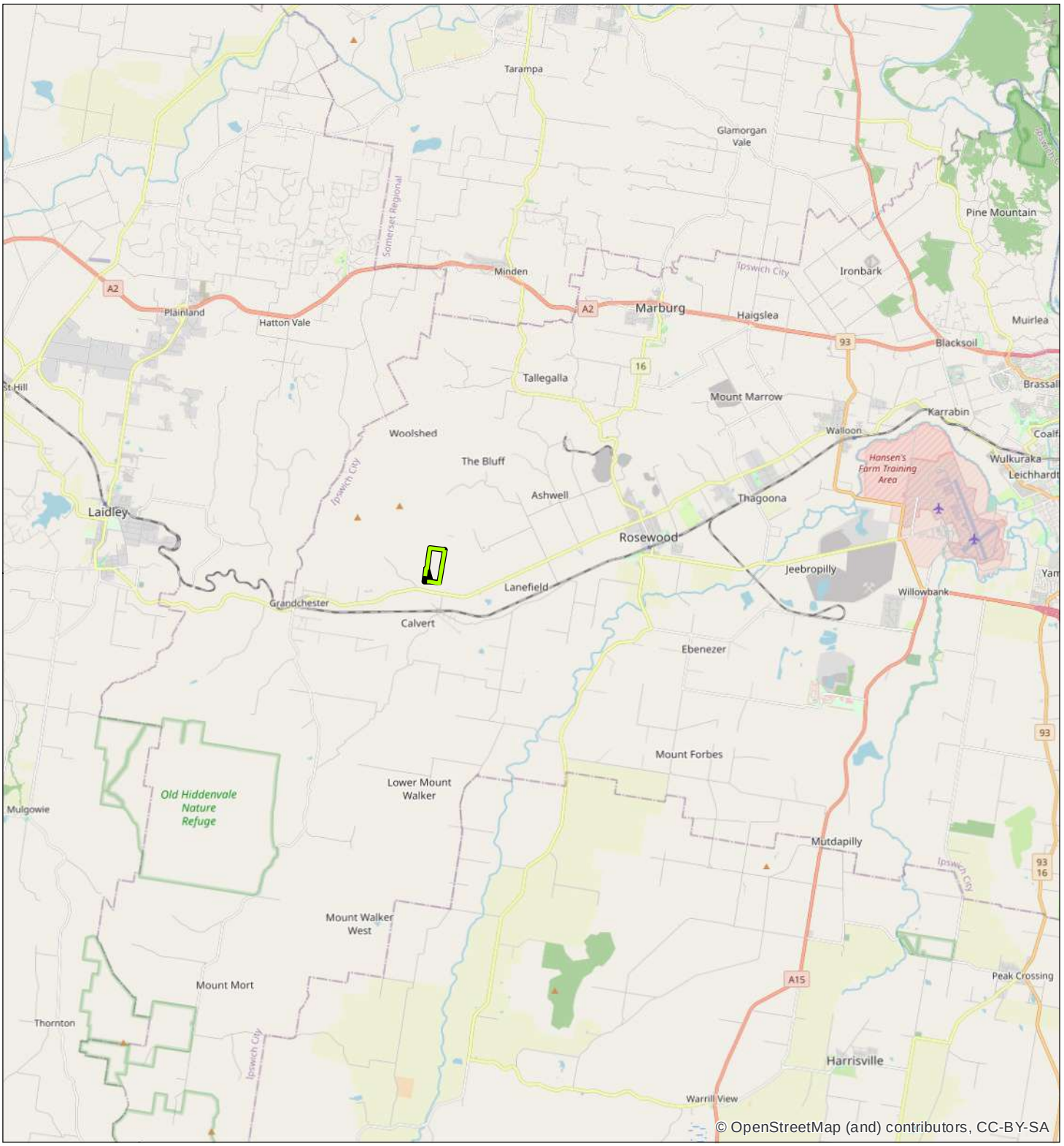
Five years after commencement was 8 July 2023. This report will describe the results of the management actions taken in accordance with the '*Offset Management Plan, Koala Habitat Offset 40-100 Harrison Road Calvert EPBC 2014/7306, prepared by Cherish the Environment Foundation Limited*' (OMP) to reduce existing threats and preserve and increase habitat connectivity and quality since the baseline assessment. .

The other primary outcomes and milestones required to be met for the offset area under Condition 3a are:

- *Outcome #1: By **20 years** after the commencement of construction, there must be a gain in Koala habitat quality to nine across the whole offset area.*
- *Outcome #2: For **the life of the approval**, the approval holder must ensure no net loss in the extent of Koala habitat in the offset area.*

The impact site located at Mur Boulevard, Springfield and is referred to as 'Kalina Springfield'. It is located approximately 2.5 kilometres (km) north of Springfield Central and is adjacent to existing urban development comprising residential housing and Springfield Anglican College in the Ipswich City local government area. Within the project area, an impact to no more than 39.75 ha of Matters of National Environmental Significance (MNES) habitat being Koala habitat was permitted under the approval conditions.

A land-based offset accompanied this clearing to counterbalance the impacts and is located in the locality of Calvert in the Ipswich region, located approximately 40 km west of the project. The 65 ha offset area in accordance with Condition 2 of the EPBC Act approval occurs across two land parcels that comprise confirmed Koala habitat (refer **Figure 1**). The offset area (described as 230/CH311791 and 1/CC2262) is situated within Ipswich City local government area (refer **Figure 2**). Under Ipswich City Council's (ICC) Nature Conservation Strategy 2023, the site is mapped as 'Core Habitat', and is within a large contiguous vegetation area of predominantly eucalypt forest. The offset area was legally secured on 6 June 2018 via a Voluntary Declaration (VDec) process administered under the Queensland *Vegetation Management Act 1999* (VMA).




Legend

- Site DCDB
- Offset Area

# Figure 1

## Site Context

Stockland

*File ref.* 8473 E Figure 1 Site Context A
*Date* 29/09/2023
*Project* Rosewood Laidley Rd, Calvert

0 1 2 3 4 5 km

Scale (A4): 1:200,000 [ GDA 1994 MGA Z56 ]

saunders havill group



Layer Source: © State of Queensland 2023


Legend

- Qld DCDB
- Site DCDB
- Offset Area

# Figure 2

## Site Aerial

*File ref.* 8473 E Figure 2 Site Aerial A
*Date* 29/09/2023
*Project* Rosewood Laidley Rd, Calvert

0 50 100 150 200 250 m

Scale (A4): 1:7,500 [ GDA 1994 MGA Z56 ]

Stockland

saunders havill group



Layer Source: © State of Queensland 2023

## 1.1. Methodology

### 1.1.1 Assessment Units

The offset area was delineated into assessment units (AUs) as part of the baseline assessment to assess the variance in quality of habitat. The offset area was delineated into the following AUs:

- AU1: Remnant (RE12.9-10.2) [63.2 ha];
- AU2: High-value Regrowth (RE12.9-10.2) [2.4 ha];
- AU3: Remnant (RE12.9-10.7) [6.0 ha]; and
- AU4: High-value Regrowth (RE12.9-10.7) [4.7 ha].

The offset area AUs are shown on **Figure 3**.

### 1.1.2 Site Condition

To gain an understanding of how the quality of the offset area has progressed since baseline surveys, yearly site condition assessments have been completed at permanent assessment locations by the engaged contractor. The year five offset site condition surveys were conducted in April 2023 in accordance with the '*Guide to Determining Terrestrial Habitat Quality v1.2 2017*' (the 'Guideline') as per the baseline assessment methodology. The offset area contains seven permanent plots across all four assessment units that were all scored in accordance with the Guideline and have been compared against the results from the baseline surveys conducted using the same methodology in 2018.

The site condition is assessed using 13 condition characteristics being:

1. recruitment of woody perennial species in Ecologically Dominant Layer;
2. native plant species richness – trees;
3. native plant species richness – shrubs;
4. native plant species richness – grasses;
5. native plant species richness – forbs;
6. tree canopy height (average of canopy and sub-canopy values);
7. sub-canopy cover;
8. tree canopy cover (average of canopy and sub-canopy values);
9. native grass cover;
10. organic litter;
11. large trees;
12. coarse woody debris;
13. non-native plant cover;

The site condition of each assessment unit was determined using the data collected during surveys. Each attribute is compared against the benchmark for the Regional Ecosystem of the assessment unit, and given a

score based on how well it aligns with the benchmark. These scores are summed and scored out of a possible maximum score of 80.

### 1.1.3 Koala Habitat Assessment Tool

An assessment of the value of habitat for koala is demonstrated through the utilisation of the Koala Habitat Assessment Tool (KHAT) contained within Section 6 of the Koala referral guidelines. This method was applied for the baseline assessment of koala habitat quality within the offset area, the score of which underpins condition 3 of the EPBC approval. This habitat assessment tool uses five primary koala habitat attributes to measure the value of the site to koala.

1) Koala occurrence;
2) vegetation composition;
3) habitat connectivity;
4) key existing threats; and
5) recovery value.

Each of these koala habitat attributes are scored between 0 and 2 and the sum of the scores give a total out of 10 which is used to determine the overall quality of koala habitat.

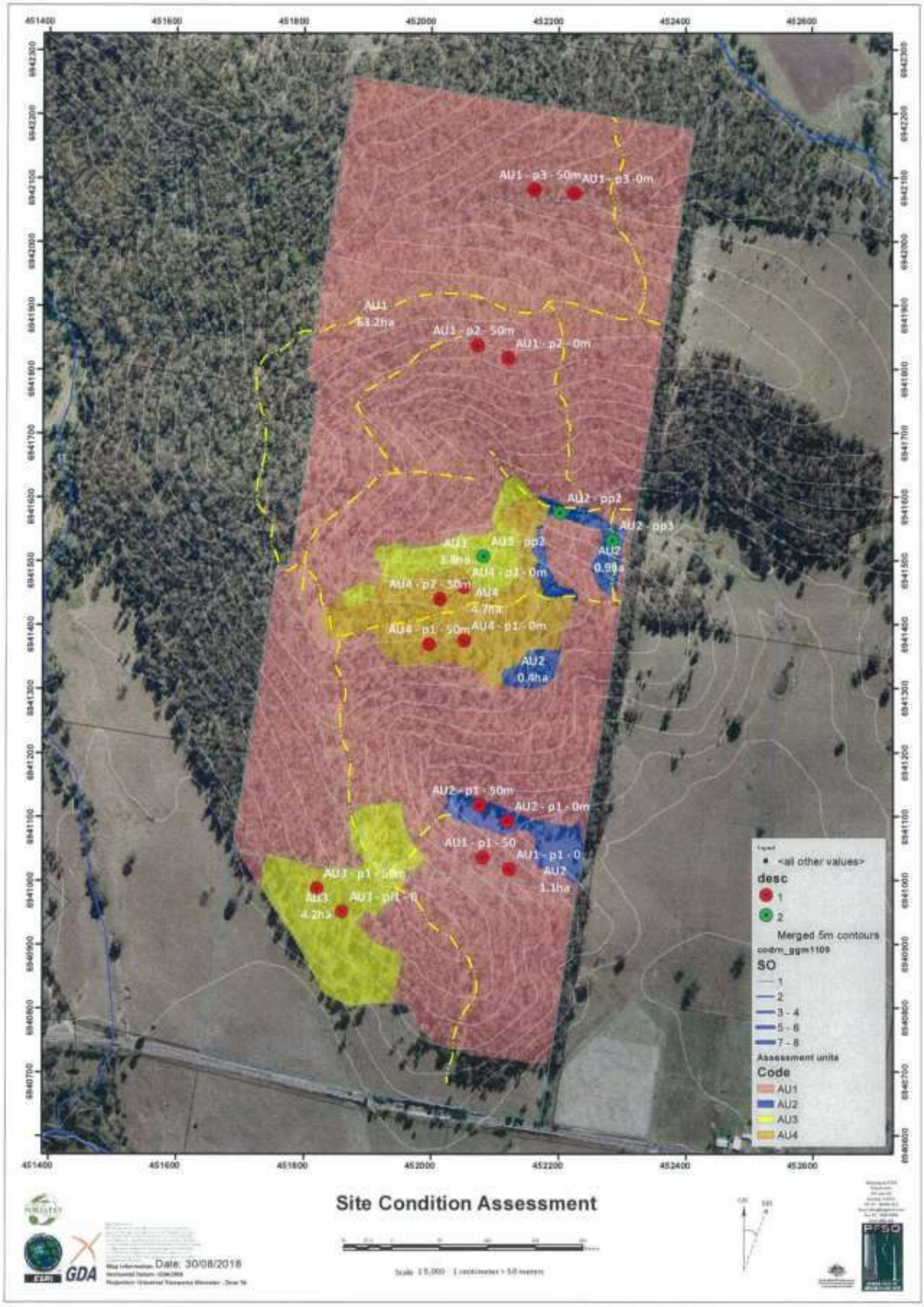



**Figure 3: Offset Area Assessment Units (extract from Baseline Site Condition Assessment Report).**

# 2. Year Five Milestone Assessment

## 2.1. Offset Area Site Condition

Between the data provided from the baseline and year five habitat quality surveys, a general increase in site condition characteristics across all assessment units was observed, as detailed in **Table 1** and summarised in **Table 2**. Habitat quality improved the most within AU1 and AU4, and the least within AU2. Site condition attributes that were shown to demonstrate improvements were typically species richness (of grasses, shrubs, and forbs), tree canopy cover, and native perennial grass cover. Improvement of habitat quality across the site may be attributed to a range of land management factors and weather conditions including increased rainfall, removal of cattle, management of weeds, and strategic fire regime implementation – all of which would allow create conditions for native vegetation to establish and grow. The site condition data for the assessment plots for each AU are provided in the following subsections in **Tables 3 to 6**. The baseline site condition data is also presented in the *'Site Condition Assessment, Calvert 1 – Vegetation Offset September 2018'* located at **Appendix A** and the year five site condition data is presented in the report titled *'Site Condition Assessment – Calvert 1, Vegetated Offset April 2023'* located at **Appendix B**.

**Table 1: Offset area condition score changes between baseline and year five surveys**

| Site Condition Attribute | AU1 Baseline | AU1 Year 5 | AU2 Baseline | AU2 Year 5 | AU3 Baseline | AU3 Year 5 | AU4 Baseline | AU4 Year 5 |
|---|---|---|---|---|---|---|---|---|
| Recruitment of woody perennial species | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Tree species richness | 2.5 | 2.5 | 2.5 | 5 | 5 | 5 | 5 | 5 |
| Shrub species richness | 2.5 | 5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 5 |
| Grass species richness | 5 | 5 | 2.5 | 5 | 2.5 | 5 | 2.5 | 5 |
| Forb species richness | 2.5 | 2.5 | 5 | 5 | 2.5 | 2.5 | 0 | 2.5 |
| Average tree canopy height | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Average tree canopy cover | 4 | 5 | 1 | 3.5 | 5 | 5 | 5 | 4 |
| Shrub Canopy Cover | 3 | 3 | 5 | 3 | 3 | 3 | 3 | 3 |
| Native Perennial Grass Cover | 1 | 5 | 5 | 5 | 3 | 5 | 1 | 3 |
| Organic Litter | 5 | 5 | 3 | 5 | 5 | 5 | 3 | 3 |

| Site Condition Attribute | AU1 Baseline | AU1 Year 5 | AU2 Baseline | AU2 Year 5 | AU3 Baseline | AU3 Year 5 | AU4 Baseline | AU4 Year 5 |
|---|---|---|---|---|---|---|---|---|
| Large Trees | 5 | 10 | 5 | 5 | 15 | 15 | 10 | 10 |
| Coarse Woody Debris | 5 | 5 | 0 | 0 | 5 | 5 | 5 | 5 |
| Non-native Plant Cover | 5 | 5 | 10 | 3 | 5 | 10 | 5 | 10 |
| **Total (/80)** | 50.5 | 63 | 51.5 | 52 | 63.5 | 73 | 52 | 65.5 |

**Table 2: Offset area condition score change summary**

| Assessment Unit | RE/VMA Category | Baseline Score (out of 80) | Year 5 Score (out of 80) | Assessment Unit Score Change |
|---|---|---|---|---|
| **1** | 12.9-10.2 Remnant | 50.5 | 63 | +12.5 |
| **2** | 12.9-10.2 Regrowth | 51.5 | 52 | +0.5 |
| **3** | 12.9-10.7 Remnant | 63.5 | 73 | +10.5 |
| **4** | 12.9-10.7 Regrowth | 52 | 65.5 | +13.5 |

### 2.1.1 Assessment Unit 1

AU1 is the largest assessment unit, comprising 63.2 ha of the offset area and is described as Category B (remnant) RE12.9-10.2 which is dominated by *Corymbia citriodora* (Spotted Gum). Habitat quality improvement in AU1 was very high, and relatively equal across the three assessment plots that comprise it. All assessment plots had increases in the number of large trees, as well as general improvement in the species richness of trees, shrubs, grasses, and forbs. Grass cover improved across plot 1 and plot 3 but continued to score very low in plot 2, which is dominated by organic litter. Overall habitat quality scores improved by at least 9 across all assessment plots. Woody debris and non-native plant cover did not change. Non-native plant cover remained very low in plot 1 and plot 2, reducing further from 2.4% and 0.2% in 2018, to 1.95% and 0% in 2023. However, plot 3 was 46.7% in 2018 and increased to 48% in 2023. To ensure the habitat quality score of this assessment unit does not decrease in the future, weed levels should continue to be monitored and managed.

**Table 3: Assessment Unit 1 baseline and year five offset area site condition data**

| Site Condition Attributes | RE12.9-10.2 Benchmark | Baseline Plot 1 | Year 5 Plot 1 | Baseline Plot 2 | Year 5 Plot 2 | Baseline Plot 3 | Year 5 Plot 3 |
|---|---|---|---|---|---|---|---|
| Recruitment of woody perennial species | **100** | 100 | 100 | 50 | 80 | 80 | 100 |
| Tree species richness | **6** | 4 | 4 | 4 | 5 | 6 | 6 |
| Shrub species richness | **7** | 6 | 7 | 6 | 9 | 5 | 7 |
| Grass species richness | **7** | 9 | 13 | 5 | 9 | 5 | 11 |
| Forb species richness | **13** | 6 | 11 | 5 | 6 | 7 | 14 |
| Tree canopy height (canopy) | **21** | 24 | 23.7 | 24.6 | 24.6 | 27.2 | 27.8 |
| Tree canopy height (sub-canopy) | **12** | 9.2 | 9 | 17 | 17 | 18.2 | 19.1 |
| Tree canopy cover (canopy) | **64** | 76.3 | 74 | 31.5 | 69 | 60.3 | 50 |
| Tree canopy cover (sub-canopy) | **20** | 21.3 | 33 | 36.5 | 13 | 66 | 52 |
| Shrub Canopy Cover | **6** | 21.3 | 15.7 | 20.5 | 14.3 | 20.5 | 14.3 |
| Native Perennial Grass Cover | **21** | 11 | 39 | 1 | 2 | 10 | 19 |
| Organic Litter | **48** | 73 | 64 | 95 | 97 | 46 | 57 |
| Large Trees | **44** | 20 | 26 | 18 | 24 | 20 | 22 |
| Coarse Woody Debris | **506** | 305 | 292 | 462 | 370 | 337 | 338 |
| Non-native Plant Cover | **0** | 2.4 | 1.95 | 0.2 | 0 | 46.7 | 48 |

### 2.1.2 Assessment Unit 2

AU2 is 2.4 ha in size and is described as Category C (high-value regrowth) which is dominated by *Corymbia citriodora* (Spotted Gum). The low level of improvement in AU2 was not because there was little to no improvement, but because there was also a decrease in some attributes, which meant net change was only just positive. The largest decrease in habitat quality was within the non-native plant cover, which dropped from a score of 10 to 3, following a 35.1% increase in weeds, likely attributed to La Nina conditions favouring weed growth. This thought is corroborated by a noted increase in tree species. AU2 showed an increase in tree species richness, grass species richness and organic litter cover relative to the benchmark. Similar to AU1, weed management should be prioritised within this AU to ensure a steady future improvement of habitat quality.

**Table 4: Assessment Unit 2 baseline and year five offset area site condition data**

| Site Condition Attributes | RE12.9-10.2 Benchmark | Baseline Plot 1 | Year 5 Plot 1 |
|---|---|---|---|
| Recruitment of woody perennial species | **100** | 100 | 100 |
| Tree species richness | **6** | 4 | 6 |
| Shrub species richness | **7** | 2 | 3 |
| Grass species richness | **7** | 6 | 11 |
| Forb species richness | **13** | 12 | 13 |
| Tree canopy height (canopy) | **21** | 22.4 | 24 |
| Tree canopy height (sub-canopy) | **12** | 14.2 | 11 |
| Tree canopy cover (canopy) | **64** | 6 | 12 |
| Tree canopy cover (sub-canopy) | **20** | 3 | 26.5 |
| Shrub Canopy Cover | **6** | 5 | 1.9 |
| Native Perennial Grass Cover | **21** | 49 | 45 |
| Organic Litter | **48** | 23 | 58 |
| Large Trees | **44** | 2 | 4 |
| Coarse Woody Debris | **506** | 45 | 35 |
| Non-native Plant Cover | **0** | 4 | 39.1 |

### 2.1.3 Assessment Unit 3

AU3 is 6 ha in size and is described as Category B (remnant) RE12.9-10.7 which is dominated by *Eucalyptus crebra* (Narrow-leaved Ironbark). This AU has the highest year five habitat quality score of all the assessment units, with 73 out of a possible 80. It also has very low native plant cover, at 3.85%, reduced from 8% recorded at baseline surveys. Habitat quality was largely consistent across most attributes, with improvement only within the ground cover. Grass species richness and native perennial grass cover both improved well between the baseline and year five surveys. This increase could be a result of improved rainfall throughout recent years. Overall, this assessment unit has shown good improvement and high habitat quality, and with time and regular management should see further recruitment of shrub and forb species richness and shrub canopy cover.

**Table 5: Assessment Unit 3 baseline and year five offset area site condition data**

| Site Condition Attributes | RE12.9-10.7 Benchmark | Baseline Plot 1 | Year 5 Plot 1 |
|---|---|---|---|
| Recruitment of woody perennial species | **100** | 83 | 100 |
| Tree species richness | **3** | 6 | 7 |
| Shrub species richness | **5** | 3 | 3 |
| Grass species richness | **8** | 7 | 13 |

| Site Condition Attributes | RE12.9-10.7 Benchmark | Baseline Plot 1 | Year 5 Plot 1 |
|---|---|---|---|
| Forb species richness | **26** | 10 | 14 |
| Tree canopy height (canopy) | **21** | 23.1 | 23.7 |
| Tree canopy height (sub-canopy) | **10** | 14.8 | 14.9 |
| Tree canopy cover (canopy) | **40** | 64 | 64 |
| Tree canopy cover (sub-canopy) | **8** | 5 | 11.5 |
| Shrub Canopy Cover | **3** | 14.6 | 8.1 |
| Native Perennial Grass Cover | **61** | 46 | 65 |
| Organic Litter | **20** | 37 | 24 |
| Large Trees | **18** | 22 | 26 |
| Coarse Woody Debris | **272** | 494 | 405 |
| Non-native Plant Cover | **0** | 8 | 3.85 |

### 2.1.4 Assessment Unit 4

AU4 is 4.7 ha in size and is described as Category C (high-value regrowth) RE12.9-10.7 which is dominated by *Eucalyptus crebra* (Narrow-leaved Ironbark). Overall improvement was highest in AU4, though less evenly distributed among assessment plots than the second-highest improved, AU1. Plot 2 improved massively, with positive change across several site condition attributes. Plot 1 showed more regular improvement, with increases in grass and forb species richness and tree canopy cover and a slight decrease in the recruitment of woody perennial species. Overall, this AU showed great improvement, contains very low non-native plant cover, and with time and regular management should continue to improve in the forb species richness, shrub canopy cover, perennial native grass cover and organic litter cover.

**Table 6: Assessment Unit 4 baseline and year five offset area site condition data**

| Site Condition Attributes | RE12.9-10.7 Benchmark | Baseline Plot 1 | Year 5 Plot 1 | Baseline Plot 2 | Year 5 Plot 2 |
|---|---|---|---|---|---|
| Recruitment of woody perennial species | **100** | 100 | 75 | 67 | 80 |
| Tree species richness | **3** | 4 | 4 | 5 | 5 |
| Shrub species richness | **5** | 6 | 6 | 3 | 5 |
| Grass species richness | **8** | 4 | 10 | 6 | 10 |
| Forb species richness | **26** | 2 | 8 | 8 | 11 |
| Tree canopy height (canopy) | **21** | 24 | 26 | 18.3 | 17.1 |
| Tree canopy height (sub-canopy) | **10** | 13.6 | 13.5 | 10.8 | 11.2 |
| Tree canopy cover (canopy) | **40** | 52.5 | 44 | 37 | 27.5 |

| Site Condition Attributes | RE12.9-10.7 Benchmark | Baseline Plot 1 | Year 5 Plot 1 | Baseline Plot 2 | Year 5 Plot 2 |
|---|---|---|---|---|---|
| Tree canopy cover (sub-canopy) | **8** | 22.7 | 33.5 | 5.3 | 82 |
| Shrub Canopy Cover | **3** | 22.7 | 0.6 | 5.3 | 1.9 |
| Native Perennial Grass Cover | **61** | 11 | 24 | 6 | 64 |
| Organic Litter | **20** | 79 | 78 | 65 | 34 |
| Large Trees | **18** | 24 | 26 | 4 | 6 |
| Coarse Woody Debris | **272** | 225 | 269 | 307 | 398 |
| Non-native Plant Cover | **0** | 2.9 | 1.18 | 25.6 | 4.9 |

## 2.2. Koala Habitat Assessment Tool

The offset area achieved a score of seven (7) out of ten (10) at the baseline assessment utilising the Koala Habitat Assessment Tool. This assessment is provided in Table 1 of the '*Koala Habitat Offset Report, prepared by Cherish the Environment Foundation.*' The baseline score laid the basis for the milestone listed under Condition 3b that after the commencement of construction, a gain in koala habitat quality to nine (9) must be achieved in more than 50% of the offset area through rehabilitation.

This milestone would be achieved through habitat improvement works via management activities prescribed under the OMP, through increasing connection of the offset area to the neighbouring conservation estate and managing key threats to koala such as erosion and pest presence.

These management actions have improved the koala habitat quality across the offset area to a level that satisfies the score of nine requirement of the year five milestone. These improvements in koala habitat quality are detailed in the KHAT table provided in **Table 7.**

**Table 7: Year five milestone Koala Habitat Assessment Tool using coastal criteria**

| Attribute | Baseline Score | Year 5 Score | Analysis |
|---|---|---|---|
| **Koala occurrence** | +2 | +2 | Evidence of koala in the form of direct observation and indirect evidence (scats) has historically been detected within and surrounding the offset area including as part of baseline surveys.<br><br>Evidence of koala in the form of scats was detected within the offset area during 2023 surveys by Wolter Consulting Group. A total of nine (9) Spot Assessment Technique surveys were completed within the offset area targeting evidence of koala. The results detected 56 scats with koala usage ranging from 'low' to 'high' use under the East Coast (med-high) population activity category defined by Phillips and Callaghan (2011)[1]. The Koala Assessment Survey Report is provided at **Appendix D**.<br><br>**As there is evidence of one or more koalas on-site within the last 2 years, this attribute has been given a score of +2 (high). This attribute score has remained consistent with the baseline assessment.** |
| **Vegetation structure and composition** | +2 | +2 | On-ground surveys indicate the site is comprised of eucalypt dominated regional ecosystems containing several koala foraging species.<br><br>In addition, efforts have been made by the offset provider to improve the quality of the habitat present within the offset area in accordance with management activities prescribed under the OMP. A five-year weed management program was implemented to improve vegetation structure and condition and promote native regrowth. This program was initially very successful, with weed presence low enough in February 2021 and requiring minimal intervention. Following the wet conditions associated with the 2021/2022 La Nina event, weed presence of Lantana and Fleabane was observed to increase in patches. The initial strong decrease in weed presence provided opportunities |

[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.

