

East



West



Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Transect ID	Transect 3	Job Number / Property	11612
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Part B - Site Data

Recorders	KH & MD	Date	17/05/2023
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Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
1	61.74	12.5.4	12

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

Open woodland with an grassy understorey (dominated by *Sporobolus pyramidalis*). Canopy dominated by *Corymbia intermedia* with *Corymbia trachyphloia*, *Eucalyptus exserta*, *Eucalyptus latisinensis*. *Melaleuca quinquenervia* also present.

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

Tree species richness:				
Total number of species	11			EDL / Dom / R
Scientific Name	<i>Corymbia intermedia</i>	Common Name	Pink Bloodwood	EDL / Dom / R
Scientific Name	<i>Corymbia trachyphloia</i>	Common Name	Brown Bloodwood	EDL / R
Scientific Name	<i>Eucalyptus exserta</i>	Common Name	QLD Peppermint	EDL / R
Scientific Name	<i>Eucalyptus latisinensis</i>	Common Name	White Mahogany	EDL / R
Scientific Name	<i>Melaleuca quinquenervia</i>	Common Name	Broad-leaved Paperbark	
Scientific Name	<i>Lophostemon suaveolens</i>	Common Name	Swamp Box	
Scientific Name	<i>Alphitonia excelsa</i>	Common Name	Soap Tree	
Scientific Name	<i>Acacia leiocalyx</i>	Common Name	Early-flowering Black Wattle	
Scientific Name	<i>Acacia disparima</i>	Common Name	Hickory Wattle	
Scientific Name	<i>Eucalyptus tereticornis</i>	Common Name	Forest Red Gum	
Scientific Name	<i>Angophora leiocarpa</i>	Common Name	Smooth-barked Apple	

Shrub species richness:				
Total number of species	2			
Scientific Name	<i>Alphitonia excelsa</i>	Common Name	Soap Tree	
Scientific Name	<i>Acacia leiocalyx</i>	Common Name	Early-flowering Black Wattle	
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Grass species richness:				
Total number of species	4			
Scientific Name	<i>Imperata cylindrica</i>	Common Name	Blady Grass	
Scientific Name	<i>Cymbopogon refractus</i>	Common Name	Barbed-wire Grass	
Scientific Name	<i>Ectolasia stricta</i>	Common Name	Wiry Panic	
Scientific Name	<i>Eriachne pallescens</i>	Common Name	Wanderrie Grass	
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Forbs and others (non grass ground) species richness:				
Total number of species	6			
Scientific Name	<i>Dianella caerulea</i>	Common Name	Blue Flax-lilly	
Scientific Name	<i>Lomandra multiflora</i>	Common Name	Many-flowered Matrush	
Scientific Name	<i>Dichondra repens</i>	Common Name	Kidneyweed	
Scientific Name	<i>Parsonia straminea</i>	Common Name	Monkey Rope	
Scientific Name	<i>Goodenia rotundifolia</i>	Common Name	Star Goodenia	
Scientific Name	<i>Stephania japonica</i>	Common Name	Tape Vine	
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

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

Total percentage cover within plot				
		75.00%		
Scientific Name	<i>Lantana camara</i>	Common Name	Lantana	
Scientific Name	<i>Sporobolus pyramidalis</i>	Common Name	Giant Rat's Tail Grass	
Scientific Name	<i>Praxelis clematidea</i>	Common Name	Praxelis	

Scientific Name	<i>Passiflora suberosa</i>	Common Name	Corky Passion
Scientific Name	<i>Ochna serrulata</i>	Common Name	Ochna
Scientific Name	<i>Urena lobata</i>	Common Name	Urena Burr
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

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

Total Length of Coarse Woody Debris (Meters per hectare)	488.00		
1	0.30	8	3.20
2	4.60	9	3.50
3	12.00	10	5.40
4	0.50	11	2.50
5	0.60	12	4.30
6	1.20	13	0.50
7	0.50	14	9.70

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

Ground Cover	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5	Average
Native perennial grass cover	1%	3%	0%	0%	30%	7%
Native other grass						
Native forbs and other species	0%	1%	5%	0%	2%	2%
Native shrubs	3%	5%	3%	0%	0%	2%
Non-native grass	90%	50%	65%	95%	10%	62%
Non native forbs and shrubs	0%	15%	0%	0%	8%	5%
Litter	6%	26%	27%	5%	50%	23%
Rock						
Bare Ground						
Cryptogram						
Total	100%	100%	100%	100%	100%	100%

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

Eucalypt Large tree DBH benchmark used :	420	Number of large eucalypt trees:	<i>Corymbia intermedia</i> - 630, 440, 595, 660, 465, 470, 590, 520, 400 <i>Corymbia trachyphloia</i> - 600, 435, 540, 425 <i>Eucalyptus tereticornis</i> - 595, 700 <i>Eucalyptus latisinensis</i> 450
Non- Eucalypt Large tree DBH benchmark used:	N/A	Number of large non eucalypt trees:	N/A
Total number of large trees recorded:	16		
Total Number Large Trees per ha:	32		

Median Tree Canopy Height Measurements	Canopy:	17	Sub-canopy:	10	Emergent:	NA
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Percentage of ecologically dominant layer species regenerating:	100
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Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	Canopy:	58.8%	Sub-canopy:	51.50%	Emergent:	
Shrub canopy cover %	19.50%					

Layer	Start	End	Interval	Layer	Start	End	Interval
T1	15.4	17.3	1.9	T2	0.0	4.5	4.5
T1	19.1	37.0	17.9	T2	1.5	3.0	1.5
T1	22.6	28.3	5.7	T2	8.6	9.9	1.3
T1	46.0	50.0	4.0	T2	12.6	13.8	1.2
T1	51.1	53.3	2.2	T2	14.5	17.3	2.8
T1	54.0	61.0	7.0	T2	26.3	28.3	2.0
T1	63.2	66.8	3.6	T2	28.0	29.8	1.8
T1	80.6	93.0	12.4	T2	31.6	33.0	1.4
T1	90.8	94.9	4.1	T2	33.0	36.0	3.0
				T2	41.4	44.2	2.8
				T2	42.7	43.7	1.0
				T2	44.4	47.5	3.1
				T2	57.9	59.6	1.7
				T2	60.0	64.2	4.2
				T2	73.0	82.2	9.2
				T2	83.0	86.7	3.7
				T2	85.1	86.0	0.9
				T2	88.1	89.8	1.7
				T2	89.3	93.0	3.7

Layer	Start	End	Interval	Layer	Start	End	Interval
Shrub - <i>A. excelsa</i>	9.9	10.2	0.3	Shrub - <i>A. leiocalyx</i>	48.4	50.0	1.6
Shrub - <i>C. intermedia</i>	11.0	11.5	0.5	Shrub - <i>A. excelsa</i>	57.9	59.3	1.4
Shrub - <i>A. excelsa</i>	15.0	16.8	1.8	Shrub - <i>A. excelsa</i>	60.2	61.7	1.5
Shrub - <i>A. leiocalyx</i>	19.1	20.2	1.1	Shrub - <i>C. intermedia</i>	68.3	69.0	0.7
Shrub - <i>C. intermedia</i>	20.4	21.1	0.7	Shrub - <i>A. excelsa</i>	69.2	70.2	1.0
Shrub - <i>A. leiocalyx</i>	22.6	24.4	1.8	Shrub - <i>A. excelsa</i>	73.0	74.3	1.3
Shrub - <i>C. intermedia</i>	28.4	29.4	1.0	Shrub - <i>A. excelsa</i>	85.3	86.5	1.2
Shrub - <i>A. excelsa</i>	31.6	32.4	0.8	Shrub - <i>A. disparrima</i>	89.9	90.8	0.9
Shrub - <i>A. leiocalyx</i>	33.9	35.6	1.7	Shrub - <i>A. excelsa</i>	92.8	93.0	0.2

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

Part I: GHFF Stem Count

Species Name	Stem Count
<i>Corymbia trachyphloia</i>	18
<i>Lophostemon suaveolens</i>	36
<i>Melaleuca quinquenervia</i>	51
<i>Acacia leiocalyx</i>	2
<i>Alphitonia excelsa</i>	0
<i>Acacia disparrima</i>	18
<i>Angophora leiocarpa</i>	1
<i>Eucalyptus latisinensis</i>	4
<i>Eucalyptus tereticornis</i>	5
<i>Eucalyptus exserta</i>	1
Total	136

Part J: SAT Survey Results

SAT Survey ID	3			
Tree Number	Scientific Name	Common Name	DBH	Scat (Y/N)
1	<i>E. latisinensis</i>	White Mahogany	120	N
2	<i>M. quinquenervia</i>	Paperbark	200	N
3	<i>M. quinquenervia</i>	Paperbark	170	N
4	<i>L. suaveolens</i>	Swamp Box	180	N
5	<i>L. suaveolens</i>	Swamp Box	120	N
6	<i>E. tereticornis</i>	Forest Red Gum	170	N
7	<i>E. exserta</i>	QLD Peppermint	120	N
8	<i>L. suaveolens</i>	Swamp Box	100	N
9	<i>L. suaveolens</i>	Swamp Box	140	N
10	<i>M. quinquenervia</i>	Paperbark	175, 130	N
11	<i>L. suaveolens</i>	Swamp Box	100	N
12	<i>C. intermedia</i>	Pink Bloodwood	400	N
13	<i>M. quinquenervia</i>	Paperbark	180	N
14	<i>C. intermedia</i>	Pink Bloodwood	300	N
15	<i>C. trachyphloia</i>	Brown Bloodwood	400	N
16	<i>M. quinquenervia</i>	Paperbark	270	N
17	<i>L. suaveolens</i>	Swamp Box	150	N
18	<i>C. intermedia</i>	Pink Bloodwood	400	N
19	<i>M. quinquenervia</i>	Paperbark	240	N
20	<i>L. suaveolens</i>	Swamp Box	140	N
21	<i>C. intermedia</i>	Pink Bloodwood	100	N
22	<i>L. suaveolens</i>	Swamp Box	180	N
23	<i>M. quinquenervia</i>	Paperbark	105	N
24	<i>M. quinquenervia</i>	Paperbark	150	N
25	<i>L. suaveolens</i>	Swamp Box	100	N
26	<i>E. tereticornis</i>	Forest Red Gum	145	N
27	<i>L. suaveolens</i>	Swamp Box	120	N
28	<i>C. intermedia</i>	Pink Bloodwood	185	N
29	<i>L. suaveolens</i>	Swamp Box	230	N
30	<i>E. tereticornis</i>	Forest Red Gum	145	N
Total				0/30

Part K: Greater Glider Results

Scientific Name	Alive / Dead	DBH	Hollows
<i>Corymbia intermedia</i>	Alive	630	
<i>Corymbia intermedia</i>	Alive	440	
<i>Corymbia intermedia</i>	Alive	595	
<i>Corymbia intermedia</i>	Alive	660	Y - 1 Small
<i>Corymbia intermedia</i>	Dead	465	
<i>Corymbia intermedia</i>	Alive	470	Y - 1 Small
<i>Corymbia intermedia</i>	Alive	370	Y - 1 Small
<i>Corymbia intermedia</i>	Alive	400	Y - 2 Small
<i>Corymbia intermedia</i>	Alive	590	
<i>Corymbia intermedia</i>	Alive	520	
<i>Corymbia intermedia</i>	Alive	440	
<i>Corymbia intermedia</i>	Alive	300	
<i>Corymbia trachyphloia</i>	Alive	390	
<i>Corymbia trachyphloia</i>	Alive	600	
<i>Corymbia trachyphloia</i>	Alive	435	
<i>Corymbia trachyphloia</i>	Alive	540	
<i>Corymbia trachyphloia</i>	Alive	425	
<i>Eucalyptus latisinensis</i>	Alive	450	
<i>Eucalyptus exserta</i>	Alive	410	
N/A	Dead	515	Y - 1 Large, 1 Med
N/A	Dead	515	Y - 5 Medium
N/A	Dead	410	Y - 3 Medium
<i>Eucalyptus tereticornis</i>	Alive	360	
<i>Eucalyptus tereticornis</i>	Alive	595	Y - 2 Medium
<i>Eucalyptus tereticornis</i>	Alive	700	Y - 3 Small, 1 Med

Attach Landscape Photos Here

North



South



East



West



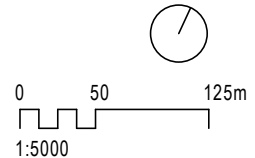
Attachment A10

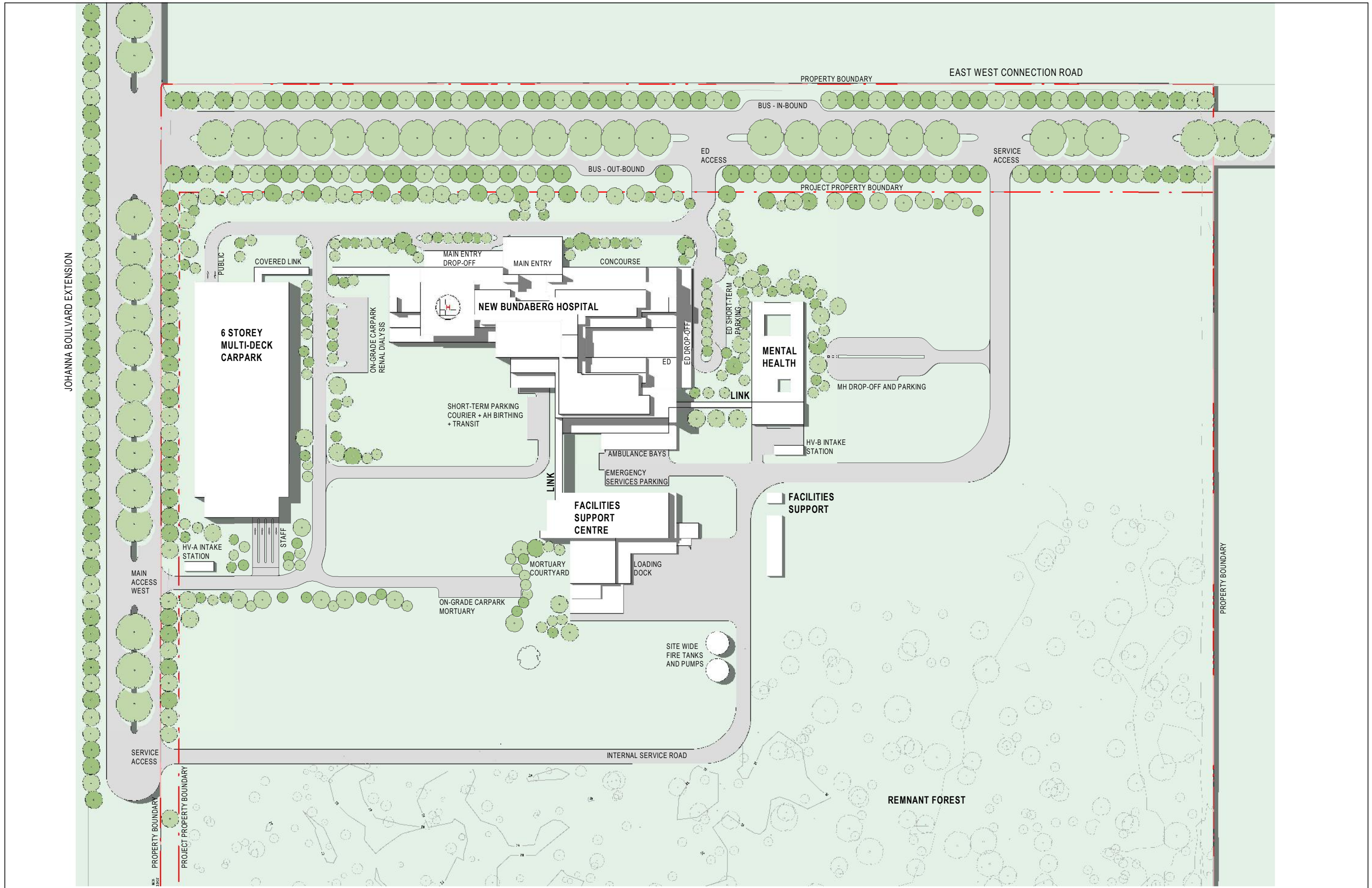
Site Concept Plan

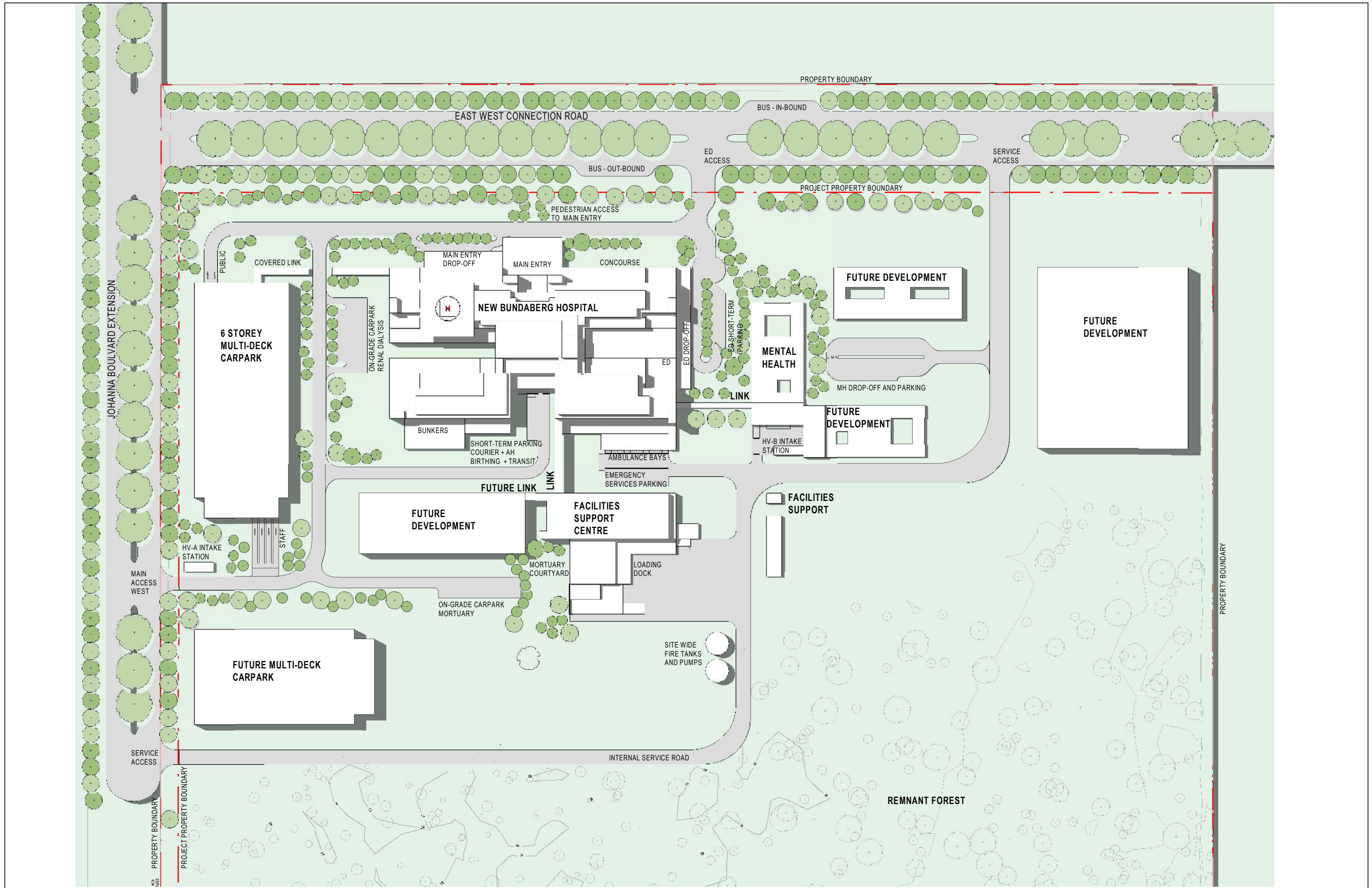


BVN

**NEW BUNDABERG HOSPITAL
SITE PLAN - WHOLE SITE
02/08/22**







Attachment A11

Species Management Program

Species Management Program

New Bundaberg Hospital

Prepared for Wide Bay Hospital and Health Service

Prepared by:

Green Tape
SOLUTIONS

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Document Records - Quality

TITLE	Species Management Plan for New Bundaberg Hospital
FILED AS	PR20294_SMP_Bundaberg Hospital Development

Revision	Date	Prepared by (name/title)	Reviewed by (name/title)	Approved by (name/title)
Version A	25/10/2022	Arnaud Gourret, Ecologist	Kelly Matthews, Director/ Principal Ecologist Carla Perkins, Senior Ecologist	Client
Version B	6/12/2022	Carla Perkins, Senior Ecologist	Kelly Matthews, Director/ Principal Ecologist	Client

Table of Content

ACRONYMS AND GLOSSARY.....	1
1.0 INTRODUCTION	2
1.1 PROJECT DESCRIPTION	2
1.2 BACKGROUND	2
1.3 SCOPE OF WORKS	4
2.0 LEGISLATIVE FRAMEWORK.....	2
2.1 COMMONWEALTH LEGISLATION	2
2.2 STATE LEGISLATION	2
2.3 TAMPERING WITH ANIMAL BREEDING PLACES.....	3
3.0 ECOLOGICAL ASSESSMENT AND SPECIES ECOLOGY.....	5
3.1 DESKTOP ASSESSMENT	5
3.2 GROUND-TRUTHED VEGETATION COMMUNITIES	6
3.3 FAUNA SPECIES AND HABITAT SURVEY	7
3.4 SURVEY RESULTS	10
3.5 SIGNIFICANT FAUNA SPECIES	11
4.0 IMPACT TO FAUNA SPECIES	15
5.0 MANAGEMENT PLAN.....	19
5.1 MITIGATION MEASURES	19
5.2 PRE-CLEARANCE ASSESSMENT REQUIREMENT	28
5.3 RELOCATION OF THE WEDGE-TAILED EAGLE NEST.....	28
(a) <i>Literature Review</i>	28
(b) <i>Nest Relocation Strategy</i>	29
5.4 VEGETATION CLEARING AND HABITAT FEATURE REMOVAL PROCEDURE.....	30
(a) <i>Timing</i>	30
(b) <i>Self-Dispersal</i>	30
(c) <i>Tree Felling</i>	30
(d) <i>Terrestrial Habitat Features</i>	30
(e) <i>General Measures</i>	30
(f) <i>Fauna spotter activities</i>	31
(g) <i>Wildlife Carers</i>	32
(h) <i>Threatened Species</i>	33
5.5 MONITORING AND REPORTING	33
5.6 DURATION OF PERMIT	34
6.0 ROLES AND RESPONSIBILITIES	35
7.0 CONCLUSION	38
8.0 REFERENCES	39
APPENDIX 1 EPBC ACT PROTECTED MATTERS SEARCH.....	40
APPENDIX 2 WILDLIFE ONLINE DATABASE	41
APPENDIX 3 - THREATENED FAUNA SPECIES ASSESSMENT OF LIKELIHOOD.....	43
APPENDIX 4 FLORA AND FAUNA SPECIES LIST	50
APPENDIX 5 RESUME OF ECOLOGISTS.....	53

TABLES

Table 1: Project description	2
Table 2: Information required for SMP high risk of impacts	1
Table 3: Significant Fauna Species or Habitat identified on Site	11
Table 4: Proposed mitigation measures	20
Table 5: Authorised Species Management Actions with Respect to Animal Breeding Places.....	32
Table 6: Vet and wildlife carer details for the local region.....	33
Table 7: Summary of Fauna Management Strategies	33
Table 8: Roles and responsibilities.....	36

FIGURES

Figure 1: Aerial Image of the site (Source: ArcGIS)	3
Figure 2: Proposed Development Layout.....	1
Figure 3: Fauna survey sites and significant fauna habitat features	9
Figure 4: Fauna Habitat Type Location	14
Figure 5: Vegetation Clearing.....	18

PLATES

Plates 1 and 2: Remnant Eucalypt Forest.....	6
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Acronyms and Glossary

Term	Definition
ALA	Atlas of Living Australia
DES	Department of Environment and Science (QLD)
DOR	Department of Resources (QLD)
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Cwth)
DSDILGP	State Development, Infrastructure, Local Government and Planning (QLD)
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cwth)
EVNT	Endangered, vulnerable, near threatened
GTRE	Ground-truthed regional ecosystem
MNES	Matters of national environmental significance
MSES	Matters of state environmental significance
NC Act	<i>Nature Conservation Act 1992</i> (Qld)
Site	Refers to the area within which development, over- and under-ground services, access tracks and other associated infrastructure may be located.
RE	Regional ecosystem
PMST	Protected matters search tool
Site boundary	The extent of the properties that the project is located within
SPRAT	Species profile and threats database
TEC	Threatened ecological community
VM Act	<i>Vegetation Management Act 1999</i> (Qld)

1.0 Introduction

1.1 Project description

Table 1: Project description

Project name	New Bundaberg Hospital
Proponent	Queensland Health - Wide Bay Hospital and Health Service
Construction Start	Q2, 2023
Duration	4 years, depending on staging: 2023 - 2027
Project contact	Peter Heath Director – Infrastructure and Assets PO Box 34 Bundaberg Qld 4670 07 4150 2877 0429 873 447 peter.heath@health.qld.gov.au Department of Health Level 1, 33 Charlotte Street Brisbane Qld 4001
Local Government Authority (LGA)	Bundaberg LGA
Location	Refer to Figure 1
Address	Bundaberg Ring Road, Thabeban Lot 23 SP212513
Site Area – Subject Lot	61.7 ha
Applicant	Green Tape Solutions
Contact Details	Kelly Matthews PO Box 282 Morayfield Qld 4506 07 5428 6372

1.2 Background

Green Tape Solutions was engaged by Wide Bay Hospital and Health Service to prepare a Species Management Program (SMP) for the New Bundaberg Hospital (NBH) development site located on Bundaberg Ring Road, Thabeban (formally described as Lot 23 on SP212513) (hereinafter referred to as the 'site'). The development site is currently undergoing assessment under the Ministerial Infrastructure Designation (MID) approval pathway and an MID decision is expected in the second quarter of 2023.

The New Bundaberg Hospital is one of Queensland Government's high priority infrastructure projects and will provide a significant expansion to health capacity and capability in the Wide Bay region. The development comprises the construction of new 320-bed hospital and associated ancillary buildings (including the main hospital building, mental health inpatient unit and facility support centre), multi-level car parking and new roads. Hospital buildings have been planned in a compact arrangement within the

north-west corner of the site to minimise the environmental impact and enable significant existing trees and vegetation to be retained. This approach has also helped reduce the extent of new roads and in-ground services. Access to the hospital shall be provided via a new east-west connector road to Kay McDuff Drive along the northern boundary of the site and a proposed extension of Johanna Boulevard within existing gazetted road corridor to the north-west of the site.

Table 1 provides the details of the development site. **Figure 1** depicts the location of the site. **Figure 2** illustrates the proposed development.

Ecological surveys of the project area to support preparation of MID application were undertaken in September 2020 and July – October 2022. These surveys have determined vegetation to be in good condition and ecological values are considered to be high to moderate due to the remnant status and condition of vegetation within the main subject lot (Lot 23) and the presence of a large array and diversity of fauna habitat features.

The development will require the removal of remnant vegetation that supports fauna habitat features. In Queensland, all native wildlife and their habitats are protected under the *Nature Conservation Act 1992*, and a permit is required for the removal or tampering with animal breeding places for protected animals to prevent unintended tampering with breeding places. For any proposed activity that will impact on breeding places of protected animals that are classified as extinct in the wild, critically endangered, endangered, vulnerable, near threatened (EVNT), special least concern (SL), colonial breeders and/or least concern species, an SMP must be developed and approved by the administering authority – the Queensland Department of Environment and Science (DES) – prior to any disturbance or clearing.

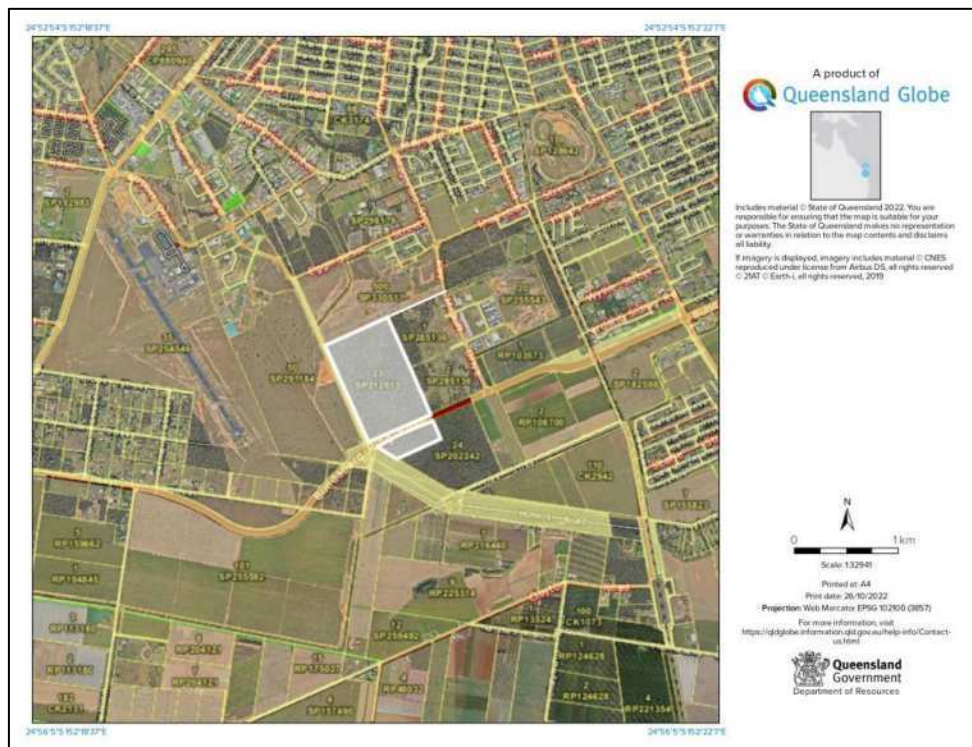


Figure 1: Aerial Image of the site (Source: ArcGIS)

1.3 Scope of Works

Given that the habitat features observed on site are likely to contain colonial breeding species such as microbats and glider species (*Petaurus* spp.), any interactions with these species are considered a 'high-risk impact' and the permit application must be formalised in accordance with the SMP guidelines and additional information requirements outlined in Section 5.1.2 of the DES Information sheet – *Requirements for tampering with a protected animal breeding place in Queensland* (DES 2020).

The purpose of this report is to identify fauna specific management measures to minimise potential impacts to native fauna. The specific scope of this plan is to:

- Provide the results of animal breeding places surveys undertaken within the project impact area;
- Identify and outline potential impacts and management strategies to minimise impact when interacting with animal breeding places for any EVNT, special least concern, colonial breeding or least concern species or colonies of colonial breeding species within the project impact area;
- Provide a working arrangement for activities that may require the tampering with animal breeding places, to satisfy the legislative requirements of the *Nature Conservation Act 1992* (Qld) (NC Act);
- Identify monitoring and reporting requirements.

2.0 Legislative Framework

2.1 Commonwealth Legislation

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) protects the environment in relation to Matters of National Environmental Significance (MNES). Under the EPBC Act, if a development proposal involves an action that will or is likely to result in a significant impact on a MNES, the proposal must be referred to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) for a determination by the Minister about whether the action is or is not a controlled action.

Detailed ecological surveys have been undertaken as part of the MID application process. The ecological assessment report for the project identifies the ecological values associated with the site, fauna and flora habitat and landscape connectivity and ecological corridor values. This report also assesses potential impacts associated within the proposed development and where required, provides mitigation measures to ensure that the proposal complies with relevant environmental legislation. This report can be read in conjunction with the SMP. No threatened species listed under the EPBC Act were identified present on site; however, the colonial breeding species, Rainbow Bee-eater (*Merops ornatus*) was confirmed present and Grey-headed Flying-fox (*Pteropus poliocephalus*) is highly likely to utilise site vegetation for foraging during flowering periods. An EPBC referral was submitted to DCCEEW on 3 November 2022 to seek a 'Not a Controlled Action' determination.

2.2 State Legislation

The following section outlines the applicable environmental legislation relating to the protection of wildlife and habitat that will be triggered by the proposed development at the State level. Key environmental legislation relating to wildlife and wildlife habitat protection includes the following:

- *Nature Conservation Act 1992*; and
- Nature Conservation (Animals) Regulation 2020

The primary purpose of the NC Act is to conserve biodiversity by creating and managing protected areas, managing and protecting native wildlife, and managing the spread of non-native wildlife. Unless authorised, it is an offence under the NC Act to take, keep, use, or move protected flora and fauna for commercial, recreational or other purposes. Where a proposed action will result in such impacts to fauna protected under the NC Act, authorisation from DES is required.

This SMP is intended to meet the requirements of section 332 of the *Nature Conservation (Animals) Regulation 2020*. It applies to activities that propose to or are likely to tamper with animal breeding places with respect to:

- a) Protected animals prescribed as extinct in the wild, endangered, vulnerable, near threatened, or a special least concern animal under the Nature Conservation (Animals) Regulation 2020; or
- b) Least concern animals that are colonial breeders; or
- c) Least concern animals where proposed tampering with a breeding place may have impacts on the broader population of the species.

2.3 Tampering with Animal Breeding Places

Table 2 outlines the information that is provided in this SMP in accordance with Section 5.1.2 of the Information sheet – Requirements for tampering with a protected animal breeding place in Queensland (DES 2020).

Table 2: Information required for SMP high risk of impacts

Item	Information required	Assessment Consideration	Section
Application details			
1. Application	Applicant details	<p>The applicant has provided name, address, phone number, as well as the following:</p> <ul style="list-style-type: none"> Registered legal entity name (not a business trading name) Trading name (if applicable) Contact details including registered business address (not a post office box), including permanent Queensland address. ABN/ACN, or title and section of legislation under which corporation has legal status Name of principal of corporation Details of nominated person in charge where the approved activity is to be undertaken. 	Section 1
	Location details	<p>The applicant has provided the items listed:</p> <ul style="list-style-type: none"> A map or plan of the proposed impact area including scale. A description of the location including address and registered lot and plan details. Any other relevant project documentation. 	<p>Figures 1 & 2</p> <p>Section 1</p>
	Approved agents	Applicant specifies the agents approved to operate under the program including suitably qualified and experienced persons, authorised wildlife carer and veterinarian.	To be confirmed
Terms			
1. Terms of approval	Duration	Applicant specifies the approval period for the SMP. The term must be relevant to the activity being undertaken and allow for a periodic review of the program. The standard term for a SMP is three years.	SMP approval is sought for the full duration of the expected construction period – 4 years (2023 – 2027)
Assessment of impacts to animal breeding places			
1. Desktop assessment	Desktop assessment undertaken prior to field assessment	The applicant has undertaken a desktop assessment to research and evaluate the potential for an animal breeding place to be present on a works site using a variety of resources including but not limited to:	Section 4.0 Appendices 1 – 4.

Item	Information required	Assessment Consideration	Section
		<ul style="list-style-type: none"> • WildNet records • Museum records • Atlas of Living Australia • Essential habitat mapping • Legislative requirements and listings (State and Federal Governments) 	
2. Field assessment	Survey conducted by a suitably qualified and experienced person.	<p>The animal breeding place survey was undertaken by a suitably qualified and experienced person who meets one or more of the following criteria:</p> <p>An ecological consultant with experience in conducting surveys for animal breeding places;</p> <ul style="list-style-type: none"> • A person who possesses a degree in natural science or similar with experience in conducting fauna surveys; • A person who is a spotter-catcher under a rehabilitation permit issued under the Act. <p>A statement to justify the suitability and qualifications of the person undertaking the animal breeding place survey is required.</p>	<p>Green Tape Solutions Ecologists.</p> <p>CVs provided in Appendix 5</p>
3. Assessment report.	Report requirements	<p>The applicant submitted an animal breeding place survey report including:</p> <ul style="list-style-type: none"> • A list of all animal breeding places identified within the impact area, including conservation status. • A statement to justify the suitability and qualifications of the person undertaking the animal breeding place survey. • Justification of the timing of the survey and detail of any limitations and assumptions associated with the timing of the survey. • A map or plan of the proposed impact area indicating the locations of identified animal breeding places. • A description of the location. 	<p>Survey efforts and findings are included in Sections 4.3, 4.4 and 4.5</p>
Impact management plan			
1. Plan	Impact management plan has been submitted	<p>The applicant has submitted an impact management plan with the SMP application that includes the following sections:</p> <ul style="list-style-type: none"> • The nature of impact • The proposed management of impacts (if any) 	Section 5.0
2. Impact	Avoid and minimise	The applicant has provided evidence that alternative options were thoroughly considered. Examples	Section 5.1

Item	Information required	Assessment Consideration	Section
management strategies	interference with animal breeding place.	<p>may include:</p> <ul style="list-style-type: none"> • Avoidance through the design phase • Avoidance through works period • Avoidance through adaptive management • Consideration of seasonal factors e.g. completing works outside of breeding season • Sequential clearing • Rehabilitation of animal breeding habitat • Replacement or translocation of breeding structure • Use of authorised spotter catchers, licensed wildlife carer and veterinarian • Staff training and procedures 	
	Nature of impact	<p>The applicant has provided the following information:</p> <ul style="list-style-type: none"> a) The applicant has identified the area (Ha) and number of particular animal breeding places to be tampered with, and the conservation status of the species. b) Information has been provided on the population dynamics of the species. c) Information has been provided about the ecology of the species. d) The applicant has accounted for all impacts, both direct and indirect, on an animal breeding place, where tampering is required. 	Section 5.0
	Management of impact	<p>The applicant has provided the following information:</p> <ul style="list-style-type: none"> a) The applicant has listed appropriate impact management solutions to account for all EVNT, special least concern or colonial breeding places identified in the animal breeding place survey report. b) The applicant has provided a list of rehabilitation methods to be used in impact management for animal breeding places. 	Section 5.1
	Contingency planning	<p>The applicant has outlined the process to be followed in the event of unexpected impacts on animal breeding places and other protected animals (e.g. will a Damage Mitigation Permit (culling and dispersal of wildlife) be required?). If a DMP is proposed, has the applicant demonstrated what impacts, if any, may occur upon the broader species population?</p>	Section 5.1

Item	Information required	Assessment Consideration	Section
3. Supporting information	The applicant has demonstrated proposed impact management measures are appropriate for the applicable species.	<p>The applicant demonstrates how the proposed impact management measures are appropriate for the animal breeding places identified and will ensure the animals survival in the wild through the following:</p> <ul style="list-style-type: none"> a) Written advice obtained from a suitably qualified person or expert regarding impact management strategies b) Reference to scientific papers which discuss the success of proposed mitigation strategies to the specific animal breeding place or that of a comparable species has been made c) SMP documents and reports previously approved by the department were referred to d) The expected success rate of the proposed impact management and any serious limitations or potential threats associated with the impact management have been identified. e) Identified how limitations or threats to the success of the impact management will be overcome. 	Section 5.0

3.0 Ecological Assessment and Species Ecology

3.1 Desktop Assessment

A desktop assessment was undertaken prior to field investigations to review relevant environmental databases, technical reports, maps and legislation (Commonwealth, State and Local) to identify ecological values with the potential to occur within and surrounding the site. Recent and historical aerial imagery was also reviewed to assist with the verification of vegetation status. The results of the desktop assessment were used to inform the field survey design.

