Ecological Assessment Report

Birkdale Land Survey

AWE200221



Prepared for
Redland City Council

18 June 2020

Cardno

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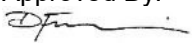

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Executive Summary

Cardno was commissioned by Redland City Council to conduct an Ecological Assessment of the land located 362-388 Old Cleveland Road East, Birkdale (the Study Area) recently purchased from the Commonwealth. As part of the conditions of sale, the Commonwealth entered into a Conservation Agreement with Council. The Conservation Agreement specifies clauses for requiring the protection and conservation of listed species and threatened ecological communities listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Desktop and field assessments have been completed to identify Ecological values present within the Study Area to inform management of a conservation area and enhancement opportunities to aid in future land use planning. This included koala habitat assessment, mapping of Threatened Ecological Communities (TECs), flora assessment, opportunistic and targeted fauna assessments. Habitat features, pests and the location of threatened species were located and mapped.

The Site was surveyed by a suitably qualified ecologists over three days and three nights between the 7th and 17th of April 2020. The key findings of the field assessment are as follows:

- The Study Area supports mapped remnant and non-remnant areas. Additional areas of regrowth were mapped following a desktop assessment and field validation in accordance with the Department of Environment and Science's (DES's) Guidelines for determining Category C areas.
- Two Threatened Ecological Communities are present within the Study Area including:
  - Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland; and
  - Subtropical and Temperate Coastal Saltmarsh.
- A total of 219 flora species, were recorded within the Study Area. No Endangered, Vulnerable or Near Threatened flora pursuant to the *Nature Conservation Act 1992* (NC Act) or EPBC Act were detected. Of the 219 flora species detected within the Site, 73 are exotic flora species, 11 of which are Category 3 restricted matters under the provisions of the *Biosecurity Act 2014* and five are also listed as Weeds of National Significance (WoNS).
- A total of 38 fauna species were recorded within the Study Area during the field assessment. This includes koala individuals and signs of their activity. The Koala is listed as Vulnerable under the provisions of the NC Act and EPBC Act.
- The extent of koala habitat was mapped using methods that accord with current practice for delineating habitat in Queensland, resulting in a mapping outcome that accords with the Commonwealth's definition of koala habitat.
- The Study Area is mapped entirely within Priority Koala Assessable Development Area with areas mapped as Core Koala Habitat.
- Several habitat features and were detected within the Study Area in the form of hollow bearing trees, stags, arboreal termitaria, nests and logs.
- Tingalpa Creek adjoins the southern boundary of the Study Area. Tingalpa Creek is tidally influenced and supports coastal wetlands within the Study Area.
- The Study Area forms part of an ecological corridor associated with the lower Tingalpa and Coolnwynpin Creek Catchments and provides linkages with the broader network of conservation reserves and Protected Areas.
- An Environmental Management Plan (EMP) was prepared to address the requirements of the Conservation Agreement.
- Suggested Conservation Boundary refinements are proposed that are based on capturing the extent of Matters of National Environmental Significance.

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1 Introduction

Cardno was commissioned by Redland City Council (Council) to undertake an Ecological Assessment Report to gain greater understanding of the ecological values within the Birkdale Land Study Area (the Study Area) described as Lot 1 on RP14143, Lot 2 on RP14144 and Lot 2 on SP146455. Under *Redland City Plan 2018*, the Study Area is mapped within the Community Facilities Zone and the Conservation Zone as shown in **Figure 1** in the **Figures** section of this report.

The Study area, which is located at 362-388 Old Cleveland Road East, Birkdale, was purchased by Council from the Commonwealth. As part of the conditions of sale the Commonwealth entered into a Conservation Agreement with Council.

The Conservation Agreement between the Commonwealth Department of Environment and Energy (DoEE) and Council specify clauses requiring the protection and conservation of species and threatened ecological communities listed under the *Environment Protection and Biodiversity Conservation Act 1999* within the Conservation Area (**Appendix A**). The objectives stated in the Conservation Agreement is for the long-term protection and conservation of the following protected matters found on the land:

1. Koala and Koala habitat present in the Conservation Area, to improve and maintain the viability of the Koala in the local area and promote and enhance the survival and conservation status of the species;
2. Subtropical and Temperate Coastal Saltmarsh ecological community in the Conservation Area, to improve and maintain the viability of the ecological community; and
3. Other ecological values within the Conservation Area, including ecological communities or habitat for other EPBC Act listed species as identified and may be identified in the future.

The Conservation Agreement requires Council to develop a management plan for Koala and Koala Habitat, Subtropical Coastal Saltmarsh and other ecological values in the Conservation Area. Cardno prepared an Environmental Management Plan (EMP) to address this requirement of the Conservation Agreement (**Appendix B**).

The purpose of this report is to provide an assessment of ecological values and the potential approaches for Council's management of conservation areas and enhancement opportunities to aid land use planning in the Study Area.

The specific requirements of the project brief were:

- *Assess the presence of and known or likely extent of Maters of National Environmental Significance (MNES) under the Commonwealth's Environment Protection and Biodiversity Conservation Act 1999 within the Study Area. Primarily this will include Koala habitat and Subtropical and Temperate Coastal Saltmarsh community.*
- *Identify and map other areas of ecological significance (e.g. hollow bearing trees located within the Community Facilities zone).*
- *Identify and map areas of significant threats to ecological values (e.g. significant weed occurrences, particularly of Weeds of National Environmental Significance).*
- *Based on the findings of the ecological assessment review the extent of the conservation area and provide recommendations for possible boundary refinement.*
- *Prepare an Environmental Management Plan to ensure compliance with the Conservation Agreement.*

2 Methodology

2.1 Desktop assessment

Prior to undertaking the field based ecological assessment, a review of background information was completed by a suitably qualified ecologist. The desktop assessment involved collation and review of relevant information concerning flora and fauna species, ecological communities, waterways, wetlands and other matters of national, state or local ecological significance likely to occur in the locality. The outcomes sought by the desktop assessment was to:

- refine a list of threatened species to be targeted by the fauna and flora survey to those species which had the highest likelihood of occurring within the Study Area;
- source available information concerning the specific habitat requirements of the threatened species as well as to aid in identifying the target species; and
- guide and focus the level of detail required during the field assessments.

The desktop assessment also included a review of the Commonwealth's Conservation Agreement, and Redland City Plan, Council supplied information and reports pertaining to the Study Area.

A range of database resources and mapping products were utilised as part of the desktop review. Presented below is a list of the key Commonwealth, State and Local government desktop databases and mapping resources used. Where applicable the outputs from these searches have been presented in **Appendix C**.

- High resolution aerial photography taken as part of Detail Survey.
- Historical imagery to aid in identifying vegetated areas of varying age/integrity.
- *Nature Conservation Act 1992* (NC Act) Protected Plants Trigger Mapping.
- Mapping and planning requirements associated with the Koala habitat in South-east Queensland (SEQ).
- The Regulated Vegetation Management Map (Regulated Vegetation Map) produced by the Department of Natural Resources, Mines and Energy (DNRME).
- The Wildlife Online database which is maintained by the Department of Environment and Science (DES).
- The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Protected Matters Search Tool.
- The Biomaps application via the Qld Spatial mapping tool developed by the Department of Science, Information Technology and Innovation (DSITI).
- The Queensland Wetland Environmental Values Map under the *Environmental Protection (Wetland and Water Biodiversity) Policy 2019.*
- State Planning Policy (SPP) and Development Assessment mapping tools maintained by the Department of State Development, Manufacturing, Infrastructure and Planning (DSDMIP).
- National Flying-fox monitoring map maintained by DES.
- The Atlas of Living Australia database and mapping tools.
- Mapping associated with Council's Planning Scheme including the Redland City Council Environmental Significance Overlay.

To further inform the assessment, the resources in **Table 2-1** were also reviewed.

Table 2-1 Reviewed resources

Document scale	Document	Author and date reference
City wide	Redland City Plan 2018	Redland City Council (2018)
	Environmental Significance Overlay Code	Redland City Council (2018)
	Lower Tingalpa and Coolnwynpin Creek Catchment Map	Redland City Council

Document scale	Document	Author and date reference
	Living on the Edge: along Tingalpa Creek a history of upper Tingalpa, Capalaba and Thorneside	Mary Howells (2001)
	Redland Coast Koala Population Assessment Project	University of the Sunshine Coast and Detection Dogs for Conservation (2018)
Specific to the study area	Conservation Agreement for the protection and conservation of biodiversity values on land at Lot 1 on RP14143, Lot 2 on RP14144 and Lot 2 pm SP146445, also known as 362-388 Old Cleveland Road, Birkdale, Queensland.	DoEE (2019)
	Annexure A Contract of Sale	Herbert Smith Freehills (2019)
	Environmental Investigation – Land in Birkdale, Capalaba, Queensland	ERM (2018)
	Conservation Zone Boundary (Drawing no: 0488830b_G008_RO	ERM (2019)
	Heritage Assessment for the Australian Communications and Media Authority Facility, Birkdale/Capalaba Received Stations	Jacobs (2016)
	Cultural Heritage Study Qld Cleveland Road, Birkdale Qld	Everick Heritage Consultants (2018)
	Site of Interest Plan (Ref: 2019_10_J072_CP	Redland City Council (2019)

All mapping searches were centred on a coordinate that represented the centre of the Study Area (-27.5097, 153.2014), or a centrally located Lot Plan (Lot 1 RP14143) as relevant. A 3 km buffer was applied for each desktop search where relevant.

The process of refining the list of species to be targeted during the field assessment involved reviewing the known and specific habitat requirements for each species against the known or expected availability of such resources in the Study Area and immediate surrounds. For each of the identified species an assessment of the likelihood of occurrence was undertaken with each species being assigned to one of the following categories:

- **Known**: The species has been positively recorded in the Study Area by a qualified ecologist[1] during past 30 years.
- **Likely**: Suitable habitat for the species occurs in the Study Area and proximate records[2]exist.
- **Possible**: Suitable habitat for the species occurs in the Study Area but no recent records from the site or proximate areas exist OR suitable habitat for the species may not occur in the site area but recent records from proximate areas exist.
- **Unlikely**: Suitable habitat for the species does not occur in the site area, and no recent records from the within the Study Area or proximate areas exist.

The assessment of the likelihood of occurrence is presented in **Appendix D**.

2.2 Field Assessment Methodology

The field assessment was conducted by a suitably qualified ecologist on the 7, 8 and 17 April, 2020. Field surveys were completed in accordance with our existing permits:

- Scientific Purposes Permit WA0004213; and

[1] Data sourced from ERM's Environmental Investigation Report has been treated as from a "qualified ecologist"
[2] Proximate records are highly reliable records (i.e. identified through GPS precision or an accurate location description) that fall within the search area that are <50years in age.

> Animal Ethics Approval SA 2018/09/656.

Specific methodology for each of the field assessment components is described within the following sections.

2.2.1 Threatened Ecological Communities

The field assessment included mapping the extent and condition of the Threatened Ecological Communities (TECs) within the Study Area including Subtropical and Temperate Coastal Saltmarsh. Surveys were guided by the conservation advice and condition thresholds provided in the following:

> Conservation Advice Subtropical and Temperate Coastal Saltmarsh (DSEWPC, 2013); and

> Conservation Advice for the Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community (DoEE, 2018).

No other TECs were assessed within the Study Area.

2.2.2 Vegetation

While the purpose of the study was not to refine the Queensland Herbarium's Regional Ecosystem mapping (version 11), it was necessary to review the broad accuracy of both remnant and regrowth mapping in order to inform TEC and koala habitat mapping outputs. The version 11 mapping was therefore used as a base. Quaternary plot data was collected in accordance with the Methodology for Surveying and Mapping Regional Ecosystems and Vegetation Communities in Queensland (Neldner *et al*., 2020) to inform refinement of linework following fieldwork. Linework was refined with reference to contemporary aerial imagery (Nearmap) and historic imagery available through Q Imagery[3]. The species present in each strata, strata composition, and strata height were collected at six quaternary plots. The locations of the quaternary plots are shown in **Figure 1**.

2.2.3 Flora Assessments

Searches for threatened plant species and their habitat was undertaken during the survey. Flora surveys included searches for threatened species identified by desktop assessment as considered likely to occur, identification of presence and abundance of locally significant plant species listed in the *Redland City Plan's* Environmental Significance Planning Scheme Policy (PSP), and identification of weed species including Weeds of National Environmental Significance and prohibited and restricted under the Queensland *Biosecurity Act 2014*. Relative abundances of weed species is mapped for the Study Area using the density categories described in "Spatial Pest Attributes Standard Queensland" (Biosecurity Queensland, 2012).

Flora searches were conducted using the random meander technique through all vegetation associations to identify locally significant, threatened and weed plant species. The random meander track log from the three days of field survey is shown in **Figure 1**. .

2.2.4 Terrestrial Fauna Assessments

The fauna survey aimed to detect the presence and / or likelihood of native species and pest species within the Study Area. The fauna surveys utilised the following methods:

> Active diurnal searches for herpetofauna were conducted in areas with suitable microhabitats using search techniques including turning woody debris, rocks and artificial debris, raking leaf litter beneath trees, and looking beneath peeling bark for reptiles or their sloughs;

> Bird survey was completed through visual encounter and aural census using a random meander survey method and included diurnal observation of hollows for utilisation. The survey had a particular focus on migratory species that may utilise the Study Area over three days;

> Spotlighting was completed over three nights, targeting areas of potential Koala and Greater Glider habitat;

> Stag watching over two nights of significant hollow-bearing limbs;

[3] https://qimagery.information.qld.gov.au/

- Opportunist searches for signs of wildlife were completed whilst moving through the Study Area. These searches aimed to locate scats, scratches, burrows, mounds, dreys and nests (Water Mouse (*Xeromys myoides*)).
- Call-play back via a megaphone broadcasting over three nights, focusing on Matters of National Environmental Significance (MNES), Matters of State Environmental Significance (MSES) and Matters of Local Environmental Significance (MLES) species including:
  - Koala (*Phascolarctos cinereus*);
  - Powerful Owl (*Ninox strenua*)
  - Squirrel Glider (*Petaurus norfolkensis*)
  - Tusked Frog (*Adelotus brevis*)
  - Wallum Froglet (*Crinia tinnula*)
  - Wallum Rocket Frog (*Litoria freycineti*); and
  - Wallum Sedgefrog (*Litoria olongburensis*).
- A total of six camera traps were deployed throughout the Site for a period of 10 days and 9 nights. All camera traps were baited with peanut butter and oats and three were also baited with sardines. The camera trap locations are illustrated in **Figure 1**.

2.2.5 Targeted Threatened Fauna Assessments

2.2.5.1 Koala

The following survey techniques were employed to detect koala activity:

- broad Koala scat searches;
- incidental diurnal survey observations;
- call playback and spotlighting; and
- potential detection via camera traps.

To provide information to aid in the delineation of koala habitat the Koala Rapid Assessment Methodology (KRAM) described by Woosnam-Merchez *et al*. (2012) was employed. The KRAM is flexible and relies on practitioners to develop their own methodology that is based on set parameters. A total of six 100 m KRAM transects were positioned in suitable vegetation with three 10x10 m plots established at randomised intervals along alternating sides of the transect as illustrated in **Plate 1**. The locations of KRAM surveys are displayed in **Figure 1**.

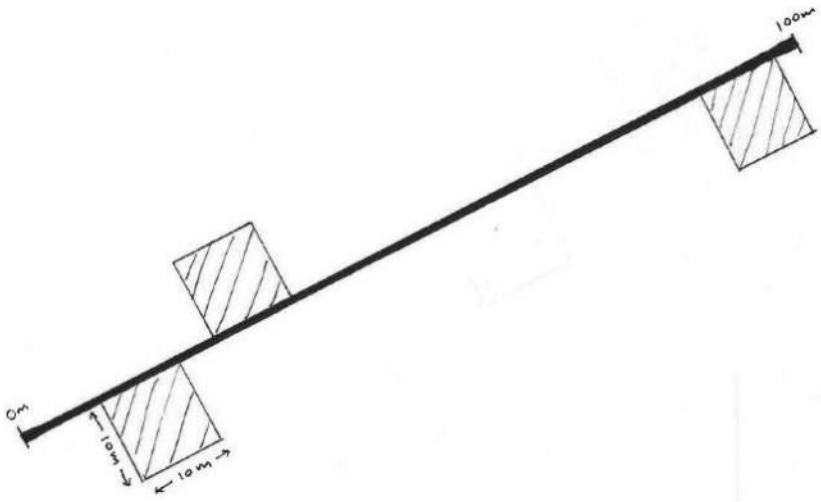

Plate 1: Typical configuration of a Koala Rapid Assessment Methodology Site

2.2.5.2 Diurnal Birds

As per the Department of Science, Information Technology and Innovation (DSITIA) Terrestrial Vertebrate Fauna Survey Guidelines for Queensland the following techniques for detection of threatened diurnal birds were completed:

- active diurnal bird survey (six rounds of 5-10 min area searches); and
- incidental detection.

2.2.6 Additional Assessments

In addition, the survey encompassed:

- Identification and mapping the extent of significant trees within the area delineated as Community Facilities Zone in the Planning Scheme.
- Assessment and mapping of permanent and ephemeral watercourses and waterbodies within the Study Area.
- Assessment of fauna movement opportunities and limitations currently present within the Study Area including assessment of current fence configuration.
- Assessment of threats to existing environmental values (e.g. pest fauna and flora).
- Several patches of Black she -oak (*Allocasuarina littoralis*) were searches for orts throughout the Study Area to confirm utilisation by Glossy Black-cockatoo (*Calyptorhynchus lathami*).

2.3 Post field analysis

2.3.1 Overview

Following field work, mapping was further analysed to derive koala habitat and to aid in providing recommendations about the Conservation Area boundary.

2.3.2 Regrowth

The Guideline for Determining category C areas (DNRME, 2019) provides the method by which a landholder can ground-truth category C / high value regrowth for their lands, while the method is focused on existing regrowth mapping, the rules are nonetheless applicable to identifying whether other unmapped areas constitute regrowth. The method identifies three key attributes of regrowth being:

- Having not been cleared in the past 15 years;
- Containing sufficient native species to be recognisable as a specific regional ecosystem; and
- Supporting sufficient cover.

Determining whether vegetation had been cleared required assessment of consecutive aerial imagery available through Q Imagery and Nearmap.

The DNRME (2019) guideline promotes the use of transects to ascertain species and cover attributes. While the approach adopted in this study did not include transects per se, a single quaternary plot, completed in accordance with the methodology described by Neldner *et al*., (2020), was conducted within the 100m transect established for the KRAM plots. The quaternary plot captures dominant canopy species, median height and an estimate of the upper canopy cover.

Pre-clearing mapping was used to identify likely regional ecosystems establishing within regrowth areas. Using pre-clearing regional ecosystems as a base and the attributes described in DNRME (2019) it was possible to determine whether an area was mappable as regrowth in accordance with **Table 2-2**.

Table 2-2 Attributes to determine regrowth vegetation for Pre-clearing regional ecosystems on the Subject Site

Cleared in past 15 years	Pre-clear regional ecosystem	Dominant species as per regional ecosystem description (as per REDD[4])	Vegetation Structure Classification (as per REDD)	Minimum Crown Cover Percentage Required (DES, 2019)
Has clearing occurred?	12.3.6	*Melaleuca quinquenervia* *Eucalyptus tereticornis* *Lophostemon suaveolens* *Corymbia intermedia*	Mid-dense	25%
	12.3.11	*Eucalyptus tereticornis* *Eucalyptus siderophloia* *Corymbia intermedia*	Mid-dense	25%
	12.5.2a	*Corymbia intermedia* *Eucalyptus tereticornis*	Mid-dense	25%
	12.5.3	*Eucalyptus racemosa subsp. racemosa*	Sparse	10%

2.3.3 Koala Habitat

The Conservation Agreement defines Koala habitat as follows:

> ***Koala habitat**: any forest or woodland areas (including remnant, regrowth and modified vegetation communities) which is suitable for the Koala to occur in and/or has been utilised or identified at the site; and contains species that are known Koala food trees, or any shrubland with emergent Koala food trees. Feed trees can include (but is not limited to) Angophora, Corymbia, Eucalyptus, Lophostemon or Melaleuca.*

The definition provided in the Conservation Agreement forms the basis of defining Koala habitat within the Study Area. Recent koala habitat mapping prepared for southeast Queensland by the State followed the method described in the *Spatial modelling for Koala in South East Queensland* (DES, 2020).

Amongst other factors, the mapping output was informed by regional ecosystem mapping including remnant (Category B) and regrowth (Category C) spatial information. Some portions of the Study Area have been mapped by the State as Koala Habitat using this method, but this is limited to remnant portions of the Study Area. This likely because there was no regrowth (Category C) mapping available for the Study Area at the time of the mapping. The DES (2020) method includes two key recommendations for future work that can are relevant to refining koala habitat mapping for the Study Area being:

- *In future modelling, apply purpose-built, high resolution, high accuracy non-remnant regrowth and scattered trees vegetation mapping, as this becomes available.*
- *Undertake field validation of the habitat mapping,*

The current study provides an opportunity to prepare and utilise “purpose-built…regrowth” mapping and to validate koala use of these areas through KRAM and scat searches.

The approach to delineate koala habitat for the Study Area therefore followed:

- accepting the State’s koala habitat mapping as accurate;
- delineating regrowth areas (as per the method described in Section 2.3.2); and
- validating koala use of regrowth areas (through methods described in Section 2.2.5.1).

[4] https://apps.des.qld.gov.au/regional-ecosystems/

The resulting mapping will capture areas falling within the definition of Koala Habitat as provided in the koala referral guidelines (Commonwealth of Australia, 2014).

2.3.4 Conservation Area

Part of the focus of this study is to "*provide recommendations for possible boundary refinement*" of the conservation area. An alternative boundary has been prepared that is informed by incorporating areas supporting Matters of National Environmental Significance including:

- Threatened ecological communities scheduled under the EPBC Act.
- Habitat for threatened species scheduled under the EPBC Act.

Of particular relevance to the delineation of habitat is the mapping outcomes for koala habitat.

2.4 Limitations

The assessment did not aim to prepare a comprehensive flora and fauna inventory for the Study Area and is limited by the duration of the study and the range of detection techniques employed. Furthermore field assessments were undertaken over three days, in autumn 2020. With respect to flora species, this is outside of the optimal timing for the detectability of some cryptic species, particularly winter and spring flowering species. Notwithstanding this, the survey methods and effort used during the survey are considered adequate for the detection of the species identified by the desktop assessment as known or likely to occur within the Study Area.

3 Results

3.1 Desktop Assessment

3.1.1 Matters of National Environmental Significance (MNES)

3.1.1.1 Defining MNES

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a legislative framework to protect and manage nationally and internationally significant flora, fauna, ecological communities and heritage places. The EBPC Act defines these as Matters of National Environmental Significance (MNES). The MNES which are applicable to the Study Area include the potential to impact upon:

- listed threatened species (flora and fauna);
- threatened ecological communities (TECs); and
- migratory species.

3.1.1.2 Threatened Species

The EPBC Protected Matters search result indicates 36 threatened species which are known or likely to occur within a 3 km radius of the Study Area. The desktop assessment identified four threatened fauna species and no threatened flora species listed under the EPBC Act which are known or likely to have suitable habitat in the Study Area based on the presence of recent records in relevant site-based studies, database searches and / or potentially suitable habitat within the Study Area. These species are listed in **Table 3-1**. A detailed summary of the findings of the desktop assessments for all threatened species identified by desktop assessment as potentially occurring in the vicinity of Study Area in attached in **Appendix D**.

Table 3-1 Summarised results of the likelihood of occurrence desktop assessment for EPBC Act listed species

Species	Common Name	EPBC Act Listing Status	Likelihood of occurrence
Birds			
Hirundapus caudacutus	White-throated needletail	Marine and migratory	Likely
Mammals			
Phascolarctos cinereus	Koala	Vulnerable	Known
Petauroides volans	Greater Glider	Vulnerable	Likely
Pteropus poliocephalus	Grey-headed flying-fox	Vulnerable	Likely

A review of the National Flying-fox monitoring viewer (DoEE, 2012) illustrates no Nationally important flying-fox camps, Grey-headed flying-fox (*Pteropus poliocephalus*) within the Study Area. Approximately 1 km from the Study at Alexandra Hills in Lawn Terrace there is a flying-fox camp (camp number 270).

3.1.1.3 Migratory Species

The only MNES migratory species considered Likely to utilise the habitats of the Study Area is the White Throated Needletail (*Hirundapus caudacutus*).

3.1.1.4 Threatened Ecological Communities

The EPBC Protected Matters search result indicates two TECs are likely to occur within the area including:

- Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland; and
- Subtropical and Temperate Coastal Saltmarsh.

A review of the Regulated Vegetation Management Map indicates two Regional Ecosystems (REs) mapped within the Study Area which directly correspond with TECs as detailed in **Table 3-2**.

Table 3-2 Regional ecosystems mapped within the Study Area that correspond with Threatened Ecological Communities

TEC	TEC status	Equivalent RE Code	Equivalent RE Description
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland (DoEE, 2018)	Endangered	12.1.1	*Casuarina glauca woodland on margins of marine clay plains*
Subtropical and Temperate Coastal Saltmarsh (DSEWPC, 2013)	Vulnerable	12.1.2	*Saltpan vegetation including grassland, herbland and sedgeland on marine clay plains*

3.1.2 Matters of State Environmental Significance (MSES)

3.1.2.1 Defining MSES

Matters of State Environmental Significance (MSES) are an element of the biodiversity state interest defined under the *State Planning Policy 2017* (SPP).

The following MSES as defined in the SPP may be relevant to the Study Area:

- Wetlands in a wetland protection area or wetlands of high ecological significance shown on the map of Queensland wetland environmental values under the *Environmental Protection Regulation 2019*
- Threatened wildlife under the *Nature Conservation Act 1992* and special least concern animals under the *Nature Conservation (Wildlife) Regulation 2006.*
- Marine plants under the *Fisheries Act 1994.*
- High risk area on the flora survey trigger as described by the *Environmental Offsets Regulation 2014.*
- Regulated vegetation under the *Vegetation Management Act 1999* that is:
  - a. category B areas on the regulated vegetation management map, that are ‘endangered’ and ‘of concern’ regional ecosystems.

3.1.2.2 Wildlife Habitat

3.1.2.2.1 Threatened flora and fauna

The southern and western areas of the Study Area are mapped within DES’s protected flora trigger mapping within the Protected Plants High Risk Trigger Area (**Appendix C**). The desktop assessment identified two threatened fauna species and no threatened flora species which are known or likely to occur in the Study Area based on recent records in relevant site-based studies, presence of nearby recent records in database searches and / or potentially suitable habitat within the Study Area. These species are listed in **Table 3-3**. A detailed summary of the findings of the desktop assessments for threatened species identified by desktop assessment as potentially occurring in the vicinity of Study Area is attached in **Appendix D**.

Table 3-3 Summarised results of the likelihood of occurrence desktop assessment for NC Act listed species

Scientific Name	Common Name	NC Act Status	Likelihood of Occurrence
Mammals			
Petauroides volans	Greater Glider	Vulnerable	Likely
Phascolarctos cinereus	Koala	Vulnerable	Known
Flora			
Melaleuca irbyana	Swamp tea-tree	Endangered	Likely

3.1.2.2.2 Koala Habitat

Under the *Nature Conservation (Koala) Conservation Plan 2017*, the Koala Conservation Plan Map shows Koala Priority Areas and Koala Habitat Areas. The main purpose of Koala Priority Areas is to strategically focus long-term management and monitoring efforts on areas that have the highest likelihood of achieving conservation outcomes for koalas. In addition, the purpose of Koala habitat areas is to avoid impacts on koala habitat to ensure the long-term persistence of koala populations in the wild. The Study Area is mapped within a Priority Koala Area and the western and southern extent is mapped as core koala habitat (**Appendix C**).

3.1.2.3 Regulated Vegetation

Queensland's Department of Natural Resources, Mines and Energy (DNRME) Vegetation Management Property Report and Regulated Vegetation Map produced has outlined the Study Area as supporting Category B (remnant) Vegetation and Category X (non-remnant) vegetation, as illustrated in **Appendix C** and **Figure 2**.

A review of the Vegetation Management Property Report identifies Regional Ecosystems (REs) occurring within the Study Area. A short description of the Regional Ecosystem Description Database (REDD), 2019, is provided in **Table 3-4** below.

Table 3-4 Regional ecosystems as described in Regional Ecosystem Description Database, 2019

RE Code	Description	VM Class	Biodiversity Status
12.1.1	*Casuarina glauca* open forest to low open woodland. Occurs on margins of Quaternary estuarine deposits. (BVG1M: 28a)	Of Concern	Of Concern
12.1.2	Saltpan vegetation comprising Sporobolus virginicus grassland and samphire herbland. Grasses including *Zoysia macrantha* subsp. *macrantha* sometimes present in upper portions of tidal flats. Includes saline or brackish sedgelands. Usually occurs on hypersaline Quaternary estuarine deposits. Marine plains/tidal flats. (BVG1M: 35b)	Least Concern	No concern at present
12.1.3	Mangrove shrubland to low closed forest. Occurs on Quaternary estuarine deposits. (BVG1M: 35a)	Least Concern	No concern at present
12.3.6	*Melaleuca quinquenervia* +/- *Eucalyptus tereticornis*, *Lophostemon suaveolens*, *Corymbia intermedia* open forest to woodland with a grassy ground layer dominated by species such as *Imperata cylindrica*. *Eucalyptus tereticornis* may be present as an emergent layer. Eucalyptus seeana may also occur in this ecosystem to the south and east of Brisbane. Occurs on Quaternary floodplains and fringing drainage lines in coastal areas. (BVG1M: 22a)	Least Concern	No concern at present
12.3.11	*Eucalyptus tereticornis* +/- *E. siderophloia* and *Corymbia intermedia* open forest to woodland. *Corymbia tessellaris*, *Lophostemon suaveolens* and *Melaleuca quinquenervia* frequently occur and often form a low tree layer. Other species present in scattered patches or low densities include *Angophora leiocarpa*, *E. exserta*, *E. grandis*, *C. trachyphloia*, *C. citriodora* subsp. *variegata*, *E. latisinensis*, *E. tindaliae*, *E. racemosa* and *Melaleuca sieberi*. *E. seeana* may be present south of Landsborough and Livistona decora may occur in scattered patches or low densities in the Glenbar SF and Wongi SF areas. Occurs on Quaternary alluvial plains and drainage lines along coastal lowlands. Rainfall usually exceeds 1000mm/y. (BVG1M: 16c)	Of Concern	Of Concern
12.5.3	*Eucalyptus racemosa* subsp. *racemosa* woodland with *Corymbia intermedia*, *E. siderophloia* +/- *E. tindaliae*, *E. resinifera*, *E. pilularis*, *E. microcorys*, *Angophora leiocarpa*. *Melaleuca quinquenervia* is often a prominent feature of lower slopes. Minor patches (<1ha) dominated by Corymbia citriodora subsp. variegata sometimes occur. Occurs on complex of remnant Tertiary surfaces +/- Cainozoic and Mesozoic sediments. (BVG1M: 9g)	Endangered	Endangered

3.1.2.4 High ecological Significance Wetlands

The *Environmental Protection (Water and Wetland Biodiversity) Policy 2019*, details the environmental values for wetlands that are assessed to assign environmental significance to wetlands including:

- the health of the wetland's ecosystems;
- the wetland's natural state and biological integrity;
- the presence of distinct or unique features, endemic plants or animals and their habitats, including threatened wildlife and near threatened wildlife under the NC Act;
- the wetland's natural hydrological cycle; and
- the natural interaction of the wetland with other ecosystems, including other wetlands.