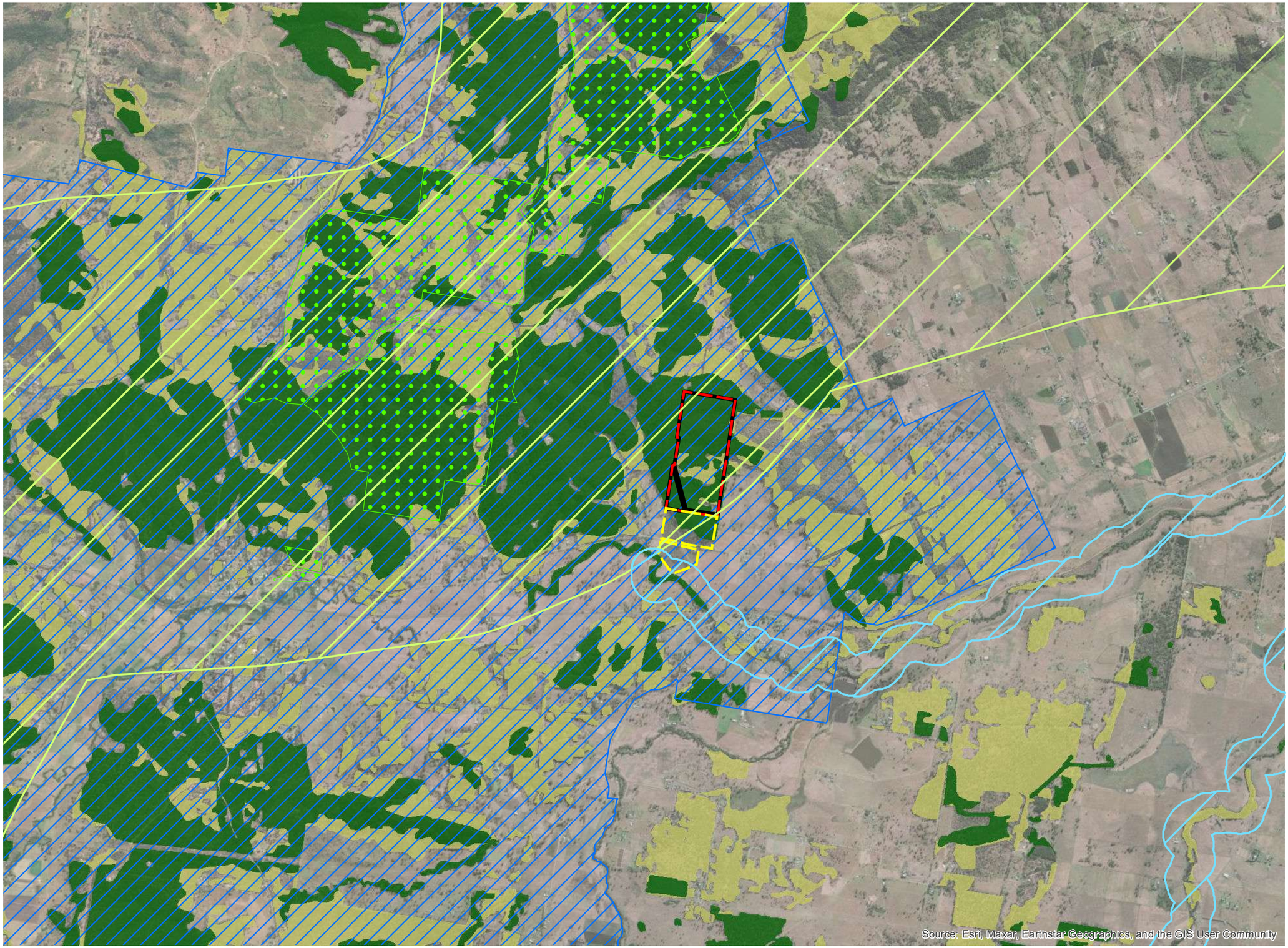
| Attribute | Baseline Score | Year 5 Score | Analysis |
|---|---|---|---|
| | | | for natural regrowth with an observed increase in native species richness site-wide, as discussed in **Section 2.1**. The wetter conditions have also allowed for enhanced growing conditions for newly recruited native species.<br><br>Cut-off diversion drains were constructed to mitigate erosion, and subsequently vegetation loss. In conjunction with the removal of stock, which resulted in increased ground cover, there has been no evidence of significant erosion despite the rain events through 2021-2022 and early 2023.<br><br>**Two or more koala food trees were identified within the canopy of the woodland areas, resulting in an attribute score of +2 (high). This attribute score has remained consistent with the baseline assessment.** |
| **Habitat connectivity** | +1 | +2 | There are a number of landscape factors that contribute to the offset area's location as highly connected within the landscape. On 7 February 2020, planning reforms to protect Koala habitat areas in South East Queensland came into effect through the Nature Conservation and Other Legislation (Koala Protection) Amendment Regulation 2020, introducing the Koala Habitat Area (KHA) and Koala Priority Area (KPA). One of the provisions under Schedule 11 of the Planning Regulation is that where a KHA occurs within a KPA, it is prohibited to clear. A large area of land surrounding the offset site which contains mapped core KHA has since been categorised as KPA and as such is now highly protected.<br><br>The offset area is part of a contiguous landscape >500 ha land mapped as State KHA as shown by the Habitat Connectivity plan provided in **Plan 1**. The habitat is part of a larger contiguous patch which extends to the west and north of the site and traverses the broader region. Highly connected to this area is another large, mapped Koala Priority and Habitat Area that continues south-west for another 8 km. The southern and south-eastern site borders are adjoined by large, cleared paddock areas. To further improve the habitat connectivity of the site, revegetation has been undertaken on the land parcel directly |

| Attribute | Baseline Score | Year 5 Score | Analysis |
|---|---|---|---|
| | | | south of the offset area by CTEF, the area of which will be subject to a Voluntary Declaration under the VMA to formally protect the land.<br><br>The site is also located within a Regional Corridor under the South East Queensland Regional Plan ('ShapingSEQ') and categorised a Priority Conservation Area by the Ipswich LGA Conservation Strategy.<br><br>The site is well situated within a Regional Biodiversity Corridor, is categorised a Priority Conservation Area by the Ipswich Natural Environment Strategy 2023 and connected by this large contiguous area of State mapped KHA within a KPA to Main Range National Park. As such, this offset site has a high level of connectivity which has now been protected long-term.<br><br>**The offset area is part of a contiguous landscape (≥ 500 ha) and is located within a corridor that is highly protected under State legislation, therefore has been given an attribute score of +2 (high). This attribute has increased since baseline.** |
| **Key existing threats** | +1 | +2 | Under the implementation of the OMP, pest management activities have been undertaken across the offset area. A wild dog monitoring and control program has been implemented over the offset area since the offset area was legally secured.<br><br>Baseline surveys found wild dog scats indicating their presence on site. Wild dogs can predate upon koala, and domestic stock and wild pigs are known to cause death and injury. To combat these key threats a number of measures were completed including the installation of boundary fencing and exclusion of stock with fencing repaired as necessary. A wild dog control program including yearly camera monitoring has been implemented by the offset provider. Despite the implementation of targeted monitoring, there has been no evidence of wild dogs or other pest species such as pigs detected within the offset area since baseline surveys in 2018.<br><br>Additionally, no evidence of koala mortality has been recorded within the offset area. |

| Attribute | Baseline Score | Year 5 Score | Analysis |
|---|---|---|---|
| | | | **There is no evidence of koala mortality from dog attack or vehicle strike and threats are considered to be reduced as a result of the implementation of the wild dog control program. This attribute has been assigned a score of +2 (high).** |
| **Recovery value** | +1 | +1 | The habitat within the offset area is considered important for achieving the interim recovery objectives. The interim recovery objectives for coastal areas are:<br>• *Protect and conserve large, connected areas of koala habitat, particularly large, connected areas that support koalas that are:*<br>- *Of sufficient size to be genetically robust / operate as a viable sub-population OR*<br>- *free of disease or have a very low incidence of disease OR*<br>- *breeding.*<br>• *Maintain corridors and connective habitat that allow movement of koalas between large areas of habitat.*<br>It was unforeseen at the time of the baseline assessment that the State legislation and mapping changes would result in the offset area and surrounding landscape to become mapped as a KPA with considerable area of land mapped as KHA. KPAs are large, connected areas that focus habitat protection, habitat restoration and threat mitigation to areas that have the highest likelihood of safeguarding koala populations in SEQ.<br><br>The offset area, being wholly mapped as State KHA and wholly located within a KPA and connected to a large contiguous patch which is considered to provide the resources for koala to allow for breeding and unimpeded connectivity. The vegetation forms part of a corridor which provides connectivity to conservation areas including Mount Grandchester Conservation Estate to the west and Main Range National Park. Noting the offset area is mostly KPA, the value from a recovery perspective is diminished where compared to an area that is reinstated with habitat. |

| Attribute | Baseline Score | Year 5 Score | Analysis |
|---|---|---|---|
| | | | **It is considered that the offset area, located within a SEQ Regional Corridor and KPA corridor aligns with the interim recovery objectives for koalas within coastal areas, therefore this attribute has been scored a +1 (medium).** |
| **Total** | **7** | **9** | The offset area as of year 5 achieves a milestone score of 9 / 10 which is attributed to the following attribute increases:<br>• the broad reduction in threats in the form of wild dogs with the implementation of the wild dog control program; and<br>• increased connectivity value of the offset area due to the placement of the offset area within the SEQ Regional Corridor and KPA corridor and offset area directly south affording additional protection and focus for koala rehabilitation efforts within the broader locality. |

# 01. Habitat Connectivity




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.

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*Updated data available at*
*http://qldspatial.information.qld.gov.au/catalogue/*

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## Legend

- Site DCDB
- Offset Area
- Rehabilitation areas to be legally secured
- Mount Grandchester Conservation Estate

**Statewide Corridor Buffer**

- Regional Significance
- State Significance

**Koala Habitat Areas**

- Core Remnant Koala Habitat Areas
- Core Regrowth Koala Habitat Areas
- Koala Priority Areas

| Issue | Date | Description | Drawn | Checked |
|---|---|---|---|---|
| A | 5/10/2023 | Preliminary | TF | AW |

0 200 400 600 800 1,000 m

Transverse Mercator | GDA 1994 | Zone 56 | 1:40,000 @ A3

saunders havill group

Stockland

# Rosewood Laidley Rd, Calvert

*Address / RPD: Lot 230 on CH311791 & Lot 1 on CC2262*

*5/10/2023 | 8473 E 01 Habitat Connectivity*

# 3. Conclusion

Saunders Havill Group were engaged by Cherish the Environment Foundation Limited to complete this Year Five Milestone Offset Report on behalf of the approval holder, Stockland Development Pty Ltd. The report specifically addresses Condition 3b of the approval (EPBC ref: 2014/7306), stated below:

***b) Milestones***

- *By **five years** after the commencement of construction, a gain in Koala habitat quality to nine must be achieved in more than 50% of the offset area through rehabilitation.*

An assessment of the offset area koala habitat quality as of the year five milestone date (8 July 2023) was completed utilising the KHAT which was the method used to determine the offset area koala habitat quality as part of the baseline assessment.

The KHAT assessment indicates that at least 50% of the offset area has shown an increase in score to a 9 / 10 and is therefore **compliant with the year five milestone requirement contained in Condition 3b of the approval**. The intensive weed, pest, and erosion management regimes have reduced key threats to koala and improved flora values site-wide. The positive changes observed in habitat quality across the offset area assessment units including notable reductions in weed coverage and increased native species recruitment is not reflected as a score improvement. This is because the KHAT attribute 'vegetation structure and composition' attribute was maxed out to a score of 2 as part of the baseline survey. However, it does show the improvements in habitat quality that have been achieved as a result of rehabilitation efforts.

Attributes that received a boost in score include 'habitat connectivity' and 'key existing threats.' This is attributed to the following changes:

- the broad reduction in threats in the form of wild dogs with the implementation of the wild dog control program – no evidence of wild dog detected within the offset area; and
- increased connectivity value of the offset area due to the placement of the offset area within the SEQ Regional Corridor and KPA corridor and offset area directly south affording additional protection and focus for koala rehabilitation efforts within the broader locality.

# 4. Appendices

## Appendix A

Site Condition Assessment, Calvert 1 – Vegetation Offset September 2018

## Appendix B

Site Condition Assessment, Calvert 1 – Vegetation Offset April 2023

## Appendix C

Baseline KHAT (extract from Koala Habitat Offset Report)

## Appendix D

Koala Assessment Survey – Calvert 1

# Appendix A

## Site Condition Assessment, Calvert 1 – Vegetation Offset September 2018

# Site Condition Assessment

## Calvert 1 – Vegetated Offset

September 2018

Located on:
40-60 Harrison Rd, Calvert
230 CH311791
795-851 Rosewood-Laidley Rd, Calvert
1 CC2262

Prepared for:
Cherish the Environment Foundation

Private Forestry Service Queensland INC

Australian Forestry Standard (AFS) Certified • Not For Profit

## Document control

| Version | Date | Written by: | Reviewed by: | Review Date: |
|---|---|---|---|---|
| 1.0 | 27/08/2018 | Kaara Shaw | Gary Clarke | 20/09/2018 |
| | | | | |
| | | | | |

## Executive summary

This report details the method and results of a site condition assessment carried out on the vegetated offset component of lot on plan 230 CH311791 and part of 1 CC2262 (Calvert 1). The site condition assessment is one component of a broader Habitat Quality Assessment, as detailed in the *Guide to determining terrestrial habitat quality Version 1.2 April 2017* (referred to throughout this report as the Guidelines).

# Contents

# Introduction

The site condition assessment, as detailed in the *Guide to determining terrestrial habitat quality* (April 2017) is a method of assessing general vegetation condition against a set of benchmark vegetation attributes for a given regional ecosystem.

A site condition assessment of Calvert 1 was carried out in July and August of 2018, to benchmark current vegetation condition and thus provide a point of reference for future verification of management intervention.

A follow-up assessment will be carried out in winter 2023.

# Method

The site condition assessment was carried out as per the methodology outlined in the *Guide to determining terrestrial habitat quality* (April 2017). There were three main components of the assessment, namely:

1. Stratification of the offset site into Assessment Units (AU), based on Regional Ecosystem (RE) type and Vegetation Management Act 1999 (VMA) status,
2. Surveying AUs to determine condition of vegetation attributes, and
3. Comparing surveyed vegetation attributes with regional ecosystem benchmarks to determine an overall Site Condition Score for each AU.

## Stratification

A desktop search was carried out to determine the status of the vegetation under the Queensland Vegetation Management Act (1999), and to identify the regional ecosystems occurring on the property.

An ocular assessment of the offset site was then carried out in July 2018, to ground-truth the desktop information. A forest officer traversed the site, taking waypoints and recording the tree species present at each waypoint. Discrete regional ecosystems were then mapped on-ground using a GPS track log.

The track log and waypoint data was overlayed onto a Regulated Vegetation Map using Arc GIS. The two layers were used to define Assessment Units based on their VMA status, i.e. remnant (Category B), regrowth (Category C) or non-remnant (Category X), and their ground-truthed RE type.

## Site condition survey

Potential plots were located randomly within the AUs using Arc GIS.

The site condition surveys were carried out by two assessors in accordance with Section 5 of the *Guide to determining terrestrial habitat quality* (April 2017) available from: https://www.ehp.qld.gov.au/assets/documents/pollution/management/offsets/habitat-quality-assessment-guide.pdf.

## Site condition score

Survey data was collated in an excel spreadsheet and scores were allocated to each attribute based on a benchmark comparison as per the Guideline.

A brief analysis of each AU has been carried out, to identify the attributes with the highest potential for improvement.

# Results

## Stratification

The *Vegetation Management Report, July 2018* (Appendix 1) identified five different regional ecosystems on the property; 12.9-10.19, 12.9-10.2, 12.9-10.3, 12.9-10.5 and 12.9-10.7.

The on-ground survey identified only two distinct regional ecosystems; 12.9-10.2 and 12.9-10.7. The majority of the property is dominated by RE 12.9-10.2 (spotted gum), with two small patches of 12.9-10.7 (narrow-leaved red ironbark).

The Vegetation Management Report identified three categories of vegetation on the property, namely Category B, C and X.

The final stratification of the forest resulted in four Assessment Units (see Table 1, below and Assessment Unit Map in Appendix 2).

*Table 1. Assessment Units*

| Assessment Unit Label | Regional Ecosystem | Vegetation Management Category | Area (ha) |
|---|---|---|---|
| AU1 | 12.9-10.2 | B - Remnant | 63.2 |
| AU2 | 12.9-10.2 | C - Regrowth | 2.4 |
| AU3 | 12.9-10.7 | B - Remnant | 6.0 |
| AU4 | 12.9-10.7 | C - Regrowth | 4.7 |

## Survey results

The survey results for each plot are given in Table 2 below. Due to the shape of AU2 and AU3 sub-units (see Appendix 2), we were only able to locate a single plot in each (sub-units were narrower than the plot boundaries). To compensate, we established a photo point, within the relevant sub-units, to verify that they are the same forest type and condition (as described on page 10 of the Guidelines).

*Table 2 Site Condition Assessment results per plot*

| Site condition attributes | AU1-P1 | AU1-P2 | AU1-P3 | AU2 | AU3 | AU4-P1 | AU4-P2 |
|---|---|---|---|---|---|---|---|
| Recruitment of woody perennial species (%) | 100% | 50% | 80% | 100% | 83% | 100% | 67% |
| Trees - species richness | 4 | 4 | 6 | 4 | 6 | 4 | 5 |
| Shrubs - species richness | 6 | 6 | 5 | 2 | 3 | 6 | 3 |
| Grasses - species richness | 9 | 5 | 5 | 6 | 7 | 4 | 6 |
| Forbs - species richness | 6 | 5 | 7 | 12 | 10 | 2 | 8 |
| Canopy height (m) | 24 | 24.6 | 27.2 | 22.4 | 23.1 | 24 | 18.3 |
| Sub-canopy height (m) | 9.2 | 17 | 18.2 | 14.2 | 14.8 | 13.6 | 10.8 |
| Tree canopy cover (%) | 76.30% | 31.50% | 60.30% | 6.00% | 64.00% | 52.50% | 37.00% |
| Sub-canopy cover (%) | 21.30% | 36.50% | 66.00% | 3.00% | 5.00% | 27.90% | 83.50% |
| Shrub canopy cover (%) | 21.30% | 20.50% | 20.50% | 5.00% | 14.60% | 22.70% | 5.30% |
| Native perennial grass cover (%) | 11% | 1% | 10% | 49% | 46% | 11% | 6% |
| Organic litter (%) | 73% | 95% | 46% | 23% | 37% | 79% | 65% |
| Large trees (per ha) | 20 | 18 | 20 | 2 | 22 | 24 | 4 |
| Coarse woody debris (total length m) | 305 | 462 | 337 | 45 | 494 | 225 | 307 |
| Non-native plant cover (%) | 2.40% | 0.20% | 46.70% | 4.00% | 8.00% | 2.90% | 25.60% |
| *Stand Basal Area (not included in site assessment) $m^2/ha$* | *17* | *24* | *20.5* | *5* | *11* | *13.5* | *11* |

## Site condition scores

The Assessment Unit site condition scores are given below in Table 3. The site condition score cards, with further detail on benchmarks and individual attribute scores are provided in Appendix 3. Appendix 4 shows the photo points and ground cover sub-plot photos for each AU.

*Table 3. Site condition scores*

| Assessment Unit | RE/VMA Category | Plot No. | Plot scores | Assessment Unit scores |
|---|---|---|---|---|
| AU1 | 12.9-10.2 Remnant | 1 | 65 | 57 |
| | | 2 | 51.5 | |
| | | 3 | 55 | |
| AU2 | 12.9-10.2 Regrowth | 1 | 51 | 51 |
| AU3 | 12.9-10.7 Remnant | 1 | 65 | 65 |
| AU4 | 12.9-10.7 Regrowth | 1 | 66.5 | 57 |
| | | 2 | 47 | |

## Discussion

A basic analysis of attribute scores across the seven plots was carried out to identify the site condition attributes with the largest variance from the benchmarks. In doing so, we are able to make some assumptions about overall vegetation condition and prioritise management intervention accordingly. Table 4 shows the variation of individual attribute scores from the highest possible score per plot and the total variation per attribute. The attributes highlighted in yellow have the highest total variance and are discussed below.

*Table 4. Attribute score variation per plot*

| | **Variation of actual attribute scores from the highest possible score per plot (*zero represents a perfect score)*** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Site condition attributes** | AU1-P1 | AU1-P2 | AU1-P3 | AU2 | AU3 | AU4-P1 | AU4-P2 | Total variation per attribute |
| Recruitment of woody perennial species | 0 | -2 | 0 | 0 | 0 | 0 | -2 | -4 |
| Trees - species richness | -2 | -2 | 0 | -2 | 0 | 0 | 0 | -6 |
| Shrubs - species richness | -2 | -2 | -2 | -2 | -2 | 0 | -2 | -12 |
| Grasses - species richness | 0 | -2 | -2 | -2 | -2 | -2 | -2 | -12 |
| Forbs - species richness | -2 | -2 | -2 | 0 | -2 | -2.5 | -2 | -12.5 |
| Tree canopy height average score | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Canopy cover average score | 0 | -1.5 | -1 | -4 | 0 | -1 | -1 | -8.5 |
| Shrub canopy cover | -2 | -2 | -2 | -2 | -2 | -2 | 0 | -12 |
| Native perennial grass cover | -2 | -5 | -4 | 0 | -2 | -4 | -5 | -22 |
| Organic litter | 0 | 0 | 0 | -2 | 0 | -2 | -2 | -6 |
| Large trees (per ha) | -5 | -10 | -5 | -10 | 0 | 0 | -10 | -40 |
| Coarse woody debris (total length m) | 0 | 0 | 0 | -5 | 0 | 0 | 0 | -5 |
| Non-native plant cover | 0 | 0 | -7 | 0 | -5 | 0 | -7 | -19 |
| **Total variation per plot** | **-15** | **-28.5** | **-25** | **-29** | **-15** | **-13.5** | **-33** | |
| **Basal Area ($m^2$/ha)* | *17* | *24* | *20.5* | *5* | *11* | *13.5* | *11* | |

**Stand Basal area included as a reference for causality in some attributes.*

### *Species richness – forbs, native grasses and shrubs*

Species richness of native grasses, forbs and shrubs has scored below the benchmark across the majority of plots. This attribute is heavily influenced by the season during which the survey is undertaken. This survey was carried out in mid-winter when the site was very dry and most of the native grasses and forbs had died back or become dormant. It is expected that this score would have been improved (across most of the plots) if the survey was carried out during summer or autumn. Given that the follow-up survey must be carried out at the same time of year as the original survey, it is expected that the score for these attributes will not improve significantly.

Many species of grasses, forbs and shrubs are dependent on fire for regeneration. A carefully timed and executed fire management regime could also improve the species richness score.

Species richness within plots AU1-P2 and AU1-P3 will also be limited, regardless of season, due to the density of the canopy (see Perennial Native Grass Cover, below).

### *Shrub canopy cover*

In five out of seven plots, the percentage shrub canopy cover is significantly higher than the benchmark. This has resulted in a reduced score for this attribute. The definition of shrub was taken from the benchmark document, as per the guideline instructions. As such, small trees such as *Allocasuarina littoralis, Alphitonia excelsa,* various *Acacia* species and *Petalostigma pubescens* are classified as shrubs in the canopy coverage attribute. These species make up a significant portion of the shrub canopy, the sub-canopy and, in some of the regrowth plots, the canopy.

The high frequency of these shrub species can usually be attributed to the lack of fire in a forest management system. Regular fuel reduction burning (at ecologically appropriate intervals) will prevent an over-abundance of certain shrub species (thickening).

The recent success of species such as *Alphitonia excelsa* can also be attributed to the removal of cattle from the system. Cattle feed on shrub species such as *A.excelsa* during times of limited grass availability. Cattle grazing on the property would have suppressed the development of many shrub species over a long period of time. The removal of cattle, combined with an infrequent fire regime, has resulted in a thickened 'shrub' layer throughout the property.

### *Native perennial grass cover*

The 'Native perennial grass cover' attribute is the second lowest scoring attribute in the site condition surveys. Other than AU2 (the regrowth/infill unit), all AUs scored significantly lower than the benchmark value.

There is a direct and proven correlation between stand density and native perennial grass cover in dry sclerophyll and woodland forest types. Figure 1, below shows the inverse relationship between basal area (a measure of stand density) and pasture growth in spotted gum forest near Gayndah in Queensland. As basal area increases (following a thinning operation and in response to recruitment and tree growth), pasture growth decreases. This is attributed to reduced sunlight reaching the forest floor, and increased competition, from trees for water and nutrients.

Whilst the Site Condition Survey does not include a measure of stand density, a simple basal area calculation was carried out at each waypoint (0m and 50m plot points), using a Basal Area dendrometer, and then averaged for each plot. The results are given in Table 2 and again in Table 4. Plots 1-3, within AU1 had the highest basal areas with 17 $m^2$, 24 $m^2$ and 20.5 $m^2$ respectively.

Without a reduction in stand density, the 'native perennial grass cover' score for these plots will not improve significantly.

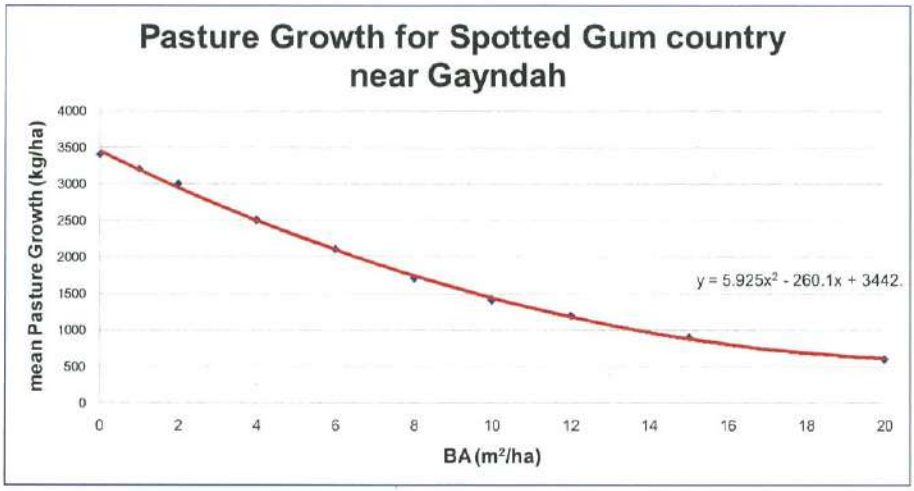



*Figure 1. Impact of basal area on mean annual pasture growth. Source: Schulke 2017, Grazing and timber production, Australian Government Caring for Our Country.*

### *Large trees*

The 'large trees' attribute has the highest possible score (15 points) of all the site condition attributes. To score 15 points for 'large trees' you have to exceed the number of large trees in the Biocondition benchmark. For example, regional ecosystem 12.9-10.2 (AU1 and AU2) requires greater than 38 trees per hectare that are above 38 cm diameter at breast height (DBH). For 12.9-10.7 (AU3 and AU4) the threshold is 18 trees per hectare that are greater than 39 cm DBH. Plots 1 and 3 in AU1, will need another 19 trees per hectare to grow over the 38 cm DBH threshold within 5 years time, in order to optimise the 'large tree' score at the next survey.

As trees get larger, more space is required for them to maintain health and vigour. Unless the number of trees in a given area is reduced, then the increased competition between trees for moisture, nutrients and sunlight will eventually reduce growth rates and, in some cases will result in die-back. The threshold, at which trees start to die is dependent on species type, rainfall and soil quality. This threshold can be quantified using a Stand Basal Area measurement; the sum of the area of a cross section of all trees per hectare, measured at 1.3 m from the ground. In a dry sclerophyll forest in SEQ on moderately fertile soils, the average basal area threshold is in the vicinity of 25 $m^2$/ha. The threshold for wet sclerophyll forest is approximately 50 $m^2$/ha.

Published growth data for spotted gum and ironbark forests in South East Queensland, show an average mean annual diameter increment (MADI) of 0.25 cm/yr where the Stand Basal Area is 10.1 $m^2$/ha, and 0.56 cm/yr following treatment (tree injection thinning) of the forests down to an average of 7.7 $m^2$/ha (Grimes and Pegg 1979). AU1-P2 recorded a Stand Basal Area of 24 $m^2$/ha. Thus it is reasonable to assume that trees in this plot will be growing at less than 0.25 cm per year. At such a low growth rate, it will be difficult to significantly increase the number of large trees in a 5 year period.