Searches undertaken as part of the desktop assessment were based on the site's central coordinates with a 10 km buffer or by lot and plan (Lot 23 on SP212513). Search results were periodically re-accessed and updated to account for any legislative changes. The following resources were reviewed:

- *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) Protected Matters, accessed via the Protected Matters Search Tool (PMST), DCCEEW updated on 16th August 2022 (**Appendix 1**);
- Department of Environment and Sciences (DES) WildNet database (Wildlife Online) records, updated on 4th August 2022 (**Appendix 2**);
- Department of Resources (DOR) Vegetation Management Report, updated on 16th August 2022 (**Appendix 3**) which includes the following:
 - Regulated vegetation management (RVM) map;
 - Vegetation management supporting map (Vegetation management regional ecosystems; REs) including Essential Habitat;
 - Vegetation management pre-clear regional ecosystem (RE) map;
 - Vegetation management watercourse and drainage features map;
 - Protected plants flora survey trigger map (administered by the Department of Environment and Science; DES); and
 - SEQ Koala Conservation Plan Map; administered by DES.
- Watercourse Identification Map under the *Water Act 2000*, most recently accessed 4th August 2022 via Queensland Globe;
- DES Biomaps online mapping portal (DES, 2020), most recently accessed 4th August 2022;
- Atlas of Living Australia (ALA) species search, most recently accessed 4th August 2022 (ALA, 2014);
- eBird records (eBird, 2022);
- Bundaberg Regional Council Planning Scheme 2015 overlay maps, accessed 1st July 2022; and
- Aerial imagery (Queensland Globe / Google Earth Pro / ESRI and Bundaberg Regional Council).

The assessment provided in this report includes consideration of site-specific matters that may occur

within or surrounding the site or may be potentially impacted by the proposal. A 10km buffer was considered appropriate given the site context; in particular, the lack of ecological connectivity between the site and other large patches of remnant vegetation outside of a 10 km radius, the proximity to built-up areas, the surrounding land use, the paucity of nearby records of threatened species (noting that data deficiency may be an underlying influence) and the vegetation community present on site.

3.2 Ground-truthed Vegetation Communities

The site assessment determined that the proposed development site supports one vegetation community comprising remnant open eucalypt forest (Plates 1 and 2). The canopy layer of this community is dominated by white mahogany (*Eucalyptus latisinensis*) and pink bloodwood (*Corymbia intermedia*) with scattered rusty gum (*Angophora leiocarpa*), Queensland blue gum (*E. tereticornis*) and grey ironbark (*E. siderophloia*) also associated. The sub-canopy and mid-storey within this community is dominated by swamp box (*Lophostemon suaveolens*) with scattered areas of dense broad-leaved paperbark (*Melaleuca quinquenervia*). The canopy height is approximately 20-30 m with a canopy cover of approximately 60-70% across the site. The shrub layer within the community is predominantly sparse. Dominant species within this stratum consist of *Acacia* species (*A. leiocalyx* and *A. disparrima* var. *disparrima*) and juvenile and immature canopy species. The ground stratum is dominated by native grasses and mat-rush (*Lomandra* species).

Under the Regulated Vegetation Management (RVM) map and Vegetation management supporting map published by the Department of Resources (DoR) (Qld), vegetation within the main subject lot is mapped as remnant (Category B) containing the regional ecosystem (RE) 12.5.4 - *Eucalyptus latisinensis* +/- *Corymbia intermedia*, *C. trachyphloia* subsp. *trachyphloia*, *Angophora leiocarpa*, *Eucalyptus exserta* woodland on complex of remnant Tertiary surfaces and Cainozoic and Mesozoic sediments. This RE is listed as Least concern under the Vegetation Management Act 1999 (Qld). The accuracy of this mapping was confirmed during the site survey. This vegetation community is not included within the listing for any Threatened Ecological Communities (TECs) under the EPBC Act.

This community does not appear to have been cleared at any time in the past. The site contains many good-quality mature canopy trees, although there is evidence that some sections of the site have been affected by fire. With the exception of areas previously cleared for the vehicle track along the site boundary, vegetation across the entire site area conforms to remnant status.



Plates 1 and 2: Remnant Eucalypt Forest

3.3 Fauna Species and Habitat Survey

Fauna and habitat values were assessed at the same time as conducting the vegetation survey. Survey effort for seasonal surveys conducted in 15-18 September 2020 (spring), 4-8 July 2022 (winter) and 15-16 August (spring) and a detailed fauna habitat survey was undertaken between 24 October-1 November 2022 to finalise this SMP. The surveys comprised the following:

- Targeted searches for conversation-significant species (and associated supporting habitat) listed under the EPBC Act and/or NC Act and evidence of presence (scats and scratches), including three hours of spotlighting per night, koala transects and Spot Assessment Technique (SAT) searches, active searches and habitat searches on four (4) consecutive nights over ten (10) survey days in September 2020 and July 2022;
- Deployment of five (5) camera traps and three (3) Anabat detectors over ten (10) survey days in September 2020 and July 2022 to record species present on site;
- Diurnal bird surveys on four (4) consecutive days in September 2020 and July 2022 and on two (2) days in August 2022.
- An additional five (5) days of walking across the whole site to record all fauna breeding places (e.g. hollow log, hollow-bearing trees, nest, etc) undertaken between 24 October-1 November 2022
- Koala targeted survey involving the use of Koala scat-detection dogs was undertaken by OWAD Environment on 31st August – 1st September 2022.

The location of recording devices and survey effort for surveys undertaken in September 2020, July 2022 and October 2022 are illustrated in Figure 3.

Habitat assessment involved observation of the following characteristics to determine fauna likely to be present on site based on the type and quality of habitat present:

- Confirmation of habitat units and habitat structure including an analysis of habitat quality;
- Presence of Koala and Greater Glider food and habitat trees;
- Presence of hollow-bearing trees, their form and size;
- Presence of scratches on tree trunks and scats of wildlife;
- Presence of hollow logs/debris and areas of dense leaf litter cover;
- Level of disturbance (e.g. weed, litter); and
- Habitat connectivity within the network.

Fauna surveys for all field investigations were undertaken in accordance with minimum effort requirements and relevant Commonwealth and State guidelines current at the time of surveys having been undertaken, including:

- Survey guidelines for species listed nationally under the EPBC Act – *Survey Guidelines for Australia's threatened birds* (DEWHA, 2010b), *Survey Guidelines for Australia's threatened*

bats (DEWHA, 2010a), *Survey Guidelines for Australia's threatened mammals* (DEWHA, 2010c), *Survey Guidelines for Australia's threatened reptiles* (DSEWPaC, 2011) and *EPBC Act referral guidelines for the vulnerable koala* (DotE, 2014)(now superseded but contains information that is still relevant); and

- Guidelines for the targeted surveys of Queensland's threatened species, as listed under the *Nature Conservation Act 1992* (Qld), including *Terrestrial Vertebrate Fauna Survey Guidelines for Queensland* (Eyre, 2018 (Ver 3)).

All surveys were undertaken by ecologists with relevant tertiary qualifications and a minimum of 5 years of experience in undertaking fauna and terrestrial ecology field surveys. Resumes are provided in Appendix 5. Green Tape Solutions' ecologists and fauna spotters have been conducting fauna spotter catcher services for over 9 years. The animal breeding places survey was coordinated and lead by Kelly Matthews (over 20 years of experience as a fauna ecologist) and Carla Perkins (14 years of experience as a terrestrial ecologist). Animal breeding places surveys were undertaken by Kyle Hancock and Jodie Perry; both of whom are fauna spotters and qualified ecologists. The team meet the criteria for suitably qualified and experienced persons as required by the Information sheet: Species Management Program, Requirements for tampering with an animal breeding place in Queensland, by satisfying the following:

- An ecological consultant with experience in conducting surveys for animal breeding places – Kyle and Jodie have approximately 19 years of experience in fauna habitat surveys and fauna spotting activities.
- A person who possesses a degree in natural science or similar with experience in conducting surveys for animal breeding places – Kelly has a Master in Environmental Management. She has conducted many fauna surveys over the past 20 years, including specific animal breeding places surveys for the purpose of SMPs and Fauna Management Plans for major infrastructure projects.

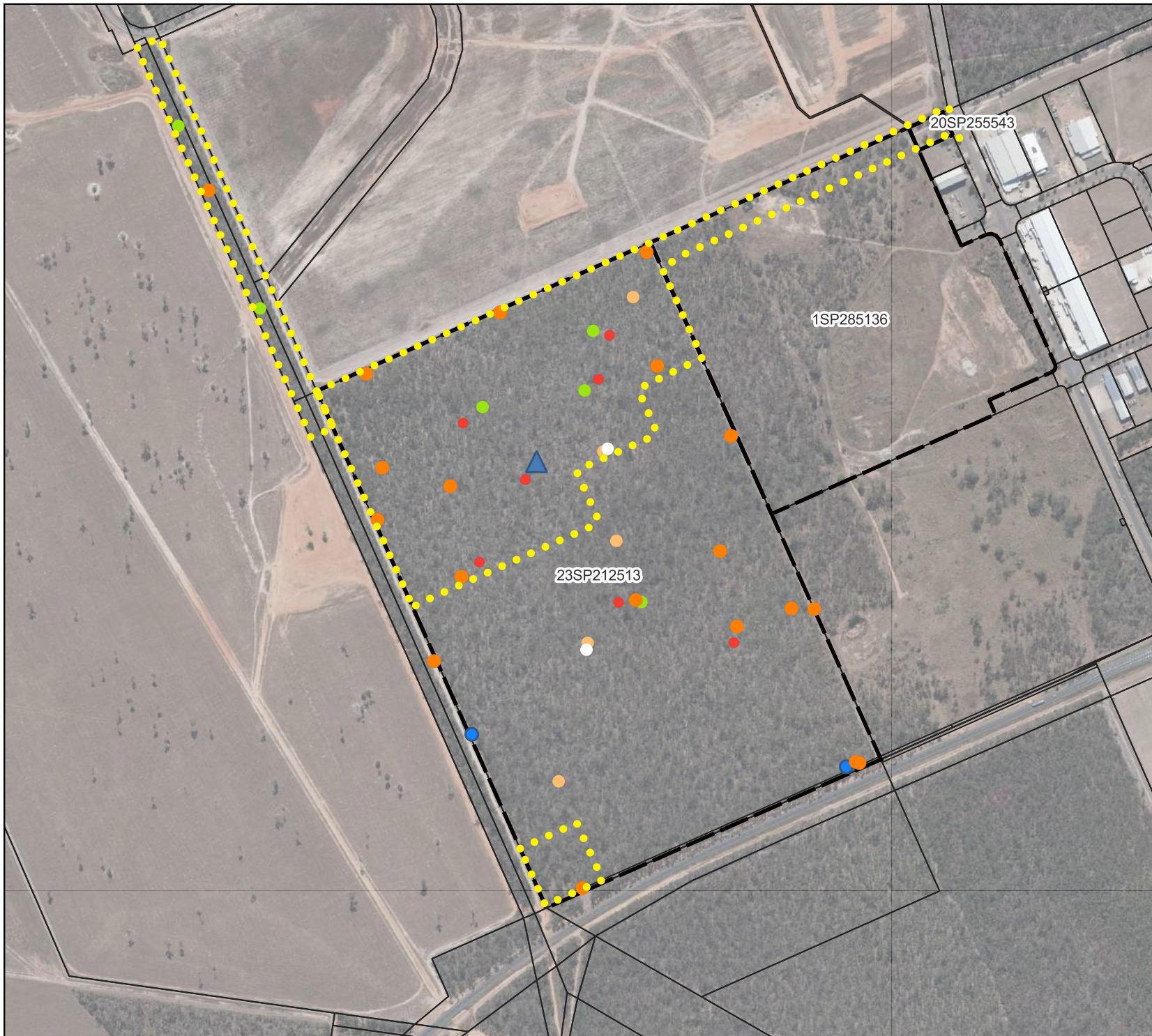


Figure 3: Site survey Locations

Project: PR20294_Bundaberg Ring Road, Bundaberg

Impact areas

- ● ● Disturbance_footprint

Vegetation Clearing Areas

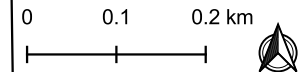
- ▣ Electrical sub-station
- ▣ Project area
- ▣ Proposed East - West Connection Road to Kay McDuff Drive - Clearing impact area on adjacent lot
- ▣ Proposed East - West Connection Road to Kay McDuff Drive - Clearing impact area within the site

Survey data

- Anabat Location 2020
- Wildlife Movement Corridor
- Camera Traps 2020
- Bird Survey Location 2022
- Anabats Device Locations 2022
- Camera Traps 2022
- Water Bodies

Notes:
 - Survey Data by Green Tape Solutions
 - Site Infrastructure and Impact Areas from Client
 - Base map Copyright (c) Esri and its data suppliers.

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ENVIRONMENTAL CONSULTING

Web - www.greentapesolutions.com.au
 Mail - admin@greentapesolutions.com.au
 M: 0423 081 428/P: 07 5428 6372

3.4 Survey Results

Fauna habitat values on site are moderate to high quality and include the following ecological features and resources:

- Foraging resources associated with native flowering plants (in particular, *Eucalyptus*, *Corymbia*, *Angophora* and *Acacia* spp.) – nectar, pollen and insect prey items;
- Hollows and crevices – many hollows are present in both dead and live trees. Over 2,000 trees with a DBH over 300mm were recorded on site. Most of the mature trees (DBH < 500mm) contains microhabitat features in some form. Hollows ranged in size from small to large and are likely to be utilised by a range of species for shelter, refuge and breeding;
- Nests – a number of bird's nests were recorded across the site, including an actively maintained raptor nest (likely to have been constructed by Wedge-tailed Eagle *Aquila audax*) located in the northern portion of the site;
- Coarse and fine woody debris including large logs;
- Two man-made dams; and
- Dry grass, leaf litter and grass tussocks suitable for small terrestrial species.

Animal breeding places surveys conducted on site recorded a total of 48 species of fauna species. In summary, the total number for each fauna group included:

- 31 bird species;
- 18 species of mammals, including 12 microbats species;
- 1 species of reptile; and
- 2 amphibian species, including an introduced amphibian species.

Common birds found on site included Black-faced Cuckoo Shrike (*Coracina novaehollandiae*), Torresian Crow (*Corvus orru*), Pacific Baza (*Aviceda subcristata*), Scaly-breasted Lorikeet (*Trichoglossus chlorolepidotus*), Little Lorikeet (*Glossopsitta pusilla*) and Wedge-tailed Eagle (*Aquila audax*).

Mammals recorded on site included two macropods - swamp wallaby (*Wallabia bicolor*) and Eastern grey kangaroo (*Macropus giganteus*). Two introduced mammal species were also recorded - European red fox (*Vulpes vulpes*) and European brown hare (*Lepus europaeus*). Other mammals not recorded but expected to occur on site include common brush-tailed possum (*Trichosurus vulpecula*), common ring-tail possum (*Pseudocheirus peregrinus*) and sugar glider (*Petaurus breviceps*). Koala scat-detection dog surveys undertaken in August – September 2022 did not detect the presence of koalas within the site, and based on this result, it is considered highly unlikely that Koalas are present on the site or within the surrounding area.

The anabat detectors recorded a total of 1,450 identifiable individual bat calls in 2020 and July 2022. An additional 488 call were recorded in November 2022, majority of these calls being recorded on from the Anabat detector located at the southern extent of the access route which was situated along a visible washout which could be utilised as a flyway and long the cleared tracks near the dams. 85% of the recorded calls were positively identified to 11 distinct least concern microbat species as listed in the

Appendix 4 and Table 3. Of the microbat species positively recorded, none are listed as conservation significant species under either the EPBC Act or the NC Act. However, all microbat species are considered colonial breeders as defined in the *Nature Conservation (Animals) Regulation 2020* and therefore where impacts to a colony are required during construction activities are required to be managed through a High-risk Species Management Program in accordance with Section 335 of the Regulation.

As the location of the Anabat was recorded from within a potential fly-away the individuals may be using this area as a foraging resource given the field survey was conducted during an evening which was hot / humid and had intermittent rainfall (conditions which are known to increase foraging activity).

Reptiles recorded included elegant snake-eyed skink (*Cryptoblepharus pulcher*), rainbow skink (*Lampropholis delicata*) and red bellied black snake (*Pseudechis porphyriacus*). Other reptiles not recorded but expected to occur on site include Eastern blue-tongued skink (*Tiliqua scincoides scincoides*), Eastern bearded dragon (*Pogona barbata*), Eastern brown snake (*Pseudonaja textilis*), common tree snake (*Dendrelaphis punctulata*) and iridescent litter skink (*Lygisaurus foliorum*).

Two amphibian species were found on site, the introduced cane toad (*Rhinella marina*) and Eastern sedge frog (*Litoria fallax*). Other species not found on site but expected to occur include broad-palmed rocket frog (*Litoria latopalmata*) and striped marsh frog (*Limnodynastes peronii*).

3.5 Significant Fauna Species

Table 3 outlines all significant fauna species identified on site. **Appendix 3** assesses the likelihood of all other threatened fauna species potentially occurring on the site.

Table 3: Significant Fauna Species or Habitat identified on Site

Scientific Name	Common Name	NC Act Status	EPBC Act Status
<i>Austronomus australis</i>	White-striped Free-tailed Bat	Least Concern, Colonial Breeders	Not of Concern
<i>Aquila audax</i>	Wedge-tailed Eagle	Least Concern	Not of Concern
<i>Chalinolobus gouldii</i>	Gould's Wattled Bat	Least Concern, Colonial Breeders	Not of Concern
<i>Chalinolobus nigrogriseus</i>	Hoary Wattled Bat	Least Concern	Not of Concern
<i>Chaerephon jobensis</i>	Northern freetail bat	Least Concern, Colonial Breeders	Not of Concern
<i>Merops ornatus</i>	Rainbow Bee-eater	Least Concern	Migratory
<i>Miniopterus australis</i>	Little Bent-winged Bat	Least Concern	Not of Concern
<i>Petaurus breviceps</i>	Sugar Glider	Least Concern, Colonial Breeders	Not of Concern
<i>Ozimops lumsdenae</i>	Northern Free-tailed Bat	Least Concern, Colonial Breeders	Not of Concern
<i>Ozimops ridei</i>	Ride's Free-tailed Bat	Least Concern, Colonial Breeders	Not of Concern

Scientific Name	Common Name	NC Act Status	EPBC Act Status
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tailed Bat	Least Concern, Colonial Breeders	Not of Concern
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	Least Concern, Colonial Breeders	Not of Concern
<i>Scotorepens greyii</i>	Little broad-nosed bat	Least Concern, Colonial Breeders	Not of Concern
<i>Scotorepens sanborni</i>	Northern Broad-nosed Bat	Least Concern, Colonial Breeders	Not of Concern
<i>Tachyglossus aculeatus</i>	Short-beaked Echidna	Special Least Concern	Not of Concern

Site surveys recorded a large raptor nest in the northern portion of the site, as shown in

Figure 4. A single Wedge-tailed Eagle (*Aquila audax*) was observed within close proximity of the nest site during animal breeding places surveys undertaken in October 2022 and it is considered highly likely that this nest has been constructed by this species. The nest has been tended to and expanded to a considerable size since the 2020 fauna survey, is currently in good condition and is likely to be currently utilised for breeding purposes by Wedge-tailed Eagle.

Microbats potentially affected on site will be hollow-occupying and highly susceptible to injury during tree felling. As the location of the Anabat was recorded from within a potential fly-away as well as in the forested area, the individuals may be using this area as a breeding and / or foraging resource given the field survey was conducted during an evening which was hot / humid and had intermittent rainfall (conditions which are known to increase foraging activity). Considering the large amount of vegetation cover that will be removed on site, it is highly likely that microbats roost will be found during the vegetation clearing.

