



## **Brimbin Biodiversity Certification Modification - Infrastructure Corridor**

Prepared for

**Roche Group Pty Ltd**

Final V2 / June 2024

02 4054 9539

info@mjdenvironmental.com.au

PO Box 360 Waratah NSW 2298

MJDenvironmental.com.au



**DOCUMENT STATUS**

Project Particulars			
Project Name	Brimbin Biodiversity Certification Modification - Infrastructure Corridor		
Job Number	19011		
Client	Roche Group Pty Ltd		
Status	Final V2		
Version	Date	Prepared by	Details
V1	12-06-2024	KM/LP/MD	Draft for client review
V2	24-06-2024	KM/LP/MD	Final for submission

Approval for use:

**Matt Doherty Director**

24 June 2024

---

**Disclaimer**

*This document may only be used for the intended purpose for which it was commissioned by the client in accordance with the contract between MJD Environmental and client. This report has been prepared in response to an agreed scope and based on available data including that supplied by the client. It has been assumed that all supplied information is both accurate and current. This report, results and outcome are accurate at date of production and subject to change over time along with the legislative and policy framework under which it was prepared.*

*MJD Environmental (Aust) Pty Ltd will not be liable or responsible whatsoever for or in respect of any use of or reliance upon this report and its supporting material by any third party. Unauthorised use of this report in any form whatsoever is prohibited.*

---

## CONTENTS

1	Introduction .....	1
2	Background - Biodiversity Certification Overview.....	2
3	Background - Approved Wastewater Servicing Strategy and Infrastructure Corridor.....	3
4	The Proposed Modification.....	4
5	Ecological Field Survey & Results.....	6
6	Conservation ( <i>E.seeana</i> replanting) Land.....	12
7	Conclusion.....	13
8	References & Bibliography .....	14

## LIST OF FIGURES

Figure 1	Biodiversity Certification Modification Area.....	1
----------	---	---

## APPENDICES

Appendix 1	Brimbin Biocertification Plan.....	16
Appendix 2	Brimbin Biocertification Areas.....	18
Appendix 3	Servicing Strategy extract.....	20
Appendix 4	Brimbin BioCertificaiton as Modified .....	22
Appendix 5	Ecological Field Survey .....	24
Appendix 6	BAM Plot Data .....	26
Appendix 7	Vegetation Mapping .....	30

## GLOSSARY OF TERMS AND ABBREVIATIONS

Term/ Abbreviation	Meaning
BC Act	Biodiversity Conservation Act 2016
BOS	Biodiversity Offset Scheme
DoEE	Commonwealth Department of the Environment and Energy
DPIE	NSW Department of Planning, Industry and Environment
DPI Water	NSW Department of Primary Industries – Water
EEC	Endangered Ecological Community
EP&A Act	NSW Environmental Planning and Assessment Act 1979
EPBC Act	Commonwealth Environment Protection and Biodiversity Conservation Act 1999
ha	Hectare
HBT	Hollow-bearing Tree
LGA	Local Government Area
Council	Mid-Coast Council
MCC	Mid-Coast Council
OEH	NSW Office of Environment and Heritage [ <i>former</i> ]
TEC	Threatened Ecological Community

# 1 Introduction

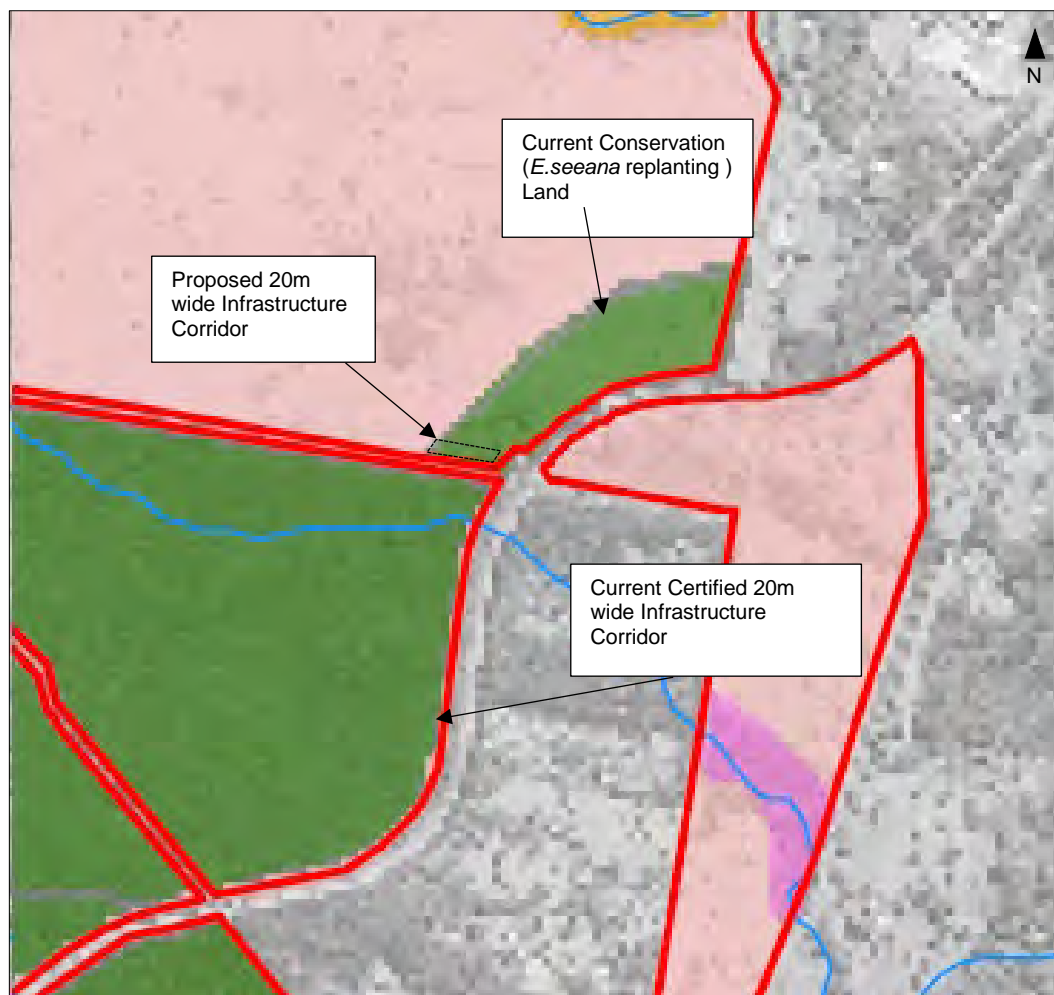
MJD Environmental has been engaged by Roche Group Pty Limited to prepare a minor modification to the Brimbin Biodiversity Certification.

The purpose of this modification is to facilitate servicing of Brimbin New Town. Specifically, a 20m wide infrastructure corridor is required across a Conservation (*E. seeana* replanting) Land to connect Brimbin New Town to a certified infrastructure corridor that runs on the western side of the rail corridor, as generally depicted in **Figure 1** below. The application seeks to modify the Conservation (*E. seeana* replanting) Land by revising its area that:

- exclude the additional corridor (0.32ha) from that area; and
- expand the area to provide a widened (minimum 200m) and larger Conservation (*E. seeana* replanting) Land.

Through the modification of the Conservation Land (reducing it in one part and extending it in another) and the substitution of certain approved conservation measures (being *E. seeana* replanting) to the amended Conservation Land, the modification substitutes an equivalent conservation measure for the approved conservation measure.

This brief report provides background and context to the proposed modification including justification and evidence to inform the same.



**Figure 1 Biodiversity Certification Modification Area**

## 2 Background - Biodiversity Certification Overview

Biodiversity certification was conferred by the Minister for Environment for Brimbin in accordance with Section 126H of the *Threatened Species Conservation Act 1995* (TSC Act) on 1 October 2015 and took effect from 16 October 2015. Refer to **Appendix 1** and **Appendix 2** for plans of the Brimbin Biodiversity Certification Assessment Area.

As limited by the legislation at that time, the applicant for the biodiversity certification was the planning authority, Greater Taree City Council, with the certification requested by and with agreement from Roche Group as landowner. The biodiversity certification was supported by a planning agreement between the Minister, Council and Roche Group to give effect to certain approved conservation measures (noting those certain measures are not subject to this modification). The planning instrument measures identified in the conferral were captured in the rezoning of the Brimbin Biodiversity Certification Assessment Area, which followed the conferral in December 2015.

