



ECOLOGICAL ASSESSMENT

**Lot 9 on RP97339
204-212 Park Ridge Road, Park Ridge**

**A Report Prepared for
Somerville Consultants**

AUGUST 2024

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1 INTRODUCTION

1.1 Background

JWA Pty Ltd (JWA) has been engaged by Somerville Consultants to complete an Ecological Assessment for land at 204-212 Park Ridge Road, Park Ridge. This land is formally described as Lot 9 on RP97339 and is hereafter referred to as the 'subject site'.

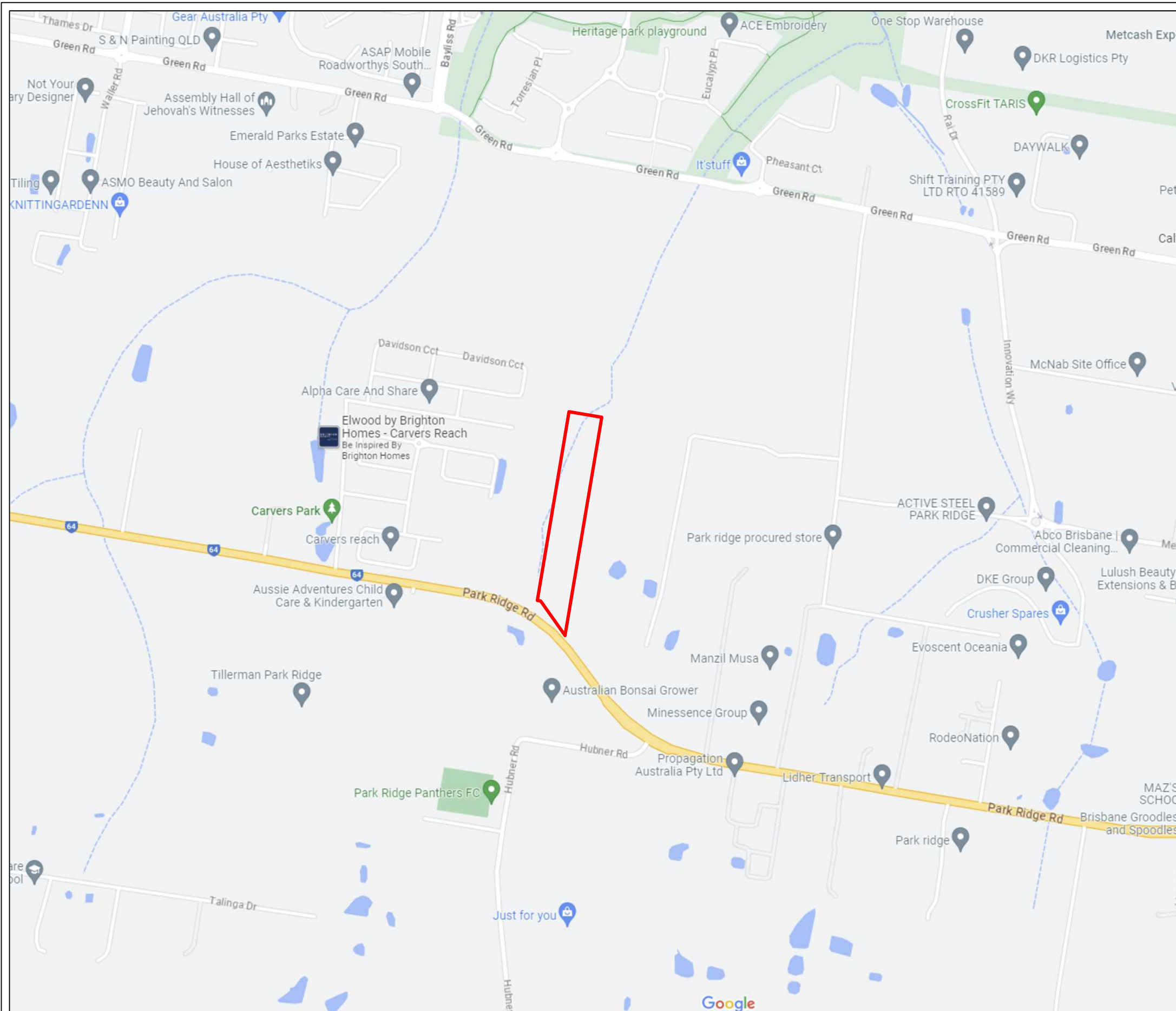
JWA Pty Ltd (JWA) previously prepared an Ecological Assessment report and Environmental Offset Report to accompany a development application to Logan City Council (LCC) for reconfiguring a lot (1 into 12 lots) over the subject site. It is understood that a revised application is now proposed to rezone the unconstrained area of the site within the Recreation and Open Space Zone - Recreation Parks Precinct to Mixed Use and the balance of the site to Environmental Management and Conservation Zone.

The Ecological Assessment involved a two-stage approach to ensure an appropriate level of assessment was undertaken. Firstly, a desktop review was undertaken to highlight any potential conservation significant vegetation communities, any potential habitat for threatened flora or fauna, and any ecologically sensitive areas on site. Secondly, using the results from the desktop review a field survey of flora, fauna, and habitat was completed. In particular the assessment has involved the following:

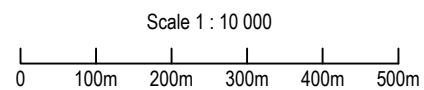
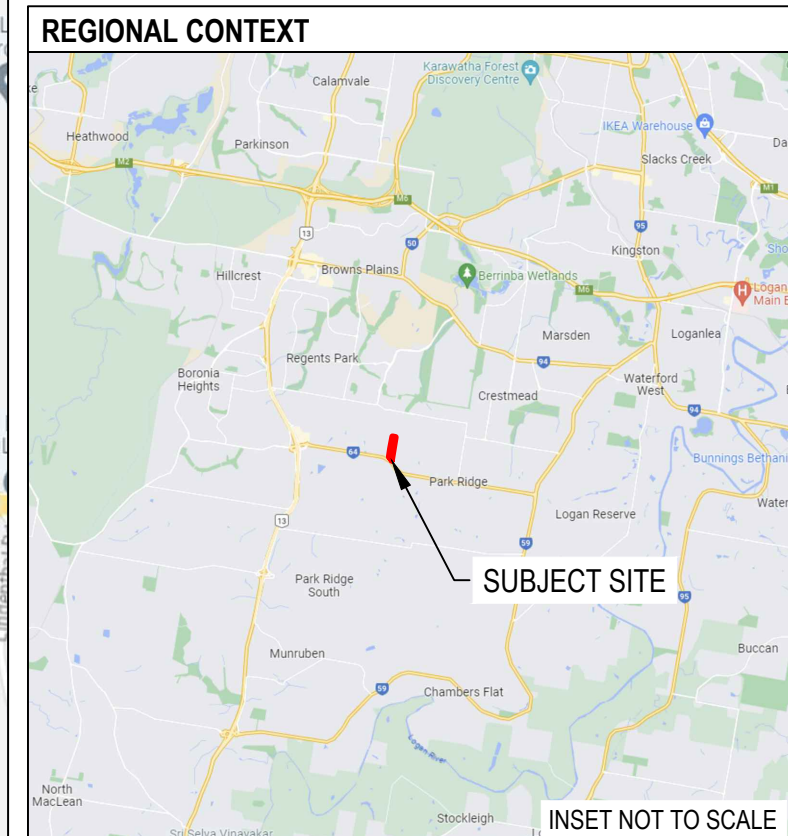
- determining the suite of Commonwealth and State listed threatened and regionally or locally significant flora and fauna species that occur in the locality from literature and database records;
- ground truthing vegetation communities and determining their conservation status in accordance with the Queensland Department of Natural Resources and Mines (DNRM) Regional Ecosystem Framework (*Vegetation Management Act 1999 [VM Act]*);
- assessing the likelihood of occurrence of threatened flora and fauna species on the subject site;
- searching for and recording threatened and regionally or locally significant flora and fauna species;
- assessing habitat provided by the site in the context of the surrounding area;
- assessing the corridor values of the site at a local and regional scale;
- assessing the potential impacts of the proposed development and determining appropriate mitigation measures;
- addressing statutory requirements regarding impacts to flora and fauna; and
- addressing relevant development assessment codes and policies.

1.2 The Subject Site

The subject site is located at 204-212 Park Ridge Road, Park Ridge and is formally described as Lot 9 on RP97339. The site covers an area of approximately 4.07 ha (**FIGURE 1**).



LEGEND
 Subject Site



SOURCE: Google Maps
 SCALE: 1 : 10 000 @ A3
JWA PTY LTD
Ecological Consultants

CLIENT
 Mr Quyen Nguyen
 PROJECT
 Ecological Assessment
 Lot 9 on RP97339
 210 Park Ridge Road, Park Ridge QLD
 Logan City Council LGA

FIGURE 1
 PREPARED: BW
 DATE: 24 July 2024
 FILE: Q12010_EA_20240724.dwg

TITLE
LOCALITY PLAN

INSET NOT TO SCALE

The subject site is bound by rural residential land to the east and west. Residential development is currently under construction on land to the north. Park Ridge Road runs along the southern boundary.

The site is generally flat and slopes gradually downwards from south to north and from east to west. The majority of the site has been previously cleared, with occasional individual mature trees remaining in the cleared area. The cleared area is infested with a high diversity of weeds, with some native species also persisting. The northern and eastern portions of the site are vegetated. A house and associated infrastructure and lawns/gardens are present in the south of the site.

A recent aerial photograph showing the subject site is provided in **FIGURE 2**.

1.3 Planning History and Context

It is noted that prior to 2004 the subject site was zoned as rural residential with a strategic designation of Park Residential. During this time there was the ability for the site to be subdivided into 5,000m² lots.

In 2004 the site was designated as 'Investigation' under the South East Queensland Regional Plan.

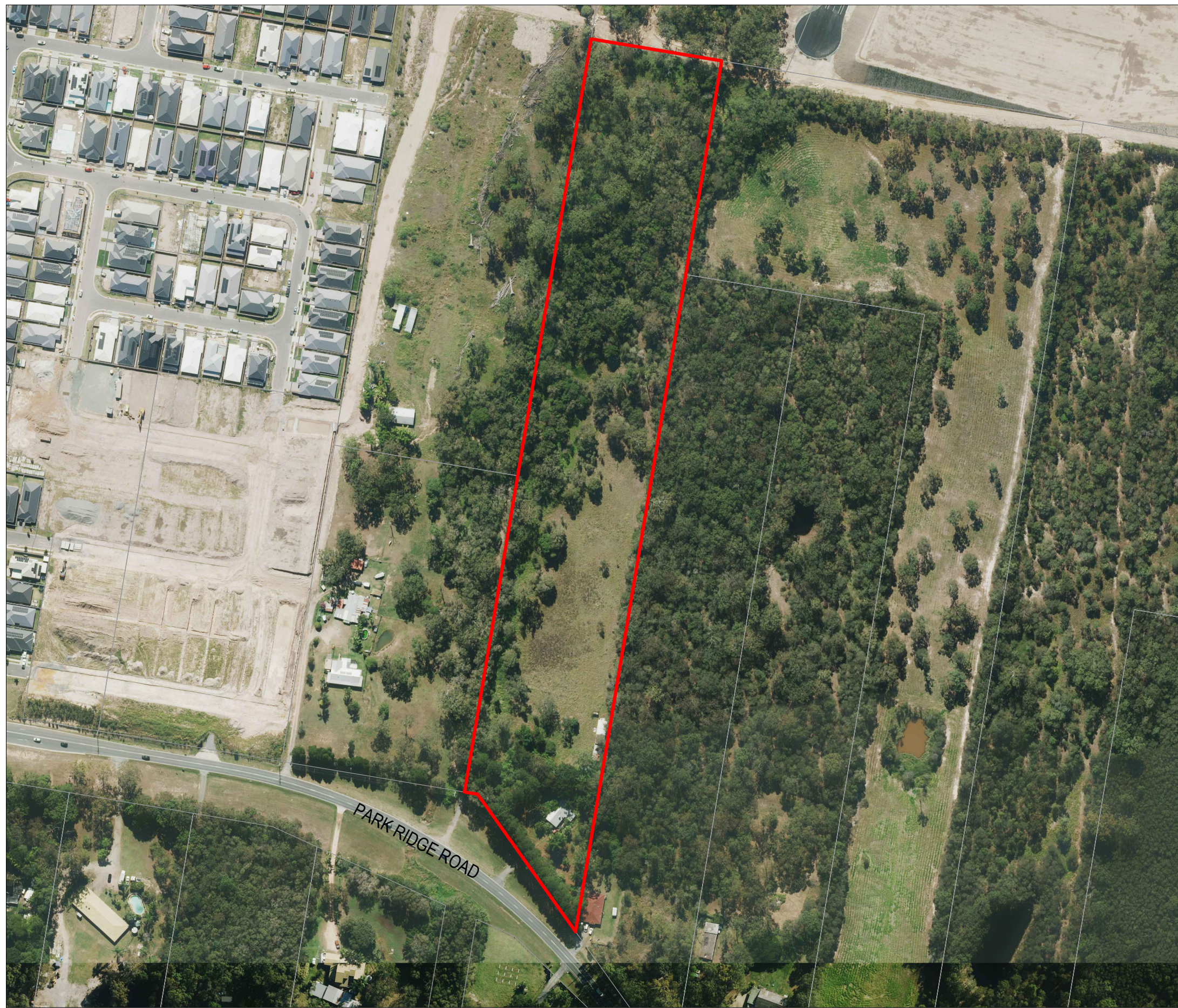
In October 2011 Council adopted a range of amendments to the planning scheme to integrate the intentions and outcomes of the Park Ridge Structure Plan. At this time land use designation of the subject site was amended to Conservation Zone (in the north of the subject site) and Non-Urban Zone (in the south of the subject site). At the same time adjoining sites (to the east and to the west) were designated for commercial purposes.

The Subject site is currently zoned in the Logan Planning Scheme 2015 as (**FIGURE 3**):

- Environmental Management and Conservation; and
- Recreation and Open Space.

1.4 The Proposed Development

It is proposed to lodge a revised DA with LCC to rezone the unconstrained area of the site within the Recreation and Open Space Zone - Recreation Parks Precinct to Mixed Use and the balance of the site to Environmental Management and Conservation Zone. A proposed rezoning layout is provided in **FIGURE 4**. It is considered for the purposes of this EA that the proposed Mixed Use Area will be cleared to allow for future development and that the Environmental Management and Conservation Area will be retained.



LEGEND
 Subject Site
 Cadastre

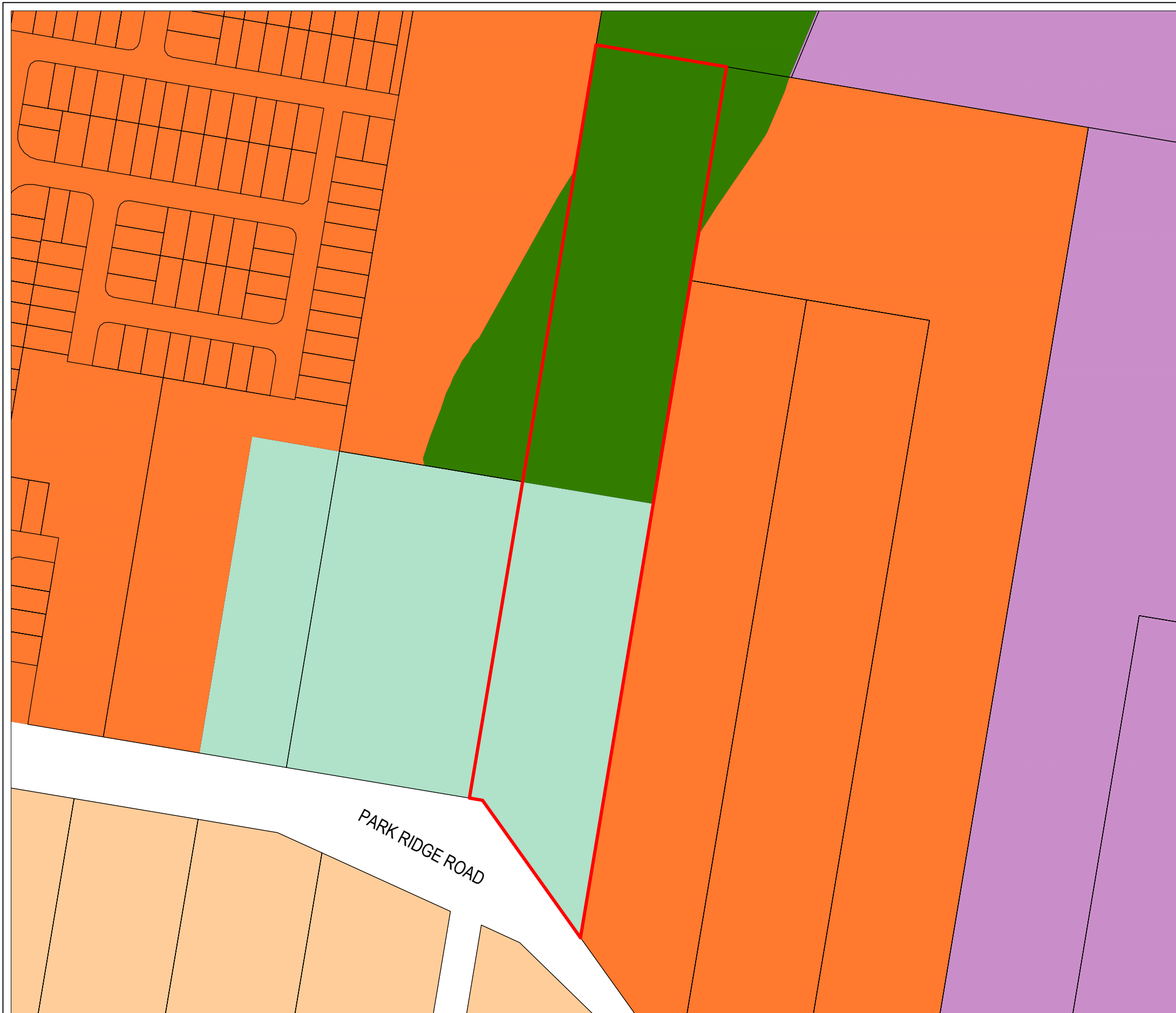
Scale 1 : 2500
 0 20m 40m 60m 80m 100m

SOURCE: Metro Map Aerial dated 01/05/23
 CLIENT
 Mr Quyen Nguyen
 PROJECT
 Ecological Assessment
 Lot 9 on RP97339
 210 Park Ridge Road, Park Ridge QLD
 Logan City Council LGA

FIGURE 2
 PREPARED: BW
 DATE: 24 July 2024
 FILE: Q12010_EA_20240724.dwg

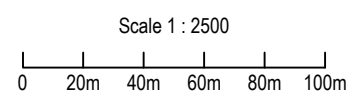
TITLE
AERIAL PHOTOGRAPH

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Ecological Consultants



- LEGEND**
- Subject Site
 - Cadastre
 - LPS 2015 ZM-01.00 Zone Map**
 - Recreation and open space
 - Environmental management and conservation
 - Mixed use
 - Medium impact industry
 - Emerging community

PARK RIDGE ROAD



SOURCE: Logan City Council Open Data - LPS 2015 v9.0 ZM-01.00 Zone Map

SCALE: 1 : 2500 @ A3

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Lot 9 on RP97339
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FIGURE 3

PREPARED: BW
DATE: 24 July 2024
FILE: Q12010_EA_20240724.dwg

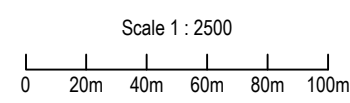
TITLE

**ZONING
MAP**



LEGEND

- Subject Site
- Cadastre
- Proposed Zoning Plan**
- Environmental Management & Conservation Area (2.757ha)
- Mixed Use (1.318ha)



SOURCE: Somerville Consultants -
Proposed Zoning Plan Issue 4 dated 01/05/24
(Ref: 4786-04.dwg)
SCALE: 1 : 2500 @ A3

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Lot 9 on RP97339
210 Park Ridge Road, Park Ridge QLD
Logan City Council LGA

FIGURE 4

PREPARED: BW
DATE: 29 August 2024
FILE: Q12010_EA_20240829.dwg

TITLE
**PROPOSED
ZONING
PLAN**

2 DESKTOP ASSESSMENT

2.1 Introduction

A desktop assessment was completed to highlight any potential conservation significant vegetation communities, any potential habitat for threatened flora and fauna, and any ecologically sensitive areas on the subject site. The desktop assessment included a review of:

- State and Commonwealth databases;
- State environmental mapping; and
- Local government plans, policies and mapping; and
- Literature review of scientific journal articles and botanical literature to assist with habitat suitability assessments.

2.2 Methods

2.2.1 Database Searches

2.2.1.1 Background

The following databases were reviewed as part of the desktop assessment:

- The Commonwealth *Environment Protection Biodiversity and Conservation (EPBC) Act (1999)* Protected Matters Search Tool (PMST); and
- The Queensland Department of Environment and Science (DES) Wildlife Online database.

2.2.1.2 Commonwealth EPBC Act PMST

The Commonwealth PMST generates a list of protected matters under the Commonwealth *EPBC Act* that may occur in or near the subject area including:

- World heritage and national heritage areas;
- Wetlands of international significance (Ramsar Wetlands);
- Commonwealth marine areas;
- Threatened ecological communities;
- Threatened species; and
- Migratory species.

The database incorporates information from a range of sources including government, research and community organisations. It should be noted that there are limitations on the accuracy of some matters reported by the PMST. In particular, database records of threatened and migratory species are based on their current known distribution and do not necessarily correlate to an actual observation. Database records are an indicator of potential presence only and do not take into account if suitable vegetation, geology, soil, climate or habitat types are actually present to support the occurrence of a significant species or community.

The Commonwealth PMST was used to determine the suite of threatened flora and fauna, migratory species and threatened ecological communities that were likely to be present within a 5 km radius of the subject site.

2.2.1.3 QLD DES Wildlife Online

The DES Wildlife Online database contains recorded wildlife sightings and listings of plants, fungi, protists, mammals, birds, reptiles, amphibians, freshwater fish, marine cartilaginous fish and butterflies in Queensland. The database is based on collated species lists and wildlife records acquired by the Queensland government through a range of sources including specimen collections, research and monitoring programs and community wildlife recording programs.