The very high density of trees within sections of the forest is due to historical forest harvesting that favoured small diameter logs for mine props. Mine prop production involved the management of

coppice; cutting the main stem and allowing multiple stems to re-grow, that could then be opportunistically cut over time. The southern section of the forest has been subsequently harvested for fencing timber and sawlogs, a practice that has resulted in a lower tree density and, thus better grass cover and groundcover development. The northern sections have been largely left untouched since mine prop harvesting and are very highly stocked, with minimal understorey/groundcover development (see Figures 2-4 below). In these areas, a process of ecological thinning, to reduce stand basal area, would increase diameter growth rates, increase native perennial grass cover and improve the overall structure, resilience and health of the forest.

*Figure 3 Spotted gum coppice that has been harvested in the past.*

*Figure 2. Coppice harvested for mine props.*

*Figure 4. Northern Calvert 1 where historical mine prop harvesting, with no follow-up management has resulted in an over-stocked forest with little to no groundcovers.*

### *Non-native plant cover*

The 'non-native plant' cover attribute will be the easiest attribute to improve over the 5-year period due to the intensive weed management regime to be carried out. The removal of all non-native species will increase the site condition scores of three plots.

## Conclusions

The worst performing attributes across most plots are native perennial grass cover, large trees and non-native plant cover. The first two attributes are unlikely to improve significantly in Assessment Unit 1 over a 5-year period due to (a) the season during which the survey has been carried out and (b) the high density of canopy trees (high stand basal area). A strategic reduction in stand basal area would improve growth rates of the retained trees and increase the coverage of native perennial grasses.

Further, a fire management regime would help improve the results of the remaining low-scoring attributes, including shrub canopy cover and shrub, grass and forb species richness.

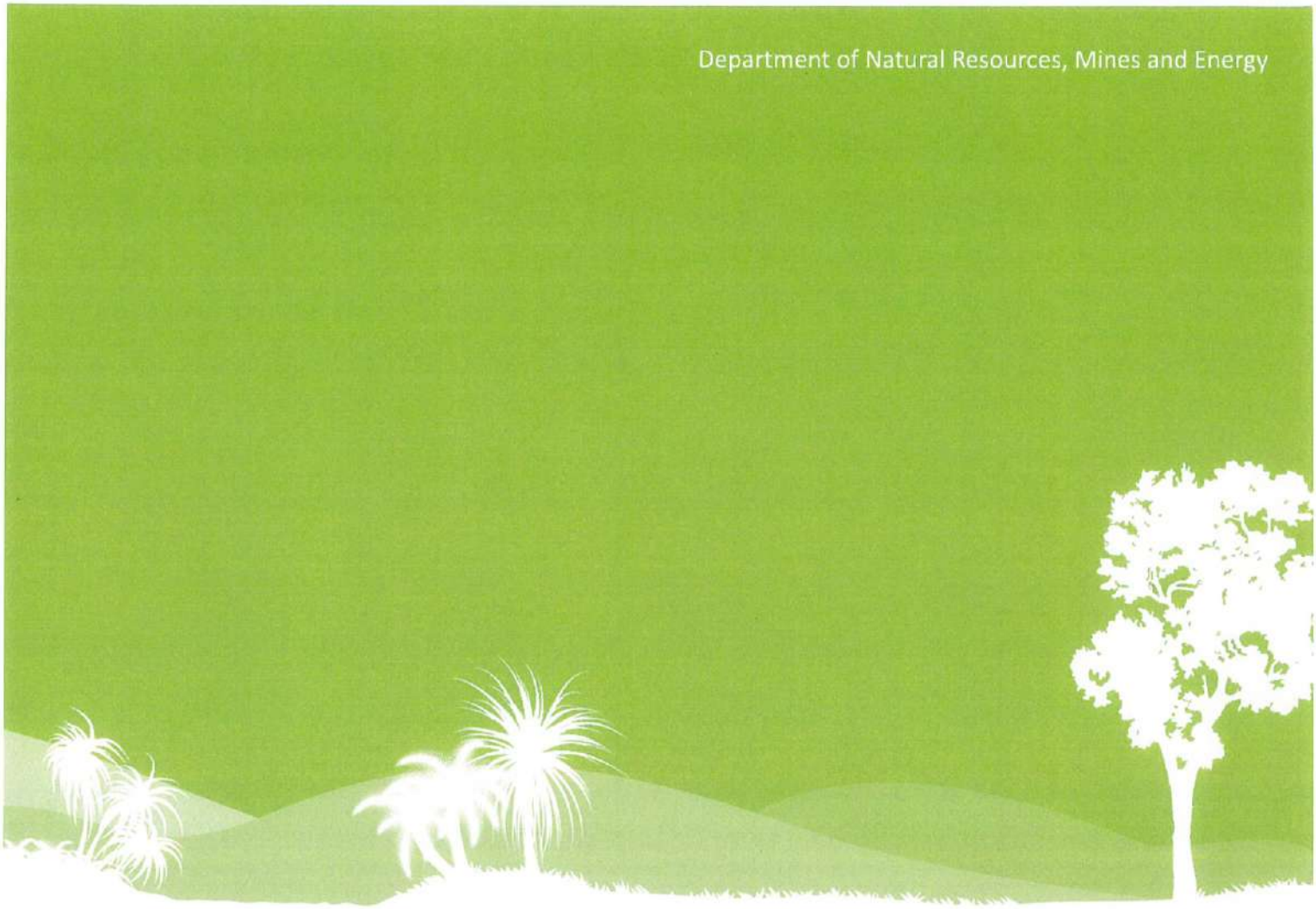
## References

Grimes, R.F. and Pegg, R.E. 1979, Technical Paper No.17: *Growth data for a spotted gum – ironbark forest in south-east Queensland*, Department of Forestry, Brisbane, Queensland.

Schulke, W. 2017, Native Forest Management Guide: *Grazing and Forestry*, Private Forestry Service Queensland, Gympie, Queensland.

## Appendix

Department of Natural Resources, Mines and Energy



# Vegetation management report

For Lot: 230 Plan: CH311791

Current as at 09/07/2018

Queensland Government

# Recent changes

New vegetation clearing laws

New vegetation management laws were passed by the Queensland Parliament on 3 May 2018 and may affect the clearing you can undertake on your property.

For more information, read about the new vegetation management laws (https://www.dnrme.qld.gov.au/land-water/initiatives/vegetation-management-laws/) or call 135VEG (13 58 34) between 8.30am and 4.30pm Monday to Friday.

Updated mapping

The Regulated Vegetation Management Map and Supporting Map was updated in March 2018 to reflect the most up to date information available in relation to regional ecosystems, essential habitat and wetland mapping (Version 10).

# Overview

Based on the lot on plan details you have supplied, this report provides the following detailed information:

- *Vegetation management framework* - an explanation of the application of the framework.
- *Property details* - information about the specified Lot on Plan, lot size, local government area, bioregion(s), subregion(s), catchment(s), coastal or non coastal status, and any applicable area management plans associated with your property.
- *Vegetation management details for the specified Lot on Plan* - specific information about your property including vegetation categories, regional ecosystems, watercourses, wetlands, essential habitat, and protected plants.
- *Contact information.*
- *Maps* - a series of colour maps to assist in identifying regulated vegetation on your property.
- *Other legislation contact information.*

This information will assist you to determine your options for managing vegetation, which may include:

- exempt clearing work
- accepted development vegetation clearing code
- an area management plan
- a development approval.

# Other laws

The clearing of native vegetation is regulated by both Queensland and Australian legislation, and some local governments also regulate native vegetation clearing. You may need to obtain an approval or permit under another Act, such as Queensland's Protected Plants framework or the Commonwealth Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Section 6 of this guide provides contact details of other agencies you should confirm requirements with, before commencing vegetation clearing.

# Table of Contents

# 1. Vegetation management framework

The *Vegetation Management Act 1999* (VMA), the Vegetation Management Regulation 2012, the *Planning Act 2016* and the Planning Regulation 2017, in conjunction with associated policies and codes, form the Vegetation Management Framework.

The VMA does not apply to all land tenures or vegetation types. State forests, national parks, forest reserves and some tenures under the *Forestry Act 1959* and *Nature Conservation Act 1992* are not regulated by the VMA. Managing or clearing vegetation on these tenures may require approvals under these laws.

The following native vegetation is not regulated under the VMA but may require permit(s) under other laws:

- grass or non-woody herbage;
- a plant within a grassland regional ecosystem prescribed under Schedule 5 of the Vegetation Management Regulation 2012; and
- a mangrove.

## 1.1 Exempt clearing work

Exempt clearing work is an activity for which you do not need to notify DNRME or obtain an approval. Exempt clearing work was previously known as exemptions.

In areas that are mapped as Category X (white in colour) on the regulated vegetation management map (see section 5.1), and where the land tenure is freehold, indigenous land and leasehold land for agriculture and grazing purposes, the clearing of vegetation is considered exempt clearing work and does not require notification or development approval. For all other land tenures, contact DNRME before commencing clearing to ensure that the proposed activity is exempt clearing work.

A range of routine property management activities are considered exempt clearing work. A list of exempt clearing work is available at
https://www.qld.gov.au/environment/land/vegetation/exemptions/.

Exempt clearing work may be affected if the proposed clearing area is subject to development approval conditions, a covenant, an environmental offset, an exchange area, a restoration notice, or an area mapped as Category A. Contact DNRME prior to clearing in any of these areas.

## 1.2 Accepted development vegetation clearing codes

Some clearing activities can be undertaken under an accepted development vegetation clearing code. The codes can be downloaded at
https://www.qld.gov.au/environment/land/vegetation/codes/

If you intend to clear vegetation under an accepted development vegetation clearing code, you must notify DNRME before commencing. The information in this report will assist you to complete the online notification form.

You can complete the online form at
https://apps.dnrm.qld.gov.au/vegetation/

## 1.3 Area management plans

Area Management Plans (AMP) provide an alternative approval system for vegetation clearing. They list the purposes and clearing conditions that have been approved for the areas covered by the plan. It is not necessary to use an AMP, even when an AMP applies to your property.

As a result of the new laws, AMPs for fodder harvesting, managing thickened vegetation and managing encroachment will continue for 2 years. New notifications cannot be made for these AMPs.

New notifications can be made for all other AMPs. These will continue to apply until their nominated end date.

If an area management plan applies to your property for which you can make a new notification, it will be listed in Section 2.2 of this report. Before clearing under one of these AMPs, you must first notify the DNRME and then follow the conditions and requirements listed in the AMP.

https://www.qld.gov.au/environment/land/vegetation/area-plans/

## 1.4 Development approvals

If your proposed clearing is not exempt clearing work, or is not permitted under an accepted development vegetation clearing code, or an AMP, you may be able to apply for a development approval. Information on how to apply for a development approval is available at

https://www.qld.gov.au/environment/land/vegetation/applying/

# 2. Property details

## 2.1 Tenure

All of the lot, plan and tenure information associated with property Lot: 230 Plan: CH311791, including links to relevant Smart Maps, are listed in Table 1. The tenure of the property (whether it is freehold, leasehold, or other) may be viewed by clicking on the Smart Map link(s) provided.

**Table 1: Lot, plan and tenure information for the property**

| Lot | Plan | Tenure | Link to property on SmartMap |
|---|---|---|---|
| 230 | CH311791 | Freehold | http://globe.information.qld.gov.au/cgi-bin/SmartMapgen.py?q=230\CH311791 |

The tenure of the land may affect whether clearing is considered exempt clearing work or may be carried out under an accepted development vegetation clearing code.

## 2.2 Property location

Table 2 provides a summary of the locations for property Lot: 230 Plan: CH311791, in relation to natural and administrative boundaries.

**Table 2: Property location details**

| Local Government(s) |
|---|
| Ipswich City |

| Bioregion(s) | Subregion(s) |
|---|---|
| Southeast Queensland | Moreton Basin |

| Catchment(s) |
|---|
| Brisbane |

| For the purposes of the accepted development vegetation clearing codes and the State Development Assessment Provisions (SDAP), this property is regarded as* |
|---|
| Coastal |

*See also Map 5.4

Area Management Plan(s): Nil

# 3. Vegetation management details for Lot: 230 Plan: CH311791

## 3.1 Vegetation categories

Vegetation categories are shown on the regulated vegetation management map in section 5.1 of this report. A summary of vegetation categories on the subject lot are listed in Table 3. Descriptions for these categories are shown in Table 4.

**Table 3: Vegetation categories for subject property. Total area: 64.75ha**

| Vegetation category | Area (ha) |
|---|---|
| Category B | 57.77 |
| Category C | 6.6 |
| Category X | 0.38 |

**Table 4**

| Category | Colour on Map | Description | Requirements / options |
|---|---|---|---|
| A | red | Compliance areas, environmental offset areas and voluntary declaration areas | Special conditions apply to Category A areas. Before clearing, contact DNRME to confirm any requirements in a Category A area. |
| B | dark blue | Remnant vegetation areas | Exempt clearing work, or notification and compliance with accepted development vegetation clearing codes, area management plans or development approval. |
| C | light blue | High-value regrowth areas | Exempt clearing work, or notification and compliance with managing Category C regrowth vegetation accepted development vegetation clearing code. |
| R | yellow | Regrowth within 50m of a watercourse or drainage feature in the Great Barrier Reef catchment areas | Exempt clearing work, or notification and compliance with managing Category R regrowth accepted development vegetation clearing code or area management plans. |
| X | white | Clearing is considered accepted development on freehold land, indigenous land and leasehold land for agriculture and grazing purposes. Contact DNRME to clarify whether a development approval is required for other State land tenures. | No permit or notification required on freehold land, indigenous land and leasehold land for agriculture and grazing. A development approval may be required for some State land tenures. |

**Property Map of Assessable Vegetation (PMAV)**

This report does not confirm if a Property Map of Assessable Vegetation (PMAV) exists on a lot. To confirm whether or not a PMAV exists on a lot, please check the PMAV layer on the Queensland Globe2, or contact DNRME on 135VEG (135 834).

## 3.2 Regional ecosystems

The endangered, of concern and least concern regional ecosystems on your property are shown on the vegetation management supporting map in section 5.2 and are listed in Table 5.

A description of regional ecosystems can be accessed online at
https://www.qld.gov.au/environment/plants-animals/plants/ecosystems/descriptions/

**Table 5: Regional ecosystems present on subject property**

| Regional Ecosystem | VMA Status | Category | Area (Ha) | Short Description | Structure Category |
|---|---|---|---|---|---|
| 12.9-10.19 | Least concern | B | 0.24 | Eucalyptus fibrosa subsp. fibrosa woodland on sedimentary rocks | Sparse |
| 12.9-10.19 | Least concern | C | 0.66 | Eucalyptus fibrosa subsp. fibrosa woodland on sedimentary rocks | Sparse |
| 12.9-10.2 | Least concern | B | 34.42 | Corymbia citriodora subsp. variegata +/- Eucalyptus crebra open forest on sedimentary rocks | Mid-dense |
| 12.9-10.2 | Least concern | C | 3.30 | Corymbia citriodora subsp. variegata +/- Eucalyptus crebra open forest on sedimentary rocks | Mid-dense |
| 12.9-10.3 | Of concern | B | 22.38 | Eucalyptus moluccana open forest on sedimentary rocks | Mid-dense |
| 12.9-10.3 | Of concern | C | 0.66 | Eucalyptus moluccana open forest on sedimentary rocks | Mid-dense |
| 12.9-10.5 | Least concern | B | 0.24 | Woodland complex often with Corymbia trachyphloia subsp. trachyphloia, C. citriodora subsp. variegata, Eucalyptus crebra, E. fibrosa subsp. fibrosa on quartzose sandstone | Sparse |
| 12.9-10.5 | Least concern | C | 0.66 | Woodland complex often with Corymbia trachyphloia subsp. trachyphloia, C. citriodora subsp. variegata, Eucalyptus crebra, E. fibrosa subsp. fibrosa on quartzose sandstone | Sparse |
| 12.9-10.7 | Of concern | B | 0.49 | Eucalyptus crebra +/- E. tereticornis, Corymbia tessellaris, Angophora spp., E. melanophloia woodland on sedimentary rocks | Sparse |
| 12.9-10.7 | Of concern | C | 1.32 | Eucalyptus crebra +/- E. tereticornis, Corymbia tessellaris, Angophora spp., E. melanophloia woodland on sedimentary rocks | Sparse |
| non-rem | None | X | 0.38 | None | None |

Please note:

1. All area and area derived figures included in this table have been calculated via reprojecting relevant spatial features to Albers equal-area conic projection (central meridian = 146, datum Geocentric Datum of Australia 1994). As a result, area figures may differ slightly if calculated for the same features using a different co-ordinate system.

2. If Table 5 contains a Category 'plant', please be aware that this refers to 'plantations' such as forestry, and these areas are considered non-remnant under the VMA.

The VMA status of the regional ecosystem (whether it is endangered, of concern or least concern) also determines if any of the following are applicable:

- exempt clearing work
- accepted development vegetation clearing codes
- performance outcomes in State Development Assessment Provisions (SDAP).

## 3.3 Watercourses

Vegetation management watercourses and drainage features for this property are shown on the vegetation management supporting map in section 5.2.

## 3.4 Wetlands

There are no vegetation management wetlands present on this property.

## 3.5 Essential habitat

Protected wildlife is native wildlife prescribed under the *Nature Conservation Act 1992* (NCA), and includes endangered, vulnerable or near-threatened wildlife.

Essential habitat for protected wildlife includes suitable habitat on the lot, or where a species has been known to occur up to 1.1 kilometres from a lot on which there is assessable vegetation. These important habitat areas are protected under the VMA.

Any essential habitat on this property will be shown as blue hatching on the vegetation supporting map in section 5.2.

If essential habitat is identified on the lot, information about the protected wildlife species is provided in Table 6 below. The numeric labels on the vegetation management supporting map can be cross referenced with Table 6 to outline the essential habitat factors for that particular species. There may be essential habitat for more than one species on each lot, and areas of Category A, Category B and Category C can be mapped as Essential Habitat.

Essential habitat is compiled from a combination of species habitat models and buffered species records. Regional ecosystem is a mandatory essential habitat factor, unless otherwise stated. Essential habitat, for protected wildlife, means an area of vegetation shown on the Regulated Vegetation Management Map as assessable vegetation -

1) that has at least 3 essential habitat factors for the protected wildlife that must include any essential habitat factors that are stated as mandatory for the protected wildlife in the essential habitat database. Essential habitat factors are comprised of - regional ecosystem (mandatory for most species), vegetation community, altitude, soils, position in landscape; or

2) in which the protected wildlife, at any stage of its life cycle, is located.

If there is no essential habitat mapping shown on the vegetation management supporting map for this lot, and there is no table in the sections below, it confirms that there is no essential habitat on the lot.

**Category A and/or Category B and/or Category C**

**Table 6: Essential habitat in Category A and/or Category B and/or Category C**

No records

## 3.6 Protected plants (administered by the Department of Environment and Science (DES))

In Queensland, all plants that are native to Australia are protected plants under the *Nature Conservation Act 1992* (NCA), with clearing of protected plants in the wild regulated by the Nature Conservation (Wildlife Management) Regulation 2006. These requirements apply irrespective of the classification of the vegetation under the *Vegetation Management Act 1999*.

Prior to clearing, if the plants proposed to be cleared are in the wild (see Operational policy: When a protected plant in Queensland is considered to be 'in the wild') and the exemptions under the Nature Conservation (Wildlife Management) Regulation 2006 are not applicable to the proposed clearing, you must check the flora survey trigger map to determine if any part of the area to be cleared is within a high risk area. The trigger map for this property is provided in section 5.5. The exemptions relate to:

- imminent risk of death or serious injury (refer s261A)
- imminent risk of serious damage to a building or other structure on land, or to personal property (refer s261B)
- *Fire and Emergency Service Act 1990* (refer 261C)
- previously cleared areas (refer s261ZB)
- maintenance activities (refer s261ZC)
- firebreak or fire management line (refer s261ZD)
- accepted development vegetation clearing code (refer s261ZE)
- conservation purposes (refer s261ZG)
- authorised in particular circumstances (refer s385).

Some exemptions under the NCA are the same as exempt clearing work (formerly known as exemptions) from the *Vegetation Management Act 1999* (i.e. listed in the Planning Regulations 2017) while some are different.

If the proposed area to be cleared is shown as blue (i.e. high risk) on the flora survey trigger map, a flora survey of the clearing impact area must be undertaken in accordance with the flora survey guidelines. The main objective of a flora survey is to locate any endangered, vulnerable or near threatened plants (EVNT plants) that may be present in the clearing impact area.

If a flora survey identifies that EVNT plants are not present within the clearing impact area or clearing within 100m of EVNT plants can be avoided, the clearing activity is exempt from a permit. An exempt clearing notification form must be submitted to the Department of Environment and Science, with a copy of the flora survey report, at least one week prior to clearing. The clearing must be conducted within two years after the flora survey report was submitted.

If a flora survey identifies that EVNT plants are present in, or within 100m of, the area to be cleared, a clearing permit is required before any clearing is undertaken. The flora survey report, as well as an impact management report, must be submitted with the application form clearing permit.

In an area other than a high risk area, a clearing permit is only required where a person is, or becomes aware that EVNT plants are present in, or within 100m of, the area to be cleared. You must keep a copy of the flora survey trigger map for the area subject to clearing for five years from the day the clearing starts. If you do not clear within the 12 month period that the flora survey trigger map was printed, you need to print and check a new flora survey trigger map.

Further information on protected plants is available at
http://www.ehp.qld.gov.au/licences-permits/plants-animals/protected-plants/

For assistance on the protected plants flora survey trigger map for this property, please contact the Department of Environment and Science at palm@des.qld.gov.au.

## 3.7 Emissions Reduction Fund (ERF)

The ERF is an Australian Government scheme which offers incentives for businesses and communities across the economy to reduce emissions.

Under the ERF, landholders can earn money from activities such as planting (and keeping) trees, managing regrowth vegetation and adopting more sustainable agricultural practices.

The purpose of a project is to remove greenhouse gases from the atmosphere. Each project will provide new economic opportunities for farmers, forest growers and land managers.

Further information on ERF is available at https://www.qld.gov.au/environment/land/state/use/carbon-rights/.

# 4. Contact information for DNRME

For further information on vegetation management:
**Phone** 135VEG (135 834)
**Email** vegetation@dnrme.qld.gov.au
**Visit** www.dnrme.qld.gov.au/our-department/contact-us/vegetation-contacts to submit an online enquiry.

For contact details for other State and Commonwealth agencies, please see Section 6.

# 5. Maps

The maps included in this report may also be requested individually at:

https://www.dnrme.qld.gov.au/qld/environment/land/vegetation/vegetation-map-request-form
and
http://www.ehp.qld.gov.au/licences-permits/plants-animals/protected-plants/map-request.php

**Regulated vegetation management map**

The regulated vegetation management map shows vegetation categories needed to determine clearing requirements. These maps are updated monthly to show new property maps of assessable vegetation (PMAV).

**Vegetation management supporting map**

The vegetation management supporting map provides information on regional ecosystems, wetlands, watercourses and essential habitat.

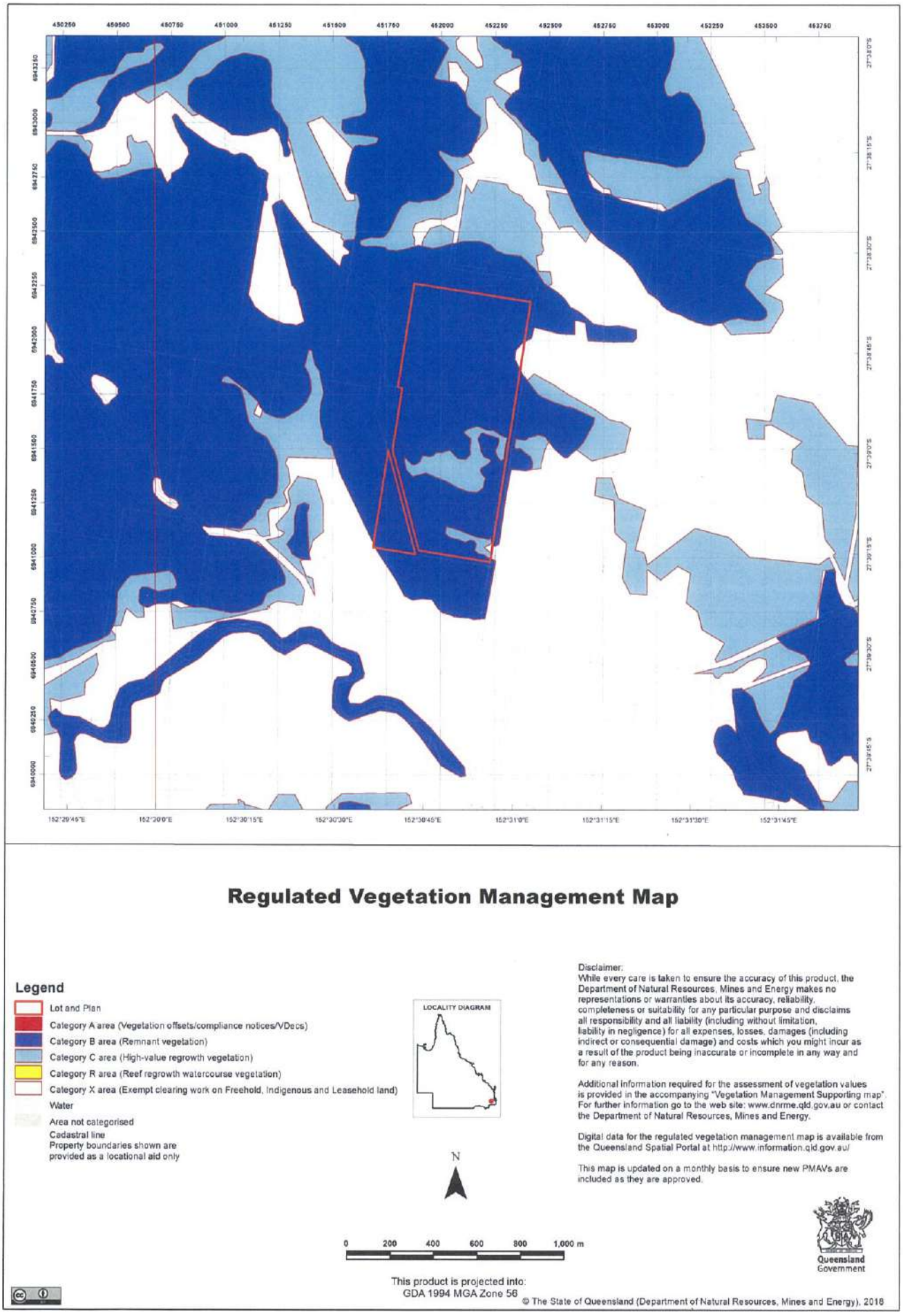
**Coastal/non coastal map**

The coastal/non-coastal map confirms whether the lot, or which parts of the lot, are considered coastal or non-coastal for the purposes of the accepted development vegetation clearing codes and the State Development Assessment Provisions (SDAP).