Within the biodiversity certification assessment area, lands were classed as:

- Certification Area – 1666.2ha – lands on which certification has been conferred.
- Conservation Land – 1019.2ha
- Retained Areas – 845.9ha – lands that are neither certified or conservation.

Roche Group, as landowner and developer, have responsibility for implementing certain measures, making them a party to the certification. As part of the approved conservation measures, most of the conservation lands (those with the highest biodiversity values) were identified for transfer to the State with funded management in accordance with a planning agreement. Those lands were transferred by Roche Group into State ownership in 2019. That land transfer included the 20m wide infrastructure corridors, which were protected for access, construction, and operation of infrastructure through easements created prior to the transfer.

The other Conservation land (including cleared lands and requiring variable restoration actions) were to remain in Roche Group ownership and are identified for replanting as Brimbin New Town develops.

Conferral for Brimbin occurred before the commencement of the *Biodiversity Conservation Act 2016* (BC Act) and under Clause 35 of the *Biodiversity Conservation (Savings and Transitional) Regulation 2017*, the Brimbin biodiversity certification is now taken to have been made under BC Act Part 8. The Biocertification strategy and conferral acknowledged a surplus of credits to those required under the Biobanking Scheme at that time.

### 3 Background - Approved Wastewater Servicing Strategy and Infrastructure Corridor

Mid Coast Council approved a wastewater servicing strategies for Brimbin New Town in November 2022. In the context of this modification application, the wastewater strategy requires the construction of multiple rising mains from the Dawson Wastewater Treatment Plant (south of Brimbin Road), along the western side of the railway corridor (within the certified 20m wide infrastructure corridor) and through to the Brimbin New Town. **Appendix 3** includes a summary extract from the approved strategy for context purposes. The infrastructure corridor will ultimately need to include access for, construction and operation of three x rising mains, constructed in stages over the life of the development, with an initial rising main required to service already approved development.

In 2023, MJD Environmental undertook ecological review of options to achieve the essential infrastructure route from the certified corridor to the certified development lands. This included potential for the connection to occur along the unformed Crown Road Reserve (not part of the biodiversity certification assessment area) or least impact alignments through the biodiversity certification assessment area.

Given the good quality vegetation in the road reserve (Refer to summary of ecological field survey and results provided below.) and careful consideration of the biodiversity certification, an ecologically preferred option (that would also meet infrastructure planning requirements) was identified and recommended to locate the corridor across land immediately to the north of the road reserve. This recommendation has led to this current modification application.

## 4 The Proposed Modification

In summary, it is proposed to modify the Conservation Land in part of Lot 81 DP 848750 and apply the relevant conservation measure (being the replanting of *Eucalyptus seeana* in appropriate rehabilitation areas within the Conservation Land) to the modified Conservation Land, generally as shown in **Appendix 4**. This is further described below.

The recommended 20m infrastructure corridor currently forms part of a conservation (*E. seeana* replanting) land under the biodiversity certification. **Appendix 2** identifies the location of this relevant 'Conservation E2 (*E. seeana* replanting) area, in the context of the overall biodiversity certification assessment area. It is this small area within the broader biodiversity certification that is subject to the modification. That small area sits within part of Lot 81 DP 848750.

The Conservation E2 (*E. seeana* replanting) Land in part of Lot 81 is described in Figure 2 (a copy of which is also included in **Appendix 2**) of the Brimbin Biodiversity Certification Strategy (Niche, Nov 2014) as Conservation E2 (*E. seeana* replanting) bounded by a 10m buffer (to be replanted) and has a combined area (replanting plus buffer) of 9.46ha (taken from biocertification GIS shape file data). Under the terms of the biodiversity certification and as described in the Biodiversity Certification of Land - Brimbin Recommendation Report (OEH, 2015) including Table 2 and Figure 9, the area is to be revegetated to enhance linkages across the broader landscape. Specifically, the area is to include plantings of the threatened species *Eucalyptus seeana* (Narrow-leaved Red Gum).

The 20m infrastructure corridor sought under this modification covers an area of 0.32ha within the mapped Conservation E2 (*E. seeana* replanting) (inclusive of its 10m buffer (to be revegetated)). Whilst currently highly disturbed and with limited biodiversity value, a minor fragmentation to the broader landscape linkage would occur because of the infrastructure corridor excluding replanting from this small area. Notwithstanding, the 20m wide fragmentation to replanting is not considered to represent a hostile connection for target fauna discussed in the biocertification reports and/or known from the region more broadly.

Given the modification is to exclude the infrastructure corridor from the Conservation (*E. seeana* replanting) Land, it is also proposed to include an area of certification area, in similar condition, abutting the existing Conservation (*E. seeana* replanting) Land into the replanting area. In combination (and including administrative adjustments to shapefiles in this modification area to reflect current DCDB title boundaries), it is proposed to modify the approved Conservation (*E. seeana* replanting) Land by reducing it in part and extending it in another, and applying the *E. seeana* replanting approved conservation measure to that amended Conservation Land. Together, this substitution increases the measure to be applied to 11.88ha, to a minimum width of 200m.

The proposed areas of change to the Conservation (*E. seeana* replanting) Land as described above have been illustrated in **Appendix 4**.

Clause 8.22 of BC Act (below) outlines the provisions for modification of any biodiversity certification including extending or limiting certification by modifying the description of land that is certified or modifying the approved conservation or other measures. Clause 8.22(3) outlines that a biodiversity certification assessment report (BCAR) is not required for modifications that "substitute equivalent conservation measures for any of the approved conservation measures".



**8.22 Modification of certification**

- (1) The Minister may, by order published in the Gazette, modify any biodiversity certification by:
  - (a) modifying the description of land that is biodiversity certified (to extend or limit biodiversity certification), or
  - (b) modifying the approved conservation or other measures under the biodiversity certification.
- (2) Biodiversity certification may be modified:
  - (a) on application (in the form approved by the Minister) by a party to the biodiversity certification or a party to a biodiversity certification agreement entered into in connection with the biodiversity certification, or
  - (b) on the Minister's own initiative (following at least 28 days notice to the parties to the biodiversity certification of the proposed modifications).
- (3) Despite section 8.7, a biodiversity certification assessment report is not required in respect of a proposed modification that substitutes equivalent conservation measures for any of the approved conservation measures under a biodiversity certification. Unless a biodiversity certification assessment report is not required, an application for the modification of a biodiversity certification is to be accompanied by a revised biodiversity certification assessment report prepared by an accredited person.

**Note.** Section 8.7 requires a biodiversity certification assessment report for any proposed modification.

Equivalent conservation measures are defined by the BC Act to mean "conservation measures that are determined by the Minister to have an equivalent biodiversity value to the approved conservation method".

## 5 Ecological Field Survey & Results

A field survey of the 20m infrastructure corridor and Crown Road Reserve (the study area) was undertaken by MJD Environmental ecologists on the 2<sup>nd</sup> to 3<sup>rd</sup> August 2023. A BAM plot of the 20m infrastructure corridor was completed at that time. A subsequent survey of the certification area where the conservation land is proposed to be extended over as discussed in Chapter 4, to collect two (2) BAM plots, was completed 27<sup>th</sup> May 2024. The field survey sought to delineate extant vegetation to PCT, record any threatened species detectable during the survey period, and identify habitat for local threatened flora and fauna.

The Study Area and field survey effort is presented in **Appendix 5** and site observations are described below.