The DES Wildlife Online database was consulted to determine the variety of threatened flora and fauna species known to occur within a 5 km radius of the subject site.

2.2.2 State Environmental Mapping

2.2.2.1 Background

The following relevant State environmental mapping was reviewed as part of the desktop assessment:

- Regulated vegetation management mapping;
- Regional ecosystem (RE) and remnant mapping;
- Essential habitat mapping;
- Koala priority and habitat areas;
- Map of QLD wetland environmental values;
- Protected plants flora survey trigger map;
- Coastal hazard mapping; and
- Matters of State Environmental Significance (MSES).

State environmental mapping was obtained from the Queensland Government website using the Lot and Plan numbers of the subject site.

2.2.2.2 Regulated Vegetation Management Mapping

Regulated vegetation management maps are used to determine the requirements that apply under the State Development Assessment Provisions (VM Act). The vegetation categories on the map are:

- category A (red) - areas subject to compliance notices, offsets and voluntary declarations;
- category B (dark blue) - remnant vegetation;
- category C (light blue) - high-value regrowth vegetation;

- category R (yellow) - regrowth vegetation within 50 m of watercourses in priority reef catchment areas; and
- category X (white) - areas not regulated under the VM Act.

2.2.2.3 Regional Ecosystems and Remnant Mapping

Regional ecosystems (REs) are vegetation communities that are consistently associated with a particular combination of geology, landform and soil in a bioregion. Each RE has been assigned a conservation status which is based on its current extent in a bioregion as a proportion of its pre-clearing extent. Regional ecosystem maps show the extent and conservation status of regional ecosystems at a property level. On a regional ecosystem map, remnant vegetation is shown as either a remnant endangered regional ecosystem, a remnant of concern regional ecosystem, or a remnant least concern regional ecosystem.

The Queensland Herbarium has mapped the extent of RE's and Essential Habitat across Queensland, however it should be noted that mapping was completed at a scale of 1:100,000 and as such there are inaccuracies at a property scale. As a result, RE maps should be considered to indicative only and should not be relied upon as an inherently correct source of vegetation mapping. Site ground truthing is required to confirm the presence of RE types and their extent, verify floristics and structure and confirm conservation status.

A Property Map of Assessable Vegetation (PMAV) is a property scale map that is prepared to amend the Regulated Vegetation Management Mapping in cases where it does not accurately reflect the site's ground-truthed vegetation distribution, or in other cases, to 'lock in' the current extent of remnant and non-remnant vegetation.

2.2.2.4 Essential Habitat Mapping

Essential Habitat are areas identified by DEHP as essential habitat for a species of wildlife listed as endangered, vulnerable, near threatened or rare under the *Nature Conservation Act 1992* (NC Act). These areas are shown on RE maps and Essential Habitat maps.

2.2.2.5 Koala Priority and Habitat Areas

The QLD *Nature Conservation and Other Legislation (Koala Protection) Amendment Regulation* commenced on 7th February 2020 and amends the *Environmental Offsets Regulation 2014*, *Planning Regulation 2017*, *Nature Conservation (Koala) Conservation Plan 2017* and *Vegetation Management Regulation 2012* to provide increased protection to koala habitat areas in South East Queensland.

The QLD *Nature Conservation and Other Legislation (Koala Protection) Amendment Regulation* mapping identifies Koala Priority Areas and Koala Habitat Areas. Koala Priority Areas are large, connected areas that have been determined to have the highest likelihood of achieving conservation outcomes for koalas based on the combination of habitat suitability, biophysical variables with known relationships to koala habitat (e.g. landcover, soil, terrain, climate and ground water) and a koala conservation cost benefit analysis.

Koala Habitat Areas are areas of vegetation that have been determined to contain koala habitat that is essential for the conservation of a viable koala population in the wild based on the combination of habitat suitability and biophysical variables with known relationships to koala habitat (e.g. landcover, soil, terrain, climate and ground water). Koala habitat areas only exist in koala district A which is the South East Queensland "Shaping SEQ" Regional Plan area. These areas include the local government areas of Brisbane, Gold Coast, Logan, Lockyer Valley, Ipswich, Moreton Bay, Noosa, Redland, Scenic Rim, Somerset, Sunshine Coast and Toowoomba (urban extent).

2.2.2.6 QLD Wetland Environmental Values Mapping

The map of QLD wetland environmental values is a state-wide statutory map under the *QLD Environmental Protection (Water and Wetland Biodiversity) Policy 2019*. It identifies wetlands of high ecological significance (HES) and general ecological significance (GES) across the state. Wetlands in wetland protection areas (WPA) and HES wetlands are identified as MSES under the Planning and Environmental Offsets legislation.

2.2.2.7 Protected Plants Flora Survey Trigger Map

The protected plants flora survey trigger map identifies high-risk areas for endangered, vulnerable or near threatened (EVNT) plants. These are areas where EVNT plants are known to exist or are likely to exist based on the habitat present. Particular provisions of the *QLD Nature Conservation Act 1992* (NCA Act) apply to the clearing of protected plants within high risk areas.

2.2.2.8 Coastal Hazard Mapping

Queensland coastal hazard areas maps show areas within the Coastal Management District that are vulnerable to coastal erosion or storm tide inundation.

2.2.2.9 Matters of State Environmental Significance

Matters of State Environmental Significance (MSES) are a component of the biodiversity state interest that is defined under the State Planning Policy (SPP). MSES include certain environmental values that are protected under Queensland legislation including the:

- *Nature Conservation Act 1992*;
- *Marine Parks Act 2004*;
- *Fisheries Act 1994*;
- *Environmental Protection Act 1994*;
- *Wild Rivers Act 2005*;
- *Vegetation Management Act 1999*; and
- legally secured offset areas protected by a registered covenant or similar statutory mechanism.

This includes areas such as wildlife habitats, regulated vegetation, Wild Rivers preservation areas, riverine wetlands, high ecological value waters (watercourses and wetlands) and legally secured offset areas.

2.2.3 Local Government Mapping

The following relevant Logan Planning Scheme 2015 environmental mapping layers were reviewed as part of the desktop assessment:

- Biodiversity Areas Overlay Map; and
- Waterway Corridor and Wetlands Area Overlay Map.

2.3 Results

2.3.1 Database Searches

2.3.1.1 Threatened Flora Species and Ecological Communities

Threatened flora species detected in the database searches are listed in **TABLE 1**. The conservation status of each species listed in **TABLE 1** is shown in accordance with the Commonwealth EPBC Act and QLD NCPR.

TABLE 1
DATABASE RECORDS OF THREATENED FLORA SPECIES WITHIN 5 KM OF THE SITE

Scientific Name	Common Name	NC Act*	EPBC Act#
<i>Arthraxon hispidus</i>	Hairy joint grass	V	V
<i>Bosistoa transversa</i>	Yellow satinheart	-	V
<i>Croton mamillatus</i>	Bahrs scrub croton	CE	CE
<i>Cryptostylis hunteriana</i>	Leafless Tongue-orchid	-	V
<i>Cupaniopsis shirleyana</i>	Wedge-leaf tuckeroo	V	V
<i>Dichanthium setosum</i>	Bluegrass	-	V
<i>Fontainea venosa</i>		V	V
<i>Gossia gonoclada</i>	Angle-stemmed myrtle	E	E
<i>Macadamia integrifolia</i>	Macadamia nut	V	V
<i>Macadamia tetraphylla</i>	Rough-shelled bush nut	V	V
<i>Melaleuca irbyana</i>		E	-
<i>Notelaea ipsviciensis</i>	Cooneana Olive	CE	CE
<i>Notelaea lloydii</i>	Lloyd's Olive	V	V
<i>Planchonella eerwah</i>	Shiny-leaved Condoo	E	E
<i>Plectranthus habrophyllus</i> (<i>Coleus habrophyllus</i>)		E	E
<i>Rhodamnia rubescens</i>	Scrub turpentine	CE	CE
<i>Rhodomyrtus psidioides</i>	Native guava	CE	CE
<i>Samadera bidwillii</i>	Quassia	V	V
<i>Thesium australe</i>	Austral toadflax	V	V
* Qld Nature Conservation Act 1992 (NC Act)			
# Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)			
CE - Critically Endangered, E - Endangered and V - Vulnerable			

Database searches using the Commonwealth PMST also revealed that seven (7) threatened Ecological Communities may occur within 5 km of the subject site:

- Poplar Box Grassy Woodland on Alluvial Plains - Endangered;
- Swamp Tea-tree (*Melaleuca irbyana*) Forest of South-east Queensland - Critically Endangered;
- Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community - Endangered;
- Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland - Endangered;
- Subtropical Eucalypt Floodplain Forest and Woodland of the New South Wales North Coast and South East Queensland bioregions - Endangered;
- Lowland Rainforest of Subtropical Australia - Critically Endangered; and
- White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland - Critically Endangered.

2.3.1.2 Threatened Fauna Species

Threatened fauna species detected in the database searches are listed in **TABLE 2**. The conservation status of each species listed in **TABLE 2** is shown in accordance with the Commonwealth EPBC Act and the QLD NCAR. Marine species that will clearly not occur on the site (e.g. cetaceans, sea turtles, wading birds and albatross) have been omitted.

TABLE 2
DATABASE RECORDS OF THREATENED FAUNA SPECIES WITHIN 5 KM OF THE SITE

Scientific Name	Common Name	NC Act*	EPBC Act#
Mammals			
<i>Chalinolobus dwyeri</i>	Large-eared pied bat	V	E
<i>Dasyurus maculatus</i>	Spotted-tailed quoll	E	E
<i>Macroderma gigas</i>	Ghost Bat	E	V
<i>Petaurus australis</i>	Yellow-bellied glider	V	V
<i>Phascolarctos cinereus</i>	Koala	E	E
<i>Petauroides volans volans</i>	Southern greater glider	E	E
<i>Potorous tridactylus tridactylus</i>	Long-nosed potoroo (SE Mainland)	V	V
<i>Pseudomys novaehollandiae</i>	New Holland mouse	V	V
<i>Pteropus poliocephalus</i>	Grey-headed flying-fox	-	V
Reptiles			
<i>Coeranoscincus reticulatus</i>	Three-toed snake-tooth skink	-	V
<i>Delma torquata</i>	Adorned Delma, Collared Delma	V	V
<i>Furina dunmalli</i>	Dunmall's Snake	V	V
<i>Hemiaspis damelii</i>	Grey Snake	E	E
Birds			
<i>Anthochaera phrygia</i>	Regent honeyeater	CE	CE
<i>Botaurus poiciloptilus</i>	Australasian Bittern	E	E
<i>Calidris acuminata</i>	Sharp-tailed sandpiper	-	V
<i>Calidris ferruginea</i>	Curlew Sandpiper	CE	CE
<i>Calyptorhynchus lathami lathami</i>	glossy black-cockatoo (eastern)	V	V

Scientific Name	Common Name	NC Act*	EPBC Act#
<i>Charadrius leschenaultii</i>	Greater Sand Plover	V	V
<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (south-eastern)	V	V
<i>Cyclopsitta diophthalma coxeni</i>	Coxen's fig-parrot	E	CE
<i>Erythrotriorchis radiatus</i>	Red goshawk	E	E
<i>Falco hypoleucos</i>	Grey falcon	V	V
<i>Gallinago hardwickii</i>	Latham's snipe	-	V
<i>Geophaps scripta scripta</i>	Squatter Pigeon (southern)	V	V
<i>Grantiella picta</i>	Painted Honeyeater	V	V
<i>Hirundapus caudacutus</i>	White-throated needletail	V	V
<i>Lathamus discolor</i>	Swift parrot	E	CE
<i>Ninox strenua</i>	Powerful Owl	V	-
<i>Numenius madagascariensis</i>	Eastern Curlew	E	CE
<i>Stagonopleura guttata</i>	Diamond Firetail	V	V
<i>Rostratula australis</i>	Australian painted snipe	E	E
<i>Tringa nebularia</i>	Common greenshank	-	E
<i>Turnix melanogaster</i>	Black-breasted button-quail	V	V
Frogs			
<i>Adelotus brevis</i>	Tusked frog	V	-
<i>Crinia tinnula</i>	Wallum Froglet	V	-
<i>Mixophyes fleayi</i>	Fleay's frog	-	E
Insects/Invertebrates			
<i>Argynnis hyperbius inconstans</i>	Australian Fritillary	E	CE
* Qld Nature Conservation Act 1992 (NC Act)			
# Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)			
CE - Critically Endangered, E - Endangered, V - Vulnerable			

2.3.1.3 Migratory Species

Migratory species identified in database searches are listed in TABLE 3. Species that are heavily reliant on marine environments and will clearly not occur on the subject site have been omitted (e.g. cetaceans, sea turtles, wading and coastal birds).

**TABLE 3
DATABASE RECORDS OF MIGRATORY SPECIES WITHIN 5 KM OF THE SITE**

Scientific Name	Common Name	Status#
<i>Actitis hypoleucos</i>	Common Sandpiper	M
<i>Apus pacificus</i>	Fork-tailed swift	M
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	V, M
<i>Calidris ferruginea</i>	Curlew Sandpiper	CE, M
<i>Calidris melanotos</i>	Pectoral Sandpiper	M
<i>Charadrius leschenaultii</i>	Greater Sand Plover, Large Sand Plover	V, M
<i>Cuculus optatus</i>	Oriental cuckoo	M
<i>Gallinago hardwickii</i>	Latham's Snipe, Japanese Snipe	M
<i>Hirundapus caudacutus</i>	White-throated needletail	M, V
<i>Monarcha melanopsis</i>	Black-faced monarch	M
<i>Motacilla flava</i>	Yellow wagtail	M
<i>Myiagra cyanoleuca</i>	Satin flycatcher	M
<i>Numenius madagascariensis</i>	Eastern Curlew, Far Eastern Curlew	CE, M

Scientific Name	Common Name	Status#
<i>Pandion haliaetus</i>	Osprey	M
<i>Rhipidura rufifrons</i>	Rufous fantail	M
<i>Symposiachrus trivirgatus</i>	Spectacled Monarch	M
<i>Tringa nebularia</i>	Common Greenshank, Greenshank	M
# Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) CE - Critically Endangered, E - Endangered, V - Vulnerable. M - Migratory		

2.3.2 State Government Mapping

2.3.2.1 Regulated Vegetation Management and RE Mapping

The current regulated vegetation management map of the subject site shows the northern portion of the site as Category B (remnant vegetation), a patch of Category C (high value regrowth vegetation) in the east of the site, and the southern portion of the site as Category X (vegetation not regulated under the VMA) areas (**FIGURE 5**).

The Category B is identified as the following Regional Ecosystems (RE) (**FIGURE 5**):

- RE 12.3.11 (Of Concern): *Eucalyptus tereticornis* +/- *Eucalyptus siderophloia*, *Corymbia intermedia* open forest on alluvial plains usually near coast; and
- RE 12.9-10.4 (Least Concern): *Eucalyptus racemosa* subsp. *racemosa* woodland on sedimentary rocks.

2.3.2.2 Essential Habitat Mapping

Essential habitat for the koala (*Phascolarctos cinereus*) is mapped on the northern portion of the subject site (**FIGURE 5**).

2.3.2.3 Koala Priority and Habitat Areas

The subject site is not mapped within a Koala Priority Area, however the northern portion of the site is mapped as containing core koala habitat (**FIGURE 6**).

2.3.2.4 Referable Wetlands

No referable wetlands are mapped on the subject site.

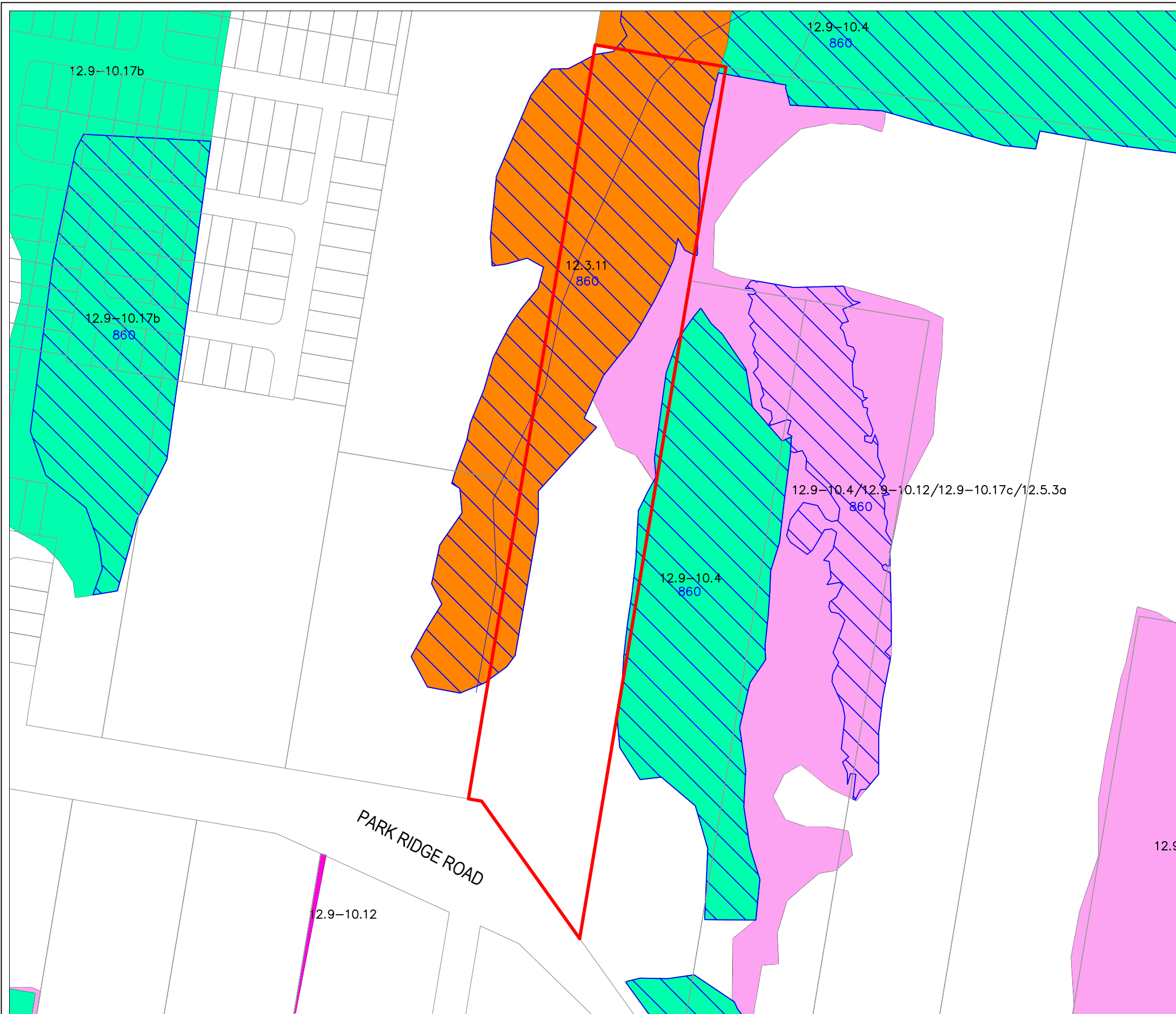
2.3.2.5 Protected Plants Flora Survey Trigger Map

The Protected Plants Flora Survey Trigger Map identified that the site is not located within a 'High Risk Area' prescribed under the QLD NCPR (2020).

2.3.2.6 Matters of State Environmental Significance

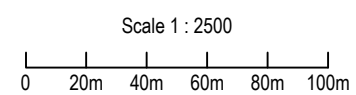
The following additional MSES are mapped on the subject site:

- Wildlife habitat (special least concern) (**FIGURE 7**);
- Regulated vegetation (Category B - endangered or of concern) (**FIGURE 7**);
- Regulated vegetation (Category C - endangered or of concern) (**FIGURE 7**);



LEGEND

- Subject Site
- Cadastre
- Regional Ecosystems**
- Remnant (Category B) endangered regional ecosystem
- Remnant (Category B) of concern regional ecosystem
- Remnant (Category B) least concern regional ecosystem
- High-value regrowth (Category C) of concern regional ecosystem
- Category X area (not regulated under the VMA)
- Essential habitat
- Watercourse and drainage feature



SOURCE: DoR Vegetation Management Act GIS dataset

SCALE: 1 : 2500 @ A3

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FIGURE 5

PREPARED: BW
DATE: 24 July 2024
FILE: Q12010_EA_20240724.dwg

TITLE

REGIONAL ECOSYSTEMS

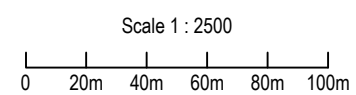


LEGEND

- Subject Site
- Cadastre
- Koala Habitat**
- Core Koala habitat



PARK RIDGE ROAD



SOURCE: DES SEQ Koala Conservation Strategy 2019-2024 GIS Dataset v3.0

SCALE: 1 : 2500 @ A3

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FIGURE 6

PREPARED: BW
DATE: 24 July 2024
FILE: Q12010_EA_20240724.dwg

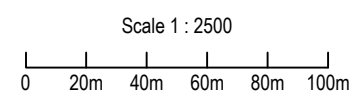
TITLE
KOALA
HABITAT
MAPPING



LEGEND

- Subject Site
- Cadastre
- Matters of State Environmental Significance**
- Koala habitat area (core)
- Wildlife habitat (special least concern)
- Regulated vegetation (essential habitat)
- Regulated vegetation (category B - endangered or of concern)
- Regulated vegetation (category C - endangered or of concern)
- Regulated vegetation (intersecting a watercourse)

PARK RIDGE ROAD



SOURCE: QLD DES Matters of state environmental significance GIS datasets

SCALE: 1 : 2500 @ A3

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FIGURE 7

PREPARED: BW
DATE: 24 July 2024
FILE: Q12010_EA_20240724.dwg

TITLE
MATTERS OF STATE ENVIRONMENTAL SIGNIFICANCE

- Regulated vegetation (intersecting a watercourse) (**FIGURE 7**).