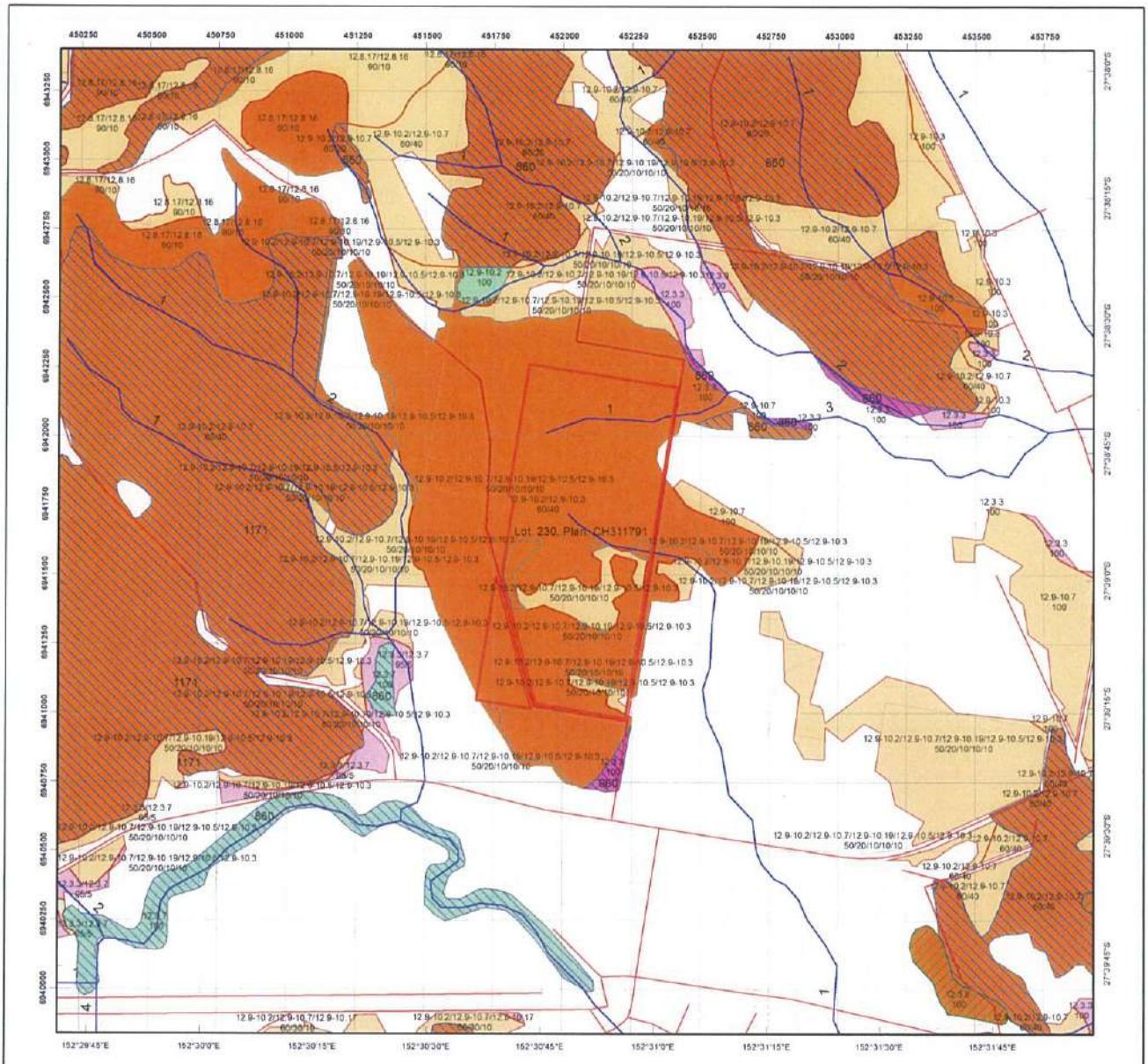
**Protected plants map**

The protected plants map shows areas where particular provisions of the *Nature Conservation Act 1992* apply to the clearing of protected plants.

# 5.1 Regulated vegetation management map



## 5.2 Vegetation management supporting map




# Vegetation Management Supporting Map

**Legend**

- Lot and Plan
- 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 A or B area under Section 20AH
  These areas are edged in yellow and filled with the remnant RE Status
- 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
- Category C area under Section 20AI
  These areas are edged in purple and filled with the remnant RE Status
- Non Remnant
- Water
- Wetland on the vegetation management wetlands map
- Essential habitat on the essential habitat map
- Essential habitat species record
- Watercourses and drainage features on the vegetation management watercourse and drainage features map
  (Stream order shown as black number against stream where available)
- Roads
- National Parks, State Forest and other reserves
- Cadastral line
  Property boundaries shown are provided as a locational aid only

Queensland Government

LOCALITY DIAGRAM

N

0 140 280 420 560 700 m

This product is projected into: GDA 1994 MGA Zone 56

Labels for Essential Habitat are centred on the area of enquiry.

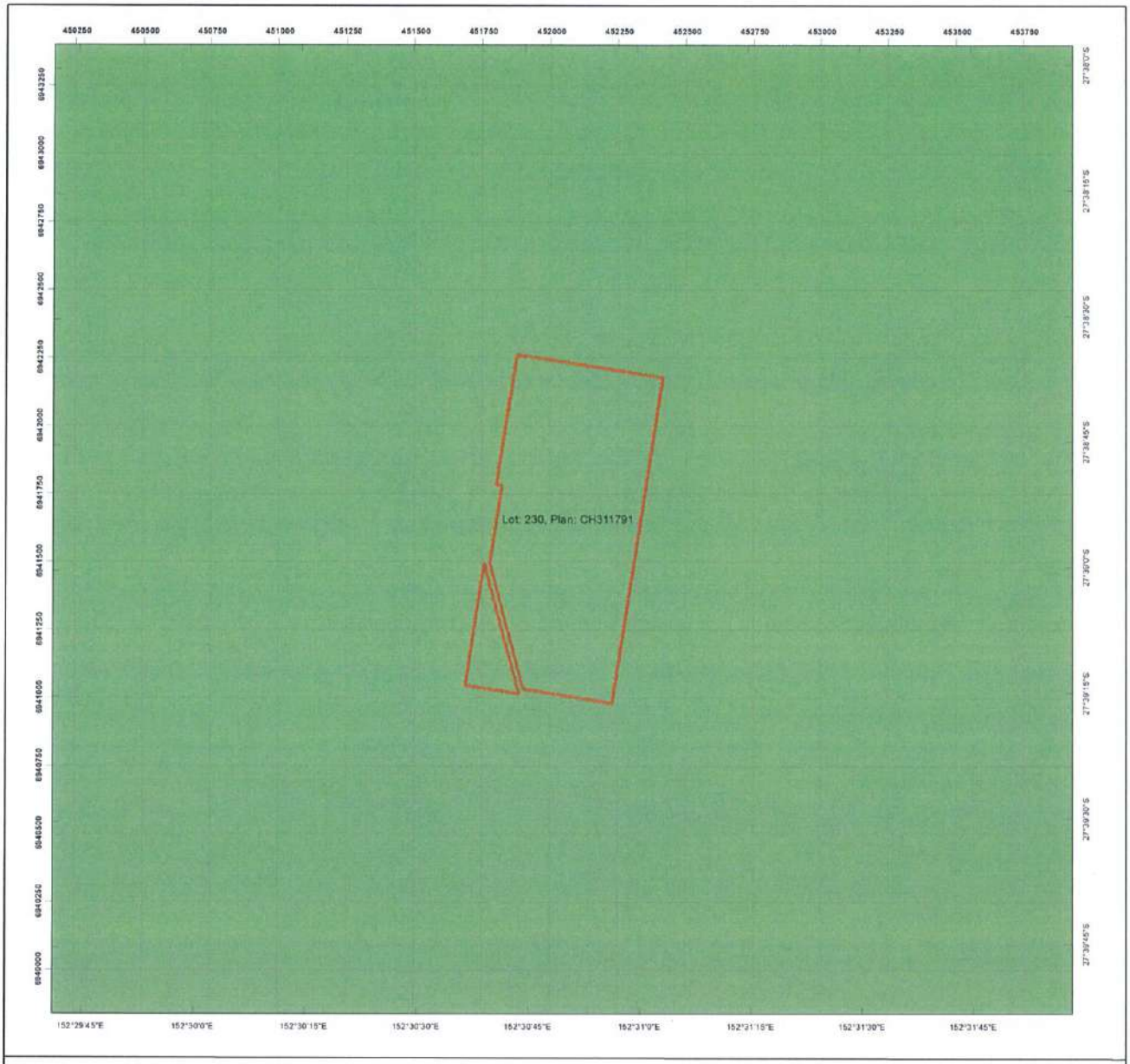
Regional ecosystem linework has been compiled at a scale of 1:100 000, except in designated areas where a compilation scale of 1:50 000 is available. Linework should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100 000 is +/- 100 metres.

Disclaimer:
While every care is taken to ensure the accuracy of this product, the Department of Natural Resources, Mines and Energy makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the product being inaccurate or incomplete in any way and for any reason.

Additional information may be required for the purposes of land clearing or assessment of a regional ecosystem map or PMAV applications. For further information go to the web site: www.dnrme.qld.gov.au or contact the Department of Natural Resources, Mines and Energy.

Digital data for the vegetation management watercourse and drainage feature map, vegetation management wetlands map, essential habitat map and the vegetation management remnant and regional ecosystem map are available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

## 5.3 Coastal/non coastal map




## Coastal/Non Coastal Map

**Legend**

- Lot and Plan
- Coastal
- Non Coastal

Cadastral line
Property boundaries shown are provided as a locational aid only

LOCALITY DIAGRAM

N

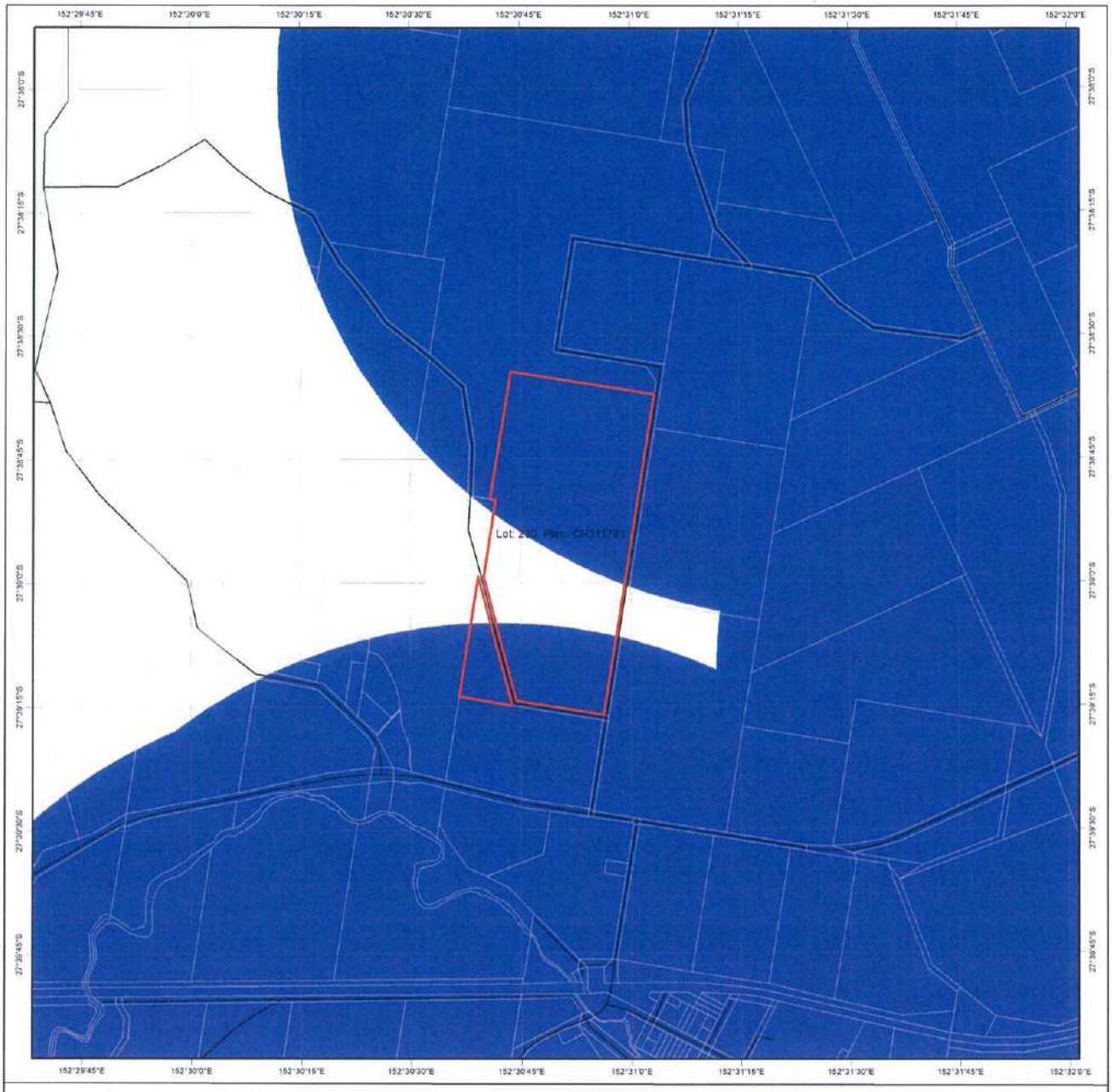
0 200 400 600 800 1,000 m

This product is projected into:
GDA 1994 MGA Zone 56

Disclaimer:
While every care is taken to ensure the accuracy of this product, the Department of Natural Resources, Mines and Energy makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the product being inaccurate or incomplete in any way and for any reason.

Queensland Government

## 5.4 Protected plants map administered by DES




### Protected Plants Flora Survey Trigger Map

**Legend**

- Lot and Plan
- High risk area
- Cadastral line
  Property boundaries shown are provided as a locational aid only
- Freeways / motorways / highways
- Secondary roads / streets


This map shows areas where particular provisions of the Nature Conservation Act 1992 apply to the clearing of protected plants.

This map is produced at a scale relevant to the size of the area selected and should be printed as A4 size in portrait orientation.

For further information or assistance with interpretation of this product, please contact the Department of Environment and Science at palm@ehp.qld.gov.au

N

0 140 280 420 560 700 m

This product is projected into:
GDA 1994 MGA Zone 56

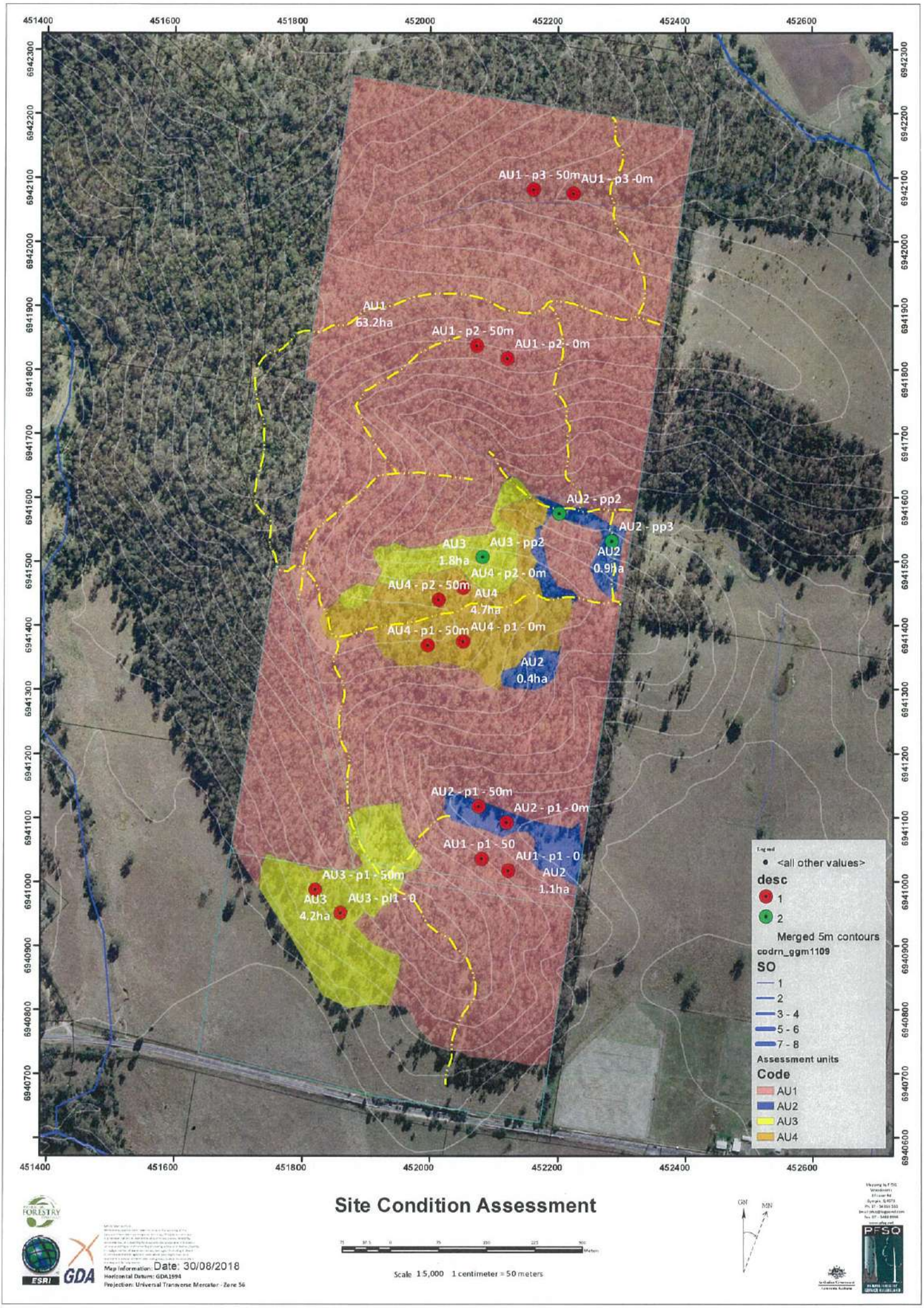
Disclaimer:
While every care is taken to ensure the accuracy of the data used to generate this product, the Queensland Government makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaim all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damages) and costs which might be incurred as a consequence of reliance on the data, or as a result of the data being inaccurate or incomplete in any way and for any reason.

# 6. Other relevant legislation contacts list

| Activity | Legislation | Agency | Contact details |
|---|---|---|---|
| Interference with overland flow<br>Earthworks, significant disturbance | *Water Act 2000*<br>*Soil Conservation Act 1986* | Department of Natural Resources, Mines and Energy<br>(Queensland Government) | Ph: 13 QGOV (13 74 68)<br>www.dnrme.qld.gov.au |
| Indigenous Cultural Heritage | *Aboriginal Cultural Heritage Act 2003*<br>*Torres Strait Islander Cultural Heritage Act 2003* | Department of Aboriginal and Torres Strait Islander Partnerships<br>(Queensland Government) | Ph: 13 QGOV (13 74 68)<br>www.datsip.qld.gov.au |
| Mining and environmentally relevant activities<br>Infrastructure development (coastal)<br>Heritage issues<br>Protected plants and protected areas[1] | *Environmental Protection Act 1994*<br>*Coastal Protection and Management Act 1995*<br>*Queensland Heritage Act 1992*<br>*Nature Conservation Act 1992* | Department of Environment and Science<br>(Queensland Government) | Ph: 13 QGOV (13 74 68)<br>www.des.qld.gov.au |
| Interference with fish passage in a watercourse, mangroves<br>Forestry activities[2] | *Fisheries Act 1994*<br>*Forestry Act 1959* | Department of Agriculture and Fisheries<br>(Queensland Government) | Ph: 13 QGOV (13 74 68)<br>www.daf.qld.gov.au |
| Matters of National Environmental Significance including listed threatened species and ecological communities | *Environment Protection and Biodiversity Conservation Act 1999* | Department of the Environment<br>(Australian Government) | Ph: 1800 803 772<br>www.environment.gov.au |
| Development and planning processes | *Planning Act 2016*<br>*State Development and Public Works Organisation Act 1971* | Department of State Development, Manufacturing, Infrastructure and Planning<br>(Queensland Government) | Ph: 13 QGOV (13 74 68)<br>www.dsdmip.qld.gov.au |
| Local government requirements | *Local Government Act 2009* | Department of Local Government, Racing and Multicultural Affairs<br>(Queensland Government) | Ph: 13 QGOV (13 74 68)<br>Your relevant local government office |

1. In Queensland, all plants that are native to Australia are protected plants under the *Nature Conservation Act 1992*, which endeavours to ensure that protected plants (whether whole plants or protected plants parts) are not illegally removed from the wild, or illegally traded. Prior to clearing, you should check the flora survey trigger map to determine if the clearing is within a high-risk area by visiting www.des.qld.gov.au. For further information or assistance on the protected plants flora survey trigger map for your property, please contact the Department of Environment and Science on 13QGOV (13 74 68) or email palm@des.qld.gov.au.

2. Contact the Department of Agriculture and Fisheries before clearing:
   - Any sandalwood on state-owned land (including leasehold land)
   - On freehold land in a 'forest consent area'
   - More than five hectares on state-owned land (including leasehold land) containing commercial timber species listed in parts 2 or 3 of Schedule 6 of the Vegetation Management Regulation 2012 and located within any of the following local government management areas-Banana, Bundaberg Regional, Fraser Coast Regional, Gladstone Regional, Isaac Regional, North Burnett Regional, Somerset Regional, South Burnett Regional, Southern Downs Regional, Tablelands Regional, Toowoomba Regional, Western Downs Regional.




# Site Condition Assessment

Map Information: Date: 30/08/2018
Horizontal Datum: GDA1994
Projection: Universal Transverse Mercator - Zone 56

Scale 1:5,000 1 centimeter = 50 meters

GN MN

**Plot score sheet**

| | |
|---|---|
| **Assessment Unit** | AU1 |
| **Plot number** | AU1 - 01 |
| **Plot location (0 m) Latitude** | 27°39'14.8"S |
| **Plot location (0 m) Longitude** | 152°30'52.5"E |
| **Regional Ecosystem** | 12.9-10.2 |
| **Vegetation Management Act Status** | Remnant |
| **Survey date** | 10/08/2018 |
| **Transect bearing** | 290° |
| **Canopy species** | Corymbia citriodora subsp. variegata<br>Eucalyptus tesselaris<br>E. crebra<br>E. melenaphloia |

| Site condition attributes | Survey results | Benchmark | Percentage of benchmark | Sub-scores | Attribute scores | Highest possible score | Variation |
|---|---|---|---|---|---|---|---|
| Recruitment of woody perennial species | 100% | 100% | 100% | | 5 | 5 | 0 |
| Trees - species richness | 4 | 6 | 67% | | 3 | 5 | -2 |
| Shrubs - species richness | 6 | 7 | 86% | | 3 | 5 | -2 |
| Grasses - species richness | 9 | 7 | 129% | | 5 | 5 | 0 |
| Forbs - species richness | 6 | 13 | 46% | | 3 | 5 | -2 |
| Canopy height (m) | 24 | 21 | 114% | 5 | | | |
| Sub-canopy height (m) | 9.2 | 12 | 77% | 5 | | | |
| Tree canopy height average score | | | | | 5 | 5 | 0 |
| Tree canopy cover | 76.30% | 64% | 119% | 5 | | | |
| Sub-canopy cover | 21.30% | 20% | 107% | 5 | | | |
| Canopy cover average score | | | | | 5 | 5 | 0 |
| Shrub canopy cover | 21.30% | 6% | 355% | | 3 | 5 | -2 |
| Native perennial grass cover | 11% | 21% | 52% | | 3 | 5 | -2 |
| Organic litter | 73% | 48% | 152% | | 5 | 5 | 0 |
| Large trees (per ha) | 20 | 38 | 53% | | 10 | 15 | -5 |
| Coarse woody debris (total length m) | 305 | 506 | 60% | | 5 | 5 | 0 |
| Non-native plant cover | 2.40% | 0% | 2% | | 10 | 10 | 0 |
| | | | Total site condition score | | 65 | 80 | -15 |

| | |
|---|---|
| **Plot score sheet** | |
| **Assessment Unit** | AU1 |
| **Plot number** | AU1 - 02 |
| **Plot location (0m) latitude** | 27°38'48.8"S |
| **Plot location (0m) longitude** | 152°30'52.6"E |
| **Regional Ecosystem** | 12.9-10.2 |
| **Vegetation Management Act Status** | Remnant |
| **Survey date** | 2/08/2018 |
| **Transect bearing** | 277° |
| **Canopy species** | Corymbia citriodora subsp. variegata<br>Angophera leiocarpa<br>E. crebra<br>Corymbia intermedia |

| Site condition attributes | Survey results | Benchmark | Percentage of benchmark | Sub-scores | Attribute scores | Highest possible score | Variation |
|---|---|---|---|---|---|---|---|
| Recruitment of woody perennial species | 50% | 100% | 50% | | 3 | 5 | -2 |
| Trees - species richness | 4 | 6 | 67% | | 3 | 5 | -2 |
| Shrubs - species richness | 6 | 7 | 86% | | 3 | 5 | -2 |
| Grasses - species richness | 5 | 7 | 71% | | 3 | 5 | -2 |
| Forbs - species richness | 5 | 13 | 38% | | 3 | 5 | -2 |
| Canopy height (m) | 24.6 | 21 | 117% | 5 | | | |
| Sub-canopy height (m) | 17 | 12 | 142% | 5 | | | |
| Tree canopy height average score | | | | | 5 | 5 | 0 |
| Tree canopy cover | 31.50% | 64% | 49% | 2 | | | |
| Sub-canopy cover | 36.50% | 20% | 183% | 5 | | | |
| Canopy cover average score | | | | | 3.5 | 5 | -1.5 |
| Shrub canopy cover | 20.50% | 6% | 342% | | 3 | 5 | -2 |
| Native perennial grass cover | 1% | 21% | 3% | | 0 | 5 | -5 |
| Organic litter | 95% | 48% | 198% | | 5 | 5 | 0 |
| Large trees | 18 | 38 | 47% | | 5 | 15 | -10 |
| Coarse woody debris (total length m) | 462 | 506 | 91% | | 5 | 5 | 0 |
| Non-native plant cover | 0.20% | 0% | 0% | | 10 | 10 | 0 |
| | | | Total site condition score | | 51.5 | 80 | -28.5 |

| | |
|---|---|
| **Plot score sheet** | |
| **Assessment Unit** | AU1 |
| **Plot number** | AU1 - 03 |
| **Plot location (0m) latitude** | 27°38'40.5"S |
| **Plot location (0m) longitude** | 152°30'56.4"E |
| **Regional Ecosystem** | 12.9-10.2 |
| **Vegetation Management Act Status** | Remnant |
| **Survey date** | 10/08/2018 |
| **Transect bearing** | 272° |
| **Canopy species** | *Corymbia citriodora subsp. variegata*<br>*Angophera leiocarpa*<br>*Lophostemon suaveolens*<br>*C. intermedia*<br>*Eucalyptus tereticornis*<br>*E.crebra* |

| Site condition attributes | Survey results | Benchmark | Percentage of benchmark | Sub-scores | Attribute scores | Highest possible score | Variation |
|---|---|---|---|---|---|---|---|
| Recruitment of woody perennial species | 80% | 100% | 80% | | 5 | 5 | 0 |
| Trees - species richness | 6 | 6 | 100% | | 5 | 5 | 0 |
| Shrubs - species richness | 5 | 7 | 71% | | 3 | 5 | -2 |
| Grasses - species richness | 5 | 7 | 71% | | 3 | 5 | -2 |
| Forbs - species richness | 7 | 13 | 54% | | 3 | 5 | -2 |
| Canopy height (m) | 27.2 | 21 | 130% | 5 | | | |
| Sub-canopy height (m) | 18.2 | 12 | 152% | 5 | | | |
| Tree canopy height average score | | | | | 5 | 5 | 0 |
| Tree canopy cover | 60.30% | 64% | 94% | 5 | | | |
| Sub-canopy cover | 66.00% | 20% | 330% | 3 | | | |
| Canopy cover average score | | | | | 4 | 5 | -1 |
| Shrub canopy cover | 20.50% | 6% | 342% | | 3 | 5 | -2 |
| Native perennial grass cover | 10% | 21% | 45% | | 1 | 5 | -4 |
| Organic litter | 46% | 48% | 96% | | 5 | 5 | 0 |
| Large trees | 20 | 38 | 53% | | 10 | 15 | -5 |
| Coarse woody debris (total length m) | 337 | 506 | 67% | | 5 | 5 | 0 |
| Non-native plant cover | 46.70% | 0% | 47% | | 3 | 10 | -7 |
| | | | **Total site condition score** | | **55** | **80** | -25 |

| | |
|---|---|
| **Plot score sheet** | |
| **Assessment Unit** | AU2 |
| **Plot number** | AU2 - 01 |
| **Plot location (0 m) longitude** | 27°39'14.8"S |
| **Plot location (0 m) latitude** | 152°30'52.5"E |
| **Regional Ecosystem** | 12.9-10.2 |
| **Vegetation Management Act Status** | Regrowth |
| **Survey date** | 1/08/2018 |
| **Transect bearing** | 282° |
| **Canopy species** | *Corymbia citriodora subsp. variegata*<br>*Eucalyptus tesselaris*<br>*E. crebra*<br>*Lophostemon suaveolens* |

| Site condition attributes | Survey results | Benchmark | Percentage of benchmark | Sub-scores | Attribute scores | Highest possible score | Variation |
|---|---|---|---|---|---|---|---|
| Recruitment of woody perennial species | 100% | 100% | 100% | | 5 | 5 | 0 |
| Trees - species richness | 4 | 6 | 67% | | 3 | 5 | -2 |
| Shrubs - species richness | 2 | 7 | 29% | | 3 | 5 | -2 |
| Grasses - species richness | 6 | 7 | 86% | | 3 | 5 | -2 |
| Forbs - species richness | 12 | 13 | 92% | | 5 | 5 | 0 |
| Canopy height (m) | 22.4 | 21 | 107% | 5 | | | |
| Sub-canopy height (m) | 14.2 | 12 | 118% | 5 | | | |
| Tree canopy height average score | | | | | 5 | 5 | 0 |
| Tree canopy cover | 6.00% | 64% | 9% | 0 | | | |
| Sub-canopy cover | 3.00% | 20% | 15% | 2 | | | |
| Canopy cover average score | | | | | 1 | 5 | -4 |
| Shrub canopy cover | 5.00% | 6% | 83% | | 3 | 5 | -2 |
| Native perennial grass cover | 49% | 21% | 233% | | 5 | 5 | 0 |
| Organic litter | 23% | 48% | 48% | | 3 | 5 | -2 |
| Large trees (per ha) | 2 | 38 | 5% | | 5 | 15 | -10 |
| Coarse woody debris (total length m) | 45 | 506 | 9% | | 0 | 5 | -5 |
| Non-native plant cover | 4.00% | 0% | 4% | | 10 | 10 | 0 |
| | | | Total site condition score | | 51 | 80 | -29 |