The Queensland Wetland Environmental Values Map shows portions of the Site adjoining Tingalpa Creek are mapped as Wetlands of high ecological significance (**Appendix C**).

3.1.3 MLES

3.1.3.1 Planning scheme

Under the *Redland City Plan* the Study Area is mapped within the Community Facilities and Conservation Zone (refer to zone map in **Appendix C**). In accordance with the Community Facilities Zone Code –

1. *The purpose of the community facilities zone code is to provide for community related activities and facilities that meet the needs of the existing and future users.*
2. *The purpose of the code will be achieved through the following overall outcomes:*

   …

   a. *other supporting or complementary uses may occur where they are compatible with and subordinate to the primary community related activity, and do not compromise the intended role or successful functioning of centres;*
   b. *community related activities are protected from the intrusion of incompatible activities that may constrain or conflict with their ongoing operation;*
   c. *is of a height and scale that allows for the community related activity for which the land is intended while minimising impacts on the locality;*
   d. *development makes a positive contribution to the Redland city image by incorporating a high quality of built form and landscape design; and*
   e. *development is located, designed and managed to maintain public health and safety, and minimise adverse impacts on the natural environment and sensitive land uses.*

In accordance with the Conservation Zone Code –

1. *The purpose of the conservation zone code is to provide for the protection of land which supports significant biological diversity and ecological functions.*
2. *The purpose of the code will be achieved through the following overall outcomes:*

   …

   a. *the landscape qualities, environmental values and ecological functions of land within this zone are maintained or enhanced;*
   b. *development is small in scale and limited to management and conservation activities, or nature-based education, tourism and recreation;*
   c. *reconfiguration avoids further fragmentation of land;*
   d. *development is compatible with flooding and storm tide hazards or other drainage constraints affecting the land; and*
   e. *development minimises adverse impacts on scenic and natural values of land within the conservation zone.*

The location of the Community Facilities Zone generally corresponds with Conservation Area boundary referenced in the Conservation Agreement. It is noted that there are discrepancies between the zone and the Conservation area as illustrated in in Council's Site of Interest Plan (**Appendix E**).

For the purpose of any future development applications pertaining to the Study Area it is noted that the Environmental significance overlay and Waterway corridors and wetlands overlay must also be considered.

3.1.3.2 Koala Habitat

Redlands City Council's Koala Habitat layer indicates the Study Area is mapped as containing RE Remnant Koala Habitat and RE Regrowth Koala Habitat (**Appendix C**). The remnant koala habitat map generally corresponds with DNRME's mapped remnant regional ecosystem with a level of discrepancies in the extent of mapped remnant vegetation (i.e. RCC Koala Habitat indicates a greater extent of remnant vegetation). The regrowth koala habitat generally corresponds with the regrowth vegetation identified as part of this study and represented by the suggested Conservation Area Boundary shown in **Figure 6**.

3.1.3.3 Relevant local studies

Table 3-5 summarises the findings of the review of local studies.

Table 3-5 Review of relevant local studies

Document	Author	Overview	Relevance to current study
Lower Tingalpa and Coolnwynpin Creek Catchment Map	Redland City Council	The map shows the suburb of Birkdale is located within northern reaches of the catchment with Tingalpa Creek forming the western extent of the catchment.	No specific relevance to the current study.
Living on the Edge: along Tingalpa Creek a history of upper Tingalpa, Capalaba and Thorneside	Mary Howells (2001)	A thesis submitted for the Master of Philosophy (University of Queensland), a study of the changing nature of land use over time and the evolution of the region and community. The study provides an overview of the character of the region and includes historical interviews from the period of the World War II (WWII). The study describes the WWII radio station which was installed on Willard's old property which is located in the eastern extent of the Study Area.	No specific relevance to the current study.
The Pines/Willard's Farm	Redland City Council	The heritage card for the Pines/Willard's Farm, documents the local heritage listing of the residence. Built in 1876 the Willard family worked a dairy at the residence until the mid-1920s. The United States Army established a communication base at the property during WWII. The Pines/Willard's Farm is located on Lot 2 on RP211270 at 302 Old Cleveland Road and forms part of the eastern portion of the Study Area. The listing describes the aesthetic significance of the farm in its tall Norfolk Pines and Bunya Pines that are prominent in the landscape.	No specific relevance to the current study. It is noted that two Bunya Pines are located on the eastern edge of the Study Area fronting Old Cleveland Road East, but these are not readily seen in aerial imagery until the 1970s (i.e. they are likely to be comparatively young trees).

Document	Author	Overview	Relevance to current study
Environmental Investigation – Land in Birkdale, Capalaba, Queensland	ERM (2018)	The environmental investigation of the Study Area details constraints and opportunities relating to MNES. The environmental investigation of the Study Area confirms the MNES within the Study Area includes Subtropical and Temperate Coastal Saltmarsh TEC and the listed threatened species, the Koala and koala habitat. Further the investigation presents potential environmental, heritage and contamination risk that may be relevant for future use of the Study Area.	Provides baseline data for the current study in that it confirms the presence of the Subtropical and Temperate Coastal Saltmarsh TEC and the listed threatened species and the Koala.
Conservation Zone Boundary (Drawing no: 0488830b_G008_RO	ERM (2019)	The plan indicates the Study Area and the Conservation Area Boundary.	The Conservation Area Boundary is relevant to the Study Area as this is the area referenced in the Conservation Agreement applicable to Council's management requirements reflected in the EMP (attached in **Appendix B** of this report).
Heritage Assessment for the Australian Communications and Media Authority Facility, Birkdale/Capalaba Received Stations	Jacobs (2016)	The assessment for the Australian Communications and Media Authority highlights the heritage significance of the Capalaba receiving station located on the Study Area. The heritage assessment concluded that heritage values of the Study Area do not meet the threshold for National Heritage Listing.	No specific relevance to the current study.
Cultural Heritage Study Qld Cleveland Road, Birkdale Qld	Everick Heritage Consultants (2018)	The assessment details the cultural heritage significance of the Study Area and provides ongoing cultural heritage management for the land for any potential future activities.	No specific relevance to the current study.
Redland Coast Koala Population Assessment Project	University of the Sunshine Coast and Detection Dogs for Conservation (2018)	This project used koala scat surveys paired with next-generation genotyping to understand current Redlands Coast koala population characteristics that can inform efficient and effective management.	The survey incorporated the Study Area which indicated koala sighting and koala scats were present. Further, five individual genotyped koala scats were present within the Study Area. Chlamydia and chlamydia load under threshold scats were detected within the scats within the Study Area.

3.2 Field Assessment Results

3.2.1 Vegetation Communities

3.2.1.1 Remnant and regrowth

The field work did not aim to scrutinise the accuracy of regional ecosystem codes for the Study Area, it is however noted they generally correct accord with those presented in **Table 3-4**. Subject to further scrutiny it is likely that:

- some areas mapped in land zone 3 would be more appropriately placed in land zone 5, particularly in the northern and elevated portions of the southwest corner of the Study Area. Land zone descriptions are provided in **Table 3-6**;
- if these area were accepted as land zone 5 then some parts would be more accurately mapped as RE 12.5.7 "*Corymbia citriodora* subsp. *variegata* +/- *Eucalyptus portuensis* or *E. acmenoides*, *E. fibrosa* subsp. *fibrosa*" owing to the presence of species found in this RE such as *Corymbia citriodora* subsp. *variegata* and *Eucalyptus moluccana*;
- splitting of the heterogeneous polygons into their composite parts, if all are present, could occur; and
- some minor adjustments were undertaken to linework of the Queensland Herbarium's remnant mapping where there were clear errors such as the divide between 12.3.11/12.3.6 and 12.1.1 along Tingalpa Creek.

The assessment also provided an opportunity to identify areas of regrowth and afford regional ecosystem codes to these based on pre-clearing mapping. The pre-clearing code types were accepted fully with the exception of the subdominant code of 12.3.6 in the northeast of the Study Area. Aerial photographic review revealed that areas mapped as regrowth had not been cleared for 15 years.

Table 3-7 provides a description of the vegetation communities within the Study Area that are mapped in **Figure 3**.

Table 3-6 Land zones within the Study Area

Land zone	General term	Description
1	Tidal flats and beaches	Quaternary estuarine and marine deposits subject to periodic inundation by marine waters. Includes mangroves, saltpans, off-shore tidal flats and tidal beaches. Soils are predominantly Hydrosols (saline muds, clays and sands) or beach sand.
3	Alluvial river and creek flats	Recent Quaternary alluvial systems, including closed depressions, paleo-estuarine deposits currently under freshwater influence, inland lakes and associated wave built lunettes. Excludes colluvial deposits such as talus slopes and pediments. Includes a diverse range of soils, predominantly Vertosols and Sodosols; also with Dermosols, Kurosols, Chromosols, Kandosols, Tenosols, Rudosols and Hydrosols; and Organosols in high rainfall areas.
5	Old loamy and sandy plains	Tertiary-early Quaternary extensive, uniform near level or gently undulating plains with sandy or loamy soils. Includes dissected remnants of these surfaces. Also includes plains with sandy or loamy soils of uncertain origin, and plateau remnants with moderate to deep soils usually overlying duricrust. Excludes recent Quaternary alluvial systems (land zone 3), exposed duricrust (land zone 7), and soils derived from underlying bedrock (land zones 8 to 12). Soils are usually Tenosols and Kandosols, also minor deep sandy surfaced Sodosols and Chromosols. There may be a duricrust at depth.

Table 3-7 Vegetation Communities within the Study Area

Status	RE Code	On -ground Description	TEC equivalent
Remnant only	12.1.1	Swamp Oak (*Casuarina glauca*) woodlands were located within the Study Area associated with the riparian area adjoining Tingalpa Creek and associated alluvial plains (**Plate 2**).	Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland
Remnant only	12.1.2	Saltpan vegetation characterised by Marine Couch (*Sporobolus virginicus*) were present in the saline and estuarine deposits associated with the watercourse (**Plate 3**).	Subtropical and Temperate Coastal Saltmarsh
Remnant only	12.1.3	Mangrove shrublands were located within the tidally inundated portion of the Study Area and were characterised by Grey Mangrove (*Avicennia marina*), River Mangrove (*Aegiceras corniculatum*) with Milky Mangrove (*Excoecaria agallocha*) also present (**Plate 4**).	n/a

Status	RE Code	On -ground Description	TEC equivalent
Remnant & Regrowth areas	12.3.11/12.3.6	The predominant remnant vegetation community was characterised by Forest Red Gum (*Eucalyptus tereticornis*) and Northern Grey Ironbark (*Eucalyptus siderophloia*) Open Forest with Scribbly Gum (*Eucalyptus racemosa*), Pink Bloodwood (*Corymbia intermedia*) and Rusty Gum (*Angophora leiocarpa*) (**Plate 5**).	n/a
Remnant only	12.5.3	The southern extent of the Study Area and was dominated by a Scribbly Gum (*Eucalyptus racemosa*) woodland with Pink Bloodwood (*Corymbia intermedia*) and Northern Grey Ironbark (*Eucalyptus siderophloia*) also present.	n/a
Regrowth only	12.5.2a/12.5.3 and 12.5.3/12.5.2a	A significant expanse of regrowth was located in the eastern portion of the Study Area and was dominated by species including Scribbly Gum, (*Eucalyptus racemosa*) and Pink Bloodwood (*Corymbia intermedia*).	n/a
Cleared	NA	The unvegetated areas within the Study Area were characterised by slashed grasslands that has been subject to historic clearing.	n/a

3.2.1.2 Threatened Ecological Communities

Areas of TECs were also delineated in **Figure 3**. Only areas that met with the description and condition classes of the community were mapped. For example, some areas of saltpan vegetation are present, but are too small to be mapped as part of the TEC. Where present the Subtropical and Temperate Coastal Saltmarsh TEC is in excellent condition, however some evidence of vehicle access was evident on site and in aerial imagery (**Plate 6**), that if continued would likely result in significant damage to the TEC. Similarly, the Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland TEC is in good condition, although is affected by weeds in some locations such as Broadleaf Pepper Tree (*Schinus terebinthifolius*), Live Leaf (*Bryophyllum pinnatum*) and the Weed of National Environmental Significance *Opuntia stricta* (**Plate 7**).



Plate 2: Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland TEC



Plate 3: Subtropical and Temperate Coastal Saltmarsh TEC



Plate 4: RE 12.1.3 on Tingalpa Creek



Plate 5: RE 12.3.11 within a heterogeneous polygon of 12.3.11/12.3.6.



Plate 6: Evidence of vehicle access across the TEC (June 2018 Nearmap aerial)



Plate 7: *Opuntia stricta* in the Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland TEC

3.2.2 Flora

During the field assessment, 219 flora species, including 73 non-native species were recorded. Some examples of native species present in the Study area are illustrated in **Plates 8 - 11**.

All native species detected are listed as species of significance under the *Nature Conservation (Wildlife) Regulation 2006*, the EPBC Act or under Council's *Environmental Significance Planning Scheme Policy*. A complete list of native and exotic flora species detected during the field assessment is provided as **Appendix F**.



Plate 8: Foam bark (*Jagera pseudorhus*)



Plate 9: *Polymeria calycina*



Plate 10: Love flower (*Pseuderanthemum variabile*)



Plate 11: *Solanum stelligerum*

3.2.3 Fauna

3.2.3.1 Overview

A total of 38 fauna species were recorded during the field assessment. This included 23 bird species (e.g. Lewin's Honeyeater, **Plate 12**), 11 mammal species (e.g. Koala, **Plate 13**) and 3 reptile species and 1 amphibian. A full list of fauna species detected during the field assessment is provided as **Appendix G**. The use of camera traps results in the identification of a number of native and exotic species as presented in **Table 3-8** lists the species recorded in individual camera traps during the course of the study.

Table 3-8 Camera trap records

Scientific name	Common Name	Camera					
		8	11	17	23	34	35
*Vulpes vulpes**	Fox		Y		Y		
*Rattus rattus**	Black rat		Y^	Y^			Y
Trichosurus vulpecula	Brushtail possum		Y	Y	Y	Y	Y
Corvus orru	Torresian crow						Y
Macropus rufogriseus	Red-necked wallaby (**Plate 14**)			Y^			
Tachyglossus aculeatus	Echidna (**Plate 15**)				Y		

Scientific name	Common Name	Camera					
		8	11	17	23	34	35
Wallabia bicolor	Swamp wallaby		Y		Y	Y	
Cracticus torquatus	Grey butcherbird		Y				
*Mus musculus**	House mouse		Y^				
Cracticus tibicen	Magpie					Y	
Macropus giganteus	Eastern grey Kangaroo					Y^	
Geopelia humeralis	Bar-shouldered dove						Y
Total species recorded		0	6	3	4	4	4
NOTE: *= exotic species, ^=ID probable, not conclusive from image/s captured							

Figure 4 shows the location of several wildlife features.



Plate 12: Lewin's Rail



Plate 13: Koala (note this individual was showing symptoms of a Chlamydia infection)



Plate 14: Red-necked wallaby



Plate 15: Echidna

With the exception of the koala, no species scheduled as threatened wildlife under the *Nature Conservation (Wildlife) Regulation 2006* or the EPBC Act were recorded. No fauna species identified within the Study Area are listed as locally significant under Council's Environmental Significance Planning Scheme Policy.

3.2.3.2 Koala

Individual koalas were observed during the site inspection (**Plate 13**) and during an orientation visit in April 2020. An individual koala was also recorded during the ERM (2018) investigation. The KRAM surveys revealed koala activity throughout regrowth vegetation (**Table 3-9**) and searches outside of KRAM plots in both regrowth and remnant also revealed scats as shown in **Figure 4**.

Table 3-9 Summary of KRAM survey results

KRAM Survey	Koala trees present	Scats
1	8	Present
2	20	Present
3	36	Absent
4	11	Absent
5	11	Present
6	17	Present

Figure 4 also shows koala habitat mapping delineated using the approach outlined in Section 2.3.3.

3.2.4 Fauna Habitat

The Study Area supports numerous habitat features, including hollow bearing trees, stag trees, burrows, nests, arboreal termitaria and logs. The location of the habitat features opportunistically recorded during the field assessment within the Study Area is provided on **Figure 4**.

It is noted that a single hollow bearing tree is located within the Community Facilities Zone. Also present within this zone are observations of Koala scats, three arboreal termitaria, two hollow logs and a stag. Habitat features across the balance of the Study Area (i.e. located within the Council's Conservation Zone) were broadly clustered within remnant vegetation and within proximity to Tingalpa Creek. Hollow-bearing trees within the Study Area provide suitable habitat for hollow-dependent birds, arboreal mammals and microbats. There were a range of different hollows present throughout the site, suitable for a range of wildlife including "chimney" hollows suitable for microbats. Arboreal termitaria within the Study Area provide potential habitat for nesting birds such as kingfishers and parrots as well as arboreal mammals such as possums. An Australian Bush Turkey Nest (*Alectura lathami*) was recorded within the southern extent of the Study Area adjoining Tingalpa Creek.

Notably, the vegetation within the Study Area is characterised by large connected patches of koala habitat trees, including trees of the *Corymbia*, *Melaleuca, Lophostemon* and *Eucalyptus* general and shelter trees including the *Angophora* genus (QG, 2017). A review of the koala habitat illustrates the Study Area supports significant koala habitat connected to Tingalpa Creek and large bushland areas (**Figure 4**). The cleared areas located centrally within the Study Area whilst not considered koala habitat, may provide for Koala movement between vegetated areas.

The Study Area forms part of the lower Tingalpa and Coolnwynpin Creek Catchment. Tingalpa Creek and Coolwiypin Creek confluence approximately 650 m to the south of the Study Area and both creek catchments link with the broader network of conservation reserves and Protected Areas including the Capalaba Regional Park, Coonwynpin Creek Corridor Nature Refuge, Greater Glider Conservation Area, Brisbane Koala Bushlands, Daisy Hill Conservation Park and Venman Bushland National Park. The vegetated areas of the Study Area are part of a significant ecological corridor which supports fauna movement opportunities for Koalas and other native species. Further, the Study Area and surrounding landscape is located within a Biodiversity Planning Assessment riparian corridor which extends Burbank through Capalaba, Chandler, Birkdale, Ransome and Thorneside. The riparian corridor at Burbank connections with the broader Biodiversity Planning Assessment terrestrial corridor which links with Moreton Bay at Redlands. As such the Study Area is considered significant within the context of the regional state level riparian corridor. This corridor is orientated along Tingalpa Creek with connections to the north, south and west, however connections to the east are severed by Old Cleveland Road East.

3.2.5 Waterways and Wetlands

The Study Area adjoins Tingalpa Creek which from the northern section of the Lower Tingalpa and Coolnwynpin Creek Catchment (**Plate 4**). Two drainage lines are present within the Study Area as illustrated in **Figure 4**. Tingalpa Creek is a tidally influenced estuarine system, the riparian banks are characterised by mangroves and other marine flora species. Mangroves present include Grey Mangrove (*Avicennia marina*), River Mangrove (*Aegiceras corniculatum*) and Milky Mangrove (*Excoecaria agallocha*). The tidal wetland within the Study Area supports coastal Saltmarsh and Swamp Oak TECs. The adjoining Tingalpa Creek and wetland within the Study Area have significant ecological values and provide habitat for Koala and other native species and TECs.

Tingalpa Creek outflows into Moreton Bay approximately 4 km north of the Study Area. Moreton Bay is a designated Ramsar site under the Ramsar Convention as Wetlands of International Importance.

3.2.6 Pest and Weeds

A total of 73 exotic flora species were recorded within the Study Area (**Appendix F**), of these species 11 are listed as Category 3 – Restricted invasive pest plants under the *Biosecurity Act 2014* and five are also listed as Weeds of National Significance (WoNS). The following are those listed exotic flora species listed as Category 3 Restricted invasive pest plants under the *Biosecurity Act 2014.* The annotation "^" indicates that the species is also a WONS.

- Basket asparagus (*Asparagus aethiopicus*)^
- Climbing asparagus (*Asparagus plumosus*)^
- Lantana (*Lantana camara*)^
- Fireweed (*Senecio madagascariensis*)^
- Prickly Pear (*Opuntia stricta*)^ (**Plate 7**)
- Camphor Laurel (*Cinnamomum camphora*)
- Creeping lantana (*Lantana montevidensis*)
- Groundsel (*Baccharis halimifolia*)
- Pepper tree (*Schinus terebinthifolius*)
- Mother-of-millions (*Bryophyllum delagoense*)
- Giant rat's tail grass (*Sporobolus pyramidalis*)
- Creeping lantana (*Lantana montevidensis*)

Weeds declared under the *Biosecurity Act 2014* were encountered throughout the Site as shown on **Figure 5**. Owing to how extensive both of these weeds are throughout the entire northern portion of the site mapping of every individual occurrence was not completed. In accordance with the Queensland Department of Fisheries and Agricultural 'Spatial Pest Attributes Standard Queensland' (DAF, 2012) infestations of these species are estimated as 'Moderate' to 'High' within the northern portion of the Study Area.

A European Red Fox (*Vulpes vulpes*) (**Plate 16**) was captured as part of trapping survey. The European Red Fox is a Category 3, 4, 5 and 6 restricted matter under the *Biosecurity Act 2014*.

The *Biosecurity Act 2014* imposes a general biosecurity obligation on persons dealing with biosecurity matter to prevent and/or minimise the impact of biosecurity risks on human health, social amenity, the economy and the environment. A general biosecurity obligation requires that all reasonable and practical measures are taken to prevent or minimise biosecurity risk, and that actions are taken to prevent exacerbation of the adverse effects of biosecurity matter. With respect to these points the *Biosecurity Act 2014* specifically notes that the requirement to manage the impact of invasive plants and animals on a person's land.



Plate 16: European Red Fox

4 Recommendations

4.1 Conservation Area Boundary

Figure 6 presents the suggested Conservation Area Boundary. The boundary incorporates areas supporting MNES including TECs and mapped koala habitat. The suggested area is overlaid on the Conservation Zone of the planning scheme for the purposes of comparison. Where the Conservation Zone is wider, it is likely to capture values of relevance in the local government area.

The edge of the area is complicated and could be refined to assist with future site planning. The resulting 'smoothed' edge will result in pockets of unwooded areas that will require revegetation.

4.2 Management of Ecological Values

The Environmental Management Plan (**Appendix B**) prepared for the Study Area focuses on MNES. While the measures recommended in the plan will aid in managing MSES and MLES, other targeted actions can assist in protecting, maintaining and enhancing ecological values. These include:

- Control of exotic plants and animals. With regard to exotic plants some provide habitat for native wildlife species. For example, existing exotic grasses and *Lantana camara* provide habitat value for a range of native species and as such their removal must be staged and carefully planned.
- Controlling unrestricted pedestrian access to the areas along Tingalpa Creek via the southeast corner of the Study Area. Pedestrians have brought waste onto site and have caused degradation to vegetation and erosion in some locations. General waste was observed along the boundary with Tingalpa Creek, however not in stockpile locations or significant hard rubbish such as car bodies.
- Plan for bushfire by taking into consideration appropriate ecological burns as described in the Regional Ecosystem Description Database.
- Undertake ecological restoration of retained vegetation in accordance with the SEQ Ecological Restoration Framework (Cardno Chenoweth, 2012). Review of aerial imagery and on ground assessment of vegetation indicates that much of the Study Area including most areas within the Community Facilities Zone are displaying signs of natural regeneration and as such efforts should focus on assisted natural regeneration as promoted in the Framework.

4.3 Further Studies

The current study provides an overview of ecological values within the Study Area and primarily focusses on MNES. More detailed investigations are likely to reveal significantly more information regarding the ecological values of the Study Area and information to aid in its management. Further investigations would ideally include:

- The current study identified potential errors in the regional ecosystem mapping. Further investigations are likely to reveal:
    - A change in regional ecosystem framework land zone boundaries.
    - Additional regional ecosystems not presently mapped.
    - Refinement of heterogeneous polygons.
    - Potential elevation of some areas within the suggested Conservation Area currently not mapped in the regulated vegetation mapping to a remnant status.
- Detailed fauna assessment. More comprehensive investigations involving Elliot / cage / hair tube / pitfall / funnel trapping; extra deployment of camera traps; bat detection (e.g. ultrasonic detection; harp trapping); and studies that extend for longer than the current investigation, are likely to reveal a greater diversity of wildlife. Furthermore, investigations of the Study Area's invertebrates may provide useful information to aid in site management. During the course of the current study numerous butterfly and moth species were observed. In addition to individual species their host plants are also present in the Study Area – see **Plates 17 - 20**.



Plate 17: The Glasswing Butterfly (*Acraea andromacha*)



Plate 18: The Glasswing larvae on a host plant, the exotic *Passiflora suberosa*



Plate 19: A mating pair of Joseph's Coat Moth (*Agarista agricola*)



Plate 20: A host plant of the Joseph's Coat Moth, the vine *Clematicissus opaca*

> Ecological values are reflected within the suggested Conservation Area Boundary, however it should be noted, vegetation within the Community facilities zone is dominated by open grassland. Ecological values in this area should be addressed when further uses are considered for the area. Ecological assessment of this area would ideally be conducted to inform design of future uses and environmentally sensitive planning. This may include consideration of the importance of individual trees and the role open grassland plays in supporting local populations of macropods.

5 References

Cardno Chenoweth (2012) SEQ Ecological Restoration Framework. Prepared on behalf of SEQ Catchments.

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

DAF (2020) *National Red Imported Fire Ant Eradication Program: Fire ant biosecurity zones*, Department of Agriculture and Fisheries, Brisbane.

DoEE (2018) *Conservation Advice (incorporating listing advice) for the Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community* (online) http://www.environment.gov.au/biodiversity/threatened/communities/pubs/141-conservation-advice.pdf Department of the Environment and Energy, Canberra.

DoEE (2019) *Conservation Agreement for the protection and conservation of biodiversity values on land at Lot 1 on RP14143, Lot 2 on RP14144 and Lot 2 pm SP146445, also known as 362-388 Old Cleveland Road, Birkdale, Queensland*, Department of the Environment and Energy, Canberra.

DES (2020) *Spatial modelling for koalas in South East Queensland*, Version 1.0, Queensland Herbarium, Department of Environment and Science, Brisbane.

DNRME (2019) *Guideline for determining category C areas* (online) https://www.dnrme.qld.gov.au/__data/assets/pdf_file/0004/1463431/category-c-guideline.pdf Department of Natural Resources Mines and Energy, Brisbane.

DSEWPC (2013) *Conservation Advice - Subtropical and Temperate Coastal Saltmarsh* (online) http://www.environment.gov.au/biodiversity/threatened/communities/pubs/118-conservation-advice.pdf, Department of Sustainability, Environment, Water, Population and Communities, Canberra.

DSITIA (2012) *Land Zones of Queensland*, (online) https://environment.des.qld.gov.au/?a=89669 Department of Science, Information Technology, Innovation and the Arts, Brisbane.

ERM (2019) *Conservation Zone Boundary Plan*, Drawing No: 0488830b_ACMA_G008_RO, dated 10/10/2019

ERM (2018) *Environmental Investigation - Land in Birkdale Capalaba*, Queensland, For: Australian Communications and Media Authority.

Everick Heritage Consultants (2018) *Cultural Heritage Study Qld Cleveland Road, Birkdale Qld*.

Howells, M. (2001) *Living on the Edge: along Tingalpa Creek a history of Upper Tingalpa, Capalaba and Thorneside*, A thesis submitted for the Mast of Philosophy, University of Queensland.

Jacobs (2016) *Heritage Assessment for the Australian Communications and Media Authority Facility, Birkdale/Capalaba Received Stations*. Queensland.

Neldner, V.J., Wilson, B.A., Dillewaard, H.A., Ryan, T.S., Butler, D.W., McDonald, W.J.F, Addicott, E.P. and Appelman, C.N. (2020) *Methodology for survey and mapping of regional ecosystems and vegetation communities in Queensland*. Version 5.1. Updated March 2020. Queensland Herbarium, Queensland Department of Environment and Science, Brisbane.

RCC *Heritage Card 48 – Birkdale: The Pines/Willard's Farm*, Redland City Council.

University of the Sunshine Coast and Detection Dogs for Conservation (2018) *Final Report: Redland Coast Koala Population Assessment Project*, Prepared for Redland City Council.

Woosnam-Merchez, O., Romane Cristescu, D.D., Ellis, B., Beeton, R.J.S., Simmonds, J. & Carrick, F. (2012) *What faecal pellet surveys can and can't reveal about the ecology of koalas Phascolarctos cinereus*. Australian Zoologist, 36(2), 192-200.