2.3.3 Local Government Mapping

2.3.3.1 Biodiversity Areas Overlay Map

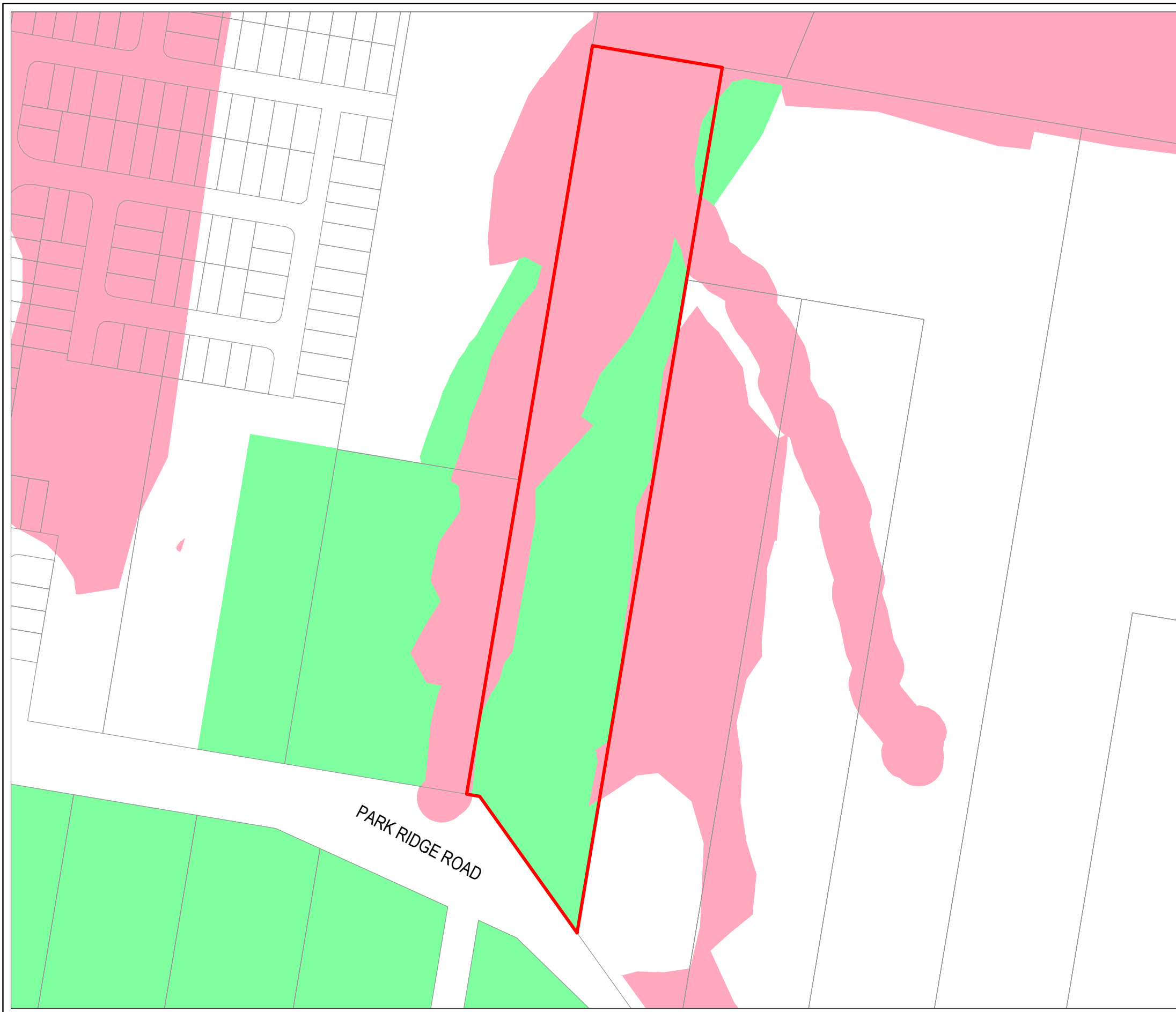
The Environmental Significance Overlay maps areas of the subject site as containing:

- Biodiversity areas trigger;
- Primary Vegetation Management Area (**FIGURE 8**);
- Secondary Vegetation Management Area (**FIGURE 8**);
- Biodiversity corridor (**FIGURE 9**);
- Environmental management and conservation area (**FIGURE 9**); and
- Matters of Local and State environmental significance (**FIGURE 10**).

2.3.3.2 Waterway Corridors and Wetlands Overlay Map

The Waterway Corridors and Wetlands Overlay maps areas of the subject site as containing:

- Waterway corridor trigger; and
- Minor waterway (**FIGURE 11**).



LEGEND

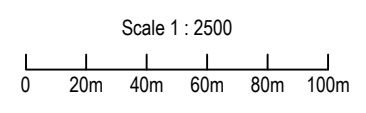
- Subject Site
- Cadastre

LPS 2015 OM-02.01 Vegetation Management Areas

- Primary vegetation management area
- Secondary vegetation management area



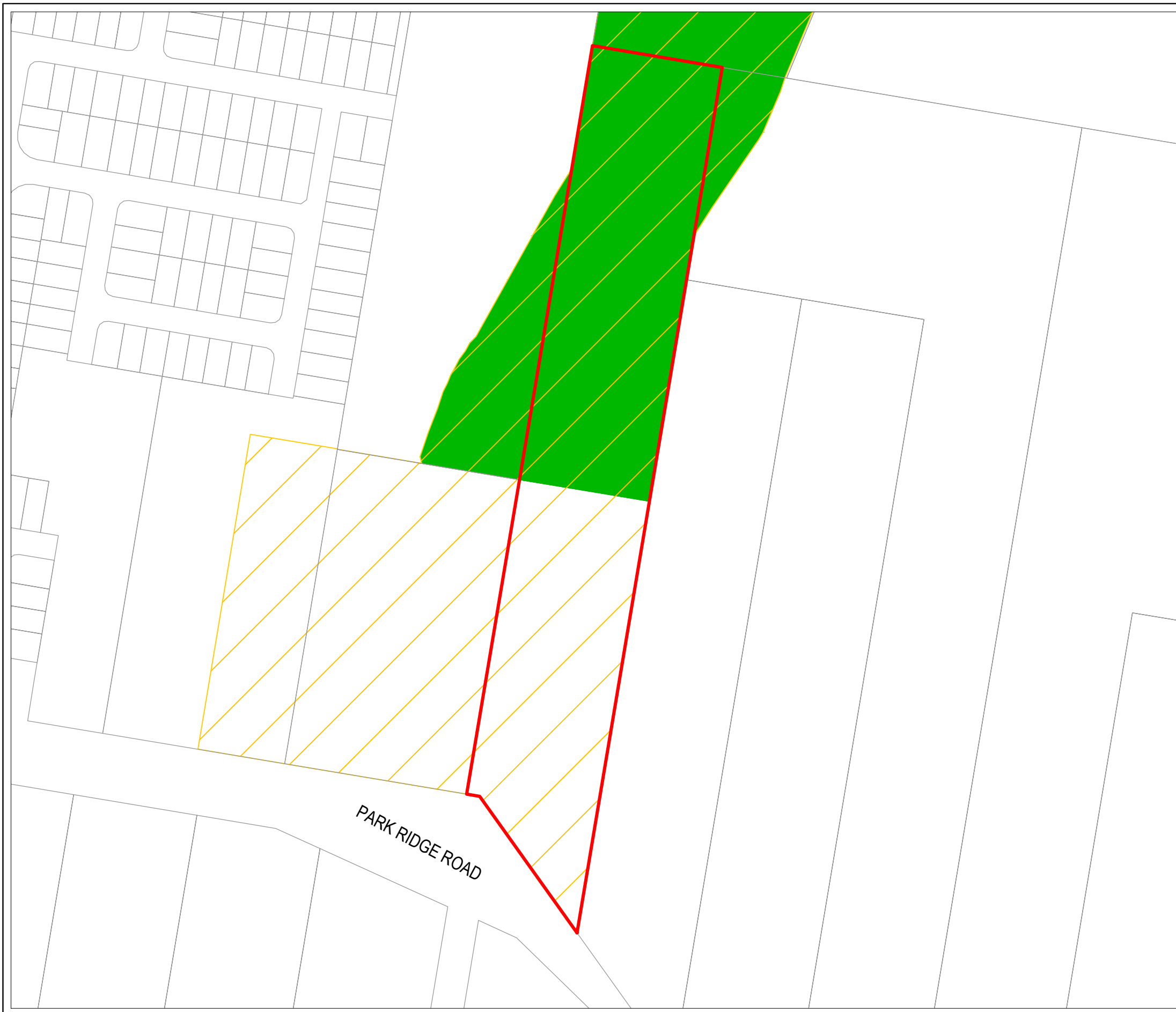
PARK RIDGE ROAD



SOURCE: Logan City Council Open Data - LPS 2015 v9.0 OM-02.01 Vegetation Management Area SCALE: 1 : 2500 @ A3	CLIENT Mr Quyen Nguyen PROJECT Ecological Assessment Lot 9 on RP97339 210 Park Ridge Road, Park Ridge QLD Logan City Council LGA
JWA PTY LTD <i>Ecological Consultants</i>	

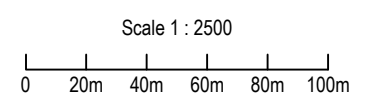
FIGURE 8
PREPARED: BW DATE: 24 July 2024 FILE: Q12010_EA_20240724.dwg

TITLE LPS 2015 VEGETATION MANAGEMENT AREAS
--



- LEGEND**
- Subject Site
 - Cadastre
 - LPS 2015 OM-02.02 Biodiversity Corridors
 - Biodiversity corridor
 - Environmental management and conservation area

PARK RIDGE ROAD



SOURCE: Logan City Council Open Data - LPS 2015 v9.0 Biodiversity corridor, Env. management & conservation area
 SCALE: 1 : 2500 @ A3

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FIGURE 9

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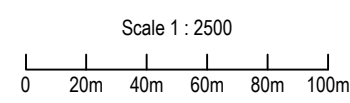
TITLE

LPS 2015
 BIODIVERSITY
 CORRIDORS



- LEGEND**
- Subject Site
 - Cadastre
 - LPS 2015 OM-02.04 Matters of State and Local Significance**
 - Both matters of local and state environmental significance
 - Matters of local environmental significance
 - Matters of state environmental significance

PARK RIDGE ROAD



SOURCE: Logan City Council Open Data - LPS 2015 v9.0 Local and state environmental significance - Polygons & Lines
 SCALE: 1 : 2500 @ A3

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FIGURE 10

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TITLE

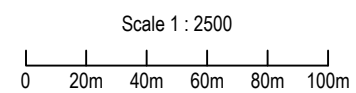
**LPS 2015
 MATTERS OF STATE &
 LOCAL SIGNIFICANCE**



- LEGEND**
- Subject Site
 - Cadastre
 - LPS 2015 OM-14.01 Waterways
 - Minor waterway



PARK RIDGE ROAD



SOURCE: Logan City Council Open Data -
LPS 2015 v9.0 OM-14.01 Waterways

SCALE: 1 : 2500 @ A3

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FIGURE 11

PREPARED: BW
DATE: 24 July 2024
FILE: Q12010_EA_20240724.dwg

TITLE

LPS 2015
WATERWAYS

3 FLORA ASSESSMENT

3.1 Introduction

Previous site assessments were completed by two (2) scientists from JWA on the 12th March 2010 (JWA 2012). A recent site inspection has been completed by one (1) senior ecologist on the 9th August 2023 to ground-truth previous mapping.

This section discusses the methods used in the latest flora assessment and presents the results of the assessment.

3.2 Methods

A site survey was completed by one (1) senior ecologist on the 9th August 2023. The random meander technique (Cropper 1993) was used to identify changes in landform, identify vegetation community boundaries and to complete targeted searches for threatened flora species. The floral characteristics of each vegetation community that was evident from detailed aerial photographs were examined by 'on foot' inspections.

3.3 Results

3.3.1 Background

A total of seventy-nine (79) flora species were recorded at the subject site, a large proportion of which are exotic/weed species. No threatened flora species listed within schedules of the EPBC Act or BC Act were recorded. A full list of species recorded at the subject site is included as **APPENDIX 1**. Weed species are indicated using an asterisk*.

Four (4) distinct vegetation communities (VC's) were observed. Their location and extent are identified in **FIGURE 12** and each is briefly described in the following sections.

3.3.2 VC1: Mid tall open forest (*Melaleuca quinquenervia*, *Eucalyptus tereticornis*, *Eucalyptus siderophloia*, *Eucalyptus robusta*) to 22m

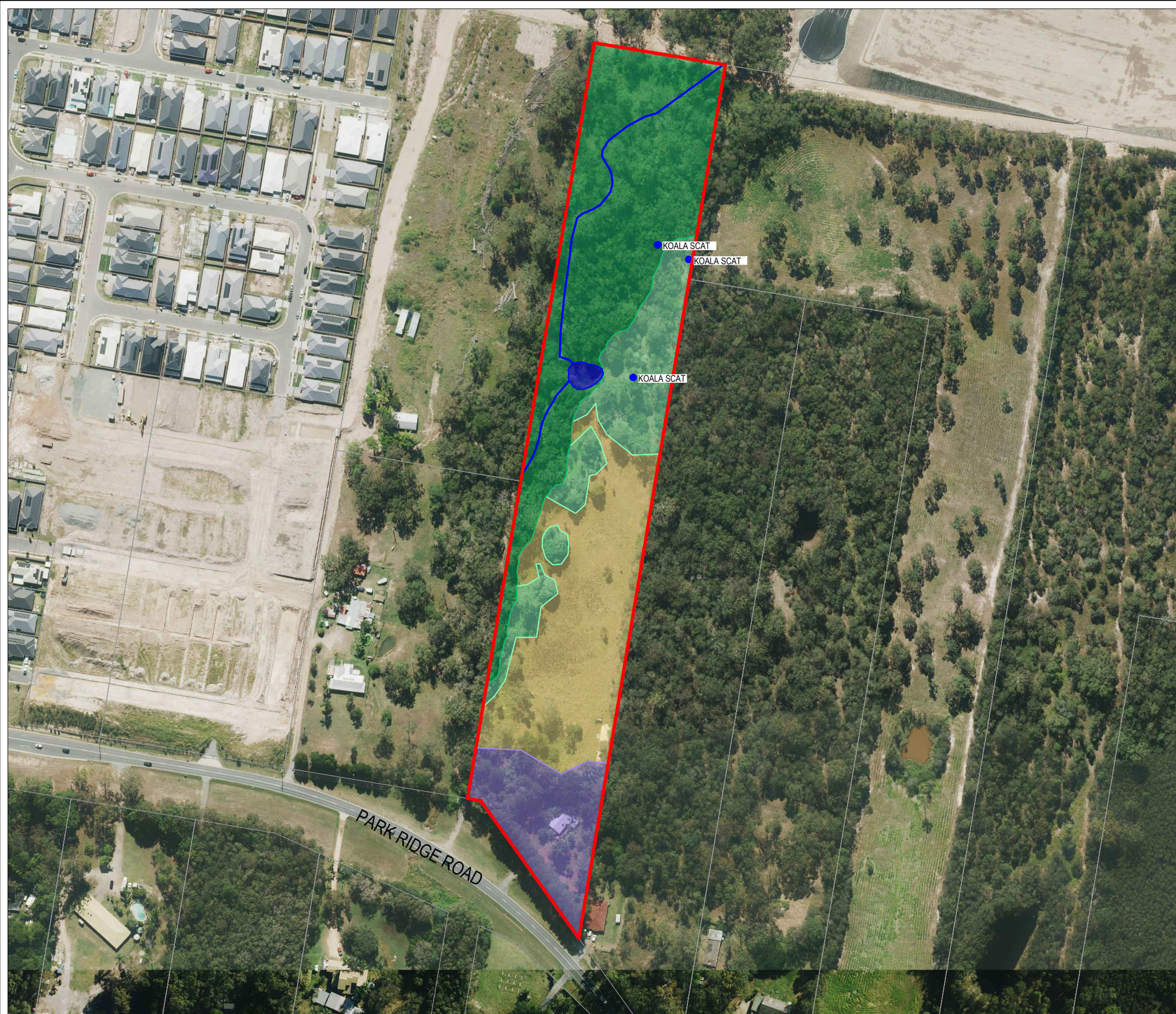
3.3.2.1 Location and Extent

This VC occurs in the northern portion of the subject site and extend south along the western site boundary. It covers a total area of approximately 1.67 ha.

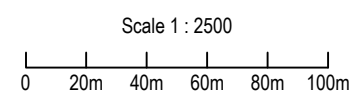
3.3.2.2 Structure & Composition

The canopy of this open forest community is generally comprised of a mixture of Broad-leaved paperbark (*Melaleuca quinquenervia*), Queensland blue gum (*Eucalyptus tereticornis*), Grey ironbark (*E. siderophloia*) and Swamp mahogany (*E. robusta*) up to 20m in height. There are also scattered occurrences of Pink bloodwood (*Corymbia intermedia*) and Swamp box (*Lophostemon suaveolens*) (**PLATE 1**).

The midstorey is generally comprised of scattered shrubs including Black wattle (*Acacia concurrens*), Brush ironbark wattle (*A. disparrima*), Brisbane golden wattle (*Acacia fimbriata*) and Coast banksia (*Banksia integrifolia*). There are also clumps of Lantana* (*Lantana camara*) present.



- LEGEND**
- Subject Site
 - Cadastre
 - Koala scat
 - Natural Drainage Path
- Vegetation Communities**
- VC1: RE12.3.11
 - VC2: Regrowth (RE 12.9-10.4)
 - VC3: Grassland with scattered trees
 - VC4: Lawn/gardens/exotic vegetation
 - Dam



SOURCE: JWA Site Investigations; 28 South Environmental - JER Attachments 2 & 5 (2013) Metro Map Aerial dated 01/05/23

SCALE: 1 : 2500 @ A3

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FIGURE 12

PREPARED: BW
DATE: 24 July 2024
FILE: Q12010_EA_20240724.dwg

TITLE

VEGETATION
COMMUNITIES

The groundcover is comprised of a mixture of native grasses and sedges, and common agricultural weeds and exotic grasses. It is noted that a small farm dam and associated drainage line occurs within this VC. The location of ground-truthed drainage lines on the subject site are shown in **FIGURE 12**.



Plate 1 - example of VC1 on the subject site

3.3.2.3 Conservation Status

This community is considered to be analogous with RE 12.3.11 which has a conservation status of 'Of concern' within schedules of the VM Act.

3.3.3 VC2: Regrowth (*Melaleuca quinquenervia*, *Eucalyptus seeana*, *Corymbia intermedia*) to 15m

3.3.3.1 Location and Extent

Patches of regrowth vegetation occur in the central portion of the subject site and cover a total area of approximately 0.66 ha.

3.3.3.2 Structure & Composition

The canopy of this open forest community is generally comprised of a mixture of Broad-leaved paperbark, Narrow-leaved red gum (*Eucalyptus seeana*) and Pink bloodwood up to 15m in height (**PLATE 2**).

The midstorey is generally absent with the exception of scattered Brush ironbark wattle. The groundcover is comprised of a mixture of native grasses and sedges, and common agricultural weeds and exotic grasses.



Plate 2 - example of VC2 on the subject site

3.3.3.3 Conservation Status

This community is considered to represent a regrowth example of RE 12.9-10.4 which has a conservation status of 'least concern' within schedules of the VM Act.

3.3.4 VC3: *Grassland with scattered trees*

3.3.4.1 Location and Extent

This VC occurs within the southern half of the subject site and covers a total area of approximately 1.21 ha.

3.3.4.2 Structure & Composition

The canopy of this community is generally comprised of scattered trees including Broad-leaved paperbark, Queensland blue gum, Narrow-leaved red gum and Pink bloodwood.

The midstorey is generally absent with the exception of scattered Brush ironbark wattle. The groundcover is dominated by common agricultural weeds and exotic grasses (**PLATE 3**).



Plate 3 - example of VC3 on the subject site

3.3.4.3 Conservation Status

This community is not considered to represent any RE's and is 'Category X' vegetation for the purposes of assessment under the VM Act.

3.3.5 VC4: Lawn/gardens/exotic vegetation

3.3.5.1 Location and Extent

This VC occurs in the southern portion of the subject site, in the vicinity of the existing residential dwelling, and covers a total area of approximately 0.52 ha.

3.3.5.2 Structure & Composition

This community consists primarily of planted garden species such as the slash pine (*Pinus elliottii*) within a garden/lawn setting (**PLATE 4**).

3.3.5.3 Conservation Status

This community is not considered to represent any RE's and is 'Category X' vegetation for the purposes of assessment under the VM Act.



Plate 4 - example of VC4 on the subject site.

4 FAUNA ASSESSMENT

4.1 Introduction

This section discusses the methods used in the fauna assessment and presents the results of the assessment.

4.2 Methods

4.2.1 Background

A brief fauna survey was completed at the subject site by one (1) senior ecologist on the 9th August 2023, in conjunction with the flora surveys.

Techniques utilised during the fauna surveys are described below.

4.2.2 Opportunistic Sightings

The random meander technique (Cropper 1993) was used to traverse the subject site. All incidental records of fauna utilising the subject site were recorded. Discoveries of scratch marks on trees, scats, footprints, diggings, bones and other animal traces were noted.

4.2.3 Active Searching

Any logs, sheets of tin, cardboard, bark and leaves were overturned in search of reptiles and amphibians while traversing the subject site. Searches were undertaken for diggings, scats, and bones. Eucalypt trees were inspected for signs of Koala activity such as scratch marks and scats. Active observation of bird and amphibian activity, both aurally and visually, was undertaken during the site visit.

4.3 Results

4.3.1 Amphibians

One (1) native species was recorded during the field assessment - Common eastern froglet (*Crinia signifera*). One (1) introduced species was recorded during the field assessment - Cane toad (*Rhinella marina**). No threatened species were recorded.

4.3.2 Reptiles

Two (2) native reptile species were recorded during the field assessment - Dark-flecked garden sunskink (*Lampropholis delicata*) and Wall skink (*Cryptoblepharus pulcher*). No threatened species were recorded.

4.3.3 Birds

The field assessment recorded twenty-four (24) native and one (1) exotic bird species (TABLE 4). No threatened species were recorded.