- Avifauna species common to open forest vegetation and disturbed landscapes were observed including Pied Butcherbird (*Cracticus nigrogularis*), Australian Magpie (*Cracticus tibicen*), Australian Raven (*Corvus coronoides*), Rainbow Lorikeet (*Trichoglossus haematodus*), Red-browed Finch (*Neochmia temporalis*), Laughing Kookaburra (*Dacelo novaeguineae*) and Yellow-tailed Black-Cockatoo (*Zanda funerea*).
- No arboreal or terrestrial mammals or herpetofauna were observed.
- Within the Proposed Infrastructure Corridor, the following ecological observations were recorded:
  - Two (2) *Eucalyptus seeana* (Narrow-leaved Red Gum) individuals were recorded; and
  - no other significant habitat attributes.
- Within the Crown Road Reserve the following ecological observations were recorded:
  - Eleven (11) *Eucalyptus seeana* (Narrow-leaved Red Gum) individuals were recorded.
  - Two (2) hollow bearing trees; and
  - Four (4) termite terrariums
- Within the Certification area where conservation (*E. seeana* replanting) is proposed to extend, the following ecological observations were recorded:
  - Limited habitat for flora and fauna – no hollow-bearing trees or *E. seeana* observed in the land traversed or BAM plots collected.
  - Scattered trees and shrubs toward the south, reducing to pasture only in the north
  - Pasture dominated by Whiskey Grass and Carpet Grass

Three BAM Floristic Plots were undertaken in accordance with BAM (2020). The plots were undertaken within VZ4 (1 plot) and VZ5 (2 plots), to determine the Vegetation Integrity of the existing site areas to subject to the Biocertification Modification and to support evidence of equivalence in biodiversity value

The BAM plot data is provided as **Appendix 6** and Vegetation Integrity (VI) Scores calculated using the BAM-C are presented in **Table 1** below. The BAM-C VI calculation demonstrates the land subject to the modification (being the Conservation Land where it is to be reduced and where it is be extended) is of a low condition site score according to the BAM thresholds, and the future value arises from replanting of the lands as proposed by the BioCertification approval and this modification, that is as was intended under the original BioCertification approval. Given there has been management in the current Conservation Land with a particular focus on weedy grass treatment, the VI for this area is higher which may be a reflection of the weed pressure removal allowing for some natural regeneration to occur. Notably the BAM plot in this location is close to a well vegetated patch to the south and therefore would benefit from seed dispersal.

The VI assessed via collection of BAM plots and input to the BAM-C, resulted in a VI below the lowest BAM threshold to drive ecosystem credits or to undertake candidate species surveys other than considerations relating to SAll in the land subject to the modification (being the Conservation Land where it is to be reduced and where it is be extended). This demonstrates the current site

context to which the measure applies (and would apply under the modification) is disturbed and has limited biodiversity value.

This is consistent with the fact that this particular conservation measure was not relied upon under any metric tool (given that pasture was not assessed under BBAM as impact was taken to have already occurred) within the Biodiversity Certification documentation/order. As such, it did not generate BBAM credits (impact or conservation) for which the Biocertification relied upon. The value of the measure at the time of conferral would be realised in the future by revegetation of the land with *E. seeana*.

The provision of the contemporary objective site data via application of the BAM provides the Minister sufficient evidence to be satisfied that the amendment is readily established to be an equivalent conservation measure.

**Table 1 Vegetation Integrity Scores**

Vegetation Zone	Plot	Area (ha)	Composition condition score	Structure condition score	Function Score	Vegetation Integrity Score
VZ4: 3249_Disturbed	1	0.32	39.1	1.8	32.4	13.1
VZ5: Disturbed – Pasture in Certified URA Lands	2	1.95	13.1	0	16.9	1.3

Vegetation Mapping is presented in **Appendix 7** and descriptions provided below.

PCT 3244 - Low North Spotted Gum-Mahogany-Ironbark Sheltered Forest	
PCT ID	3244
Area within Study Area	0.14 (Good)
Vegetation Formation / Class	KF_CH2A Wet Sclerophyll Forests (Grassy Shrub sub-formation) / Northern Hinterland Wet Sclerophyll Forests
Survey Effort	Detailed Walkover
Floristic Description	<p><u>VZ1 Good</u></p> <p>The dominant PCT is situated within the Crown Road Reserve (southwest) of the study area was 3244 Lower North Spotted Gum-Mahogany-Ironbark Sheltered Forest. This was edge effected and had a less dense mid and ground strata compared to PCT 3249.</p> <p>Canopy species in this PCT included <i>Corymbia maculata</i> (Spotted Gum), <i>Eucalyptus seeana</i> (Narrow-leaved Red Gum) and <i>Eucalyptus paniculata</i> (Grey Ironbark).</p> <p>The midstory was sparse, and included <i>Allocasuarina torulosa</i> (Forest Oak), <i>Pultenaea villosa</i> (Hairy Bush pea), <i>Acacia leiocalyx</i> (Black Wattle), <i>Leucopogon juniperinus</i> (Prickly Bear-Heath), <i>Pultenaea retusa</i> (Notched Bush Pea) and <i>Acacia falcata</i> (Sickle-Leaf Wattle).</p> <p>The Ground stratum included <i>Imperata cylindrica</i> (Blady Grass), <i>Entolasia stricta</i> (Wiry Panic), <i>Cynodon dactylon</i> (Couch), <i>Pteridium esculentum</i> (Bracken Fern), and <i>Dichondra repens</i> (Kidney Weed). Due to edge effects, <i>Andropogon virginicus</i> (Whiskey Grass) was present throughout at low levels.</p>
Condition within Study Area	Good

**PCT 3244 - Low North Spotted Gum-Mahogany-Ironbark Sheltered Forest**

Justification for PCT Selection	<ul style="list-style-type: none"> <li>Tall sclerophyll open forest, with canopy species commensurate with PCT 3244 including the diagnostic inclusion of <i>Corymbia maculata</i> (Spotted Gum) and absence of <i>Corymbia intermedia</i> (Pink Bloodwood)</li> <li>Mid-dense ground layer with <i>Pteridium esculentum</i> (Bracken Fern), <i>Imperata cylindrica</i> (Blady Grass)</li> </ul>
Equivalent Retired PCT (Niche 2014)	HU763 Spotted Gum Ironbark Forest
Status	BC Act: Not listed
	EPBC Act: Not Listed
	Vegetation was not considered EEC or Red Flag under BioCertificaiton Assessment



Plate 1. 3244 (Good)

**PCT 3249 - Northern - Bloodwood-Ironbark - Moist – Grassy - Forest**

PCT ID	3249
Area within Study Area	<p>0.31 ha (Good)</p> <p>0.15 ha (Melaleuca variant)</p> <p>0.54 ha (Disturbed) [0.32 in Biocertified Conservation (<i>E. seeana</i> replanting) Land – proposed Infrastructure Corridor)</p> <p>1.95 ha (Disturbed – Certification area – proposed extension to Conservation Land (<i>E. seeana</i> replanting))</p>
Vegetation Formation / Class	KF_CH2A Wet Sclerophyll Forest (Grassy sub-formation) / Northern Hinterland Wet Sclerophyll Forests
Survey Effort	Detailed Walkover
Floristic Description	Two zones, namely VZ2 and VZ3 of the Study Area contain PCT 3249, varying in floristic composition and/or structure. The remaining zones, VZ4 and VZ5, displayed limited floristic diversity and lack of structural integrity associated with

## PCT 3249 - Northern - Bloodwood-Ironbark - Moist – Grassy - Forest

landuse history, that has resulted in disturbance levels across this area such that it does not currently form a community.

VZ2 Good

This Vegetation Zone is situated within the Crown Road Reserve abuts the Biocertification conservation area being a historically cleared paddock to the north, now zoned C2 land. As such, the interface between the modified and unmodified vegetation zones is edge effected, with species such as *Andropogon virginicus* (Whiskey Grass) a constituent of the ground cover for the first 5 m from the unmodified vegetation.

The canopy has near full crown cover and is dominated by *Corymbia intermedia* (Pink Bloodwood), *Eucalyptus globoidea* (White Stringybark), *Eucalyptus paniculata* (Grey Ironbark), *Eucalyptus umbra* (Broad-leaved White Mahogany), and *Eucalyptus propinqua* (Small Fruited Grey Gum).

The midstratum is moderately dense and includes *Melaleuca nodosa* (Prickly-leaved Paperbark), *Acacia leiocalyx* (Black Wattle), *Allocasuarina littoralis* (Black She-oak) and *Callistemon salignus* (Willow Bottlebrush).

The groundcover has a high density of native grasses, particularly *Entolasia stricta* (Wiry Panic), *Aristida vagans* (Three awn Spear grass), *Paspalidium distans* and *Imperata cylindrica* (Blady grass).