**Plot score sheet**

| | |
|---|---|
| **Assessment Unit** | AU3 |
| **Plot number** | AU3 - 01 |
| **Plot location (0 m) latitude** | 27°39'17.0"S |
| **Plot location (0 m) longitude** | 152°30'43.0"E |
| **Regional Ecosystem** | 12.9-10.7 |
| **Vegetation Management Act Status** | Remnant |
| **Survey date** | 31/07/2018 |
| **Transect bearing** | 305° |
| **Canopy Species** | *Eucalyptus tesselaris*<br>*E. crebra*<br>*Corymbia intermedia*<br>*E.moluccana*<br>*E.tereticornis* |

| Site condition attributes | Survey results | Benchmark | Percentage of benchmark | Sub-scores | Attribute scores | Highest possible score | Variation |
|---|---|---|---|---|---|---|---|
| Recruitment of woody perennial species | 83% | 100% | 83% | | 5 | 5 | 0 |
| Trees - species richness | 6 | 3 | 200% | | 5 | 5 | 0 |
| Shrubs - species richness | 3 | 5 | 60% | | 3 | 5 | -2 |
| Grasses - species richness | 7 | 8 | 88% | | 3 | 5 | -2 |
| Forbs - species richness | 10 | 26 | 38% | | 3 | 5 | -2 |
| Canopy height (m) | 23.1 | 21 | 110% | 5 | | | |
| Sub-canopy height (m) | 14.8 | 10 | 148% | 5 | | | |
| Tree canopy height average score | | | | | 5 | 5 | 0 |
| Tree canopy cover | 64.00% | 40% | 160% | 5 | | | |
| Sub-canopy cover | 5.00% | 8% | 63% | 5 | | | |
| Canopy cover average score | | | | | 5 | 5 | 0 |
| Shrub canopy cover | 14.60% | 3% | 487% | | 3 | 5 | -2 |
| Native perennial grass cover | 46% | 61% | 75% | | 3 | 5 | -2 |
| Organic litter | 37% | 20% | 185% | | 5 | 5 | 0 |
| Large trees (per ha) | 22 | 18 | 122% | | 15 | 15 | 0 |
| Coarse woody debris (total length m) | 494 | 272 | 182% | | 5 | 5 | 0 |
| Non-native plant cover | 8.00% | 0% | 8% | | 5 | 10 | -5 |
| | | | Total site condition score | | 65 | 80 | -15 |

**Plot score sheet**

| | |
|---|---|
| **Assessment Unit** | AU4 |
| **Plot number** | AU4 - 01 |
| **Plot location (0m) latitude** | 27°39'03.2"S |
| **Plot location (0m) longitude** | 152°30'50.0"E |
| **Regional Ecosystem** | 12.9-10.7 |
| **Vegetation Management Act Status** | Regrowth |
| **Survey date** | 1/08/2018 |
| **Transect bearing** | 253° |
| **Canopy species** | *Corymbia citriodora subsp. variegata*<br>*Eucalyptus tesselaris*<br>*E. crebra*<br>*E.tereticornis* |

| Site condition attributes | Survey results | Benchmark | Percentage of benchmark | Sub-scores | Attribute scores | Highest possible score | Variation |
|---|---|---|---|---|---|---|---|
| Recruitment of woody perennial species | 100% | 100% | 100% | | 5 | 5 | 0 |
| Trees - species richness | 4 | 3 | 133% | | 5 | 5 | 0 |
| Shrubs - species richness | 6 | 5 | 120% | | 5 | 5 | 0 |
| Grasses - species richness | 4 | 8 | 50% | | 3 | 5 | -2 |
| Forbs - species richness | 2 | 26 | 8% | | 2.5 | 5 | -2.5 |
| Canopy height (m) | 24 | 21 | 114% | 5 | | | |
| Sub-canopy height (m) | 13.6 | 10 | 136% | 5 | | | |
| Tree canopy height average score | | | | | 5 | 5 | 0 |
| Tree canopy cover | 52.50% | 40% | 131% | 5 | | | |
| Sub-canopy cover | 27.90% | 8% | 349% | 3 | | | |
| Canopy cover average score | | | | | 4 | 5 | -1 |
| Shrub canopy cover | 22.70% | 3% | 757% | | 3 | 5 | -2 |
| Native perennial grass cover | 11% | 61% | 18% | | 1 | 5 | -4 |
| Organic litter | 79% | 20% | 395% | | 3 | 5 | -2 |
| Large trees (per ha) | 24 | 18 | 133% | | 15 | 15 | 0 |
| Coarse woody debris (total length m) | 225 | 272 | 83% | | 5 | 5 | 0 |
| Non-native plant cover | 2.90% | 0% | 3% | | 10 | 10 | 0 |
| | | | Total site condition score | | 66.5 | 80 | -13.5 |

**Plot score sheet**

| | |
|---|---|
| **Assessment Unit** | AU4 |
| **Plot number** | AU4 - 02 |
| **Plot location (0m) latitude** | 27°39'00.5"S |
| **Plot location (0m) longitude** | 152°30'50.0"E |
| **Regional Ecosystem** | 12.9-10.7 |
| **Vegetation Management Act Status** | Regrowth |
| **Survey date** | 1/08/2018 |
| **Transect bearing** | 241° |
| **Canopy species** | *Eucalyptus tesselaris*<br>*E. crebra*<br>*E.tereticornis*<br>*E.melanaphloia*<br>*Corymbia citriodora subsp. variegata* |

| Site condition attributes | Survey results | Benchmark | Percentage of benchmark | Sub-scores | Attribute scores | Highest possible score | Variation |
|---|---|---|---|---|---|---|---|
| Recruitment of woody perennial species | 67% | 100% | 67% | | 3 | 5 | -2 |
| Trees - species richness | 5 | 3 | 167% | | 5 | 5 | 0 |
| Shrubs - species richness | 3 | 5 | 60% | | 3 | 5 | -2 |
| Grasses - species richness | 6 | 8 | 75% | | 3 | 5 | -2 |
| Forbs - species richness | 8 | 26 | 31% | | 3 | 5 | -2 |
| Canopy height (m) | 18.3 | 21 | 87% | 5 | | | |
| Sub-canopy height (m) | 10.8 | 10 | 108% | 5 | | | |
| Tree canopy height average score | | | | | 5 | 5 | 0 |
| Tree canopy cover | 37.00% | 40% | 93% | 5 | | | |
| Sub-canopy cover | 83.50% | 8% | 1044% | 3 | | | |
| Canopy cover average score | | | | | 4 | 5 | -1 |
| Shrub canopy cover | 5.30% | 3% | 177% | | 5 | 5 | 0 |
| Native perennial grass cover | 6% | 61% | 10% | | 0 | 5 | -5 |
| Organic litter | 65% | 20% | 325% | | 3 | 5 | -2 |
| Large trees (per ha) | 4 | 18 | 22% | | 5 | 15 | -10 |
| Coarse woody debris (total length m) | 307 | 272 | 113% | | 5 | 5 | 0 |
| Non-native plant cover | 25.60% | 0% | 26% | | 3 | 10 | -7 |
| | | | Total site condition score | | 47 | 80 | -33 |

| **AU1 – Plot 1.** | |
|---|---|
| Plot location (0 m): | 27°39'14.8"S, 152°30'52.5"E |
| Transect Bearing: | 290° |
| Survey date: | 31/07/2018 |
| Site condition score: | 65/80 |

**50 m photo point:**

110°

290°

20°

200°

**Organic litter sub-plot photos:**

Sub-plot 1

Sub-plot 2

| | |
|---|---|
|  |  |
| Sub-plot 3 | Sub-plot 4 |
|  | |
| Sub-plot 5 | |

| AU1 – Plot 2. | |
|---|---|
| Plot location (0 m): | 27°38'48.8"S, 152°30'52.6"E |
| Transect Bearing: | 277° |
| Survey date: | 02/08/2018 |
| Site condition score: | 51.5/80 |

**50 m photo point:**

97°

277°

07°

187°

**Organic litter sub-plot photos:**

Sub-plot 1

Sub-plot 2

| | |
|---|---|
|  |  |
| Sub-plot 3 | Sub-plot 4 |
|  | |
| Sub-plot 5 | |

| **AU1 – Plot 3.** | |
|---|---|
| Plot location (0 m): | 27°38'40.5"S, 152°30'56.4"E |
| Transect Bearing: | 272° |
| Survey date: | 10/08/2018 |
| Site condition score: | 55/80 |

**50 m photo point:**

92°

272°

02°

182°

**Organic litter sub-plot photos:**

Sub-plot 1

Sub-plot 2

| | |
|---|---|
|  |  |
| Sub-plot 3 | Sub-plot 4 |
|  | |
| Sub-plot 5 | |

| AU2 – Plot 1. | |
|---|---|
| Plot location (0 m): | 27°39'14.8"S, 152°30'52.5" |
| Transect Bearing: | 282° |
| Survey date: | 01/08/2018 |
| Site condition score: | 51/80 |

**50 m photo point:**

102°

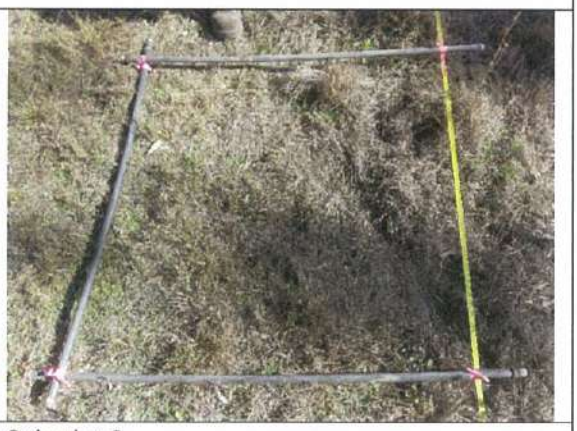
282°

12°

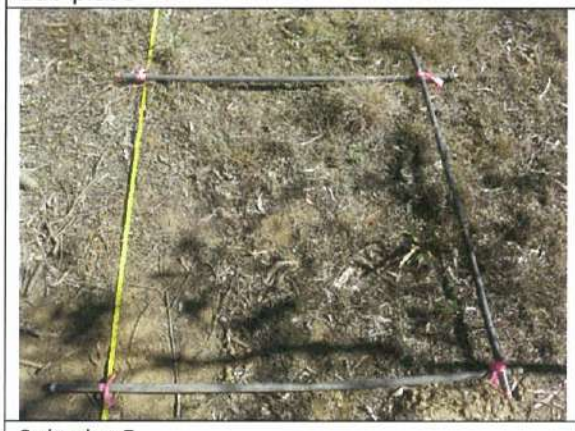
192°

**Organic litter sub-plot photos:**

Sub-plot 1



Sub-plot 2

| | |
|---|---|
|  |  |
| Sub-plot 3 | Sub-plot 4 |
|  | |
| Sub-plot 5 | |

| **AU2 – Photo Point 2** | |
|---|---|
| Photo Point location: | 27°38'58.1"S, 152°30'58.5" |
| Date: | 08/08/2018 |

360°

180°

90°

270°

| **AU2 – Photo Point 3** | |
|---|---|
| Photo Point location: | 27°38'56.7"S, 152°30'55.5" |
| Date: | 08/08/2018 |

360°

180°

90°

270°

| **AU3 – Plot 1.** | |
|---|---|
| Plot location (0 m): | 27°39'17.0"S, 152°30'43.0" |
| Transect Bearing: | 305° |
| Survey date: | 31/07/2018 |
| Site condition score: | 65/80 |

**50 m photo point:**

125°

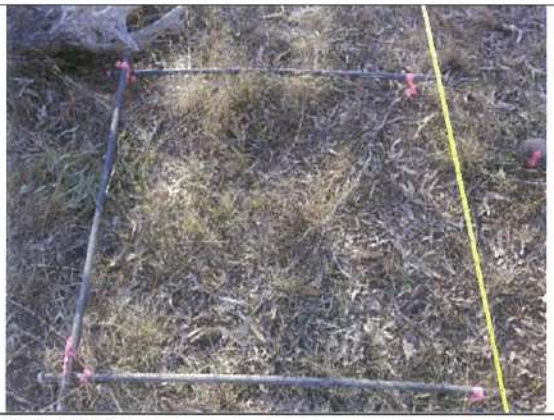
305°

25°

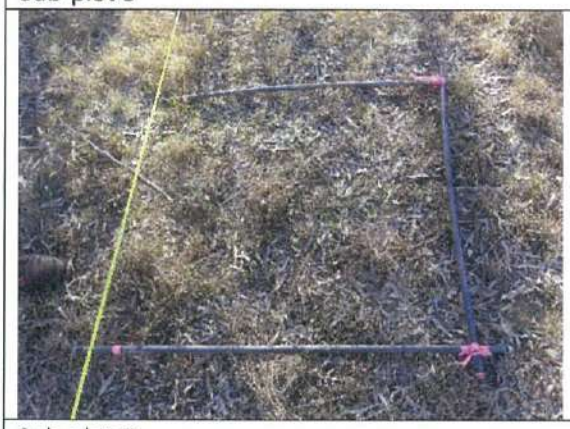
215°

**Organic litter sub-plot photos:**

Sub-plot 1



Sub-plot 2

| | |
|---|---|
|  |  |
| Sub-plot 3 | Sub-plot 4 |
|  | |
| Sub-plot 5 | |

| **AU3 – Photo Point 2** | |
|---|---|
| RE: | 12.9-10.7 |
| Photo Point location: | 27°38'58.8"S, 152°30'51.1" |
| Date: | 05/09/2018 |

354°

84°

174°

264°

| **AU4 – Plot 1.** | |
|---|---|
| Plot location (0 m): | 27°39'03.2"S, 152°30'50.0"E |
| Transect Bearing: | 253° |
| Survey date: | 01/08/2018 |
| Site condition score: | 66.5/80 |

**50 m photo point:**

173°

253°

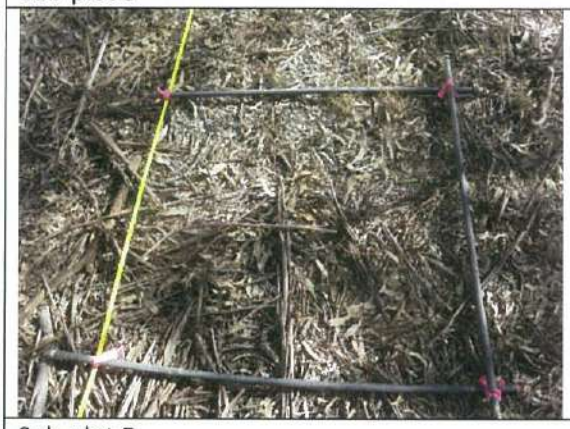
343°

163°

**Organic litter sub-plot photos:**

Sub-plot 1

Sub-plot 2

| | |
|---|---|
|  |  |
| Sub-plot 3 | Sub-plot 4 |
|  | |
| Sub-plot 5 | |

| **AU4 – Plot 2.** | |
|---|---|
| Plot location (0 m): | 27°39'00.5"S, 152°30'50.0"E |
| Transect Bearing: | 241° |
| Survey date: | 01/08/2018 and 02/08/2018 |
| Site condition score: | 47/80 |

**50 m photo point:**

72°

241°

331°

151°

**Organic litter sub-plot photos:**

Sub-plot 1

Sub-plot 2

| | |
|---|---|
|  |  |
| Sub-plot 3 | Sub-plot 4 |
|  | |
| Sub-plot 5 | |

# Appendix B

## Site Condition Assessment, Calvert 1 – Vegetation Offset April 2023

Document type:

# Site Condition Assessment

Project name:

# Calvert 1 – Vegetated Offset

Date:

April 2023

Client:

Cherish the Environment Foundation

Forest Land Management Pty Ltd

contactus@forestlandmanagement.com.au www.forestlandmanagement.com.au

672 Beenham Valley Road, Beenaam Valley, QLD 4570

Gary Clarke: 0447 063 676 Kaara Shaw: 0447 059 265

## Document control

| Version | Date | Written by: | Reviewed by: | Review Date: |
|---|---|---|---|---|
| 1.0 | 26/04/2023 | Kaara Shaw | Gary Clarke | 28/04/2023 |
| | | | | |
| | | | | |

## Property location:

40-60 Harrison Rd, Calvert

230 CH311791

795-851 Rosewood-Laidley Rd, Calvert

1 CC2262

# Contents

# Executive summary

This report details the methods and results of a Site Condition Assessment carried out on the vegetated offset component of lot 230 on plan CH311791 and part of lot 1 on plan CC2262 (Calvert 1). The site condition assessment is one component of a broader Habitat Quality Assessment, as detailed in the *Guide to determining terrestrial habitat quality Version 1.2 April 2017* (referred to throughout this report as the Guidelines).

# Introduction

The site condition assessment is a method of assessing general vegetation condition against a set of benchmark vegetation attributes for a given regional ecosystem.

A site condition assessment of Calvert 1 was carried out in April 2023, to assess vegetation condition following five years of management intervention.

*Site Condition Assessment, Calvert 1 – Vegetated Offset, September 2018* provides benchmark site condition scores for the property Assessment Units prior to management intervention. The report also provides methodology for Assessment Unit stratification and plot layout.

# Method

The 2023 site condition assessment was carried out as per the methodology outlined in the *Guide to determining terrestrial habitat quality* (April 2017).

The seven permanent plots were located and all relevant site attributes were measured as per the guidelines. Canopy height was measured using a hypsometer and plot photos were taken with a Canon G3X.

The measured data was then compared to benchmark values for the on-ground Regional Ecosystem and scores were assigned to each attribute. Attribute scores are then totalled for each plot and an overall plot score is determined. Assessment Unit scores are determined by averaging the relevant plot scores.

In addition to the plots, three photo points were located and four updated photos were taken at each point.

It was noted that the September 2018 report, *Site Condition Assessment, Calvert 1 – Vegetated Offset,* incorrectly labelled AU2 – Photo Point 2 as AU2 – Photo Point 3, and vice versa. Also, the compass bearing of the photos in AU2 – Photo Point 2 (Page 42, *Site Condition Assessment, Calvert 1 – Vegetated Offset, September 2018* ) is mislabelled. Appendix ## contains a correctly labelled copy of the 2018 plot photos for AU2 – PP2 and AU2 – PP3.

# Results

*Table 1. 2023 Site Condition Assessment values per attribute per plot*

| Site condition attributes | AU1-P1 | AU1-P2 | AU1-P3 | AU2 | AU3 | AU4-P1 | AU4-P2 |
|---|---|---|---|---|---|---|---|
| Recruitment of woody perennial species (%) | 100% | 80% | 100% | 100% | 100% | 75% | 80% |
| Trees - species richness | 4 | 5 | 6 | 6 | 7 | 4 | 5 |
| Shrubs - species richness | 7 | 9 | 7 | 3 | 3 | 6 | 5 |
| Grasses - species richness | 13 | 9 | 11 | 11 | 13 | 10 | 10 |
| Forbs - species richness | 11 | 6 | 14 | 13 | 14 | 8 | 11 |
| Canopy height (m) | 23.7 | 24.6 | 27.8 | 24 | 23.7 | 26 | 17.1 |
| Sub-canopy height (m) | 9 | 17 | 19.1 | 11 | 14.9 | 13.5 | 11.2 |
| Tree canopy cover (%) | 74.00% | 69.00% | 50.00% | 12.00% | 64.00% | 44.00% | 27.50% |
| Sub-canopy cover (%) | 33.00% | 13.00% | 52.00% | 26.50% | 11.50% | 33.50% | 82.00% |
| Shrub canopy cover (%) | 15.70% | 14.30% | 14.30% | 1.90% | 8.10% | 0.60% | 1.90% |
| Native perennial grass cover (%) | 39% | 2% | 19% | 45% | 65% | 24% | 64% |
| Organic litter (%) | 64% | 97% | 57% | 58% | 24% | 78% | 34% |
| Large trees (per ha) | 26 | 24 | 22 | 4 | 26 | 26 | 6 |
| Coarse woody debris (total length m) | 292 | 370 | 338 | 35 | 405 | 269 | 398 |
| Non-native plant cover (%) | 1.95% | 0.00% | 48.00% | 39.10% | 3.85% | 1.18% | 4.90% |

*Table 2. 2023 Site Condition Assessment scores per attribute per plot*

| **Site condition attributes** | **Highest possible score per attribute** | **AU1-P1** | **AU1-P2** | **AU1-P3** | **AU2-P1** | **AU3-P1** | **AU4-P1** | **AU4-P2** |
|---|---|---|---|---|---|---|---|---|
| Recruitment of woody perennial species | 5 | 5 | 5 | 5 | 5 | 5 | 3 | 5 |
| Trees - species richness | 5 | 3 | 3 | 5 | 5 | 5 | 5 | 5 |
| Shrubs - species richness | 5 | 5 | 5 | 5 | 3 | 3 | 5 | 5 |
| Grasses - species richness | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Forbs - species richness | 5 | 3 | 3 | 5 | 5 | 3 | 3 | 3 |
| Tree canopy height average score | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Canopy cover average score | 5 | 5 | 5 | 4 | 5 | 5 | 4 | 4 |
| Shrub canopy cover | 5 | 3 | 3 | 3 | 3 | 3 | 3 | 5 |
| Native perennial grass cover | 5 | 5 | 0 | 5 | 5 | 5 | 1 | 5 |
| Organic litter | 5 | 5 | 3 | 5 | 5 | 5 | 3 | 5 |
| Large trees | 15 | 10 | 10 | 10 | 5 | 15 | 15 | 5 |
| Coarse woody debris | 5 | 5 | 5 | 5 | 0 | 5 | 5 | 5 |
| Non-native plant cover | 10 | 10 | 10 | 3 | 3 | 10 | 10 | 10 |
| **Total site condition score per plot** | **80** | **69** | **62** | **65** | **54** | **74** | **67** | **67** |

### Site condition scores

The Assessment Unit site condition scores are given below in Table 3. Appendix 02 shows the photo points and ground cover sub-plot photos for each plot.

*Table 3. Site condition scores*

| Assessment Unit | RE/VMA Category | Plot No. | Plot scores (Out of 80) | Assessment Unit scores (Out of 80) |
|---|---|---|---|---|
| AU1 | 12.9-10.2 Remnant | 1 | 69 | 65.3 |
| | | 2 | 62 | |
| | | 3 | 65 | |
| AU2 | 12.9-10.2 Regrowth | 1 | 54 | 54.0 |
| AU3 | 12.9-10.7 Remnant | 1 | 74 | 74.0 |
| AU4 | 12.9-10.7 Regrowth | 1 | 67 | 67.0 |
| | | 2 | 67 | |

## Interpretation

All plots showed an improvement in overall site condition.

The most significant attribute improvements are weed occurrence, species richness in the understorey strata, and native perennial grass cover. A significant improvement in native perennial grass cover was observed across most plots. The species richness of grasses, forbes and shrubs was also vastly improved. These improvements may be explained by the treatment and removal of weed species and by the improved rainfall experienced over the last few years.

Shrub canopy cover was significantly higher than benchmark values across all plots. This resulted in a reduced score for shrub coverage. The shrub coverage increase may be explained by the removal of cattle from the site and improved seasonal conditions (rainfall). A healthy fire regime would help to reduce shrub coverage and would also improve forbe and grass diversity.

The Regrowth plot, AU2-P1, has developed a native sub-canopy layer over the five-year management period. The overall score for AU2-P1 could be improved by 5 points if Assessment Unit 2 had additional coarse woody debris deposited.

## Conclusions

An overall improvement in site condition was measured in all plots. Attributes that showed the largest measured improvement include weed species occurrence, forbes, grasses and shrub species' richness, and native perennial grass cover.

## Appendix

### Appendix 1 – Site Condition Assessment Unit Map

### Appendix 2 – Plot photo points

### Appendix 3 - Re-labelled 2018 photo points

# Site Condition Assessment

AU1 - p3 - 50m
AU1 - p3 -0m
AU1
63.2ha
AU1 - p2 - 50m
AU1 - p2 - 0m
AU2 - pp2
AU2 - pp3
AU3
1.8ha
AU3 - pp2
AU2
0.9ha
AU4 - p2 - 0m
AU4 - p2 - 50m
AU4
4.7ha
AU4 - p1 - 50m
AU4 - p1 - 0m
AU2
0.4ha
AU2 - p1 - 50m
AU2 - p1 - 0m
AU1 - p1 - 50
AU1 - p1 - 0
AU2
1.1ha
AU3 - p1 - 50m
AU3
4.2ha
AU3 - pl1 - 0

Legend
<all other values>
desc
1
2
Merged 5m contours
codrn_ggm1109
SO
1
2
3 - 4
5 - 6
7 - 8
Assessment units
Code
AU1
AU2
AU3
AU4

IMPORTANT NOTICE:
While every care has been taken to ensure the accuracy of the data and information portrayed on this map, PFSQ does not make any representations or warranties about its accuracies, reliability, completeness, or suitability for any particular purpose and disclaims all responsibility and all reliability (including without limitation, liability in negligence) for all expenses, losses, damages, (including indirect or consequential damage) and costs which you might incur as a result of the data and information being inaccurate or incomplete in any way and for any reason.