TABLE 4
BIRD SPECIES RECORDED DURING FIELD ASSESSMENTS

Family	Scientific Name	Common Name	Exotic
Acanthizidae	<i>Acanthiza pusilla</i>	Brown thornbill	
Acanthizidae	<i>Gerygone olivacea</i>	White-throated gerygone	
Alcedinidae	<i>Dacelo novaeguineae</i>	Laughing kookaburra	
Ardeidae	<i>Egretta novaehollandiae</i>	White-faced heron	
Artamidae	<i>Cracticus nigrogularis</i>	Pied butcherbird	
Artamidae	<i>Gymnorhina tibicen</i>	Australian magpie	
Campephagidae	<i>Coracina novaehollandiae</i>	Black-faced cuckoo-shrike	
Charadriidae	<i>Vanellus miles</i>	Masked lapwing	
Columbidae	<i>Geopelia humeralis</i>	Bar-shouldered dove	
Columbidae	<i>Ocyphaps lophotes</i>	Crested pigeon	
Columbidae	<i>Spilopelia chinensis</i>	Spotted dove	*
Corvidae	<i>Corvus orru</i>	Torresian crow	
Dicruridae	<i>Dicrurus bracteatus</i>	Spangled drongo	
Estrildidae	<i>Taeniopygia bichenovii</i>	Double-barred finch	
Maluridae	<i>Malurus melanocephalus</i>	Red-backed fairywren	
Meliphagidae	<i>Manorina melanocephala</i>	Noisy miner	
Meliphagidae	<i>Melithreptus albogularis</i>	White-throated honeyeater	
Meliphagidae	<i>Philemon corniculatus</i>	Noisy friarbird	
Monarchidae	<i>Grallina cyanoleuca</i>	Magpie-lark	
Pardalotidae	<i>Pardalotus striatus</i>	Striated pardalote	
Psittaculidae	<i>Platycercus adscitus</i>	Pale-headed rosella	
Psittaculidae	<i>Trichoglossus haematodus</i>	Rainbow lorikeet	
Rhipiduridae	<i>Rhipidura leucophrys</i>	Willie wagtail	
Threskiornithidae	<i>Threskiornis molucca</i>	Australian white ibis	
Zosteropidae	<i>Zosterops lateralis</i>	Silvereye	

4.3.4 Mammals

One (1) native (Eastern grey kangaroo - *Macropus giganteus*) and two (2) exotic (Dog - *Canis familiaris**; European brown hare - *Lepus europaeus**) mammal species were observed on the subject site. Evidence (i.e. scats) of one (1) threatened species was recorded on the subject site - Koala (*Phascolarctos cinereus*).

5 HABITAT SUITABILITY ASSESSMENT

5.1 Background

The suitability of the habitats on the subject site for listed threatened fauna species identified in database searches was assessed to determine those species could potentially occur.

The impacts associated with current land uses, vegetation clearing, land, and waterway erosion/degradation, weed and feral invasion and previous fire regimes were all considered when completing habitat suitability assessments. Particular attention was paid to habitat features such as:

- mature trees with hollows, fissures and/or other suitable roosting/nesting places;
- PKFTs and/or glossy black cockatoo feed trees (forest oak and/or black she-oak);
- characteristic signs of foraging (e.g. chewed cones or glider feeding scars);
- condition, flow and water quality of drainage lines and bodies of water;
- areas of dense vegetation;
- hollow logs/debris and areas of dense leaf litter;
- fruiting and/or blossoming flora species;
- connectivity and proximity to neighbouring areas of intact vegetation; and
- caves and man-made structures suitable as microchiropteran bat roost sites.

Potential occurrences of threatened flora species are discussed as *unlikely*, *possible*, or *likely* to occur in habitats on the subject site (TABLE 6). Possible occurrences are species which may occur sporadically or are provided with small areas of potentially suitable habitat. Likely occurrences are provided with habitat of high quality.

TABLE 6
LIKELIHOOD OF OCCURRENCE CATEGORIES FOR THREATENED SPECIES THAT HAVE THE POTENTIAL TO OCCUR WITHIN THE SUBJECT SITE

Category	Description
Unlikely	Species occurrence can be confidently ruled out due to a complete absence of suitable habitat and habitat features.
Possible	A limited amount of suitable habitat is potentially available; however, key habitat features are either absent or limited (e.g. hollow-bearing trees). Although considered largely unlikely, it cannot be conclusively ruled out that species may occur from time-to-time.
Likely	Suitable habitat and abundant key habitat features are available. Species were therefore given a high likelihood of occurring within the subject site either permanently or on an intermittent or seasonal basis. As an example - abundant forage resources highly mobile nectarivores such as the Grey-headed flying-fox (<i>Pteropus poliocephalus</i>).
Confirmed	Recorded on the subject site.

5.2 Applicability to the Subject Site

5.2.1 Amphibians

Amphibians occurring in the region are poikilothermic, predominantly insectivorous and generally require free water for reproduction, with the exception of two highland genera (*Assa darlingtoni* and *Phyllorhina* spp.). The habitat requirements of most species are unlikely to be determined by forest cover or floristics but are more strongly influenced by factors such as climate, distance to water bodies, riparian vegetation, hydrological and morphological characteristics of water bodies and the availability of suitable micro-habitat for aestivation and shelter.

The majority of species that occur within the region lay eggs in or near temporary or permanent water bodies and rely on free water for larval development and metamorphosis. Of these species, only a few are dependent on forested habitats beyond the riparian zone or beyond areas of temporary inundation. These species include the Red-eyed tree frog (*Litoria chloris*), Leseuer's frog (*Litoria leseueri*), Fletcher's frog (*Lechriodus fletcheri*) and the Barred frogs of the *Mixophyes* genus.

The constructed farm dam and associated drainage line in the north-western corner of the site (**FIGURE 12**) is likely to provide habitat for common amphibians. There may be foraging and breeding opportunities for common urbanised species such as the Bleating tree frog (*Litoria dentata*), Striped rocket frog (*Litoria nasuta*) and the introduced Cane toad (*Bufo marinus*).

Vegetation associated with the drainage line provides potentially suitable, but marginal, habitat in some form for the following threatened amphibian species listed in **TABLE 2**. See **APPENDIX 2** for detailed habitat suitability assessments. These include:

- Tusked frog (*Adelotus brevis*).

5.2.2 Birds

The significance of near coastal environments of the N.S.W. Far North Coast and South-East Queensland as over-wintering habitat for migratory birds has been established by many observers and bird banders including Keast (1968), Robertson (1973), Gravatt (1974), Porter (1982) and Robertson and Woodall (1983). These patterns may be attributable to the relatively high winter temperatures and long growing season of this region compared with the rest of south-eastern Australia (Fitzpatrick and Nix 1973; Edwards 1979; Nix 1982).

Many insectivorous birds from higher latitudes and elevation over-winter in the locality. These include species such as the Fantail cuckoo (*Cacomantis flabelliformis*), Sacred kingfisher (*Todiramphus sanctus*), Rainbow bee-eater (*Merops ornatus*), Noisy pitta (*Pitta versicolor*), Tree martin (*Petrochelidon nigricans*), Black-faced cuckoo-shrike (*Coracina novaehollandiae*), Cicada bird (*Coracina tenuirostris*), Golden whistler (*Pachycephala pectoralis*), Rufous whistler (*Pachycephala rufiventris*), Rose robin (*Petroica rosea*), Grey fantail (*Rhipidura albiscapa*), White-throated gerygone (*Gerygone olivacea*), Silvereye (*Zosterops lateralis*), Olive-backed oriole (*Oriolus sagittatus*) and Spangled drongo (*Dicrurus bracteatus*).

Birds such as honeyeaters and lorikeets are Blossom nomads (*ibid.*). These birds move locally in response to variation in the availability of nectar and or pollen, important components in their diet. Porter (1982) highlights the importance of Forest red gum, Broad-leaved paperbark and Coast banksia for Scaly-breasted (*Trichoglossus chlorolepidotus*) and Rainbow (*Trichoglossus moluccanus*) lorikeets as these species flower during the lorikeet's winter breeding period. A sequence of important nectar bearing plants in the genera Eucalyptus, Banksia, Melaleuca and Callistemon provide a continuity of food for nectarivorous birds.

Studies of bird usage in rainforest remnants by Holmes (1987), Connelly and Specht (1988) and Lott & Duigan (1993) indicate that the diversity and abundance of birds is related to the size of the rainforest patches and their degree of isolation from major areas of native forest. Lott & Duigan (1993) and Howe *et al* (1981) also note that sites with a higher diversity of vegetation and those which are closer to water generally support a greater diversity of birds. Locally nomadic and migratory rainforest species such as the Wompoo (*Ptilinopus magnificus*), Rose-crowned (*Ptilinopus regina*) and Superb fruit-doves (*Ptilinopus superbis*), Common koel (*Eudynamys orientalis*) and Black-faced cuckoo-shrike are known to use scattered areas of habitat as "stepping-stones" between more intact areas of forest (Date *et al* 1992; Lott & Duigan 1993).

Overall, the subject site is considered to represent suitable forage habitat for a range of bird species. The following threatened and/or migratory bird species listed in **TABLE 2**. See **APPENDIX 2** for detailed habitat suitability assessments. These include:

- White-throated needletail (*Hirundapus caudacutus*);
- Swift parrot (*Lathamus discolor*); and

The White-throated needletail may aerially traverse the site. The Swift parrot may forage on the site on flowering eucalypts.

5.2.3 Invertebrates

The subject site does not contain suitable habitat to support any of the threatened invertebrates listed in **TABLE 2**. See **APPENDIX 2** for detailed habitat suitability assessments.

5.2.4 Mammals

Small terrestrial mammals generally occur in highest densities in association with a complex vegetation structure. A dense understorey layer, which provides shelter from predators and provides nesting opportunities, is particularly important.

In general, medium-large terrestrial mammals such as macropods select habitats which provide a dense cover for shelter and refuge and open areas for feeding. The larger species tend to occupy drier more open habitats: the smaller species, moister and more densely vegetated habitats.

All arboreal mammals that occur in the region (with the exception of the Koala) utilise tree hollows for nesting and shelter (although the Common ringtail possum (*Pseudocheirus peregrinus*) is not dependent on hollows). Smith & Lindenmeyer (1988) consider that shortage of nest hollows is likely to limit arboreal mammal populations where density of hollow bearing trees is less than 2 to 8 trees per hectare.

Arboreal folivores (e.g. Common ringtail possum, Greater glider (*Petauroides volans*)) are widespread and abundant but exhibit local variation in response to such factors as tree species composition, foliage protein and fibre levels, leaf toughness, toxins, forest structure and the availability of shelter sites. Arboreal folivores are expected to be most abundant in areas of high productivity, high soil fertility and moderate climate, in conjunction with adequate shelter and suitable foraging substrate.

Arboreal nectarivore/insectivores feed on a wide variety of plant and insect exudates including the nectar of flowering eucalypts, and shrubs such as Banksia and Acacia sp. These species also feed extensively on insects, particularly under the shedding bark of eucalypts. The distribution of nectarivore/insectivores is considered to be related to the abundance of nectar and pollen producing plants, the abundance of bark shedding eucalypts which harbour insect prey, and the occurrence of sap and gum exudate producing trees and shrubs (e.g. Acacia sp.). Arboreal nectarivores and insectivores are generally hollow dependent species.

Insectivorous bats, like insectivorous birds, overlap considerably in diet and broad vegetation preferences (Hall 1981), but specialise in foraging in specific layers or substrates within the forest (Crome and Richards 1988).

Habitat on the subject site is suitable for providing foraging and breeding opportunities for native terrestrial and arboreal mammal species.

Overall, the subject site is considered to represent suitable forage habitat for a range of mammal species. The following threatened mammal species listed in **TABLE 2**. See **APPENDIX 2** for detailed habitat suitability assessments. These include:

- Koala (*Phascolarctos cinereus*);
- Grey-headed flying fox (*Pteropus poliocephalus*);

5.2.5 Reptiles

As reptiles are poikilothermic, and predominantly insectivorous or carnivorous, their habitat requirements are less directly determined by vegetation species composition than other taxa which feed directly on plants. Reptile distributions are strongly influenced by structural characteristics of the vegetation, climate and other factors affecting thermoregulation such as shade and availability of shelter and basking sites (Smith et al 1994).

In a survey of the moist forest herpetofauna of North-eastern NSW, Smith *et al.* (1989) found that few species discriminated between rainforest and wet sclerophyll forest, however, most species exhibited a response to differences in elevation and the availability

of microhabitat components and other substrates. The availability of microhabitats of varying thermal properties is particularly important for most reptile species, as behavioural thermoregulation (regulation of body heat) is important in controlling critical body functions such as digestion, foraging activity and reproduction.

Reptile diversity and abundance is often (but not always) significantly higher in drier habitat types, particularly those with a wide variety of ground substrate microhabitats. This contrasts markedly with the distribution patterns of birds, and most mammals.

The single limiting factor in terms of species diversity in coastal vegetation is the lack of shelter sites (e.g. logs, tree hollows and decorticated bark). Such habitat components characterise eucalypt forests and woodlands, where species diversity may be much higher, depending on disturbance factors.

The subject site is considered to provide areas of potentially suitable habitat for a range of native reptile species due to the availability and variety in areas of dense grassland and groundcover with some areas of microhabitats provided by leaf litter and fallen timber, and availability of basking sites.

No threatened reptile species were recorded or considered to be provided with suitable habitat (see **APPENDIX 2** for habitat suitability assessments).

5.3 Summary

Habitat suitability assessments were completed for the threatened fauna species and migratory fauna species that are known to occur or considered possible occurrences in the locality (**APPENDIX 2**). Five (5) threatened and one (1) migratory species were considered a possible occurrence:

Threatened

- Koala (*Phascolarctos cinereus*);
- Grey-headed flying fox (*Pteropus poliocephalus*);
- White-throated needletail (*Hirundapus caudacutus*);
- Swift parrot (*Lathamus discolor*); and
- Tusked frog (*Adelotus brevis*).

Migratory

- White-throated needletail (*Hirundapus caudacutus*).

6 CORRIDORS AND CONNECTIVITY

6.1 Background

The term 'connectivity' is used to describe the degree to which the landscape facilitates or impedes the movement of species among habitat areas (Bélisle 2005). The level of connectivity between habitat areas in the landscape can be described along a continuum from high, to medium, to low and isolated.

Landscapes with high levels of connectivity form an unbroken expanse of habitat through which a wide range of the inhabitant species are able to easily move and select high quality habitats. Landscapes with low levels of connectivity are characterised by habitat areas that are separated by wide gaps and where the quality and quantity of remaining habitat is reduced (habitat fragmentation). Habitat fragmentation impedes the movement of species among remaining suitable habitat areas (Andrén 1994; Fahrig 2003) and generally restricts movement to all but the most mobile of species.

At a broad landscape scale, maintaining habitat connectivity is necessary to maintain the viability of species populations in the long term (Beier and Noss 1998). In fragmented landscapes, corridors of native vegetation (ecological corridors) connect larger habitat areas and can enhance landscape connectivity by:

- providing habitat for fauna and flora species; and
- facilitating the movement and dispersal of fauna and flora species between larger and/or more suitable habitat areas in the landscape.

The following sections provide an assessment of the corridor and connectivity values of native vegetation on the site and surrounding areas.

6.2 Recognition of Corridor Values On or Near the Subject Site

Biodiversity Corridors under the Logan Planning Scheme 2015 are mapped over the entire subject site (**FIGURE 9**). It is noted that this mapping includes areas of the site that are comprised of historically cleared land/grassland with scattered trees and lawn/gardens/exotic vegetation in the southern portion of the site. Conversely, intact Regional Ecosystems to the east and west of the subject site are not included, or only partially included, in the mapping.

The northern portion of the site is vegetated with connections to adjoining vegetated and partially vegetated rural residential properties. There is a significant amount of high-density residential development occurring in the immediate vicinity of the subject site, particularly to the north, east and west. Vegetation on the subject site is considered to provide a tenuous link for highly mobile and disturbance adapted native fauna species.

The subject site provides a patch of fragmented habitat within the broader landscape, with other larger areas of habitat within the contiguous landscape considered more likely to be important for native fauna movements. Corridor values occurring on site are likely to be of

minimal value in the context of the broader locality and the mapped corridor is considered to over represent fauna movement opportunities on the subject site.

7 IMPACTS AND AMELIORATION

7.1 Introduction

The following sections examine the likely direct and indirect impacts of the proposed works and recommends amelioration measures to minimise and mitigate impacts on the biodiversity and habitat values of the subject site.

7.2 Potential Impacts of the Proposed Works

7.2.1 Vegetation Clearing

The proposed rezoning layout has been designed to utilise previously cleared/unconstrained areas as far as practicable to minimise impacts. The proposed rezoning will however allow for the future removal of areas of regrowth, grassland with scattered trees and/or lawn/gardens/exotic vegetation. Details of the vegetation communities to be impacted are provided in **TABLE 5** and are shown in **FIGURE 13**.

TABLE 5
IMPACTS TO VEGETATION COMMUNITIES ON SITE

Vegetation Community	Area on Site (ha)	Area to be Removed/Mixed Use Zone	Area to be Retained/ Environmental Zone
VC1 (RE 12.3.11)	1.65	0 (0%)	1.65
VC2 (Regrowth RE 12.9-10.4)	0.66	0.01 (1.5%)	0.65
VC3 (Grassland with scattered trees)	1.21	0.85 (70%)	0.35
VC4 (Lawn/gardens/exotic veg)	0.52	0.45 (86.5%)	0.07
Dam	0.03	0.00 (0%)	0.03
TOTAL	4.07	1.32 (32%)	2.75

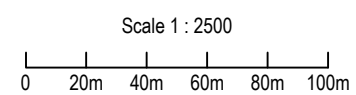
Additional indirect impacts that may occur as a result of the removal of vegetation from the subject site are summarised as follows:

- Disturbance to the subject site will create opportunities for weeds to colonise both the site and adjacent vegetation. Weeds are likely to be introduced to the subject site and adjacent vegetation in construction materials or by vehicles.
- The removal of vegetation from the subject site will result in a decrease in organic material and biomass on the site.
- The removal of vegetation will disturb the soil structure and integrity which can reduce the health and longevity of adjacent areas of remaining vegetation and result in increased soil erosion which may cause sedimentation of watercourses.
- Clearing may result in injury, displacement and death to fauna.
- Clearing physically removes food sources, shelter and other habitat attributes that fauna use.



LEGEND

- Subject Site
- Cadastre
- Natural Drainage Path
- Proposed Zoning Plan**
- Proposed Impact Area - Mixed Use Zone (1.318ha)
- Vegetation Communities**
- VC1: RE12.3.11
- VC2: Regrowth (RE 12.9-10.4)
- VC3: Grassland with scattered trees
- VC4: Lawn/gardens/exotic vegetation
- Dam



SOURCE: JWA; 28 South Environmental - JER Attachments 2 & 5 (2013); Somerville Consultants - Proposed Zoning Plan Issue 4 dated 01/05/24

SCALE: 1 : 2500 @ A3

JWA PTY LTD
 Ecological Consultants

CLIENT
Mr Quyen Nguyen

PROJECT
Ecological Assessment
Lot 9 on RP97339
210 Park Ridge Road, Park Ridge QLD
Logan City Council LGA

FIGURE 13

PREPARED: BW
DATE: 24 July 2024
FILE: Q12010_EA_20240724.dwg

TITLE
**IMPACT ON
VEGETATION
COMMUNITIES**

7.2.2 Waterways and Wetlands

The subject site is mapped on the Waterway Corridors and Wetlands Trigger Overlay as containing minor waterways under the *Logan Planning Scheme* (2015) (**FIGURE 11**). Waterways on the site are actually comprised of a constructed farm dam (**PLATE 5**) and associated overland flow path that would likely convey water intermittently after rainfall events. The flow path has been formalised through historic earthworks/drainage works (**PLATE 6**). An additional constructed drain occurs just offsite along the northern portion of the eastern site boundary (**PLATE 7**). The location of ground-truthed drainage lines on the subject site are shown in **FIGURE 12**.

The proposed rezoning has been designed to utilise previously cleared areas as far as practicable to minimise impacts. The proposed rezoning has incorporated the mapped watercourses into the proposed Environmental Management and Conservation Area (**FIGURE 14**). Therefore, there will be no direct impacts on the mapped watercourses.

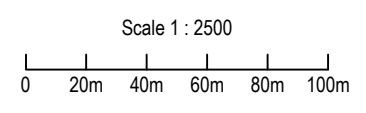


Plate 5 - constructed farm dam on the subject site



- LEGEND**
- Subject Site
 - Cadastre
 - Proposed Zoning Plan**
 - Proposed Impact Area - Mixed Use Zone (1.318ha)
 - LPS 2015 OM-14.01 Waterways
 - Minor waterway

PARK RIDGE ROAD



<p>SOURCE: Somerville Consultants - Proposed Zoning Plan Issue 4 dated 01/05/24; LCC Open Data - LPS 2015 v9.0 OM-14.01 Waterways</p> <p>SCALE: 1 : 2500 @ A3</p> <div style="border: 1px solid black; padding: 2px; text-align: center;"> <p><i>JWA PTY LTD</i> Ecological Consultants</p> </div>	<p>CLIENT Mr Quyen Nguyen</p> <p>PROJECT Ecological Assessment Lot 9 on RP97339 210 Park Ridge Road, Park Ridge QLD Logan City Council LGA</p>	<p>FIGURE 14</p>	<p>TITLE</p> <p>IMPACT ON LPS 2015 WATERWAYS</p>
<p>PREPARED: BW DATE: 24 July 2024 FILE: Q12010_EA_20240724.dwg</p>			



Plate 6 - waterway/drainage line in the north-western portion of the subject site



Plate 7 - waterway/drainage line along the eastern boundary of the subject site

7.2.3 Threatened Flora

No significant flora species were recorded from the subject site.

7.2.4 Native Fauna

The proposed rezoning will result in loss of grassland with scattered trees that may provide foraging habitat for common and urban adapted native fauna occurring in the locality. This loss may have the following impacts:

- Loss of forage habitat for fauna species;
- Minor increase in the fragmentation of habitat in the locality;
- Animals may be killed or injured during the clearance of vegetation;
- Increased light, noise and activity may cause reclusive species to move away from habitat edges; and
- The rezoning will result in an increase in traffic on and to the subject site. This increases the likelihood of animals being killed or injured by vehicles.