FIGURES

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Figure 2 – Vegetation
Figure 3 – Koala Habitat
Figure 4 – Threatened Ecological Communities
Figure 5 – EVNT and Fauna Habitat
Figure 6 – Weeds and Pests
Figure 7 - Suggested Conservation Zone Boundary

Study Area and Survey Techniques

BIRKDALE ECOLOGICAL ASSESSMENT

Redland CITY COUNCIL

Legend

- Survey Boundary
- Camera Traps
- Quaternary Assessment
- KRAM
- Track-log
- Watercourse (DNRME, 2020)
- Conservation Zone
- Community Facilities Zone
- Cadastre (QSpatial, 2018)

FIGURE 1

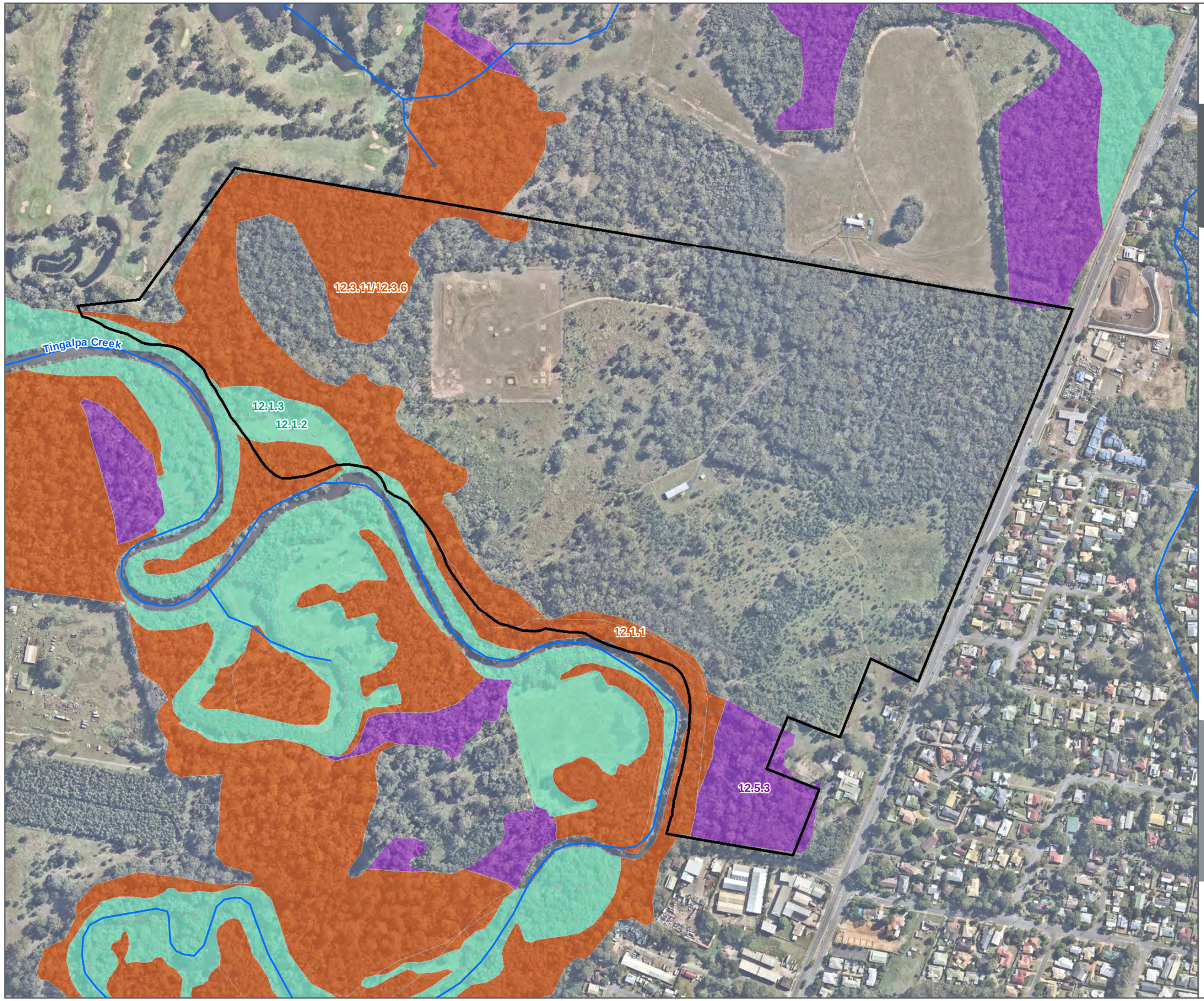
1:5,000 Scale at A3

m
0 50 100 150 200

N

Cardno

Map Produced by Cardno NSW/ACT (WOL)
Date: 2020-05-01 | Project: AWE200221
Coordinate System: GDA 1994 MGA Zone 56
Map: AWE200221-GS-001-StudyArea.mxd 01
Aerial Imagery supplied by Nearmap (March, 2020)



Redland CITY COUNCIL

Regional Ecosystems

BIRKDALE ECOLOGICAL ASSESSMENT

Legend

- Survey Boundary
- Watercourse (DNRME, 2020)
- Category A or B area containing endangered regional ecosystems (DNRME, 2020)
- Category A or B area containing of concern regional ecosystems (DNRME, 2020)
- Category A or B area that is least concern regional ecosystems (DNRME, 2020)

FIGURE 2

1:5,000 Scale at A3

m
0 50 100 150 200

N

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Map Produced by Cardno NSW/ACT (WOL)
Date: 2020-05-01 | Project: AWE200221
Coordinate System: GDA 1994 MGA Zone 56
Map: AWE200221-GS-002-RegionalEcosystems.mxd 01
Aerial Imagery supplied by Nearmap (March, 2020)

Vegetation

BIRKDALE ECOLOGICAL ASSESSMENT

Legend

- Survey Boundary
- Quaternary Assessment
- Watercourse (DNRME, 2020)

Ground-truthed Vegetation

- Regrowth
- Remnant

Threatened Ecological Communities

- Coastal Swamp Oak *(Casuarina glauca)* Forest of New South Wales and South East Queensland ecological community
- Subtropical and Temperate Coastal Saltmarsh

FIGURE 3

1:5,000 Scale at A3

m
0 50 100 150 200

Map Produced by Cardno NSW/ACT (WOL)
Date: 2020-05-01 | Project: AWE200221
Coordinate System: GDA 1994 MGA Zone 56
Map: AWE200221-GS-003-Vegetation.mxd 01
Aerial Imagery supplied by Nearmap (March, 2020)

EVNT and Fauna Habitat

BIRKDALE ECOLOGICAL ASSESSMENT

UHLMAN ROAD
OLD CLEVELAND ROAD EAST
Tingalpa Creek
BAILEY ROAD
NOTTINGHILL STREET
HAMPTON COURT
GOODGE COURT
SURMAN STREET WEST
VALANTINE ROAD
JENNIFER STREET
DALE STREET
JONES ROAD
DAVESON ROAD
TORONTO ROAD

Legend

- Survey Boundary
- Drainage Line
- Watercourse (DNRME, 2020)
- Koala Habitat

EVNT (Koala)

- Scat
- Sighting

Habitat Features

- Stag
- Burrow
- Hollow log
- Brush turkey nest
- Arboreal termitaria
- Hollow-bearing Tree

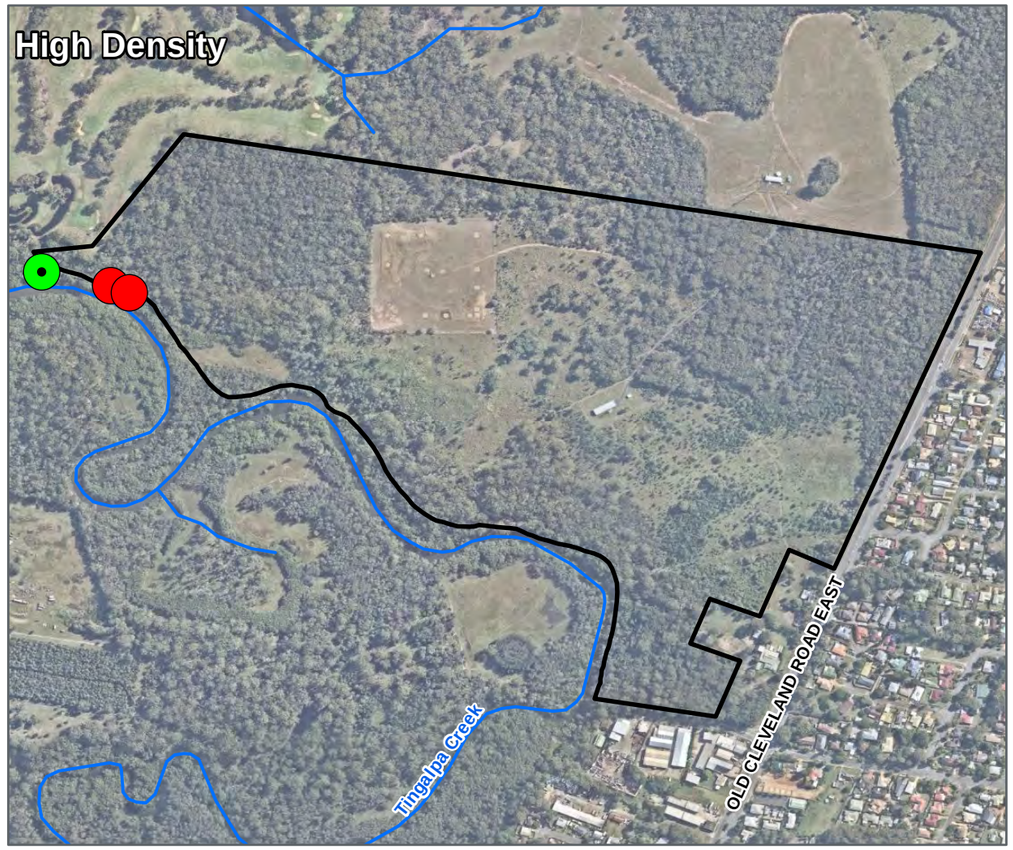
FIGURE 4

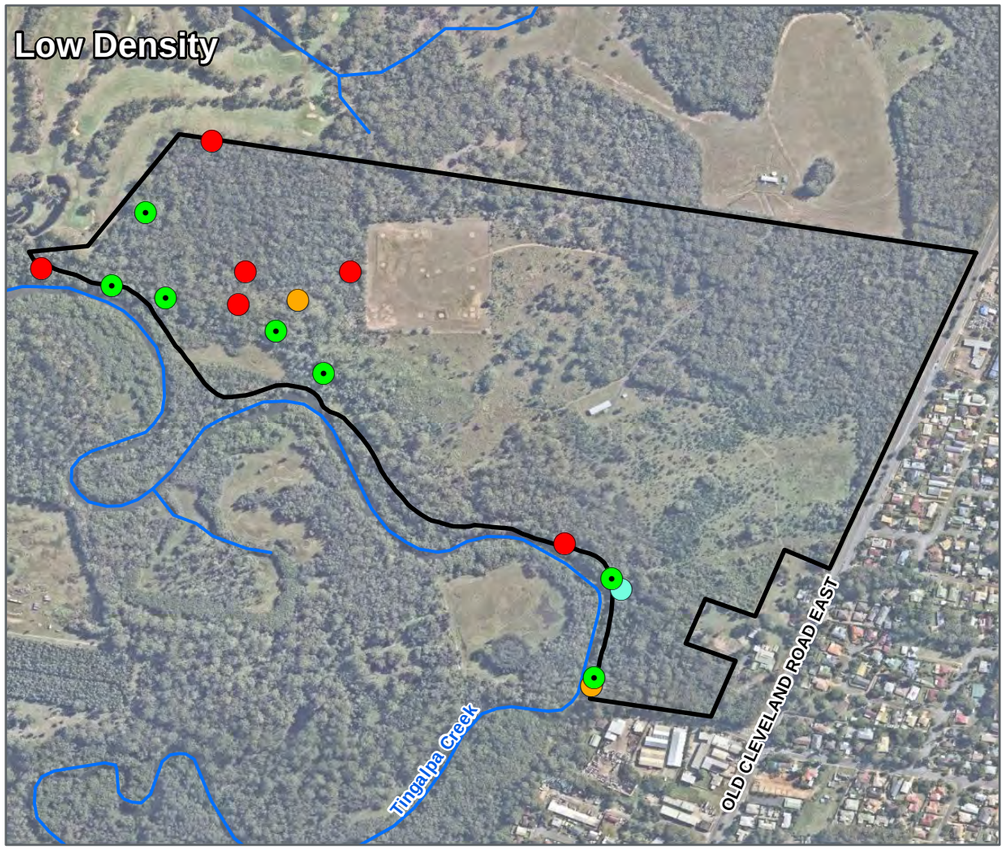
1:5,000 Scale at A3

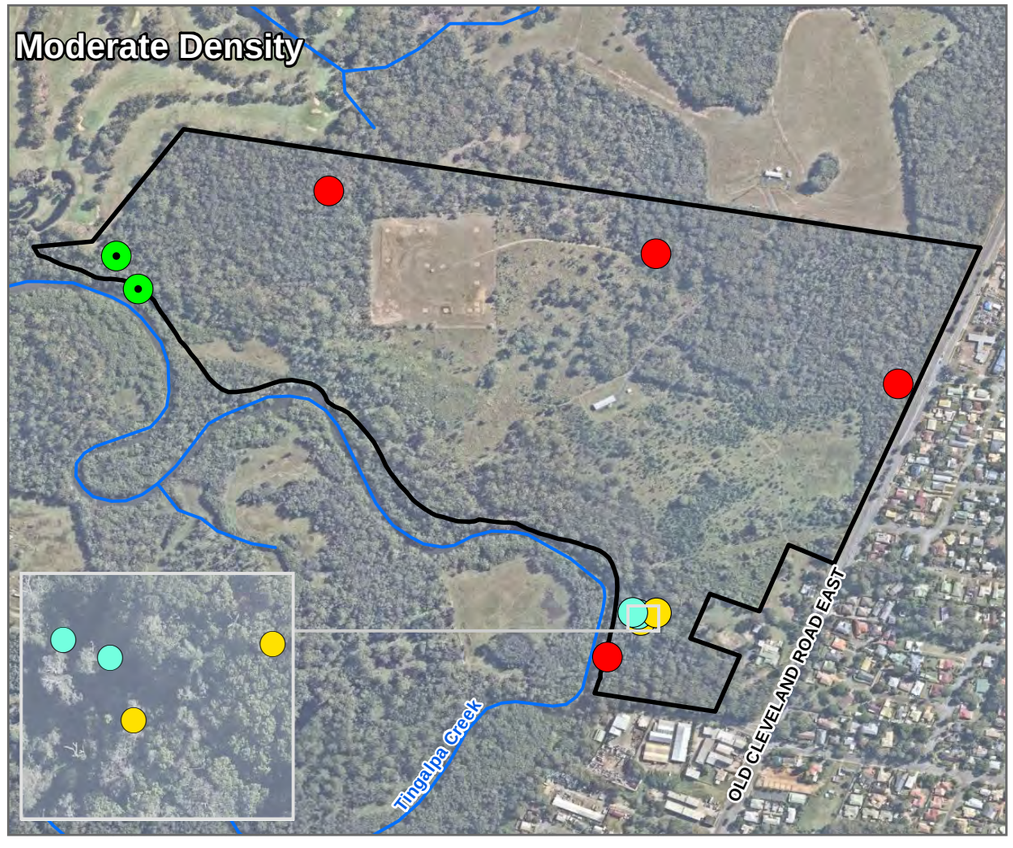
m
0 50 100 150 200

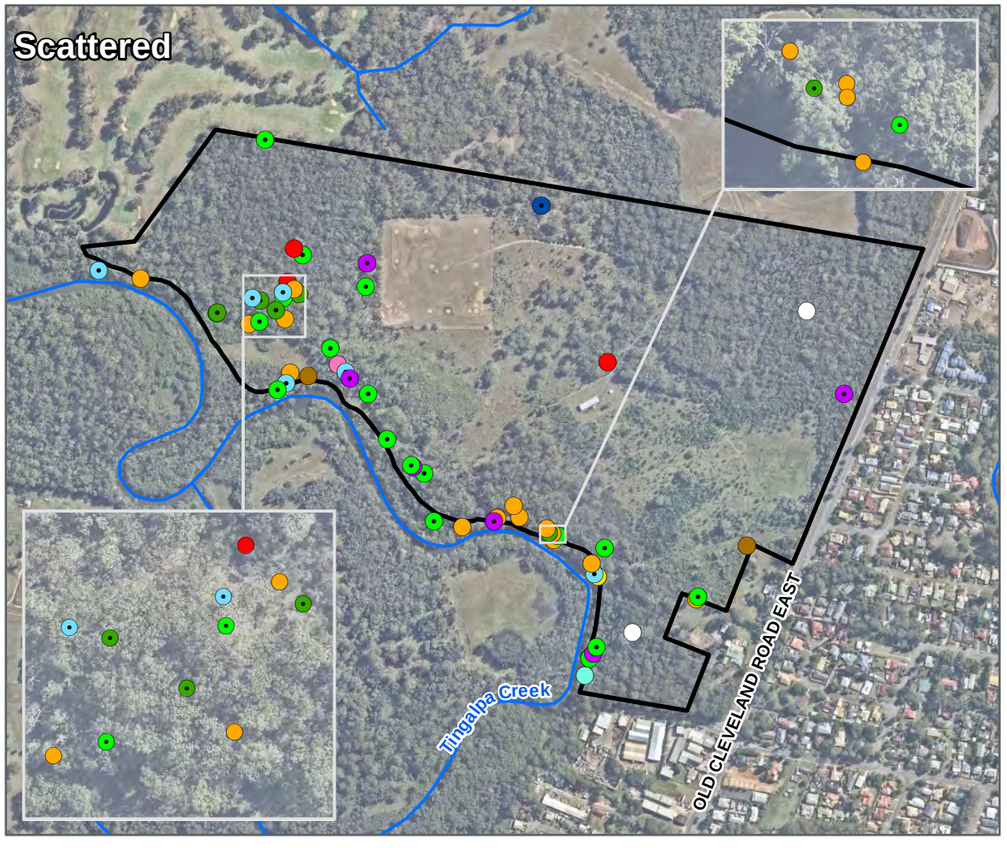
N

Map Produced by Cardno NSW/ACT (WOL)
Date: 2020-05-01 | Project: AWE200221
Coordinate System: GDA 1994 MGA Zone 56
Map: AWE200221-GS-004-EVNT_FaunaHabitat.mxd 01
Aerial Imagery supplied by Nearmap (March, 2020)









Redland CITY COUNCIL

Weeds and Pests

BIRKDALE ECOLOGICAL ASSESSMENT

Legend

- Survey Boundary
- Watercourse (DNRME, 2020)

Pest

- *Vulpes vulpes* (fox)

Weeds (WoNS)

- *Lantana camara* (lantana)
- *Opuntia stricta* (prickly pear)
- *Senecio madagascariensis* (fire weed)
- *Asparagus aethiopicus* (basket asparagus)
- *Asparagus plumosus* (climbing asparagus fern)

Weeds

- *Baccharis halimifolia* (groundsel)
- *Schinus terebinthifoluis* (pepper tree)
- *Sporobolus americanum* (rats tail grass)
- *Cinnamomum camphora* (camphor laurel)
- *Lantana montividensis* (creeping lantana)
- *Bryophyllum delagoense* (mother of millions)

FIGURE 5

1:10,000 Scale at A3

m
0 100 200 300 400

N

Cardno

Map Produced by Cardno NSW/ACT Pty Ltd (WOL)
Date: 2020-05-01 | Project: AWE200221
Coordinate System: GDA 1994 MGA Zone 56
Map: AWE200221-GS-005-Weeds_Pests.mxd 01
Aerial Imagery supplied by Nearmap (March, 2020)

Redland CITY COUNCIL

Suggested Conservation Zone

BIRKDALE ECOLOGICAL ASSESSMENT

UHLMAN ROAD
OLD CLEVELAND ROAD EAST
Tingalpa Creek
BAILEY ROAD
NOTTINGHILL STREET
HAMPTON COURT
GOODGE COURT
SURMAN STREET WEST
TORONTO ROAD
VALANTINE ROAD
JENNIFER STREET
DALE STREET
JONES ROAD
DAVESON ROAD

Legend

- Survey Boundary
- Watercourse (DNRME, 2020)

Conservation Area

- Current Conservation Zone
- Cardno Suggested Conservation Area
- Conservation Agreement Zone

FIGURE 6

1:5,000 Scale at A3

m
0 50 100 150 200

N

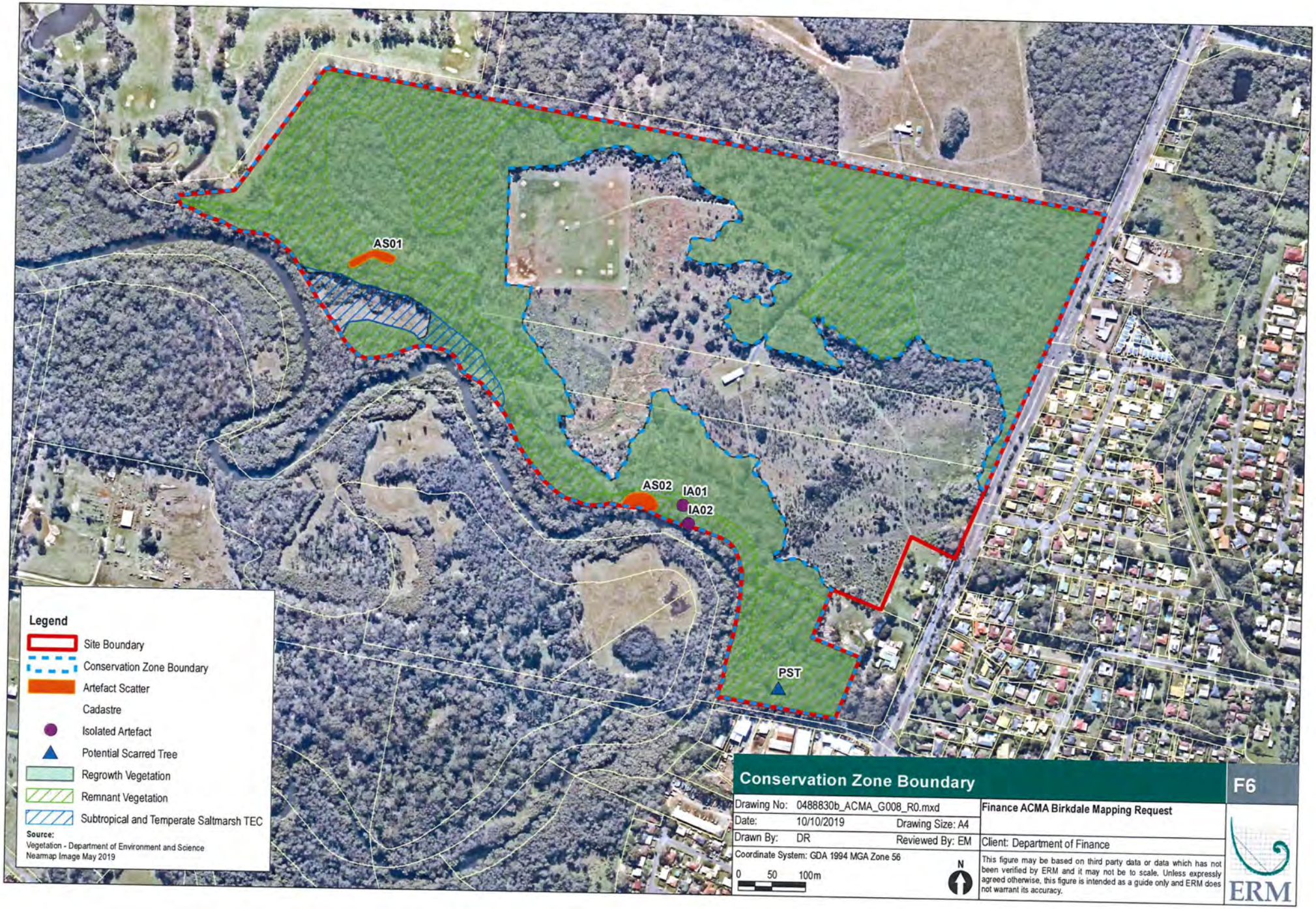
Cardno

Map Produced by Cardno NSW/ACT (WOL)
Date: 2020-06-18 | Project: AWE200221
Coordinate System: GDA 1994 MGA Zone 56
Map: AWE200221-GS-006-SuggestedConservationZone.mxd 03
Aerial Imagery supplied by Nearmap (June, 2020)

APPENDIX

A

CONSERVATION AREA BOUNDARY


AS01
AS02
IA01
IA02
PST
Legend
Site Boundary
Conservation Zone Boundary
Artefact Scatter
Cadastre
Isolated Artefact
Potential Scarred Tree
Regrowth Vegetation
Remnant Vegetation
Subtropical and Temperate Saltmarsh TEC
Source:
Vegetation - Department of Environment and Science
Nearmap Image May 2019
Conservation Zone Boundary
F6
Drawing No: 0488830b_ACMA_G008_R0.mxd
Finance ACMA Birkdale Mapping Request
Date: 10/10/2019
Drawing Size: A4
Drawn By: DR
Reviewed By: EM
Client: Department of Finance
Coordinate System: GDA 1994 MGA Zone 56
0 50 100m
N
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.
ERM

APPENDIX

B

ENVIRONMENTAL MANAGEMENT PLAN

Environmental Management Plan

Birkdale Land Survey

AWE20021



Prepared for
Redland City Council

18 June 2020

Cardno®

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Document History

Version	Effective Date	Description of Revision	Prepared by	Reviewed by
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2	18/06/2020	Final	MT	DF

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Our report is based on information made available by the client. The validity and comprehensiveness of supplied information has not been independently verified and, for the purposes of this report, it is assumed that the information provided to Cardno is both complete and accurate. Whilst, to the best of our knowledge, the information contained in this report is accurate at the date of issue, changes may occur to the site conditions, the site context or the applicable planning framework. This report should not be used after any such changes without consulting the provider of the report or a suitably qualified person.

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1 Introduction

1.1 Purpose of this plan

Cardno was commissioned by Redland City Council (Council) to prepare an Environmental Management Plan (EMP) is an overarching document to assist in protecting, maintaining and enhancing ecological values primarily including Matters of National Environmental Significance (MNES) within the Birkdale Land Site (the Site) described as Lot 1 on RP14143, Lot 2 on RP14144 and Lot 2 on SP146455. The Site, which is located at 362-388 Old Cleveland Road East, Birkdale, was purchased by Council from the Commonwealth. As part of the conditions of sale the Commonwealth entered into a Conservation Agreement with Council.

The Conservation Agreement between the Commonwealth Department of Environment and Energy (DoEE) and Council specify clauses requiring the protection and conservation of species and threatened ecological communities (TECs) listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) within the Conservation Area (**Appendix A**). The activity objectives stated in the Conservation Agreement is for the long-term protection and conservation of the following protected matters found on the land:

1. Koala and Koala habitat present in the Conservation Area, to improve and maintain the viability of the Koala in the local area and promote and enhance the survival and conservation status of the species;
2. Subtropical and Temperate Coastal Saltmarsh ecological community in the Conservation Area, to improve and maintain the viability of the ecological community; and
3. Other ecological values within the Conservation Area, including ecological communities or habitat for other EPBC Act listed species as identified and may be identified in the future.

The Conservation Agreement states that in developing a management plan for the Site that Council must:

> *1.2.1 For Koala and Koala habitat, Subtropical and Temperate Coastal Saltmarsh ecological community, and other ecological values in the Conservation area:*
>
> *(a) Protect, manage and improve over time the quality of Koala habitat, including the ongoing recruitment of Koala feed trees, and Subtropical and Temperate Coastal Saltmarsh ecological community.*
>
> *(b) Maintain the Conservation area as a wildlife corridor, in particular for Koalas.*
>
> *(c) Retain, as best possible, all native trees, shrubs and undergrowth to provide movement opportunities for native fauna including the Koala.*
>
> *(d) Ensure the Conservation Area is free of weed species or invasive species, and manage the land to reduce the risk of bushfire.*
>
> *(e) Manage animal access to the Conservation area to preserve and maintain habitat, particular by restricting access by domestic animals only under effective control and to control feral species of animals, including wild dogs.*
>
> *(f) Maintain existing fencing in the Conservation Area in good repair and fit for purpose, including installation of fauna friendly fences that provide for Koala movement to and from the site.*
>
> *(g) Ensure that any development proposed on the land is sensitive to the protection and management of the fauna including Koala (and Koala habitat) within the Conservation Area; and that it does not restrict movement to and from the site.*
>
> *(h) To the extent reasonably possible, manage the conservation area to maximize the persistence of the Koala and viability of the Subtropical and Temperate Coastal Saltmarsh ecological community in the Conservation Area over the long term.*

While the purpose of the EMP is to focus on MNES, in managing these values, Matters of State Environmental Significance (MSES) and Matters of Local Environmental Significance (MLES) will also be managed where there is an overlap. For example, koala habitat include areas that are remnant vegetation for the purposes of the *Vegetation Management Act 1999* which are regarded as MSES. Koala habitat also incorporates areas mapped as MLES as part of environmental overlay mapping for the purposes of the Planning Scheme.

1.2 Approach

The Conservation Agreement requires the management plan to address several mandatory outcomes. These outcomes can be broadly categorised according to the groupings presented in **Table 1-1**.

Table 1-1 Categorisation of mandatory outcomes

Mandatory outcome	Protect	Maintain	Enhance
(a) Protect, manage and improve over time the quality of Koala habitat, including the ongoing recruitment of Koala feed trees, and Subtropical and Temperate Coastal Saltmarsh ecological community.	y		y
(b) Maintain the Conservation area as a wildlife corridor, in particular for Koalas.	y	y *	
(c) Retain, as best possible, all native trees, shrubs and undergrowth to provide movement opportunities for native fauna including the Koala.		y *	
(d) Ensure the Conservation Area is free of weed species or invasive species, and manage the land to reduce the risk of bushfire.		y	
(e) Manage animal access to the Conservation area to preserve and maintain habitat, particular by restricting access by domestic animals only under effective control and to control feral species of animals, including wild dogs.		y	
(f) Maintain existing fencing in the Conservation Area in good repair and fit for purpose, including installation of fauna friendly fences that provide for Koala movement to and from the site.		y	
(g) Ensure that any development proposed on the land is sensitive to the protection and management of the fauna including Koala (and Koala habitat) within the Conservation Area; and that it does not restrict movement to and from the site.		y *	
(h) To the extent reasonably possible, manage the conservation area to maximize the persistence of the Koala and viability of the Subtropical and Temperate Coastal Saltmarsh ecological community in the Conservation Area over the long term.	y		

The 'Maintain' column of **Table 1-1** effectively addresses the maintenance of values by way of managing threatening processes. Some threats are existing and others have the potential to affect values when future uses are pursued for the Site (these are flagged with an asterisk).

Protection will largely be achieved by excluding future adverse activities from the Conservation Area. This is a matter for future site planning and is not discussed further herein.

This EMP is structured as follows:

1. Identifying the environmental values.
2. Identifying the threats to environmental values.
3. Identifying mitigation measures to address threats.
4. Identifying opportunities to enhance environmental values.
5. Summary, location and timing of actions.

The mandatory outcomes listed in **Table 1-1** effectively represent the overarching performance objectives against which success can be measured. It is anticipated that as planning for the Site is refined that targeted performance objectives would be developed. For example, mandatory outcome "*(d) Ensure the Conservation Area is free of weed species or invasive species*…" could be achieved by specific performance objectives forming part of a rehabilitation strategy that require rehabilitation zones to be free of Weeds of National Environmental Significance and Category 3 species scheduled under the *Biosecurity Act 2014* within a 24-month period.

Future management plans developed for the Site, such as rehabilitation plans or construction Environmental Management Plans must be cognizant of the mitigation and enhancement measures prescribed in this EMP.

2 Environmental Values

2.1 Flora

2.1.1 Flora Species

As part of preparation of the Ecological Assessment Report (EAR) a total of 219 flora species, including 73 non-native species were recorded in the Site. All native species detected are listed as species of significance under the EPBC Act, *Nature Conservation Act 1992* or under Council's *Environmental Significance Planning Scheme Policy*.

2.1.2 Vegetation Communities

Two TECs were observed within the Site:

- *Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland.*
- *Subtropical and Temperate Coastal Saltmarsh*.

The TECs correspond with Regional Ecosystems (RE) 12.1.1 and 12.1.2 respectively. **Table 2-1** below provides a description of the vegetation communities mapped within the Site as part of the EAR.

Table 2-1 Vegetation Communities within the Site

Remnant Status	RE Code	Description of species assemblage observed on ground	TEC equivalent
Remnant only	12.1.1	Swamp Oak (*Casuarina glauca*) woodlands were located within the Site associated with the riparian area adjoining Tingalpa Creek and associated alluvial plains.	Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland
Remnant only	12.1.2	Saltpan vegetation characterised by Marine Couch (*Sporobolus virginicus*) were present in the saline and estuarine deposits associated with the watercourse.	Subtropical and Temperate Coastal Saltmarsh
Remnant only	12.1.3	Mangrove shrublands were located within the tidally inundated portion of the Site and were characterised by Grey Mangrove (*Avicennia marina*), River Mangrove (*Aegiceras corniculatum*) with Milky Mangrove (*Excoecaria agallocha*) also present. Mangroves are in good health with no signs of die-back.	n/a
Remnant & Regrowth areas	12.3.11/12.3.6	The predominant remnant vegetation community was characterised by Forest Red Gum (*Eucalyptus tereticornis*) and Northern Grey Ironbark (*Eucalyptus siderophloia*) Open Forest with Scribbly Gum (*Eucalyptus racemosa*), Pink Bloodwood (*Corymbia intermedia*) and Rusty Gum (*Angophora leiocarpa*). Subject to further scrutiny it is likely some portions of this area should be remapped as RE 12.5.7.	n/a
Remnant only	12.5.3	The southern extent of the Site and was dominated by a Scribbly Gum (*Eucalyptus racemosa*) woodland with Pink Bloodwood (*Corymbia intermedia*) and Northern Grey Ironbark (*Eucalyptus siderophloia*) also present.	n/a
Regrowth only	12.5.2a/12.5.3 and 12.5.3/12.5.2a	A significant expanse of regrowth was located in the eastern portion of the Site and was dominated by species including Scribbly Gum, (*Eucalyptus racemosa*) and Pink Bloodwood (*Corymbia intermedia*).	n/a

Remnant Status	RE Code	Description of species assemblage observed on ground	TEC equivalent
Cleared	NA	The unvegetated areas within the Site were characterised by slashed grasslands that has been subject to historic clearing. Native grasslands were present within portions of the cleared areas of the Site.	n/a

The Subtropical and Temperate Coastal Saltmarsh TEC is in excellent condition, however some evidence of vehicle access was evident on site and in aerial imagery, that if continued would likely result in significant damage to the TEC. Similarly, the Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland TEC is in good condition, although is affected by weeds in some locations such as Broadleaf Pepper Tree (*Schinus terebinthifolius*), Live Leaf (*Bryophyllum pinnatum*) and the Weed of National Environmental Significance *Opuntia stricta*.