VZ3 Melaleuca variant

The Central South region of the study area, within the Crown Road Reserve, consists of PCT 3249, with an altered floristic composition. The canopy included *Eucalyptus seeana* (Narrow-Leaved Red Gum), *Eucalyptus globoidea* (White Stringybark), *Eucalyptus paniculata* (Grey Ironbark), *Eucalyptus umbra* (Broad-leaved White Mahogany), and *Eucalyptus propinqua* (Small Fruited Grey Gum).

The midstory was denser than aforementioned vegetation zones, with particularly high abundances of *Melaleuca nodosa* (Prickly-leaved Paperbark), *Melaleuca linariifolia* (Budjar) and *Callistemon salignus* (Willow Bottlebrush). Other midstory species included *Acacia leiocalyx* (Black Wattle), *Allocasuarina littoralis* (Black She-oak) and *Ozothamnus diosmifolius* (Rice Flower).

The groundcover stratum included *Entolasia stricta* (Wiry Panic), *Aristida vagans* (Three awn Spear grass), *Echinopogon caespitosus* (Bushy Hedgehog-grass) as well as species associated with higher soil water content, such as *Carex appressa* and *Lepidosperma laterale*.

The PCT 4042\_Lower North River flat Eucalypt-Paperbark Forest was considered for this vegetation zone, however, was discarded as the variation in floristic composition was commensurate with the Species Composition described in PCT 3249. The variation in floristic composition can be attributed to localised landscape/substrate variation and not a section of a broader landscape floodplain.

VZ4 Disturbed

This area (including the infrastructure corridor) is highly disturbed as a result of historical clearing for agricultural purposes. It has a fragmented canopy with sporadic *Corymbia intermedia* (Pink Bloodwood), *Eucalyptus globoidea* (White Stringybark), *Eucalyptus paniculata* (Grey Ironbark) and *Eucalyptus seeana* (Narrow-leaved Red Gum). The midstory was present in the form of regenerating of *Melaleuca decora* (White Feather Honey myrtle), *Melaleuca stypheloides* (prickly-leaved paperbark), and *Allocasuarina littoralis* (Black She-oak). The groundcover predominantly the invasive species *Andropogon virginicus* (Whiskey Grass) and *Axonopus fissifolius* (Narrow-leaved Carpet Grass) with small patches of the native grass *Cynodon dactylon* (Couch).

The historic landuse coupled with limited floristic diversity and lack of structural integrity has resulted in disturbance levels across this area such that it does not currently form a community.

**PCT 3249 - Northern - Bloodwood-Ironbark - Moist – Grassy - Forest**

	<p><u>VZ 5 Disturbed – Certification area</u>– proposed extension to Conservation Land (<i>E. seeana</i> replanting)</p> <p>This area is highly disturbed as a result of historical clearing for agricultural purposes. Where present, scattered <i>Corymbia intermedia</i> (Pink Bloodwood), <i>Eucalyptus globoidea</i> (White Stringybark) and <i>Eucalyptus paniculata</i> (Grey Ironbark) occur. The groundcover is almost exclusively dominated by the invasive species <i>Andropogon virginicus</i> (Whiskey Grass) and <i>Axonopus fissifolius</i> (Narrow-leafed Carpet Grass).</p> <p>The historic landuse coupled with limited floristic diversity and lack of structural integrity has resulted in disturbance levels across this area such that it does not currently form a community</p>
<p>Condition within Study Area</p>	<p>Good, Disturbed, Melaleuca Variant</p>
<p>Justification for PCT Selection</p>	<ul style="list-style-type: none"> <li>▪ Tall Sclerophyll open forest formation with diagnostic canopy species including <i>Corymbia intermedia</i>, <i>Eucalyptus paniculata</i> and <i>Eucalyptus propinqua</i>.</li> <li>▪ The Midstratum and groundcover floristics and structure align with that of PCT 3249.</li> <li>▪ Contains species typical of more moist, sheltered environments including <i>Alphitonia excelsa</i> (Red Ash) and <i>Glochidion ferdinandii</i> (Cheese Tree).</li> <li>▪ Melaleuca Variant commensurate with description in PCT 3249.</li> </ul>
<p>Equivalent Retired PCT (Niche 2014) within Southern Study Area (Crown Road Reserve)</p>	<p>HU703 Narrow-leaved Red Gum Grey Ironbark Woodland</p> <p>HU703 Narrow-leaved Red Gum – Grey Ironbark – Paperbark Forest (3429_Melaluca variant)</p>
<p>Status</p>	<p>BC Act: Not listed</p> <p>EPBC Act: Not Listed</p> <p>Vegetation was not considered EEC or Red Flag under BioCertificaiton Assessment</p>



Plate 2. 3249 (Good)



Plate 3. (VZ4 Disturbed)

PCT 3249 - Northern - Bloodwood-Ironbark - Moist – Grassy - Forest



Plate 4. (VZ 5 Disturbed – Pasture in Certification Area)



Plate 5. 3249 (Melaleuca Variant)

## 6 Conservation (*E. seeana* replanting) Land

Active management of the current Conservation (*E. seeana* replanting) Land is required in accordance with the BC approval. The certification required replanting of *E. seeana* in that land in accordance with timeframes imposed by Council in accordance with any development consent. Council imposed a timeframe under a development consent they granted for large lot subdivision at Brimbin Road, which required approved vegetation management of those land (and other lands unrelated to this modification) to commence prior to a Subdivision Certificate being granted. Vegetation management commenced as required in 2021, with the *E. seeana* replanting area treated as one work unit. The vegetation management is defined in two phases as follows:

- Phase 1 – Weed Management implemented under a Weed Action Plan (WAP)
- Phase 2 – Replanting of *E. seeana*

Vegetation management to date (and continuing) has been and is to be completed by competent bush regenerators with a minimum AQF Level 2 certification in Conservation and land Management or similar approved qualification.

The current status of Phase 1 works is that successful reduction of weed biomass across the treatment area has occurred with the site targeting Phase 2 replanting to occur Autumn 2025 subject to climatic drivers and provenance stock growth/ availability.

Phase 2 replanting of *E. seeana* is required to meet the BC approval at a minimum which is summarised below.

- Strategy/BCAR indicates that planting of *E. seeana* with local provenance tube stock within each vegetation type will be based on a stems per hectare density for that type. That includes this Conservation E2 (*E. seeana* replanting) area.
- BCAR Figure 10 maps this particular replanting area as vegetation zone - 16 HU703 mod/good – RGIB Replanting. (Narrow leaved Red Gum Ironbark Woodland)
- BCAR Table 9 lists *E. seeana* stems/hectare for that vegetation type as 28.4 stems/ha or 1 stem/352m<sup>2</sup>

Acknowledging the above as minimum criteria to be satisfied in the BC approval, the proponent has taken guidance from the site restoration contractor recommendations to replant *E. seeana* in the Conservation E2 (*E. seeana* replanting) area at a tubestock density of 1 individual per 100m<sup>2</sup>, which equates to 100 stems/ha. This provides 3.5 times more replanting than the minimum density described above and will result in a higher density of *E. seeana*.

The modification proposes to apply the *E. seeana* replanting measures to 11.88ha (**Appendix 4**). By applying the BC approved required planting rate of 28.4 stems/ha this would result in the planting of a 338 *E. seeana* stems. By applying the recommended replanting rate of 1 stem / 100m<sup>2</sup>, this will result in the planting of 1188 *E. seeana* stems, with a based survival rate of 75% this would still exceed the required number of individual plantings taken from the BC approval. Acknowledging the average canopy spread of a Eucalypt is between 8-12m, this would result in the establishment of a continuous canopy with minimal breaks that supports enhancing linkages across the broader landscape.

In summary *Eucalyptus seeana* (Narrow-leaved Red Gum) are to be planted by Roche Group across the 11.88ha area, commencing within 12 months of gazettal (likely Autumn 2025) at a density of 1 *E. seeana* per 100 m<sup>2</sup> and maintained until established. Established means that *E. seeana* have been maintained in a healthy state in the ground for at least 3 years and that they are of a healthy self-sustaining condition and achieve a base survival rate of 75% of planted stems.



## 7 Conclusion

It is our opinion that in modifying part of the approved conservation measure on degraded lands for replanting, by substituting and applying the replanting to the modified area (adding additional replanting land in lieu of a 0.32ha essential infrastructure corridor, resulting in a net increase in the overall replanting area and contributing to and widening the replanting to enhance landscape linkage) satisfies the BC Act clause 8.22(3) provisions and the modification have at least an equivalent biodiversity value and maintain the intentions of the biodiversity certification.