7.2.5 Threatened Fauna

The proposed rezoning has been designed to utilise previously cleared areas as far as practicable to minimise impacts. The proposed rezoning will however result in the removal of native vegetation providing potential habitat for threatened species. This vegetation may provide suitable habitat for the Koala, Grey-headed flying fox, White-throated needletail, Swift parrot, and Powerful owl.

The proposed rezoning will result in loss of foraging habitat (i.e. scattered trees) for threatened fauna occurring in the locality, particularly Koalas and Grey-headed flying-fox. This loss may have the following impacts:

- Loss of forage habitat for fauna species;
- Increase in the fragmentation of habitat in the locality;
- Animals may be at risk of being killed or injured during the clearance of vegetation;
- Increased light, noise and activity may cause reclusive species to move away from habitat edges; and
- The proposed rezoning will allow for an increase in traffic on and to the subject site. This increases the likelihood of animals being killed or injured by vehicles.

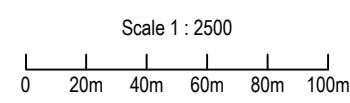
The proposed development will result in the loss of 0.04 ha (1.8%) of mapped core koala habitat on site (**FIGURE 15**). This small impact area is along the eastern property boundary, with any potential clearing within the proposed mixed use area falling under exemptions items (l)(i) and (k) of Schedule 24 of the *Planning Regulation 2017*:

- Once-off clearing of <500 m² (0.05 ha) of koala habitat (exemption); and/or
- Clearing within 5m of the existing site boundaries (exemption).



LEGEND

- Subject Site
- Cadastre
- Proposed Zoning Plan**
- Proposed Impact Area - Mixed Use Zone (1.318ha)
- Koala Habitat**
- Core Koala habitat



SOURCE: Somerville Consultants - Proposed Zoning Plan Issue 4 01/05/24; DES SEQ Koala Conservation Strategy 2019-2024 GIS Dataset v3.0

SCALE: 1 : 2500 @ A3

JWA PTY LTD
Ecological Consultants

CLIENT
Mr Quyen Nguyen

PROJECT
Ecological Assessment
Lot 9 on RP97339
210 Park Ridge Road, Park Ridge QLD
Logan City Council LGA

FIGURE 15

PREPARED: BW
DATE: 24 July 2024
FILE: Q12010_EA_20240724.dwg

TITLE

**IMPACT ON
KOALA
HABITAT**

7.3 Amelioration Strategies

The proposed rezoning has been designed to utilise previously cleared areas as far as practicable to minimise impacts, however some loss of native vegetation and associated habitat values will occur. The following amelioration measures are recommended to minimise and mitigate potential impacts associated with the proposed rezoning:

- A Vegetation and Fauna Management Plan should be prepared and implemented to ensure impacts on Threatened fauna and areas of habitat to be retained on site are minimised during the construction and operational phases of the development;
- Rehabilitation works should be completed within retained vegetation in accordance with an approved Site Rehabilitation Plan. These rehabilitation works should aim to increase the habitat values of these area, to help compensate for any loss of habitat as a result of the development;
- Any landscape plantings should utilise locally endemic native plant species that will provide forage habitat for nectarivorous and frugivorous birds and bats.
- Weeds should be controlled during construction through vehicle, tool and plant hygiene measures.
- Weeds should be controlled in landscaped areas and known environmental weeds (e.g. Umbrella tree) should be avoided in landscape plantings.
- Appropriate fauna management strategies including the use of a spotter-catcher should be implemented during site clearing operations to minimise potential adverse impacts to fauna.
- Vegetation removed during construction should be mulched for use on the site (with the exception of hollow-bearing trees). This will prevent the introduction of weeds from seeds in mulch brought in from elsewhere and will retain biomass that would otherwise be removed from the system.
- Appropriate Erosion and sediment control measures should be in place to ensure potential indirect impacts on waterways and wetlands in adjacent areas are avoided.
- An Offset Assessment in accordance with Planning Scheme Policy 3: Environmental Management of the Logan Planning Scheme (2015) has been prepared for the subject site (JWA 2024).
- Tree protection fencing should be implemented during site clearing operations to minimise potential adverse impacts on flora and fauna.
- Environmental Management and Conservation Area will be retained and assisted natural rehabilitation is proposed in this area.

8 CONSIDERATION OF RELEVANT STATUTORY REQUIREMENTS

8.1 Introduction

This section includes assessments of the impacts of the proposed works with regard to relevant Commonwealth, State and Local legislation. Detailed assessment of compliance with relevant legislative requirements is provided in the following sections.

8.2 Commonwealth EPBC Act (1999)

8.2.1 Background

The EPBC Act provides a mechanism for assessing the environmental impact of activities and development where Matters of National Environmental Significance (MNES) may be significantly affected.

The Commonwealth *EPBC Act (1999)* was passed by Commonwealth Parliament in June 1999 and came into force on 16 July 2000. A person must not, without an approval under the Act, take an action that has or will have, or is likely to have, a significant impact on a MNES. These MNES are listed as follows:

- the world heritage values of a declared World Heritage property;
- the ecological character of a declared Ramsar wetland;
- a threatened species or endangered community listed under the Act;
- a migratory species listed under the Act; or
- the environment in a Commonwealth marine area or on Commonwealth land.

The Act also prohibits the taking, without an approval under the Act, of:

- a nuclear action; or
- an action in a Commonwealth marine area or on Commonwealth land that has or will have, or is likely to have, a significant impact on the environment.

MNES in Queensland include:

- declared World Heritage areas;
- declared Ramsar wetlands;
- listed threatened species (Schedule 1 and 2 of the Commonwealth Endangered Species Protection Act 1992);
- listed ecological communities; and
- listed migratory species (JAMBA and CAMBA).

An action includes a project, development, undertaking or an activity or series of activities. An action does not require approval if it is a lawful continuation of a use of land, sea or seabed that was occurring before the commencement of the Act. An enlargement, expansion or intensification of a use is not a continuation of a use.

The Commonwealth *EPBC Act (1999)* does not require Commonwealth approval for the rezoning of land. It does, however, suggest that when rezoning land, planning authorities should consider whether to allow actions that could significantly affect NES matters or the environment of Commonwealth land.

A Commonwealth Assessment will be required for proposed activities on the subject site if they affect a MNES. The Commonwealth Department of the Environment has prepared *EPBC Act Policy Statements*, including the *Matters of National Environmental Significance - Significant Impact Guidelines 1.1 (DoE 2013)* which provides a self-assessment process to assist in determining whether an action should be referred to the Commonwealth for a decision on whether assessment and approval is required under the Act. The proposed development has been considered against the Principal Significant Impact Guidelines for each of the MNES identified on the subject site. This assessment is provided in the following sections.

Where a project or action is believed to potentially cause a significant impact on a matter of national environmental significance, it is to be referred to the Australian Government Department of Environment (DoE) for assessment as to whether the action is a 'controlled action' requiring Commonwealth approval for the proposed action.

Where an action requires Commonwealth approval, a formal assessment process is undertaken in accordance with provisions of relevant legislation.

8.2.2 Declared World Heritage Areas On or Near the Site

There are no declared World Heritage areas located on or near the subject site.

8.2.3 Declared Ramsar Wetlands On or Near the Site

The subject site is 10-20 km upstream from the declared Moreton Bay Ramsar wetland. The proposed development is unlikely to result in a significant impact to the wetland.

8.2.4 Commonwealth Listed Threatened Flora and Fauna Species

8.2.4.1 Significant Impact Criteria

An action is likely to have a significant impact on a Critically Endangered, Endangered or Vulnerable species if there is a real chance or possibility that it will:

- lead to a long-term decrease in the size of a population;
- reduce the area of occupancy of the species;
- fragment an existing population into two or more populations;
- adversely affect habitat critical to the survival of a species;
- disrupt the breeding cycle of a population;
- modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline;

- result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat;
- introduce disease that may cause the species to decline; or
- interfere with the recovery of the species.

A 'population of a species' is defined under the *EPBC Act* as an occurrence of the species in a particular area. In relation to critically endangered, endangered or vulnerable threatened species, occurrences include but are not limited to a geographically distinct regional population, or collection of local populations, or a population, or collection of local populations that occur within a particular bioregion.

An 'invasive species' is an introduced species, including an introduced (translocated) native species, which out-competes native species for space and resources or which is a predator of native species. Introducing an invasive species into an area may result in that species becoming established. An invasive species may harm listed threatened species or ecological communities by direct competition, modification of habitat or predation.

8.2.4.2 Site Assessment

No threatened flora species listed within schedules of the EPBC Act were recorded from the subject site.

Evidence of one (1) threatened species, the Koala (*Phascolarctos cinereus*), was recorded during site surveys. Three (3) additional Commonwealth listed fauna species were considered a possible occurrence due to suitable forage habitat available on the site:

- Grey-headed flying fox (*Pteropus poliocephalus*);
- White-throated needletail (*Hirundapus caudacutus*); and
- Swift parrot (*Lathamus discolor*);

The White-throated needletail may aerially traverse the site and is unlikely to be directly impacted by the proposed development.

Although areas of suitable habitat for the Grey-headed flying fox and Swift parrot will be cleared, no significant impacts (as listed in the significant impact criteria above) to these species or their habitats are considered possible or likely. These species are highly mobile. Habitat occurring on site is likely to be of minimal value in the context of the broader locality. When considering the retention of habitat within the proposed Environmental Management and Conservation Area, and the proposed amelioration measures, the proposed rezoning is not likely to result in any significant impacts (as listed in the significant impact criteria above) to these species.

The proposed rezoning will also for the future removal of approximately 0.04 ha of State mapped core koala habitat (**FIGURE 15**). This small impact area is along the eastern property boundary, with any potential clearing within the proposed mixed use area falling under exemptions items (l)(i) and (k) of Schedule 24 of the *Planning Regulation 2017*:

- Once-off clearing of 500 m^2 (0.05 ha) of koala habitat (exemption); and/or
- Clearing within 5m of the existing site boundaries (exemption).

Furthermore, the site is located within an area that is undergoing rapid urbanisation and habitat in the area is already severely fragmented. Proposed Environmental Management and Conservation Area (2.75 ha) in the north and west of the site will be retained and assisted natural rehabilitation is proposed in this area. The retention of this habitat will allow connections to the already fragmented habitat to the north, east and west of the site. A Vegetation and Fauna Management Plan should also be prepared to ensure the protection of retained vegetation during construction and the Site Rehabilitation Plan will direct weed control and planting efforts within conservation areas.

Vegetation removal of the subject site would involve clear felling, however, risks to koalas would be minimised by the supervision of all clearing by a suitably qualified wildlife spotter catcher.

The proposed rezoning will allow for future development that will result in a slight increase in vehicular traffic on the site and surrounding areas, as well as potentially increasing the presence of domestic dogs. To mitigate impacts of vehicle strike on koalas, consideration should be given to relevant design principles from the Koala-sensitive Design Guideline (DEHP 2012), including:

- Limiting speed zones, ideally to 40 km/h or below;
- Installing koala crossing warning signs;
- Lighting roads at identified or potential koala crossing points; and
- Planning construction to avoid the koala breeding season (August to December) when koalas are most active.

The proposed development is not considered likely to facilitate the introduction or spread of disease or pathogens to local Koala populations.

Although the subject site provides a patch of fragmented koala habitat within the broader landscape, other larger areas of habitat within the contiguous landscape are more likely to be important for the recovery of the koala.

With consideration of the above, the clearing of koala habitat on the site is not considered likely to fragment existing koala habitat to the point that a significant impact the local koala population is possible or likely. It is also not considered to contain habitat critical to the survival of the koala.

8.2.5 Listed Ecological Communities

No Commonwealth listed Ecological Communities were observed to occur on the site.

8.2.6 Listed Migratory Species On or Near the Site

8.2.6.1 Significant Impact Criteria

An action will require approval if the action has, will have, or is likely to have a significant impact on a listed migratory species. Note that some migratory species are also listed as threatened species. The significant impact criteria below are relevant to migratory species that are not threatened.

An action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will:

- substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles; or
- altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species; or
- result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species; or
- seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

An area of ‘important habitat’ for a migratory species is:

- habitat used by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population of the species; and/or
- habitat that is of critical importance to the species at particular life-cycle stages; and/or
- habitat utilized by a migratory species which is at the limit of the species range; and/or
- habitat within an area where the species is declining.

Listed migratory species cover a broad range of species with different life cycles and population sizes. Therefore, the definition of what an ‘ecologically significant proportion’ of the population is varies with the species (each circumstance needs to be evaluated). Some factors that should be considered include the species’ population status, genetic distinctiveness and species-specific behavioural patterns (for example, site fidelity and dispersal rates).

The term ‘population’ in relation to migratory species, means the entire population or any geographically separate part of the population of any species or lower taxon of wild animals, a significant proportion of whose members cyclically and predictably cross one (1) or more national jurisdictional boundaries including Australia.

8.2.6.2 Site Assessment

Habitat assessment determined that one (1) migratory species are considered a possible occurrence on the subject site - White-throated needletail (*Hirundapus caudacutus*). This

species may aerially traverse the site and is unlikely to be directly impacted by the proposed development.

8.2.7 Requirement for Commonwealth Referral

Based on the results of the above assessment in accordance with the Matters of National Environmental Significance - Significant Impact Guidelines 1.1 (DoE 2013), it is considered that there is no requirement for Commonwealth referral. No offsets will be required under the Commonwealth *EPBC Act* Environmental Offsets Policy (2012).

8.3 Queensland NC Act (1992)

8.3.1 Background

The Queensland *Nature Conservation (NC) Act (1992)* aims to conserve nature through strategies such as dedicating and declaring protected areas for those parts of Queensland with outstanding biological diversity, natural features and wilderness values. The *NC Act* provides for the protection of near threatened, vulnerable and endangered animals and plants.

The *NC Act* details the management intent for listed flora and fauna species considered presumed Extinct, Endangered, Vulnerable, Near Threatened, Least Concern, International and Prohibited in Queensland. It discusses their significance and states the declared management intent and the principles to be observed in any taking and use for each group.

The proposed management intent for Endangered wildlife includes the following:

- to take action to ensure viable populations of the wildlife in the wild are preserved or re-established;
- to regularly monitor and review the status of Endangered wildlife and its habitat;
- to encourage scientific research and inventory programs likely to contribute to an understanding of Endangered wildlife and its habitat and management requirements;
- to recognize that the habitat of Endangered wildlife is likely to be a critical habitat or area of major interest; and
- to monitor and review the adequacy of environmental impact assessment procedures to ensure that they take into account the need to accurately assess the extent of the impact on Endangered wildlife and develop effective mitigation measures.

The proposed management intent for Vulnerable wildlife includes the following:

- to take action to ensure viable populations of the wildlife in the wild are reserved or established;
- to recognize that the conservation of the habitat of Vulnerable wildlife is critical to ensuring survival of that wildlife; and

- to monitor and review the adequacy of environmental impact assessment procedures to ensure that they take into account the need to accurately assess the extent of the impact on Vulnerable wildlife and develop effective mitigation measures.

The proposed management intent for Near Threatened wildlife includes the following:

- to regularly monitor and review the wildlife's conservation status and its habitat;
- to recognize the habitat of the wildlife as a potentially critical habitat or area of major interest; and
- to monitor and review the adequacy of environmental impact assessment procedures to ensure that they take into account the need to accurately assess the extent of the impact on Near Threatened wildlife and develop effective mitigation measures.

In support of the purpose and the provisions of the *NC Act*, the *Nature Conservation (Animals) Regulation 2020* (NCAR) and the *Nature Conservation (Plants) Regulation 2020* (NCPR) lists all flora and fauna species which are considered to be extinct in the wild, endangered, Vulnerable, Near Threatened and Least Concern wildlife.

8.3.2 Site Assessment

8.3.2.1 Flora

No threatened flora species were recorded during the site assessment. Based on a lack of suitable habitat and the highly disturbed nature of the subject site, no threatened flora species listed under the NC Act are considered possible occurrences.

8.3.2.2 Fauna

Evidence of one (1) threatened fauna species protected under the NCAR, the Koala, was detected on the subject site. Three (3) additional threatened fauna species were considered to be a potential occurrence on the subject site:

- White-throated needletail (*Hirundapus caudacutus*);
- Swift parrot (*Lathamus discolor*); and
- Tusked frog (*Adelotus brevis*).

Koala habitat will be impacted by the proposed development and has been addressed in **SECTION 7.5**.

The White-throated needletail may aerially traverse the site and is unlikely to be directly impacted by the proposed development.

The highest quality habitat for the remaining possible threatened fauna occurrences on site is provided by remnant vegetation in the north of the site. This vegetation will be retained as part of the Environmental Management and Conservation Area and natural

rehabilitation in this area is proposed. Rehabilitation works within retained area on the site is to ensure that potential habitat for threatened species is maintained.

The proposed development layout has been designed to utilise previously cleared areas as far as practicable to minimise impacts. Impacts on species listed within schedules of the NCAR that are considered a possible occurrence, and their habitats will be further minimised through the following recommended mitigation measures:

- A Vegetation and Fauna Management Plan should be prepared and implemented to ensure impacts on Threatened fauna and areas of habitat to be retained on site are minimised during the construction and operational phases of any future proposed development;
- Rehabilitation works should be completed within retained vegetation in accordance with an approved Site Rehabilitation Plan. These rehabilitation works should aim to increase the habitat values of these areas, which will help compensate for any loss of habitat as a result of the development;
- Use of spotter-catcher during clearing operations; and
- Use of habitat and/or food trees in landscape plantings.

8.4 Queensland Vegetation Management Act (1999) and State Code 16: Native Vegetation Clearing

8.4.1 Background

Queensland's vegetation management framework regulates the clearing of certain native vegetation. It protects the State's biodiversity and, by conserving native vegetation, addresses land degradation issues such as salinity, soil degradation, erosion and declining water quality.

The purpose of the *Queensland Vegetation Management Act (VMA, 1999)* is to regulate the broad scale clearing of vegetation on freehold land to preserve remnant Regional Ecosystems (RE), vegetation in areas of high nature conservation value areas and areas vulnerable to land degradation. The *VMA (1999)* also ensures that clearing does not cause land degradation, maintains or increases biodiversity, maintains ecological processes and allows for ecologically sustainable land use. The *VMA (1999)* is currently supported by the State Policy for Vegetation Management (2013), which includes codes for the clearing of vegetation.

'Remnant vegetation' refers to vegetation that has either never been cleared in the past, or if it has been cleared has regrown to meet certain criteria, such as having the same composition and structure of species that would exist if the vegetation community had not been disturbed. Remnant vegetation protected by the vegetation management framework is identified on a regional ecosystem map or remnant map.

Approval is required under the VM Act when clearing is to be undertaken within a declared area or within a remnant RE, unless listed under 'exemptions' relating to the Act. A declared area is an area declared by the Minister to be of high conservation value or

vulnerable to land degradation. Approvals to clear remnant vegetation on properties greater than 5 ha are managed by the State Assessment and Referral Agency (SARA). SARA coordinates the assessment of vegetation clearing applications which are considered against the *State Development Assessment Provisions (SDAP) version 2.6 (2019)*.

The SDAP includes *State Code 16: Native Vegetation Clearing (2019)* provides the assessment criteria for assessable development that is the clearing of native vegetation under the *Planning Act 2016*. State Code 16 uses certified mapping (DES mapping) to administer the VM Act. Mapping includes:

- Regulated vegetation management mapping for remnant vegetation and remnant vegetation associated with any natural watercourse or wetland;
- RE mapping for endangered REs and of concern REs;
- Essential habitat (EH) mapping for habitat essential for threatened species; and
- Referable wetlands mapping for waterways contributing to the Great Barrier Reef catchment.

Other categories assessed under State Code 16 include:

- Clearing to maintain connectivity;
- Clearing on acid sulphate soils;
- Soil erosion; and
- Salinity.

Property Maps of Assessable Vegetation (PMAVs) are a part of the framework of the VM Act. They are property-scale maps that show the location, boundary, and conservation status of vegetation. PMAVs are submitted by landholders and used to update DES's Regulated Vegetation mapping for determining the location of vegetation assessable under the VM Act.

8.4.2 Assessable Vegetation on the Subject Site

The current regulated vegetation management map of the subject site includes Category X (vegetation not regulated under the VMA) areas over the southern portion of the site. Remnant (Category B) occurs in the northern portion of the subject site is mapped as RE 12.3.11 (Of Concern) (**FIGURE 5**).

Under the state government's vegetation management laws, there are some clearing activities that can be undertaken without state approval. Exemptions include:

1. Clearing of Category X vegetation can be undertaken for any purpose; and
2. Clearing of Category B vegetation (Least Concern or Of Concern regional ecosystems only) can be undertaken "for an urban purpose (e.g. residential, industrial, sporting, recreational or commercial) in an urban area".

The proposed development will result in minor impacts to Category B Least Concern vegetation only (**FIGURE 16**). An assessment of compliance with State Code 16: Native Vegetation Clearing is therefore not required.

8.5 State Code 25: Development in South East Queensland Koala Habitat Areas

8.5.1 Background

The *Nature Conservation and Other Legislation (Koala Protection) Amendment Regulation* commenced on 7th February 2020 and amends the *Environmental Offsets Regulation 2014*, *Planning Regulation 2017*, *Nature Conservation (Koala) Conservation Plan 2017* and *Vegetation Management Regulation 2012* to provide increased protection to koala habitat areas in South East Queensland.

The new planning framework implements strict new clearing restrictions, prohibiting clearing of koala habitat areas (KHAs) within Koala Priority Areas (KPAs) as shown on the Koala Conservation Plan Map. Development proposing clearing of mapped Koala Habitat Areas must be assessed against State Code 25: Development in South East Queensland Koala Habitat Areas. In this instance, State Government assumes responsibility for assessment, unless development can show avoidance to clearing KHAs.