2.2 Fauna

2.2.1 Fauna Species

A total of 38 fauna species were recorded as part of the EAR, including 23 bird, 11 mammal species, 3 reptile species and 1 amphibian. Of the species recorded only one is scheduled under the EPBC Act, being the 'Vulnerable' Koala (*Phascolarctos cinereus*). Individuals were observed within the Site and additional Koala Rapid Assessment Methodology (KRAM) surveys revealed koala activity throughout regrowth vegetation and searches outside of KRAM plots in both regrowth and remnant also revealed scats.

2.2.2 Fauna habitat

The Site supports numerous habitat features, including hollow-bearing trees, stag trees, burrows, nests, arboreal termitaria and logs mostly located within remnant vegetation and within proximity to Tingalpa Creek. Hollow-bearing trees within the Site provide suitable habitat for hollow-dependent birds, arboreal mammals and microbats. There were a range of different hollows present throughout the site, suitable for a range of wildlife including "chimney" hollows suitable for microbats. It is possible that hollows within the Site provide suitable habitat for threatened species such as Greater Glider (*Petauroides volans*). Arboreal termitaria within the Site provide potential habitat for nesting birds such as kingfishers and parrots as well as arboreal mammals such as possums. An Australian Bush Turkey Nest (*Alectura lathami*) was recorded within the southern extent of the Site adjoining Tingalpa Creek. The Site supports *Casuarina* and *Allocasuarina* species which are the preferred food for Glossy Black-cockatoo (*Calyptorhynchus lathami*), as such the Site provides suitable foraging resources for this species, however no feeding evidence (i.e. orts) were observed during the field assessment. The native grasslands within the historically cleared areas of the site provide habitat for wildlife such as macropods and birds.

Notably, the vegetation within the Site is characterised by large connected patches of koala habitat trees, including trees of the *Corymbia*, *Melaleuca, Lophostemon,* and *Eucalyptus* general and shelter trees including the *Angophora* genus. The EAR included the delineation of koala habitat within the Site. The resultant koala habitat map illustrates the Site supports significant koala habitat connected to Tingalpa Creek and large bushland areas. The cleared areas located centrally within the Site whilst not considered koala habitat may provide for Koala movement between vegetated areas.

The Site forms part of the lower Tingalpa and Coolnwynpin Creek Catchment. Tingalpa Creek and Coolnwypin Creek confluence approximately 650 m to the south of the Site and both creek catchments link with the broader network of conservation reserves and Protected Areas including the Capalaba Regional Park, Coolnwynpin Creek Corridor Nature Refuge, Greater Glider Conservation Area, Brisbane Koala Bushlands, Daisy Hill Conservation Park and Venman Bushland National Park. The vegetated areas of the Study Area are part of a significant ecological corridor that supports fauna movement opportunities for Koalas and other native species. Further, the Study Area and surrounding landscape is located within a Biodiversity Planning Assessment riparian corridor which extends Burbank through Capalaba, Chandler, Birkdale, Ransome and Thorneside. The riparian corridor at Burbank connections with the broader Biodiversity Planning Assessment terrestrial corridor which links with Moreton Bay at Redlands. As such the Study Area is considered significant within the context of the regional state level riparian corridor. This corridor is orientated along Tingalpa Creek with connections to the north, south and west, however connections to the east are severed by Old Cleveland Road East.

3 Threats to Environmental Values

3.1 Existing threats

3.1.1 Pests

3.1.1.1 Weeds

A total of 73 exotic flora species were recorded within the Site, of these species 11 are listed as Category 3 – Restricted invasive pest plants under the *Biosecurity Act 2014* and five are also listed as Weeds of National Significance (WoNS) as shown in the Weeds and Pests Map in **Appendix B**. The following are those listed exotic flora species listed as Category 3 Restricted invasive pest plants under the *Biosecurity Act 2014* . The annotation "^" indicates that the species is also a WONS.

- Basket asparagus (*Asparagus aethiopicus*)^
- Climbing asparagus (*Asparagus plumosus*)^
- Lantana (*Lantana camara*)^
- Fireweed (*Senecio madagascariensis*)^
- Prickly Pear (*Opuntia stricta*)^
- Camphor Laurel (*Cinnamomum camphora*)
- Creeping lantana (*Lantana montevidensis*)
- Groundsel (*Baccharis halimifolia*)
- Pepper tree (*Schinus terebinthifolius*)
- Mother-of-millions (*Bryophyllum delagoense*)
- Giant rat's tail grass (*Sporobolus pyramidalis*)
- Creeping lantana (*Lantana montevidensis*)

The *Biosecurity Act 2014* imposes a general biosecurity obligation on persons dealing with biosecurity matters to prevent and/or minimise the impact of biosecurity risks on human health, social amenity, the economy and the environment. A general biosecurity obligation requires that all reasonable and practical measures are taken to prevent or minimise biosecurity risk, and that actions are taken to prevent exacerbation of the adverse effects of biosecurity matter. Concerning these points, the *Biosecurity Act 2014* specifically notes that the requirement to manage the impact of invasive plants on a person's land.

3.1.1.2 Pest animals

Four exotic animals were recorded as part of the EAR including goats (*Capra hircus*), European red fox (*Vulpes vulpes*), the Asian house gecko (*Hemidactylus frenatus*) and the cane toad (*Rhinella marina*).

The European Red Fox is a Category 3, 4, 5 and 6 restricted matter under the *Biosecurity Act 2014*. It must not be moved, kept, fed, given away, sold, or released into the environment without a permit. The *Biosecurity Act 2014* imposes a general biosecurity obligation on persons dealing with biosecurity matters to prevent and/or minimise the impact of biosecurity risks on human health, social amenity, the economy and the environment. A general biosecurity obligation requires that all reasonable and practical measures are taken to prevent or minimise biosecurity risk and that actions are taken to prevent exacerbation of the adverse effects of biosecurity matter. Concerning these points, the *Biosecurity Act 2014* specifically notes that the requirement to manage the impact of invasive animals on a person's land.

Other animals that may access the site and have negative impacts on wildlife, in particular koalas, are wild and domestic dogs.

3.1.2 Uncontrolled access

Uncontrolled site access brings multiple degrading influences to the Site, amongst which includes the introduction of rubbish, degradation of vegetation and subsequent erosion (**Plate 1**) and degradation of vegetation communities through vehicular access (**Plate 2**).



Plate 1 – Degradation of vegetation and subsequent erosion from uncontrolled access along Tingalpa Creek



Plate 2 – Vehicle tracks evident through the Subtropical and Temperate Coastal Saltmarsh TEC

3.1.3 Unplanned fires

Fire is necessary for the ongoing health and regeneration of a number of vegetation communities and there are some communities from which fire must be excluded, including the Subtropical and Temperate Coastal Saltmarsh TEC (see **Plate 3**).



Plate 3 – A fire scar evident in February 2018 aerial photography showing minor penetration into the Subtropical and Temperate Coastal Saltmarsh TEC, a community from which fire should be excluded

3.2 Potential future threats

3.2.1 Overview

Future activities on site have the potential to adversely impact environmental values. While it is understood the future use of parts of the Site outside of the Conservation Area is yet to be determined consideration should be given to broad actions that can adversely impact environmental values including:

- Clearing.
- Introduction of pests.
- Introduction of light pollution.
- Noise.
- Creation of barriers to movement.

3.2.2 Clearing

Clearing of vegetation within and outside of the Conservation Area can reduce the availability of habitat and affect the movement of wildlife.

3.2.3 Introduction of pests

Weeds carried on vehicles, plant, machinery and equipment may be introduced and subsequently colonise disturbed ground leading to an increased risk of competition with regenerating koala habitat and impede koala movement.

3.2.4 Light pollution

Vision is an important sense for fauna to orient themselves in the landscape, source food, avoid predators and communicate. Most fauna species are sensitive to ultra-violet light, violet and blue light.

3.2.5 Noise

The potential effects of noise, vibration and air quality on terrestrial wildlife include physical damage and injury to hearing organs, injury from responding to noise and vibration, injury from vision impairment, irritation, interference with normal fauna behaviour and impaired communication. Impacts can result in habitat loss through avoidance, reduction in reproduction and increased mortality. Noise and vibration include continuous and episodic disturbances. Fauna is known to be able to tolerate continuous noise and vibration (i.e. noise produced by generators) rather than episodic disturbance (i.e. noise produced by an alarm or passing truck).

Land uses and Future Activities have the potential to increase noise, vibration and air quality which may impact ecological sensitive areas of the Site and broader Tingalpa Creek ecological corridor.

3.2.6 Barriers to movement

Barriers in the form of inappropriate fencing and roads can affect the movement of wildlife including koalas.

3.2.7 Climate change

Climate change and sea level rise is a threat and that the likely consequence will be mangrove colonization of the TEC. There ae no management actions that can be taken at a property-based scale to mitigate this threat. It is noted that a hydrological modelling exercise would be required to understand current and future hydrological projections for the Study Area and upstream and downstream.

3.2.8 Water quality and hydrology

The future design of activities within the Community Facilities Zone will need to be cognisant of hydrological flows and ensure natural conditions (i.e. in terms of quantity and quality) are maintained with reference to flows to the TEC.

4 Mitigation measures

4.1 Weeds and Pests

4.1.1 Weeds

Weed control techniques are dependent on the species of weed, the extent of the infestation, and where it is located. **Table 4-1** provides an overview of general weed control techniques.

Table 4-1 Weed control techniques

Control method	Description
Physical control	Physical control includes hand pulling, grubbing, slashing, cultivation, mowing and mulching. Mechanical control includes the use of machinery (i.e. slashers).
Land management	Land management techniques for weed removal/reduction include revegetation, isolating infestations and fire. Revegetation assists in controlling weed infestations by encouraging the growth of native species. Isolating small infestations and is an effective technique to minimising weed dispersal and disturbance factors. Fire is a weed management tool which is particularly effective for woody weeds and fire-sensitive species. Fire can trigger the germination of both native and weed species, as such follow-up cultivation or chemical spraying may be required.
Chemical control	Chemical control includes foliar spray, stem injection, cut stump, basal bark spray and soil application. Foliar spray is a suitable method for the control of herbaceous weeds or juvenile re-growth, however, there is the potential to damage surrounding native vegetation. The chemical spray method is best used for large infestations that are not within proximity to native vegetation.
Biological control	Biological control agents have been introduced into Australia in an attempt to control weed species. Biosecurity Queensland research programs continue to investigate agents suitable for release in Australia and test the viability of these agents to identify more effective biological control agents.

A range of techniques may be ultimately applied to control exotic species that supress native flora and the ability for koala habitat to establish. The SEQ Restoration Framework (Cardno Chenoweth, 2012) identifies chemical control techniques for species that are WONs and/or are scheduled as Class 3 pests under the *Biosecurity Act 2014* replicated in **Table 4-2** for the species known to occur in the Site.

Table 4-2 SEQ Restoration Framework weed control approaches

WONs (^) and Class 3 species	Application Method	Chemical	Rate
Basket asparagus (*Asparagus aethiopicus*)	Spot Spray	Metsulfuron methyl	1.5g MM : 10L water + A + D
		Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + S+D
Climbing asparagus (*Asparagus plumosus*)^	Basal Bark	Fluroxypyr	210ml/10L diesel
	Spot Spray	Glyphosate	200ml Gly:10L water+ A++ D
Lantana (*Lantana camara*)^	Cut Scrape and Paint	Glyphosphate	1Gly:1.5 water
	Spot Spray	Fluroxypyr	40ml/10L (spring, summer)-60ml/10L water (Autumn, Winter)
	Spray (spot spray and overspray)	Glyphosphate	100ml Gly:10L water + D**
	Spray Red Flowering species	Glyphosphate	200ml Gly: 10L water + A* + D**
	Cut Scrape and Paint	Glyphosphate	1Gly:1.5 water
Creeping lantana (*Lantana montevidensis*)	Spot Spray	2,4D	40ml/10L water
		Glyphosphate + Metsulfuron Methyl	100ml Gly + 1.5g MM in 10L water + A* + D**
		Metsulfuron Methyl	1.5g MM : 10L water + A* + D**
Fireweed (*Senecio madagascariensis*) *(nb not in guideline, treat as per Ragweed)*	Spot Spray	Glyphosphate	100ml Gly:10L water + D
		Metsulfuron methyl	1.5g MM : 10L water + A + D
Prickly Pear (*Opuntia stricta*)	Spot Spray	Glyphosate + Metsulfuron Methyl	100ml Gly + 1.Sg MM in 10L water+ A+ D

WONs (^) and Class 3 species	Application Method	Chemical	Rate
	Cut Scrape and Paint in horizontal cuts across flat stems	Glyphosate + Metsulfuron Methyl	1g MM added to 1 Gly:1.5 water
Camphor Laurel (*Cinnamomum camphora*)	Stem Inject	Glyphosphate	1:1.5 Gly:water
	Cut, Scrape and Paint	Glyphosphate	1:1.5 Gly:water
	Basal bark (saplings)	Fluroxypyr	210ml:10L diesel
	Spot Spray	Fluroxypyr Glyphosphate	200ml Gly + 1.5g MM in 10L water + S***+D**
			200ml:10L water + A* + D**
Groundsel (*Baccharis halimifolia*)	Spot Spray	2,4-D	40ml/10L water
	Spot Spray	Glyphosphate	200ml Gly:10L water+ A+ D
	Stem Inject	Glyphosphate	1:1.5 Gly:water
	Cut, Scrape and Paint	Glyphosphate	1:1.5 Gly:water
Pepper tree (*Schinus terebinthifolius*)	Cut Scrape and Paint	Glyphosphate	1Gly:1.5 water
	Spot Spray	Fluroxypyr	40ml/10L (spring, summer)-60ml/10L water (Autumn, Winter)
	Spray (spot spray and overspray)	Glyphosphate	100ml Gly:10L water + D**
	Spray Red Flowering species	Glyphosphate	200ml Gly: 10L water + A* + D**
	Splatter Gun	Glyphosphate	1Gly:9water
Mother-of-millions (*Bryophyllum delagoense*)	Spot Spray	2,4-D	50ml/10L water
		Metsulfuron methyl	1.5g MM:10L water+ S + D
Giant rat's tail grass (*Sporobolus pyramidalis*)	Spot Spray	Glyphosphate	100ml Gly:10L water+ D

**Spray adjuvant (e.g. Agral®, Protec®, Codacide®)*

***Colour marking Dye (e.g. Herbi (red or blue) Liquid Dye®)*

****Surfactant (e.g. LI700®, Prosil®, Pulse®)*

Most ecological restoration of the Conservation Area will rely on the 'Assisted Natural Regeneration' approach and as such management of weeds, which includes several species not listed in **Table 4-2**. Care will however be necessary to manage weeds in a staged and considered approach given the habitat they provide to a range of native animals. Weed management should occur in a way that ensures appropriate ground cover is maintained to prevent sediment runoff.

4.1.2 Pest animals

As per Department of Agriculture and Fisheries' restricted invasive animal fact sheet for the European Red Fox, the current options available for control of foxes in Queensland include:

- Poisoning.
- Trapping.
- Shooting.
- Guard animals.
- Exclusion fencing.

It is anticipated that guard animals will be either restrained by handlers or in a fenced location that is separated from natural areas

It is understood that Council is working with Biosecurity Queensland to manage foxes in the local government area[1]. Council should include the Site as part of control activities associated with this management program.

Goats[2], cane toads, Asian house geckos and other pest animals not recorded in the EAR should be addressed in accordance with Council's Biosecurity Plan[3]. In particular, the management of dogs (domestic and wild) is a priority owing to the devastating impact this species can have on koala populations.

The suburb of Birkdale is not located within a Fire Ant Biosecurity Zone as identified on the Department of Agriculture and Fisheries' (DAF's) Queensland Government National Red Imported Fire Ant Eradication Program: Fire ant biosecurity zones map (2019).

4.2 Uncontrolled Access

Access is primarily from the south-eastern corner of the Site. Controlling access in this location represents a significant challenge given ongoing connectivity for native wildlife must also be maintained and an effective fencing solution would need to extend to the edge of Tingalpa Creek into intertidal lands and over State land. The fencing / barrier solution would have to be an agreed outcome with neighbouring properties/landholders. If bollards are accepted by both parties then this would be an appropriate solution provided movement of pedestrians and domestic stock/animals is adequately managed.

A wildlife permeable fencing solution (see **Plate 4**) along with signage could be utilised on Council lands as a deterrent to access.



Plate 4 – An example of wildlife permeable fencing with gaps under and through the chain wire.

4.3 Unplanned Fires

The long-term protection of TECs within the Site requires restricting pedestrian access to the areas along Tingalpa Creek via the southeast corner of the Site. Pedestrians have brought waste onto site and have caused degradation to vegetation and erosion in some locations.

Plan for bushfire by taking into consideration appropriate ecological burns as described in the fire management guidelines in the REDD and in **Table 4-3**below. It is however noted that, within the Site, that the areas occupied by each TEC is relatively small and the boundary between the two, in some locations, is subtle. As such, the exclusion of fire may be considered as an appropriate management action from areas of Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland where they are contiguous with Subtropical and Temperate Coastal Saltmarsh.

[1] Redlands Coast Biosecurity Plan 2018 - 2023
[2] Identified as a species for which there is a high likelihood for establishing in the Redland Coast in the Redlands Coast Biosecurity Plan 2018 - 2023

Table 4-3 Fire management guidelines for REs within the Site as per the REDD

RE Code	Equivalent TEC	Season	Intensity	Interval	Strategy
12.1.1	Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland	Early winter or storm burning seasons.	Low to moderate	Aim for a 6-7 year minimum threshold at a broad scale planning level.	Aim to retain at least 25-50% unburnt in any given year. This RE needs disturbance to maintain structure. Use fire to reduce opportunistic native (*Allocasuarina* spp.) or weed species dominance.
12.1.2	Subtropical and Temperate Coastal Saltmarsh	n/a	n/a	n/a	Do not burn deliberately. No fire management required. Largely non-flammable vegetation.
12.1.3	n/a	n/a	n/a	n/a	Do not burn. ISSUES: Scorching within the supra-littoral margin, particularly when this ecotone merges into flammable vegetation such as woodlands and forests of melaleuca may be a problem.
12.3.6	n/a	Late summer to mid-winter (after rain).	Planned and occasional unplanned burns (typically of higher intensity) influence the ecology of melaleuca ecosystems.	Sedge 12-20 years, Mixed grass/shrub 6-20 years	Aim for a 25-70% burn mosaic (in association with surrounding ecosystems, as melaleuca ecosystems often just occur in patches or along natural drainage lines). Fires may, depending on the conditions and type of vegetation, burn areas larger than just the melaleuca ecosystem. Ensure secure boundaries from non-fire-regime adapted ecosystems.
12.3.11 *	n/a	Summer to late-autumn	Low	3-6 years	Aim to burn 40-60% of any given area. Spot ignition in cooler or moister periods encourages mosaics.
12.5.2	n/a	Summer to late-autumn	Low	3-6 years	Aim to burn 40-60% of any given area. Spot ignition in cooler or moister periods encourages mosaics.
12.5.3	n/a	Late summer to winter	Low to moderate	7-25 years	Aim for a burn mosaic of 40-60% over the burn area. A diversity of season and fire intensity is important, as well as spot ignition in cooler or moister periods to encourage mosaics. Late summer burns assist with maintaining control of fire intensity.

* - Note where areas are re-classified as RE 12.5.7 then the burn regime would shift to a Low to moderate Summer to Winter burn at a 4-25 year interval. Noting a 4-8 year cycle maintains a healthy grassy system and an 8-20 year cycle is required for shrubby elements of understorey.

Fires will need to be conducted in a mosaic pattern and as such the Site should be divided into manageable blocks. Where practical the boundary of blocks should be traversable by vehicle. Presently, boundary trails and trails in the western stand of vegetation are difficult to delineate. Trails should be aligned with areas where there is minimal growth of native vegetation. The 1985 aerial imagery (**Plate 5**) reveals some locations in the west of the Site where trails once occurred and are therefore likely to currently support younger vegetation. Consultation and cooperation with neighbours to the north and west is also required to facilitate good fire planning and to minimise duplication of fire management lines across multiple properties.



Plate 5 – 1985 aerial imagery. Trails in west of the Site demarcated as white dotted lines.

Care will also be necessary as not to create smoke hazards on Old Cleveland Road and as such there may be a need to establish a fire management line some distance within the site boundary to allow for the separation of burns from traffic.

A full bushfire management plan will be required for the Site taking these matters into consideration.

4.4 Future uses

4.4.1 Clearing

Clearing should be excluded from the conservation area. It is possible that some clearing may be necessary to facilitate safe and adequate access to the Site. Where this is required it is to be limited to that which is absolutely necessary.

Clearing outside of the Conservation Area may be required for future pursuits. This area still contains ecological values including koala food trees, some hollow bearing trees and open grassland habitat (in some areas dominated by native grasses) for wildlife such as macropods and birds. Ecological assessments in this area should guide retention of these values with focus on maximising retention of koala food trees and hollow bearing trees.

4.4.2 Light

The Commonwealth's *National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds, Commonwealth of Australia* [4] provides a guide to regulatory considerations for the management of artificial light and wildlife. Additionally, the Guidelines provide best practice lighting design objectives and principals.

Potential land uses and Future Activities may include the addition of lighting infrastructure which has the potential to increase light pollution, light spill, sky glow and glare into the Conservation Area and surrounding sensitive ecological areas. Lighting design within the Site must consider:

- Regulatory requirements under the EPBC Act, NC Act and Redland City Council requirements.
- Fauna sensitive design including:
  - directional lighting;
  - shields;
  - appropriate luminaries;
  - remotely managed timed lighting;

[4] DoEE (2019) *National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds, Commonwealth of Australia*, (online) https://www.environment.gov.au/system/files/consultations/f9d7b873-29a3-4ae6-8278-3c3b64ee5a9f/files/draft-light-pollution-guidelines.pdf , Department of Environment and Energy, Canberra.

- dimming, timers, motion sensors; and
- minimising necessary usage periods to impacts to fauna.

4.4.3 Barriers

Some existing boundary fencing, including western and northern boundaries (in part), are topped by barbed wire. This fencing arrangement is hazardous for wildlife including species such as the Vulnerable Grey-headed Flying fox (*Pteropus poliocephalus*) and are not readily permeable by koalas. Such fencing should be removed. Where new fencing is to be installed it is recommended as follows:

- Southern boundary on Tingalpa Creek. No fencing.
- South-eastern boundary with private properties. Permeable fencing similar to that shown in **Plate 4**.
- Western boundary. Permeable fencing similar to that shown in **Plate 4**.
- Eastern boundary. Impermeable fencing to prevent wildlife access onto Old Cleveland Road. This would ideally include koala-proof fencing as per the Department of Transport and Main Roads specifications.
- Northern boundary (with Howeston Golf Course). Permeable fencing similar to that shown in **Plate 4**.
- Northern boundary (with air navigation facility). Permeable fencing similar to that shown in **Plate 4** if practical; if not practical for security reasons then ensure fencing is made permeable for koalas through use of timber poles mounted either side of fences (**Plates 6** and **7**).



Plate 6 – poles as per Council's Wildlife friendly website (https://www.redland.qld.gov.au/info/20287/wildlife-friendly_backyard/643/wildlife-friendly_fencing)



Plate 7 – Similar design with weak points that snap under the weight of a human, but not that of a koala. A useful addition at sites where there are security concerns.

Roads also represent a potential barrier. Where included they should be designed as a low speed environment. Where canopy connectivity is severed additional mitigation should be considered (e.g. glider poles and/or rope bridges). Wildlife crossing infrastructure should be integrated if the unmade Uhlman Road along the northern boundary is constructed.

4.4.4 Buffers and development setbacks

Vegetation adjoining TECs is in relatively good condition, but will require some weed control. The vegetation is likely to provide an adequate buffer to future development activities, however it will ultimately depend on the proposed future use of the Community Facilities Zone.

4.4.5 Noise

Consideration of the construction and operational phase noise, vibration and air quality must be considered in the design phase of any proposed land use and Future Activity.

In addition, any future construction works must adhere to the noise restrictions specified for the proposed activity in the *Environmental Protection Act 1994.*

5 Enhancement measures

The EAR identifies that much of the Site is displaying signs of natural regeneration and as such restoration efforts should focus on assisted natural regeneration as promoted in the SEQ Ecological Restoration Framework[5]. It is recommended that ecological restoration of the Conservation Area is undertaken in accordance with the SEQ Ecological Restoration Framework.

Where practicable this should extend to areas outside of the Conservation Area, particularly where habitat features are retained. Where it is unpractical efforts can still be made to enhance koala movement through these areas through the use of koala habitat trees as part of landscapes and streetscapes. Additional habitat features can be integrated into this area by the way of use of salvaged ground habitat and nest boxes.

[5] Chenoweth EPLA and Bushland Restoration Services (2012) *South East Queensland Ecological Restoration Framework: Code of Practice*. Prepared on behalf of SEQ Catchments and South East Queensland Local Governments, Brisbane.

6 Summary of management measures and performance indicators

Table 6-1 summarises actions outlined in the previous sections and **Figure A** illustrates where these management measures are to be implemented.

Table 6-1 Summary of management measures

	Number	Action	Inside Conservation Area	Outside of Conservation Area	Timing
Protect (P)	P1	Exclude development from Conservation Area and development located outside of the conservation Area much be information by a project-specific Ecological Assessment.	Y	Y	On-going and as part of future planning for Community Facilities Zone.
Maintain (M)	M1	Manage weeds and pest animals	Y	Y	On-going
	M2	Prevent uncontrolled access	Y		On-going
	M3	Prepare a bushfire management plan that includes: a. Exclusion of fire from Subtropical and Temperate Coastal Saltmarsh TEC b. Undertake ecological burns based on regional ecosystem prescriptions for balance of site c. Establish blocks to burn in demarcated by fire management lines / trails (demarcated in part in Figure A)			On-going
	M4	Limit clearing to that absolutely required to gain site access and for fire management	Y		As part of future planning for Community Facilities Zone
	M5	Maximise retention of koala habitat trees and hollow-bearing trees		Y	As part of future planning for Community Facilities Zone
	M6	Utilise fauna sensitive lighting solutions in the Community Facilities Zone		Y	As part of future planning for Community Facilities Zone
	M7	Establish fencing outcomes on boundaries to coincide with site planning as follows: a. Southern boundary on Tingalpa Creek. No fencing. b. South-eastern boundary with private properties. Permeable fencing. c. Western boundary. Permeable fencing. d. Eastern boundary. Impermeable fencing to prevent wildlife access onto Old Cleveland Road. This would ideally include koala-proof fencing as per the Department of Transport and Main Roads specifications. e. Northern boundary (with Howeston Golf Course). Permeable fencing. f. Northern boundary (with air navigation facility). Permeable fencing if practical; if not practical for security reasons then ensure fencing is made permeable for koalas and other native	Y	Y	Ongoing

	Number	Action	Inside Conservation Area	Outside of Conservation Area	Timing
		arboreal mammals through the use of timber poles mounted either side of fences. All site access to be created as wildlife friendly: g. i.e. low speed environments and with wildlife crossing infrastructure.			
Enhance (E)	E1	Undertake ecological restoration in accordance with the SEQ Ecological Restoration Framework.	Y		On-going
	E2	Where practical, undertake ecological restoration in accordance with the SEQ Ecological Restoration Framework. Where not practical integrate koala habitat trees as part of landscapes and streetscapes.		Y	As part of future planning for Community Facilities Zone

Table 6-2 below provides performance indicators and related management measures for the objectives stated in the Commonwealth's Conservation Agreement. The timeline is based on the short and long-term protection, maintenance and enhancement of the site's ecological values.

Table 6-2 Performance indicators

Objectives from the Commonwealth Conservation Agreement	Related Management Measures (see **Table 6-1**)	Performance indicator (PI)		Timeline
1. Koala and Koala habitat is maintained and enhanced	Refer to P1 – E2	PI 1	Koala population on site known and stable	Utilise the Redland Coast Koala Population Assessment Project (2018) as a base against which future monitoring can determine whether the population is stable. Start monitoring within 1 year.
	Refer to P1 – E2	PI2	Koala population on site known and increasing	Utilise the Redland Coast Koala Population Assessment Project (2018) as a base against which future monitoring can determine whether the population is known and increasing. Start monitoring within 1 year.
2. Subtropical and Temperate Coastal Saltmarsh ecological community is maintained	Refer to P1, M1, M2, M3 and E1	PI3	Salt water couch community extent integral (no access)	Access restricted within 1 year.
	Refer to P1, M1, M2, M3 and E1	PI4	Salt water couch community extent free of weeds	Weeds removed after 1 year. Monitored and maintained thereafter.
3. Manage other ecological values	Pests - Refer to M1	PI5	The site is free of weeds and pests animals	Weeds (being WONs and Category 3 species under the *Biosecurity Act 2014*) are removed within 5 years and maintained thereafter. Pests animals (being species identified for Containment in the Coast Biosecurity Plan 2018-2023) are removed within 5 years and maintained thereafter.

Objectives from the Commonwealth Conservation Agreement	Related Management Measures (see **Table 6-1**)	Performance indicator (PI)		Timeline
	Uncontrolled access – Refer to M2	PI6	Fencing and signage installed.	Access restricted within 2 years.
	Bushfire – Refer to M2)	PI7	Bushfire Management Plan prepared and enacted.	Bushfire Management Plan prepared within 1 year and ongoing bushfire management thereafter.
	Clearing – Refer to M4 and M5	PI8	The Conservation Area is protected from clearing activities. Clearing outside of the Conservation Area to be informed by an Ecological Assessment.	On-going and all future land use.
	Lighting – Refer to M6	PI9	Fauna sensitive lighting solutions are incorporated into the Community Facilities Zone	Any future development within the Community Facilities Zone.
	Fencing – Refer to M7	PI10	Fencing established on boundaries	Concurrent with future site planning.
	Restoration – Refer to E1 and E2	PI11	Assisted natural regeneration as per the SEQ Ecological Restoration Framework is completed.	On-going and concurrent with future site planning.

FIGURE

Figure A - Summary of Management Issues

BIRKDALE ECOLOGICAL ASSESSMENT

Number	Action
P1	Exclude development from Conservation Area
M1	Manage weeds and pest animals
M2	Prevent uncontrolled access
M3	Prepare a bushfire management plan that includes:
	a. Exclusion of fire from Subtropical and Temperate Coastal Saltmarsh TEC
	b. Undertake ecological burns based on regional ecosystem prescriptions for balance of site
	c. Establish blocks to burn in demarcated by fire management lines / trails (demarcated in part in Figure A)
M4	Limit clearing to that absolutely required to gain site access and for fire management
M5	Maximise retention of koala habitat trees and hollo-bearing trees
M6	Utilise fauna sensitive lighting solutions in the Community Facilities Zone
M7	Establish fencing outcomes on boundaries as follows:
	a. Southern boundary on Tingalpa Creek. No fencing.
	b. South-eastern boundary with private properties. Permeable fencing.
	c. Western boundary. Permeable fencing.
	d. Eastern boundary. Impermeable fencing to prevent wildlife access onto Old Cleveland Road. This would ideally include koala-proof fencing as per the Department of Transport and Main Roads specifications.
	e. Northern boundary (with Howeston Golf Course). Permeable fencing.
	f. Northern boundary (with air navigation facility). Permeable fencing if practical; if not practical for security reasons then ensure fencing is made permeable for koalas through use of timber poles mounted either side of fences.
	All site access to be created as wildlife friendly:
	g. i.e. low speed environments and with wildlife crossing infrastructure.
E1	Undertake ecological restoration in accordance with the SEQ Ecological Restoration Framework
E2	Where practical, undertake ecological restoration in accordance with the SEQ Ecological Restoration Framework. Where not practical integrate koala habitat trees as part of landscapes and streetscapes.