## 8 References & Bibliography

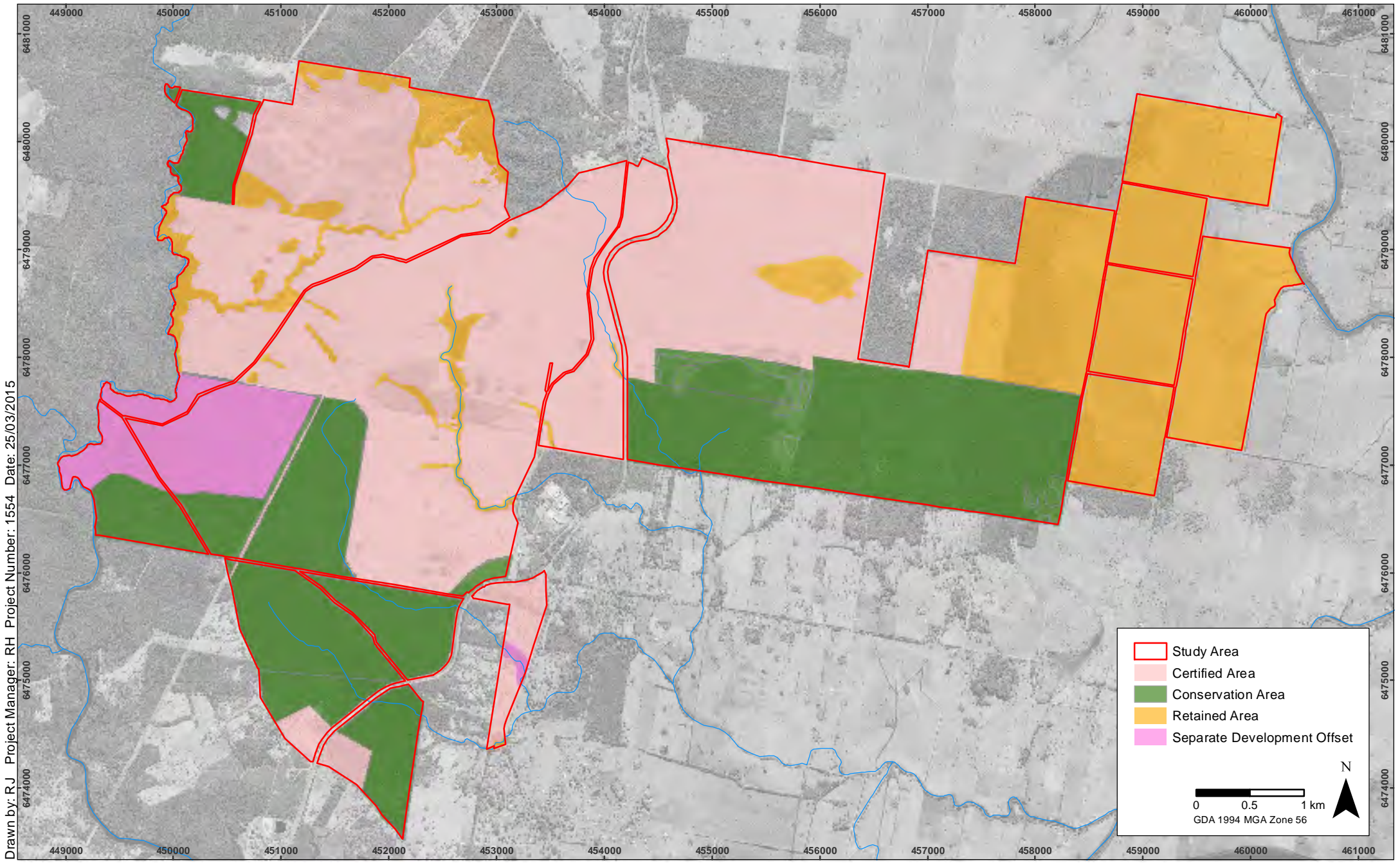
- Briggs, J. D. and Leigh, J. H. (1996) *Rare and Threatened Plants*. CSIRO Publishing, Sydney.
- Churchill, S. (2008) *Australian Bats*. 2<sup>nd</sup> Edition. Allen & Unwin, Australia.
- Cropper (1993) *Management of Endangered Plants*. CSIRO Publications, East Melbourne, Victoria.
- Department of Environment and Conservation (DEC) (2004) *Threatened Biodiversity Survey and Assessment: Guidelines for Development and Activities (Working Draft)*, New South Wales Department of Environment and Conservation
- DEC (2006) *Recovery Plan for the Large Forest Owls: Powerful Owl (*Ninox strenua*), Sooty Owl (*Tyto tenebricosa*) and Masked Owl (*Tyto novaehollandiae*)*. Department of Environment and Conservation, Sydney.
- Department of the Environment (DoE) (2013) *EPBC Act Policy Statement 1.1 Significant Impact Guidelines Matters of National Environmental Significance*. Australian Government Department of the Environment.
- Department of the Environment (DoE) (2022). *Protected Matters Search*. Accessed August 2023.
- Department of Environment (DoE) (2017) Draft National Recovery Plan for the Grey-headed Flying-fox *Pteropus poliocephalus*. Commonwealth of Australia 2017.
- Department of the Environment *Commonwealth Biodiversity: Species Profile and Threats Database (SPRAT)* - <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl> (accessed August 2023)
- Department of Planning and Environment (DPIE) (2023). *NSW State Vegetation Type Map*.
- Niche Environment and Heritage (2014). *Biodiversity Certification Assessment Report*.
- Niche Environment and Heritage (2014). *Biodiversity Certification Strategy for the Brimbin development*.
- Pizzey, G. and Knight, F. (2007) *The Field Guide to the Birds of Australia*. Harper Collins Publishers, Sydney.
- Richardson. E. G. (1977) The biology and evolution of the reproductive cycle of *Miniopterus schreibersii* and *M. australis* (Chiroptera: Vespertilionidae). *Journal of Zoology*, London: 183: 353-375.
- Roderick, M. and Ingwersen, D.A. (2014). Swift Parrots and Regent Honeyeaters in the Lake Macquarie City Council area of New South Wales: an assessment of status, identification of high priority habitats and recommendations for conservation. Report for Lake Macquarie City Council. BirdLife Australia, Melbourne.
- Rowley, L., Edwards, R. And Kelly, P. (1999) Edges- Their Effect on Vegetation and Wildlife. Land for Wildlife, Queensland. Accessed online from:  
<http://www.sustainablebluemountains.net.au/localliving/resources/files/Edges-LfW.pdf>

Saunders, D.L. and Tzaros, C.L. (2011) National Recovery Plan for the Swift Parrot *Lathamus discolor*, Birds Australia, Melbourne.