The purpose of State Code 25 is to ensure that development in South East Queensland:

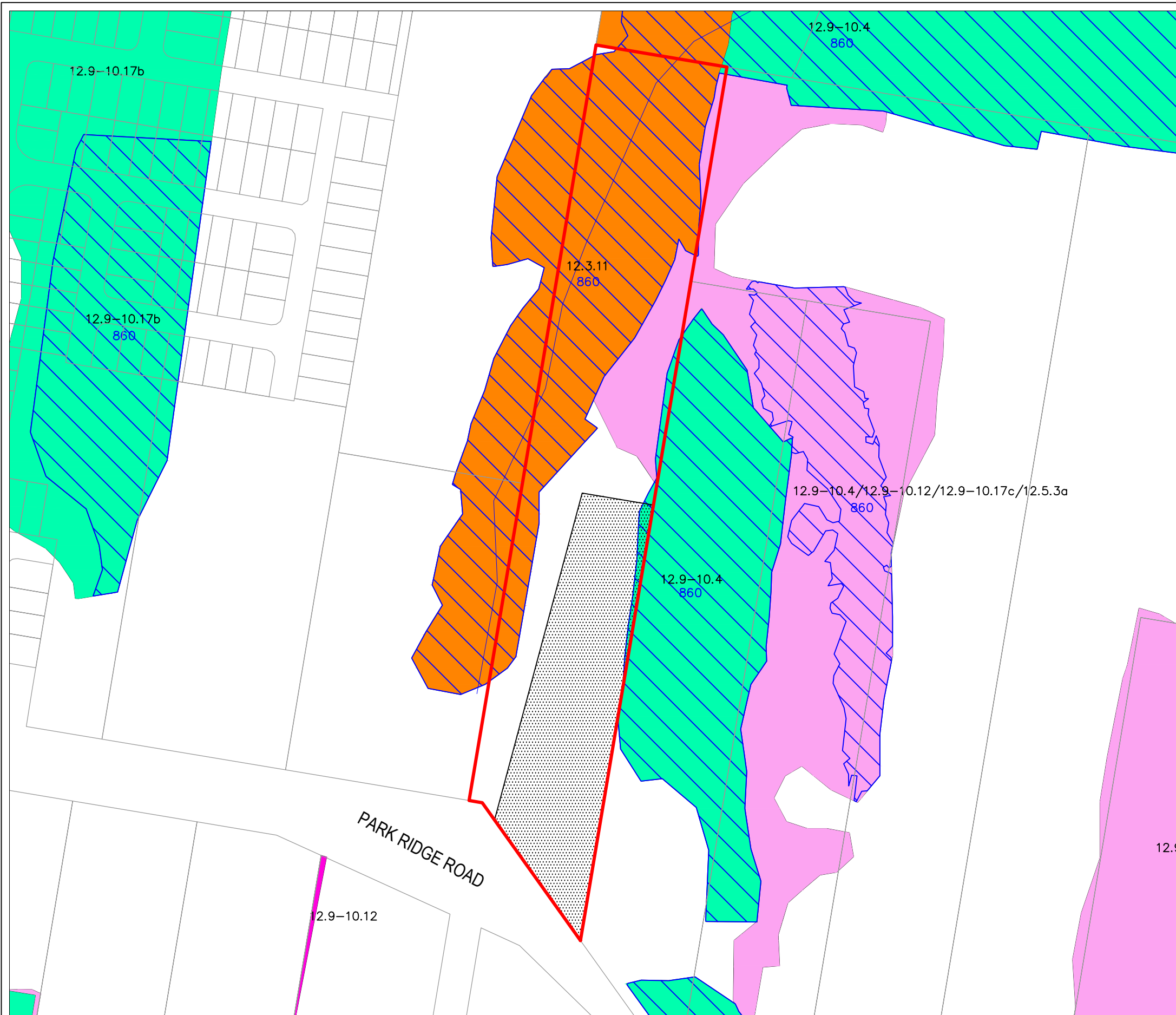
1. results in no net loss of koala habitat area;
2. does not contribute to fragmentation of koala habitat areas;
3. maintains or improves connectivity within and between koala habitat areas to ensure safe koala movement;
4. is constructed and undertaken in such a way that does not increase the risk of injury to, or death of koalas; and
5. avoids impacts on matters of state environmental significance, and where avoidance is not reasonably possible, minimises and mitigates impacts and, provides an offset for significant residual impacts to matters of state environmental significance that are prescribed environmental matters.

8.5.2 Applicability to the Subject Site

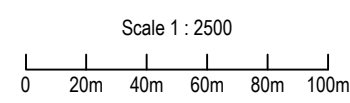
The site is not within a Koala Priority Area, however core koala habitat areas covering a total of 2.22 ha are mapped on site. Approximately 0.04 ha of mapped habitat will be impacted by the development (**FIGURE 15**). An assessment of compliance with the requirements of the State Code 25: Development in South East Queensland Koala Habitat Areas is therefore required and has been assessed in **APPENDIX 3**.

The 0.04 ha of mapped core habitat to be impacted is along the eastern property boundary, with any potential clearing within the proposed mixed use area falling under exemptions items (l)(i) and (k) of Schedule 24 of the *Planning Regulation 2017*:

- Once-off clearing of <500 m² (0.05 ha) of koala habitat (exemption); and/or



- LEGEND**
- Subject Site
 - Cadastre
 - Proposed Zoning Plan**
 - Proposed Impact Area - Mixed Use Zone (1.318ha)
 - Regional Ecosystems**
 - Remnant (Category B) endangered regional ecosystem
 - Remnant (Category B) of concern regional ecosystem
 - Remnant (Category B) least concern regional ecosystem
 - High-value regrowth (Category C) of concern regional ecosystem
 - Category X area (not regulated under the VMA)
 - Essential habitat
 - Watercourse and drainage feature



SOURCE: Somerville Consultants - Proposed Proposed Zoning Plan Issue 4 dated 01/05/24; DoR Vegetation Management Act GIS dataset

CLIENT: Mr Quyen Nguyen

PROJECT: Ecological Assessment Lot 9 on RP97339

210 Park Ridge Road, Park Ridge QLD Logan City Council LGA

JWA PTY LTD Ecological Consultants

FIGURE 16

PREPARED: BW
DATE: 24 July 2024
FILE: Q12010_EA_20240724.dwg

TITLE

IMPACT ON REGIONAL ECOSYSTEMS

- Clearing within 5m of the existing site boundaries (exemption).

Offsets will therefore not be required to compensate for the loss of 0.04 ha of core koala habitat.

8.6 Logan Planning Scheme (2015)

8.6.1 Background

The Logan Planning Scheme (2015) has been prepared in accordance with the requirements of the *Sustainable Planning Act 2009* (the SP Act) as a framework for managing development in a way that advances the purpose of the SP Act. The Planning Scheme was amended on the 23 June 2017.

The planning scheme sets out Logan City Council's intention for the future development in the planning scheme area, over the next 20 years. The planning scheme seeks to advance state and regional strategies, including state planning policies and the regional plan, through more detailed local responses, taking into account the local context.

The planning scheme applies to the planning scheme area of Logan City Council including all premises, roads, internal waterways, and local government tidal areas and interrelates with the surrounding local government areas.

8.6.2 Site Analysis

Areas of the site are mapped on the Biodiversity areas overlay (OM-02) as follows:

- Biodiversity areas trigger;
- Primary Vegetation Management Area (**FIGURE 8**);
- Secondary Vegetation Management Area (**FIGURE 8**);
- Biodiversity corridor (**FIGURE 9**);
- Environmental management and conservation area (**FIGURE 9**); and
- Matters of Local and State environmental significance (**FIGURE 10**).

Areas in the northern portion of the site are mapped on the Waterway Corridor and Wetlands Area Overlay (OM-14) as follows:

- Waterway corridor trigger; and
- Minor waterway (**FIGURE 11**).

Relevant sections of the Logan Planning Scheme (2015) - Biodiversity Areas Overlay code and Waterway Corridors and Wetlands Area Overlay code have therefore been assessed in **APPENDIX 4**.

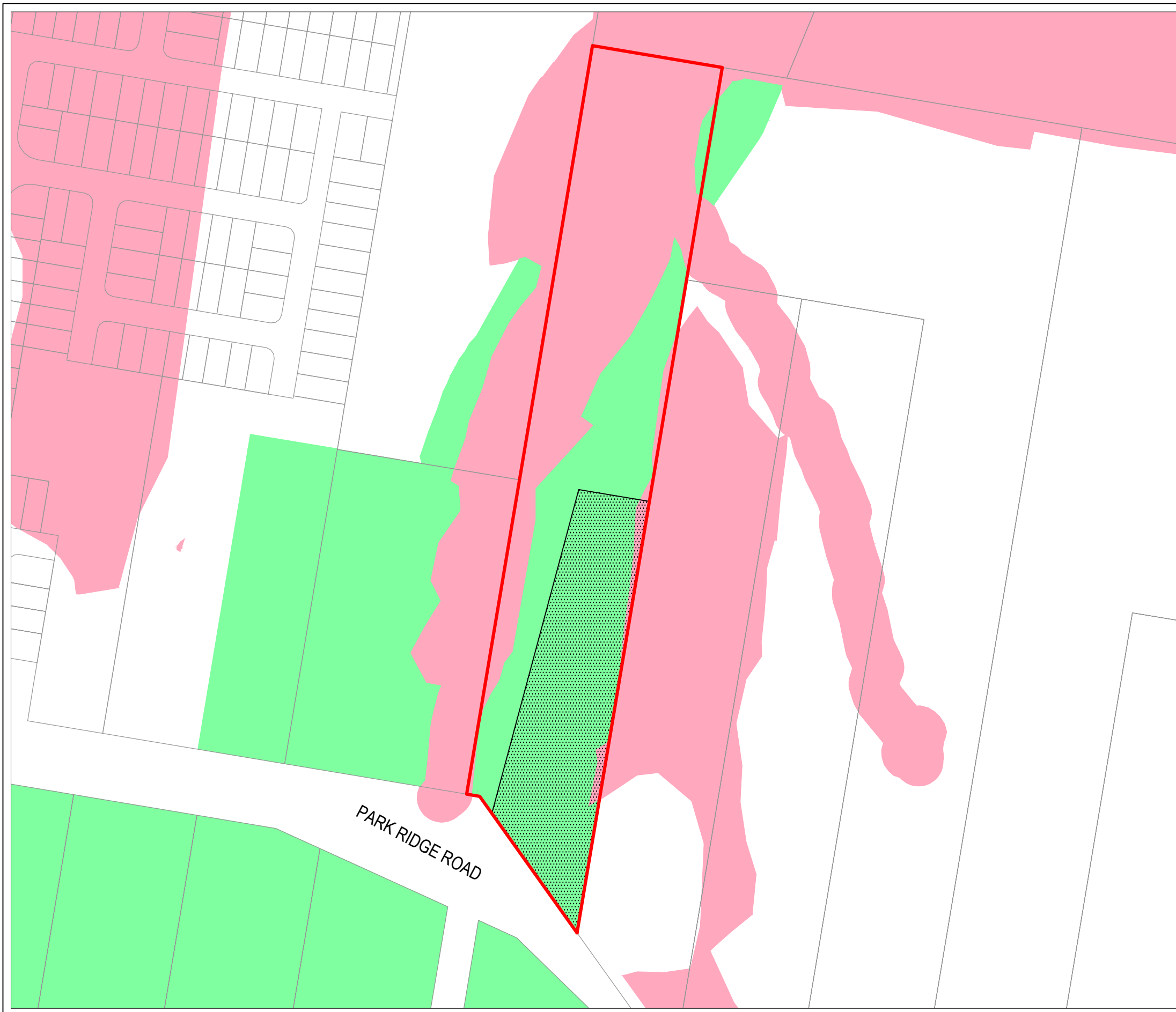
The site is zoned in the Logan Planning Scheme 2015 Environmental Management and Conservation, and Recreation and Open Space. It is proposed to rezone the south-eastern portion of the site to Mixed Use. Impacts to Primary and Secondary Vegetation Management

Areas will occur as a result of the proposed rezoning. A separate Offset Report (JWA 2024) has been prepared for the proposed development.

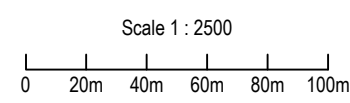
The assessment of compliance with the relevant sections of the Waterway and Wetlands Overlay code has determined that minor waterways are mapped on site and will not be directly impacted by the proposed rezoning (**FIGURE 14**). The proposed development layout has been designed to utilise previously cleared areas as far as practicable to minimise indirect impacts.

Although minor ‘waterways’ are mapped as traversing the site, these are essentially constructed drains that would likely convey water intermittently after rainfall events. The location and extent of drainage lines has been confirmed and it is considered that proposed retention and rehabilitation works within Environmental Management and Conservation Area will ensure that the proposed rezoning and any future development will not result in a net loss of ecological values associated with the mapped minor waterways.

Offsets for works within the Primary and Secondary Vegetation Management areas (outside areas with state applicable offsets) (**FIGURE 17**) will be required - a separate Environmental Offset Report (JWA 2024) has been prepared for the proposed development.



- LEGEND**
- Subject Site
 - Cadastre
 - Proposed Zoning Plan**
 - Proposed Impact Area - Mixed Use Zone (1.318ha)
 - LPS 2015 OM-02.01 Vegetation Management Areas**
 - Primary vegetation management area
 - Secondary vegetation management area



SOURCE: Somerville Consultants - Proposed
 Proposed Zoning Plan Issue 4 01/05/24 ; LCC Open
 Data - LPS 2015 v9.0 OM-02.01 Veg Mgt Area
 SCALE: 1 : 2500 @ A3

JWA PTY LTD
 Ecological Consultants

CLIENT
 Mr Quyen Nguyen

PROJECT
 Ecological Assessment
 Lot 9 on RP97339
 210 Park Ridge Road, Park Ridge QLD
 Logan City Council LGA

FIGURE 17

PREPARED: BW
 DATE: 24 July 2024
 FILE: Q12010_EA_20240724.dwg

TITLE
**IMPACT ON
 LPS 2015
 VEGETATION
 MANAGEMENT AREAS**

9 SUMMARY AND CONCLUSIONS

JWA Pty Ltd has been engaged by Somerville Consultants to complete an Ecological Assessment for land at 204-212 Park Ridge Road, Park Ridge. This land is formally described as Lot 9 on RP97339.

The current regulated vegetation management map of the subject site shows the northern portion of the site as Category B (remnant vegetation), a patch of Category C (high value regrowth vegetation) in the east of the site, and the southern portion of the site as Category X (vegetation not regulated under the VMA) areas. No threatened flora species were located during site surveys.

Fauna surveys recorded two (2) native species of amphibian, two (2) reptile species, and nineteen (19) species of birds. One threatened fauna, the koala, was recorded during site surveys.

The proposed rezoning has been designed to utilise previously cleared areas as far as practicable to minimise future impacts to environmentally constrained areas. Impacts on ecological values of the site resulting from any future development within the proposed Mixed Use Area will be further minimised through the following recommended mitigation measures:

- A Vegetation and Fauna Management Plan should be prepared and implemented to ensure impacts on Threatened fauna and areas of habitat to be retained on site are minimised during the construction and operational phases of any future development within the Mixed Use Area;
- Rehabilitation works should be completed within retained vegetation (i.e. Environmental Management and Conservation Area) in accordance with an approved Site Rehabilitation Plan. These rehabilitation works should aim to increase the habitat values of these areas, which will help compensate for any loss of habitat as a result of the any future development within the proposed Mixed Use Area;
- Use of spotter-catcher during clearing operations; and
- Use of habitat and/or food trees in landscape plantings.

Assessments in accordance with the Matters of National Environmental Significance - Significant Impact Guidelines 1.1 (DoE 2013) have determined that there is no requirement for Commonwealth referral.

Any future clearing within the proposed Mixed Use Area of the 'Of Concern' and 'Least Concern' Regional Ecosystems and Category X vegetation on the subject site can be completed in accordance with relevant exemptions under the state government's vegetation management laws.

An assessment of compliance with State Code 25: Development in South East Queensland Koala Habitat Areas has determined that the 0.04 ha of mapped core habitat to be impacted can be cleared under exemptions items (l)(i) and (k) of Schedule 24 of the *Planning*

Regulation 2017. Offsets will therefore not be required to compensate for the loss of 0.04 ha of core koala habitat.

An assessment of compliance with the Biodiversity Areas Overlay code and Waterways and Wetland Overlay code, which details 'specific outcomes, and 'probable solutions' required to be addressed by relevant Development Applications, has been completed. The subject site provides a patch of fragmented habitat within the broader landscape, with other larger areas of habitat within the contiguous landscape considered more likely to be important for native fauna movements. Corridor values occurring on site is likely to be of minimal value in the context of the broader locality and the mapped corridor is considered to over represent fauna movement opportunities on the subject site.

Offsets for the Primary and Secondary Vegetation Management area (outside areas with state applicable offsets) will be required - a separate Environmental Offset Report (JWA 2024) has been prepared for the proposed development.

Although minor 'waterways' are mapped as traversing the site under the Waterways and Wetland Overlay, these are essentially constructed drains that would likely convey water intermittently after rainfall events. The location and extent of drainage lines has been confirmed and it is considered that proposed retention and rehabilitation works within proposed Environmental Management and Conservation Area will ensure that any future development resulting from the proposed rezoning will not result in a net loss of ecological values associated with the mapped minor waterways.

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APPENDIX 1 - FLORA SPECIES LIST

Family	Botanical Name	Exotic	Common Name
Amaranthaceae	<i>Alternanthera brasiliana</i>	*	Brazilian joyweed
Apiaceae	<i>Centella asiatica</i>		Gotu kola
Apocynaceae	<i>Gomphocarpus physocarpus</i>	*	Balloon cotton bush
Apocynaceae	<i>Parsonsia straminea</i>		Monkey rope
Asparagaceae	<i>Asparagus africanus</i>	*	Asparagus fern
Asteraceae	<i>Ageratina adenophora</i>	*	Crofton weed
Asteraceae	<i>Ageratina riparia</i>	*	Mistflower
Asteraceae	<i>Ageratum houstonianum</i>	*	Blue billygoat weed
Asteraceae	<i>Bidens pilosa</i>	*	Cobbler's pegs
Asteraceae	<i>Cirsium vulgare</i>	*	Spear thistle
Asteraceae	<i>Erigeron bonariensis</i>	*	Flax-leaf fleabane
Asteraceae	<i>Ozothamnus diosmifolius</i>		White dogwood
Asteraceae	<i>Senecio madagascariensis</i>	*	Fireweed
Bignoniaceae	<i>Tecoma stans</i>	*	Golden bells
Campanulaceae	<i>Lobelia purpurascens</i>		White root
Cannabaceae	<i>Celtis sinensis</i>	*	Chinese elm
Casuarinaceae	<i>Allocasuarina littoralis</i>		Black sheoak
Commelinaceae	<i>Commelina diffusa</i>		Native wandering jew
Cyperaceae	<i>Cyperus polystachyos</i>		Bunchy sedge
Cyperaceae	<i>Gahnia aspera</i>		Saw sedge
Cyperaceae	<i>Lepidosperma laterale</i>		Variable swordsgedge
Cyperaceae	<i>Machaerina articulata</i>		Jointed rush
Dennstaedtiaceae	<i>Pteridium esculentum</i>		Bracken fern
Dicksoniaceae	<i>Calochlaena dubia</i>		Rainbow fern
Dilleniaceae	<i>Hibbertia vestita</i>		Hairy guinea-flower
Hemerocallidaceae	<i>Dianella caerulea</i>		Blue flax-lily
Lauraceae	<i>Cinnamomum camphora</i>	*	Camphor laurel
Laxmanniaceae	<i>Lomandra longifolia</i>		Spiny-headed mat rush
Leguminosae	<i>Acacia concurrens</i>		Black wattle
Leguminosae	<i>Acacia disparrima</i>		Brush ironbark wattle
Leguminosae	<i>Acacia fimbriata</i>		Brisbane golden wattle
Leguminosae	<i>Senna pendula var. glabrata</i>	*	Easter cassia
Lythraceae	<i>Cuphea carthagenensis</i>	*	
Moraceae	<i>Ficus obliqua</i>		Small-leaved fig
Myrtaceae	<i>Angophora leiocarpa</i>		Rusty gum
Myrtaceae	<i>Corymbia intermedia</i>		Pink bloodwood
Myrtaceae	<i>Corymbia torelliana</i>	*	Cadaghi
Myrtaceae	<i>Eucalyptus crebra</i>		Red ironbark
Myrtaceae	<i>Eucalyptus microcorys</i>		Tallowwood
Myrtaceae	<i>Eucalyptus racemosa</i>		Scribbly gum
Myrtaceae	<i>Eucalyptus robusta</i>		Swamp mahogany
Myrtaceae	<i>Eucalyptus seeana</i>		Narrow leaved red gum
Myrtaceae	<i>Eucalyptus siderophloia</i>		Grey ironbark
Myrtaceae	<i>Eucalyptus tereticornis</i>		Qld blue gum
Myrtaceae	<i>Leptospermum polygalifolium</i>		Tantoon
Myrtaceae	<i>Lophostemon suaveolens</i>		Swamp box
Myrtaceae	<i>Melaleuca linariifolia</i>		Flax leaf paperbark