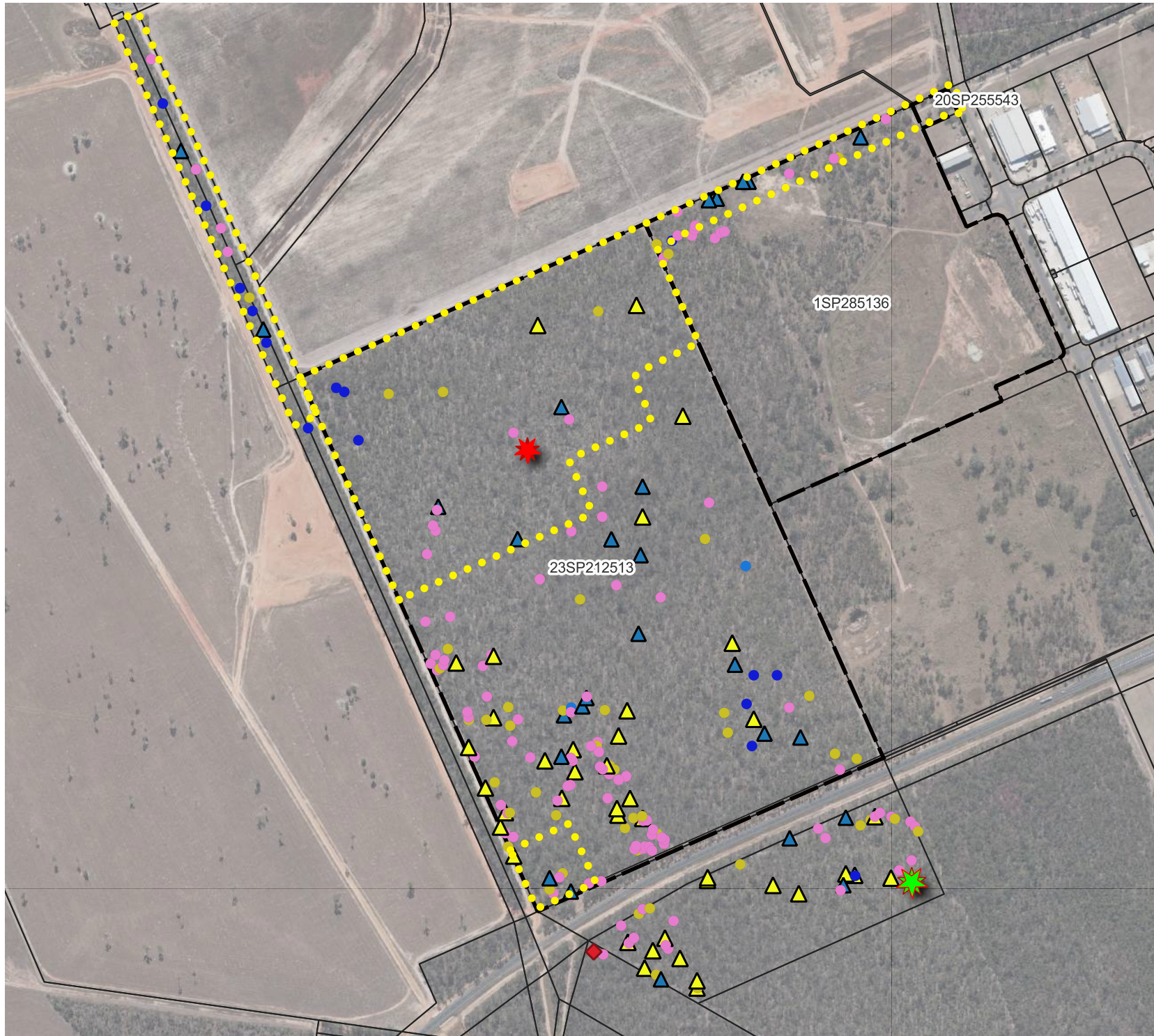













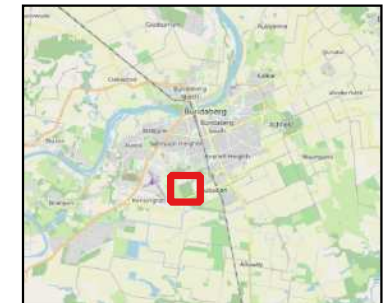
Figure 4: Fauna Habitat Surveys

Project: PR20294
Bundaberg Ring Road Bundaberg

-  Project Area incl N-S road
-  Disturbance footprint

Fauna Habitat Type

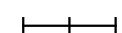
-  Arboreal Termite
-  Burrow
-  Crevices
-  Exfoliated Bark
-  Hollow Log
-  Hollow-bearing Tree
-  Terrestrial Termite Mound
-  Wedge-tailed Eagle Nest
-  Wedge-tailed Eagle Nest Relocation area



Notes:
 - Survey Data by Green Tape Solutions
 - Base map Copyright (c) Esri and its data suppliers.
 - Regional Ecosystems and QTopo Base map
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4.0 Impact to Fauna Species

The development design has been refined to minimise vegetation clearing and ecological impacts, to ensure sufficient visibility for people accessing the facility and to maximise the setback from Bundaberg Ring Road to avoid noise impacts and the need to undertake additional clearing for installation of an acoustic barrier. The development footprint has been consolidated as much as possible to the northern portion of the site, along the edge of existing tracks and cleared / rural land.

Vegetation clearing for the development will result in a reduction in the extent of the vegetation patch, and other associated impacts to fauna habitat and fauna occupying the site, including the strips of vegetation associated with the proposed East-west connector road to Kay McDuff Drive. The total clearing impact area has been reduced from the footprint proposed in previous plans to a total area of approximately 21.6 ha (15.4 ha for the project area itself, 1 ha for the electrical substation and 5.2 ha for the proposed East – West connection road to Kay McDuff Drive comprising 3.48 ha within the subject lot and 1.7 ha within the lot to the east) (**Figure 5**). This clearing impact area represents approximately 28% of the total patch area of 76.3 ha. Approximately 19.9 ha of the total impact area comprises good-quality remnant vegetation. Furthermore, consolidation of the development footprint to the northern portion of the site has reduced additional clearing for the bushfire asset protection zone and maximised the setback from Bundaberg Ring Road thereby removing the need for an acoustic barrier which would require additional vegetation clearing.

A tree survey undertaken by RPS Australia recorded all trees on site with a DBH over 300mm. Close to 2,000 trees of this size or above were recorded within the site. Within the clearing impact area, approximately 400 trees with a DBH over 300mm shall require removal.

Actual and potential direct and indirect impacts on ecological values include:

- Clearing of remnant vegetation, including clearing for bushfire protection. A separate bushfire hazard assessment determined that a 27-m wide Asset Protection Zone (APZ) is required to establish a bushfire buffer surrounding future buildings (refer to the Bushfire Management Plan prepared by Green Tape Solutions). Given that this APZ shall mostly coincide with other parts of the development (e.g. car parks, roads etc.), additional clearing for bushfire mitigation beyond the development footprint shall be minimal.
- The loss of significant ecological features, including known animal breeding places including tree hollows, and the raptor nest.
- The loss of habitat, shelter, refuge, food and other resources for a range of fauna species, including common/unlisted (Least concern) fauna species that reside on site and other species that may utilise the site from the local and broader region.
- Injury and mortality of fauna species because of vegetation clearing. This includes likely direct death and injury from clearing, indirect impacts associated with dispersal of fauna during vegetation clearing works and delayed mortality due to displacement forced dispersal into occupied territories and/or inability to re-establish territory within other habitat patches. Given the lack of safe linkages for fauna to nearby habitat patches, dispersing fauna may potentially be killed or injured while attempting to cross intervening areas and barriers such as Bundaberg

Ring Road to the south. As adjacent vegetated areas are also likely to be at carrying capacity for many species (noting the surrounding land use and limited availability of intact habitat), some indirect fauna mortality resulting from displacement is expected.

- Weed invasion: Increase in edge effects and associated degradation of retained vegetation. The community is already subject to edge effects along the existing patch boundary; in particular, effects such as weed invasion. Whilst the development footprint has been consolidated to the northern portion of the site, the current configuration will result in an increase in patch edge perimeter length and edge effects are therefore likely to be increased. Expected edge effect impacts include:
 - New weed species introduction and an increase in weed infestations within the currently intact native community.
 - Increase in predation of resident fauna by introduced species. Predators such as cats and foxes exploit patch edges and small native mammals susceptible to feral species predation were recorded on site.
 - Loss of suitable habitat for fauna due to environmental changes and potential unsuitability of retained vegetation due to disturbance associated with future land use; for example, detrimental impacts to breeding behaviour or deterrence of breeding due to noise (such as emergency helicopter access) and light pollution from street and hospital lights. Light pollution impacts fauna in several ways including reduction in sleep quality, reduced ability to forage and behavioural changes such as avoidance of lit areas. Overall, light pollution will reduce the amount and quality of habitat available for fauna in the retained vegetation. Other edge effects that will also impact fauna include changes in moisture and an increase in noise and disturbance.
- The active raptor nest located in the northern portion of the site cannot be retained in its current location. The presence of nesting raptors may also present a significant conflict with hospital activities; therefore, the nest should be relocated to a suitable nearby location (e.g. the vegetation patch to the south of Bundaberg Ring Road). The nest is suspected to be that of Wedge-tailed Eagle (*Aquila audax*) due to identifying this species present in proximity of the nest; a species which is particularly sensitive to disturbance during the breeding season. Vegetation with the same subject lot on the southern side of Bundaberg Ring Road has been identified as a suitable recipient site. This area will not form part of the development and will be far away from any potential disturbance to the hospital activities (Helicopter). Further information is provided in Section 5.3.
- Noise impact: Understanding of the impacts of noise on fauna is limited. There are no current government policies or guidelines that recommend thresholds or limits in relation to fauna. Noise may adversely affect wildlife by interfering with communication, masking the sound of predators and prey, causing stress or avoidance reactions, and in some cases, may lead to changes in reproductive or nesting behaviour. Excessive noise may lead some species to avoid noisy areas, potentially resulting in the fragmentation of species habitat. Radle (2007) states the consensus that terrestrial fauna will avoid any industrial plant or construction area where noise or vibration presents an annoyance to them. Additionally, many animals react to new noise initially as a potential threat, but quickly 'learn' that the noise is not associated with a threat

(Radle, 2007). Currently, the Project area would experience noise and vibration levels typical of rural areas, with natural sounds, such as bird calls generating most noise. Farm machinery and rural traffic would cause occasional elevated levels in localised areas. With general measures to mitigate noise impacts implemented as part of the Project design and management (such as proper maintenance of machinery/vehicles and enforcing speed limits onsite), noise is not expected to cause a significant impact to fauna in the area.







- Artificial lighting from infrastructure and machinery may impact fauna within the project area during construction and operation. Artificial lighting may have a range of impacts across different groups of taxa and between species within these groups. Rodents may avoid brightly lit areas at night. Frogs and nocturnal reptiles may congregate at artificial lights to feed on insects attracted to light (Perry *et al.*, 2008). Similarly, many microbat species may congregate at artificial lighting (Longcore and Rich, 2004), although other species may avoid well-lit areas (Threlfall, 2013). Species such as Sugar Glider (*Petaurus breviceps*) have been experimentally shown to reduce foraging time under artificial lighting (Barber-Meyer, 2007), although whether this effect occurs in natural situations is unknown. Known impacts on birds include disruption of migratory patterns and choice of nest sites (Longcore and Rich, 2004).

As suggested by the evidence above there will be differing responses between species or taxa group with some responses considered quite benign (e.g. microbats and other taxa attracted to night lighting). Habitat around the Project area is largely cleared or woodland with a limited suite of species present. Project lighting is expected have some impact to native species especially on the edge of the retained vegetation. With informed lighting design, this habitat will be at a distance where light levels would have attenuated to levels where they are unlikely to be causing a significant impact to fauna.

- Fire: Fire is a natural part of the Australian landscape, and most vegetation communities are adapted to periodic fires. However, changes in the natural fire regime may result in changes in the species composition and / or structure of the vegetation. Project activities are not inherently likely to cause fires and the development is not likely not at risk of being subject to a landscape-scale fire event.
- Sediment run-off impacting into retained vegetation communities during earthworks.
- Long-term increase in fauna death on roads due to intersection through retained vegetation.

Figure 5: Vegetation Clearing

Project: PR20294 - New Bundaberg Hospital

-  Main subject lot - 23SP212513
 -  Disturbance footprint
- Vegetation Clearing Areas
-  Project area - Main hospital site
 -  Electrical sub-station
 -  Proposed East - West Connection Road to Kay McDuff Drive - Clearing impact area on adjacent lot
 -  Proposed East - West Connection Road to Kay McDuff Drive - Clearing impact area within the site

Notes:

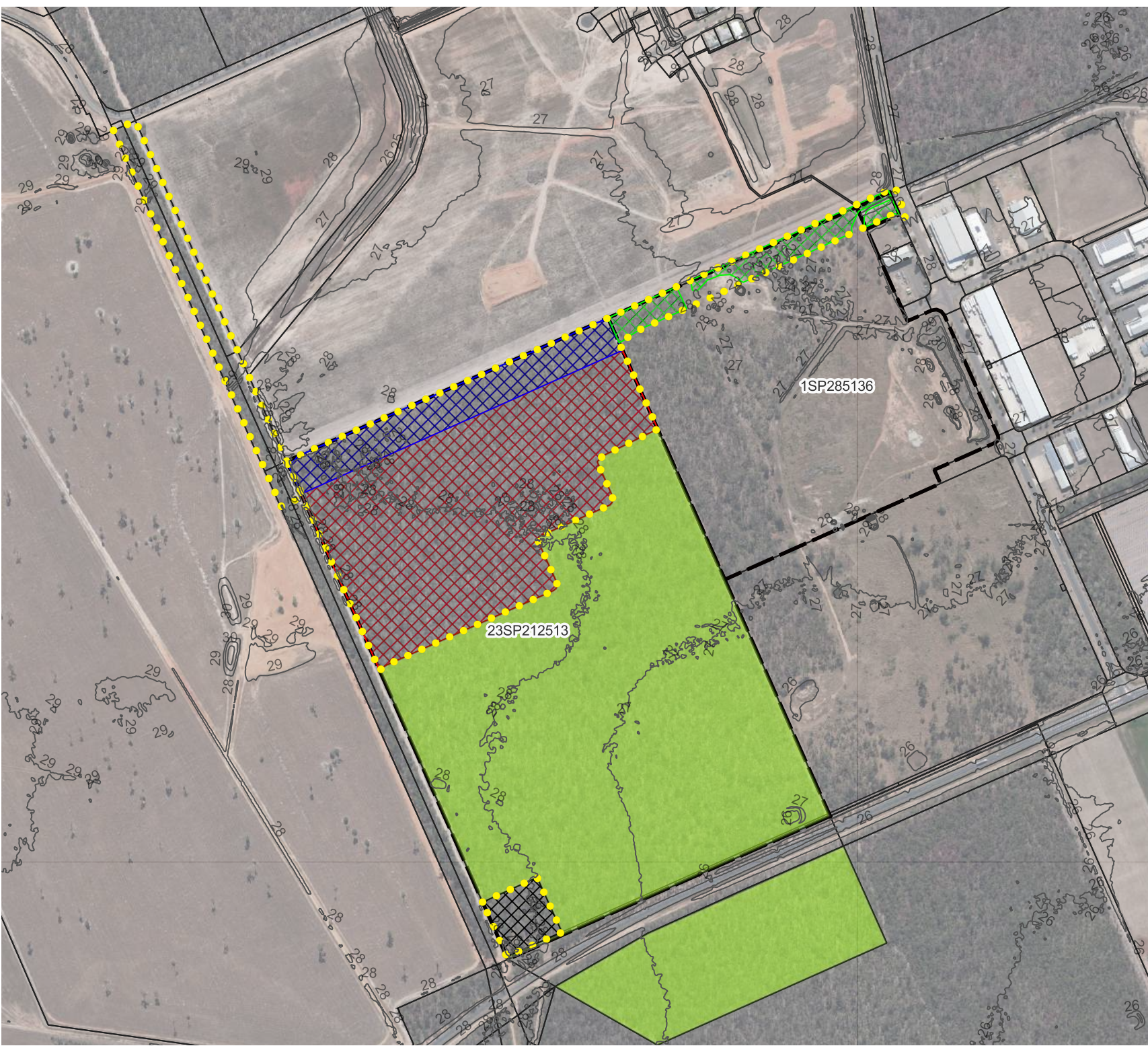
- Clearing impact areas based on Vegetation Clearing Plan prepared by Stantec Dwg no. CI-DA-900-.01 dated 17/11/22.
- Cadastral boundaries - DCDB © Department of Resources, 2022
- Aerial imagery © Bing

Created By: KM
Date: 9/12/2022
Version: E

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5.0 Management Plan

On approval of this SMP the holder shall maintain an accurate record of Animal Breeding Place register of tampering with animal breeding places. These records will include animal breeding places known or suspected to have been tampered with (including destroyed) by the holder at the end of each day that tampering occurs.

The register must be made available to DES on request and provided within 6 months of the interaction with the high-risk impacts SMP species, and the complete register within 10 business days after the expiry of this approved SMP.

For construction works, the holder will undertake an assessment prior to commencement of works, including a field survey, to determine the presence or absence of animal breeding places. Where breeding places are identified, the holder will comply with the actions identified within this SMP and will record details of the animal breeding place in the register.

5.1 Mitigation Measures

The following mitigation measures are recommended to reduce the potential ecological impacts outlined in **Table 4**.