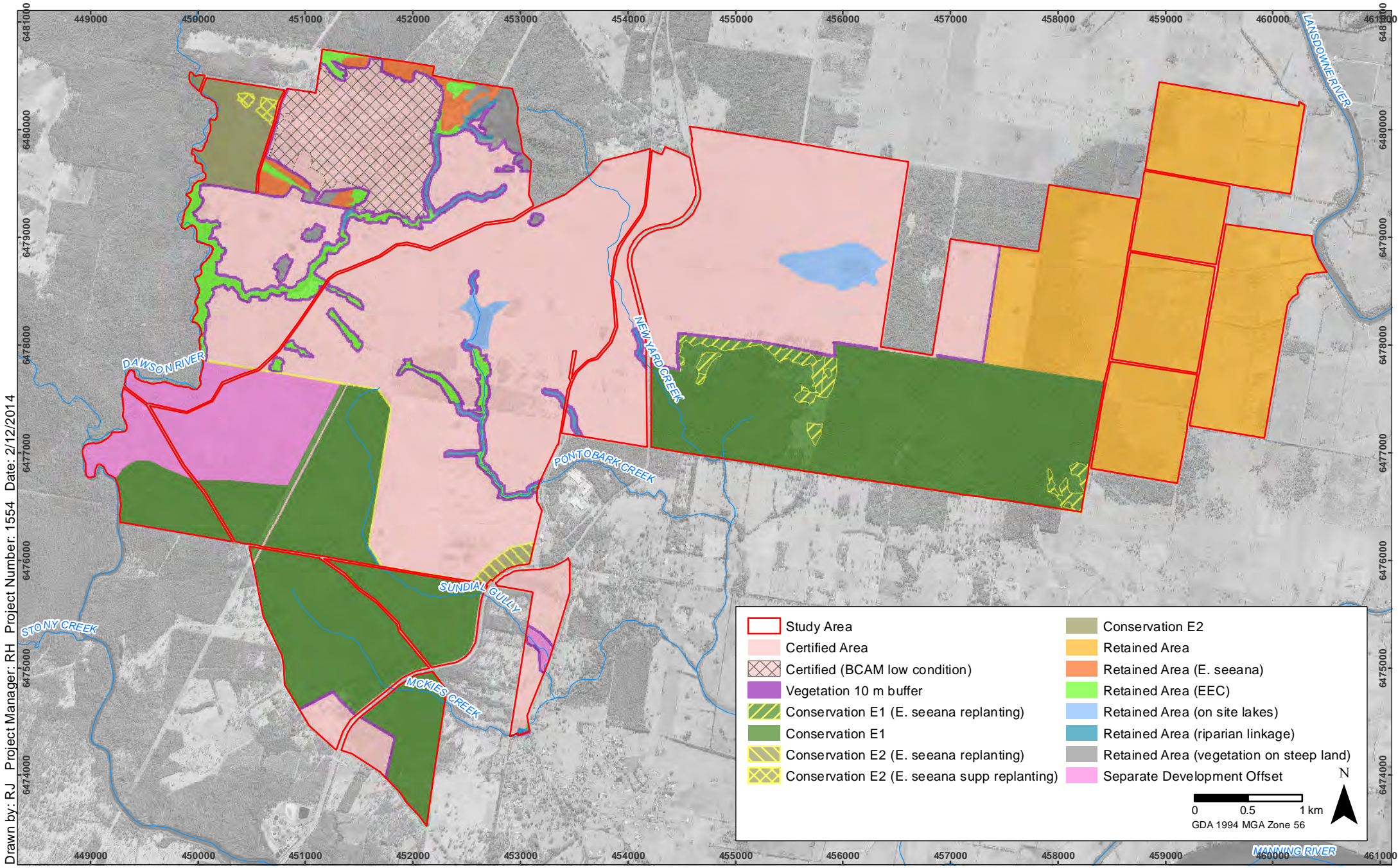
Simpson, K, and Day, N. (2010) *Field Guide to the Birds of Australia*. Penguin Group, Australia.

Tyler, M. J. And Knight, F. (2011) *Field Guide to the Frogs of Australia*. Revised Edition. CSIRO Publishing, Australia.

# Appendix 1      Brimbin Biocertification Plan



## Appendix 2      Brimbin Biocertification Areas



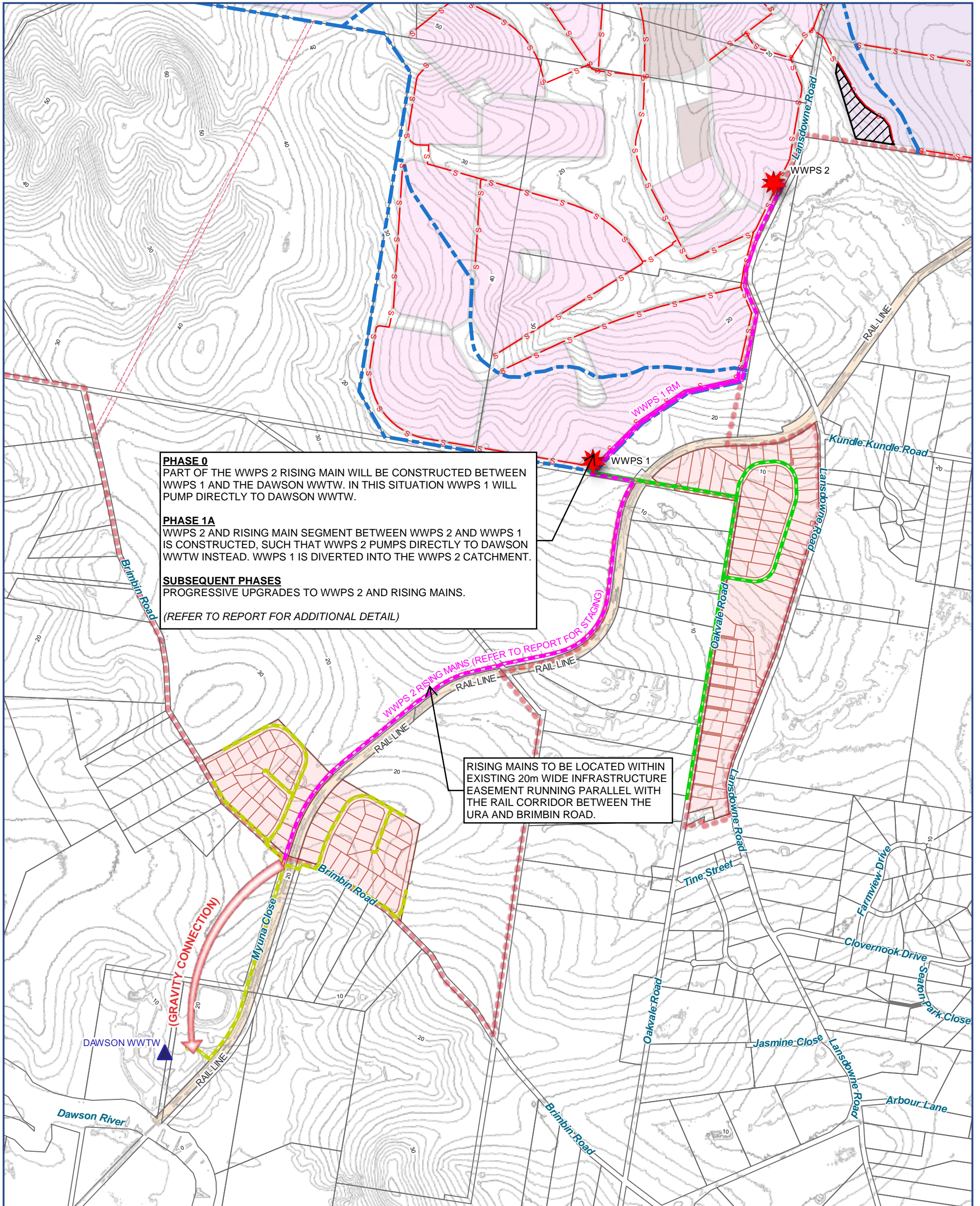
Biodiversity Certification Assessment Area  
Brimbin Biocertification Assessment

**FIGURE 2**

Imagery: (c) OEH 2010 - 2013

## Appendix 3      Servicing Strategy extract



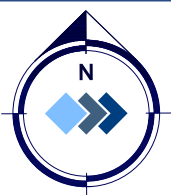


**PHASE 0**  
PART OF THE WWPS 2 RISING MAIN WILL BE CONSTRUCTED BETWEEN WWPS 1 AND THE DAWSON WWTW. IN THIS SITUATION WWPS 1 WILL PUMP DIRECTLY TO DAWSON WWTW.

**PHASE 1A**  
WWPS 2 AND RISING MAIN SEGMENT BETWEEN WWPS 2 AND WWPS 1 IS CONSTRUCTED, SUCH THAT WWPS 2 PUMPS DIRECTLY TO DAWSON WWTW INSTEAD. WWPS 1 IS DIVERTED INTO THE WWPS 2 CATCHMENT.

**SUBSEQUENT PHASES**  
PROGRESSIVE UPGRADES TO WWPS 2 AND RISING MAINS.  
(REFER TO REPORT FOR ADDITIONAL DETAIL)

RISING MAINS TO BE LOCATED WITHIN EXISTING 20m WIDE INFRASTRUCTURE EASEMENT RUNNING PARALLEL WITH THE RAIL CORRIDOR BETWEEN THE URA AND BRIMBIN ROAD.