Family	Botanical Name	Exotic	Common Name
Myrtaceae	<i>Melaleuca quinquenervia</i>		Broad-leaved paperbark
Myrtaceae	<i>Melaleuca viminalis</i>		Weeping bottlebrush
Ochnaceae	<i>Ochna serrulata</i>	*	Mickey mouse plant
Oleaceae	<i>Ligustrum lucidum</i>	*	Large-leaved privet
Passifloraceae	<i>Passiflora edulis</i>	*	Passionfruit vine
Philydraceae	<i>Philydrum lanuginosum</i>		Frogsmouth
Phyllanthaceae	<i>Breynia oblongifolia</i>		Coffee bush
Phyllanthaceae	<i>Glochidion ferdinandi</i>		Cheese tree
Pinaceae	<i>Pinus elliottii</i>	*	Slash Pine
Poaceae	<i>Andropogon virginicus</i>	*	Whisky grass
Poaceae	<i>Axonopus fissifolius</i>	*	Narrow-leaved carpet grass
Poaceae	<i>Chloris gayana</i>	*	Rhodes grass
Poaceae	<i>Cymbopogon refractus</i>		Barbed-wire grass
Poaceae	<i>Cynodon dactylon</i>		Couch grass
Poaceae	<i>Imperata cylindrica</i>		Blady grass
Poaceae	<i>Megathyrsus maximus</i>	*	Guinea grass
Poaceae	<i>Melinis repens</i>	*	Red natal grass
Poaceae	<i>Microlaena stipoides</i>		Weeping grass
Poaceae	<i>Ottochloa gracillima</i>		Pademelon grass
Poaceae	<i>Paspalum mandiocanum</i>	*	Broad-leaved Paspalum
Poaceae	<i>Setaria sphacelata</i>	*	Pigeon Grass
Poaceae	<i>Sporobolus africanus</i>	*	Parramatta grass
Poaceae	<i>Sporobolus pyramidalis</i>	*	Giant rat's tail grass
Polygalaceae	<i>Polygala paniculata</i>	*	Milkwort
Polygonaceae	<i>Persicaria decipiens</i>		Slender knotweed
Proteaceae	<i>Banksia integrifolia</i>		Coast banksia
Rhamnaceae	<i>Alphitonia excelsa</i>		Red ash
Solanaceae	<i>Solanum mauritianum</i>	*	Wild tobacco
Solanaceae	<i>Solanum seaforthianum</i>	*	Brazilian nightshade
Solanaceae	<i>Solanum torvum</i>	*	Devil's fig
Typhaceae	<i>Typha orientalis</i>		Broad-leaved cumbungi
Verbenaceae	<i>Lantana camara</i>	*	Lantana

APPENDIX 2 - HABITAT SUITABILITY ASSESSMENTS

Scientific name	Common name	NC Act*	EPBC Act#	Likelihood of occurrence	Habitat assessment ¹
Amphibians					
<i>Adelotus brevis</i>	Tusked frog	V	-	POSSIBLE	Inhabits wet eucalypt forest, rainforest, and sometimes dry eucalypt forest, where it can be found in close proximity to suitable breeding habitat such as ponds and slow-moving sections of streams (Cogger 2000; Meyer et al. 2001; Hines 2012). Also recorded from dams and garden ponds in urban and peri-urban areas (Hines 2012).
<i>Crinia tinnula</i>	Wallum Froglet	V	-	Unlikely	Wallum Froglets are found in a wide range of habitats, usually associated with acidic swamps on coastal sand plains. They typically occur in sedgelands and wet heathlands. They can also be found along drainage lines within other vegetation communities and disturbed areas, and occasionally in swamp sclerophyll forests. The species breeds in swamps with permanent water as well as shallow ephemeral pools and drainage ditches.
<i>Mixophyes fleayi</i>	Fleay's frog	-	E	Unlikely	Fleay's frog is associated with montane rainforest (Corben & Ingram 1987) and open forest communities adjoining rainforest (Hines 2001, pers. comm.). The species occurs along stream habitats from first to third order streams (i.e. small streams close to their origin through to permanent streams with grades of 1 in 50) and is not found in ponds or ephemeral pools. Adults may be found in leaf litter and along watercourses in rainforest and adjoining wet sclerophyll forests (Hines & SEQTFRT 2002).
Birds					
<i>Actitis hypoleucos</i>	Common Sandpiper	-	M	Unlikely	The species utilises a wide range of coastal wetlands and some inland wetlands, with varying levels of salinity, and is mostly found around muddy margins or rocky shores and rarely on mudflats. The Common Sandpiper has been recorded in estuaries and deltas of streams, as well as on banks farther upstream; around lakes, pools, billabongs, reservoirs, dams and claypans, and occasionally piers and jetties. The muddy margins utilised by the species are often narrow, and may be steep. The species is often associated with mangroves, and sometimes found in areas of mud littered with rocks or snags (Geering et al. 2007; Higgins & Davies 1996).
<i>Anthochaera phrygia</i>	Regent honeyeater	CE	CE	Unlikely	The regent honeyeater is found from Dalby in Queensland, south to Bendigo in Victoria, especially along the ranges and the western slopes. Its distribution is extremely patchy with only a small number of known breeding sites. The estimated total population is between 350 and 400 mature individuals. Potential habitat for this species includes dry eucalypt woodland and open forest, rural and urban areas with mature eucalypts. It favours ironbark-box associations, mugga ironbark (<i>Eucalyptus sideroxylon</i>), white box (<i>E. albens</i>), and yellow box (<i>E. melliodora</i>). Other habitat includes swamp mahogany (<i>E. robusta</i>), spotted gum (<i>Corymbia maculata</i>), or river she-oak (<i>Casuarina cunninghamiana</i>) with associated needle-leaf mistletoe (<i>Amyema cambagei</i>). This species generally prefers wetter, more fertile sites that are reliable nectar producers (both in timing and quantity), such as creek flats, river valleys and lower slopes (OEH 2014).
<i>Botaurus poiciloptilus</i>	Australasian bittern	E	E	Unlikely	The Australasian bittern is widespread but uncommon in south-west and south-east Australia, generally preferring freshwater habitats with tall, dense vegetation with bulrushes and spike rushes.
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	-	M	Unlikely	In Australasia, the Sharp-tailed Sandpiper prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. This includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, salt pans and hypersaline salt lakes inland. They also occur in saltworks and sewage farms. They use flooded paddocks, sedgelands and other ephemeral wetlands, but leave when they dry. They use intertidal mudflats in sheltered bays, inlets, estuaries or seashores, and also swamps and creeks lined with mangroves. They tend to occupy coastal mudflats mainly after ephemeral terrestrial wetlands have dried out, moving back during the wet season. They may be attracted to mats of algae and water weed either floating or washed up around terrestrial wetlands, and coastal areas with much beachcast seaweed. Sometimes they occur on rocky shores and rarely on exposed reefs (Higgins & Davies 1996).
<i>Calidris ferruginea</i>	Curlew sandpiper	CE	CE	Unlikely	Curlew Sandpipers mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. They are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They occur in both fresh and brackish waters. Occasionally they are recorded around floodwaters (Higgins & Davies 1996).

Scientific name	Common name	NC Act*	EPBC Act#	Likelihood of occurrence	Habitat assessment ¹
<i>Calidris melanotos</i>	Pectoral Sandpiper	-	M	Unlikely	In Australasia, the Pectoral Sandpiper prefers shallow fresh to saline wetlands. The species is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands. The species is usually found in coastal or near coastal habitat but occasionally found further inland. It prefers wetlands that have open fringing mudflats and low, emergent or fringing vegetation, such as grass or samphire. The species has also been recorded in swamp overgrown with lignum. They forage in shallow water or soft mud at the edge of wetlands (Higgins & Davies 1996).
<i>Calyptorhynchus lathami</i>	Glossy black cockatoo	V	V	Unlikely	This species is associated with woodland or open sclerophyll forests with populations of <i>Allocasuarina</i> , which comprise its exclusive diet. They require large old trees with hollows for nesting.
<i>Charadrius leschenaultii</i>	Greater Sand Plover	V	V, M	Unlikely	In the non-breeding grounds in Australasia, the species is almost entirely coastal, inhabiting littoral and estuarine habitats. They mainly occur on sheltered sandy, shelly or muddy beaches with large intertidal mudflats or sandbanks, as well as sandy estuarine lagoons (Bamford 1988; Blakers et al. 1984; Lane 1987; Sibson 1948; Stewart et al. 2007), and inshore reefs, rock platforms, small rocky islands or sand cays on coral reefs (Abbott 1982; Morris 1989; Sedgwick 1978). They are occasionally recorded on near-coastal saltworks and saltlakes, including marginal saltmarsh, and on brackish swamps (C.D.T. Minton 2002 pers. comm; Sibson 1953; Storr 1964b, 1977; Storr et al. 1986). They seldom occur at shallow freshwater wetlands (Storr 1977). Once, during a severe drought, the species was recorded in a poorly grassed paddock with large bare areas, more than 1 km from the nearest water (Eckert 1968).
<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (south-eastern)	V	V	Unlikely	Found in eucalypt woodlands (including Box-Gum Woodland) and dry open forest of the inland slopes and plains inland of the Great Dividing Range; mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species; also found in mallee and River Red Gum (<i>Eucalyptus camaldulensis</i>). Forest bordering wetlands with an open understorey of acacias, saltbush, lignum, cumbungi and grasses; usually not found in woodlands with a dense shrub layer; fallen timber is an important habitat component for foraging; also recorded, though less commonly, in similar woodland habitats on the coastal ranges and plains.
<i>Cuculus optatus</i>	Oriental cuckoo	-	M	Unlikely	This species is found in monsoon forests, the edges of rainforests, treed paddocks, mangroves, roadsides, and river flats (Pizzey and Knight 1999).
<i>Cyclopsitta diophthalma coxeni</i>	Coxen's fig parrot	E	CE	Unlikely	Usually recorded from drier rainforests and adjacent wetter eucalypt forest but rarely seen due to its small size and cryptic habits. Also found in the wetter lowland rainforests that are now largely cleared in New South Wales.
<i>Erythrorchis radiatus</i>	Red goshawk	E	V	Unlikely	This species occupies open forests and woodlands along rivers and wetlands and rainforest fringes. In New South Wales favoured habitat includes <i>Melaleuca</i> forest along coastal rivers (Debus 1991, 1993).
<i>Falco hypoleucos</i>	Grey falcon	V	V	Unlikely	This species is associated with arid or semi-arid environments, where it can be found in shrublands, grasslands, watercourses, and wetlands.
<i>Gallinago hardwickii</i>	Latham's snipe	-	M	Unlikely	This species generally occupies flooded meadows, seasonal or semi-permanent swamps, or open waters bogs, waterholes, billabongs, lagoons, lakes, creek or river margins, river pools and floodplains. Dense fringing vegetation is preferred by this species, but it has been recorded in waterlogged paddocks.
<i>Geophaps scripta scripta</i>	Squatter pigeon	V	V	Unlikely	Squatter Pigeon (southern) habitat is generally defined as open-forests to sparse, open-woodlands and scrub that are (Baldwin 1975; Beruldsen 1972; Cooper et al. 2014; EPA 2006; Frith 1982b; Leach 1988; North 1913-14; Squatter Pigeon Workshop 2011): <ul style="list-style-type: none"> • mostly dominated in the overstorey by Eucalyptus, Corymbia, Acacia or Callitris species • remnant, regrowth or partly modified vegetation communities, and • within 3 km of water bodies or courses.
<i>Grantiella picta</i>	Painted honeyeater	V	V	Unlikely	Inhabits Boree/ Weeping Myall (<i>Acacia pendula</i>), Brigalow (<i>A. harpophylla</i>) and Box-Gum Woodlands and Box-Ironbark Forests. A specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus <i>Amyema</i> . Insects and nectar from mistletoe or eucalypts are occasionally eaten.
<i>Hirundapus caudacutus</i>	White-throated needletail	V	V, M	POSSIBLE	This species is recorded in all coastal regions of Queensland and New South Wales and almost always forages aerially. Most often, the species is recorded above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings, below the canopy, but they are less commonly recorded flying above woodland.

Scientific name	Common name	NC Act*	EPBC Act#	Likelihood of occurrence	Habitat assessment ¹
<i>Lathamus discolor</i>	Swift parrot	E	CE	POSSIBLE	The swift parrot migrates from its Tasmanian breeding grounds to overwinter in the box-ironbark forests and woodlands of Victoria, New South Wales, and southern Queensland. In Southeast Queensland, narrow-leaved ironbark and forest red gum forests are commonly utilized (Kennedy and Tzaros 2005, Saunders and Tzaros 2011, Swift Parrot Recovery Team 2001).
<i>Monarcha melanopsis</i>	Black-faced monarch	-	M	Unlikely	This species occurs in rainforest ecosystems, including semi-deciduous vine-thickets, complex notophyll vine-forest, tropical (mesophyll) rainforest, subtropical (notophyll) rainforest, mesophyll (broadleaf) thicket/shrubland, warm temperate rainforest, dry (monsoon) rainforest and (occasionally) cool temperate rainforest. During winter or migration, this species also occurs in marginal habitats such as 20-30 years old regrowth rainforest, nearby open eucalypt forest (mainly wet sclerophyll forests), especially in gullies with a dense, shrubby understorey as well as dry sclerophyll forests and woodlands, often with a patchy understorey.
<i>Motacilla flava</i>	Yellow wagtail	-	M	Unlikely	Inhabits open country near water, such as wet meadows. It nests in tussocks.
<i>Myiagra cyanoleuca</i>	Satin flycatcher	-	M	Unlikely	This species occurs in heavily vegetated gullies in eucalypt-dominated forests and taller woodlands, and on migration, occurs in coastal forests, woodlands, mangroves and drier woodland and open forests.
<i>Ninox strenua</i>	Powerful owl	V	-	Unlikely	The Powerful Owl inhabits a range of vegetation types, from woodland and open sclerophyll forest to tall open wet forest and rainforest. The Powerful Owl requires large tracts of forest or woodland habitat but can occur in fragmented landscapes as well. The species breeds and hunts in open or closed sclerophyll forest or woodlands and occasionally hunts in open habitats. It roosts by day in dense vegetation comprising species such as Turpentine <i>Syncarpia glomulifera</i> , Black She-oak <i>Allocasuarina littoralis</i> , Blackwood <i>Acacia melanoxylon</i> , Rough-barked Apple <i>Angophora floribunda</i> , Cherry Ballart <i>Exocarpus cupressiformis</i> and a number of eucalypt species.
<i>Numenius madagascariensis</i>	Eastern curlew	E	CE, M	Unlikely	The Eastern Curlew is found on intertidal mudflats and sandflats, often with beds of seagrass, on sheltered coasts, especially estuaries, mangrove swamps, bays, harbours and lagoons.
<i>Pandion haliaetus</i>	Osprey	-	M	Unlikely	Eastern Ospreys occur in littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands. They are mostly found in coastal areas but occasionally travel inland along major rivers, particularly in northern Australia (Johnstone & Storr 1998; Marchant & Higgins 1993; Olsen 1995). They require extensive areas of open fresh, brackish or saline water for foraging (Marchant & Higgins 1993). They frequent a variety of wetland habitats including inshore waters, reefs, bays, coastal cliffs, beaches, estuaries, mangrove swamps, broad rivers, reservoirs and large lakes and waterholes (Czechura 1985; Domm 1977; Fleming 1987; Gosper 1983; Gosper & Holmes 2002; Johnstone & Storr 1998; Olsen 1995; Roberts & Ingram 1976). They exhibit a preference for coastal cliffs and elevated islands in some parts of their range (Boekel 1976; Domm 1977), but may also occur on low sandy, muddy or rocky shores and over coral cays (Marchant & Higgins 1993). They may occur over atypical habitats such as heath, woodland or forest when travelling to and from foraging sites (Czechura 1985; Hembrow 1988; Pruett-Jones & O'Donnell 2004; Roberts & Ingram 1976).
<i>Rhipidura rufifrons</i>	Rufous fantail	-	M	Unlikely	In east and south-east Australia, the rufous fantail mainly inhabits wet sclerophyll forests, often in gullies dominated by eucalypts such as tallowwood (<i>Eucalyptus microcorys</i>), mountain grey gum (<i>E. cypellocarpa</i>), narrow-leaved peppermint (<i>E. radiata</i>), mountain ash (<i>E. regnans</i>), alpine ash (<i>E. delegatensis</i>), blackbutt (<i>E. pilularis</i>) or red mahogany (<i>E. resinifera</i>); usually with a dense shrubby understorey often including ferns. They also occur in subtropical and temperate rainforests; for example near Bega in south-east New South Wales, where they are recorded in temperate lilly pilly (<i>Acmena smithi</i>) rainforest, with grey myrtle (<i>Backhousia myrtifolia</i>), sassafras (<i>Doryphora sassafras</i>) and sweet pittosporum (<i>Pittosporum undulatum</i>) subdominants. They occasionally occur in secondary regrowth, following logging or disturbance in forests or rainforests. When on passage, they are sometimes recorded in drier sclerophyll forests and woodlands, including spotted gum (<i>Eucalyptus maculata</i>), yellow box (<i>E. melliodora</i>), ironbarks or stringybarks, often with a shrubby or heath understorey. In north and north-east Australia, they often occur in tropical rainforest and monsoon rainforests, including semi-evergreen mesophyll vine forests, semi-deciduous vine thickets or thickets of <i>Melaleuca</i> spp.
<i>Rostratula australis</i>	Australian painted snipe	E	E	Unlikely	This species inhabits shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps, and clay pans. They also use inundated or waterlogged grassland or saltmarsh, dams, rice crops, sewage farms and bore drains. Typical sites include those with emergent tussocks of grass, sedges, rushes or reeds, or samphire; often with scattered clumps of lignum <i>Muehlenbeckia</i> or canegrass or sometimes tea-tree (<i>Melaleuca</i>). Breeding habitat requirements appear to be specific and includes shallow wetlands with areas of bare wet mud, with both upper and canopy cover nearby. Nest records are predominately

Scientific name	Common name	NC Act*	EPBC Act#	Likelihood of occurrence	Habitat assessment ¹
					from or near small islands in freshwater wetlands, provided that these islands are a combination of very shallow water, exposed mud, dense low cover and sometimes some tall dense cover.
<i>Stagonopleura guttata</i>	Diamond Firetail	V	V	Unlikely	Found in grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum <i>Eucalyptus pauciflora</i> Woodlands. Also occurs in open forest, mallee, Natural Temperate Grassland, and in secondary grassland derived from other communities. Often found in riparian areas (rivers and creeks), and sometimes in lightly wooded farmland.
<i>Symposiachrus trivirgatus</i>	Spectacled monarch	-	M	Unlikely	The Spectacled Monarch prefers thick understorey in rainforests, wet gullies and waterside vegetation, as well as mangroves.
<i>Tringa nebularia</i>	Common greenshank	-	M	Unlikely	The Common Greenshank is found in a wide variety of inland wetlands and sheltered coastal habitats of varying salinity. It occurs in sheltered coastal habitats, typically with large mudflats and saltmarsh, mangroves or seagrass. Habitats include embayments, harbours, river estuaries, deltas and lagoons and are recorded less often in round tidal pools, rock-flats and rock platforms. The species uses both permanent and ephemeral terrestrial wetlands, including swamps, lakes, dams, rivers, creeks, billabongs, waterholes and inundated floodplains, claypans and saltflats. It will also use artificial wetlands, including sewage farms and saltworks dams, inundated rice crops and bores. The edges of the wetlands used are generally of mud or clay, occasionally of sand, and may be bare or with emergent or fringing vegetation, including short sedges and saltmarsh, mangroves, thickets of rushes, and dead or live trees. It was once recorded with Black-winged Stilts (<i>Himantopus himantopus</i>) in pasture, but are generally not found in dry grassland (Higgins & Davies 1996).
<i>Turnix melanogaster</i>	Black-breasted button-quail	V	V	Unlikely	This species is restricted to areas mostly with 770-1200 mm rainfall per annum. They prefer drier low closed forests, particularly semi-evergreen vine thicket, low microphyll vine forest, Araucarian microphyll vine forest and Araucarian notophyll vine forest. This species may also be found in low, dense acacia thickets and in littoral areas, in vegetation behind sand dunes. An extensive dense leaf-litter layer is required for foraging and possibly also roosting. Fallen logs and a dense, heterogeneously distributed shrub layers are also considered to be important habitat characteristics for shelter and breeding.
Invertebrates					
<i>Argynnis hyperbius inconstans</i>	Australian fritillary	E	CE	Unlikely	Restricted to open, swampy, coastal areas where the larval food plant, <i>Viola betonicifolia</i> , grows as a small, ground herb in association with <i>Lomandra longifolia</i> (long leaved matrush) and grasses, especially the grass <i>Imperata cylindrica</i> (blady grass).
Mammals					
<i>Chalinolobus dwyeri</i>	Large-eared pied bat	V	V	Unlikely	This species requires a combination of sandstone cliff/escarpment to provide roosting habitat that is adjacent to higher fertility sites, particularly box gum woodlands or river/rainforest corridors that are used for foraging. Almost all records have been found within several kilometres of cliff lines or rocky terrain. Roosting has also been observed in disused mine shafts, caves, overhangs, and disused fairy martin (<i>Hirundo ariel</i>) nests. The structure of primary nursery roosts appears to be very specific, <i>i.e.</i> arch caves with dome roofs (that need to be deep enough to allow juvenile bats to learn to fly safely inside) and with indentations in the roof (presumably to allow the capture of heat). These physical characteristics are very uncommon in the landscape and therefore a limiting factor to the species distribution.
<i>Dasyurus maculatus maculatus</i> (SE mainland population)	Spotted-tail quoll	E	E	Unlikely	This species is recorded from a wide range of habitats, including montane rainforests, sclerophyll forests (<i>e.g.</i> open, closed, wet), coastal heathlands, sub-alpine woodlands, and riparian forests. It prefers mature wet forests that have not been logged and require large areas of relatively intact forest for foraging. Preferred den sites include hollow logs, caves, or rocky outcrops for daytime shelter.
<i>Macropderma gigas</i>	Ghost bat	E	V	Unlikely	The ghost bat is a monotypic species endemic to northern Australia, where they rely of roost sites that include caves, rock crevices and disused mine pits.
<i>Petauroides armillatus</i>	Central greater glider	E	E	Unlikely	This species is found in eucalypt forests and woodlands. It prefers forests with a good diversity of eucalypt species to provide consistent forage opportunities year-round, and is found in the greatest abundance in tall, montane, moist old growth forests.
<i>Petauroides volans</i>	Greater glider	V	V	Unlikely	This species is found in eucalypt forests and woodlands. It prefers forests with a good diversity of eucalypt species to provide consistent forage opportunities year-round, and is found in the greatest abundance in tall, montane, moist old growth forests.
<i>Petaurus australis</i>	Yellow-bellied glider	V	V	Unlikely	Occur in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils.