Table 4: Proposed mitigation measures

Potential Impacts	Mitigation measures
Planning and Design Phase	
<ul style="list-style-type: none"> • Removal of vegetation is required to facilitate the development, resulting in the loss of ecological values including foraging, habitat and breeding resources. • Loss and degradation of food and shelter resources for urban fauna due to vegetation clearing. • Potential injury and mortality of fauna due to vegetation clearing. This includes direct mortality, injury or orphaning of wildlife because of vegetation clearing and indirect impacts such as displacement and dispersal into adjacent habitats that may be at their carry-capacity. • Loss of potential breeding habitat and resources (e.g. hollows and nests), including future breeding habitat. 	<p><u>Minimise and mitigate the impact:</u></p> <ul style="list-style-type: none"> ○ The development footprint has been consolidated as much as possible to the northern portion of the site, along the edge of existing tracks and cleared / rural land. The total clearing impact area has been reduced from the footprint proposed in previous plans to a total area of approximately 21.6 ha (15.4 ha for the project area itself, 1 ha for the electrical substation and 5.2 ha for the proposed East – West connection road to Kay McDuff Drive comprising 3.48 ha within the subject lot and 1.7 ha within the lot to the east). Additionally, by consolidating the layout to the north, clearing to establish the bushfire asset protection zone has been reduced and the setback from Bundaberg Ring Road has been substantially increased thereby removing the need for an acoustic fence, which would also require vegetation clearing. ○ The use of barbed wire shall be avoided for any new or replacement fencing. Any fencing on the southern boundary is to be fauna-friendly to continue to allow the movement of fauna across the boundary. Methods to create fauna-friendly fencing include leaving a 30-50cm gap under the fence, ensuring the fence is no more than 1.2m high and using chain-wire mesh that fauna can easily climb or jump over. ○ Stormwater culverts running beneath Bundaberg Ring Road may be utilised by fauna to self-relocate during vegetation clearing to the area of remnant vegetation to the south. Installation of temporary fencing (e.g. sediment fencing or wire mesh fencing) prior to clearing commencing is recommended to assist in funnelling fauna to culverts and to minimise the risk of direct mortality of fauna directly crossing Bundaberg Ring Road. Culverts will need to be cleared of debris to ensure easy access for fauna. It should be noted that the southern vegetation will already have

Potential Impacts	Mitigation measures
	<p>a fauna population at carrying capacity and fauna dispersal to alternate habitat does not equate fauna survivability.</p> <ul style="list-style-type: none"> ○ The active raptor nest located in the northern portion of the site cannot be retained in its existing location. The presence of nesting raptors may also present a significant conflict with hospital activities (e.g. use of helicopter etc); therefore, the nest should be relocated to a suitable nearby location (e.g. the vegetation patch to the south of Bundaberg Ring Road). The nest is suspected to be that of Wedge-tailed Eagle (<i>Aquila audax</i>); a species which is particularly sensitive to disturbance during the breeding season. ○ Project planning should consider the avoidance of clearing between April and November, if possible, to reduce fatalities of juvenile animals and orphaning of fauna during vegetation clearing. As many microbats are expected to occur on site, clearing in autumn would result in the least amount of microbat death. ○ Lighting design should incorporate the installation of directional lighting guards to minimise light spill into retained habitat. Lighting shall comply with the dark surrounds lighting levels in AS4282-1997 – Control of the obtrusive effects of outdoor lighting. Lighting design shall also consider the design outlined in the National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds. ○ To improve driver awareness and reduce fauna vehicle strikes, road design should incorporate installation of wildlife awareness signage within the development area. Speed restrictions will apply on-site for safety and to reduce risk of fauna collision. ○ Landscaping plans should include an appropriate selection of locally occurring flora species. <p><u>Offset the residual impact:</u></p> <ul style="list-style-type: none"> ● Given the intention to seek a Ministerial Infrastructure Designation (MID), clearing vegetation for the construction of infrastructure prescribed in Schedule 5 of the <i>Planning Regulation 2017</i> is

Potential Impacts	Mitigation measures
	<p>generally exempt; and therefore, formal offsets are unlikely to be required. However, compensatory planting may be requested by the State (for example, replacement planting for non-juvenile koala habitat trees removed because of the development).</p> <ul style="list-style-type: none"> • The action is unlikely to result in a significant impact on any MNES, therefore an offset under the EPBC Act is unlikely to be required. • Given that the site is almost entirely vegetated, there is no opportunity to provide a land-based offset within the subject lot. Where compensatory planting is required, an external site would need to be secured and managed in accordance with any conditions of approval.
Clearing and Construction Phase	
<ul style="list-style-type: none"> • Temporary disturbance (noise, light, etc.) to local fauna species. • Introduction and spread of biosecurity matters such as invasive species e.g. from fill material or machinery. • Fauna hit by vehicles and clearing machines. 	<ul style="list-style-type: none"> • Implementation of this SMP. • A pre-clearance survey of vegetation including searches to locate, record and mark specific habitat features (e.g. hollows, hollow bearing trees, hollow-bearing limbs, complex rock fissures and boulder piles) is to be undertaken by a qualified and experienced ecologist. This is to be undertaken at least one week before clearing. Visual inspection where possible of habitat features shall be undertaken shortly before clearing to identify resident fauna species that may require relocation. • Injury or mortality of fauna species will be minimised by managing habitat clearing and by having a qualified fauna spotter supervising all clearing activities. Only a designated and trained person (fauna spotter catcher) can handle and remove fauna • The site is located within Koala district B. The clearing requirements prescribed in Part 3 of the Nature Conservation (Koala) Conservation Plan 2017 (Koala Conservation Plan) apply when clearing koala habitat trees in Koala district B irrespective of any approvals or exemptions offered under other legislation. These requirements include prescribed sequential clearing requirements

Potential Impacts	Mitigation measures
	<p>in Section 10 of the Koala Conservation Plan and a requirement for clearing to be carried out in the presence of a koala spotter. If koalas are found to be present, they will be managed on site in accordance with the Koala Conservation Plan.</p> <ul style="list-style-type: none"> • The unavoidable loss of tree-hollows that are confirmed or considered likely to provide breeding habitat shall be compensated for by installation of nest boxes. A nest box management plan will be developed to guide the implementation of this measure. This plan will also guide the salvage and re-location of natural hollows to areas of retained vegetation. Nest box installation will be undertaken by a suitably qualified and experienced tree climber or will utilise an elevated works platform. Installation must be undertaken before clearing commences to ensure that the animals have somewhere to go once their trees are felled. The plan will include installation of nest boxes for Greater Glider, Common Brush-tail possum and Sugar Glider. A number of bat boxes will also need to be installed to cater for the high bat population utilising the area. Additional boxes shall be installed depending on the displacement of animals, as assessed by the fauna spotter. Additional boxes will be installed the day of felling if required. Nest boxes shall be installed not within retained adjacent vegetation and within vegetation on the southern side of Bundaberg Ring Road. • The construction contractor shall take all reasonable and practicable management measures to avoid environmental harm and environmental nuisance to native fauna and known fauna habitat and breeding places. • Contractors will be supplied with a copy of the Vegetation Management Plan (VMP) and shall be made aware of vegetation clearing and fauna management requirements through a work site start-up and induction program. • Prior to the commencement of any vegetation clearing on site, tree protection/exclusion fencing is to be installed around the tree protection zone/s (TPZ) of vegetation to be retained and trees to be removed shall be visibly marked and identified with flagging tape or similar, in accordance

Potential Impacts	Mitigation measures
	<p>with the fencing locations provided in the VMP. No disturbance is to occur outside of the clearing zone or within exclusion zones without appropriate approvals and/or further assessments.</p> <ul style="list-style-type: none"> • A tree felling protocol will be provided as part of the Vegetation Management Plan to guide the removal of hollow-bearing trees where their removal cannot be avoided. This protocol will detail preferred methods of clearing hollow-bearing trees i.e. using a two-stage process, removing surrounding trees one day before habitat trees, and “tapping” trees to encourage fauna to leave before felling. Trees will be felled using an excavator with grabs or a ripper or a tree harvester able to gently lower trees. Trees will not be felled and left to fall under their own weight as the excavator must be able to control the fall of the tree. No bulldozers will be used for tree clearing on site. • Retained vegetation is in good condition; however, it does contain a variety of weed species, particularly along patch edges (including species listed as Restricted (Category 3) matter under the Qld Biosecurity Act 2014). Ecological benefit can be derived through restoration of retained vegetation particularly within the understorey e.g. weed management to reduce weed cover within priority areas, which has benefits for wildlife movement. Appropriate steps need to be undertaken to manage infestations of these species, particularly within areas subject to disturbance during construction. Habitat degradation will be minimised by undertaking weed management during construction and managing waste and water quality. More detailed weed management activities and objectives will be provided in the Vegetation Management Plan. • Construction activities create edge effects, promote weeds and damage plants. All disturbed areas shall be rehabilitated either progressively or as soon as activities within any construction zone is completed. Any areas within exclusion zones that are immediately adjacent to construction areas and have been subject to disturbance must also be rehabilitated. • A Construction Environmental Management Plan shall be prepared for the project and submitted to DSDILGP for approval prior to commencement. This will include a variety of mitigation

Potential Impacts	Mitigation measures
	<p>measures including, but not limited to:</p> <ul style="list-style-type: none"> ○ Construction activities will be restricted to daylight hours to minimise noise, dust and light impacts. ○ No domestic animals will be allowed on site at any time. ○ Dust and erosion from stockpiling activities are to be managed to avoid escape into adjacent habitats that may smother vegetation or other important habitats or lead to impacts on water quality and aquatic habitats. ○ Where an unacceptable risk to soils and vegetation exists, bulk earthworks will be avoided during, and immediately following heavy rainfall. ○ Project vehicles and machinery, material laydowns, and stockpiling must remain within the project disturbance footprint. Construction materials will not be stored on site for extended periods of time (e.g. periods of several months) as local fauna may take up residence and be injured when the materials are eventually moved. ○ Topsoil will be stockpiled and protected separately for retained area. Where relevant (e.g. cable trenching, separate subsoils layers and topsoils layers will be replaced in their natural configuration to assist revegetation. ○ Spill management and response measures are to be developed to prevent contaminants affecting surrounding environments. ○ An Erosion and Sediment Control (ESC) plan will be implemented during construction of the dwelling to minimise impacts to adjacent vegetation because of run-off. Sediment fencing will be required to be constructed to protect adjacent properties. Monitoring will also take place to ensure the effectiveness of the fencing.

Potential Impacts	Mitigation measures
	<ul style="list-style-type: none"> • The <i>Biosecurity Act 2014</i> (Qld) imposes a general biosecurity obligation of landowners and managers to minimise biosecurity risks. This includes risks associated with invasive flora and fauna species. <ul style="list-style-type: none"> ○ Fire ant movement controls shall be implemented to restrict and monitor the movement of materials that may carry fire ants. These controls may include obtaining a Biosecurity Instrument Permit to move soil and other landscaping materials where required. The site foreman/supervisor shall be responsible for ensuring all fire ant compliance requirements are always met. Further advice regarding fire ant compliance can be obtained on the Business Queensland website at https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/land-management/health-pests-weeds-diseases/pests/fire-ants/advice-tool ○ Monitoring shall be undertaken to detect new infestations of invasive flora species listed under the <i>Biosecurity Act 2014</i> (Qld) and to ensure that listed invasive flora species do not spread beyond the site into the environment. ○ Monitor the effectiveness of controls and establish triggers for corrective action where potential impacts are observed. • Landscaping using locally Indigenous plant species shall provide foraging and shelter resources and assist in compensating for the loss of these values due to vegetation clearing. • Environmental awareness will be included in the site induction, which all staff are required to complete. This will include information on the employee's responsibility for complying with environmental regulations and Project requirements. This is to ensure that employees are aware of their surroundings and the conservation significance of fauna species within the area whilst they are working.

Potential Impacts	Mitigation measures
Operational Phase	
<ul style="list-style-type: none"> • New weed species introduction and an increase in existing weed infestations. • Increased light pollution resulting in light spill and associated impacts to adjacent residents and urban fauna. 	<ul style="list-style-type: none"> • Monitoring should be undertaken to detect new infestations and to ensure that existing infestations of species listed under <i>Biosecurity Act 2014</i> (Qld) do not spread into the environment. • To improve general awareness and reduce the risk of vehicle fauna strike, installed wildlife awareness signage may be installed and maintained. • Dogs will be excluded from the retained vegetated areas. • Lights around the hospital and other buildings will be faced away from retained vegetation, have shades installed, be under 3,000k light temperature (or as required by the lighting expert) and in line with the 'National Light Pollution Guidelines for Wildlife'. A light management plan should be developed by a lighting expert to minimise any impacts on wildlife and surrounding vegetation.

5.2 Pre-Clearance Assessment Requirement

Prior to clearing works commencing on site, vegetation to be cleared will be inspected by an appropriately qualified fauna spotter with relevant experience in surveying, monitoring and rescuing fauna species. The purpose of the pre-clearing assessment is to search for the presence of fauna and/or fauna habitat features (i.e. nests, dreys, termite nests, hollows etc).

Breeding habitat removal are to be documented in the breeding habitat register during operational works. Fauna habitat features are to be clearly marked before the clearing, preferably with flagging tape or pink spray marking paint, in order to identify those which should be inspected immediately prior to clearing and be felled with care. Habitat trees are trees that provide or potentially provide resources for fauna foraging, housing and / or breeding places and may include:

- Hollows, fissures or cracks;
- Hollow logs on ground;
- Stags;
- Hollow-bearing trees;
- Large canopy spread; and
- Significant foraging resources for fauna.

In areas with surface rocks and timber, the fauna spotter will spend time turning over these habitat features to search for terrestrial reptiles and mammals.

5.3 Relocation of the Wedge-tailed Eagle nest

(a) Literature Review

One raptor nest, with a diameter of approximately 2m, requires removal as part of the development. The nest is most likely a Wedge-tailed Eagle nest as one eagle was found present on site in proximity to the nest.

Wedge-tailed Eagle have large home ranges in which the birds hunt for food but do not defend. There is usually overlap between the home ranges of two or more breeding pairs. Wedge-tailed Eagles are generally monogamous i.e. form life-long pair bonds unless one bird of a pair is killed, in which case the survivor will find a new mate (NSW DPE, 2018). Established breeding pairs are territorial and live in the one area throughout the year, defending around their nest sites from other Wedge-tailed Eagles (Birdlife Australia, 2022).

The Wedge-tailed Eagle's diet is made up of ground-dwelling animals, including mammals and reptiles. Rabbits, wallabies and small kangaroos form the main part of their diet, although they will also eat snakes, lizards, large birds, possums, foxes and feral cats (NSW DPE, 2018).

Nests consist of a large platform of sticks constructed in the fork of a tree. Both sexes repair the nest, and the male lines it daily with fresh leaves. The male will occasionally sit on the eggs to incubate them, relieving the female from this task. During the incubation period, and after the chicks have hatched, the male does all the hunting. Upon his return to the nest, the prey is shredded by the female and fed to the young (NSW DPE, 2018).

A study undertaken by Sharp *et al.* (2001) supported the general contention that Wedge-tailed Eagles display no preference for any particular tree species and build their nests in the commonest tall trees

available. Therefore, the success of relocating the nest will rely on ensuring the pole or suitable recipient tree is at the highest point.

Foster and Wallis (2010) determined that Wedge-tailed Eagle nests in Victoria have the following characteristics:

- An average nest height of 12.6 m above the ground and mainly in the top one-third of live eucalypts, within the canopy level of surrounding trees,
- Nest trees averaged 18.1 metres tall, and were located in sheltered positions, in gullies or on moderate slopes (<30°) with south-westerly to easterly aspects.
- Most nests and nest-trees were situated below the top of the slope on which they were located.
- These characteristics conferred shelter from prevailing winds and bushfires during the breeding cycle (mid-winter to early summer) and security from nest predators.
- Nearest-neighbour distances averaged 4.7km, giving a calculated core breeding territory averaging 17.6 square kilometres (12.6-23.8 km²).

According to Wiersma and Koch (2012), nest characteristics change during and after breeding activity, so survey timing is important to consider when determining the breeding activity.

Based on the above, the following shall be taken into consideration when relocating the nest:

1. Preferable method to the erection of artificial pole nests, at high elevation but located in the top one-third of live eucalypts (not at above the canopy);
2. Relocation area shall be near the original site and at least 3-4km from any residential development (similar to existing disturbances); and,
3. Sheltered from prevailing winds, providing security from nest predators.

(b) Nest Relocation Strategy

The nest will be removed from the tree by cutting the branches around the nest and then securing the three main lateral branches to the nest. The trunk of the tree supporting the nest will be cut and then lowered to the ground into a pit dug to accommodate the structure. Strapping will be positioned around the bird nest to carefully separate it from the tree trunk and supporting branches with the crane.

A strong, lightweight aluminium custom-made cradle and a post will be manufactured to hold the bird nest. The post must be a suitable height (15m-17m), diameter (minimum 300mm) and strength to hold the cradle structure. The tree trunk will be stripped of its lateral branches and bark, transported to the relocation site and installed into a concrete foundation that had been prepared prior to the nest removal.

The nest will then place on the aluminium cradle structure, transported to the relocation site, lifted by crane and securely attached to the tree trunk. The relocation nest will be continuously monitor by an ecologist to ensure structural integrity. Monitoring of the occupation by the local wedge-tailed eagle population will also be required and is outlined in Section 5.5.

The nest will be relocated suitable location identified in **Figure 4**. This area is nearby the original site, away from existing residential development, protected from the wind and nest predation.

5.4 Vegetation Clearing and Habitat Feature Removal Procedure

(a) Timing

Vegetation clearing activities should be timed in order to minimise potential impacts on animal breeding. It is recommended that as much clearing as possible takes place outside of the spring months. This will greatly reduce the likelihood of tampering with an animal's breeding place, which may result in increased rates of mortality of juvenile fauna and long-term care for juvenile fauna.

Scheduling works so that bulk clearing can occur during autumn (February to July) would provide the least risk to the Project in terms of wildlife impacts and cost.

(b) Self-Dispersal

Trees should be cleared in a sequence that enables fauna residing in, or near the clearing site, sufficient time to vacate the area without human involvement. The clearing sequence aims to maintain habitat links within the clearing site, and to adjoining areas, where possible, allowing fauna to move more securely from the site being cleared to adjacent woodland areas. The direction of clearing will also ensure that fauna species are directed away from threats such as roads and developed areas but rather be directed towards the retained vegetation on site.

(c) Tree Felling

Hollow-bearing trees will be felled in a manner which reduces potential for fauna mortality. Trees may be tapped before felling to allow for fauna to self-relocate. It is up to the discretion of the fauna spotter to decide whether tapping is appropriate. Gentle felling of the habitat trees will consist of the trees being felled with an excavator using its boom to slow the tree's fall. Trees are not to be pushed and allowed to fall under their own weight. Directly after felling, potential habitat trees should be inspected by a fauna spotter to determine if any animals are present. Fauna spotters will capture and safely contain any fauna present. Fauna spotters may request habitat trees to remain unmoved overnight to allow animals to move of their own volition. Felled habitat trees can be gently moved outside of the clearing impact boundaries.

(d) Terrestrial Habitat Features

Smaller rocks and logs will be inspected by the fauna spotter during the pre-clearance survey. Larger rocks and logs will be rolled using the excavator to search for potentially occurring fauna. During grass or soil stripping, the fauna spotter will follow the bulldozer or grader and capture and relocate any uncovered fauna. The fauna spotter will continue to supervise soil stripping until they are satisfied that no further fauna will be uncovered.

(e) General Measures

Management measures will be adopted to minimise impacts to fauna from dust, noise, vibration and lighting. Water run-off quantity and quality shall be protected by installing erosion control management practices.

Habitat features will be enhanced throughout the site where possible. This includes using any fallen logs from cleared vegetation as habitat for native fauna within surrounding bushland areas.

(f) Fauna spotter activities

Following the pre-clearing, at the commencement of the clearing works, the fauna spotter shall inform the Construction Contractor of their duties and responsibilities in relation to fauna management. This generally involves instructing drivers to be aware of fauna, and to cease clearing and inform the fauna spotter if fauna is sighted. This information is expected to be communicated through toolbox talks.

All vegetation clearing and habitat feature removal within the site will be undertaken in the presence of the fauna spotter with a minimum of one fauna spotter per work front. This includes:

- Grass stripping and rilling by bulldozers or graders and subsoil stripping until the fauna spotter is satisfied that no fauna will be recovered;
- Removal or impacts to rocky areas;
- Impacts to any other habitat feature that a fauna spotter thinks are likely to contain fauna.

Inspections by the fauna spotter are to be conducted directly after any habitat tree or feature is cleared. During clearing operations, if wildlife is found to be present within any tree to be removed, all work shall cease until the animal/s have moved on naturally or have been captured for subsequent relocation, if necessary. Fauna spotters have the authority to request for standing trees to remain overnight if fauna is spotted in the tree. This is to allow fauna to self-relocate overnight.

In accordance with DES Information Sheet for tampering with breeding animal places (DES, 2016), the approved fauna spotter must:

- Prior to clearing, assess whether tampering is likely to occur under Section 332 of the *Nature Conservation (Wildlife Management) Regulation 2006* and notify DES if required;
- Encourage and monitor compliance with the SMP conditions provided in this document to ensure protected wildlife and their respective breeding places are appropriately managed during clearing operations;
- Work with the Construction Contractor to achieve procedural uniformity in terms of understanding and implementation of the SMP;
- Assist the Construction Contractor with incorporating the SMP into contract documentation; and
- Use their discretion to consult with DES where they identify potential tampering of breeding places of species threatened and/or migratory, and/or special least concern species listed under the NC Act and/or EPBC Act.