UHLMAN ROAD
BAILEY ROAD
NOTTINGHILL STREET
VALENTINE ROAD
JENNIFER STREET
JONES ROAD
DALESTREET
DAVESON ROAD
OLD CLEVELAND ROAD EAST
LYRE STREET
SWAN STREET
CROFT STREET
FORT STREET
BREWER STREET
ARCADIA STREET
BOWEN STREET
KEITH STREET
WILLARD ROAD
LAWN TERRACE
ROAD
DENISON COURT

Legend

- The Site

Action

- M2 & M7b
- M3c
- M7c & M7e
- M7d
- M7f
- M7g
- M3a
- M1, M5, M6 & E2
- P1, M1, M3b & E1

1:6,000 Scale at A3

m
0 50 100 150 200

N

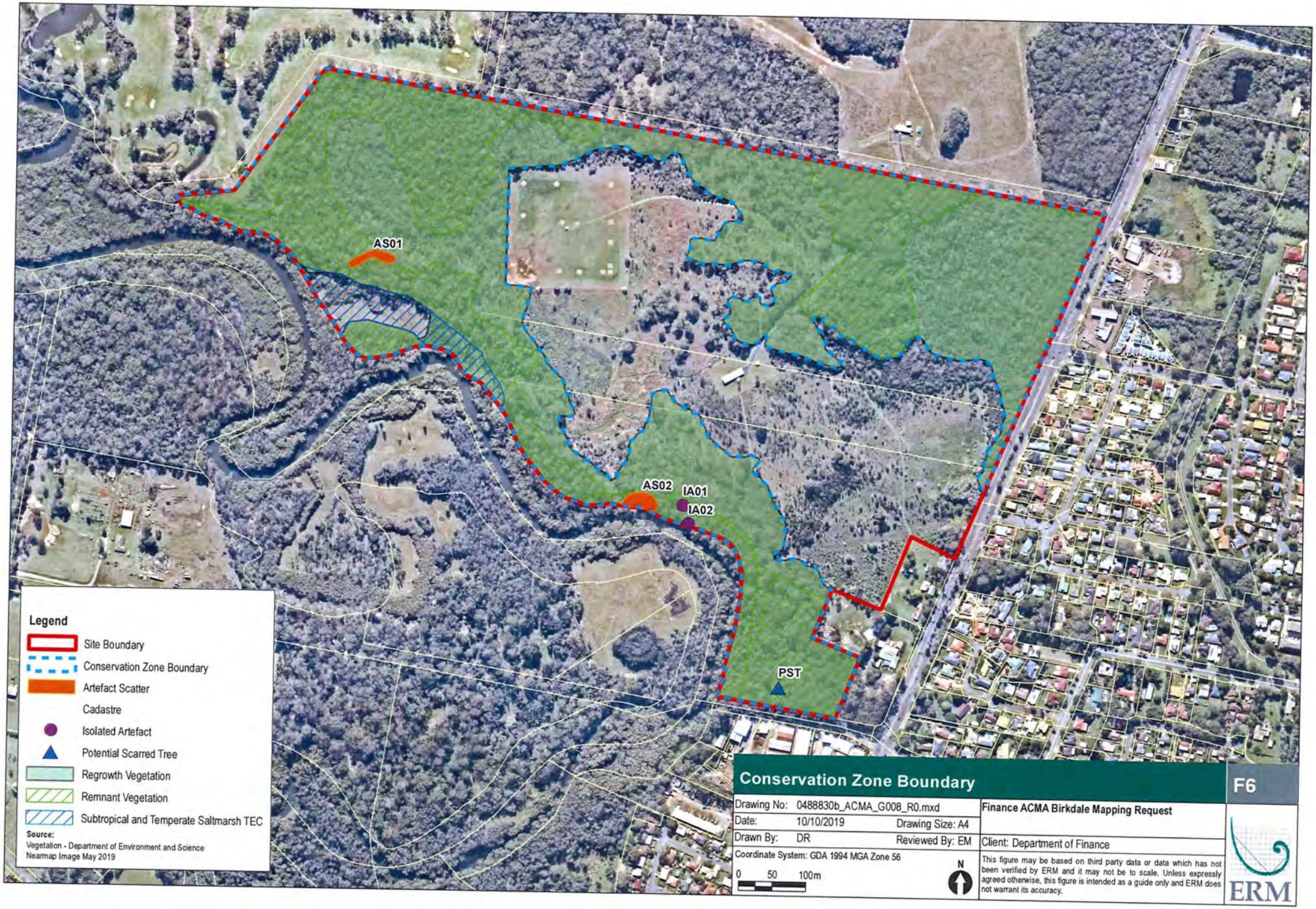
Cardno

Map Produced by Cardno NSW/ACT (WOL)
Date: 2020-05-11 | Project: AWE200221
Coordinate System: GDA 1994 MGA Zone 56
Map: AWE200221-GS-007-EnvMgmtPlan.mxd 01
Aerial Imagery supplied by Nearmap (March, 2020)

APPENDIX

A

CONSERVATION AREA


AS01
AS02
IA01
IA02
PST
Legend
Site Boundary
Conservation Zone Boundary
Artefact Scatter
Cadastre
Isolated Artefact
Potential Scarred Tree
Regrowth Vegetation
Remnant Vegetation
Subtropical and Temperate Saltmarsh TEC
Source:
Vegetation - Department of Environment and Science
Nearmap Image May 2019
Conservation Zone Boundary
F6
Drawing No: 0488830b_ACMA_G008_R0.mxd
Finance ACMA Birkdale Mapping Request
Date: 10/10/2019
Drawing Size: A4
Drawn By: DR
Reviewed By: EM
Client: Department of Finance
Coordinate System: GDA 1994 MGA Zone 56
0 50 100m
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ERM

APPENDIX

C

DESKTOP SEARCHES



DA Mapping System – Print Screen

Department of State Development, Manufacturing, Infrastructure and Planning

Queensland Government

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0 140 280 420 560

Metres

Date: 28/04/2020

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Legend

Drawn Polygon Layer

Override 1

Cadastre (10k)



Cadastre (10k)

Regulated vegetation management map (Category A and B extract)



Category A on the regulated vegetation management map



Category B on the regulated vegetation management map

Water resource planning area boundaries



Water resource planning area boundaries

Coastal management district



Coastal management district

Coastal area - erosion prone area

Coastal area - erosion prone area

Coastal area - medium storm tide inundation area



Coastal area - medium storm tide inundation area

Coastal area - high storm tide inundation area



Coastal area - high storm tide inundation area

Area within 25m of a State-controlled road



Area within 25m of a State-controlled road

State-controlled road



State-controlled road

Koala priority area



Koala priority area

Core koala habitat area



Core koala habitat area

SEQ Regional Plan land use categories

Regional Landscape and Rural Production Area

Urban Footprint

Rural Living Area

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Date: 28/04/2020

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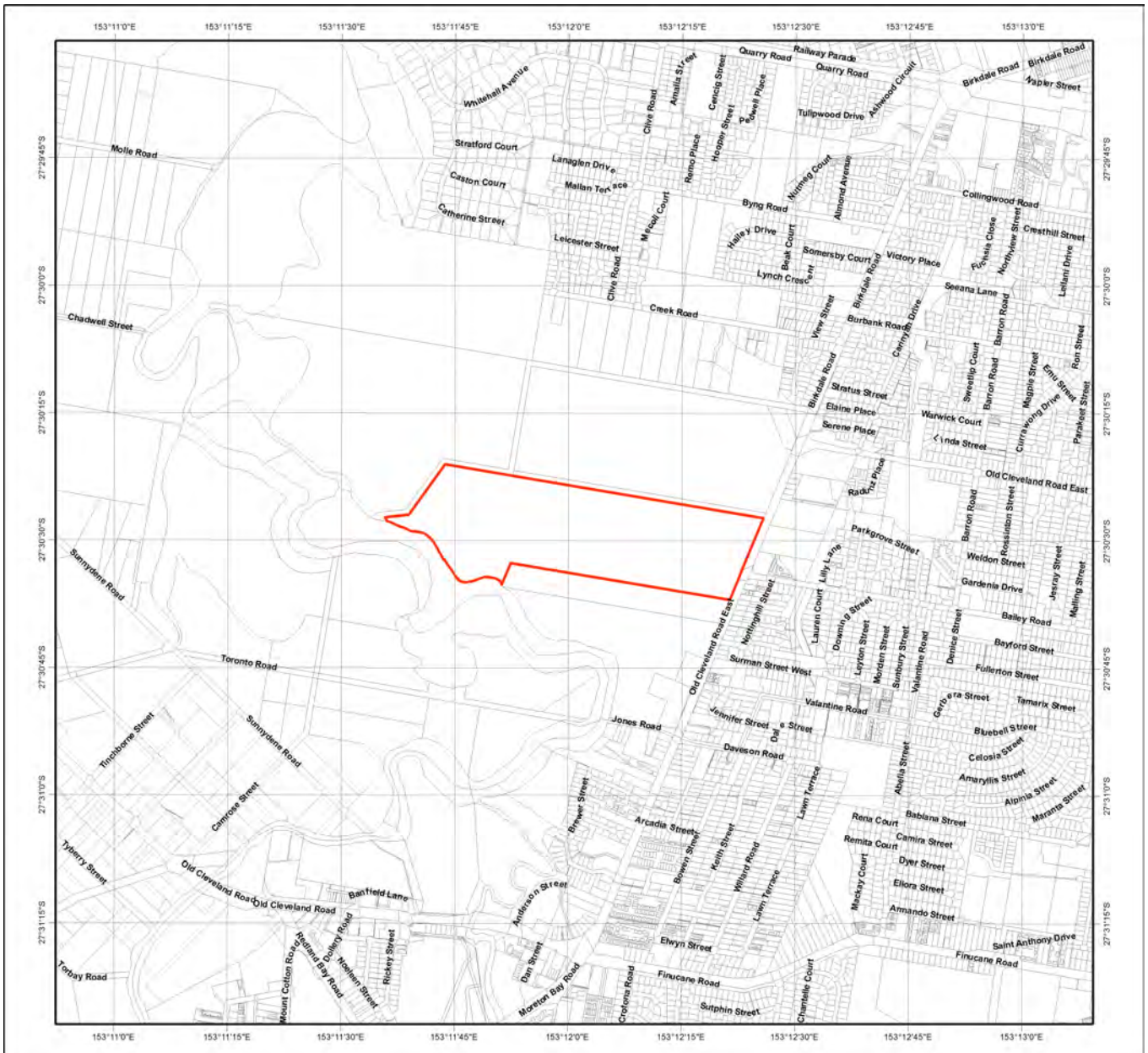

Map of Great Barrier Reef Wetland Protection Areas

- Selected Lot and Plan
- Cadastral Boundary
- Wetland in a wetland protection area
- Great Barrier Reef wetland protection area



N

Note:
This map shows the location of wetland protection areas which are defined under the Environmental Protection Regulation 2008. Within wetland protection areas, certain types of development involving high impact earthworks are made assessable under Schedule 3 of the Sustainable Planning Regulation 2009.

The Department of State Development, Manufacturing, Infrastructure and Planning is the State Assessment Referral Agency (SARA) under Schedule 7 of the Sustainable Planning Regulation 2009 for assessable development involving high impact earthworks within wetland protection areas. The Department of Environment and Science is a technical agency.

The policy outcome and assessment criteria for assessing these applications are described in the State Development Assessment Provisions (SDAP) *State Code 9 : Great Barrier Reef Wetland Protection Areas.*

This map is produced at a scale relevant to the size of the lot on plan identified and should be printed at A4 size in portrait orientation. Consideration of the effects of mapped scale is necessary when interpreting data at a large scale.

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0 200 400 600 800 1000 m

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Map of Queensland Wetland Environmental Values

Selected Lot and Plan

Cadastral Boundary

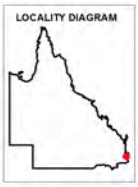
High ecological values waters management intent

Wetlands assessed under section 7

GBR wetland of high ecological significance

Wetland of high ecological significance

Wetland of general ecological significance





Note:
This map shows the location of wetlands on the Map of Queensland Wetland Environmental Values under the Environmental Protection (Wetland and Water Biodiversity) Policy 2019. The map also shows high ecological value waters management intent under Schedule 2 of the Environmental Protection (Water and Wetland Biodiversity) Policy 2019.

Wetlands are assessed for ecological significance using the environmental values for wetlands in section 7 of the Environmental Protection (Wetland and Water Biodiversity) Policy 2019. Wetlands are considered either High Ecological Significance (HES) or of General Ecological Significance (GES) for the purposes of the environmental values.

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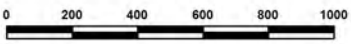

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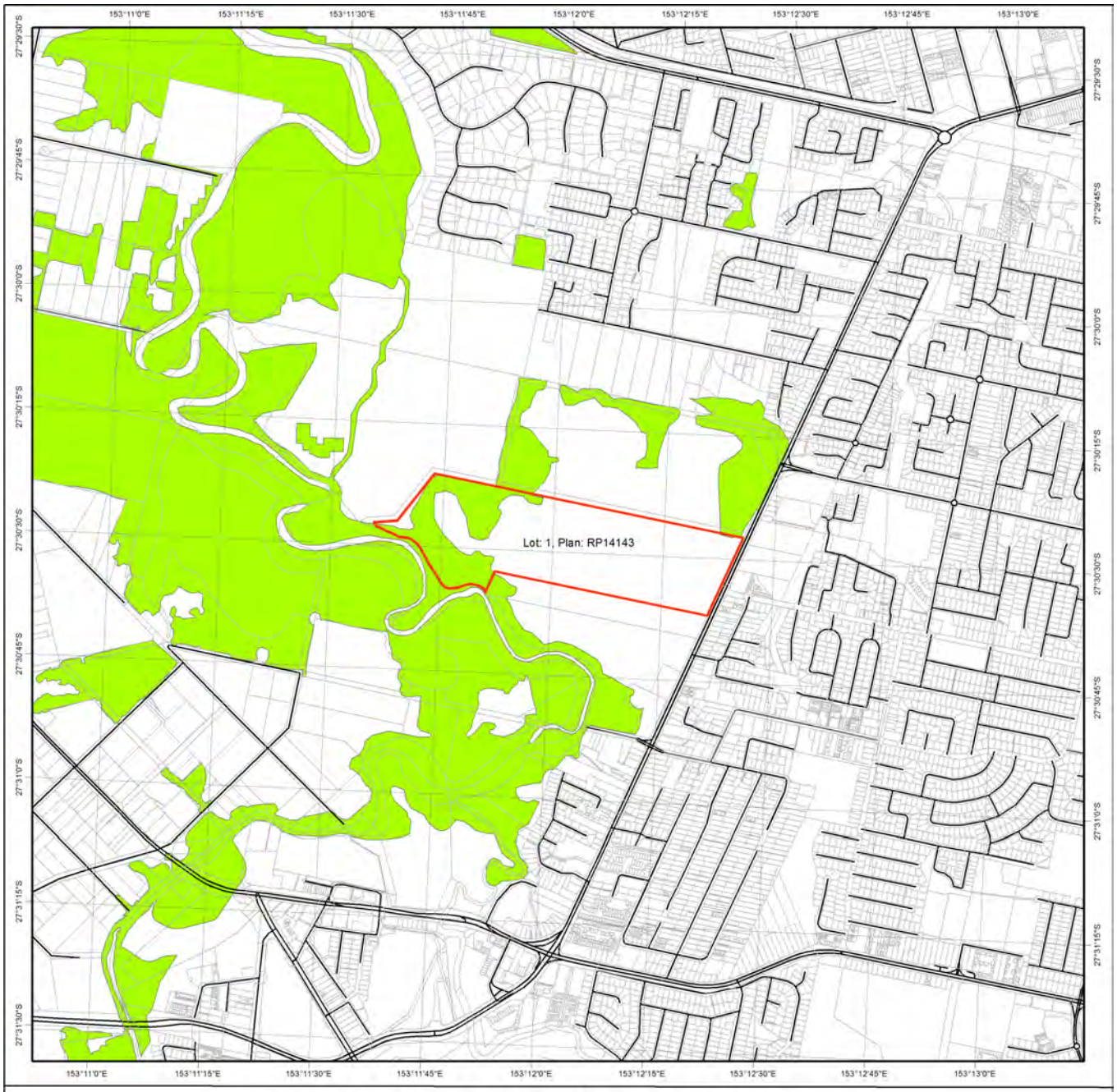
22/04/2020 15:50:32
Lot: 1 Plan: RP14143



Protected Plants Flora Survey Trigger Map

Legend

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



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

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

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

N

0 140 280 420 560 700 m

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GDA 1994 Queensland Albers

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Protected plants flora survey trigger map

The protected plants flora survey trigger map identifies 'high risk areas' where endangered, vulnerable or near threatened plants are known to exist or are likely to exist. Under the *Nature Conservation Act 1992* (the Act) it is an offence to clear protected plants that are 'in the wild' unless you are authorised or the clearing is exempt, for more information see section 89 of the Act.

Please see the Department of Environment and Science webpage on the clearing of protected plants for information on what exemptions may apply in your circumstances, whether you may need to undertake a flora survey, and whether you may need a protected plants clearing permit.

Updates to the data informing the flora survey trigger map

The flora survey trigger map will be reviewed, and updated if necessary, at least every 12 months to ensure the map reflects the most up-to-date and accurate data available.

Species information

Please note that flora survey trigger maps do not identify species associated with 'high risk areas'. While some species information may be publicly available, for example via the Queensland Spatial Catalogue, the Department of Environment and Science does not provide species information on request. Regardless of whether species information is available for a particular high risk area, clearing plants in a high risk area may require a flora survey and/or clearing permit. Please see the Department of Environment and Science webpage on the clearing of protected plants for more information.

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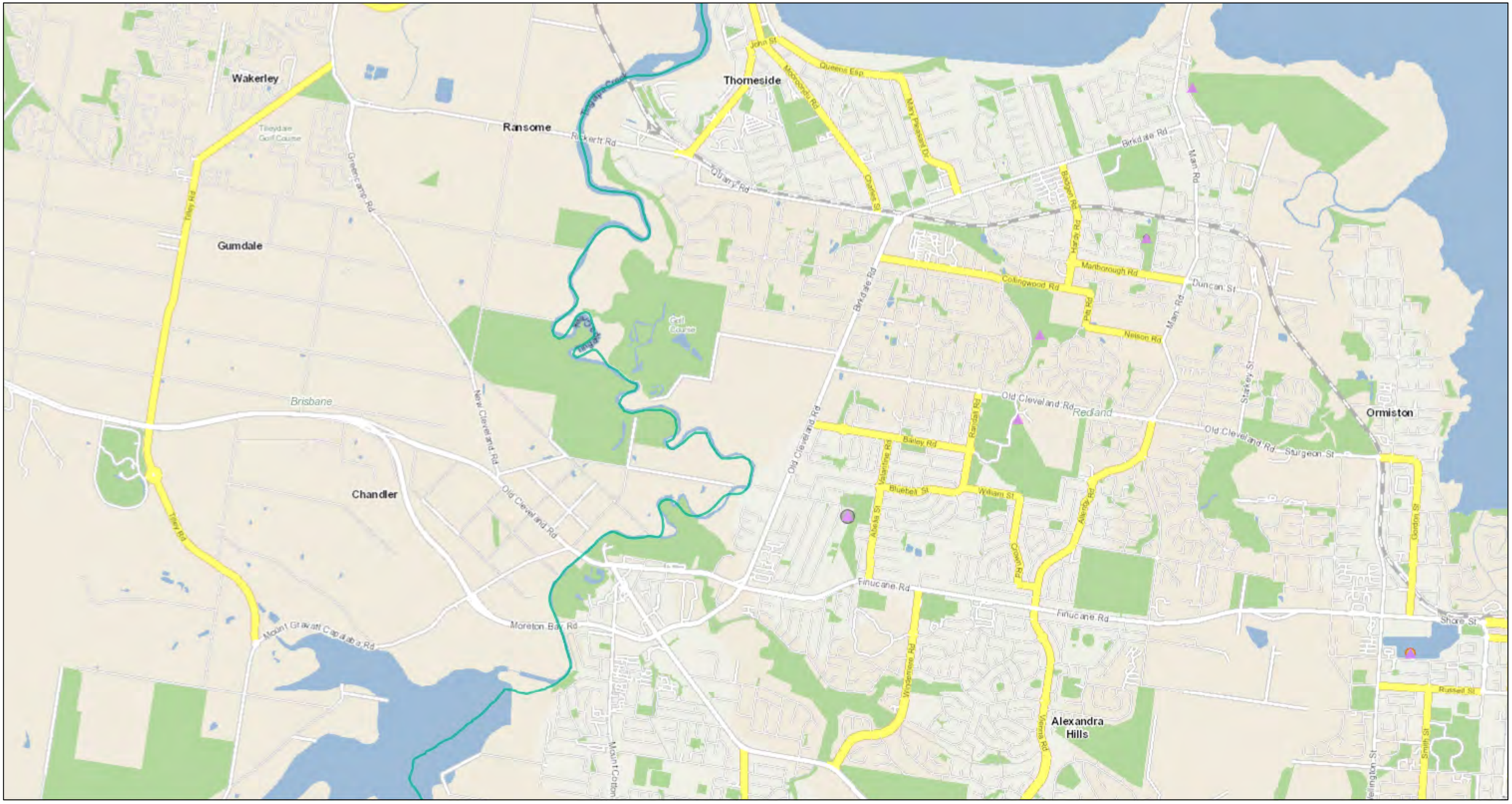
Birkdale Land Survey



April 28, 2020

1:36,112

0 0.45 0.9 1.8 mi

0 0.5 1 2 km

Flying-fox Camps

- Nationally Important Flying-fox Camp
- Other Flying-fox Camp

Grey-headed Flying-fox (GHFF)(EPBC Vulnerable) Numbers

- <500
- >=500 but <2,500
- >=2,500 but <10,000
- >=10,000 but <16,000
- >=16,000 but <50,000
- >=50,000

Spectacled Flying-fox (SFF)(EPBC Vulnerable) Numbers

- <500
- >=500 but <2,500
- >=2,500 but <10,000
- >=10,000 but <16,000
- >=16,000 but <50,000
- >=50,000

Black Flying-fox (BFF) Numbers

- <500
- >=500 but <2,500
- >=2,500 but <10,000
- >=10,000 but <16,000
- >=16,000 but <50,000
- >=50,000

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27°30'10"S 153°11'23"E

27°30'10"S 153°12'31"E



27°31'0"S 153°11'23"E

27°31'0"S 153°12'31"E



Legend located on next page

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0 250 metres

Scale: 1:10000

Printed at: A4
Print date: 28/4/2020
Datum: Geocentric Datum of Australia 1994
Projection: Web Mercator EPSG 102100

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Department of Natural Resources, Mines and Energy

Birkdale Land Survey

Kaola Conservatoin Plan Map

Legend

South East Queensland koala protection area

Koala priority area

Core koala habitat area

Locally refined koala habitat area

Road crossing

- Bridge
- Tunnel

Road

- Highway
- Main
- Local
- Private

Railway

Attribution

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Australian Government
Department of the Environment and Energy

EPBC Act Protected Matters Report

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

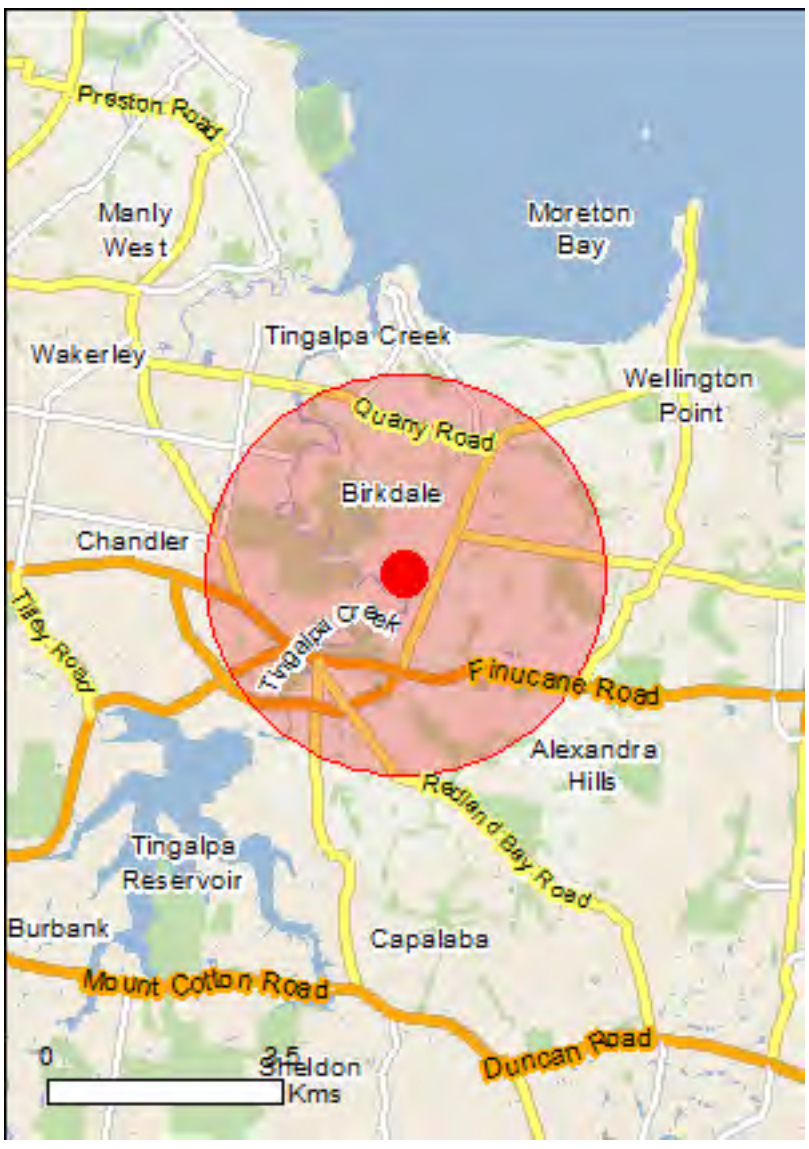
Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

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

Report created: 22/04/20 15:57:20

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

Caveat
Acknowledgements



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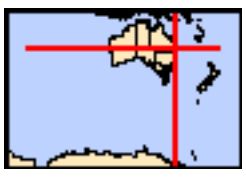
Coordinates

Buffer: 3.0Km



Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	66
Listed Migratory Species:	70

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	74
Whales and Other Cetaceans:	4
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	4
Regional Forest Agreements:	None
Invasive Species:	42
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar) [Resource Information]

Name	Proximity
Moreton bay	Within Ramsar site

Listed Threatened Ecological Communities [Resource Information]

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

Name	Status	Type of Presence
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community likely to occur within area
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur within area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Species or species habitat known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat likely to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area

Name	Status	Type of Presence
Diomedea antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Limosa lapponica baueri Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432]	Critically Endangered	Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta cauta Shy Albatross [82345]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta steadi White-capped Albatross [82344]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area

Name	Status	Type of Presence
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area
Thinornis rubricollis rubricollis Hooded Plover (eastern) [66726]	Vulnerable	Species or species habitat may occur within area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat may occur within area
Fish		
Epinephelus daemelii Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat may occur within area
Insects		
Argynnis hyperbius inconstans Australian Fritillary [88056]	Critically Endangered	Species or species habitat may occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat may occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat known to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Potorous tridactylus tridactylus Long-nosed Potoroo (SE Mainland) [66645]	Vulnerable	Species or species habitat may occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area
Xeromys myoides Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat likely to occur within area
Plants		
Arthraxon hispidus Hairy-joint Grass [9338]	Vulnerable	Species or species habitat likely to occur within area
Baloghia marmorata Marbled Balogia, Jointed Baloghia [8463]	Vulnerable	Species or species habitat may occur within area

Name	Status	Type of Presence
Bosistoa transversa Three-leaved Bosistoa, Yellow Satinheart [16091]	Vulnerable	Species or species habitat likely to occur within area
Corchorus cunninghamii Native Jute [14659]	Endangered	Species or species habitat likely to occur within area
Cryptocarya foetida Stinking Cryptocarya, Stinking Laurel [11976]	Vulnerable	Species or species habitat may occur within area
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat may occur within area
Cupaniopsis shirleyana Wedge-leaf Tuckeroo [3205]	Vulnerable	Species or species habitat may occur within area
Endiandra floydii Floyd's Walnut [52955]	Endangered	Species or species habitat may occur within area
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat likely to occur within area
Macadamia tetraphylla Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut [6581]	Vulnerable	Species or species habitat may occur within area
Persicaria elatior Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat may occur within area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat likely to occur within area
Samadera bidwillii Quassia [29708]	Vulnerable	Species or species habitat likely to occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Delma torquata Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat known to occur within area

Name	Status	Type of Presence
Natator depressus		
Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Sharks		
Carcharias taurus (east coast population)		
Grey Nurse Shark (east coast population) [68751]	Critically Endangered	Species or species habitat likely to occur within area
Carcharodon carcharias		
White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat likely to occur within area
Pristis zijsron		
Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding may occur within area

Listed Migratory Species [Resource Information]

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

Name	Threatened	Type of Presence
Migratory Marine Birds		
Anous stolidus		
Common Noddy [825]		Species or species habitat likely to occur within area
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardenna carneipes		
Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat likely to occur within area
Ardenna grisea		
Sooty Shearwater [82651]		Species or species habitat may occur within area
Calonectris leucomelas		
Streaked Shearwater [1077]		Species or species habitat known to occur within area
Diomedea antipodensis		
Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans		
Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area
Fregata ariel		
Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area
Fregata minor		
Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area
Macronectes giganteus		
Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli		
Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Sternula albifrons		
Little Tern [82849]		Species or species habitat may occur within area
Thalassarche cauta		
Shy Albatross [89224]	Vulnerable*	Species or species habitat may occur within area