Scientific name	Common name	NC Act*	EPBC Act#	Likelihood of occurrence	Habitat assessment ¹
<i>Phascolarctos cinereus</i>	Koala	E	E	POSSIBLE	This species inhabits a range of temperate, sub-tropical and tropical forest, woodland and semi-arid communities where suitable food trees are present. The koala is a leaf-eating specialist that feeds primarily during dawn, dusk, or night. Its diet is restricted mainly to foliage of a small selection of preferred <i>Eucalyptus</i> spp; however, it may also consume foliage of related genera, including <i>Corymbia</i> spp., <i>Angophora</i> spp., <i>Melaleuca</i> spp., and <i>Lophostemon</i> spp.
<i>Potorous tridactylus</i>	Long-nosed potoroo	V	V	Unlikely	This species inhabits coastal heath and dry and wet sclerophyll forests. Dense understorey with occasional open areas is an important habitat feature, and may consist of grasstrees, sedges, ferns, or heath, or of low shrubs of tea-trees or melaleucas. A sandy loam soil is also a common feature.
<i>Pseudomys novaehollandiae</i>	New Holland mouse	V	V	Unlikely	The New Holland Mouse has been found from coastal areas and up to 100 km inland on sandstone country (Wilson & Laidlaw 2003). The species has been recorded from sea level up to around 900 m above sea level (Menkhorst et al. 2008).
<i>Pteropus poliocephalus</i>	Grey-headed flying-fox	-	V	POSSIBLE	This species occurs in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths, and swamps as well as urban gardens and cultivated fruit crops. This species feeds on the nectar and pollen of native trees, in particular <i>Eucalyptus</i> , <i>Melaleuca</i> and <i>Banksia</i> , and fruits of rainforest trees and vines. It also feeds on commercial fruit crops and on introduced tree species in urban areas. The grey-headed flying-fox roosts in aggregations of various sizes on exposed branches. Roost sites are generally located within 20 km of a regular food source and are typically located near water, such as lakes, rivers, or the coast. Roost vegetation includes rainforest patches, stands of <i>Melaleuca</i> , mangroves and riparian vegetation, but colonies also use highly modified vegetation in urban and suburban areas. The species can maintain fidelity to roost sites for extended periods, although new sites have been colonized.
Reptiles					
<i>Coeranoscincus reticulatus</i>	Three-toed snake-tooth skink	-	V	Unlikely	This species inhabits rainforest and occasionally moist eucalypt forest, on loamy or sandy soils. This species feeds on earthworms and beetle grubs and is found in leaf litter, often immediately adjacent to fallen tree trunks.
<i>Delma torquata</i>	Collared delma	V	V	Unlikely	Due to specific habitat requirements, this species distribution is highly fragmented and restricted to only a few locations. The collared delma is known from the western suburbs of Brisbane, Queensland and the following sites: Bunya Mountains, Blackdown Tableland National Park (NP), Bullyard Conservation Park, D'Aguiar Range NP, Expedition NP, Naumgna and Lockyer Forest Reserves, Western Creek near Millmerran and the Toowoomba Range. This species inhabits eucalypt dominated woodland and open forest where it is associated with suitable micro-habitats (exposed rocky outcrops). The ground cover is predominantly native grasses, such as kangaroo grass (<i>Themeda triandra</i>), barbed-wire grass (<i>Cymbopogon refractus</i>), wiregrass (<i>Aristida</i> sp.) and Lomandra (<i>Lomandra</i> sp.). The presence of rocks, logs, bark and other coarse woody debris, and leaf litter (typically 30-100 mm thick) appears to be an essential characteristic of the collared delma microhabitat, and these features are always present where the species occurs.
<i>Furina dunmalli</i>	Dunmall's snake	V	V	Unlikely	Preferred habitat is Brigalow forest and woodland with fallen timber and ground litter, growing on cracking clay soils and clay loam soils. Also occurs in eucalypt and Callitris woodland with fallen timber and ground litter.
<i>Hemiaspis damelii</i>	Grey Snake	E	E	Unlikely	<i>Hemiaspis damelii</i> favours woodlands (typically brigalow <i>Acacia harpophylla</i> and <i>Acacia casuarina</i>), usually on heavier, cracking clay soils, particularly in association with water bodies or in areas with small gullies and ditches (gilgais) (Wilson and Swan 2010; Hobson 2012).
<p>* NSW Biodiversity Conservation Act 2016 (BC Act) # Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) CE - Critically Endangered, E - Endangered, V - Vulnerable, M - Migratory (marine, terrestrial or listed) () listed but not found in site database search. ¹ Sources (including specific literature references) from:</p> <ul style="list-style-type: none"> • DAWE (2022) <i>Species Profile and Threats Database</i>. Department of Agriculture, Water and the Environment (DAWE). Australian Government. Available at http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl. • DES (2022). <i>Species Profile Search</i>. Department of Environment and Science (DES), Queensland Government. • DoPIE (2022). <i>Threatened biodiversity profile search</i>. Office of Environment and Heritage, Department of Planning, Industry and Environment (DoPIE), New South Wales Government. 					

APPENDIX 3 - ASSESSMENT OF COMPLIANCE WITH STATE CODE 25:

Table 25.2 Material Change of Use, Operational Work, Building Work and Plumbing or Drainage Work

Performance outcomes	Response
<p>PO1 Development supports connectivity between highly connected patches of mapped koala habitat areas.</p>	<p>The proposed development will retain habitat within the proposed Environmental Management and Conservation Area. The retention of this habitat will allow the continued connection between habitat to the north, east and west of the site.</p>
<p>PO2 Development supports safe koala movement by preventing fragmentation of patches of mapped koala habitat areas.</p>	<p>Habitat in the locality is already highly fragmented. Whilst the proposed rezoning will reduce the area of core koala habitat by 0.04 ha, the retention koala habitat within the proposed Environmental Management and Conservation Area allows for continued connection to habitat in the north, east and west of the site.</p>
<p>PO4 Development within a mapped koala habitat area is undertaken in a way that prevents the risk of injury or death of koalas.</p>	<p>Qualified spotter catchers will be required during clearing activities.</p>
<p>PO05 Development is designed and sited to:</p> <ol style="list-style-type: none"> 1. avoid impacts on matters of state environmental significance; or 2. minimise and mitigate impacts on matters of state environmental significance after demonstrating avoidance is not reasonably possible; and 3. provide an offset if, after demonstrating all reasonable avoidance, minimisation and mitigation measures are undertaken, the development results in an acceptable significant residual impact on a matter of state environmental significance. 	<p>The proposed rezoning has been designed to utilise previously cleared areas as far as practicable to minimise impacts. The proposed development will result in the loss of 0.04 ha (1.8%) of mapped core koala habitat on site (FIGURE 15). This small impact area is along the eastern property boundary, with any potential clearing within the proposed mixed use area falling under exemptions items (l)(i) and (k) of Schedule 24 of the <i>Planning Regulation 2017</i>:</p> <ul style="list-style-type: none"> • Once-off clearing of <500 m² (0.05 ha) of koala habitat (exemption); and/or • Clearing within 5m of the existing site boundaries (exemption).

APPENDIX 4 - ASSESSMENT OF COMPLIANCE WITH RELEVANT SECTIONS OF THE LOGAN PLANNING SCHEME (2015)

BIODIVERSITY AREAS OVERLAY CODE: ACCEPTED DEVELOPMENT (SUBJECT TO REQUIREMENTS) AND ASSESSABLE DEVELOPMENT

Performance outcomes	Acceptable outcomes	Comments
For accepted development (subject to requirements) and assessable development		
Biodiversity corridors		
<p>PO1 Development in a Biodiversity corridor identified on Biodiversity areas overlay map OM-02.02 is designed and located to:</p> <ol style="list-style-type: none"> provide for habitat links; facilitate safe wildlife movement; facilitate wildlife refuge; enhance habitat values; rehabilitate degraded areas with native vegetation. <p>Note - Compliance with this performance outcome is to be demonstrated by a detailed ecological assessment report prepared in accordance with Part 2 of Planning scheme policy 3 - Environmental management.</p>	<p>AO1 Development is located outside a Biodiversity corridor identified on Biodiversity areas overlay map OM-02.02.</p>	<p>A biodiversity corridor is mapped across the entire site. The retention of the proposed Environmental Management and Conservation Area in the north and west will allow for the continued connection with the mapped corridor in the north and east.</p>
Primary vegetation management area		
<p>PO2 Development in the Primary vegetation management area identified on Biodiversity areas overlay map OM-02.01 is designed and located:</p> <ol style="list-style-type: none"> to: <ol style="list-style-type: none"> protect the current extent of native vegetation; or achieve a net gain of native vegetation; 	<p>AO2.1 Development is located to avoid the need to clear any native vegetation in the Primary vegetation management area identified on Biodiversity areas overlay map OM-02.01, unless:</p> <ol style="list-style-type: none"> if identified as a Matter of local environmental significance and not Both matters of local and state environmental significance on 	<p>Part of the subject site is mapped as Primary Vegetation Management Area (FIGURE 8) and the entire site is mapped as either MSES and MLES or MLES (FIGURE 10). Impacts will occur to Primary Vegetation Management Areas (FIGURE 17). A separate Offset Report has been</p>

Performance outcomes	Acceptable outcomes	Comments
<p>b. to rehabilitate degraded areas with native vegetation.</p> <p>Note - The Primary vegetation management area includes the locally significant vegetation identified on Biodiversity areas overlay map OM-02.03.</p> <p>Note - Compliance with this performance outcome is to be demonstrated by a detailed ecological assessment report [for section (a)(i)] and an environmental offset report [for section (a)(ii)] prepared in accordance with Part 2 of Planning scheme policy 3 - Environmental management.</p>	<p>Biodiversity areas overlay map OM-02.04, an offset is provided in accordance with section 3.1 - Environmental offset standards in Planning scheme policy 3 - Environmental management; or</p> <p>b. if identified as Both matters of local and state environmental significance or Matter of state environmental significance on Biodiversity areas overlay map OM-02.04, an offset is provided in accordance with the Queensland Environmental Offset Policy and the <i>Environmental Offsets Act 2014</i></p> <p>Note - Compliance with A02.1(a) is to be demonstrated by an environmental offset report prepared in accordance with Part 2 of Planning scheme policy 3 - Environmental management.</p> <p>Note - For purposes of A02.1(b) the Queensland Government has separate regulatory requirements for matters of state environmental significance. This is regulated by the State Department Assessment Provisions.</p> <p>Note - Where the native vegetation is identified as Both matters of Local and State environmental significance and no offset is required by the Queensland Government for the native vegetation identified as a matter of state environmental significance, development is located to avoid the need to clear the native vegetation.</p> <p>A02.2 Development rehabilitates degraded areas in accordance with the South East Queensland Ecological Restoration Framework.</p>	<p>prepared for the proposed development (JWA 2024).</p>
<p>Secondary vegetation management area</p>		

Performance outcomes	Acceptable outcomes	Comments
<p>PO3 Development in the Secondary vegetation management area identified on Biodiversity areas overlay map OM-02.01 is designed and located to either:</p> <ul style="list-style-type: none"> a. protect the current extent of native trees and native habitat trees; or b. achieve a net gain of native trees and native habitat trees. <p>Note - Compliance with this performance outcome is to be demonstrated by a basic ecological assessment report [for paragraph (a)] and environmental offset report [for section (b)] prepared in accordance with Part 2 of Planning scheme policy 3 - Environmental management.</p>	<p>AO3 Development is located to avoid the need to clear any native trees and native habitat trees in the Secondary vegetation management area identified on Biodiversity areas overlay map OM-02.01, unless:</p> <ul style="list-style-type: none"> a. if clearing less than 10 native trees, compensatory planting is provided of: <ul style="list-style-type: none"> i. two trees of the same species for every native tree cleared in a secondary vegetation management area; ii. four trees of the same species for every native habitat tree cleared in a secondary vegetation management area; b. if identified as a Matter of local environmental significance and not Both matters of local and state environmental significance on Biodiversity areas overlay map OM-02.04, an offset is provided in accordance with section 3.1 - Environmental offset standards in Planning scheme policy 3 - Environmental management; or c. if identified as Both Matters of local and state environmental significance or Matters of State environmental significance on Biodiversity areas overlay map OM-02.04, an offset is provided in accordance with the Queensland Environmental Offset Policy and the <i>Environmental Offsets Act</i> <p>Note - Compliance with AO3(b) is to be demonstrated by an environmental offset report prepared in accordance with Part 2 of Planning scheme policy 3 - Environmental management.</p>	<p>Part of the subject site is mapped as Secondary Vegetation Management Area (FIGURE 8) and the entire site is mapped as either MSES and MLES or MLES (FIGURE 10). Impacts will occur to the Secondary Vegetation Management Areas (FIGURE 17). A separate Offset Report has been prepared for the proposed development (JWA 2024).</p>

Performance outcomes	Acceptable outcomes	Comments
	<p>Note - For the purpose of A03(c) the Queensland Government has separate regulatory requirements for matters of state environmental significance. This is regulated by the State Development Assessment Provisions.</p> <p>Note - Where the native vegetation is identified as a matter of state environmental significance and no offset is required by the Queensland Government for the native vegetation identified as a matter of state environmental significance, development is located to avoid the need to clear the native vegetation.</p>	
Koala corridor		
<p>PO4 Development in a Koala corridor identified on Biodiversity areas overlay map OM-02.02 is designed and located to protect and enhance koala habitat.</p> <p>Note - Compliance with this performance outcome is to be demonstrated by a detailed ecological assessment report prepared in accordance with Part 2 of Planning scheme policy 3 - Environmental management.</p>	<p>A04 Development:</p> <ol style="list-style-type: none"> a. is located to avoid the need to clear any native vegetation in a Koala corridor identified on Biodiversity areas overlay map OM-02.02; b. in a Koala corridor identified on Biodiversity areas overlay map OM-02.02 rehabilitates degraded koala habitat values within the Koala corridor, in accordance with the South East Queensland Ecological Restoration Framework. 	<p>NA - not within a koala corridor</p>
Locally significant vegetation area		
<p>PO5 Development in a Locally significant vegetation area identified on the Biodiversity areas overlay map OM-02.03 protects Melaleuca irbyana, vine forest, Gossia gonoclada and significant remnant vegetation areas from:</p> <ol style="list-style-type: none"> a. encroachment; b. edge effects. <p>Note - Compliance with this performance outcome is to be demonstrated by a detailed ecological assessment report prepared in</p>	<p>A05 Development is located outside of a Locally significant vegetation area as identified on Biodiversity areas overlay map OM-02.03.</p>	<p>NA - Not mapped on OM-02.03</p>

Performance outcomes	Acceptable outcomes	Comments
accordance with Part 2 of Planning scheme policy 3 - Environmental management.		
For assessable development		
Wildlife movement		
<p>PO6 Development in a Biodiversity corridor or koala corridor identified on Biodiversity areas overlay map OM-02.02 provides for the safe movement of native fauna by:</p> <ol style="list-style-type: none"> generating minimal additional night time traffic; minimising the risk of injury or death to wildlife by vehicular traffic; incorporating practices or measures to minimise disruption, injury or death during construction; providing that a road or accessway has a low design speed; providing fauna-friendly fencing. <p>Note - Compliance with this performance outcome is to be demonstrated by a detailed ecological assessment report prepared in accordance with Part 2 of Planning scheme policy 3 - Environmental management.</p>	<p>A06 Development in a Biodiversity corridor or koala corridor identified on Biodiversity areas overlay map OM-02.02 provides for the safe movement of native fauna through the implementation of:</p> <ol style="list-style-type: none"> the Queensland Government Fauna Sensitive Road Design Manual Volume 2: Preferred Practices; the Queensland Government Koala-sensitive Design Guideline. 	<p>Any future development within the proposed Mixed Use Area will need to mitigate impacts of possible vehicle strike. Future development should consider relevant design principles from the Koala-sensitive Design Guideline (DEHP 2012), including:</p> <ul style="list-style-type: none"> Limiting speed zones, ideally to 40 km/h or below; Installing koala crossing warning signs; Lighting roads at identified or potential koala crossing points; and Planning construction to avoid the koala breeding season (August to December) when koalas are most active.
Locally significant Melaleuca irbyana buffer area		
<p>PO7 Development within the Locally significant Melaleuca irbyana buffer area identified on Biodiversity areas overlay map OM-02.03 protects the Locally significant</p>	<p>A07 Development within the Locally significant Melaleuca irbyana buffer area identified on Biodiversity areas overlay map OM-02.03 provides for a vegetated buffer within 50 metres of the Locally significant</p>	<p>NA - not mapped on OM-02.03</p>

Performance outcomes	Acceptable outcomes	Comments
<p>Melaleuca irbyana area identified on Biodiversity areas overlay map OM-02.03 from:</p> <ul style="list-style-type: none"> a. edge effects; b. adverse changes to the local hydrology. <p>Note - Compliance with this performance outcome is to be demonstrated by a detailed ecological assessment report prepared in accordance with Part 2 of Planning scheme policy 3 - Environmental management.</p>	<p>Melaleuca irbyana area identified on Biodiversity areas overlay map OM-02.03.</p>	
Landscape values		
<p>PO8 Development is designed and located to protect and enhance the landscape values of:</p> <ul style="list-style-type: none"> a. a ridgeline; b. native vegetation. 	<p>A08 No acceptable outcome provided.</p>	<p>The subject site contains native vegetation, to which impact will occur as a result of any future development within the proposed Mixed Use Area. A separate Offset Report has been prepared for the proposed rezoning that considers the entire proposed Mixed Use Area as an impact (JWA 2024).</p>
Lighting		
<p>PO9 Development in a Biodiversity corridor or Koala corridor identified on Biodiversity areas overlay map OM-02.02 is designed to minimise adverse light impacts on native fauna.</p>	<p>A09 Lighting associated with development in a Biodiversity corridor or Koala corridor identified on Biodiversity areas overlay map OM-02.02:</p> <ul style="list-style-type: none"> a. complies with the dark surrounds lighting levels in AS4282-1997 - Control of the obtrusive effects of outdoor lighting; b. is directed away from areas identified on Biodiversity areas overlay map OM-02.00. 	<p>The site is mapped as a Biodiversity corridor, therefore, A09 applies to any future development within the proposed Mixed Use Area.</p>

Table 8.2.12.3.1 - Waterway corridors and wetlands overlay code: accepted development (subject to requirements) and assessable development

Performance outcomes	Acceptable outcomes	Comments
For accepted development (subject to requirements) and assessable development		
Design and location		
<p>PO1 Development is designed and located to protect the ecosystem processes, water quality, function, scenic amenity and landscape values of a Waterway corridors and wetlands area identified on Waterway corridors and wetlands overlay map OM-14.00.</p>	<p>AO1 Development is located outside the:</p> <ul style="list-style-type: none"> a. waterway areas identified on Waterway corridors and wetlands overlay map OM-14.01; b. wetlands and wetland buffers identified on Waterway corridors and wetlands overlay map OM-14.02. 	<p>Although minor ‘waterways’ are mapped as traversing the site, these are essentially constructed drains that would likely convey water intermittently after rainfall events. Regardless, these mapped areas are located outside the Mixed Use Area that will be subject to future development.</p>
For assessable development only		
Location and ecosystem processes		
<p>PO2 Development is:</p> <ul style="list-style-type: none"> a. designed and located such that a waterway area or wetlands and wetland buffer is protected; b. designed, constructed and managed to protect and enhance: <ul style="list-style-type: none"> i. in-stream and riparian habitat values of a Waterway corridors and wetlands area identified on Waterway corridors and wetlands overlay map OM-14.00; ii. safe wildlife movement and fish passage. <p>Note - Planning scheme policy 3 - Environmental management provides guidance on how to achieve this outcome. Compliance with this performance outcome is to be demonstrated by an ecological assessment report prepared in accordance with part 2 of Planning scheme policy 3 - Environmental management.</p>	<p>AO2 Development:</p> <ul style="list-style-type: none"> a. demonstrates that locating outside the waterway area of wetland and wetland buffer is not reasonably possible; b. prepares an ecological assessment report in accordance with part 2 of Planning scheme policy 3 - Environmental management that demonstrates how the development protects and enhances in-stream and riparian habitat values and results in no loss of connectivity which supports wildlife movement; c. protects and enhances the ecological function of a Waterway corridor and wetlands area in accordance with section 3.3.1 - Riparian corridor revegetation and weed control and section 3.3.2 - Waterway terrestrial 	<p>Although minor ‘waterways’ are mapped as traversing the site, these are essentially constructed drains which would likely convey water intermittently after rainfall events. The location and extent of drainage lines has been confirmed and it is considered that proposed retention of the proposed Environmental Management and Conservation Area will ensure that any future development will not result in a net loss of ecological values associated with the mapped minor waterways.</p>

	and aquatic fauna movement of Planning scheme policy 3 - Environmental management.	
Natural hydrological and geomorphological processes		
<p>PO3 Development is designed, constructed and managed to ensure:</p> <ul style="list-style-type: none"> a. the natural hydrological and geomorphological processes of a Waterway corridors and wetlands area identified on Waterway corridors and wetlands overlay map OM-14.00 are maintained; b. where the natural hydrological and geomorphological processes are modified, the near natural hydrology is re-instated. 	<p>A03 Development is designed, constructed and managed to protect the natural hydrological and geomorphological processes of a Waterway corridors and wetlands area by:</p> <ul style="list-style-type: none"> a. stabilising banks using native vegetation in accordance with section 3.3.1 - Riparian corridor revegetation and weed control and section 3.3.3 - Near-natural hydrology reinstatement works of Planning Scheme Policy 3 - Environmental Management; b. reinstating the near-natural hydrology in accordance with section 3.3.3 - Near-natural hydrology reinstatement works of Planning scheme policy 3 - Environmental management. 	<p>Although minor 'waterways' are mapped as traversing the site, these are essentially constructed drains which would likely convey water intermittently after rainfall events. The location and extent of drainage lines has been confirmed and it is considered that proposed retention of the proposed Environmental Management and Conservation Area will ensure that any future development will not result in a net loss of ecological values associated with the mapped minor waterways.</p>
Erosion prone areas		
<p>PO4 Development in an erosion prone area identified on Waterway corridors and wetlands overlay map OM-14.03 is for coastal dependent development, or temporary, readily relocatable or able-to-be-abandoned development.</p>	<p>A04 Development is not located in an erosion prone area identified on Waterway corridors and wetlands overlay map OM-14.03 unless the development:</p> <ul style="list-style-type: none"> a. cannot be feasibly located elsewhere; <p>is coastal dependent development, or temporary, readily relocatable or able-to-be-abandoned development.</p>	<p>NA - not within an erosion prone area.</p>