Where likely or new animal breeding places are identified, the approved fauna spotter should comply with the actions identified within Table 5 and details of the breeding place/s should be appropriately recorded in daily / weekly checklist.

Consideration will be given to fauna movement where exclusion fencing is necessary, as well as clearing and worker safety requirements.

Consider mechanisms to facilitate fauna movement away from clearing activities.

Table 5 details relevant species management practices to be considered, and where practicable be applied to all fauna spotter activities to minimise potential disturbances to breeding animals and/or their young. Where the removal of eggs/animals is required, the fauna spotter must engage a suitably qualified and licensed wildlife carer/facility to incubate all viable eggs removed and to raise young

animals, and adequately store the eggs/animals until the wildlife carer's arrival.

Table 5: Authorised Species Management Actions with Respect to Animal Breeding Places

Species group	Breeding place status	Management action
Least concern – special least concern or colonial breeding	All	Implementation of mitigations measures outlined in this SMP.
Extinct in the wild, endangered, vulnerable and near threatened animals (EVNT)	All	Animal breeding place survey report and impact management plan. Approval for take must be authorised under another approval.
Other least concern species	Contains young or eggs	Avoid unnecessary disturbance. Breeding place may be removed, and eggs/young handed over to a licensed wildlife carer/facility. It is preferable to allow eggs to hatch and/or young to mature before moving them away from a breeding place. As a last resort, eggs may be destroyed.
Other least concern species	No eggs or young	Proceed with caution. Remove breeding place if applicable.

Source: (DES, 2010) / ¹Where the removal or translocation of wildlife is required, the 'take' must be facilitated by a suitably licensed and experienced person. / There are two acceptable methods for destroying or terminating eggs: quickly breaking and crushing its contents; or reducing the temperature of the egg to less than 4 degrees Celsius for at least 4 hours.

Where the destruction of a breeding structure may impact on the future breeding success of an animal (for instance, a breeding season will be foregone while a large nest is reconstructed, or no or limited potential breeding structures exist in the vicinity), the fauna spotter must provide the necessary support to allow for the relocation of the breeding structure.

The fauna spotter must maintain a register to document any tampering with animal breeding places (checklist). The checklist must record the number of obvious animal breeding places destroyed and/or relocated and a description of each. Where the SMP does not apply, DES' authority is required for tampering with breeding places of species. Furthermore, the register must be made available to DES upon their request.

(g) Wildlife Carers

Licensed and qualified wildlife carers will be contacted at least 2 weeks before the commencement of clearing to prepare for a potential influx of fauna. As wildlife carers are self-funded, any expenses relating to the care of injured or orphaned fauna off the project site (or that were injured in relation to the project) will be covered by the client. These costs will include, but are not limited to, travel costs, medication, wildlife food, holding facilities and pouches.

If no wildlife carer or transport volunteer can transport viably injured or orphaned fauna to a carer or vet, a fauna spotter or ecologist will need to transport the wildlife. Injured or orphaned wildlife cannot be kept on site during the day without appropriate care being provided by suitably licensed and experienced persons. Transport should be arranged as soon as possible. A list of wildlife carer within the locality is provided in Table 6.

Table 6: Vet and wildlife carer details for the local region

Name	Phone	Location/Address	Bats (Y/N?)
Wildcare Australia	5527 2444	South-east Queensland	No
Bundy Wildlife Rescue	4156 5382 / 0412 665424	25 Tropicana Drive, Avoca	Yes
Reptile rehabilitation Queensland	1300 878 903	Queensland	No
Bat conservation and rescue Queensland	0488 228 134	Queensland	Yes
RSPCA Wildlife Hospital	3426 9910	139 Wacol Station Rd, Wacol QLD 4076	Yes

(h) Threatened Species

The mitigation measures stated above generally cover a sensitive and best practice clearing technique for increasing fauna survival and allowing for successful relocation. More specific mitigation measures are provided below:

If threatened species are recovered during the pre-clearance or clearance stages, the clearing methodology may have to change to reduce potential risks. Changes to the clearing methodology in response to new threatened species will be discussed with the state or federal government.

5.5 Monitoring and Reporting

Table 7 outlines the monitoring and reporting requirements for the Project.

Table 7: Summary of Fauna Management Strategies

Performance Objectives Indicators	Retain a viable fauna population on the site; Sensitive clearing techniques are employed; Limit injuries to native fauna; and No degradation of habitat adjacent to the development footprint.
Monitoring Requirements	Undertaking pre clearance surveys; and The fauna spotter shall monitor all operational works involving vegetation and habitat feature removal until satisfied that all fauna species have suitably relocated. Monitor the success of the raptor nest relocation.
Reporting Responsibility	Project Ecologist and Fauna Spotter to keep a log of clearing activities and monitoring undertaken. This data is to be made available to State agencies upon request. This includes breaches to any exclusion areas as outlined in the SMP and methods undertaken to correct breach; Attendance records for site induction and pre-start meetings to be completed and submitted to Project Manager; Fauna spotter to submit report to DES within one-month post-clearing;

	<p>Fauna spotter to report any injuries or deaths to Ecologist. Notification to DES is required within 48 hours.</p> <p>Fauna spotter to maintain a register documenting tampering with animal breeding places. This register is to be provided to the Ecologist for submission to DES;</p> <p>All incidents of non-compliance with this SMP to be recorded; and</p> <p>Responsible Personnel: Site manager/supervisor; Contractors; and Fauna spotter.</p>
Corrective Action	<p>Fauna spotter to re-induct site project personnel, as required;</p> <p>Site manager to re-train contractors, if considered necessary;</p> <p>Contractor to implement control measures; and</p> <p>Injured fauna species are to be placed in an adequately ventilated box in a quiet and shady location and taken to a registered wildlife carer for treatment.</p>
Contacts	<p>Queensland Environment and Science: 1300 130 372</p>

5.6 Duration of Permit

The duration of the permit is required for at least 4 years to undertake the works associated with tampering with a breeding place of a colonial breeding species. The nomination of this proposed permit currency period is based on the anticipated construction schedule (Q1, 2023 to end of 2027).

6.0 Roles and Responsibilities

All employees and contractors, who will work within the site, have a general duty of care under the *Environmental Protection Act 1994*. Notwithstanding any specifications in this SMP, the contractors must report environmental incidents to the property manager and participate in the investigation and corrective actions required to reduce environmental harm or the re-occurrence of the incident.

While general environmental compliance is the responsibility of all site personnel, specific roles and responsibilities for environmental performance and compliance will be allocated to specific positions.

Table 8: Roles and responsibilities

Title	Roles	Responsibilities
Project Manager	Overall responsibility to ensure that the land clearing occurs as per required protocols, while adhering to statutory requirements.	<ul style="list-style-type: none"> • Authorising and ensuring that the SMP is made available to all staff, contractors and regulatory authorities; • Review of SMP and becoming familiar with specific details and regulatory requirements; • Being wholly responsible for land clearing activities on the site, including the compliance and implementation of the SMP; • Allocation of resources for land clearing and training in the requirements of the SMP; • Reporting to relevant authorities in response to the mortality of any threatened and/or migratory species that is listed under the NC Act and/or EPBC Act; and • Verify the approved boundaries for clearing are correct and properly marked in the field so contractors stay within bounds.
Construction Supervisor / Site Engineer	Oversees the clearing and construction activities.	<ul style="list-style-type: none"> • Direct and coordinate all machinery and truck operators and movements; • Arrange and attend site inspections and meetings with fauna spotter and regulatory authorities if required; • Ensure that all land clearing is in accordance with SMP and other relevant guidelines; • Regular liaison with fauna spotter and when required, with relevant regulatory authorities; • Undertake regular inspections of land clearing activities to identify areas for improvement; • Prepare and collate any necessary reporting for the site e.g. environmental incidents, fauna mortality and progress reports, and subsequently submit to HSE Advisor; • Ensure that non-compliances in relation to the SMP are appropriately reported and corrective actions are undertaken; and • Ensure that all staff and contractors fulfil their environmental obligations.
Project Ecologist	<p>Undertake pre-clearance activities and ensure the activities are undertaken in accordance with the approval and this SMP</p> <p><u>Minimum qualification required:</u> the project ecologist must possess a Bachelor of Environmental Science (or equivalent), and a minimum of 10 years' experience in flora and fauna surveys, managing offset rehabilitation / restoration work, supervising on-ground work,</p>	<ul style="list-style-type: none"> • Undertake pre-clearing site demarcation • Mark-out of protected area • Approved tree protection fencing of retained area on site. • Ensure that the requirements of this SMP are satisfied. • Ensure that the auditing/monitoring program is implemented properly. • Prepare incident reports and implement corrective actions as required

Title	Roles	Responsibilities
	<p>negotiating with the relevant authority and undertaking ecological monitoring and reporting. The rehabilitation area is to undergo a review every year by a qualified independent ecologist and must be familiar with the offset requirement outlined in this offset management plan. The Project ecologist must be able to identify trends and opportunities for improvement to ensure continual improvement and best practice management.</p>	<ul style="list-style-type: none"> • Ensure appropriate records are kept and maintained on-site. • Retain a copy of this SMP for reference by appropriate personnel. • Recommend additions or changes to this SMP based upon experience gained from implementation of the plan. • Report as required to DES.
Fauna Spotter	<p>Supervise the vegetation clearing and rescue any wildlife as needed <u>Minimum qualification required:</u> the fauna spotter must hold a current Rehabilitation Permit, licensed under the NC Act and have minimum 5 years' experience in undertaking fauna spotting-catching activities.</p>	<ul style="list-style-type: none"> • Monitor and evaluate any rescued fauna; • Monitor and evaluate the relocation of the wedge-tailed Eagle nest; • Regular liaison with the Construction Supervisor; • Induct all land clearing staff and contractors in the requirements of the SMP's land clearing procedures; • Pre-clearance assessment of vegetation to be cleared, for the presence of fauna; • Monitoring of vegetation clearing activities; • Capture and release wildlife during clearing stages; • Prepare and collate all necessary data into the checklist or SMP logbook of fauna records; • Transporting injured animals to be assessed by a Vet; • Report any fauna mortality to the project Ecologist.
Construction Contractors	Undertaken clearing and construction activities	<ul style="list-style-type: none"> • Ensure that all construction/clearing personnel are inducted in the requirements of the SMP; • Clear vegetation in accordance with the SMP; and • Report any sightings, injury or mortality of fauna whilst undertaking clearing activities, to the Project Ecologist.

7.0 Conclusion

This ecological assessment identifies the ecological values occurring within, or associated with, the site of the proposed new Bundaberg Hospital. The site is the subject of a Ministerial Infrastructure Designation (MID) request.

Field surveys have determined that the site supports moderate to high ecological values due to the presence of remnant vegetation in good condition, good-quality habitat, mature trees with numerous hollows and a range of other resources, including suitable habitat for threatened fauna species. Vegetation within the site has been verified as conforming to RE 12.5.4, listed as Least concern under the VM Act.

Construction of the New Bundaberg Hospital will require the clearing of fauna habitat and will consequently involve tampering with animal breeding places. Fauna habitat features recorded within the project impact area includes hollow-bearing trees, arboreal bird nests, hollow logs, rocks and subterranean. The retained vegetation area will continue to provide foraging and nesting opportunities, shelter, water resources and habitat resources (including timber, shedding bark and leaf litter) for some wildlife.

This SMP identifies key measures to reduce the impact to these breeding places. Notable measures include avoiding clearing in spring, the provision of fauna spotters, pre-clearance surveys, clearing with excavators and reimbursing wildlife carers, implementation of a vegetation management plan and a lighting management plan. Although these general mitigation measures cover a best practice approach, specific mitigation measures for threatened species will be developed if they are found on site.

The raptor nest will be relocated from the clearing site to an adjacent retained vegetation area. Relocation strategy are outlined in Section 5.3 of this report which relies on scientific literature and supported by expert advice.

By implementing the key recommended management measures designed to minimise impacts during the construction phase of the project, direct and indirect impact to fauna in the local area shall be minimised.

8.0 References

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Appendix I EPBC Act Protected Matters Search



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 01-Jul-2022

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar)	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	35
Listed Migratory Species:	18

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	22
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	2
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities

[\[Resource Information \]](#)

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

Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may occur within area	In feature area
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	Community may occur within area	In feature area
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur within area	In feature area

Listed Threatened Species

[\[Resource Information \]](#)

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.

Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area	In buffer area only
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Cyclopsitta diophthalma coxeni Coxen's Fig-Parrot [59714]	Endangered	Species or species habitat may occur within area	In feature area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat known to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat may occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat may occur within area	In feature area
MAMMAL			
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area	In feature area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat may occur within area	In feature area
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat may occur within area	In feature area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Petaurus australis australis Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat likely to occur within area	In feature area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
PLANT			
Acacia attenuata [10690]	Vulnerable	Species or species habitat may occur within area	In feature area
Bosistoa transversa Three-leaved Bosistoa, Yellow Satinheart [16091]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Cossinia australiana Cossinia [3066]	Endangered	Species or species habitat may occur within area	In buffer area only
Cupaniopsis shirleyana Wedge-leaf Tuckeroo [3205]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Eucalyptus hallii Goodwood Gum [20433]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Fontainea venosa [24040]	Vulnerable	Species or species habitat may occur within area	In feature area
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Macrozamia lomandroides cycad [55406]	Endangered	Species or species habitat likely to occur within area	In feature area
Macrozamia pauli-guilielmi Pineapple Zamia [5712]	Endangered	Species or species habitat may occur within area	In feature area
Samadera bidwillii Quassia [29708]	Vulnerable	Species or species habitat likely to occur within area	In feature area

REPTILE

Delma torquata Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area	In feature area
Egernia rugosa Yakka Skink [1420]	Vulnerable	Species or species habitat known to occur within area	In feature area
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area	In feature area

Listed Migratory Species

[[Resource Information](#)]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area

Migratory Marine Species

Scientific Name	Threatened Category	Presence Text	Buffer Status
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat likely to occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area	In buffer area only
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area	In feature area

Other Matters Protected by the EPBC Act

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area overfly marine area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area overfly marine area	In buffer area only
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat likely to occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In buffer area only
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat known to occur within area overfly marine area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area overfly marine area	In feature area
Reptile			
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area	In feature area

Extra Information

EPBC Act Referrals				[Resource Information]	
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status	
Not controlled action					
Bundaberg Ring Road	2005/2384	Not Controlled Action	Completed	In feature area	
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area	

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

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

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

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

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

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

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

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

Appendix 2 Wildlife Online Database



Queensland Government

WildNet species list

Search Criteria: Species List for a Specified Point
Species: All
Type: All
Queensland status: Rare and threatened species
Records: All
Date: All
Latitude: -24.9088
Longitude: 152.3403
Distance: 10
Email: carla.perkins@greentapesolutions.com.au
Date submitted: Thursday 04 Aug 2022 15:26:37
Date extracted: Thursday 04 Aug 2022 15:30:06

The number of records retrieved = 15

Disclaimer

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The State of Queensland disclaims all responsibility for information contained in this product and all liability (including liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.

Information about your Species lists request is logged for quality assurance, user support and product enhancement purposes only.

The information provided should be appropriately acknowledged as being derived from WildNet database when it is used. As the WildNet Program is still in a process of collating and vetting data, it is possible the information given is not complete. Go to the WildNet database webpage (<https://www.qld.gov.au/environment/plants-animals/species-information/wildnet>) to find out more about WildNet and where to access other WildNet information products approved for publication. Feedback about WildNet species lists should be emailed to wildlife.online@des.qld.gov.au.

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Scolopacidae	<i>Calidris ferruginea</i>	curlew sandpiper		CR	CE	3
animals	birds	Scolopacidae	<i>Limosa lapponica baueri</i>	Western Alaskan bar-tailed godwit		V	V	2
animals	birds	Scolopacidae	<i>Numenius madagascariensis</i>	eastern curlew		E	CE	8
animals	birds	Turnicidae	<i>Turnix melanogaster</i>	black-breasted button-quail		V	V	2
animals	mammals	Delphinidae	<i>Orcaella heinsohni</i>	Australian snubfin dolphin		V		1/1
animals	mammals	Phascolarctidae	<i>Phascolarctos cinereus</i>	koala		E	E	1
animals	mammals	Pseudocheiridae	<i>Petauroides armillatus</i>	central greater glider		E	E	2
animals	reptiles	Chelidae	<i>Eseya albagula</i>	southern snapping turtle		CR	CE	1
plants	land plants	Leguminosae	<i>Acacia attenuata</i>			V	V	2/1
plants	land plants	Myrtaceae	<i>Eucalyptus hallii</i>	Goodwood gum		V	V	3/2
plants	land plants	Myrtaceae	<i>Melaleuca cheelii</i>			NT		5/3
plants	land plants	Myrtaceae	<i>Rhodamnia dumicola</i>	rib-fruited malletwood		E		3/3
plants	land plants	Sapindaceae	<i>Cupaniopsis shirleyana</i>	wedge-leaf tuckeroo		V	V	2/2
plants	land plants	Sapotaceae	<i>Planchonella eerwah</i>			E	E	1/1
plants	land plants	Zamiaceae	<i>Macrozamia lomandroides</i>			E	E	6/4

CODES

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

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992*.

The codes are Extinct (EX), Extinct in the Wild (PE), Critically Endangered (CR), Endangered (E), Vulnerable (V), Near Threatened (NT), Special Least Concern (SL) and Least Concern (C).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999*.

The values of EPBC are Extinct (EX), Extinct in the Wild (XW), Critically Endangered (CE), Endangered (E), Vulnerable (V) and Conservation Dependent (CD).

Records - The first number indicates the total number of records of the taxon (wildlife records and species listings for selected areas).

This number is output as 99999 if it equals or exceeds this value. A second number located after a / indicates the number of specimen records for the taxon.

This number is output as 999 if it equals or exceeds this value.

Appendix 3 - Threatened Fauna Species Assessment of Likelihood

Species	Common Name	NC Act Status	EPBC Act Status	Habitat	Likelihood of Occurrence
Birds					
<i>Actitis hypoleucos</i>	Common Sandpiper	-	M, MW	Shallow, pebbly, muddy or sandy edges of rivers and streams, coastal to far inland; dams, lakes, sewage ponds. Margins of tidal rivers, waterways in mangroves or saltmarsh, mudflats, rocky or sandy beaches, causeways, riverside lawns, drains and street gutters (Pizzey and Knight, 2007).	Unlikely – the site investigation determined that this site does not support suitable habitat for this species.
<i>Anseranas semipalmata</i>	Maggie Goose	-	M	Occurs in freshwater wetlands and nearby associated forests and grasslands. Rarely found in coastal wetlands (ALA 2017).	Unlikely – the site investigation determined that this site does not support suitable habitat for this species.
<i>Apus pacificus</i>	Fork-tailed Swift	-	MM, M	The Fork-tailed Swift is almost exclusively aerial. They mostly occur over dry or open habitats, including riparian woodland and tea-tree swamps, low scrub, heathland or saltmarsh. They are also found at treeless grassland and sandplains covered with spinifex, open farmland and inland and coastal sand dunes. This species is a non-breeding visitor to Australia.	Possible - may forage over the site. Site surveys did not record the presence of this species. Given that this species does not breed in Australia, this species would not interact with site vegetation for breeding purposes. Furthermore, given that it is almost exclusively aerial, it is not likely to directly interact with site vegetation for roosting. Vegetation clearing may result in a minor loss of foraging resources for this species. The development is unlikely to result in a significant impact on this species.
<i>Ardea alba</i>	Great Egret, White Egret	-	MW, M	Occurs in a wide range of wetland habitats both inland and coastal including swamps, rivers and agricultural dams.	Unlikely – the site supports two dams that may be periodically utilised by wetland bird species; however, these dams are small and do not provide optimal foraging resources. These dams shall be retained and not subject to any direct or indirect impacts.
<i>Ardea ibis</i>	Cattle Egret	-	MW, M	The Cattle Egret occurs in tropical and temperate grasslands, wooded lands and terrestrial wetlands. It predominantly uses shallow, open and fresh wetlands including meadows and swamps with low emergent vegetation and abundant aquatic flora. This species is often found in association with cattle.	Possible – the site supports marginally suitable habitat. Site surveys did not record the presence of this species. The development shall not result in a significant impact on this species.