Map Information: Date: 30/08/2018
Horizontal Datum: GDA1994
Projection: Universal Transverse Mercator - Zone 56

75 37.5 0 75 150 225 300 Meters

Scale 1:5,000 1 centimeter = 50 meters

GN MN

Mapping by PFSQ
'Woodworks'
8 Fraser Rd
Gympie, Q 4570
Ph. 07 - 54836 535
Email:pfsq@bigpond.com
Fax. 07 - 5483 8996
www.pfsq.net

| **AU1 – Plot 1.** | |
|---|---|
| Plot location (0 m): | 27°39’14.8”S, 152°30’52.5”E |
| Transect Bearing: | 290° |
| Survey date: | 19/04/2023 |
| Site condition score: | 69/80 |

**50 m photo point:**

110°

290°

20°

200°

**Organic litter sub-plot photos:**

Sub-plot 1

Sub-plot 2

| | |
|---|---|
|  |  |
| Sub-plot 3 | Sub-plot 4 |
|  | |
| Sub-plot 5 | |

| **AU1 – Plot 2.** | |
|---|---|
| Plot location (0 m): | 27°38’48.8”S, 152°30’52.6”E |
| Transect Bearing: | 277° |
| Survey date: | 20/04/2023 |
| Site condition score: | 62/80 |

**50 m photo point:**

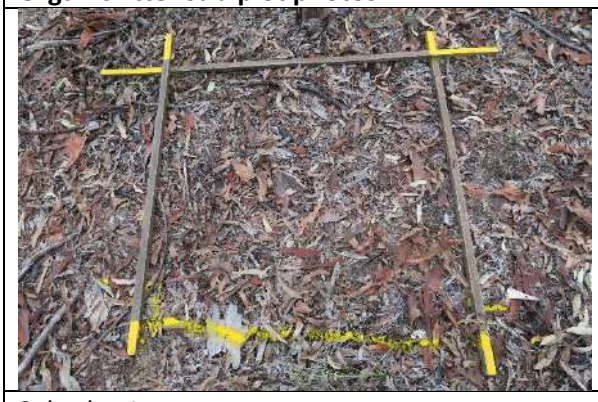
97°

277°

07°

187°

**Organic litter sub-plot photos:**



Sub-plot 1

Sub-plot 2

| | |
|---|---|
|  |  |
| Sub-plot 3 | Sub-plot 4 |
|  | |
| Sub-plot 5 | |

| **AU1 – Plot 3.** | |
|---|---|
| Plot location (0 m): | 27°38’40.5”S, 152°30’56.4”E |
| Transect Bearing: | 272° |
| Survey date: | 20/04/2023 |
| Site condition score: | 65/80 |

**50 m photo point:**

92°

272°

02°

182°

**Organic litter sub-plot photos:**

Sub-plot 1

Sub-plot 2

Sub-plot 3

Sub-plot 4

Sub-plot 5

| **AU2 – Plot 1.** | |
|---|---|
| Plot location (0 m): | 27°39’14.8”S, 152°30’52.5” |
| Transect Bearing: | 282° |
| Survey date: | 19/04/2023 |
| Site condition score: | 54/80 |

**50 m photo point:**

102°

282°

12°

192°

**Organic litter sub-plot photos:**

Sub-plot 1

Sub-plot 2

| | |
|---|---|
|  |  |
| Sub-plot 3 | Sub-plot 4 |
|  | |
| Sub-plot 5 | |

| **AU2 – Photo Point 3** | |
|---|---|
| Photo Point location: | 27°38’58.1”S, 152°30’58.5” |
| Date: | 20/04/2023 |

360°

180°

90°

270°

| **AU2 – Photo Point 2** | |
|---|---|
| Photo Point location: | 27°38’56.7”S, 152°30’55.5” |
| Date: | 20/04/2023 |

360°

180°

90°

270°

| **AU3 – Plot 1.** | |
|---|---|
| Plot location (0 m): | 27°39’17.0”S, 152°30’43.0” |
| Transect Bearing: | 305° |
| Survey date: | 19/04/2023 |
| Site condition score: | 74/80 |

**50 m photo point:**

125°

305°

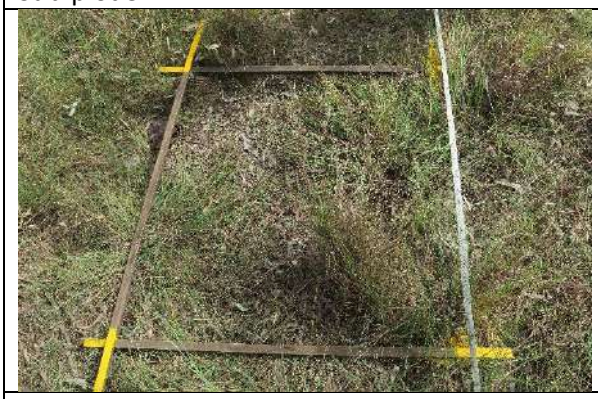
25°

215°

**Organic litter sub-plot photos:**

Sub-plot 1

Sub-plot 2

| | |
|---|---|
|  |  |
| Sub-plot 3 | Sub-plot 4 |
|  | |
| Sub-plot 5 | |

| **AU3 – Photo Point 2** | |
|---|---|
| RE: | 12.9-10.7 |
| Photo Point location: | 27°38’58.8”S, 152°30’51.1” |
| Date: | 19/04/2023 |

354°

84°

174°

264°

| **AU4 – Plot 1.** | |
|---|---|
| Plot location (0 m): | 27°39’03.2”S, 152°30’50.0”E |
| Transect Bearing: | 253° |
| Survey date: | 19/04/2023 |
| Site condition score: | 67/80 |

**50 m photo point:**

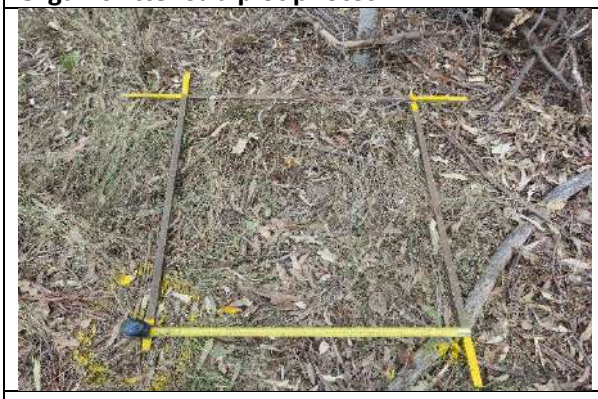
173°

253°

343°

163°

**Organic litter sub-plot photos:**



Sub-plot 1

Sub-plot 2

| | |
|---|---|
|  |  |
| Sub-plot 3 | Sub-plot 4 |
|  | |
| Sub-plot 5 | |

| **AU4 – Plot 2.** | |
|---|---|
| Plot location (0 m): | 27°39’00.5”S, 152°30’50.0”E |
| Transect Bearing: | 241° |
| Survey date: | 19/04/2023 |
| Site condition score: | 67/80 |

**50 m photo point:**

72°

241°

331°

151°

**Organic litter sub-plot photos:**

Sub-plot 1

Sub-plot 2

| | |
|---|---|
|  |  |
| Sub-plot 3 | Sub-plot 4 |
|  | |
| Sub-plot 5 | |

| **AU2 – Photo Point 3** | |
|---|---|
| Photo Point location: | 27°38’58.1”S, 152°30’58.5” |
| Date: | 08/08/2018 |

360°

180°

90°

270°

| **AU2 – Photo Point 2** | |
|---|---|
| Photo Point location: | 27°38’56.7”S, 152°30’55.5” |
| Date: | 08/08/2018 |

360°

180°

90°

270°

# Appendix C

## Baseline KHAT (extract from Koala Habitat Offset Report)

**Table 1. Koala Habitat Assessment Appraisal and Score (Current)/ (With Offset)**

| Attribute | Score | Example habitat appraisal | |
|---|---|---|---|
| Koala occurrence | +2<br>+2 | Desktop | • EPBC PMST report identified the koala as 'known to occur' in the study area.<br>• QLD Wildlife online point buffer search identified a koala record in the impact area.<br>• The Atlas of Living Australia has no koala records within 5 km of the offset site.<br>• The Council Koala Records map has two records (date unknown) to the west of the impact area. |
| | | On-ground | • As per APPENDIX 8: koala survey results |
| Vegetation structure and composition | +2<br>+2 | Desktop | • The Queensland Regional Ecosystem (RE) map identifies areas of 'Open forest on sedimentary rocks with *Corymbia citriodora subsp. variegata, Eucalyptus crebra* and *E. major* on metamorphics (RE12.9-10.2) and "*Eucalyptus moluccana +/- Corymbia citriodora subsp. variegata* (RE12.9-10.3) within the offset area. |
| | | On-ground | • On-ground surveys revealed open forest with the dominant species to be *Corymbia citriodora subsp. variegata, Eucalyptus crebra* and *E mollucana* with other species being *E tereticornis, Casuarina spp*. There are small pockets of previously cleared areas predominantly on the rounded ridges and lower watercourse areas. The site has not been grazed for some time and native grasses of mainly *Cymbopogon refractus, Aristida* spp, *Heteropogon contortus* and *Bothriochloa dicipiens* provides good goundcover along with leaf litter and fallen timber. The mid story comprises emerging and young trees with a diameter at breast height of 15cm (av). The mix of original vs emerging regrowth is estimated as 30% :70% across the site with original trees averaging a diameter of 50-60cm<br><br>Offset Management Plan:<br>Under the Offset Management Plan for the site weedds control will be undertaken for a minimum of 10 years to achieve less than 5% weed coverage at the site |
| Habitat connectivity | +1<br>+2 | • The contiguous landscape patch is defined by the following barriers: cleared rural land with few trees (east), 100 km/h, 2-laned rural 100kph road with 1 stock underpasses (south),<br>• There are no forested riparian zones or other corridors of suitable width connecting the patch to other, larger patches. Western Creek is the major watercourse to the south.<br>• The size of the contiguous landscape defined by this polygon is >26km² (see provided map and GIS shapefile) and includes sections of the Bluff range and Mt Grandchester<br><br>As per appendix 9 the site forms part of a broader contiguous landscape. It is planned over the next 10 years to formally protect an appropriate corridor to connect this offset site to the Ipswich City Councils neighbouring conservation estate | |
| Key existing threats | +1<br>+2 | Desktop | • No recordings |
| | | On-ground | • Dog scats were identified on site but no signs of recent activity.<br>Under the Offset Management Plan an ongoing proactive dog control program will be instigated. While unlikely should the road reserve to the east of the site be constructed further management actions to mitigate threatening process emanating from the road will be implemented |

| | | |
|---|---|---|
| Recovery value | +1 | • At a broader spatial scale, the habitat forms part of a semi-contiguous range system and the patch could serve as an important component of the large woodland areas to the north and west which are known to contain koalas.<br>• The Queensland state planning policy (2/10) (Koala conservation in SEQ), Koala habitat values, identifies the patch as having medium value and the habitat extents to the north-east and south-west as having high value.<br>• The genetic and disease status of the koalas present in the study area is not known and no evidence of breeding was gathered during on-ground surveys (although it is noted that births are not likely to commence for the year until October). |
| **Total** | +7<br>(+9) | **Decision: Habitat critical to the survival of the koala—assessment of significance required (sections 7 and 8).** |

# Appendix D

## Koala Assessment Survey – Calvert 1

# KOALA ASSESSMENT SURVEY

CALVERT 1

40–60 HARRISON ROAD
795-851 ROSEWOOD-LAIDLEY ROAD
CALVERT, QLD, 4340

FOR CHERISH THE ENVIRONMENT FOUNDATION

OCTOBER 2023

**VERSION CONTROL**

| REVISION | AUTHOR | REVIEWED/UPDATED | SIGNED OFF | DATE OF ISSUE |
|---|---|---|---|---|
| 1.0 | A. Forsyth | Issued to client. | SH | 06.10.23 |
| | | | | |
| | | | | |
| | | | | |

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reception@wolterconsulting.com.au
ABN: 61 147 343 084

# CONTENTS



# FIGURES



# TABLES

# 1.0 INTRODUCTION

## 1.1 BACKGROUND

Wolter Consulting Group (WCG) was engaged by Cherish the Environment Foundation (hereafter referred to as 'the client') to undertake a Koala Assessment Survey at the property known as "Calvert 1". Calvert 1 represents a vegetated environmental offset property, consisting of two sperate land parcels as follows:

- Lot 230 on CH311791 at 40-60 Harrison Road, Calvert, QLD, 4340; and
- Part of Lot 1 on CC2262 at 795-851 Rosewood – Laidley Road, Calvert, QLD, 4340.

Collectively, this report will refer to the two land parcels as 'the subject site'.

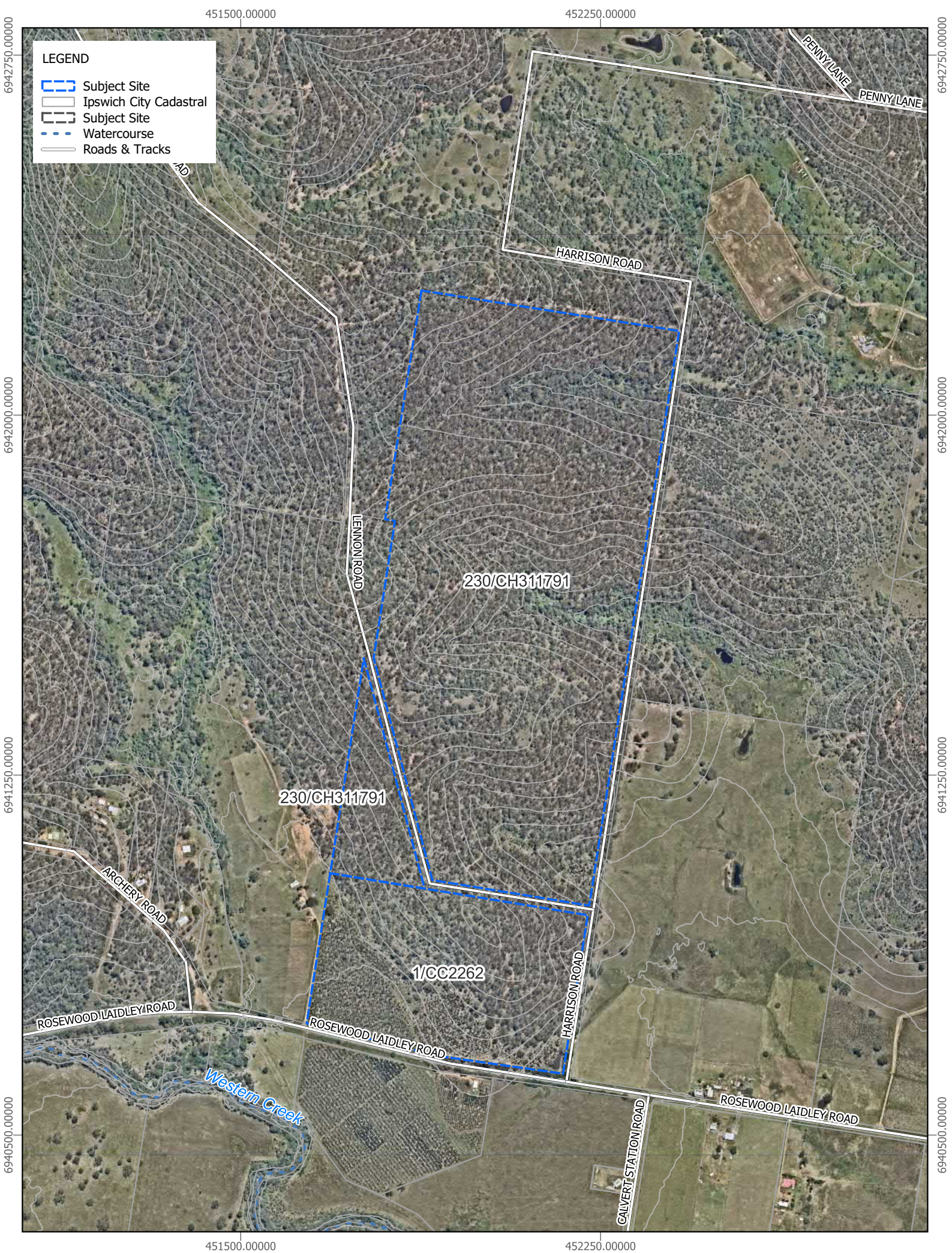
The purpose of this Assessment is to determine the extent of Koala habitation and usage of the subject site in order to inform the broader Habitat Quality Assessment (undertaken by others) for the vegetated offset.

## 1.2 PROPERTY DESCRIPTION

The subject site is located within the Southeast Queensland Bioregion, specifically within Calvert, in the Ipswich City Council (LCC) local government area. Collectively, the subject site occupies a total area of approximately 245,742m$^2$ (24.5 hectares). The subject site is occupied by a mosaic of remnant and regrowth vegetation communities and holds steeper topography analogous with 'steep mountains' as described by McDonald et al. 1984, The site's southern boundary provides frontage to Rosewood-Laidley Rd with the eastern site extent generally defined by Harrison Road that is unformed. The remainder of the site is bounded by land parcels predominately subject to rural activities.

Refer Figure 1 for aerial imagery of the subject site and the surrounding locality.

| TABLE A: SITE SUMMARY DETAILS | |
|---|---|
| ADDRESS | 40 – 60 Harrison Road, Culvert, QLD, 4340<br>795-851 Rosewood-Laidley Road, Culvert, QLD, 4340 |
| REAL PROPERTY DESCRIPTION | Lot 230 on CH311791<br>Lot 1 on CC2262 |
| AREA | 245,742m$^2$ (64700m$^2$ and 181042m$^2$) |
| LGA | Ipswich City Council |
| EXISTING LAND USE | Vegetated Environmental Offset |
| PROPOSED LAND USE | Vegetated Environmental Offset |
| TOPOGRAPHY | Steep Mountains (McDonald et al. 1984) |
| GEOLOGY | Koukandowie Formation Land Zone 9-10 |
| REGIONAL ECOSYSTEMS | Category B RE12.3.3<br>Category B RE12.9-10.2<br>Category C RE12.9-10.2<br>Category B RE12.9-10.7<br>Category C RE12.9-10.7 |




WOLTER consulting group

SCALE BAR
0 100 200 300 400 m

FIGURE 1 - SITE AERIAL & SURROUNDS

CALVERT 1, CALVERT, QLD, 4340

Description 230/CH311791 & 1/CC2262
Local Authority Ipswich City Council

CLIENT
Cherish the Environment Foundation

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# 2.0 METHODOLOGIES

The following assessment utilised both desktop and in-field survey methods, in order to determine the extent of Koala habitation and usage within the subject site. The desktop assessment aimed to identify the potential presence and extent of suitable habitat using spatial modelling and historical species occurrence records within the subject site locality (5km radius). In-field survey conducted by WCG sought to validate the desktop assessment, confirming previous and current presence of Koala specimens, suitable habitat condition and identifying opportunities and barriers to potential habitation within the subject site.

## 2.1 DESKTOP ASSESSMENT

The following resources were interrogated in relation to spatial distribution of suitable habitat and historical records of the species within a 5km radius of the sites centre point.

- Koala habitat mapping (Department of Environment and Science)
- Regional ecosystem mapping (Department of Environment and Science)
- Atlas of Living Australia (ALA).
- WildNet Database (Department of Environment and Science).

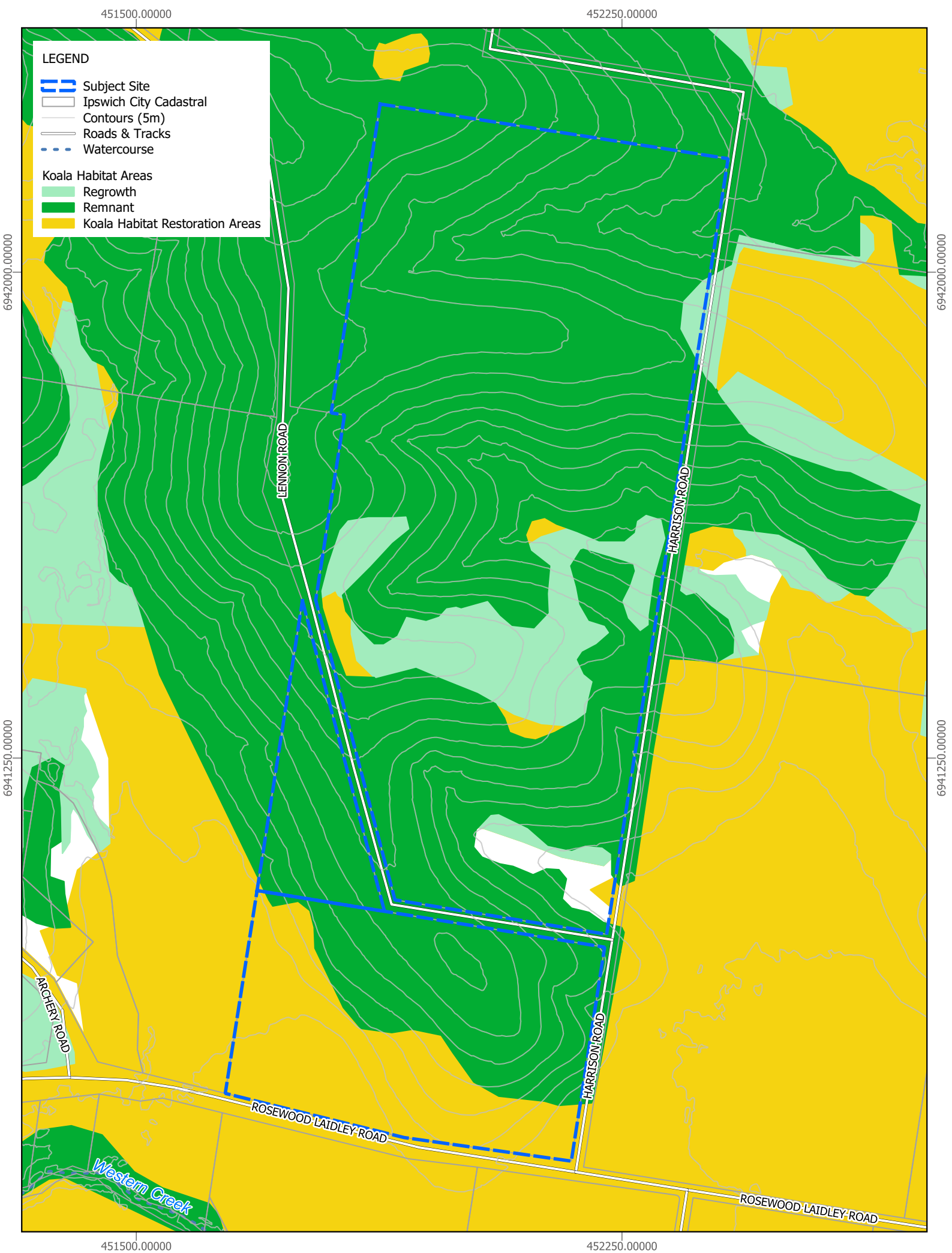
The following sections provide a summary of the results from the desktop assessment, utilising the above resources.

### 2.1.1 HABITAT DISTRIBUTION

Koala habitat mapping within SEQ, undertaken by the Department of Environment and Science, represents the most suitable habitat for Koala populations based on biophysical measures, climate, vegetation and occurrence records. As depicted in Figure 2, the entirety of the subject site is mapped as a Koala Priority Area (KPA) and contains areas of remnant and regrowth Koala habitat and nominated Koala Habitat Restoration Area (KHRA).

KPAs represent large, connected areas with the highest likelihood of achieving positive conservation outcomes for Koalas through habitat protection, restoration and threat management under the South East Queensland Koala Conservation Strategy 2020-2025 (DES 2020). Remnant and regrowth KHA mapped within the subject site and surrounding locality indicate the presence of high-quality habitat and potential presence of Koala populations within the area. Additional areas mapped as KHRAs identify land suitable for restoration of KHA to achieve beneficial outcomes for the species. Regional ecosystem mapping, provided by the Queensland Herbarium, supports the koala mapping within the subject site with the structural and floristic descriptions provided below in Table B. Non Juvenile Koala Habitat Trees (NJKHT) associated with the regional ecosystems on site include food trees of the *Corymbia*, *Melaleuca*, *Lophostemon* or *Eucalyptus* genera and preferred shelter species such as *Angophora* greater than 4m in height or with a diameter at breast height (DBH) greater than 150mm (DERM 2010).

Given the prevalence of suitable habitat trees and connectivity within the broader landscape context, the subject site is considered to have potential to support permanent or transient individual specimens or populations of *P. cinereus*.




WOLTER consulting group

SCALE BAR

0 50 100 150 200 m

FIGURE 2 - KOALA HABITAT AREAS

CALVERT 1, CALVERT, QLD, 4340

Description 230/CH311791 & 1/CC2262

Local Authority Ipswich City Council

CLIENT

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| TABLE B: SUBJECT SITE REGIONAL ECOSYSTEM COMPOSITION | |
|---|---|
| REGIONAL ECOSYSTEM | DESCRIPTION |
| RE12.3.3 | *Eucalyptus tereticornis* woodland on Quaternary alluvium |
| RE12.9-10.2 | *Corymbia citriodora* subsp. *variegate* +/- *Eucalyptus crebra* open forest on sedimentary rocks |
| RE12.9-10.7 | Eucalyptus crebra +/- E. tereticornis, Corymbia tessellaris, Angophora spp. and E. melanophloia woodland on sedimentary rocks |

### 2.1.2 HISTORICAL RECORDS

To identify the potential presence of Koala, historical species occurrence records within a 5km radius of the subject site and broader locality were consulted. Combined records from the Atlas of Living Australia and WildNet databases indicate that a total of sixty-eight (68) observations within the locality since 1980 (refer Figure 3). Fourteen (14) observations have been recorded within the subject site boundaries, including thirteen (13) in 2016. Whilst no recent observations of the species have been recorded, observation records are typically associated with formal surveys and a lack of recent data does not significantly diminish the likelihood of site utilisation by the species. Given the high frequency of observations in 2016 and the presence of high quality, well-connected habitat, the potential for the site to be utilised by *P. cinereus* is considered to be likely.

## 2.2 IN-FIELD ASSESSMENT

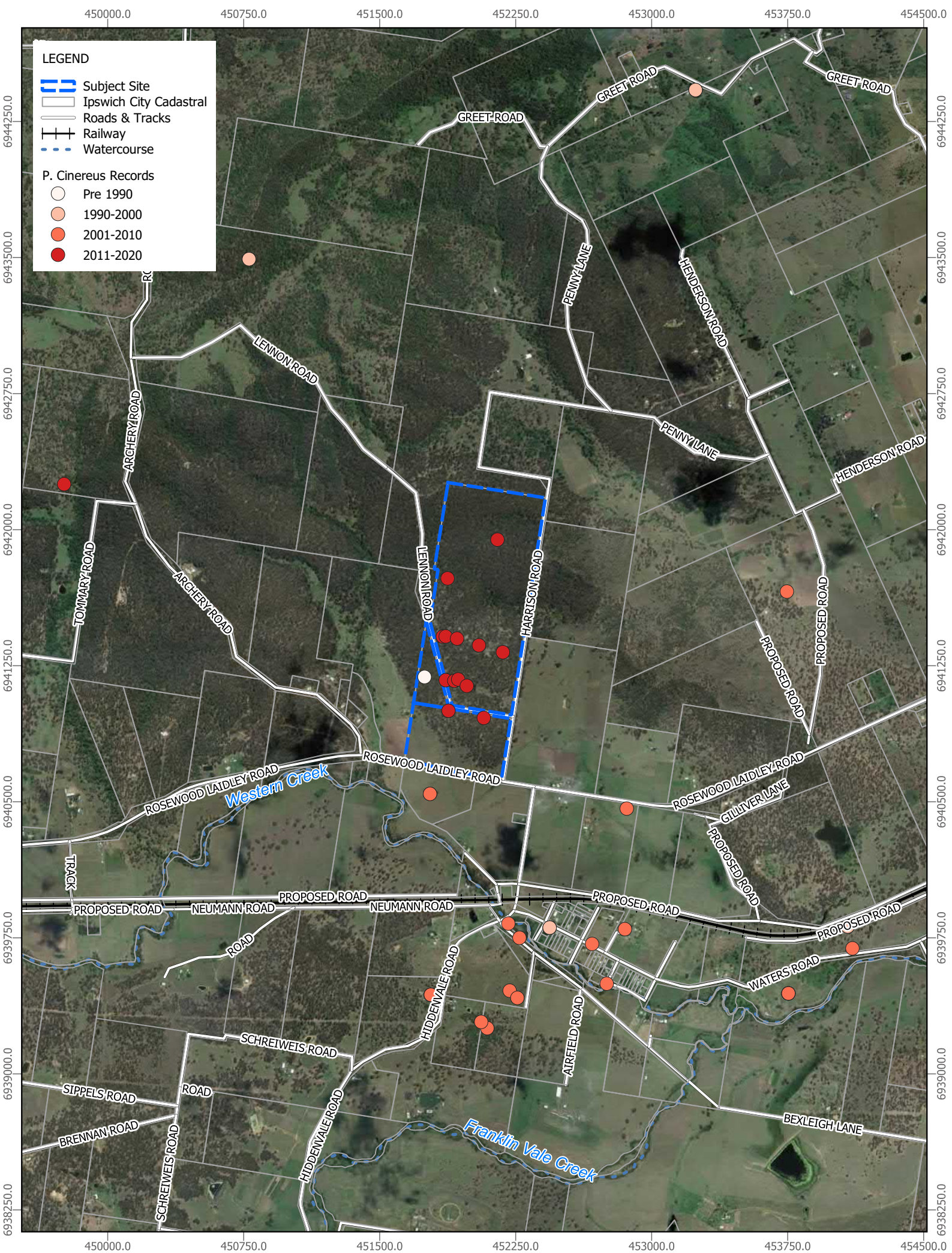
In field assessment methodologies specifically targeting *P. cinereus* employed the following techniques.