Name	Threatened	Type of Presence
Thalassarche eremita Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Migratory Marine Species		
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat likely to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat known to occur within area
Manta alfredi Reef Manta Ray, Coastal Manta Ray, Inshore Manta Ray, Prince Alfred's Ray, Resident Manta Ray [84994]		Species or species habitat may occur within area
Manta birostris Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
Pristis zijsron		
Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding may occur within area
Sousa chinensis		
Indo-Pacific Humpback Dolphin [50]		Breeding known to occur within area
Migratory Terrestrial Species		
Cuculus optatus		
Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundapus caudacutus		
White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Monarcha melanopsis		
Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus		
Spectacled Monarch [610]		Species or species habitat known to occur within area
Myiagra cyanoleuca		
Satin Flycatcher [612]		Species or species habitat known to occur within area
Rhipidura rufifrons		
Rufous Fantail [592]		Species or species habitat known to occur within area
Migratory Wetlands Species		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat known to occur within area
Arenaria interpres		
Ruddy Turnstone [872]		Species or species habitat known to occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris alba		
Sanderling [875]		Species or species habitat known to occur within area
Calidris canutus		
Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat known to occur within area
Calidris ruficollis		
Red-necked Stint [860]		Species or species habitat known to occur within area
Calidris tenuirostris		
Great Knot [862]	Critically Endangered	Species or species habitat known to occur within area
Charadrius bicinctus		
Double-banded Plover [895]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area
Limicola falcinellus Broad-billed Sandpiper [842]		Species or species habitat known to occur within area
Limnodromus semipalmatus Asian Dowitcher [843]		Species or species habitat known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Species or species habitat known to occur within area
Numenius phaeopus Whimbrel [849]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Philomachus pugnax Ruff (Reeve) [850]		Species or species habitat known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Species or species habitat known to occur within area
Pluvialis squatarola Grey Plover [865]		Species or species habitat known to occur within area
Tringa brevipes Grey-tailed Tattler [851]		Species or species habitat known to occur within area
Tringa glareola Wood Sandpiper [829]		Species or species habitat known to occur within area
Tringa incana Wandering Tattler [831]		Species or species habitat known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species

Name	Threatened	Type of Presence
		habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area
Xenus cinereus Terek Sandpiper [59300]		Species or species habitat known to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Breeding known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Arenaria interpres Ruddy Turnstone [872]		Species or species habitat known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris alba Sanderling [875]		Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species

Name	Threatened	Type of Presence
		habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Species or species habitat known to occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area
Charadrius bicinctus Double-banded Plover [895]		Species or species habitat known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Species or species habitat known to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat known to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area
Diomedea gibsoni Gibson's Albatross [64466]	Vulnerable*	Species or species habitat may occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Heteroscelus brevipes Grey-tailed Tattler [59311]		Species or species habitat known to occur within area
Heteroscelus incanus Wandering Tattler [59547]		Species or species habitat known to occur

Name	Threatened	Type of Presence within area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Limicola falcinellus Broad-billed Sandpiper [842]		Species or species habitat known to occur within area
Limnodromus semipalmatus Asian Dowitcher [843]		Species or species habitat known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]		Species or species habitat known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat known to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Species or species habitat known to occur within area
Numenius phaeopus Whimbrel [849]		Species or species habitat known to occur within area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat likely to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area

Name	Threatened	Type of Presence
Philomachus pugnax Ruff (Reeve) [850]		Species or species habitat known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Species or species habitat known to occur within area
Pluvialis squatarola Grey Plover [865]		Species or species habitat known to occur within area
Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [1043]		Species or species habitat likely to occur within area
Puffinus griseus Sooty Shearwater [1024]		Species or species habitat may occur within area
Recurvirostra novaehollandiae Red-necked Avocet [871]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
Sterna albifrons Little Tern [813]		Species or species habitat may occur within area
Thalassarche cauta Shy Albatross [89224]	Vulnerable*	Species or species habitat may occur within area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Thinornis rubricollis rubricollis Hooded Plover (eastern) [66726]	Vulnerable	Species or species habitat may occur within area
Tringa glareola Wood Sandpiper [829]		Species or species habitat known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
[Tringa stagnatilis](#) Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area
[Xenus cinereus](#) Terek Sandpiper [59300]		Species or species habitat known to occur within area
Fish		
[Hippocampus whitei](#) White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]		Species or species habitat likely to occur within area
Reptiles		
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
[Eretmochelys imbricata](#) Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
[Lepidochelys olivacea](#) Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat known to occur within area
[Natator depressus](#) Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area

Whales and other Cetaceans		[Resource Information]
Name	Status	Type of Presence
Mammals		
[Balaenoptera edeni](#) Bryde's Whale [35]		Species or species habitat may occur within area
[Megaptera novaeangliae](#) Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
[Orcaella brevirostris](#) Irrawaddy Dolphin [45]		Species or species habitat likely to occur within area
[Sousa chinensis](#) Indo-Pacific Humpback Dolphin [50]		Breeding known to occur within area

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Coolnwynpin Creek Corridor Koala (A)	QLD
Coolnwynpin Creek Corridor Koala (B)	QLD
Leslie Harrison Dam	QLD
Tingalpa Creek	QLD

Invasive Species

[Resource Information]

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

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat known to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur

Name	Status	Type of Presence
		within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Alternanthera philoxeroides Alligator Weed [11620]		Species or species habitat likely to occur within area
Annona glabra Pond Apple, Pond-apple Tree, Alligator Apple, Bullock's Heart, Cherimoya, Monkey Apple, Bobwood, Corkwood [6311]		Species or species habitat may occur within area
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
Asparagus africanus Climbing Asparagus, Climbing Asparagus Fern [66907]		Species or species habitat likely to occur within area
Cabomba caroliniana Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina Fanwort, Common Cabomba [5171]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Chrysanthemoides monilifera subsp. rotundata Bitou Bush [16332]		Species or species habitat likely to occur within area
Cryptostegia grandiflora Rubber Vine, Rubbervine, India Rubber Vine, India Rubbervine, Palay Rubbervine, Purple Allamanda [18913]		Species or species habitat likely to occur within area
Dolichandra unguis-cati Cat's Claw Vine, Yellow Trumpet Vine, Cat's Claw Creeper, Funnel Creeper [85119]		Species or species habitat likely to occur within area
Eichhornia crassipes Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Hymenachne amplexicaulis Hymenachne, Olive Hymenachne, Water Stargrass, West Indian Grass, West Indian Marsh Grass [31754]		Species or species habitat likely to occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
Parthenium hysterophorus Parthenium Weed, Bitter Weed, Carrot Grass, False		Species or species

Name	Status	Type of Presence
Ragweed [19566]		habitat likely to occur within area
Prosopis spp. Mesquite, Algaroba [68407]		Species or species habitat likely to occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Sagittaria platyphylla Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus Asian House Gecko [1708]		Species or species habitat likely to occur within area
Ramphotyphlops braminus Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi [1258]		Species or species habitat likely to occur within area

Caveat

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

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

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

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

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

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

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

- migratory and
- marine

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

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

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

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

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

Coordinates

-27.5097 153.2014

Acknowledgements

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

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

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

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

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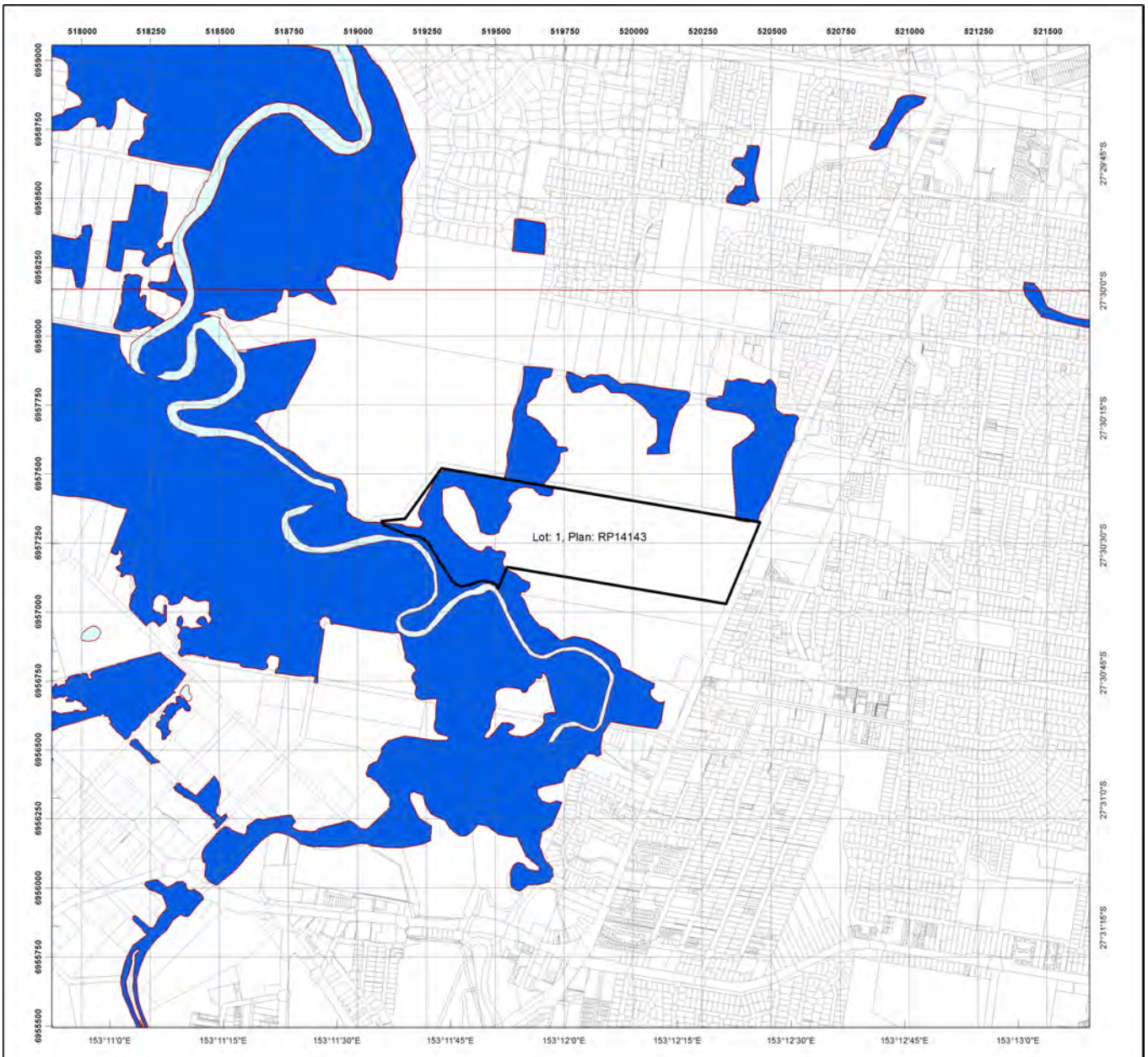


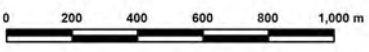
Regulated Vegetation Management Map

Legend

- Selected Lot and Plan
- Category A area (Vegetation offsets/compliance notices/VDecs)
- Category B area (Remnant vegetation)
- Category C area (High-value regrowth vegetation)
- Category R area (Reef regrowth watercourse vegetation)
- Category X area (Exempt clearing work on Freehold, Indigenous and Leasehold land)
- Water
- Area not categorised
- Other land parcel boundaries







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Additional information required for the assessment of vegetation values is provided in the accompanying "Vegetation Management Supporting map". For further information go to the web site: www.dnrme.qld.gov.au or contact the Department of Natural Resources, Mines and Energy.

Digital data for the regulated vegetation management map is available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

Land parcel boundaries are provided as locational aid only.

This map is updated on a monthly basis to ensure new PMAVs are included as they are approved.

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This product is projected into:
GDA 1994 MGA Zone 56

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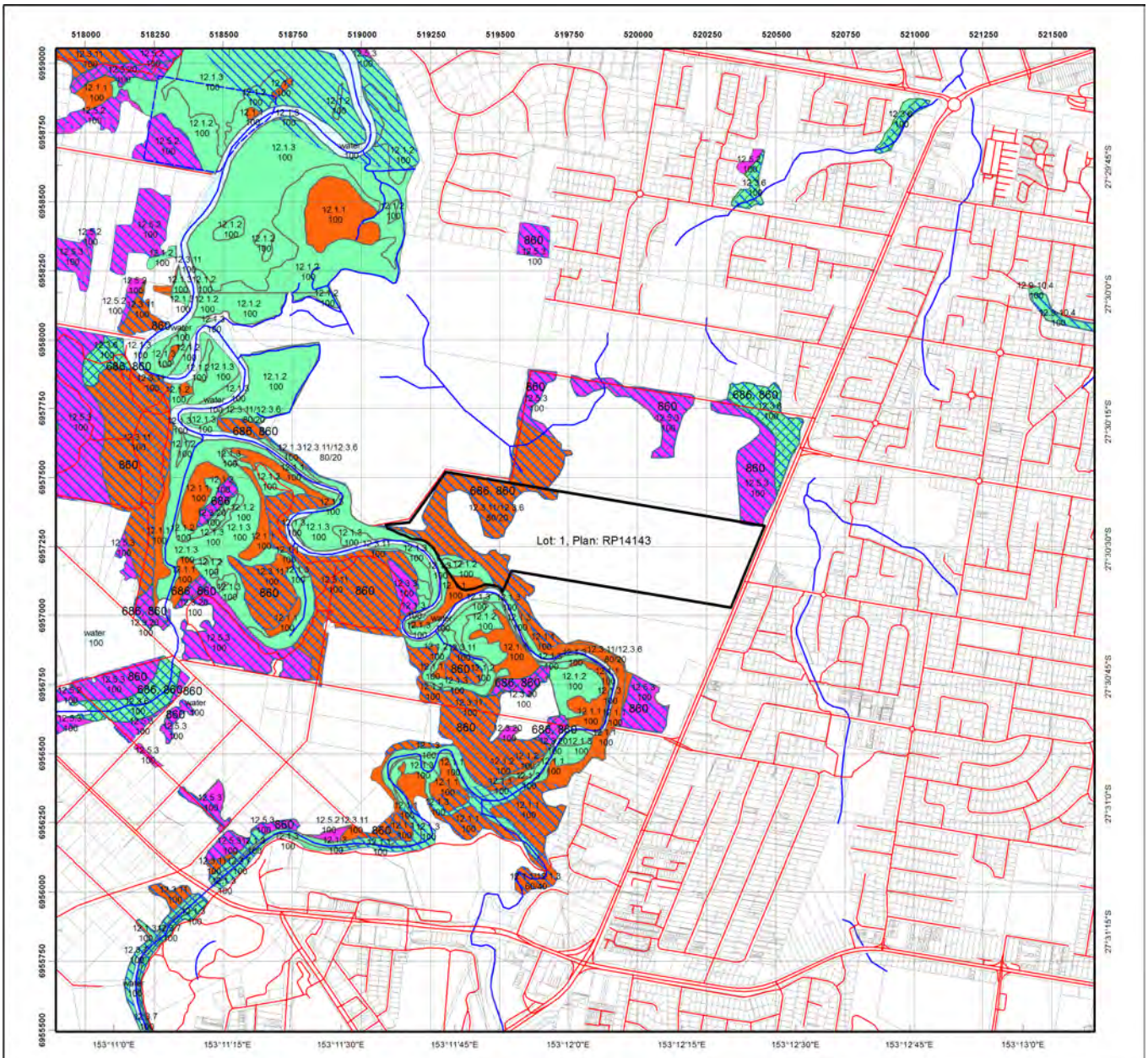

Vegetation Management Supporting Map

Legend

- Selected Lot and Plan
- Category A or B area containing endangered regional ecosystems
- Category A or B area containing of concern regional ecosystems
- Category A or B area that is a least concern regional ecosystem
- Category A or B area under Section 20AH
  These areas are edged in yellow and filled with the remnant RE Status
- Category C or R area containing endangered regional ecosystems
- Category C or R area containing of concern regional ecosystems
- Category C or R area that is a least concern regional ecosystem
- Category C area under Section 20AI
  These areas are edged in purple and filled with the remnant RE Status
- Category X area
- Water
- Wetland on the vegetation management wetlands map
- Essential habitat on the essential habitat map
- Essential habitat species record
- Watercourses and drainage features on the vegetation management watercourse and drainage features map
  (Stream order shown as black number against stream where available)
- Roads
- National Parks, State Forest and other reserves
- Other land parcel boundaries

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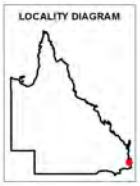
LOCALITY DIAGRAM



N

0 140 280 420 560 700 m

This product is projected into:
GDA 1994 MGA Zone 56

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

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

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

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

Land parcel boundaries are provided as locational aid only.

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Vegetation Management Act 1999 - Extract from the essential habitat database

Essential habitat is required for assessment under the:

- State Development Assessment Provisions - State Code 16: Native vegetation clearing which sets out the matters of interest to the state for development assessment under the *Planning Act 2016*; and
- Accepted development vegetation clearing codes made under the *Vegetation Management Act 1999*

Essential habitat for one or more of the following species is found on and within 1.1 km of the identified subject lot/s on the accompanying essential habitat map.

This report identifies essential habitat in Category A, B and Category C areas.

The numeric labels on the essential habitat map can be cross referenced with the database below to determine which essential habitat factors might exist for a particular species.

Essential habitat is compiled from a combination of species habitat models and buffered species records.

The Department of Natural Resources, Mines and Energy website (http://www.dnrme.qld.gov.au) has more information on how the layer is applied under the State Development Assessment Provisions - State Code 16: Native vegetation clearing and the *Vegetation Management Act 1999*.

Regional ecosystem is a mandatory essential habitat factor, unless otherwise stated.

Essential habitat, for protected wildlife, means a category A area, a category B area or category C area shown on the regulated vegetation management map-

1) that has at least 3 essential habitat factors for the protected wildlife that must include any essential habitat factors that are stated as mandatory for the protected wildlife in the essential habitat database; or

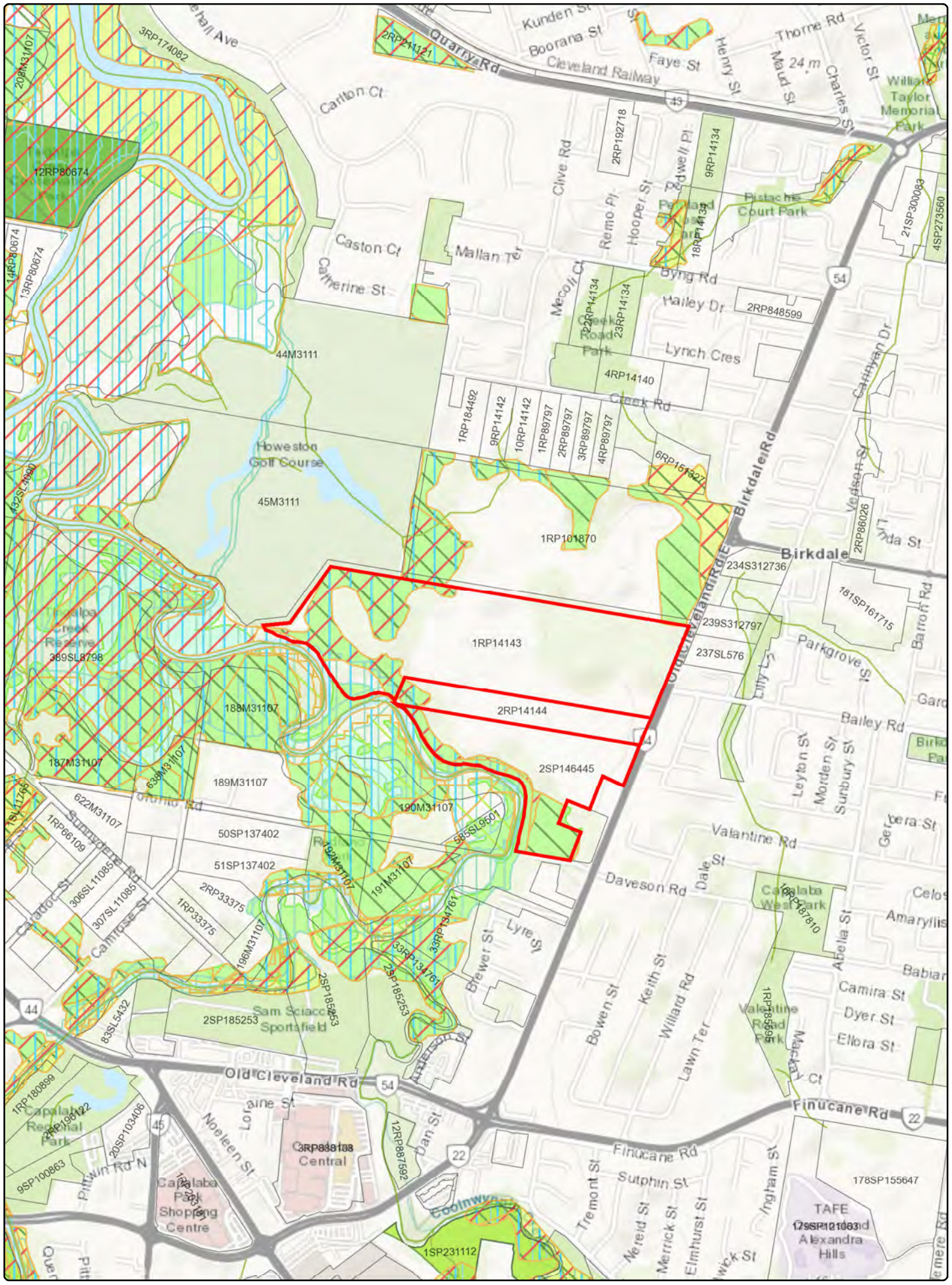
2) in which the protected wildlife, at any stage of its life cycle, is located.

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

Essential habitat in Category A and/or Category B and/or Category C

Label	Scientific Name	Common Name	NCA Status	Vegetation Community	Altitude	Soils	Position in Landscape
860	Phascolarctos cinereus	koala	V	SEQ: Open eucalypt forest and woodland that has: a) multiple strata layers containing Eucalyptus, Corymbia, Angophora, Lophostemon or Melaleuca trees that-at 1.3 metres above the ground-have a diameter both greater and less than 30 centimetres; and b) at least 1 of the following species: Eucalyptus tereticornis, E. fibrosa, E. propinqua; E. umbra, E. grandis, E. microcorys, E. tindaliae, E. resinifera, E. populnea, E. robusta, E. nigra, E. racemosa, E. crebra, E. exserta, E. seeana, Lophostemon confertus, L. suaveolens, Melaleuca quinquenervia. Outside SEQ: Open eucalypt forest and woodland that contains Eucalyptus &/or Corymbia spp. Tree species used for food varies across State and can include Eucalyptus tereticornis, E. camaldulensis, E. coolabah; E. drepanophylla, E. platyphylla, E. orgadophilla, E. thozetiana, E. melanophloia, E. populnea, E. melliodora, E. dealbata, E. microtheca, E. crebra, E. exserta, E. blakelyi, E. papuana, Corymbia tessellaris, C. citriodora, Melaleuca quinquenervia, M. leucadendra.	Sea level to 1000m.	None	Riparian areas, plains and hill/escarpment slopes.
686	Crinia tinnula	wallum froglet	V	Vegetation community is a mandatory essential habitat factor for this species. Permanent to ephemeral acidic (pH 4.3 - 5.2), soft freshwater in Melaleuca (e.g. M. quinquenervia) swamps, sedgeland, wet and dry heathland (e.g. Banksia robur, Xanthorrhoea) and wallum (Banksia aemula shrubland/woodland) areas coastal lowlands on sand or sandstone, occasionally in adjacent open forest/woodland (e.g. Eucalyptus racemosa, Corymbia citriodora) with heathy understorey; known to persist in small remnants (<10ha); may be found well away from water.	Sea level to 150m.	Sandy and sandy-alluvial substrates.	None

Label	Regional Ecosystem (mandatory unless otherwise specified)
860	SEQ: 11.3.2, 11.3.4, 11.3.25, 11.3.26, 11.8.2, 11.8.4, 11.8.5, 11.8.8, 11.9.9, 12.2.5, 12.2.6, 12.2.7, 12.2.8, 12.2.10, 12.3.2, 12.3.3, 12.3.4, 12.3.5, 12.3.6, 12.3.7, 12.3.9, 12.3.10, 12.3.11, 12.3.14, 12.3.18, 12.3.19, 12.3.20, 12.5.1, 12.5.2, 12.5.3, 12.5.4, 12.5.6, 12.5.7, 12.5.10, 12.5.12, 12.8.1, 12.8.8, 12.8.9, 12.8.11, 12.8.12, 12.8.14, 12.8.16, 12.8.17, 12.8.20, 12.8.24, 12.8.25, 12.9-10.1, 12.9-10.2, 12.9-10.3, 12.9-10.4, 12.9-10.5, 12.9-10.7, 12.9-10.8, 12.9-10.11, 12.9-10.12, 12.9-10.14, 12.9-10.17, 12.9-10.18, 12.9-10.19, 12.9-10.21, 12.9-10.25, 12.9-10.26, 12.9-10.27, 12.9-10.28, 12.9-10.29, 12.11.2, 12.11.3, 12.11.5, 12.11.6, 12.11.7, 12.11.8, 12.11.9, 12.11.14, 12.11.15, 12.11.16, 12.11.17, 12.11.18, 12.11.22, 12.11.23, 12.11.24, 12.11.25, 12.11.26, 12.11.27, 12.11.28, 12.12.2, 12.12.3, 12.12.5, 12.12.6, 12.12.7, 12.12.8, 12.12.9, 12.12.11, 12.12.12, 12.12.14, 12.12.15, 12.12.23, 12.12.24, 12.12.25, 12.12.28. Outside SEQ: 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.3.6, 4.3.8, 4.3.10, 4.3.11, 4.4.1, 4.5.3, 4.5.5, 4.5.6, 4.5.8, 4.5.9, 4.7.1, 4.7.7, 4.7.8, 4.9.6, 4.9.10, 4.9.12, 4.9.17, 6.3.1, 6.3.2, 6.3.3, 6.3.4, 6.3.5, 6.3.7, 6.3.8, 6.3.9, 6.3.11, 6.3.12, 6.3.17, 6.3.18, 6.3.22, 6.3.24, 6.3.25, 6.4.1, 6.4.2, 6.4.3, 6.4.4, 6.5.1, 6.5.2, 6.5.3, 6.5.5, 6.5.6, 6.5.7, 6.5.8, 6.5.9, 6.5.10, 6.5.11, 6.5.13, 6.5.14, 6.5.15, 6.5.16, 6.5.17, 6.5.18, 6.5.19, 6.6.2, 6.7.1, 6.7.2, 6.7.5, 6.7.6, 6.7.7, 6.7.9, 6.7.11, 6.7.12, 6.7.13, 6.7.14, 6.7.17, 6.9.3, 7.2.3, 7.2.4, 7.2.7, 7.2.11, 7.3.7, 7.3.8, 7.3.9, 7.3.12, 7.3.13, 7.3.14, 7.3.16, 7.3.19, 7.3.20, 7.3.21, 7.3.25, 7.3.26, 7.3.39, 7.3.40, 7.3.42, 7.3.43, 7.3.44, 7.3.45, 7.3.47, 7.3.48, 7.3.50, 7.5.1, 7.5.2, 7.5.3, 7.5.4, 7.8.7, 7.8.8, 7.8.10, 7.8.15, 7.8.16, 7.8.17, 7.8.18, 7.8.19, 7.11.5, 7.11.6, 7.11.13, 7.11.14, 7.11.16, 7.11.18, 7.11.19, 7.11.20, 7.11.21, 7.11.31, 7.11.32, 7.11.33, 7.11.34, 7.11.35, 7.11.37, 7.11.41, 7.11.42, 7.11.43, 7.11.44, 7.11.45, 7.11.46, 7.11.47, 7.11.48, 7.11.49, 7.11.50, 7.11.51, 7.12.4, 7.12.5, 7.12.17, 7.12.21, 7.12.22, 7.12.23, 7.12.24, 7.12.25, 7.12.26, 7.12.27, 7.12.28, 7.12.29, 7.12.30, 7.12.33, 7.12.34, 7.12.35, 7.12.51, 7.12.52, 7.12.53, 7.12.54, 7.12.55, 7.12.56, 7.12.57, 7.12.58, 7.12.59, 7.12.60, 7.12.61, 7.12.62, 7.12.63, 7.12.65, 7.12.66, 7.12.69, 8.1.5, 8.2.3, 8.2.6, 8.2.7, 8.2.8, 8.2.11, 8.2.12, 8.2.13, 8.2.14, 8.3.1, 8.3.2, 8.3.3, 8.3.5, 8.3.6, 8.3.8, 8.3.10, 8.3.11, 8.3.13, 8.5.1, 8.5.2, 8.5.3, 8.5.5, 8.5.6, 8.5.7, 8.9.1, 8.10.1, 8.11.1, 8.11.3, 8.11.4, 8.11.5, 8.11.6, 8.11.8, 8.11.10, 8.11.12, 8.12.4, 8.12.5, 8.12.6, 8.12.7, 8.12.8, 8.12.9, 8.12.12, 8.12.14, 8.12.20, 8.12.22, 8.12.23, 8.12.25, 8.12.26, 8.12.27, 8.12.29, 8.12.31, 8.12.32, 9.3.1, 9.3.2, 9.3.3, 9.3.4, 9.3.5, 9.3.6, 9.3.7, 9.3.8, 9.3.10, 9.3.11, 9.3.13, 9.3.14, 9.3.15, 9.3.16, 9.3.17, 9.3.19, 9.3.20, 9.3.21, 9.3.22, 9.3.27, 9.4.1, 9.4.2, 9.4.3, 9.5.1, 9.5.3, 9.5.4, 9.5.5, 9.5.6, 9.5.7, 9.5.8, 9.5.9, 9.5.10, 9.5.11, 9.5.12, 9.5.15, 9.5.16, 9.5.17, 9.7.1, 9.7.2, 9.7.3, 9.7.4, 9.7.5, 9.7.6, 9.8.1, 9.8.2, 9.8.3, 9.8.4, 9.8.5, 9.8.9, 9.8.10, 9.8.11, 9.8.13, 9.10.1, 9.10.3, 9.10.4, 9.10.5, 9.10.7, 9.10.8, 9.11.1, 9.11.2, 9.11.3, 9.11.4, 9.11.5, 9.11.7, 9.11.10, 9.11.12, 9.11.13, 9.11.14, 9.11.15, 9.11.16, 9.11.17, 9.11.18, 9.11.19, 9.11.21, 9.11.22, 9.11.23, 9.11.24, 9.11.25, 9.11.26, 9.11.28, 9.11.29, 9.11.30, 9.11.31, 9.11.32, 9.12.1, 9.12.2, 9.12.3, 9.12.4, 9.12.5, 9.12.6, 9.12.7, 9.12.10, 9.12.11, 9.12.12, 9.12.13, 9.12.14, 9.12.15, 9.12.16, 9.12.17, 9.12.18, 9.12.19, 9.12.20, 9.12.21, 9.12.22, 9.12.23, 9.12.24, 9.12.25, 9.12.26, 9.12.27, 9.12.28, 9.12.29, 9.12.30, 9.12.31, 9.12.32, 9.12.33, 9.12.35, 9.12.36, 9.12.37, 9.12.38, 9.12.39, 9.12.44, 10.3.2, 10.3.3, 10.3.5, 10.3.6, 10.3.9, 10.3.10, 10.3.11, 10.3.12, 10.3.13, 10.3.14, 10.3.15, 10.3.17, 10.3.20, 10.3.27, 10.3.28, 10.4.3, 10.4.9, 10.5.1, 10.5.2, 10.5.4, 10.5.5, 10.5.7, 10.5.8, 10.5.9, 10.5.10, 10.5.11, 10.5.12, 10.7.1, 10.7.2, 10.7.3, 10.7.4, 10.7.5, 10.7.9, 10.7.10, 10.7.11, 10.7.12, 10.9.2, 10.9.3, 10.9.5, 10.10.1, 10.10.3, 10.10.4, 10.10.5, 10.10.7, 11.2.1, 11.2.5, 11.3.1, 11.3.2, 11.3.3, 11.3.4, 11.3.5, 11.3.6, 11.3.7, 11.3.9, 11.3.10, 11.3.12, 11.3.13, 11.3.14, 11.3.15, 11.3.16, 11.3.17, 11.3.18, 11.3.19, 11.3.21, 11.3.23, 11.3.25, 11.3.26, 11.3.27, 11.3.28, 11.3.29, 11.3.30, 11.3.32, 11.3.33, 11.3.35, 11.3.36, 11.3.37, 11.3.38, 11.3.39, 11.4.2, 11.4.3, 11.4.7, 11.4.8, 11.4.9, 11.4.10, 11.4.12, 11.4.13, 11.5.1, 11.5.2, 11.5.3, 11.5.4, 11.5.5, 11.5.7, 11.5.8, 11.5.9, 11.5.12, 11.5.13, 11.5.14, 11.5.17, 11.5.18, 11.5.20, 11.5.21, 11.7.1, 11.7.2, 11.7.3, 11.7.4, 11.7.6, 11.7.7, 11.8.1, 11.8.2, 11.8.4, 11.8.5, 11.8.8, 11.8.11, 11.8.12, 11.8.14, 11.8.15, 11.9.1, 11.9.2, 11.9.3, 11.9.5, 11.9.6, 11.9.7, 11.9.9, 11.9.10, 11.9.11, 11.9.13, 11.9.14, 11.10.1, 11.10.2, 11.10.3, 11.10.4, 11.10.5, 11.10.6, 11.10.7, 11.10.9, 11.10.11, 11.10.12, 11.10.13, 11.11.1, 11.11.2, 11.11.3, 11.11.4, 11.11.6, 11.11.7, 11.11.8, 11.11.9, 11.11.10, 11.11.11, 11.11.12, 11.11.13, 11.11.14, 11.11.15, 11.11.16, 11.11.17, 11.11.19, 11.11.20, 11.12.1, 11.12.2, 11.12.3, 11.12.5, 11.12.6, 11.12.7, 11.12.8, 11.12.9, 11.12.10, 11.12.13, 11.12.14, 11.12.15, 11.12.16, 11.12.17, 11.12.19, 11.12.20, 13.3.1, 13.3.2, 13.3.3, 13.3.4, 13.3.5, 13.3.7, 13.9.2, 13.11.1, 13.11.2, 13.11.3, 13.11.4, 13.11.5, 13.11.6, 13.11.8, 13.11.9, 13.12.1, 13.12.2, 13.12.3, 13.12.4, 13.12.5, 13.12.6, 13.12.8, 13.12.9, 13.12.10.
686	12.2.5, 12.2.7, 12.2.9, 12.2.10, 12.2.12, 12.2.15, 12.3.4, 12.3.5, 12.3.6, 12.3.12, 12.3.14, 12.3.20, 12.5.2, 12.5.10. These regional ecosystems are not a mandatory essential habitat factor for this species.