Species	Common Name	NC Act Status	EPBC Act Status	Habitat	Likelihood of Occurrence
<i>Botaurus poiciloptilus</i>	Australasian Bittern	E	E	The Australasian Bittern requires shallow water, less than 30 cm deep with medium to low density reeds, grasses or shrubs for foraging and medium to high density for nesting.	Unlikely – the site investigation determined that this site does not support suitable habitat for this species.
<i>Calidris canutus</i>	Red Knot	E	E, MW	Tidal mudflats, sandflats, beaches, saltmarshes, flooded pastures and ploughed lands (Pizzey and Knight, 2007).	Unlikely – the site investigation determined that this site does not support suitable habitat for this species.
<i>Calidris ferruginea</i>	Curlew Sandpiper	E	CE, MW	Shallow, pebbly, muddy or sandy edges of rivers and streams, coastal to far inland; dams, lakes, sewage ponds. Margins of tidal rivers, waterways in mangroves or saltmarsh, mudflats, rocky or sandy beaches, causeways, riverside lawns, drains and street gutters (Pizzey and Knight, 2007).	Unlikely – the site investigation determined that this site does not support suitable habitat for this species.
<i>Charadrius leschenaultii</i>	Greater Sand Plover	V	V, MW	Wide sandy or shelly beaches; sandspits, tidal mudflats, reefs, sand cays, mangroves, saltmarsh, dune wilderness and bare paddocks; seldom far inland (Pizzey and Knight, 2007).	Unlikely – the site investigation determined that this site does not support suitable habitat for this species.
<i>Cuculus optatus</i>	Oriental Cuckoo	-	MT, M	Found in many wooded habitats (such as open and dry woodland and forest) with a range of understoreys from grasses to shrubs or heath. Sometimes found near clearings and in recently logged or burnt forests. Found in farmland with some trees, orchards, vineyards and urban parks and gardens.	Possible – the site supports suitable habitat and is located within the known seasonal distribution range (summer). Given that this species does not breed in Australia, this species would not interact with site vegetation for breeding purposes. Vegetation clearing may result in a minor loss of foraging resources for this species. The development is unlikely to result in a significant impact on this species.
<i>Cyclopsitta diophthalma coxeni</i>	Coxen's Fig-parrot	E	E	Core distribution extends from Gympie in south-eastern Queensland to the Richmond River in north-eastern New South Wales, and west to the Bunya Mountains, Main Range and Koreelah Range within both highland and sparse remnant lowland rainforest with figs and soft fruiting trees from about Gladstone (Queensland) to about Hastings River (New South Wales) (Pizzey and Knight, 2007).	Unlikely – the site investigation determined that this site does not support preferred habitat for this species. Furthermore, the site is not located within the usual distribution range for this species.
<i>Erythrotriorchis radiatus</i>	Red Goshawk	V	E	It lives in coastal and subcoastal, tall, open forests and woodlands, tropical savannas traversed by wooded or forested rivers and along the edges of rainforest.	Unlikely – the site investigation determined that this site does not support preferred habitat for this species. Furthermore, the site is not

Species	Common Name	NC Act Status	EPBC Act Status	Habitat	Likelihood of Occurrence
					located within the usual distribution range for this species.
<i>Falco hypoleucos</i>	Grey Falcon	V	V	Habitat includes lightly treed inland plains, gibber deserts, sandridges, pastoral lands and timbered watercourses and seldom in driest deserts (Pizzey and Knight, 2007). Resident or nomadic visitor to inland parts of all mainland states (Pizzey and Knight, 2007).	Unlikely – the site investigation determined that this site does not support suitable habitat for this species.
<i>Gallinago hardwickii</i>	Latham's Snipe, Japanese Snipe	-	M	Soft wet ground or shallow water with tussocks and other green or dead growth. Wet parts of paddocks, seepage below dams, irrigated areas, scrub or open woodland from sea level to alpine bogs over 2000 m above sea level, samphire on salt marshes and mangrove fringes	Unlikely – the site investigation determined that this site does not support suitable habitat for this species.
<i>Geophaps scripta scripta</i>	Squatter Pigeon	V	V	Open forests to sparse, open woodlands and scrub, often near water sources.	Unlikely – the site investigation determined that the site supports marginally suitable habitat; however, the site is located outside of the core distribution range of this species.
<i>Haliaeetus leucogaster</i>	White-bellied Sea-eagle	-	M	Found in coastal habitats (especially those close to the sea-shore) and around terrestrial wetlands in tropical and temperate regions of mainland Australia and its offshore islands. The habitats occupied by the sea-eagle are characterised by the presence of large areas of open water.	Likely – may fly over the site. Site surveys did not record the presence of this species.
<i>Hirundapus caudacutus</i>	White-throated Needletail	V	V, MT, M	The White-throated Needletail is almost exclusively aerial, from heights of less than 1 m up to more than 1000m above the ground. Non-breeding summer migrant to Australia.	Likely – may fly over the site. Site surveys did not record the presence of this species.
<i>Limosa lapponica baueri</i>	Alaskan Bat-tailed Godwit	V	V, M, MW	Tidal mudflats, estuaries, sewage ponds, shallow river margins, brackish or saline inland lakes, flooded pastures and airfields (Pizzey and Knight, 2007).	Unlikely – the site investigation determined that this site does not support suitable habitat for this species.
<i>Merops ornatus</i>	Rainbow Bee-eater	-	M	Occurs mainly in open forests and woodlands, shrublands and in various cleared or semi-cleared habitats including farmland. Usually occurs in open, cleared or lightly-timbered areas sometimes in close proximity to permanent water. Also occurs in inland and coastal dune systems, and in mangroves in northern Australia (SPRAT, 2010).	Confirmed – site surveys confirmed the presence of this species. The development is unlikely to have a significant impact on this species.
<i>Monarcha melanopsis</i>	Black-faced Monarch	-	MT, M	The Black-faced Monarch mainly occurs in rainforest ecosystems. It is also sometimes found in nearby open eucalypt forests (mainly wet sclerophyll forests), especially in gullies with a dense, shrubby understorey as well as in dry	Unlikely – the site investigation determined that this site does not support suitable habitat for this species.

Species	Common Name	NC Act Status	EPBC Act Status	Habitat	Likelihood of Occurrence
				sclerophyll forests and woodlands, often with a patchy understorey.	
<i>Monarcha trivirgatus</i>	Spectacled Monarch	-	MT, M	Prefers thick understorey in rainforests, wet gullies and waterside vegetation, as well as mangroves.	Unlikely – the site investigation determined that this site does not support suitable habitat for this species.
<i>Myiagra cyanoleuca</i>	Satin Flycatcher	-	MT, M	The Satin Flycatcher is found in tall forests, preferring wetter habitats such as heavily forested gullies, but not rainforests. On migration, may occur in coastal forests, woodlands, mangroves and drier woodlands and open forests.	Possible - May potentially be present during passage migration.
<i>Numenius madagascariensis</i>	Eastern Curlew	E	CE, MT, M	Inhabits estuaries, tidal mudflats, sandspits, saltmarshes, mangroves; occasionally fresh or brackish lakes; bare grasslands near water (Pizzey and Knight, 2007). The Eastern Curlew breeds in north east Asia and is a common summer migrant to Australian coastlines, although about 25% of the population remains all year round (Finn et al. 2001 and 2007; Geering et al. 2007).	Unlikely – the site investigation determined that this site does not support suitable habitat for this species.
<i>Pandion haliaetus</i>	Osprey	-	MW, M	The Osprey is thinly distributed around the coast of Australia where they forage for fish in fresh, brackish, or saline waters of rivers, lakes, estuaries and inshore coastal waters (Schodde and Tidemann, 1993; NPWS, 2000). Nests are usually located near a suitable area of foraging habitat and are a bulky structure made from piled sticks, often positioned in a tall dead tree or artificial structures such as telecommunication towers or poles (Schodde and Tidemann, 1993; NPWS, 2000). Breeding pairs defend breeding territory against other Ospreys, and active nests are usually more than 1 km apart (NPWS, 2005).	Possible – may periodically fly over the site given the proximity to the coast, site vegetation may be used for breeding. Site surveys did not record the presence of this species.
<i>Rhipidura rufifrons</i>	Rufous Fantail	SL	MT, M	In east and south-east Australia, the Rufous Fantail mainly inhabits moist, dense habitats including rainforests, riparian forests and thickets and wet sclerophyll forests with a dense understorey. When on passage, a wider range of habitats are used including dry eucalypt forests and Brigalow shrublands.	Unlikely – the site investigation determined that this site does not support suitable habitat for this species.
<i>Rostratula australis</i>	Australian Painted Snipe	V	E, MW, M	Inhabits shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans.	Unlikely – the site investigation determined that this site does not support suitable habitat for this species.
<i>Tringa nebularia</i>	Common greenshank	-	MW	In Queensland, the species is widespread in the Gulf country and eastern Gulf of Carpentaria (SPRAT, 2010). Found in mudflats, estuaries, saltmarshes, margins of lakes, wetlands,	Unlikely – the site investigation determined that this site does not support suitable habitat for this species.

Species	Common Name	NC Act Status	EPBC Act Status	Habitat	Likelihood of Occurrence
				claypans, fresh and salines, commercial saltfields and sewage ponds (Pizzey and Knight, 2007).	
<i>Turnix melanogaster</i>	Black-breasted Button-quail	V	V	Leaf-litter in drier rainforests, vine thickets, scrubby woodlands of eucalypts, she-oaks, bottle brushes, brush box, brigalow and <i>Acacia</i> , thickets of lantana on rainforest fringes, hoop pine plantations, grain stubbles.	Unlikely – the site investigation determined that this site does not support suitable habitat for this species.
Reptiles					
<i>Delma torquata</i>	Collared Delma	V	V	The Collared Delma normally inhabits eucalypt-dominated woodlands and open-forests on land zones 3, 9 and 10 with the presence of rocks, logs, bark and other coarse woody debris, and mats of leaf litter.	Unlikely – the site investigation determined that this site does not support suitable habitat for this species.
<i>Egernia rugosa</i>	Yakka Skink		V	Usually takes refuge under dense vegetation, hollow logs, in cavities in soil-bound root systems of fallen trees and beneath rocks in open dry sclerophyll forest or woodland throughout its range.	Unlikely – the site investigation determined that this site does not support suitable habitat for this species.
<i>Furina dunmalli</i>	Dunmall's Snake	V	V	Open forest and woodland, particularly brigalow (<i>Acacia harpophylla</i>) forest and woodland growing on floodplains of deep-cracking black clay and clay loam soils. Occurs in the south eastern interior of Queensland, especially the Darling Downs.	Unlikely – the site investigation determined that this site does not support suitable habitat for this species.
Mammals					
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V	V	This species inhabits sandstone gorges in tall open eucalypt forests, dry sclerophyll forests and woodlands, as well as the edge of rainforest, wet sclerophyll forest and <i>Callitris</i> dominated forest (Curtis et al. 2013).	Unlikely – the site investigation determined that this site does not support suitable habitat for this species.
<i>Dasyurus hallucatus</i>	Northern Quoll		E	Found in a range of open woodland and open forest types preferring rocky areas.	Unlikely – the site investigation determined that this site does not support suitable habitat for this species.
<i>Macroderma gigas</i>	Ghost Bat	E	V	Occur in a wide range of habitats from rainforest, monsoon and vine scrub to open woodlands in arid areas. Once distributed across most of inland and northern Australia but now restricted to discontinuous colonies in tropical northern Australia in the Pilbara, Kimberley, northern NT, the Gulf of Carpentaria, coastal and near coastal eastern Qld from Cape York to near Rockhampton and western Qld. Roosts in shall sandstone caves along cliff lines, under boulder piles, in deep limestone caves and in abandoned mines.	Unlikely – the site investigation determined that this site does not support suitable roosting habitat for this species. Furthermore, the site is located outside of the core distribution range of this species.

Species	Common Name	NC Act Status	EPBC Act Status	Habitat	Likelihood of Occurrence
<i>Nyctophilus corbeni</i>	Corben's Long-eared Bat		V	Has a limited distribution that is restricted around the Murray-Darling Basin in south eastern Australia. Even in this region its distribution is scattered and it is rarely recorded (Turbill and Ellis, 2006). Occurs in a range of inland woodland vegetation types, including Box, Ironbark and Cypress Pine woodlands. Throughout inland Queensland, the species habitat is dominated by various Eucalyptus and Bloodwood species, and various types of tree Mallee.	Unlikely – the site investigation determined that this site does not support suitable habitat for this species.
<i>Petaurus australis australis</i>	Yellow-bellied Glider (south-eastern)	V	V	The Yellow-bellied Glider occurs is found in tall mature eucalypt-dominated woodlands and forests where they feed on a range of sources including winter-flowering eucalypts that provide nectar and pollen (NPWS, 2000; Readers Digest, 1997). They also feed upon the sap of eucalypts into which they chew V-shaped incisions to collect the sap. Yellow-bellied Gliders den in large tree hollows (NPWS, 2000).	Possible – the site contains habitat for this species include a large number of mature trees with medium to large hollows. The site is a sufficient size to support this species even with the limited connectivity to adjacent areas.
<i>Petauroides volans volans</i>	Greater Glider (southern and central)	E	E	Found in open old growth Eucalypt or Corymbia woodland. Highly reliant on a large number of large hollows in sizeable or highly connected habitat areas.	Possible – the site contains habitat for this species include a large number of mature trees with medium to large hollows. The site is a sufficient size to support this species even with the limited connectivity to adjacent areas.
<i>Phascolarctos cinereus</i>	Koala (combined populations of QLD, NSW and the ACT)	V	V	Inhabits a range of arid, temperate, sub-tropical and tropical forest and woodland communities dominated by species from the <i>Eucalyptus</i> genus.	Unlikely – a survey using Koala scat-detection dogs did not detect the presence of Koalas within the site, and based on this result, it is considered highly unlikely that Koalas are present within the area.
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	-	V	Occurs in a range of habitats including subtropical and temperate rainforests, dry and wet sclerophyll forests, <i>Banksia</i> woodland, heaths and <i>Melaleuca</i> swamps	Likely – the site is likely used for foraging but no colony was detected within or in the vicinity of the site.

*Sources: DoE (2016), DES (2016b) and OEH (2012).

Status: E: Endangered, V: Vulnerable, NT: Near Threatened, MM: Migratory Marine, MT: Migratory Terrestrial, MW: Migratory Wetland, M: Marine.

Likelihood of Occurrence: Unlikely – no suitable habitat present, Possible – suitable species habitat present, Likely – suitable species habitat present and has previously been recorded within 5km,

Known – species recorded during field survey

Appendix 4 Flora and Fauna Species List

Scientific Name	Common Name	Status
Flora Species		
<i>Acacia disparrima</i> subsp. <i>disparrima</i>	hickory wattle	LC
<i>Acacia leiocalyx</i>	black wattle	LC
<i>Alphitonia excelsa</i>	red ash	LC
<i>Angophora leiocarpa</i>	rusty gum	LC
<i>Bidens pilosa</i> *	Cobbler's pegs	Environmental Weed
<i>Corymbia intermedia</i>	pink bloodwood	LC
<i>Cymbopogon refractus</i>	barbed-wire grass	LC
<i>Eucalyptus latisinensis</i>	white mahogany	LC
<i>Eucalyptus siderophloia</i>	Northern grey ironbark	LC
<i>Eucalyptus tereticornis</i>	Queensland blue gum	LC
<i>Grevillea robusta</i>	silky oak	LC
<i>Imperata cylindrica</i>	blady Grass	LC
<i>Lantana camara</i> *	lantana	Invasive – <i>Biosecurity Act 2014</i> : Category 3
<i>Lomandra longifolia</i>	spiny-head mat-rush	LC
<i>Lomandra multiflora</i>	many-flowered mat-rush	LC
<i>Lophostemon suaveolens</i>	swamp box	LC
<i>Melaleuca quinquenervia</i>	broad-leaved paperbark	LC
<i>Melinis repens</i> *	red Natal grass	Environmental Weed
<i>Ochna serrulate</i> *	ochna	Environmental Weed
<i>Passiflora</i> sp.	edible passionfruit	Environmental Weed
<i>Solanum seafortianum</i> *	Brazilian nightshade	Environmental Weed
<i>Sporobolus pyramidalis</i> *	giant rat's tail grass	Invasive – <i>Biosecurity Act 2014</i> : Category 3
<i>Themeda triandra</i>	Kangaroo grass	LC
<i>Urena lobata</i> *	urena burr	Environmental Weed
<i>Xanthorrhoea johnsonii</i>	Johnson's Grass Tree	LC
Fauna Species		
<i>Acanthiza pusilla</i>	Brown Thornbill	LC
<i>Accipiter fasciatus</i>	Brown Goshawk	LC
<i>Austronomus australis</i>	White-striped Free-tailed Bat	LC
<i>Aquila audax</i>	Wedge-tailed Eagle	LC
<i>Chalinolobus gouldii</i>	Gould's Wattled Bat	LC
<i>Chalinolobus nigrogriseus</i>	Hoary Wattled Bat	LC
<i>Chaerephon jobensis</i>	Northern Freetail Bat	LC
<i>Coracina novaehollandiae</i>	Black-faced Cuckooshrike	LC
<i>Corvus orru</i>	Torresian Crow	LC
<i>Cracticus nigrogularis</i>	Pied Butcherbird	LC
<i>Cracticus torquatus</i>	Grey Butcherbird	LC
<i>Cracticus tibicen</i>	Australian Magpie	LC
<i>Dacelo novaeguineae</i>	Laughing Kookaburra	LC
<i>Dicrurus bracteatus</i>	Spangled Drongo	LC

Scientific Name	Common Name	Status
<i>Geopelia striata</i>	Peaceful Dove	LC
<i>Grallina cyanoleuca</i>	Magpie-lark	LC
<i>Isoodon macrourus</i>	Northern Brown Bandicoot	LC
<i>Litoria fallax</i>	Eastern Sedge Frog	LC
<i>Macropus giganteus</i>	Eastern Grey Kangaroo	LC
<i>Macropygia phasianella</i>	Brown Cuckoo-Dove	LC
<i>Malurus cyaneus</i>	Superb Fairywren	LC
<i>Malurus melanocephalus</i>	Red-backed Fairywren	LC
<i>Manorina melanocephala</i>	Noisy Miner	LC
<i>Melithreptus albigularis</i>	White-throated Honeyeater	LC
<i>Merops ornatus</i>	Rainbow Bee-eater	LC Migratory – EPBC Act
<i>Milvus migrans</i>	Black Kite	LC
<i>Miniopterus australis</i>	Little Bent-winged Bat	LC
<i>Myiagra rubecula</i>	Leaden Flycatcher	LC
<i>Nymphicus hollandicus</i>	Cockatiel	LC
<i>Pachycephala rufiventris</i>	Rufous Whistler	LC
<i>Pardalotus striatus</i>	Striated Pardalote	LC
<i>Petaurus breviceps</i>	Sugar Glider	LC
<i>Philemon corniculatus</i>	Noisy Friarbird	LC
<i>Platyercus adscitus</i>	Pale-headed Rosella	LC
<i>Podargus strigoides</i>	Tawny Frogmouth	LC
<i>Pseudonaja textilis</i>	Eastern Brown Snake	LC
<i>Ozimops lumsdenae</i>	Northern Free-tailed Bat	LC
<i>Ozimops ridei</i>	Ride's Free-tailed Bat	LC
<i>Rhinella marina</i>	Cane Toad	Invasive - Biosecurity Act 2014
<i>Rhipidura leucophrys</i>	Willie Wagtail	LC
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tailed Bat	LC
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	LC
<i>Scotorepens greyii</i>	Little broad-nosed	LC
<i>Scotorepens orion</i>	Eastern broad-nosed bat	LC
<i>Scotorepens sanborni</i>	Northern Broad-nosed Bat	LC
<i>Tachyglossus aculeatus</i>	Short-beaked Echidna	SL – NC Act
<i>Taeniopygia bichenovii</i>	Double-barred Finch	LC
<i>Threskiornis molucca</i>	Australian White Ibis	LC
<i>Trichoglossus haematodus</i>	Rainbow Lorikeet	LC
<i>Trichosurus vulpecula</i>	Common Brush-tailed Possum	LC
<i>Vulpes vulpes*</i>	Red Fox, European Fox	Invasive – Biosecurity Act 2014: Category 3, 4, 5 and 6
<i>Zosterop lateralis</i>	Silvereye	LC