**Legend**

**General**

Site Boundary

**Existing Wastewater Infrastructure**

Existing Pressure Sewer Mains

**Proposed Wastewater Infrastructure**

Proposed Rising Mains

Proposed Gravity Sewer (Illustrative)

Proposed Pressure Sewer Mains

Proposed Council WWPS

Potential Pressure Sewer Catchment

**Catchment Land Use**

B4

IN1

R1

R5

SCHOOL

0 200 400 600 m  
1:15,000

WASTEWATER SERVICING  
SHEET 1

**FIGURE 5**







## Appendix 4

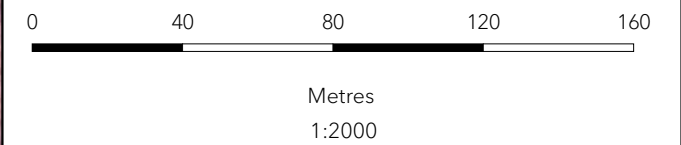
## Brimbin BioCertificaiton as Modified

**BRIMBIN  
MODIFICATION AREA**

**BIODIVERSITY CERTIFICATION  
MODIFICATION**

**Legend**

-  DCDB 2023
-  Certification Area
-  Conservation Land
-  Conservation Appropriate Rehabilitation Area and *E. seeana* replanting (11.88 ha)
-  20 m Infrastructure Corridor to be excluded from Conservation Land and from Appropriate Rehabilitation Area and *E. seeana* replanting (0.32 ha)
-  Certification area to be Conservation Land

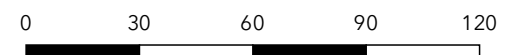


Aerial: Nearmap (2023) | Data: MJD Environmental, Roche (2024), NSW Spatial Services (2023, 2010), Niche (2014) | Datum/Projection: GDA94 / MGAzone 56 | Date: 2024-06-14 | Version: 4 | Z:\19011 - Brimbin | This plan should not be relied upon for critical design dimensions.

## Appendix 5      Ecological Field Survey



BRIMBIN MODIFICATION AREA



Metres  
1:2000

**SURVEY EFFORTS**

**Legend**

- ▭ Impact Area
- Study Area
- 1st Order Stream
- 2nd Order Stream
- Survey Transects
- BAM Plot
- Eucalyptus seeana
- ▲ Hollow Bearing Tree
- ◇ Photo Point
- ▼ Stag Watch
- Terrarium



Aerial: Nearmap (2023) | Data: MJD Environmental, Roche (2024), NSW Spatial Services (2023) | Datum/Projection: GDA94 / MGA zone 56 | Date: 2024-06-14 | Version: 3 | Z:\19011 - Brimbun | This plan should not be relied upon for critical design dimensions.

## Appendix 6      BAM Plot Data

**BAM Plot**

Plot Info								Composition						Structure (%)						Function										
VZ	Plot	PCT	Condition Class	Zone	Easting	Northing	Bearing	Tree	Shrub	Grass	Forbs	Ferns	Other	Tree	Shrub	Grass	Forbs	Ferns	Other	Lge Tree	Hollows	Litter Cover (%)	Logs	Tree Stem 5-9	Tree Stem 10-19	Tree Stem 20-29	Tree Stem 30-49	Tree Stem 50-79	Tree Regen	HTE (%)
1	B01	3446	Disturbed	56	452602	6475815	80	4	6	8	2	0	1	7.1	2.1	7.6	0.2	0	0.1	0	0	19	20.0	1	1	1	9	0	1	80.2
2	B02	3249	Pasture	56	452611	6475904	220	1	3	7	1	0	0	0.5	0.7	1.6	0.1	0.0	0.0	0	0	9.0	0.0	1	0	0	0	0	1	80.1
2	B03	3249	Pasture	56	452724	6476026	60	1	0	3	2	0	0	0.1	0.0	0.4	0.2	0.0	0.0	0	0	22.0	0.0	0	0	0	0	0	1	80.2

**Flora List**

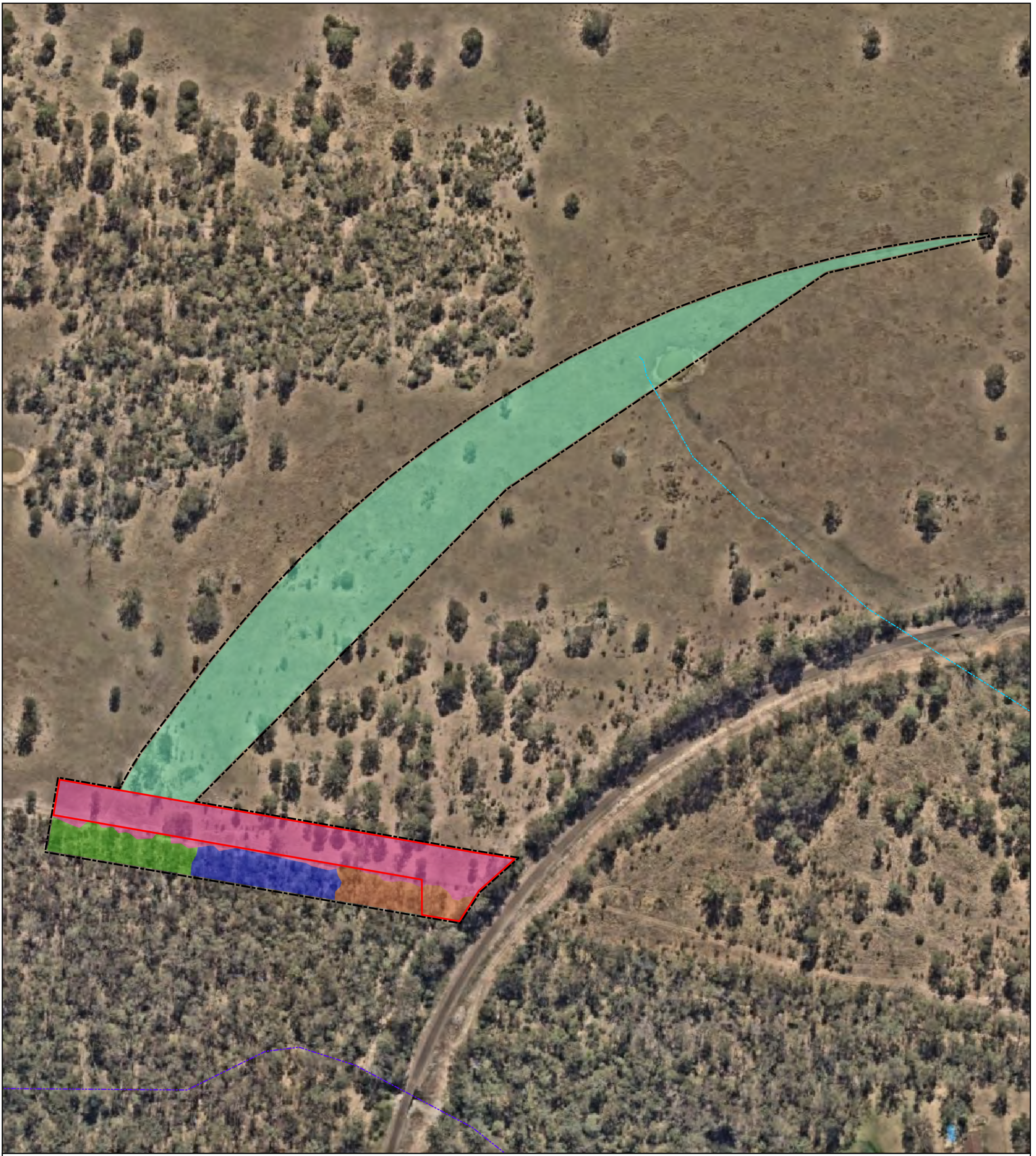
Flora			BAM Plots			Site
Family	Scientific Name	Common Name	B01	B02	B03	Incidental
Apiaceae	<i>Centella asiatica</i>	Indian Pennywort		x	x	
Araliaceae	<i>Hydrocotyle sibthorpioides</i>					x
Asparagaceae	<i>Asparagus plumosus</i>	Climbing Asparagus Fern				x
Asteraceae	<i>Ambrosia artemisiifolia</i>	Annual Ragweed				x
	<i>Bidens pilosa</i>	Cobbler's Pegs				x
	<i>Conyza bonariensis</i>	Flaxleaf Fleabane				x
	<i>Conyza sumatrensis</i>	Tall fleabane				x
	<i>Hypochaeris radicata</i>	Catsear				x
	<i>Ozothamnus diosmifolius</i>	White Dogwood				x
	<i>Senecio madagascariensis</i>	Fireweed			x	
	<i>Sonchus oleraceus</i>	Common Sowthistle				x
Campanulaceae	<i>Lobelia purpurascens</i>	Whiteroot				x
Casuarinaceae	<i>Allocasuarina littoralis</i>	Black She-Oak	x			
Convolvulaceae	<i>Dichondra repens</i>	Kidney Weed				x
Cyperaceae	<i>Cyperus polystachyos</i>				x	
	<i>Lepidosperma laterale</i>	Variable Sword-sedge				x
Dennstaedtiaceae	<i>Pteridium esculentum</i>	Bracken				x
Ericaceae - Epacridoideae	<i>Leucopogon juniperinus</i>	Prickly Beard-heath				x
Fabaceae - Faboideae	<i>Daviesia ulicifolia</i>	Gorse Bitter Pea				x
	<i>Desmodium varians</i>	Slender Tick-trefoil				x
	<i>Kennedia rubicunda</i>	Dusky Coral Pea				x
	<i>Lotus corniculatus</i>	Birds-foot Trefoil				x
	<i>Pultenaea retusa</i>					x
	<i>Pultenaea villosa</i>	Hairy Bush-pea				x
	<i>Trifolium repens</i>	White Clover				x
Fabaceae - Mimosoideae	<i>Acacia falcata</i>		x			
	<i>Acacia leiocalyx</i>					x
	<i>Acacia ulicifolia</i>	Prickly Moses				x