State Planning Policy

Making or amending a local planning instrument and designating land for community infrastructure

Date: 28/04/2020

Department of State Development, Manufacturing, Infrastructure and Planning

Queensland Government

0 290 580 870 1,160

Metres

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Legend

Drawn Polygon Layer

Override 1

Cadastre (25k)



Cadastre (25k)

MSES - Regulated vegetation (intersecting a watercourse)

MSES - Regulated vegetation (intersecting a watercourse)

MSES - High ecological value waters (watercourse)

MSES - High ecological value waters (watercourse)

MSES - Wildlife habitat (endangered or vulnerable)



MSES - Wildlife habitat (endangered or vulnerable)

MSES - Wildlife habitat (special least concern animal)



MSES - Wildlife habitat (special least concern animal)

MSES - Wildlife habitat (koala habitat areas - core)



MSES - Wildlife habitat (koala habitat areas - core)

MSES - Wildlife habitat (koala habitat areas - locally refined)



MSES - Wildlife habitat (koala habitat areas - locally refined)

MSES - Strategic environmental areas (designated precinct)



MSES - Strategic environmental areas (designated precinct)

MSES - High ecological significance wetlands

MSES - High ecological significance wetlands

MSES - High ecological value waters (wetland)



MSES - High ecological value waters (wetland)

MSES - Legally secured offset area (offset register)



MSES - Legally secured offset area (offset register)

MSES - Legally secured offset area (regulated vegetation offsets)



MSES - Legally secured offset area (regulated vegetation offsets)

MSES - Protected areas (estate)



MSES - Protected areas (estate)

MSES - Protected areas (nature refuge)



MSES - Protected areas (nature refuge)

MSES - Marine park (highly protected areas)



MSES - Marine park (highly protected areas)

MSES - Declared fish habitat area



MSES - Declared fish habitat area

MSES - Regulated vegetation (category B)



MSES - Regulated vegetation (category B)

MSES - Regulated vegetation (category C)



MSES - Regulated vegetation (category C)

MSES - Regulated vegetation (category R)



MSES - Regulated vegetation (category R)

MSES - Regulated vegetation (essential habitat)



MSES - Regulated vegetation (essential habitat)

MSES - Regulated vegetation (wetland)



MSES - Regulated vegetation (wetland)

Date: 28/04/2020

State Planning Policy

Making or amending a local planning instrument and designating land for community infrastructure

Department of State Development, Manufacturing, Infrastructure and Planning

Queensland Government

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Department of Natural Resources, Mines and Energy



Vegetation management report

For Lot: 1 Plan: RP14143

Current as at 22/04/2020

Queensland Government

This publication has been compiled by Operations Support, Department of Natural Resources, Mines and Energy.

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Recent changes

Updated mapping

Updated vegetation mapping was released on 6 April 2020 and includes the most recent Queensland Herbarium scientific updates to the Regulated Vegetation Management Map, regional ecosystems, wetland, high-value regrowth and essential habitat mapping.

Overview

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

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

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

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

Other laws

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

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1. Vegetation management framework

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

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

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

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

1.1 Exempt clearing work

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

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

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

Exempt clearing work may be affected if the proposed clearing area is subject to development approval conditions, a covenant, an environmental offset, an exchange area, a restoration notice, or an area mapped as Category A. Exempt clearing work may require approval under other Commonwealth, State or Local Government laws, or local government planning schemes. Contact DNRME prior to clearing in any of these areas.

1.2 Accepted development vegetation clearing codes

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

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

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

1.3 Area management plans

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

On 8 March 2020, AMPs ended for fodder harvesting, managing thickened vegetation and managing encroachment. New notifications cannot be made for these AMPs. You will need to consider options for fodder harvesting, managing thickened vegetation or encroachment under a relevant accepted development vegetation clearing code or apply for a development approval.

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

If an area management plan applies to your property for which you can make a new notification, it will be listed in Section 2.2 of this report. Before clearing under one of these AMPs, you must first notify the DNRME and then follow the conditions and requirements listed in the AMP.
https://www.qld.gov.au/environment/land/vegetation/area-plans/

1.4 Development approvals

If under the vegetation management framework your proposed clearing is not exempt clearing work, or is not permitted under an accepted development vegetation clearing code, or an AMP, you may be able to apply for a development approval. Information on how to apply for a development approval is available at
https://www.qld.gov.au/environment/land/management/vegetation/development

2. Property details

2.1 Tenure

All of the lot, plan and tenure information associated with property Lot: 1 Plan: RP14143, including links to relevant Smart Maps, are listed in Table 1. The tenure of the property (whether it is freehold, leasehold, or other) may be viewed by clicking on the Smart Map link(s) provided.

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

Lot	Plan	Tenure	Link to property on SmartMap
1	RP14143	Freehold	https://apps.information.qld.gov.au/data/cadastre/GenerateSmartMap?q=1\RP14143

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

2.2 Property location

Table 2 provides a summary of the locations for property Lot: 1 Plan: RP14143, in relation to natural and administrative boundaries.

Table 2: Property location details

Local Government(s)
Redland City

Bioregion(s)	Subregion(s)
Southeast Queensland	Sunshine Coast - Gold Coast Lowlands

Catchment(s)
Logan-Albert

2.2.1 Area Management Plan(s)

Nil

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

Coastal

*See also Map 5.4

2.2.3 The following can be used to identify Agricultural Land Class A or B areas under the "Managing regulated regrowth vegetation" accepted development vegetation clearing code:

Does this lot contain land that is mapped as Agricultural Land Class A or B in the State Planning Interactive Mapping System?

No Class A

No Class B

Note - This confirms Agricultural Land Classes as per the State Planning Interactive Mapping System only. This response does not include Agricultural Land Classes identified under local government planning schemes. For further information, check the Planning Scheme for your local government area.

See section 5 to identify the location and extent of Class A and/or Class B Agricultural land on Lot: 1 Plan: RP14143.

3. Vegetation management details for Lot: 1 Plan: RP14143

3.1 Vegetation categories

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

Table 3: Vegetation categories for subject property. Total area: 39.02ha

Vegetation category	Area (ha)
Category B	9.1
Category X	29.9

Table 4

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

Property Map of Assessable Vegetation (PMAV)

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

3.2 Regional ecosystems

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

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

Table 5: Regional ecosystems present on subject property

Regional Ecosystem	VMA Status	Category	Area (Ha)	Short Description	Structure Category
12.1.1	Of concern	B	0.43	Casuarina glauca woodland on margins of marine clay plains	Sparse
12.1.2	Least concern	B	0.91	Saltpan vegetation including grassland, herbland and sedgeland on marine clay plains	Grassland
12.1.3	Least concern	B	0.29	Mangrove shrubland to low closed forest on marine clay plains and estuaries	Dense
12.3.11	Of concern	B	5.94	Eucalyptus tereticornis +/- Eucalyptus siderophloia, Corymbia intermedia open forest on alluvial plains usually near coast	Mid-dense
12.3.6	Least concern	B	1.48	Melaleuca quinquenervia +/- Eucalyptus tereticornis, Lophostemon suaveolens, Corymbia intermedia open forest on coastal alluvial plains	Mid-dense
12.5.3	Endangered	B	0.04	Eucalyptus racemosa subsp. racemosa woodland on remnant Tertiary surfaces	Sparse
non-rem	None	X	29.94	None	None

Please note:

1. All area and area derived figures included in this table have been calculated via reprojecting relevant spatial features to Albers equal-area conic projection (central meridian = 146, datum Geocentric Datum of Australia 1994). As a result, area figures may differ slightly if calculated for the same features using a different co-ordinate system.
2. If Table 5 contains a Category 'plant', please be aware that this refers to 'plantations' such as forestry, and these areas are considered non-remnant under the VMA.

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

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

3.3 Watercourses

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

3.4 Wetlands

There are no vegetation management wetlands present on this property.

3.5 Essential habitat

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

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

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

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

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

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

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

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

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

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

Label	Scientific Name	Common Name	NCA Status	Vegetation Community	Altitude	Soils	Position in Landscape
860	Phascolarctos cinereus	koala	V	SEQ: Open eucalypt forest and woodland that has: a) multiple strata layers containing Eucalyptus, Corymbia, Angophora, Lophostemon or Melaleuca trees that-at 1.3 metres above the ground-have a diameter both greater and less than 30 centimetres; and b) at least 1 of the following species: Eucalyptus tereticornis, E. fibrosa, E. propinqua; E. umbra, E. grandis, E. microcorys, E. tindaliae, E. resinifera, E. populnea, E. robusta, E. nigra, E. racemosa, E. crebra, E. exserta, E. seeana, Lophostemon confertus, L. suaveolens, Melaleuca quinquenervia. Outside SEQ: Open eucalypt forest and woodland that contains Eucalyptus &/or Corymbia spp. Tree species used for food varies across State and can include Eucalyptus tereticornis, E. camaldulensis, E. coolabah; E. drepanophylla, E. platyphylla, E. orgadophilla, E. thozetiana, E. melanophloia, E. populnea, E. melliodora, E. dealbata, E. microtheca, E. crebra, E. exserta, E. blakelyi, E. papuana, Corymbia tessellaris, C. citriodora, Melaleuca quinquenervia, M. leucadendra.	Sea level to 1000m.	None	Riparian areas, plains and hill/escarpment slopes.
686	Crinia tinnula	wallum froglet	V	Vegetation community is a mandatory essential habitat factor for this species. Permanent to ephemeral acidic (pH 4.3 - 5.2), soft freshwater in Melaleuca (e.g. M. quinquenervia) swamps, sedgeland, wet and dry heathland (e.g. Banksia robur, Xanthorrhoea) and wallum (Banksia aemula shrubland/woodland) areas coastal lowlands on sand or sandstone, occasionally in adjacent open forest/woodland (e.g. Eucalyptus racemosa, Corymbia citriodora) with heathy understorey; known to persist in small remnants (<10ha); may be found well away from water.	Sea level to 150m.	Sandy and sandy-alluvial substrates.	None

Label	Regional Ecosystem (mandatory unless otherwise specified)
860	SEQ: 11.3.2, 11.3.4, 11.3.25, 11.3.26, 11.8.2, 11.8.4, 11.8.5, 11.8.8, 11.9.9, 12.2.5, 12.2.6, 12.2.7, 12.2.8, 12.2.10, 12.3.2, 12.3.3, 12.3.4, 12.3.5, 12.3.6, 12.3.7, 12.3.9, 12.3.10, 12.3.11, 12.3.14, 12.3.18, 12.3.19, 12.3.20, 12.5.1, 12.5.2, 12.5.3, 12.5.4, 12.5.6, 12.5.7, 12.5.10, 12.5.12, 12.8.1, 12.8.8, 12.8.9, 12.8.11, 12.8.12, 12.8.14, 12.8.16, 12.8.17, 12.8.20, 12.8.24, 12.8.25, 12.9-10.1, 12.9-10.2, 12.9-10.3, 12.9-10.4, 12.9-10.5, 12.9-10.7, 12.9-10.8, 12.9-10.11, 12.9-10.12, 12.9-10.14, 12.9-10.17, 12.9-10.18, 12.9-10.19, 12.9-10.21, 12.9-10.25, 12.9-10.26, 12.9-10.27, 12.9-10.28, 12.9-10.29, 12.11.2, 12.11.3, 12.11.5, 12.11.6, 12.11.7, 12.11.8, 12.11.9, 12.11.14, 12.11.15, 12.11.16, 12.11.17, 12.11.18, 12.11.22, 12.11.23, 12.11.24, 12.11.25, 12.11.26, 12.11.27, 12.11.28, 12.12.2, 12.12.3, 12.12.5, 12.12.6, 12.12.7, 12.12.8, 12.12.9, 12.12.11, 12.12.12, 12.12.14, 12.12.15, 12.12.23, 12.12.24, 12.12.25, 12.12.28. Outside SEQ: 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.3.6, 4.3.8, 4.3.10, 4.3.11, 4.4.1, 4.5.3, 4.5.5, 4.5.6, 4.5.8, 4.5.9, 4.7.1, 4.7.7, 4.7.8, 4.9.6, 4.9.10, 4.9.12, 4.9.17, 6.3.1, 6.3.2, 6.3.3, 6.3.4, 6.3.5, 6.3.7, 6.3.8, 6.3.9, 6.3.11, 6.3.12, 6.3.17, 6.3.18, 6.3.22, 6.3.24, 6.3.25, 6.4.1, 6.4.2, 6.4.3, 6.4.4, 6.5.1, 6.5.2, 6.5.3, 6.5.5, 6.5.6, 6.5.7, 6.5.8, 6.5.9, 6.5.10, 6.5.11, 6.5.13, 6.5.14, 6.5.15, 6.5.16, 6.5.17, 6.5.18, 6.5.19, 6.6.2, 6.7.1, 6.7.2, 6.7.5, 6.7.6, 6.7.7, 6.7.9, 6.7.11, 6.7.12, 6.7.13, 6.7.14, 6.7.17, 6.9.3, 7.2.3, 7.2.4, 7.2.7, 7.2.11, 7.3.7, 7.3.8, 7.3.9, 7.3.12, 7.3.13, 7.3.14, 7.3.16, 7.3.19, 7.3.20, 7.3.21, 7.3.25, 7.3.26, 7.3.39, 7.3.40, 7.3.42, 7.3.43, 7.3.44, 7.3.45, 7.3.47, 7.3.48, 7.3.50, 7.5.1, 7.5.2, 7.5.3, 7.5.4, 7.8.7, 7.8.8, 7.8.10, 7.8.15, 7.8.16, 7.8.17, 7.8.18, 7.8.19, 7.11.5, 7.11.6, 7.11.13, 7.11.14, 7.11.16, 7.11.18, 7.11.19, 7.11.20, 7.11.21, 7.11.31, 7.11.32, 7.11.33, 7.11.34, 7.11.35, 7.11.37, 7.11.41, 7.11.42, 7.11.43, 7.11.44, 7.11.45, 7.11.46, 7.11.47, 7.11.48, 7.11.49, 7.11.50, 7.11.51, 7.12.4, 7.12.5, 7.12.17, 7.12.21, 7.12.22, 7.12.23, 7.12.24, 7.12.25, 7.12.26, 7.12.27, 7.12.28, 7.12.29, 7.12.30, 7.12.33, 7.12.34, 7.12.35, 7.12.51, 7.12.52, 7.12.53, 7.12.54, 7.12.55, 7.12.56, 7.12.57, 7.12.58, 7.12.59, 7.12.60, 7.12.61, 7.12.62, 7.12.63, 7.12.65, 7.12.66, 7.12.69, 8.1.5, 8.2.3, 8.2.6, 8.2.7, 8.2.8, 8.2.11, 8.2.12, 8.2.13, 8.2.14, 8.3.1, 8.3.2, 8.3.3, 8.3.5, 8.3.6, 8.3.8, 8.3.10, 8.3.11, 8.3.13, 8.5.1, 8.5.2, 8.5.3, 8.5.5, 8.5.6, 8.5.7, 8.9.1, 8.10.1, 8.11.1, 8.11.3, 8.11.4, 8.11.5, 8.11.6, 8.11.8, 8.11.10, 8.11.12, 8.12.4, 8.12.5, 8.12.6, 8.12.7, 8.12.8, 8.12.9, 8.12.12, 8.12.14, 8.12.20, 8.12.22, 8.12.23, 8.12.25, 8.12.26, 8.12.27, 8.12.29, 8.12.31, 8.12.32, 9.3.1, 9.3.2, 9.3.3, 9.3.4, 9.3.5, 9.3.6, 9.3.7, 9.3.8, 9.3.10, 9.3.11, 9.3.13, 9.3.14, 9.3.15, 9.3.16, 9.3.17, 9.3.19, 9.3.20, 9.3.21, 9.3.22, 9.3.27, 9.4.1, 9.4.2, 9.4.3, 9.5.1, 9.5.3, 9.5.4, 9.5.5, 9.5.6, 9.5.7, 9.5.8, 9.5.9, 9.5.10, 9.5.11, 9.5.12, 9.5.15, 9.5.16, 9.5.17, 9.7.1, 9.7.2, 9.7.3, 9.7.4, 9.7.5, 9.7.6, 9.8.1, 9.8.2, 9.8.3, 9.8.4, 9.8.5, 9.8.9, 9.8.10, 9.8.11, 9.8.13, 9.10.1, 9.10.3, 9.10.4, 9.10.5, 9.10.7, 9.10.8, 9.11.1, 9.11.2, 9.11.3, 9.11.4, 9.11.5, 9.11.7, 9.11.10, 9.11.12, 9.11.13, 9.11.14, 9.11.15, 9.11.16, 9.11.17, 9.11.18, 9.11.19, 9.11.21, 9.11.22, 9.11.23, 9.11.24, 9.11.25, 9.11.26, 9.11.28, 9.11.29, 9.11.30, 9.11.31, 9.11.32, 9.12.1, 9.12.2, 9.12.3, 9.12.4, 9.12.5, 9.12.6, 9.12.7, 9.12.10, 9.12.11, 9.12.12, 9.12.13, 9.12.14, 9.12.15, 9.12.16, 9.12.17, 9.12.18, 9.12.19, 9.12.20, 9.12.21, 9.12.22, 9.12.23, 9.12.24, 9.12.25, 9.12.26, 9.12.27, 9.12.28, 9.12.29, 9.12.30, 9.12.31, 9.12.32, 9.12.33, 9.12.35, 9.12.36, 9.12.37, 9.12.38, 9.12.39, 9.12.44, 10.3.2, 10.3.3, 10.3.5, 10.3.6, 10.3.9, 10.3.10, 10.3.11, 10.3.12, 10.3.13, 10.3.14, 10.3.15, 10.3.17, 10.3.20, 10.3.27, 10.3.28, 10.4.3, 10.4.9, 10.5.1, 10.5.2, 10.5.4, 10.5.5, 10.5.7, 10.5.8, 10.5.9, 10.5.10, 10.5.11, 10.5.12, 10.7.1, 10.7.2, 10.7.3, 10.7.4, 10.7.5, 10.7.9, 10.7.10, 10.7.11, 10.7.12, 10.9.2, 10.9.3, 10.9.5, 10.10.1, 10.10.3, 10.10.4, 10.10.5, 10.10.7, 11.2.1, 11.2.5, 11.3.1, 11.3.2, 11.3.3, 11.3.4, 11.3.5, 11.3.6, 11.3.7, 11.3.9, 11.3.10, 11.3.12, 11.3.13, 11.3.14, 11.3.15, 11.3.16, 11.3.17, 11.3.18, 11.3.19, 11.3.21, 11.3.23, 11.3.25, 11.3.26, 11.3.27, 11.3.28, 11.3.29, 11.3.30, 11.3.32, 11.3.33, 11.3.35, 11.3.36, 11.3.37, 11.3.38, 11.3.39, 11.4.2, 11.4.3, 11.4.7, 11.4.8, 11.4.9, 11.4.10, 11.4.12, 11.4.13, 11.5.1, 11.5.2, 11.5.3, 11.5.4, 11.5.5, 11.5.7, 11.5.8, 11.5.9, 11.5.12, 11.5.13, 11.5.14, 11.5.17, 11.5.18, 11.5.20, 11.5.21, 11.7.1, 11.7.2, 11.7.3, 11.7.4, 11.7.6, 11.7.7, 11.8.1, 11.8.2, 11.8.4, 11.8.5, 11.8.8, 11.8.11, 11.8.12, 11.8.14, 11.8.15, 11.9.1, 11.9.2, 11.9.3, 11.9.5, 11.9.6, 11.9.7, 11.9.9, 11.9.10, 11.9.11, 11.9.13, 11.9.14, 11.10.1, 11.10.2, 11.10.3, 11.10.4, 11.10.5, 11.10.6, 11.10.7, 11.10.9, 11.10.11, 11.10.12, 11.10.13, 11.11.1, 11.11.2, 11.11.3, 11.11.4, 11.11.6, 11.11.7, 11.11.8, 11.11.9, 11.11.10, 11.11.11, 11.11.12, 11.11.13, 11.11.14, 11.11.15, 11.11.16, 11.11.17, 11.11.19, 11.11.20, 11.12.1, 11.12.2, 11.12.3, 11.12.5, 11.12.6, 11.12.7, 11.12.8, 11.12.9, 11.12.10, 11.12.13, 11.12.14, 11.12.15, 11.12.16, 11.12.17, 11.12.19, 11.12.20, 13.3.1, 13.3.2, 13.3.3, 13.3.4, 13.3.5, 13.3.7, 13.9.2, 13.11.1, 13.11.2, 13.11.3, 13.11.4, 13.11.5, 13.11.6, 13.11.8, 13.11.9, 13.12.1, 13.12.2, 13.12.3, 13.12.4, 13.12.5, 13.12.6, 13.12.8, 13.12.9, 13.12.10.
686	12.2.5, 12.2.7, 12.2.9, 12.2.10, 12.2.12, 12.2.15, 12.3.4, 12.3.5, 12.3.6, 12.3.12, 12.3.14, 12.3.20, 12.5.2, 12.5.10. These regional ecosystems are not a mandatory essential habitat factor for this species.

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

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

Prior to clearing, if the plants proposed to be cleared are in the wild (see Operational policy: When a protected plant in Queensland is considered to be 'in the wild') and the exemptions under the Nature Conservation (Wildlife Management) Regulation 2006 are not applicable to the proposed clearing, you must check the flora survey trigger map to determine if any part of the area to be cleared is within a high risk area. The trigger map for this property is provided in section 5.6. The exemptions relate to:

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

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

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

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

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

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

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

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

3.7 Koala priority area and koala habitat area (administered by the Department of Environment and Science (DES))

The koala (*Phascolarctos cinereus*) is listed in Queensland as vulnerable by the Queensland Government under the *Nature Conservation Act 1992* and by the Australian Government under the *Environment Protection and Biodiversity Conservation Act 1999*.

The Nature Conservation (Koala) Conservation Plan 2017 allows koala habitat areas and koala priority areas to be determined and requires that these are shown on the Koala Conservation Plan Map. Koala habitat areas are areas that contain koala habitat which is essential for the conservation of a viable koala population in the wild. Please note that these areas only apply to lots in 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).

Koala habitat areas include koala habitat areas (core) and koala habitat areas (locally refined). Following input from each local government, koala habitat areas (locally refined) were developed. Koala habitat areas (locally refined) will be afforded the same protection during a two year transitional period as if they were koala habitat areas (core) identified by the State.

Koala priority areas are areas where long-term management (e.g. habitat protection, habitat restoration and threat mitigation) and monitoring will be strategically focused as the areas have the highest likelihood of achieving conservation outcomes for koalas.

Clearing koala habitat areas in a koala priority area is prohibited, except for in certain circumstances (see Schedule 10, 16A of the Planning Regulation 2017). Clearing cannot occur (other than for exempt activities) and a development application cannot be lodged for prohibited activities.

Development located inside a koala priority area on lots that contain koala habitat area, but do not involve clearing of koala habitat, will be assessed by local government, except for in certain circumstances (see Schedule 11, Parts 1 and 2 of the Planning Regulation 2017). This is to manage and minimise impacts on koala habitat, such as edge effects.

Outside of koala priority areas, clearing of koala habitat areas must be avoided, mitigated or offset. Development that is proposing to clear koala habitat area will be assessed by the Queensland Government, except for in certain circumstances (see Schedule 10, 16B of the Planning Regulation 2017).

For more information on development requirements see
https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping/legislation-policy.

Landholders (or a person acting on landholder's behalf) can request to have a koala habitat area determination for an area made, amended or revoked if they believe there is an error. For more information, see
https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping/legislation-policy.

The koala conservation plan maps will be updated at least annually to include any koala habitat areas that have been made, amended or revoked.

In order to ensure that the most recent map for an area of interest can be accessed, prior to the annual update, a register of changes made to koala habitat areas as a result of the map amendment process will be available at:
https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping/. The register will include lot on plan for the change, the date the decision was made and the map issued to the landholder which shows areas determined to be koala habitat areas.

For further information on the regulatory framework for koala conservation, including koala priority areas and koala habitat areas, please see the Queensland Government website at https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping/legislation-policy or contact Koala Assessment and Compliance, Department Environment and Science, at koala.assessment@des.qld.gov.au.

3.8 Emissions Reduction Fund (ERF)

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

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

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

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

4. Contact information for DNRME

For further information on vegetation management:
Phone 135VEG (135 834)
Email vegetation@dnrme.qld.gov.au
Visit https://www.dnrme.qld.gov.au/?contact=vegetation to submit an online enquiry.

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

5. Maps

Maps included in this report may also be requested individually at:

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

Regulated vegetation management map

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

Vegetation management supporting map

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

Pre-clear map

The vegetation management pre-clear regional ecosystem mapping shows the regional ecosystem, location and extent which is likely to have occurred at that location prior to clearing. This map can be used for identifying exchange areas under the "Managing regulated regrowth vegetation" accepted development vegetation clearing code. It may also be used for for identifying offsets under the vegetation management framework.

Coastal/non coastal map

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

Agricultural Land Class A or B

The Agricultural Land Class map confirms the location and extent of land mapped as Agricultural Land Classes A or B as identified on the State Planning Interactive Mapping System. Please note that this map does not include areas identified as Agricultural Land Class A or B in local government planning schemes. This map can be used to identify Agricultural Land Class A or B areas under the "Managing regulated regrowth vegetation" accepted development vegetation clearing code.