Appendix 5 Resume of Ecologists

ACCREDITATIONS

Master of Environmental Management (in progress)
Bachelor of Science
Certificate IV in Spatial Information Systems
Certificate III in Conservation and Land Management

PREVIOUS RECENT EXPERIENCE

- Nov 2017 – Present Senior Ecologist Green Tape Solutions Consulting, Australia
- Jan 2017-Nov 2017 Ecologist Development Services, City Planning and Sustainability, Brisbane City Council
- Sep 2017-Jan 2017 Ecologist Green Tape Solutions Consulting, Dalby/Brisbane
- Jun 2013-Aug 2016 Senior Ecologist and GIS Coordinator Ausecology Pty Ltd, Brisbane
- Apr 2012-May 2013 Ecologist RPS Group, Australia
- Apr 2008-Apr 2012 Environmental Consultant
- Greening Australia, Brisbane

LICENSES AND CERTIFICATION

- Queensland Driver's Licence - Class C Open (Qld)
- Commonwealth Department of Environment and Heritage (DEH) approval as a suitably qualified ecologist to undertake pre-clearance surveys
- Queensland Herbarium Training Courses - Vegetation Structure and Remnant Status under the VMA 1999, Queensland Regional Ecosystem (RE) Framework and its application, BioCondition v2.1
- Designing Maps with ArcGIS (10.3) – Esri Australia
- Certified Weed Hygiene Inspector (Clean & inspect machinery for plant, animal and soil material) No. 6680

RELEVANT PROJECTS EXPERIENCE

- **Ecological Assessment and specialist advice for a Solar and Wind Farm, Clarke Creek – Lacour, 2017- Current:** Carla prepared the ecological assessment and biodiversity assessment report for submission to the Commonwealth and State Departments to support the Clarke Creek Wind and Solar Farm at Clarke Creek. Carla supervised the fauna and flora surveys by foot and with the use of innovative technologies such as the drone. She helped with the preparation of the biodiversity impact assessment report that focused primarily on potential impacts on threatened flora and fauna. She provided expert advice on key issues including potential impacts to birds and bats due to rotor strike or barotraumas and direct removal of species and habitat for threatened species.
- **Coopers Gap Wind Farm – NGH Environmental and Civil and Allied Technical Construction (Catcon), 2017 – current:** Offsets suitability assessment, including field surveys and BioCondition assessment for potential offset sites; protected plant flora surveys and lodgement of relevant applications/statutory forms with DEHP; provision of environmental planning advice with respect to clearing permits and offsets; preparation of maps and management plans including Vegetation and Fauna Management Plan, Bushfire Management Plan and Species Management Plans; project management of pre-clearance and animal breeding places field surveys.
- **Yarrol Road BDAR (NSW Roads and Maritime Service), 2019.** Carla was the senior botanist responsible for undertaking the ecological assessment for this project as well as taking a leading role in preparing the Review of Environmental Factors (REF) for RMS.
- **AECLEC roundabout to Kia Ora Lane BdAR (NSW Roads and Maritime Service), 2019.** Carla was the senior botanist responsible for undertaking the ecological assessment for this project as well as taking a leading role in preparing the Review of Environmental Factors (REF) for RMS
- **Biodiversity Assessment report - REF, Tamworth Regional Council, 2018:** Completed biodiversity assessment and report for the upgrade of the road in Tamworth. She completed the 7 part-test and provided biobanking assessment to support the project.

ACCREDITATIONS

Masters in Environmental Management,
Griffith University, Queensland

Masters in Ecology and Biology of
Populations and Ecosystems, Lille
University, France

Certified Environmental Practitioner
(EIANZ)

Certified Lead Auditor for ISO 14009, ISO
9001 and ISO 4801

Accredited Infrastructure
Sustainability Accredited Professional

CASA Remote Pilot Licence

PREVIOUS RECENT EXPERIENCE

- 2014 – Present Director / Principal Ecologist Green Tape Solutions Consulting, Australia
- 2012-2014 Senior Ecologist RPS, Australia
- 2009-2012 Principal Ecologist/Bushfire Officer Development Assessment, Brisbane City Council, Australia
- 2006- 2009 Invasive Species Officer Brisbane City Council
- 2005-2006 Environmental Scientist New Caledonia Government and World Wildlife Fund
- 2004-2005 Technical Environmental Officer Natural Park of the Plains of L'Escaut, Belgium
- 1999-2004 Conservation Officer Blongios – Non-Governmental Organisation, France

LICENCES & CERTIFICATIONS

- Accredited Prince2 Project Management
- Certified Environmental Practitioner (EIANZ)
- Certified Lead Auditor for ISO 14009, ISO 9001 and ISO 4801
- Accredited Infrastructure Sustainability Accredited Professional
- Class A License Bird Bander

RELEVANT PROJECTS EXPERIENCE

- **BDAR – Tamworth Regional Council:** Kelly led the ecological survey and project management the delivery of the BDAR to assess the existing condition of the Clay Creek management area according to the New South Wales (NSW) Biodiversity Assessment Methodology (BAM) for an effluent reuse farm upgrade. The purpose of the report was to describe and assess the terrestrial flora, fauna and biodiversity values associated with the proposed development and to identify and assess matters of local, state and national environmental significance, such as threatened species, populations and ecological communities listed as threatened under the BC Act, the Fisheries Management Act 1994 and Matters of National Environmental Significance (MNES) listed under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) (Commonwealth). We also provided recommendations and rehabilitation strategy in order to offset the impact on the ecological values.
- **Yarrol Road BDAR (NSW Roads and Maritime Service)** Kelly was the project manager and responsible for undertaking the ecological assessment for this project and undertook quality assurance review for the Review of Environmental Factors (REF) for RMS prepared by Carla.
- **AECLEC roundabout to Kia Ora Lane BDAR (NSW Roads and Maritime Service).** Kelly was the project manager responsible for undertaking the ecological assessment for this project and undertook quality assurance review for the Review of Environmental Factors (REF) for RMS prepared by Carla.
- **BDAR for subdivision at Wagga Wagga:** Kelly led the BAM survey and project managed the delivery of the BDAR to assess the existing condition of the site. The purpose of the report was to describe and assess the terrestrial flora, fauna and biodiversity values associated with the proposed development and to identify and assess matters of local, state and national environmental significance, such as threatened species, populations and ecological communities listed as threatened under the BC Act. The project was confirmed to have some EEC but the impact to the EEC was fully avoided by the proposal which meant that the project was approved.

Attachment A12

Bushfire Management Plan

Bushfire Hazard Assessment and Management Plan

New Bundaberg Hospital

Prepared for Wide Bay Hospital and Health Service

Prepared by:

Green Tape
SOLUTIONS

PO BOX 282
Morayfield Qld 4506

M: 0423 081 428
E: kelly.matthews@greentapesolutions.com.au
W: www.greentapesolutions.com.au

Client Manager: Kelly Matthews
Report Number: PR20294_BMP_Bundaberg Hospital

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In preparing this report we have assumed that all information and documents provided to us by the Client, or as a result of a specific request or enquiry, were complete, accurate and up-to-date. Where we have obtained information from a government register or database, we have assumed that the information is accurate. Where an assumption has been made, we have not made any independent investigations with respect to the matters the subject of that assumption. We are not aware of any reason why any of the assumptions are incorrect.

In this note, a reference to loss and damage includes past and prospective economic loss, loss of profits, damage to property, injury to any person (including death) costs and expenses incurred in taking measures to prevent, mitigate or rectify any harm, loss of opportunity, legal costs, compensation, interest and any other direct, indirect, consequential or financial or other loss.

Document Records - Quality

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FILED AS	PR20294_BMP_Bundaberg Hospital

Revision	Date	Prepared by (name/title)	Reviewed by (name/ title)	Approved by (name/title)
Version A	2/10/2020	Joseph Adair, Senior Ecologist	Kelly Matthews, Director and Principal Ecologist	Client
Version B	15/10/2020	Jasmine Vink, Ecologist	Kelly Matthews, Director and Principal Ecologist	Client
Version C	29/01/2021	Jasmine Vink, Ecologist	Kelly Matthews, Director and Principal Ecologist	Client
Version D	20/07/2022	Michelle Moore, Ecologist	Kelly Matthews, Director and Principal Ecologist	Client
Version E	16/06/2022	Mark McVeigh, Ecologist	Carla Perkins, Senior Ecologist	Client
Version F	28/09/2022	Mark McVeigh, Ecologist	Carla Perkins, Senior Ecologist	Client
Version G	16/01/2023	Mark McVeigh, Ecologist	Kelly Matthews, Director and Principal Ecologist	Client

Table of Contents

1. INTRODUCTION	1
1.1 SITE DESCRIPTION	1
1.2 PROPOSED DEVELOPMENT	1
1.3 SCOPE OF WORK.....	2
2. BUSHFIRE REGULATORY FRAMEWORK.....	4
2.1 BUNDABERG REGIONAL COUNCIL PLANNING SCHEME	5
2.2 AUSTRALIAN STANDARD 3959-2018 CONSTRUCTION OF BUILDINGS IN BUSHFIRE PRONE AREA.....	6
3. BUSHFIRE ASSESSMENT	7
3.1 STEP 1 – FIRE WEATHER SEVERITY	8
3.2 STEP 1 - ASSESSMENT OF VEGETATION	8
3.3 STEP 2 - ASSESSMENT OF THE SLOPE.....	12
3.4 STEP 3 - ASSESSMENT OF THE FIRE WEATHER SEVERITY AND POTENTIAL FUEL LOAD.....	12
3.5 STEP 4 – DETERMINING FIRE-LINE AND BUSHFIRE INTENSITY	13
3.6 RADIANT HEAT EXPOSURE AND BUSHFIRE ATTACK LEVELS.....	14
4. BUSHFIRE MANAGEMENT PLAN	15
4.1 AGENCIES / PERSONS RESPONSIBLE	15
4.2 OWNER / OCCUPIER RESPONSIBILITIES	15
4.3 REPORTING AND AUDITING.....	15
4.4 SITING OF BUILDINGS.....	16
4.5 ASSET PROTECTION ZONES.....	16
4.6 ACCESS ROADS.....	18
4.7 ELECTRICITY SUPPLY.....	18
4.8 WATER SUPPLY	18
4.9 CLIMATE CHANGE AND FIRE WEATHER – PROJECTIONS FOR 2020 AND 2050	18
4.10 EMERGENCY RESPONSE PROCEDURES.....	18
5. ASSESSMENT AGAINST THE BUSHFIRE HAZARD OVERLAY CODE.....	19
6. CONCLUSION	26
7. REFERENCES	27
APPENDIX 1 FLAMESOL CALCULATOR PUBLISHED BY FIRE PROTECTION ASSOCIATION (FPA) AUSTRALIA	
28	
FIGURES	
Figure 1: Aerial image of the site and the surrounding area (Source: QGIS).	1
Figure 2: Plan of development.....	3
Figure 3: Extract from DSDMIP mapping – Bushfire prone area	5
Figure 4: Extract from BRC Planning Scheme Mapping - Bushfire hazard risk area. Note this mapping applies the SPP Mapping as shown in Figure 3. It does not show the buffer areas.....	5
Figure 5: State-mapped vegetation hazard classes within 150m of site	10
Figure 6: Ground-truthed vegetation hazard classes.....	11
Figure 7: Bushfire Attack Level (BAL) contours and Asset Protection Zone	17
PLATES	
Plate 1: 2020 Development Layout (left) and 2022 layout (right).....	2
Plate 2: Remnant vegetation community	Plate 3: Remnant vegetation to the east.....
9	9
Plate 4: Remnant vegetation community to south	Plate 5: Non-remnant vegetation in the west.....
9	9
Plate 6: Non-remnant vegetation to the north	Plate 7: Non-remnant vegetation in the west
9	9
Plate 8: Components of an Asset Protection Zone	16
TABLES	
Table 1: Potential fire-line intensity ranges and bushfire hazard classes	13
Table 2: Potential bushfire intensity classes and corresponding PFL ranges	13
Table 3: Determination of BAL minimum distances for hazardous vegetation.....	14
Table 4: Assessment against the BCR Planning Scheme Bushfire Hazard Overlay Code.....	20

I. Introduction

I.1 Site Description

Green Tape Solutions was engaged by Wide Bay Hospital and Health Service to undertake a site-specific bushfire hazard assessment for a site located at Lot 23, SP 212513 Bundaberg Ring Road, Bundaberg, hereafter referred as the 'site'. The report has been prepared in support of a Ministerial Infrastructure Designation (MID) request for the development of a new hospital at the site.

The site is located on a single lot comprising a total area of approximately 617,370m² within the Bundaberg Regional Council (BRC) local government area (**Figure 1**). The site is bounded by Ring Road Street to the south, an unnamed and unconstructed road to the west. A partially developed lot lies to the east of the site and cleared land to the north. The site is zoned as 'Open space'.

The site supports remnant native eucalypt forest communities. A more detailed description of the vegetation communities within the site and site surrounds is provided in **Section 3**.

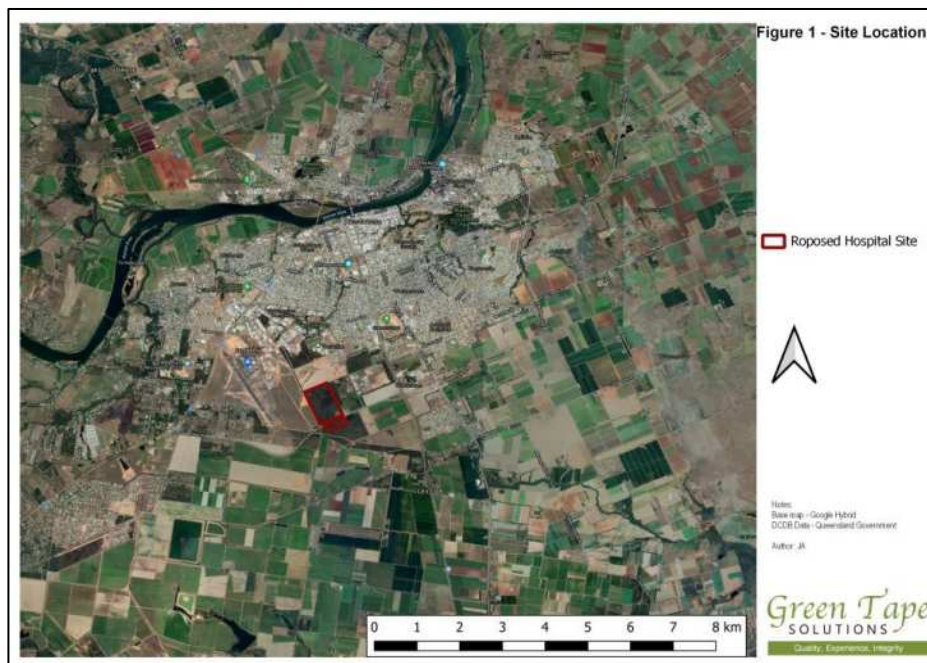


Figure 1: Aerial image of the site and the surrounding area (Source: QGIS).

I.2 Proposed Development

The proposed layout for the new hospital development is provided in **Figure 2**. The intent of the development is to retain as much native vegetation as practicable while enable the construction of the new hospital.

The proposed development comprises the construction of new hospital and associated ancillary buildings, car parking and new roads. Access to the hospital shall be provided via an extension of Johanna Boulevard to be constructed within an existing dedicated road corridor and a new east-west

connector road to Kay McDuff Drive along the northern boundary of the site. The proposed layout for the development is provided in **Figure 2**.

The original layout proposed in 2020 would have required the clearing of 37ha of remnant vegetation on site to facilitate development in the centre of the site. Under this layout, multiple internal roads were proposed and installation of an acoustic barrier would be required south of the site, which would have results in additional impacts and fragmentation of existing vegetation.

The development layout was revised in 2022 to reduce the overall impact to the vegetation and species. The development footprint was consolidated to the northern section avoiding some of the impacts, avoiding the clearing of more than 21ha and maintaining wildlife movement corridor to the south. No acoustic barrier is required for the development due to the distance of the Bundaberg Ring Road. This avoids further fragmentation of the vegetation with the surrounding properties. The proposed parking and access roads have also been designed within the bushfire buffer to maximise the use of the site and ensure compliance with the bushfire legislation.

Plate 1 illustrates the two layouts side by side.

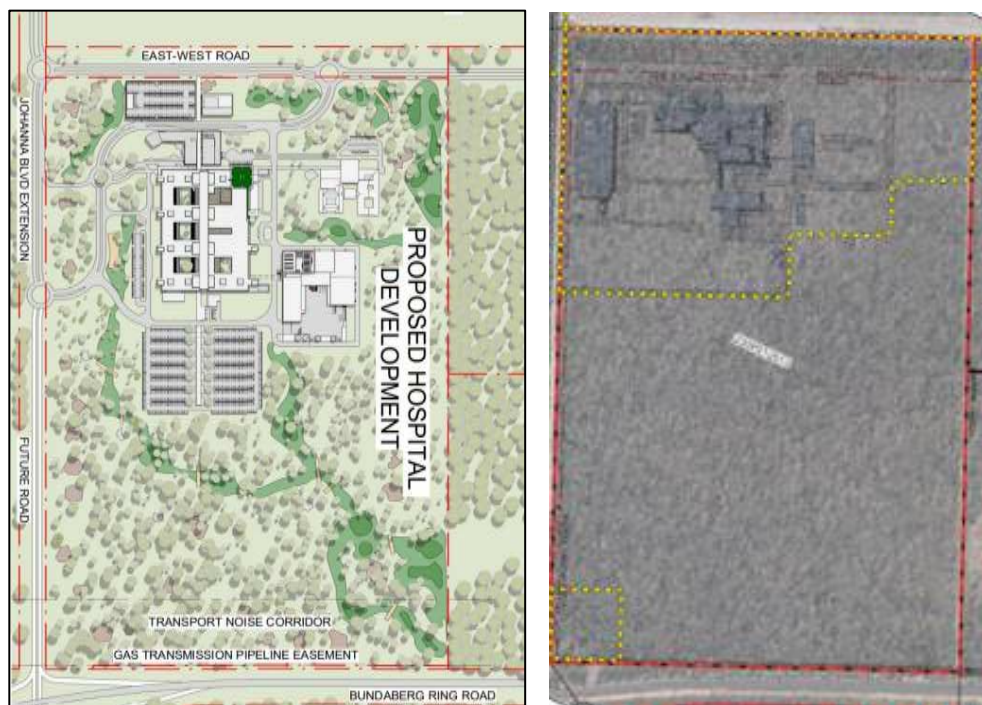


Plate 1: 2020 Development Proposed Layout (left) and 2022 layout (right)

I.3 Scope of Work

The purpose of this plan is to review current bushfire mapping for the site, provide a site-specific assessment of bushfire hazard and to assess compliance of the proposed development with statutory requirements.