Flora			BAM Plots			Site
Family	Scientific Name	Common Name	B01	B02	B03	Incidental
Goodeniaceae	<i>Goodenia hederacea</i>	Ivy Goodenia				x
	<i>Goodenia spp.</i>			x		
Haloragaceae	<i>Gonocarpus tetragynus</i>	Poverty Raspwort				x
	<i>Gonocarpus teucroides</i>	Germander Raspwort				x
Hypericaceae	<i>Hypericum gramineum</i>	Small St John's Wort	x			
Juncaceae	<i>Juncus usitatus</i>		x	x	x	
Lomandraceae	<i>Lomandra longifolia</i>	Spiny-headed Mat-rush				x
	<i>Lomandra multiflora</i>	Many-flowered Mat-rush				x
Luzuriagaceae	<i>Geitonoplesium cymosum</i>	Scrambling Lily				x
Myrtaceae	<i>Angophora subvelutina</i>	Broad-leaved Apple				x
	<i>Callistemon salignus</i>	Willow Bottlebrush	x		x	
	<i>Corymbia intermedia</i>	Pink Bloodwood	x	x		
	<i>Corymbia maculata</i>	Spotted Gum				x
	<i>Eucalyptus globoidea</i>	White Stringybark	x			
	<i>Eucalyptus microcorys</i>	Tallowwood				x
	<i>Eucalyptus paniculata</i>	Grey Ironbark				x
	<i>Eucalyptus propinqua</i>	Small-fruited Grey Gum				x
	<i>Eucalyptus punctata</i>	Grey Gum				x
	<i>Eucalyptus seeana</i>	Narrow-leaved Red Gum	x			
	<i>Eucalyptus tereticornis</i>	Forest Red Gum			x	
	<i>Eucalyptus umbra</i>	Broad-leaved White Mahogany				x
	<i>Melaleuca decora</i>					x
	<i>Melaleuca linariifolia</i>	Flax-leaved Paperbark				x
	<i>Melaleuca nodosa</i>	Prickly-leaved Paperbark	x		x	
	<i>Melaleuca styphelioides</i>	Prickly-leaved Tea Tree				x
Oxalidaceae	<i>Oxalis perennans</i>					x
Passifloraceae	<i>Passiflora suberosa</i>	Cork Passionfruit				x
Phormiaceae	<i>Dianella caerulea</i>	Blue Flax-lily				x
Phyllanthaceae	<i>Breynia oblongifolia</i>	Coffee Bush				x
	<i>Glochidion ferdinandii</i>					x
Pittosporaceae	<i>Billardiera scandens</i>	Hairy Apple Berry				x
	<i>Pittosporum undulatum</i>	Sweet Pittosporum				x
Plantaginaceae	<i>Plantago lanceolata</i>	Lamb's Tongues				x
Poaceae	<i>Andropogon virginicus</i>	Whisky Grass	x	x	x	
	<i>Aristida vagans</i>	Threeawn Speargrass				x
	<i>Axonopus fissifolius</i>	Narrow-leaved Carpet Grass	x	x	x	
	<i>Capillipedium spicigerum</i>	Scented-top Grass	x	x	x	
	<i>Chloris gayana</i>	Rhodes Grass				x

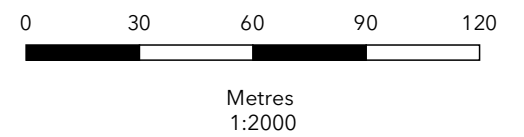


Flora			BAM Plots			Site
Family	Scientific Name	Common Name	B01	B02	B03	Incidental
	<i>Cymbopogon refractus</i>	Barbed Wire Grass				x
	<i>Cynodon dactylon</i>	Common Couch				x
	<i>Dichelachne micrantha</i>	Shorthair Plumegrass				x
	<i>Echinopogon caespitosus</i>	Bushy Hedgehog-grass			x	
	<i>Entolasia stricta</i>	Wiry Panic	x		x	
	<i>Eragrostis brownii</i>	Brown's Lovegrass				x
	<i>Eragrostis leptostachya</i>	Paddock Lovegrass	x			
	<i>Eragrostis spp.</i>	A Lovegrass			x	
	<i>Imperata cylindrica</i>	Blady Grass	x	x	x	
	<i>Melinis repens</i>	Red Natal Grass				x
	<i>Paspalidium distans</i>					x
	<i>Paspalum dilatatum</i>	Paspalum	x	x	x	
	<i>Paspalum distichum</i>	Water Couch				x
	<i>Paspalum urvillei</i>	Vasey Grass				x
	<i>Setaria sphacelata</i>	South African Pigeon Grass				x
	<i>Sporobolus creber</i>	Slender Rat's Tail Grass				x
	<i>Stenotaphrum secundatum</i>	Buffalo Grass				x
	<i>Themeda triandra</i>					x
Primulaceae	<i>Lysimachia arvensis</i>	Scarlet Pimpernel			x	
Pteridaceae	<i>Cheilanthes sieberi</i>	Rock Fern				x
Ranunculaceae	<i>Ranunculus lappaceus</i>	Common Buttercup				x
Rhamnaceae	<i>Alphitonia excelsa</i>	Red Ash				x
Rubiaceae	<i>Opercularia diphylla</i>	Stinkweed				x
Santalaceae	<i>Exocarpos cupressiformis</i>	Cherry Ballart				x
Sapindaceae	<i>Dodonaea triquetra</i>	Large-leaf Hop-bush				x
Thymelaeaceae	<i>Pimelea linifolia</i>	Slender Rice Flower	x		x	
Verbenaceae	<i>Lantana camara</i>	Lantana				x
	<i>Verbena bonariensis</i>	Purpletop				x
Violaceae	<i>Viola hederacea</i>	Ivy-leaved Violet				x

## Appendix 7      Vegetation Mapping



BRIMBINI MODIFICATION AREA



**VEGETATION**

**Legend**

- |                  |  |
|------------------|--|
| Impact Area      | <b>Vegetation</b>                              |
| Study Area       | VZ1_3244_Good                                  |
| 1st Order Stream | VZ2_3249_Good                                  |
| 2nd Order Stream | VZ3_3249_Mel                                   |
|                  | VZ4_3249_Disturbed                             |
|                  | VZ5 Disturbed - Pasture in Certified URA Lands |



Aerial: Nearmap (2023) | Data: MJD Environmental, Roche (2024), NSW Spatial Services (2023) | Datum/Projection: GDA94 / MGA zone 56 | Date: 2024-06-14 | Version: 3 | Z:\19011 - Brimbini | This plan should not be relied upon for critical design dimensions.