- Koala Spot Assessment Technique (SAT) survey.
- Qualitative habitat assessment.
- Opportunistic sightings; and
- Scratch and trace survey.

The following sections detail the methodologies employed during the in-field assessment.

### 2.2.1 SPOT ASSESSMENT TECHNIQUE

Spot Assessment Technique (SAT) Survey is an indirect survey method to indicate past or current utilisation of the subject site by *P. cinereus*, assessing the presence of koala scat within a prescribed search area. The following methodology was employed when undertaking the SAT survey, in accordance with approach developed by Phillips and Callaghan (2011).




WOLTER consulting group

SCALE BAR
0 200 400 600 800 m

FIGURE 3 - HISTORICAL RECORDS
CALVERT 1, CALVERT, QLD, 4340

Description 230/CH311791 & 1/CC2262
Local Authority Ipswich City Council

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**Step 1 – Timing**

The SAT survey method can be undertaken year-round, during daylight hours and in fair weather conditions. The following observations were recorded at the commencement of each survey period.

- Date (dd/mm/yyyy)
- Min. Temperature (°C)
- Max. Temperature (°C)
- Relative Humidity (%)
- Mean Wind Speed (km/h)
- Precipitation (mm)
- Precipitation (mm) 72hrs prior
- Comments

**Step 2 – Site Selection**

The SAT survey aimed to provide a minimum of one (1) survey location per Assessment Unit (AU1 -AU4) as defined in the Site Condition Assessment undertaken by Forest Land Management Pty Ltd in April 2023. To increase koala detection probability, a total of nine (9) survey sites were selected within areas deemed to represent the most optimal *P. cinereus* habitat within the subject site.

**Step 3 – Survey Location**

At each location a NJKHT was randomly selected and identified as the 'centre tree' of the survey location. Assessment per the below technique was undertaken at the centre tree and the nearest 29 NJKHTs, moving outwards in a radial pattern. Where limited NJKHTs were present or there was potential to intersect with another survey area, the survey extent was adjusted accordingly.

**Step 4 – Survey Technique**

At each NJKHT, the following technique was employed:

- A passive observational search for target species scat was performed within a prescribed search area extending 1m from the base of the tree for a period of one (1) minute.
- If unsuccessful, a further one (1) minute active search period was applied during which the leaf litter is disturbed in a further effort to identify scat.
- The search at each tree concluded when a scat was observed or the two (2) minute search period ends with no scat detected.
- The search technique was employed at a total of 30 NJKHTs for each survey location, recording the following details:
    - Tree number (#)
    - GPS point (#)
    - Tree species
    - Scat present (Y/N)
    - Additional comments

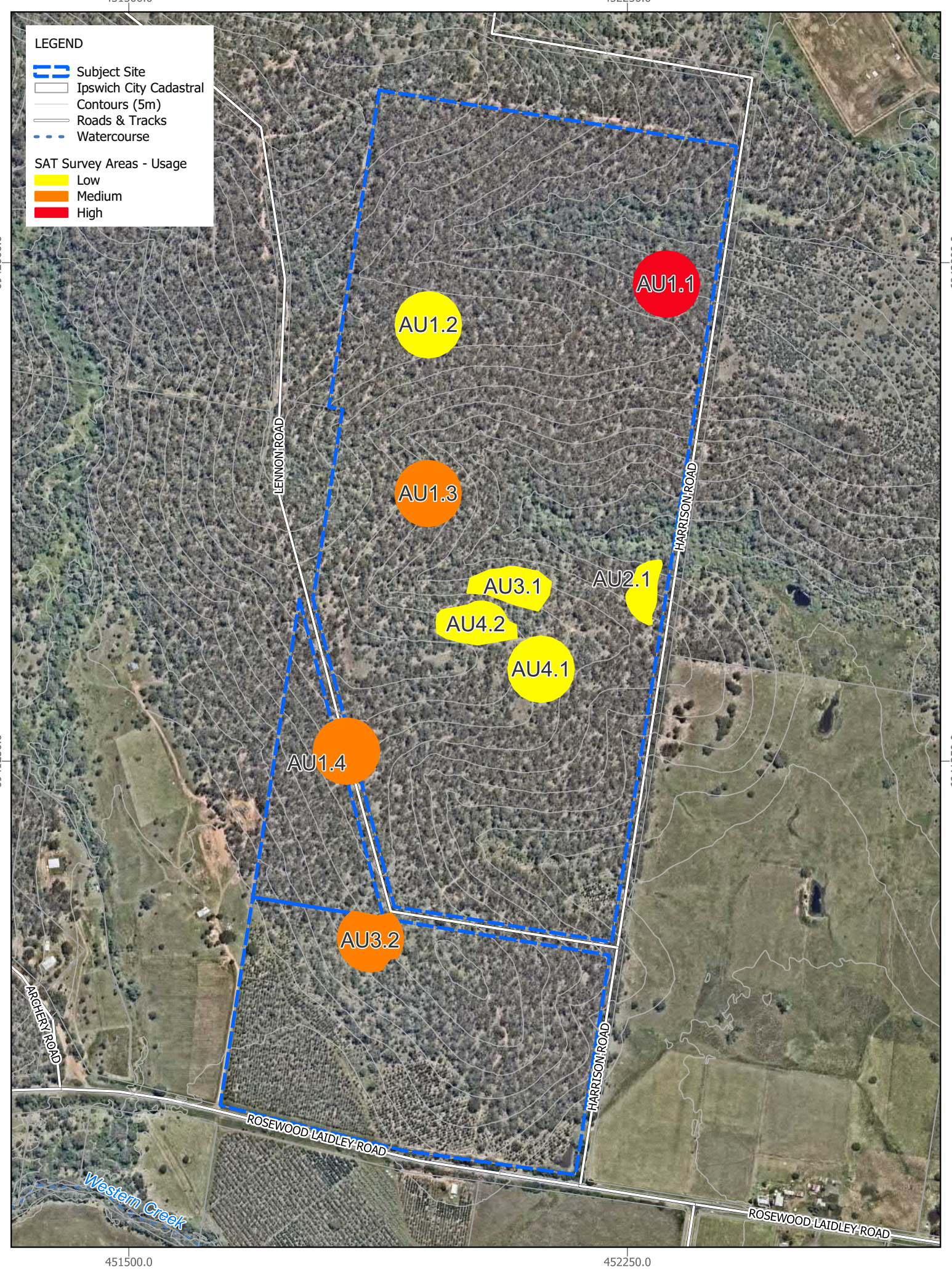
The New South Wales Department of Planning and Environment's (DPE 2022) Biodiversity Assessment Method Survey Guide for *P. cinereus* identifies several limitations associated with the SAT method for assessing the presence of Koala within a prescribed search area. Table C below details the potential limitations in reference to determining whether the SAT method is appropriate for the subject site.

TABLE C: POTENTIAL SURVEY LIMITATIONS

| LIMITATION | JUSTIFICATION |
|---|---|
| Given scat deposition varies spatially and temporally, the use of detection dogs is preferred in low quality koala habitat. The use of SAT should be justified, with reference to vegetation condition and quality of habitat for koalas. | As detailed in section 2.1.1, the majority of the subject site and surrounding area is mapped as Koala Habitat Area by the Department of Science, indicating the presence of high-quality habitat. Additionally, regional ecosystems mapped within the site contain dominant communities of NJKHTs conducive to utilisation by *P. cinereus*. As such the site is considered to contain high quality vegetation appropriate for the application of SAT survey. |
| The SAT method is less efficient for sites with dense ground cover, as this will strongly influence the probability of scat detection. | Vegetation within the subject site is characterised by a moderate woodland canopy, sparse mid-canopy and shrub layers and low to minimal ground cover. Selection of survey locations sought to avoid scattered areas of dense understorey and ground cover present within the site. As such, vegetation composition within the site is considered suitable for SAT survey. |
| Heightened insect activity during wet conditions increases scat decomposition rates, surveys should not be undertaken within three (3) days of rainfall. | Surveys were undertaken over two (2) separate days during periods coinciding with 0mm of precipitation and fine weather conditions in the 72hrs leading up to the survey. It is noted that on day one of the survey a severe storm event occurred in the afternoon at which time the survey was abandoned and not re-commenced for a period of five (5) days. |

### 2.2.2 ADDITIONAL TECHNIQUES

Whilst the SAT survey was undertaken, additional observational and scratch survey techniques were employed to assess the presence of P. cinereus within each survey location. WCG ecologists employed a total of twelve (12) hours on 28th September and 4th October 2023 undertaking the surveys. Koala scratch and trace markings typically exhibit pock-like marks left from claw tips and long rake markings left on bark (DES 2022). Where recent scratch markings or scat was observed, indicating potential recent usage by P. cinereus, additional observation was undertaken. Observational survey was undertaken for approximately 5-10 minutes within each location and scratch and trace survey was undertaken at each tree surveyed during the SAT survey.




WOLTER consulting group

SCALE BAR
0 50 100 150 200 m

FIGURE 4 - SAT SURVEY LOCATIONS
CALVERT 1, CALVERT, QLD, 4340
Description 230/CH311791 & 1/CC2262
Local Authority Ipswich City Council

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## 3.0 SURVEY RESULTS

The Koala assessment survey within the subject site was undertaken WCG's ecologists on 28th September and 4th October 2023. A survey effort of twenty-four (24) hours was employed. Conditions were observed as overcast, light to moderate winds and an average daytime temperature of 29.3°C, based on data obtained from Amberley AMO (Station ID 040004), located 18km east of the subject site (Refer Table D). Recorded conditions were considered as appropriate for the SAT and observational surveys.

TABLE D: METEOROLOGICAL CONDITIONS

| Date | 28th September 2023 | 4th October 2023 |
|---|---|---|
| Minimum Temperature (°C) | 13.4 | 13.6 |
| Maximum Temperature (°C) | 30.0 | 28.6 |
| Relative Humidity (%) | 76.5 | 58 |
| Mean Wind Speed (km/h) | 7.5 (SSE) | 25.0 (NE) |
| Precipitation (mm) | 8.8 | 0.2 |
| Precipitation (mm) 72hrs prior | 0.0 | 0.0 |
| Comments | Survey halted at 1430hr due to poor weather conditions. | - |

Targeted survey did not directly observe *P. cinereus* utilising the study area at the time of the field investigation. The spot assessments conducted at a total of nine (9) locations within the subject site resulted in the observation of fifty-six (56) evidence (scats).

The activity level for a SAT location, according to the Phillips & Callaghan (2011) methodology, is expressed as the percentage equivalent of the proportion of surveyed trees that had scat pellets recorded. Therefore, of the 270 surveyed trees, fifty-six (56) had at least one (1) scat pellet recorded, resulting in an activity level of 20.7%. Using the East Coast (med-high) activity category for habitats where primary food trees are abundant, adopted from Phillips & Callaghan (2011) (Refer Table E), the subject site is generally considered as 'LOW' use.

TABLE E: USAGE CATEGORISATION METHODOLOGY (PHILLIPS & CALLAGHAN 2011)

| Activity Category | East Coast (low) | East Coast (med-high) | Western Plains (med-high) |
|---|---|---|---|
| Low Use | <3.33% | <22.52% | <35.84% |
| Medium Use | ≥3.33% but ≤12.59% | ≥22.52% but ≤32.84% | ≥35.84% but ≤46.72% |
| High Use | >12.59% | >32.84% | >46.72% |

Summary of the SAT survey results is provided for each Assessment Unit below.

## 3.1 ASSESSMENT UNIT RESULTS

### 3.1.1 ASSESSMENT UNIT AU1

A summary of the SAT survey results form AU1 is provided below in Table F. Targeted survey observed no *P. cinereus* utilising the site at the time of investigation. Further, evidence of *P. cinereus* usage of the site in the form of scats observed within AU1 was 'MEDIUM' (26.7%) based on four (4) study area surveys.

TABLE F: SAT SURVEY RESULTS – AU1

| ASSESSMENT REF | LOCATION | ACTIVITY (%) | RELATIVE ACTIVITY |
|---|---|---|---|
| AU1.1 | 27.6455° S 152.5165° E | 50.0 | HIGH |
| AU1.2 | 27.6460° S 152.5128° E | 3.33 | LOW |
| AU1.3 | 27.6483° S 152.5128° E | 30.0 | MEDIUM |
| AU1.4 | 27.6518° S 152.5116° E | 23.3 | MEDIUM |
| AU1 Total | - | 26.7 | MEDIUM |

Categorisation of the results as 'MEDIUM' are taken from Phillips & Callaghan (2011) using the East Coast (med-high) activity category applicable in habitats where primary food trees are abundant.

### 3.1.2 ASSESSMENT UNIT AU2

A summary of the SAT survey results form AU2 is provided below in Table G. Targeted survey observed no *P. cinereus* utilising the site at the time of investigation. Further, evidence of *P. cinereus* usage of the site in the form of scats observed within AU2 was 'LOW' (16.7%) based on one (1) study area survey.

TABLE G: SAT SURVEY RESULTS – AU2

| ASSESSMENT REF | LOCATION | ACTIVITY (%) | RELATIVE ACTIVITY |
|---|---|---|---|
| AU2.1 | 27.6497° S 152.5161° E | 16.7 | LOW |
| AU2 Total | - | 16.7 | LOW |

Categorisation of the results as 'LOW' are taken from Phillips & Callaghan (2011) using the East Coast (med-high) activity category applicable in habitats where primary food trees are abundant.

### 3.1.3 ASSESSMENT UNIT AU3

A summary of the SAT survey results form AU3 is provided below in Table H. Targeted survey observed no *P. cinereus* utilising the site at the time of investigation. Further, evidence of *P. cinereus* usage of the site in the form of scats observed within AU3 was 'LOW' (20.0%) based on two (2) study area surveys.

| TABLE H: SAT SURVEY RESULTS – AU3 | | | |
|---|---|---|---|
| ASSESSMENT REF | LOCATION | ACTIVITY (%) | RELATIVE ACTIVITY |
| AU3.1 | 27.6496° S 152.5141° E | 16.7 | LOW |
| AU3.2 | 27.6544° S 152.5119° E | 23.3 | MEDIUM |
| AU3 Total | - | 20.0 | LOW |

Categorisation of the results as 'LOW' are taken from Phillips & Callaghan (2011) using the East Coast (med-high) activity category applicable in habitats where primary food trees are abundant.

### 3.1.4 ASSESSMENT UNIT AU4

A summary of the SAT survey results form AU4 is provided below in Table I. Targeted survey observed no *P. cinereus* utilising the site at the time of investigation. Further, evidence of *P. cinereus* usage of the site in the form of scats observed within AU4 was 'LOW' (11.7%) based on two (2) study area surveys.

| TABLE I: SAT SURVEY RESULTS – AU4 | | | |
|---|---|---|---|
| ASSESSMENT REF | LOCATION | ACTIVITY (%) | RELATIVE ACTIVITY |
| AU4.1 | 27.6507° S 152.5145° E | 3.33 | LOW |
| AU4.2 | 27.6501° S 152.5136° E | 20.0 | LOW |
| AU4 Total | - | 11.7 | LOW |

Categorisation of the results as 'LOW' are taken from Phillips & Callaghan (2011) using the East Coast (med-high) activity category applicable in habitats where primary food trees are abundant.

## 3.2 RESULTS SUMMARY

Overall, usage of the subject site by *P. cinereus* is considered to be 'LOW' based on scats observed during the SAT surveys conducted by WCG (refer Table J). However, it is noted that four (4) of the nine (9) survey locations were categorised as medium to high usage. Whilst the subject site is not considered to sustain a significant resident population, recent scat and scratch markings recorded throughout the site spatially suggest usage of habitat by *P. cinereus*.

## 4.0 SUMMARY & CONCLUSIONS

This report details the assessment undertaken by WCG to determine the extent of Koala habitation and usage of the subject site, Calvert 1, located at Lot 230 on CH311791 and part of Lot 1 on CC2262. Spot Assessment Technique surveys were undertaken on 28th September and 4th October to investigation the potential presence and usage patterns of P. cinereus on the site, in order to inform broader Habitat Quality Assessment for the vegetated offset. As detailed in section 3.0 of the report, utilisation of site is considered to be 'LOW' overall. However, of the nine (9) surveyed areas, four (4) were considered to have a 'MEDIUM' to 'HIGH' rate of utilisation by the species. In order to further ascertain the level of P. cinereus activity within the site temporally, periodic SAT surveys are recommended to compliment ongoing bio-condition assessment undertaken within the subject site.

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Reviewed by:

Steve Hayes

BSc(Env) Hons GradCertBfireProt ESA MEIANZ

Director - Environment

Wolter Consulting Group

## 5.0 REFERENCES

DERM (2010). State Planning Policy 2/10 – Koala Conservation in South East Queensland. Queensland Government, Brisbane.

DES (2022). Koala Sensitive Design Guideline. Queensland Government, Brisbane.

DES (2020). South East Queensland Koala Conservation Strategy 2020-2025. Queensland Government, Brisbane.

DPE (2022). Koala (Phascolarctos cinereus) Biodiversity Assessment Method Survey Guide. New South Wales Government, Sydney.

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

Queensland Herbarium (2021) Regional Ecosystem Description Database (REDD). Version 12.0 (March 2021) (Queensland Department of Science, Information Technology and Innovation: Brisbane)

APPENDIX A

# SAT SURVEY RESULTS

| SURVEY LOCATION | | AU1.1 | |
|---|---|---|---|
| UNIT | | AU1 | |
| DATE | | 28/09/2023 | |
| TIME | | 9:05AM | |
| TREE | SPECIES | SCAT | SCRATCHES |
| 1 | *Corymbia citriodora* | ✓ | × |
| 2 | *Corymbia citriodora* | × | × |
| 3 | *Corymbia citriodora* | × | × |
| 4 | *Corymbia citriodora* | × | × |
| 5 | *Corymbia citriodora* | ✓ | ✓ |
| 6 | *Corymbia citriodora* | ✓ | ✓ |
| 7 | *Corymbia citriodora* | ✓ | ✓ |
| 8 | *Corymbia citriodora* | ✓ | ✓ |
| 9 | *Corymbia citriodora* | ✓ | × |
| 10 | *Corymbia citriodora* | ✓ | ✓ |
| 11 | *Corymbia citriodora* | ✓ | × |
| 12 | *Corymbia citriodora* | × | × |
| 13 | *Corymbia citriodora* | × | × |
| 14 | *Corymbia citriodora* | × | ✓ |
| 15 | *Lophostemon confertus* | × | × |
| 16 | *Corymbia citriodora* | ✓ | × |
| 17 | *Corymbia citriodora* | ✓ | × |
| 18 | *Corymbia intermedia* | ✓ | ✓ |
| 19 | *Corymbia citriodora* | ✓ | × |
| 20 | *Corymbia citriodora* | × | ✓ |
| 21 | *Eucalyptus tereticornis* | × | ✓ |
| 22 | *Corymbia tessellaris* | × | × |
| 23 | *Corymbia citriodora* | × | × |
| 24 | *Eucalyptus crebra* | × | × |
| 25 | *Eucalyptus major* | × | × |
| 26 | *Eucalyptus tereticornis* | × | × |
| 27 | *Corymbia citriodora* | ✓ | × |
| 28 | *Corymbia citriodora* | ✓ | × |
| 29 | *Corymbia citriodora* | × | ✓ |
| 30 | *Corymbia citriodora* | ✓ | × |
| TOTAL | | 15 | 10 |
| TOTAL (%) | | 50.0% | 33.3% |

| SURVEY LOCATION | | AU1.2 | |
|---|---|---|---|
| UNIT | | AU1 | |
| DATE | | 28/09/2023 | |
| TIME | | 10:28AM | |
| TREE | SPECIES | SCAT | SCRATCHES |
| 1 | Corymbia citriodora | × | × |
| 2 | Corymbia citriodora | × | × |
| 3 | Corymbia citriodora | × | ✓ |
| 4 | Corymbia citriodora | × | × |
| 5 | Corymbia citriodora | × | × |
| 6 | Eucalyptus crebra | × | × |
| 7 | Corymbia citriodora | × | × |
| 8 | Corymbia citriodora | × | × |
| 9 | Corymbia citriodora | × | × |
| 10 | Corymbia citriodora | × | × |
| 11 | Eucalyptus crebra | × | × |
| 12 | Corymbia citriodora | × | × |
| 13 | Corymbia citriodora | × | × |
| 14 | Corymbia citriodora | × | × |
| 15 | Corymbia citriodora | × | × |
| 16 | Eucalyptus siderophloia | × | × |
| 17 | Eucalyptus crebra | × | × |
| 18 | Corymbia citriodora | × | × |
| 19 | Corymbia citriodora | × | × |
| 20 | Corymbia citriodora | × | × |
| 21 | Eucalyptus crebra | × | × |
| 22 | Corymbia citriodora | × | × |
| 23 | Corymbia citriodora | ✓ | × |
| 24 | Corymbia citriodora | × | × |
| 25 | Corymbia citriodora | × | × |
| 26 | Corymbia citriodora | × | × |
| 27 | Eucalyptus crebra | × | × |
| 28 | Corymbia citriodora | × | × |
| 29 | Corymbia citriodora | × | × |
| 30 | Corymbia citriodora | × | × |
| TOTAL | | 1 | 1 |
| TOTAL (%) | | 3.33% | 3.33% |

| SURVEY LOCATION | | AU1.3 | |
|---|---|---|---|
| UNIT | | AU1 | |
| DATE | | 04/10/2023 | |
| TIME | | 11:02AM | |
| TREE | SPECIES | SCAT | SCRATCHES |
| 1 | Corymbia citriodora | × | × |
| 2 | Corymbia citriodora | × | × |
| 3 | Corymbia citriodora | × | × |
| 4 | Eucalyptus crebra | × | × |
| 5 | Angophora woodsiana | ✓ | × |
| 6 | Corymbia citriodora | × | × |
| 7 | Eucalyptus tereticornis | × | ✓ |
| 8 | Eucalyptus tereticornis | ✓ | × |
| 9 | Corymbia citriodora | × | ✓ |
| 10 | Corymbia citriodora | × | × |
| 11 | Eucalyptus crebra | ✓ | × |
| 12 | Corymbia citriodora | × | × |
| 13 | Corymbia citriodora | × | × |
| 14 | Eucalyptus tereticornis | × | ✓ |
| 15 | Corymbia citriodora | × | × |
| 16 | Angophora leiocarpa | × | × |
| 17 | Corymbia citriodora | ✓ | × |
| 18 | Corymbia citriodora | × | × |
| 19 | Corymbia citriodora | × | × |
| 20 | Eucalyptus tereticornis | ✓ | × |
| 21 | Corymbia citriodora | × | ✓ |
| 22 | Corymbia citriodora | × | × |
| 23 | Angophora leiocarpa | × | × |
| 24 | Eucalyptus moluccana | ✓ | × |
| 25 | Corymbia citriodora | × | × |
| 26 | Corymbia citriodora | ✓ | ✓ |
| 27 | Angophora leiocarpa | ✓ | ✓ |
| 28 | Eucalyptus tereticornis | ✓ | ✓ |
| 29 | Eucalyptus tereticornis | × | ✓ |
| 30 | Corymbia citriodora | × | × |
| TOTAL | | 9 | 7 |
| TOTAL (%) | | 30.0% | 23.3% |

| SURVEY LOCATION | | AU1.4 | |
|---|---|---|---|
| UNIT | | AU1 | |
| DATE | | 04/10/2023 | |
| TIME | | 12:08PM | |
| TREE | SPECIES | SCAT | SCRATCHES |
| 1 | Eucalyptus moluccana | × | × |
| 2 | Corymbia citriodora | × | ✓ |
| 3 | Corymbia citriodora | × | × |
| 4 | Corymbia citriodora | × | × |
| 5 | Corymbia citriodora | × | ✓ |
| 6 | Corymbia citriodora | ✓ | ✓ |
| 7 | Corymbia citriodora | × | × |
| 8 | Eucalyptus crebra | ✓ | × |
| 9 | Corymbia citriodora | ✓ | × |
| 10 | Corymbia citriodora | ✓ | × |
| 11 | Eucalyptus moluccana | × | × |
| 12 | Corymbia citriodora | × | × |
| 13 | Corymbia citriodora | × | ✓ |
| 14 | Corymbia citriodora | × | ✓ |
| 15 | Corymbia citriodora | × | × |
| 16 | Corymbia citriodora | × | ✓ |
| 17 | Corymbia citriodora | × | × |
| 18 | Corymbia citriodora | × | × |
| 19 | Corymbia citriodora | × | × |
| 20 | Corymbia citriodora | ✓ | ✓ |
| 21 | Corymbia citriodora | × | ✓ |
| 22 | Corymbia citriodora | × | × |
| 23 | Corymbia citriodora | × | × |
| 24 | Corymbia citriodora | × | × |
| 25 | Corymbia citriodora | × | × |
| 26 | Eucalyptus moluccana | ✓ | × |
| 27 | Eucalyptus moluccana | ✓ | × |
| 28 | Corymbia citriodora | × | × |
| 29 | Eucalyptus moluccana | × | × |
| 30 | Corymbia citriodora | × | × |
| TOTAL | | 7 | 8 |
| TOTAL (%) | | 23.3% | 26.7% |

| SURVEY LOCATION | | AU2.1 | |
|---|---|---|---|
| UNIT | | AU2 | |
| DATE | | 28/09/2023 | |
| TIME | | 11:27AM | |
| TREE | SPECIES | SCAT | SCRATCHES |
| 1 | Corymbia citriodora | × | × |
| 2 | Corymbia citriodora | × | × |
| 3 | Corymbia citriodora | × | ✓ |
| 4 | Corymbia citriodora | × | × |
| 5 | Corymbia citriodora | ✓ | × |
| 6 | Corymbia citriodora | × | × |
| 7 | Corymbia citriodora | × | × |
| 8 | Corymbia citriodora | × | × |
| 9 | Corymbia citriodora | × | × |
| 10 | Corymbia citriodora | × | × |
| 11 | Corymbia citriodora | × | × |
| 12 | Corymbia citriodora | × | × |
| 13 | Corymbia citriodora | × | × |
| 14 | Corymbia citriodora | × | × |
| 15 | Corymbia citriodora | × | ✓ |
| 16 | Corymbia citriodora | × | × |
| 17 | Corymbia citriodora | ✓ | × |
| 18 | Corymbia citriodora | × | × |
| 19 | Eucalyptus crebra | ✓ | × |
| 20 | Eucalyptus crebra | × | × |
| 21 | Corymbia citriodora | × | × |
| 22 | Corymbia citriodora | × | × |
| 23 | Corymbia citriodora | × | ✓ |
| 24 | Corymbia citriodora | × | × |
| 25 | Corymbia citriodora | × | ✓ |
| 26 | Corymbia citriodora | × | × |
| 27 | Corymbia citriodora | × | × |
| 28 | Eucalyptus crebra | ✓ | × |
| 29 | Corymbia citriodora | × | × |
| 30 | Corymbia citriodora | ✓ | × |
| TOTAL | | 5 | 4 |
| TOTAL (%) | | 16.7% | 13.3% |

| SURVEY LOCATION | | AU3.1 | |
|---|---|---|---|
| UNIT | | AU3 | |
| DATE | | 04/10/2023 | |
| TIME | | 9:30AM | |
| TREE | SPECIES | SCAT | SCRATCHES |
| 1 | Eucalyptus crebra | × | × |
| 2 | Corymbia citriodora | × | ✓ |
| 3 | Eucalyptus crebra | × | × |
| 4 | Eucalyptus crebra | × | × |
| 5 | Eucalyptus crebra | × | × |
| 6 | Corymbia citriodora | ✓ | × |
| 7 | Corymbia citriodora | × | ✓ |
| 8 | Corymbia citriodora | ✓ | ✓ |
| 9 | Corymbia citriodora | ✓ | × |
| 10 | Corymbia citriodora | × | × |
| 11 | Eucalyptus tereticornis | × | ✓ |
| 12 | Eucalyptus tereticornis | × | × |
| 13 | Eucalyptus tereticornis | × | ✓ |
| 14 | Corymbia citriodora | × | ✓ |
| 15 | Corymbia citriodora | × | × |
| 16 | Eucalyptus crebra | × | × |
| 17 | Corymbia citriodora | × | ✓ |
| 18 | Corymbia citriodora | × | ✓ |
| 19 | Eucalyptus crebra | × | × |
| 20 | Corymbia citriodora | × | × |
| 21 | Corymbia citriodora | × | ✓ |
| 22 | Corymbia citriodora | ✓ | ✓ |
| 23 | Eucalyptus tereticornis | × | ✓ |
| 24 | Eucalyptus tereticornis | × | ✓ |
| 25 | Corymbia citriodora | × | × |
| 26 | Eucalyptus crebra | × | × |
| 27 | Corymbia citriodora | × | × |
| 28 | Corymbia citriodora | × | × |
| 29 | Corymbia citriodora | × | × |
| 30 | Corymbia citriodora | ✓ | × |
| TOTAL | | 5 | 12 |
| TOTAL (%) | | 16.7% | 40.0% |

| SURVEY LOCATION | | AU3.2 | |
|---|---|---|---|
| UNIT | | AU3 | |
| DATE | | 04/10/2023 | |
| TIME | | 13:20PM | |
| TREE | SPECIES | SCAT | SCRATCHES |
| 1 | Eucalyptus crebra | × | × |
| 2 | Angophora leiocarpa | × | × |
| 3 | Angophora leiocarpa | × | ✓ |
| 4 | Angophora woodsiana | ✓ | × |
| 5 | Angophora leiocarpa | × | × |
| 6 | Angophora woodsiana | ✓ | × |
| 7 | Corymbia citriodora | ✓ | × |
| 8 | Angophora woodsiana | × | × |
| 9 | Corymbia citriodora | × | × |
| 10 | Angophora woodsiana | × | × |
| 11 | Angophora woodsiana | × | × |
| 12 | Angophora woodsiana | × | × |
| 13 | Eucalyptus tessellaris | × | × |
| 14 | Corymbia citriodora | ✓ | × |
| 15 | Angophora woodsiana | × | × |
| 16 | Angophora woodsiana | × | × |
| 17 | Angophora woodsiana | × | × |
| 18 | Angophora woodsiana | × | × |
| 19 | Corymbia citriodora | × | × |
| 20 | Angophora woodsiana | × | × |
| 21 | Eucalyptus crebra | ✓ | × |
| 22 | Corymbia citriodora | × | × |
| 23 | Angophora woodsiana | ✓ | × |
| 24 | Corymbia citriodora | × | × |
| 25 | Angophora woodsiana | × | × |
| 26 | Angophora leiocarpa | × | × |
| 27 | Corymbia citriodora | × | × |
| 28 | Angophora leiocarpa | ✓ | ✓ |
| 29 | Angophora leiocarpa | ✓ | × |
| 30 | Angophora woodsiana | × | × |
| TOTAL | | 8 | 2 |
| TOTAL (%) | | 26.7% | 6.67% |

| SURVEY LOCATION | | AU4.1 | |
|---|---|---|---|
| UNIT | | AU4 | |
| DATE | | 29/09/2023 | |
| TIME | | 12:28PM | |
| TREE | SPECIES | SCAT | SCRATCHES |
| 1 | Corymbia trachyphloia | × | × |
| 2 | Eucalyptus tessellaris | × | × |
| 3 | Eucalyptus tessellaris | × | × |
| 4 | Eucalyptus tessellaris | × | × |
| 5 | Eucalyptus tereticornis | × | × |
| 6 | Eucalyptus tessellaris | × | × |
| 7 | Eucalyptus tessellaris | ✓ | ✓ |
| 8 | Eucalyptus tessellaris | × | ✓ |
| 9 | Corymbia trachyphloia | × | × |
| 10 | Eucalyptus tereticornis | × | × |
| 11 | Corymbia trachyphloia | × | × |
| 12 | Eucalyptus tessellaris | × | × |
| 13 | Eucalyptus tessellaris | × | × |
| 14 | Corymbia trachyphloia | × | × |
| 15 | Corymbia trachyphloia | × | × |
| 16 | Corymbia trachyphloia | × | × |
| 17 | Eucalyptus crebra | × | × |
| 18 | Eucalyptus tessellaris | × | × |
| 19 | Eucalyptus tessellaris | × | × |
| 20 | Eucalyptus tereticornis | × | × |
| 21 | Eucalyptus crebra | × | × |
| 22 | Eucalyptus crebra | × | × |
| 23 | Eucalyptus tereticornis | × | × |
| 24 | Eucalyptus tereticornis | × | × |
| 25 | Eucalyptus tereticornis | × | × |
| 26 | Eucalyptus tereticornis | × | × |
| 27 | Eucalyptus tereticornis | × | × |
| 28 | Eucalyptus tereticornis | × | × |
| 29 | Eucalyptus tereticornis | × | × |
| 30 | Eucalyptus tereticornis | × | × |
| TOTAL | | 1 | 2 |
| TOTAL (%) | | 3.33% | 6.67% |

| SURVEY LOCATION | | AU4.2 | |
|---|---|---|---|
| UNIT | | AU4 | |
| DATE | | 29/09/2023 | |
| TIME | | 12:28PM | |
| TREE | SPECIES | SCAT | SCRATCHES |
| 1 | Eucalyptus crebra | × | × |
| 2 | Eucalyptus tessellaris | × | × |
| 3 | Eucalyptus tereticornis | × | × |
| 4 | Eucalyptus crebra | × | × |
| 5 | Eucalyptus tessellaris | × | × |
| 6 | Eucalyptus tessellaris | × | × |
| 7 | Eucalyptus crebra | × | × |
| 8 | Eucalyptus tessellaris | × | × |
| 9 | Eucalyptus tessellaris | ✓ | × |
| 10 | Eucalyptus tereticornis | × | × |
| 11 | Eucalyptus crebra | ✓ | × |
| 12 | Eucalyptus crebra | × | × |
| 13 | Eucalyptus crebra | ✓ | × |
| 14 | Eucalyptus crebra | × | × |
| 15 | Eucalyptus crebra | ✓ | × |
| 16 | Eucalyptus crebra | × | × |
| 17 | Eucalyptus crebra | × | × |
| 18 | Eucalyptus crebra | × | × |
| 19 | Eucalyptus crebra | ✓ | × |
| 20 | Eucalyptus tessellaris | × | × |
| 21 | Eucalyptus tessellaris | × | × |
| 22 | Eucalyptus crebra | × | × |
| 23 | Eucalyptus tessellaris | × | × |
| 24 | Eucalyptus tessellaris | × | × |
| 25 | Eucalyptus tessellaris | × | × |
| 26 | Eucalyptus crebra | × | × |
| 27 | Eucalyptus tereticornis | ✓ | ✓ |
| 28 | Eucalyptus crebra | × | × |
| 29 | Eucalyptus tereticornis | × | × |
| 30 | Eucalyptus tereticornis | × | × |
| TOTAL | | 6 | 1 |
| TOTAL (%) | | 20.0% | 3.33% |

# Appendix D

## Offset Management Plan – Annual Report June 2023

CHERISH THE ENVIRONMENT

# Offset Management Plan
# Annual Report June 2023

## Koala Habitat Offset
## 40-100 Harrison Road Calvert
## EPBC 2014/7306

Stockland Development Pty Ltd

**Prepared by Cherish the Environment Foundation Limited**

June 2023

## 1. Contents

# 2. Introduction and Background

## 2.1. Introduction

This report outlines progress in management and conformity with the approved Offset Management Plan (EPBC 2014/7306).

### Property Details

The property is located at 40-100 Harrison Road,  Calvert and described as Lot 230 CH311971

## 2.2. Management Objectives

The overarching management intent for the offset area is the removal of weeds, reduction of threats and protection of native vegetation to prevent the loss of biodiversity, maintain ecological processes and improve koala habitat quality. The successful implementation of proposed management mechanisms will assist with the creation of a self-sustaining, continuous area of high quality koala habitat supporting their population within the local landscape. This will help to achieve ICC's vision to create a locally significant conservation area within the Little Liverpool Range Corridor.

Natural regeneration and regrowth will be encouraged in open/sparse areas and areas of remnant vegetation will be managed to enhance and sustain their ecological condition and local environmental values to reduce their exposure to threatening processes including weed invasion, pests, pollution, clearing and disturbance.

## 2.3. Management Outcomes

The management strategies aim to protect and improve the value of the offset area as koala habitat. This will be primarily achieved through rehabilitation of the offset area (weed control) and implementation of other strategies such as restricting human and livestock access and fire management within the offset area. Management of the site will be undertaken for a minimum of ten years with ultimate weed control to achieve less than 5% total weed coverage. The intensity of management will be driven by the results of condition assessments completed on a regular basis. These assessments will be used to inform future determinations of koala habitat quality and are anticipated to show an improvement within five years across 50% of the offset area.

The dominant feature regarding ecological benefit within the offset area will be achieved through rehabilitation of the vegetation communities, thereby improving the quality of the habitats provided. It is expected that the greatest ecological benefit/improvement of the offset site may be attained within a year. This result is possible because as soon as the area is gazetted as an offset, it will be subject to a targeted management regime including ongoing management of weeds and grazing livestock as well as protection from self-assessable vegetation clearing.

The management outcome for the declared area is that the vegetation within meets the criteria, thresholds and descriptions outlined in the definition of remnant vegetation in the VMA. Additionally, that the entire declaration area is controlled and managed for the removal and suppression of declared weed species. Management outcomes are consistent with the requirements EPBC Act *Environmental Offsets Policy* and generally in accordance with management outcomes of the *Queensland Environmental Offsets Policy 2014.*

# 3. Offset Management Actions 2023

The management actions listed in the Offset Management plan to deliver improved koala habitat quality are detailed below along with progress and actions to June 2023.

The core objective of the Offset Management Plan is to maintain and enhance the koala habitat values throughout the declaration area. This will be primarily achieved through weed management works. Other management actions will also contribute however these are viewed as secondary to weed management. As such, monitoring and reporting will be undertaken to confirm if this primary objective has been or is going to be achieved. This includes both short term and long term criteria to measure success. The area, which is already functioning as koala habitat, is to be managed through weed removal and cooperative fire management and predator exclusion.

Rainfall affects vegetation growth, erosion, and weed growth. Rainfall recorded at Amberley BoM site ( 19 km from site) shows significant amounts of rain above the mean monthly rainfall from August 2022 to February 2023, as a result of the tail end of a La Nina Climate event. Flood events occurred in the area in both February and May 2022.

Summary Actions

A summary of planned actions and progress is attached in Table 1.

**Table 1 Planned Actions And Progress to June 2023**

| Management action | Monitoring action | Timeframe | |
|---|---|---|---|
| | | Trigger-based | Progress to 2023 |
| Erosion mitigation | • inspect completed mitigation measures | • approximately one month post completion; and<br>• approximately two weeks post first minor rainfall event; and<br>• approximately two weeks post first major rainfall event | • Assessment and mitigation actions complete. Inspections post severe rain events completed. Major rain event during the year resulted in minimal erosion. |
| Access infrastructure | • inspect existing and new access infrastructure | Existing access infrastructure:<br>• approximately two weeks post major rainfall event<br>New access infrastructure:<br>• approximately one month post completion; and<br>• approximately two weeks post first minor rainfall event; and<br>• approximately two weeks post first major rainfall event | • Maintenance tracks and cross drainage maintained x 2.<br>• Inspections post severe rain events completed.<br>• Downed vegetation removed, access maintained. |
| Weed management | • assess weed infestations and success | Weed reduction measures:<br>• approximately six months post completion | • Inspections to assess regrowth conducted. |

| Management action | Monitoring action | Timeframe | |
|---|---|---|---|
| | | Trigger-based | Progress to 2023 |
| | of weed reduction measures | | • Increase in overall ground vegetation, including weeds consequent to ongoing rainfall conditions. Weed treatment is ongoing and will be ramped up once sufficient rainfall is received in Spring 2023 |
| Fire management | • assess suitability of fire breaks and access tracks | • approximately one month post fire event | • Boundary firebreaks slashed x 2 along with access tracks and inter-rows in the in-fill plantings. Cool Burn planned for Autumn 2024 |
| Infill planting | • assess success of infill planting | • approximately six months post completion | • Completed and maintained weed free. |
| Pest and animal management | • assess presence of pests and suitability of boundary fencing<br>• undertake pest management | • ad hoc as part of property management | • Boundary fencing erected so the entire site excludes stock.<br>• Wildlife cameras at strategic locations to monitor for species richness. No feral species, eg. wild dogs or pigs, captured on camera. |

## 3.1. Erosion Mitigation

Significant active erosion points must be repaired where possible and feasible (i.e. likely to succeed or be effective). Repair work involves re-profiling (where appropriate) and re-directing overland water flow away from the erosion path using cross-drainage. Cross-drainage should be located along all permanent access tracks at appropriate intervals. Allowance should be made for future maintenance of cross-drainage throughout the site.

**Progress to May 2019**

Cut-off diversion drains to prevent ongoing erosion were constructed at several locations on old and unused access tracks.

**Progress to June 2020**

No major storm events received and overall rainfall only 64% of long term average (Amberley BoM).

Previously constructed erosion control diversion drains on abandoned tracks and washouts were inspected and are in serviceable condition.

**Progress to June 2021**

The previous diversions and increases in ground cover due to stock removal have resulted in no evidence of significant erosion resulting from the March 2021 rain event.

**Progress to June 2022**

The previous diversions and increases in ground cover due to stock removal have resulted in no evidence of significant erosion resulting from the February and May 2022 rain events.

**Progress to June 2023**

The previous diversions and increases in ground cover due to stock removal and climate conditions have resulted in no evidence of significant erosion resulting from ongoing rainfall conditions rain events.

## 3.2. Access Infrastructure

The construction and/or re-opening of tracks will be necessary to facilitate weed management, infill planting establishment and maintenance, fence line construction and maintenance, pest management and fire protection activities.

**Progress to May 2019**

A track network was carefully designed and constructed across the property that meets management requirements. All tracks have cross drainage to prevent erosion as required. The tracks are to a standard that is accessible by standard high clearance vehicles and are maintained and slashed regularly for fire management.

Inspections immediately following severe rain events were conducted to assess and ensure any erosion could be repaired.

**Progress to June 2020**

Tracks were slashed and maintained twice through the period. This involved repair to the cut-off drains due largely to settlement.

Inspections immediately following severe rain events were conducted to assess and ensure any erosion could be repaired.

**Progress to June 2021**

Inspections immediately following severe rain events were conducted to assess and ensure any erosion could be repaired. No repairs were required, however there has been some deposition in the cross road drainage from the March 2021 event which will require maintaining to improve capacity.

**Progress to June 2022**

Inspections immediately following severe rain events were conducted to assess and ensure any erosion could be repaired. No repairs were required, however there has been further deposition in the cross road drainage from the February 2022 and May 2022 event which will require maintenance.

**Progress to June 2023**

Inspections immediately following severe rain events were conducted to assess and ensure any erosion could be repaired. No repairs were required. Tracks a re now on a scheduled maintenance program.

## 3.3. Weed Management

The weed management actions aim to improve the flora and fauna values of the area through weed removal and promoting native species growth and will provide the greatest positive impact on koala habitat.

An intensive, 5-year weed management program is proposed for the remnant and regrowth parts of the offset area. The primary weed treatment process will begin as soon as practical, with follow-up weed treatment undertaken annually. After the first three years, the required management intensity should reduce significantly.

Weed management will occur in two phases throughout the approval period

1. Intensive weed management until year 6; and
2. Ad-hoc weed management from year 6 until the end of the approval period.

**Progress to May 2019**

Comprehensive primary weed treatment process commenced across the entire site with emphasis on lantana and prickly pear in June 2019 and completed in October 2019. The main areas for more intensive assessment are the drainage lines where the lantana was dense and is now open. The methodology involved setting out transects and predominantly hand pulling/ digging of weeds. This labour intensive process achieved excellent results with little chemical use.

**Progress to June 2020**

Follow up weed treatment commenced in June 2020 with an ongoing focus on lantana, climbing asparagus and prickly pear.

**Progress to June 2021**

Weeds have not been in sufficient abundance to trigger intervention following inspections to February 2021. This was due mainly to the previous comprehensive weed control and prevailing dry conditions.

There are now emergent weeds such as fleabane and lantana regrowth following the March rain event.

Fleabane (Conyza spp.) is an annual or biennial weed which is widespread in south east Queensland. It readily germinates in wet autumn conditions.

**Progress to June 2022**

There are currently emergent weeds such as fleabane and lantana regrowth following the February and May 2022 rain events. Further weed treatment will be required in the coming months.

**Progress to June 2023**

There are currently emergent weeds lantana regrowth following ongoing above average rainfall. Further weed treatment will be required in the coming months particularly in gully areas of the property..

## 3.4. Fire Management

At this stage in the project, fire management activities have been limited to fire exclusion and asset protection. Prescribed burning (for fuel reduction or regeneration initiation) is restricted within the V-Dec area until a Fire Management Plan is developed. This plan will need to be reviewed/endorsed or similar by the rural fire brigade or other relevant stakeholder prior to implementation.

Strategic fire access tracks were initially established in consultation with neighbours where possible along the property boundary and at other strategic locations. Neighbours are resistant to any prescribed burning and are vigilant in fire management.

Well maintained tracks provide for rapid deployment and gates have been installed at strategic locations on boundary fencing to allow for movement across boundaries.

**Progress to May 2019**

Slashing of all boundary and maintenance tracks as well as inter-rows of the in-fill plantings is maintained to reduce fuel loads.

**Progress to June 2020**

Slashing of all boundary and maintenance tracks as well as inter-rows of the in-fill plantings is maintained to reduce fuel loads.

**Progress to June 2021**

Slashing of all boundary and maintenance tracks as well as inter-rows of the in-fill plantings is maintained to reduce fuel loads. There have been no fires in or near the site.

**Progress to June 2022**

Slashing of all boundary and maintenance tracks as well as inter-rows of the in-fill plantings has continued to be maintained to reduce fuel loads. There have been no fires in or near the site.

**Progress to June 2023**

Slashing of all boundary and maintenance tracks as well as inter-rows of the in-fill plantings has continued to be maintained to reduce fuel loads. There have been no fires in or near the site. A cool burn is being planned for autumn 2023 to assist with regeneration.

## 3.5. Infill Planting

A small, one hectare patch of open, grassy area in the south-east corner of Lot 230 CH311971 will require infill planting. Approximately 400 trees typical of regional ecosystems 12.9-10.2 and 12.9-10.3 will be planted in the area.

**Progress to May 2019**

The infill area was planted in March 2018 with some being replaced in October 2018 following severe frost damage. The area is maintained weed free in the rows and slashed between the rows to reduce both competition and fire risk.

**Progress to June 2020**

The infill area is established but growth is slow due to the continuing dry conditions and competition from established trees. The area is maintained weed free in the rows and slashed between the rows to reduce both competition and fire risk.

Post-plant weed control conducted in January 2020 and April 2020. Post-plant spray has been effective (weeds and grass along the tree rows is dead or dying). Planted trees are healthy and show no signs of spray damage.

Perimeter and inter-rows were slashed in April 2020.

**Progress to June 2021**

The infill area is established and trees continue to grow steadily although slow due to the continuing dry conditions and competition from established trees. The area is maintained weed free in the rows and slashed between the rows to reduce both competition and fire risk.

Post-plant weed control was conducted in January 2021 and May 2021. Post-plant spray has been effective (weeds and grass along the tree rows is dead or dying). Planted trees are healthy and show no signs of spray damage.

The perimeter and inter-rows were slashed in January 2021. Appendix C Photo Point 2 shows the infill site condition in June 2020 and June 2021.

**Progress to June 2022**

The infill area is established and trees continue to grow steadily with reasonable growth due to wet conditions. The area is maintained weed free in the rows and slashed between the rows to reduce both competition and fire risk.

Post-plant weed control was conducted in January 2021, May 2021 and May 2022. Post-plant spray has been effective (weeds and grass along the tree rows is dead or dying). Planted trees are healthy and show no signs of spray damage.

Appendix C Photo Point 2 shows the infill site condition in June 2020, June 2021 and June 2022.

**Progress to June 2023**

The infill area is established and trees continue to grow steadily with reasonable growth due to wet conditions. The area is maintained weed free in the rows and slashed between the rows to reduce both competition and fire risk.

Post-plant weed control was conducted in January 2021, May 2021 and May 2022 and February 2023. Post-plant spray has been effective (weeds and grass along the tree rows is dead or dying). Planted trees are healthy and show no signs of spray damage.

## 3.6. Pest and Animal Management

There is no internal fencing on the property. Boundary fencing will be constructed, repaired and maintained to exclude domestic stock and pests. Pest animals such as wild dogs will be addressed via a control program that will be implemented at the discretion of the landholder.

This fencing is scheduled to be established/constructed within 12 months of the V-Dec being certified and must be in place for the duration of the approval.

A wild dog control program will occur ad hoc during the approval period.

**Progress to May 2019**

Fencing has been repaired/ replaced along the entire eastern boundary, and new fencing erected on the northern and north western boundaries.

Wildlife cameras have been deployed and are regularly monitored. Animals captured include kangaroos, wallabies, bandicoots, echidnas, and possums. There has been no evidence or wild dogs or pigs presence across the site.

**Progress to June 2020**

Fencing has been inspected regularly and repaired as required, mainly due to limbs falling across the fence.

Wildlife cameras have been deployed and are regularly monitored. Due to the drought and lack of water on site, a small water station was deployed to attract wildlife to the camera. The water station was popular with a range of birds. Images captured include kangaroos, wallabies, echidna, lace monitors and possums. There has been no evidence or wild dogs or pigs presence across the site.

**Progress to June 2021**

Fencing has been inspected regularly and repaired as required, mainly due to limbs falling across the fence.

Wildlife cameras have been deployed and are regularly monitored. Due to the drought and lack of water on site, a small water station was deployed to attract wildlife to the camera. The water station was popular with a range of birds. Images captured include kangaroos, wallabies, echidna, lace monitors and possums. There has been no evidence or wild dogs or pigs presence across the site. The water station was removed in January 2021 due to improved conditions.

**Progress to June 2022**

There continues to be no evidence of wild dogs or pigs presence across the site.

**Progress to June 2023**

There continues to be no evidence of wild dogs or pigs presence across the site.

## 3.7. Habitat Improvement Monitoring

In accordance with Condition 3 of the approval, to compensate for the impacts to koala habitat, detailed outcomes and milestone must be achieved. Success will be measured by comparing baseline values for koala habitat quality and extent to future data.

**Progress to May 2019**

A comprehensive site condition assessment was carried out in July and August of 2018, to benchmark current vegetation condition and thus provide a point of reference for future verification of management intervention.

Regional ecosystem vegetation was mapped and reference plots established.

**Progress to June 2020**

Five Photo Reference Points were established using the condition assessment transects as a base for ongoing monitoring. A map of the reference sites and the geo-referenced photo points is contained in Appendix C .

**Progress to June 2021**

Five Photo Reference Points continued to be monitored.

**Progress to June 2022**

Five Photo Reference Points continued to be monitored.

**Progress to 2023**

A site condition assessment of the site at the five year mark has been undertaken demonstrating an improvement in ecological condition on the site. Koala utilisation monitoring is planned to occur by mid October 2023

# 4. Conclusion

As outlined, the activities are consistent with the management objectives and the annual management plan.

Wetter weather conditions prevailed for most of the year with a continuing La Nina climate event resulting in a flush of ground cover and improved leaf cover.  There has been good growth in the infill planting. However this has also caused a re-emergence of some weed species that will require treatment

There have been no outstanding events or issues and the site continues to be on track to meet the offset objectives.

# 5. Appendices

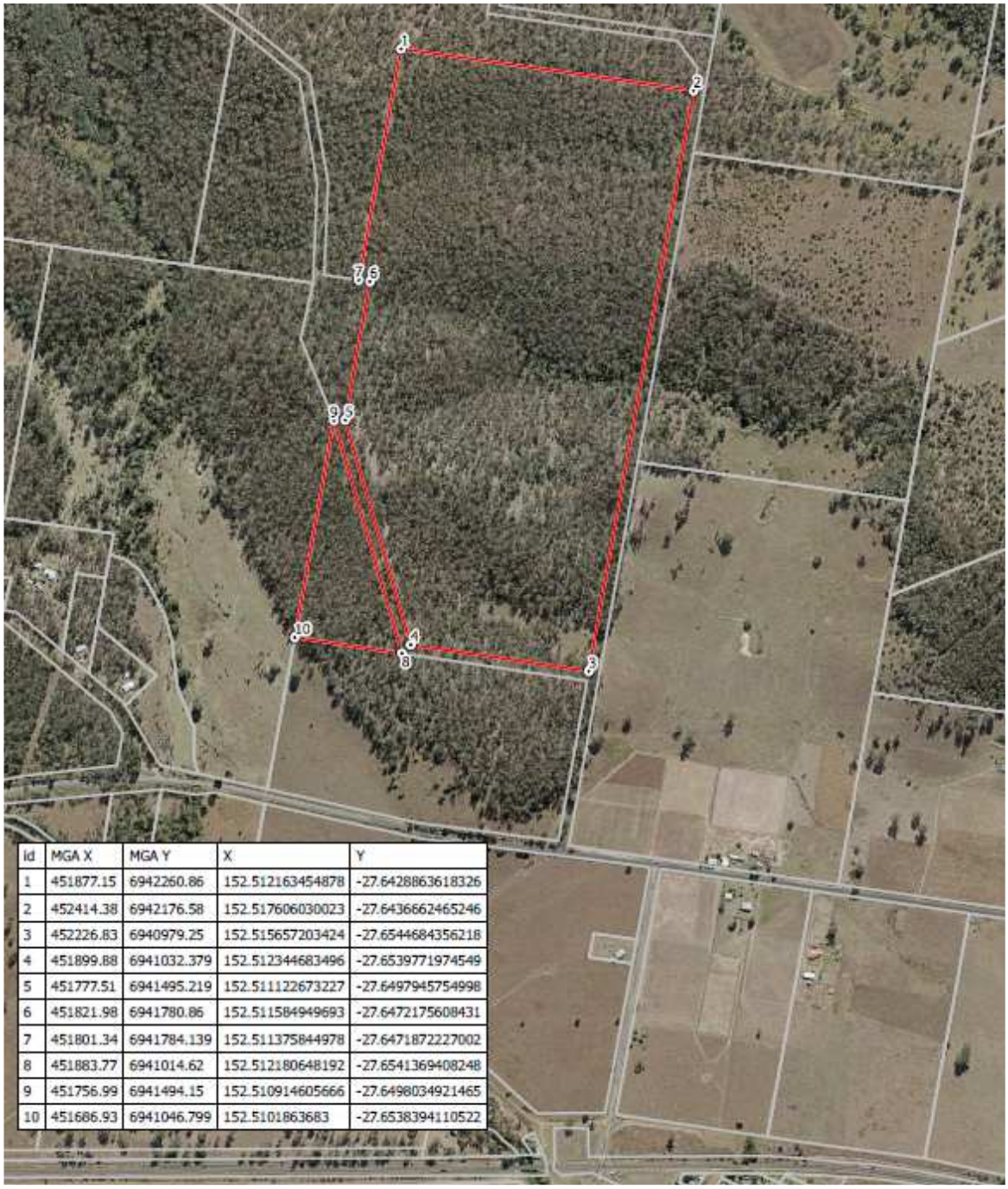
**Appendix A: Site Map**

**Appendix B: Wildlife**

**Appendix C: Photo Reference Site Monitoring Photos**

## 5.1 Appendix A: Site Map

**Figure 1: Bounding coordinates for offset area**




| id | MGA X | MGA Y | X | Y |
|---|---|---|---|---|
| 1 | 451877.15 | 6942260.86 | 152.512163454878 | -27.6428863618326 |
| 2 | 452414.38 | 6942176.58 | 152.517606030023 | -27.6436662465246 |
| 3 | 452226.83 | 6940979.25 | 152.515657203424 | -27.6544684356218 |
| 4 | 451899.88 | 6941032.379 | 152.512344683496 | -27.6539771974549 |
| 5 | 451777.51 | 6941495.219 | 152.511122673227 | -27.6497945754998 |
| 6 | 451821.98 | 6941780.86 | 152.511584949693 | -27.6472175608431 |
| 7 | 451801.34 | 6941784.139 | 152.511375844978 | -27.6471872227002 |
| 8 | 451883.77 | 6941014.62 | 152.512180648192 | -27.6541369408248 |
| 9 | 451756.99 | 6941494.15 | 152.510914605666 | -27.6498034921465 |
| 10 | 451686.93 | 6941046.799 | 152.5101863683 | -27.6538394110522 |