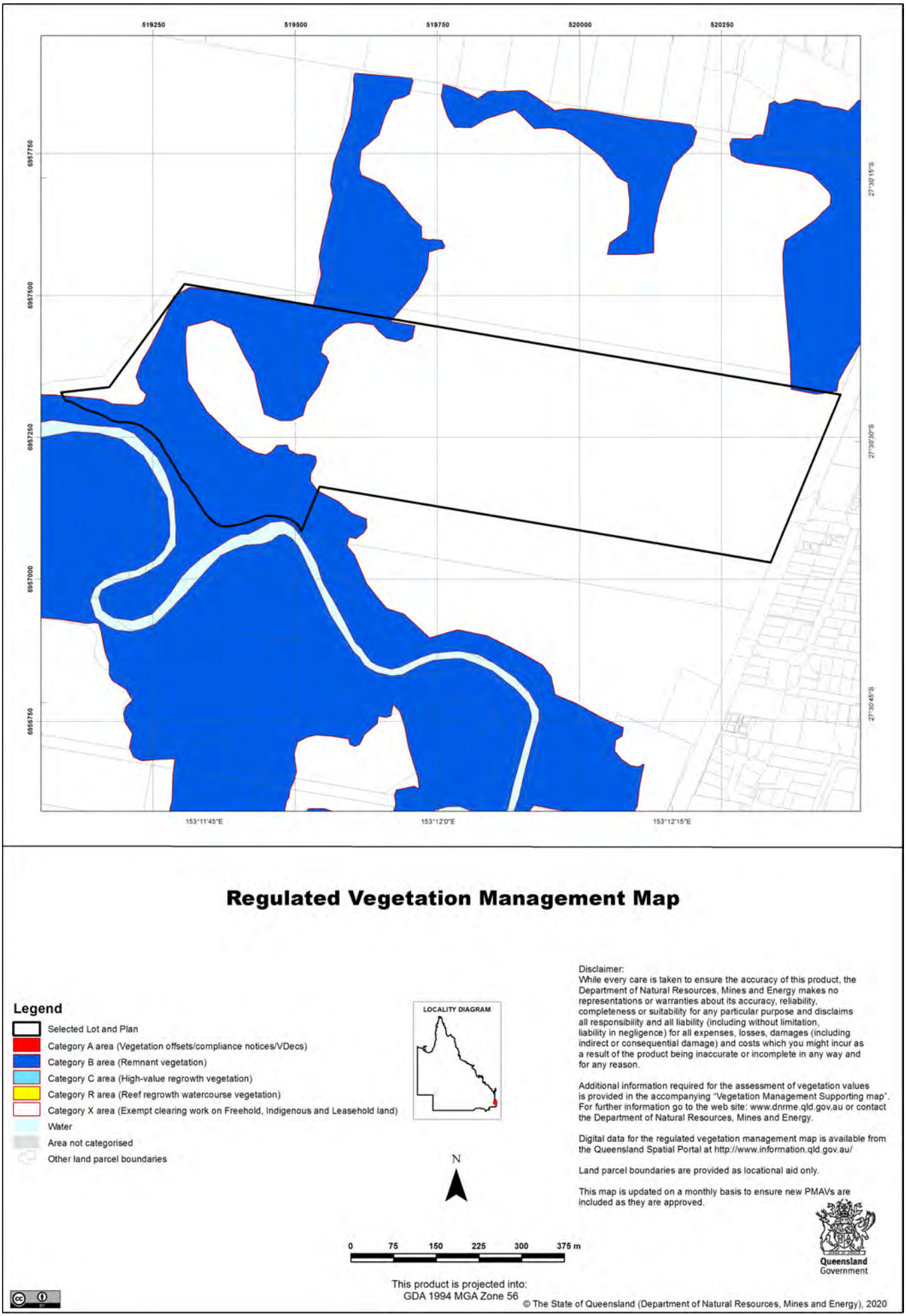
Protected plants map

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

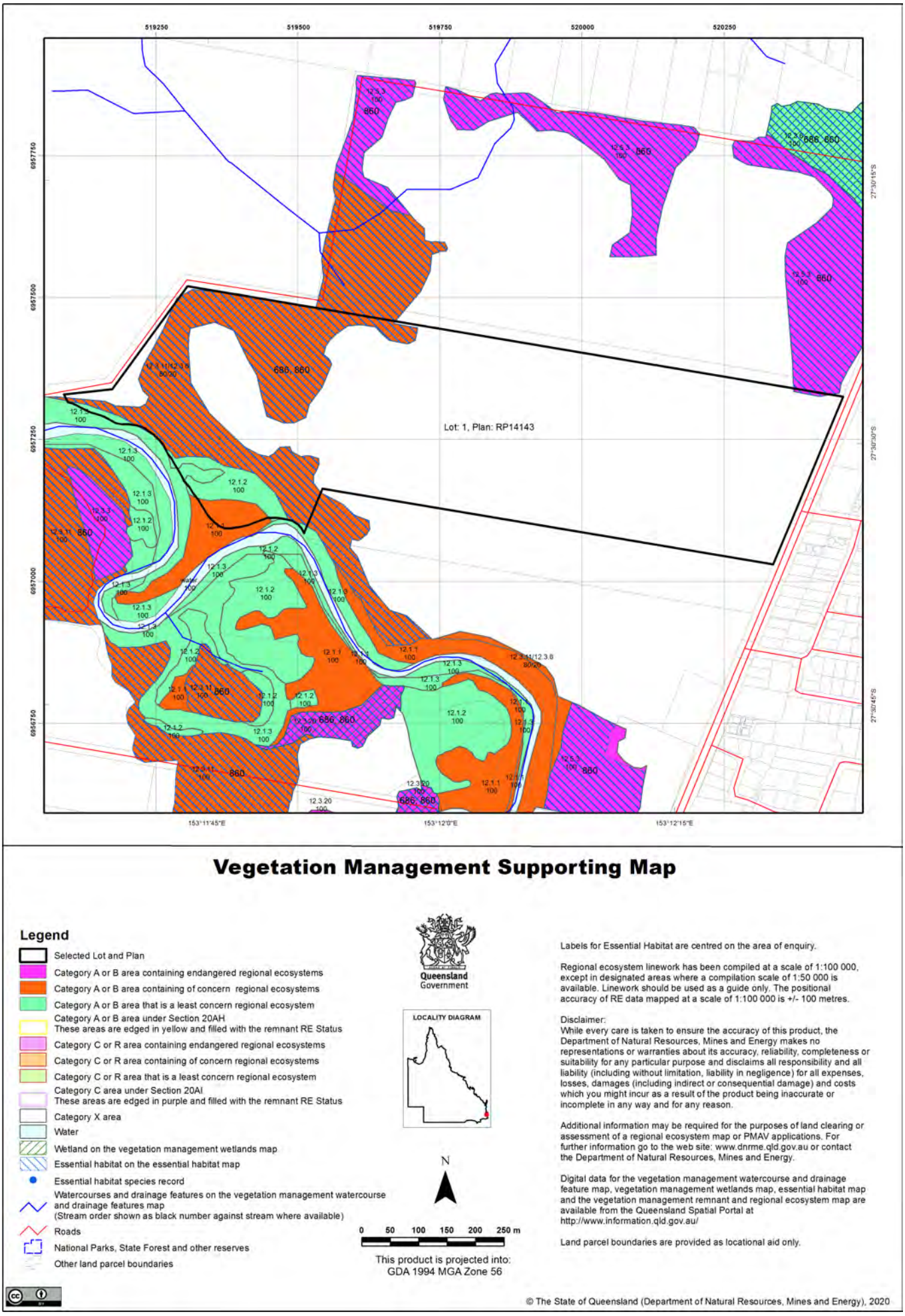
Koala priority area and koala habitat area map

The koala map shows area of koala priority area and koala habitat under the Nature Conservation (Koala) Conservation Plan 2017. Clearing of habitat in these areas is regulated under the Planning Regulation 2017. Please note that these areas only apply to lots in the South East Queensland "Shaping SEQ" Regional Plan area.

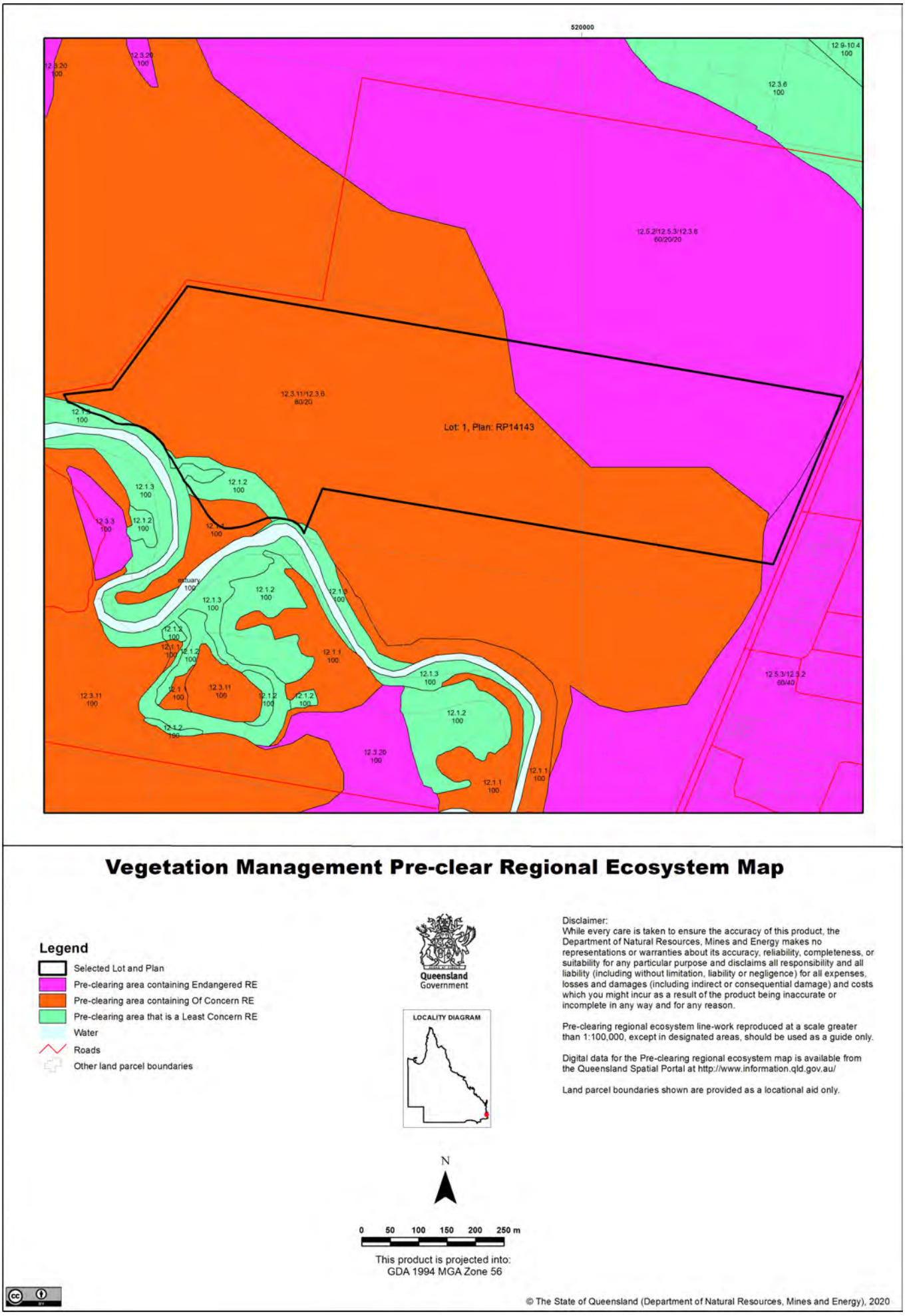
5.1 Regulated vegetation management map



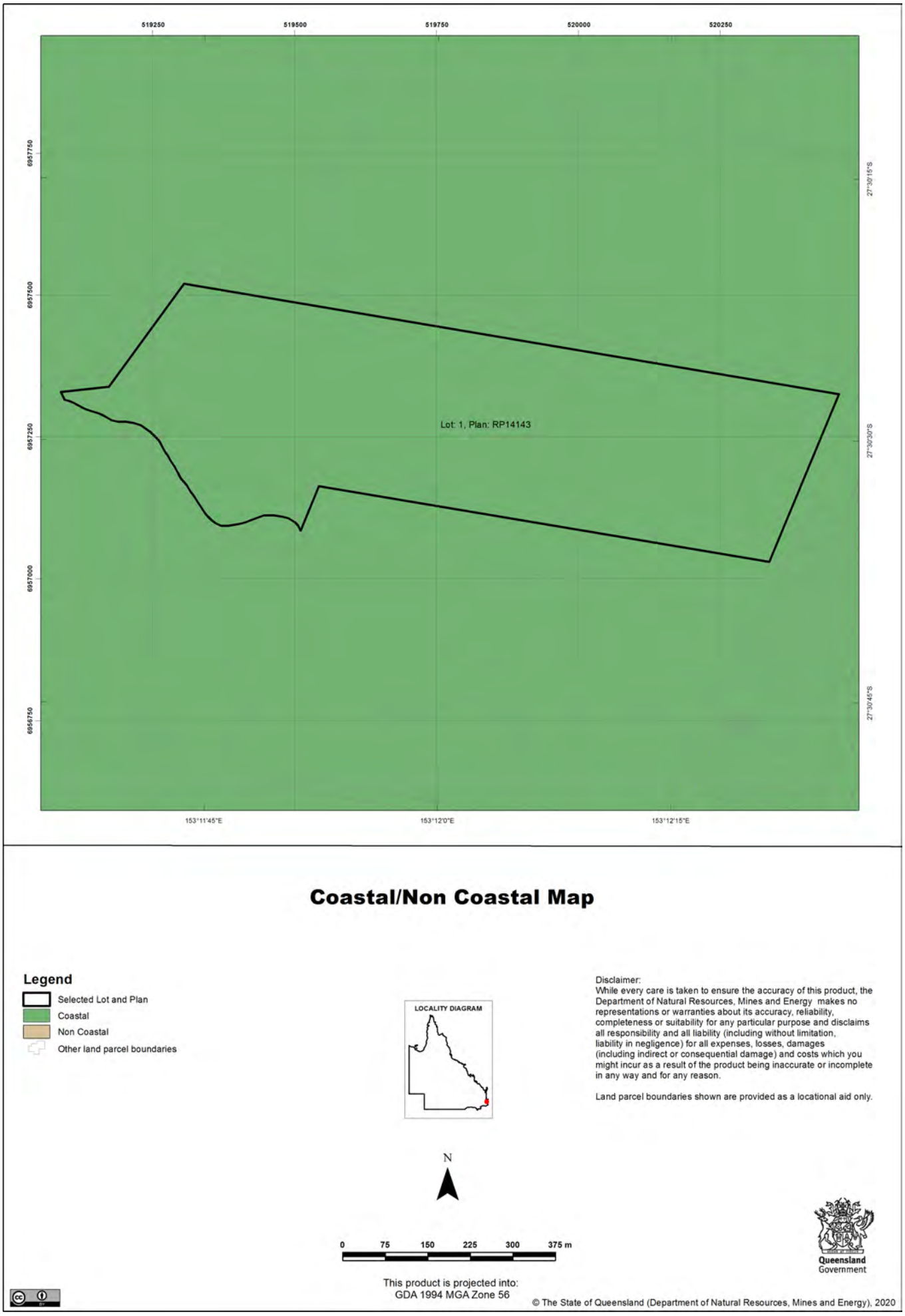
5.2 Vegetation management supporting map



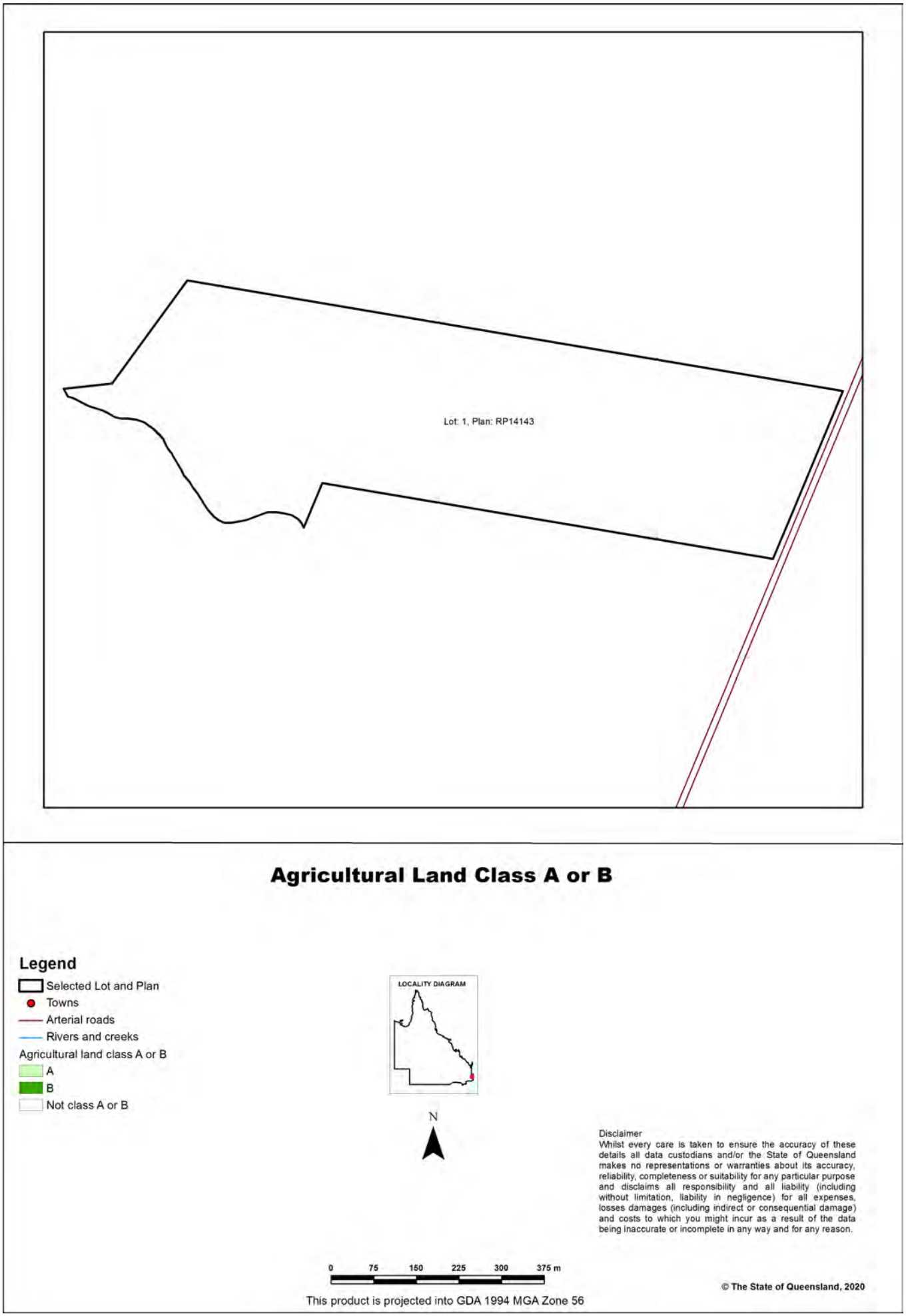
5.3 Pre-clear map



5.4 Coastal/non coastal map



5.5 Agricultural Land Class A or B map



5.6 Protected plants map administered by DES



Protected Plants Flora Survey Trigger Map

Legend

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

LOCALITY DIAGRAM



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

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

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

N

0 50 100 150 200 250 m

This product is projected into:
GDA 1994 MGA Zone 56

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

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Protected plants flora survey trigger map

The protected plants flora survey trigger map identifies 'high risk areas' where endangered, vulnerable or near threatened plants are known to exist or are likely to exist. Under the *Nature Conservation Act 1992* (the Act) it is an offence to clear protected plants that are 'in the wild' unless you are authorised or the clearing is exempt, for more information see section 89 of the Act.

Please see the Department of Environment and Science webpage on the clearing of protected plants for information on what exemptions may apply in your circumstances, whether you may need to undertake a flora survey, and whether you may need a protected plants clearing permit.

Updates to the data informing the flora survey trigger map

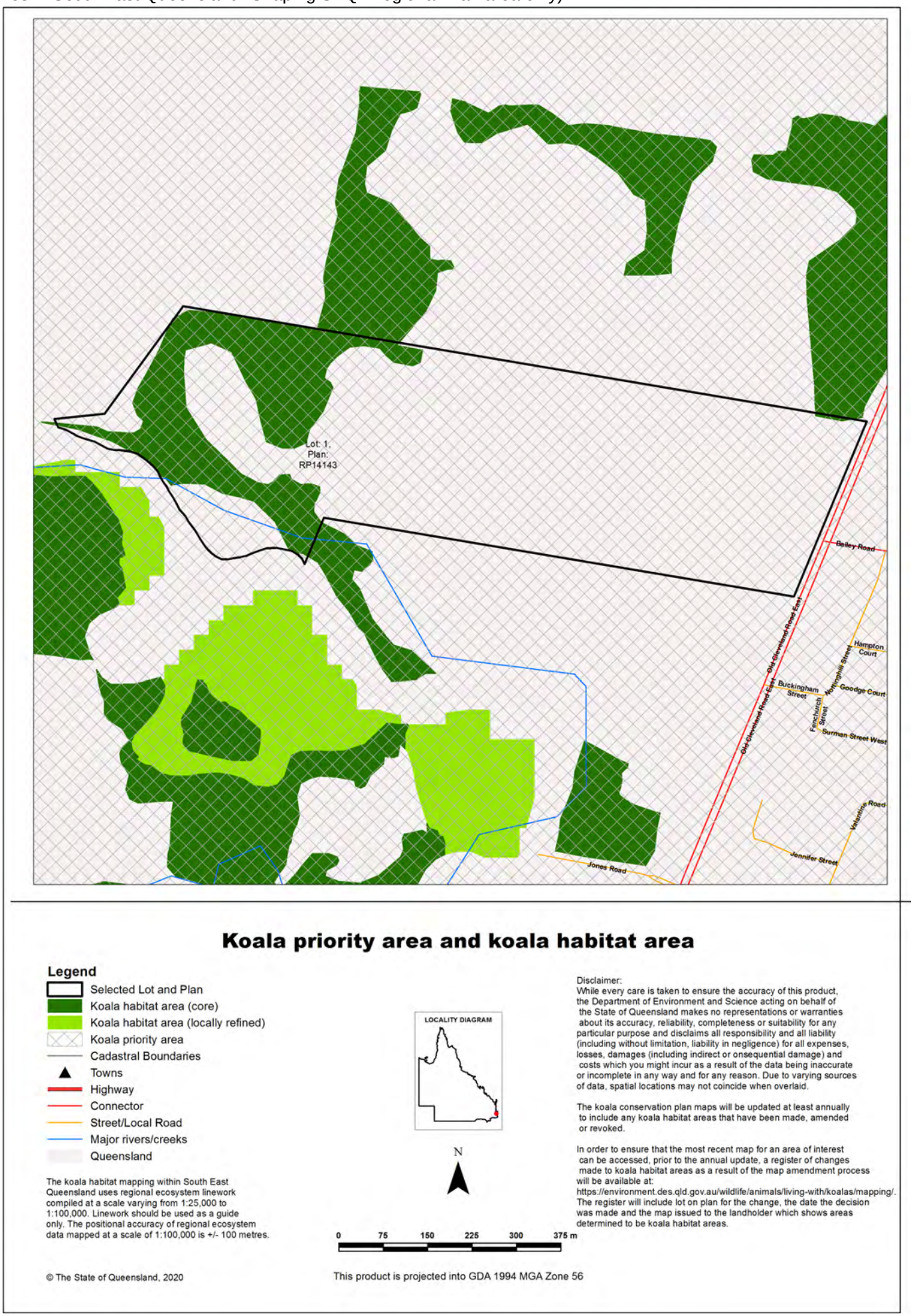
The flora survey trigger map will be reviewed, and updated if necessary, at least every 12 months to ensure the map reflects the most up-to-date and accurate data available.

Species information

Please note that flora survey trigger maps do not identify species associated with 'high risk areas'. While some species information may be publicly available, for example via the Queensland Spatial Catalogue, the Department of Environment and Science does not provide species information on request. Regardless of whether species information is available for a particular high risk area, clearing plants in a high risk area may require a flora survey and/or clearing permit. Please see the Department of Environment and Science webpage on the clearing of protected plants for more information.

5.7 Koala priority area and koala habitat area map administered by DES

(Applies in South East Queensland "Shaping SEQ" Regional Plan area only).



6. Other relevant legislation contacts list

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

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

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

Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point
Species: All
Type: All
Status: All
Records: All
Date: All
Latitude: -27.5097
Longitude: 153.2014
Distance: 3
Email: mary.timms@cardno.com.au
Date submitted: Wednesday 22 Apr 2020 15:55:55
Date extracted: Wednesday 22 Apr 2020 16:00:05

The number of records retrieved = 441

Disclaimer

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

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

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

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Bufonidae	*Rhinella marina*	cane toad	Y			19
animals	amphibians	Hylidae	*Litoria nasuta*	striped rocketfrog		C		1
animals	amphibians	Hylidae	*Litoria dentata*	bleating treefrog		C		1
animals	amphibians	Hylidae	*Litoria peronii*	emerald spotted treefrog		C		2
animals	amphibians	Hylidae	*Litoria rubella*	ruddy treefrog		C		1
animals	amphibians	Hylidae	*Litoria caerulea*	common green treefrog		C		21
animals	amphibians	Hylidae	*Litoria latopalmata*	broad palmed rocketfrog		C		5
animals	amphibians	Hylidae	*Litoria fallax*	eastern sedgefrog		C		20
animals	amphibians	Hylidae	*Litoria gracilenta*	graceful treefrog		C		1
animals	amphibians	Limnodynastidae	*Limnodynastes peronii*	striped marshfrog		C		7
animals	amphibians	Limnodynastidae	*Platyplectrum ornatum*	ornate burrowing frog		C		1
animals	amphibians	Limnodynastidae	*Limnodynastes tasmaniensis*	spotted grassfrog		C		1
animals	amphibians	Myobatrachidae	*Crinia parinsignifera*	beeping froglet		C		4
animals	amphibians	Myobatrachidae	*Pseudophryne coriacea*	red backed broodfrog		C		1
animals	birds	Acanthizidae	*Sericornis frontalis*	white-browed scrubwren		C		2
animals	birds	Acanthizidae	*Gerygone olivacea*	white-throated gerygone		C		23
animals	birds	Acanthizidae	*Pyrrholaemus sagittatus*	speckled warbler		C		3
animals	birds	Acanthizidae	*Smicrornis brevirostris*	weebill		C		2
animals	birds	Acanthizidae	*Acanthiza chrysorrhoa*	yellow-rumped thornbill		C		1
animals	birds	Acanthizidae	*Acanthiza pusilla*	brown thornbill		C		2
animals	birds	Acanthizidae	*Acanthiza lineata*	striated thornbill		C		1
animals	birds	Acanthizidae	*Gerygone levigaster*	mangrove gerygone		C		3
animals	birds	Accipitridae	*Pandion cristatus*	eastern osprey		SL		11
animals	birds	Accipitridae	*Accipiter fasciatus*	brown goshawk		C		1
animals	birds	Accipitridae	*Aviceda subcristata*	Pacific baza		C		8
animals	birds	Accipitridae	*Haliastur sphenurus*	whistling kite		C		10
animals	birds	Accipitridae	*Haliaeetus leucogaster*	white-bellied sea-eagle		C		4
animals	birds	Accipitridae	*Aquila audax*	wedge-tailed eagle		C		2
animals	birds	Accipitridae	*Accipiter cirrocephalus*	collared sparrowhawk		C		3
animals	birds	Accipitridae	*Accipiter sp.*					1
animals	birds	Accipitridae	*Elanus axillaris*	black-shouldered kite		C		6
animals	birds	Accipitridae	*Haliastur indus*	brahminy kite		C		13
animals	birds	Aegothelidae	*Aegotheles cristatus*	Australian owlet-nightjar		C		2
animals	birds	Alcedinidae	*Ceyx azureus*	azure kingfisher		C		5
animals	birds	Anatidae	*Anas gracilis*	grey teal		C		1
animals	birds	Anatidae	*Dendrocygna arcuata*	wandering whistling-duck		C		1
animals	birds	Anatidae	*Chenonetta jubata*	Australian wood duck		C		28
animals	birds	Anatidae	*Anas superciliosa*	Pacific black duck		C		19
animals	birds	Anatidae	*Aythya australis*	hardhead		C		1
animals	birds	Anatidae	*Cygnus atratus*	black swan		C		4
animals	birds	Anatidae	*Anas castanea*	chestnut teal		C		1
animals	birds	Anhingidae	*Anhinga novaehollandiae*	Australasian darter		C		7
animals	birds	Anseranatidae	*Anseranas semipalmata*	magpie goose		C		1
animals	birds	Apodidae	*Hirundapus caudacutus*	white-throated needletail		V	V	1
animals	birds	Ardeidae	*Egretta garzetta*	little egret		C		10
animals	birds	Ardeidae	*Butorides striata*	striated heron		C		4

Queensland Government Wildlife Online - Extract Date 22/04/2020 at 16:00:05

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Ardeidae	*Ardea alba modesta*	eastern great egret		C		11
animals	birds	Ardeidae	*Egretta novaehollandiae*	white-faced heron		C		27
animals	birds	Ardeidae	*Ardea intermedia*	intermediate egret		C		3
animals	birds	Ardeidae	*Ardea pacifica*	white-necked heron		C		1
animals	birds	Ardeidae	*Bubulcus ibis*	cattle egret		C		26
animals	birds	Ardeidae	*Nycticorax caledonicus*	nankeen night-heron		C		3
animals	birds	Artamidae	*Artamus leucorynchus*	white-breasted woodswallow		C		6
animals	birds	Artamidae	*Cracticus torquatus*	grey butcherbird		C		23
animals	birds	Artamidae	*Strepera graculina*	pied currawong		C		1
animals	birds	Artamidae	*Gymnorhina tibicen*	Australian magpie		C		60
animals	birds	Artamidae	*Cracticus nigrogularis*	pied butcherbird		C		35
animals	birds	Artamidae	*Artamus personatus*	masked woodswallow		C		1
animals	birds	Artamidae	*Artamus sp.*					1
animals	birds	Burhinidae	*Burhinus grallarius*	bush stone-curlew		C		2
animals	birds	Cacatuidae	*Eolophus roseicapilla*	galah		C		44
animals	birds	Cacatuidae	*Cacatua sanguinea*	little corella		C		6
animals	birds	Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo		C		44
animals	birds	Cacatuidae	*Cacatua sp.*					1
animals	birds	Campephagidae	*Lalage tricolor*	white-winged triller		C		2
animals	birds	Campephagidae	*Coracina novaehollandiae*	black-faced cuckoo-shrike		C		48
animals	birds	Campephagidae	*Coracina tenuirostris*	cicadabird		C		4
animals	birds	Campephagidae	*Lalage leucomela*	varied triller		C		12
animals	birds	Charadriidae	*Vanellus miles novaehollandiae*	masked lapwing (southern subspecies)		C		66
animals	birds	Charadriidae	*Charadrius bicinctus*	double-banded plover		SL		9
animals	birds	Charadriidae	*Erythrogonys cinctus*	red-kneed dotterel		C		1
animals	birds	Charadriidae	*Charadrius ruficapillus*	red-capped plover		C		28
animals	birds	Charadriidae	*Charadrius veredus*	oriental plover		SL		1
animals	birds	Charadriidae	*Charadrius mongolus*	lesser sand plover		E	E	24
animals	birds	Charadriidae	*Vanellus miles*	masked lapwing		C		3
animals	birds	Charadriidae	*Pluvialis fulva*	Pacific golden plover		SL		19
animals	birds	Charadriidae	*Charadrius leschenaultii*	greater sand plover		V	V	19
animals	birds	Cisticolidae	*Cisticola exilis*	golden-headed cisticola		C		12
animals	birds	Climacteridae	*Climacteris picumnus*	brown treecreeper		C		1
animals	birds	Climacteridae	*Cormobates leucophaea metastasis*	white-throated treecreeper (southern)		C		14
animals	birds	Columbidae	*Macropygia amboinensis*	brown cuckoo-dove		C		2
animals	birds	Columbidae	*Columba livia*	rock dove	Y			4
animals	birds	Columbidae	*Streptopelia chinensis*	spotted dove	Y			40
animals	birds	Columbidae	*Geopelia cuneata*	diamond dove		C		1
animals	birds	Columbidae	*Geopelia striata*	peaceful dove		C		9
animals	birds	Columbidae	*Ocyphaps lophotes*	crested pigeon		C		43
animals	birds	Columbidae	*Geopelia humeralis*	bar-shouldered dove		C		24
animals	birds	Coraciidae	*Eurystomus orientalis*	dollarbird		C		27
animals	birds	Corvidae	*Corvus orru*	Torresian crow		C		60
animals	birds	Cuculidae	*Cacomantis flabelliformis*	fan-tailed cuckoo		C		11
animals	birds	Cuculidae	*Scythrops novaehollandiae*	channel-billed cuckoo		C		8
animals	birds	Cuculidae	*Chalcites basalis*	Horsfield's bronze-cuckoo		C		3

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Cuculidae	*Cuculus optatus*	oriental cuckoo		SL		1
animals	birds	Cuculidae	*Centropus phasianinus*	pheasant coucal		C		21
animals	birds	Cuculidae	*Eudynamys orientalis*	eastern koel		C		14
animals	birds	Cuculidae	*Chalcites lucidus*	shining bronze-cuckoo		C		2
animals	birds	Dicruridae	*Dicrurus bracteatus*	spangled drongo		C		26
animals	birds	Estrildidae	*Neochmia temporalis*	red-browed finch		C		10
animals	birds	Estrildidae	*Lonchura castaneothorax*	chestnut-breasted mannikin		C		3
animals	birds	Estrildidae	*Taeniopygia bichenovii*	double-barred finch		C		8
animals	birds	Eurostopodidae	*Eurostopodus mystacalis*	white-throated nightjar		C		1
animals	birds	Falconidae	*Falco peregrinus*	peregrine falcon		C		1
animals	birds	Falconidae	*Falco longipennis*	Australian hobby		C		1
animals	birds	Falconidae	*Falco cenchroides*	nankeen kestrel		C		2
animals	birds	Haematopodidae	*Haematopus longirostris*	Australian pied oystercatcher		C		28
animals	birds	Haematopodidae	*Haematopus fuliginosus*	sooty oystercatcher		C		1
animals	birds	Halcyonidae	*Dacelo novaeguineae*	laughing kookaburra		C		57
animals	birds	Halcyonidae	*Todiramphus macleayii*	forest kingfisher		C		8
animals	birds	Halcyonidae	*Todiramphus sanctus*	sacred kingfisher		C		26
animals	birds	Halcyonidae	*Todiramphus sordidus*	Torresian kingfisher		C		7
animals	birds	Hirundinidae	*Hirundo neoxena*	welcome swallow		C		39
animals	birds	Jacanidae	*Irediparra gallinacea*	comb-crested jacana		C		1
animals	birds	Laridae	*Sterna hirundo*	common tern		SL		3
animals	birds	Laridae	*Thalasseus bergii*	crested tern		SL		17
animals	birds	Laridae	*Hydroprogne caspia*	Caspian tern		SL		19
animals	birds	Laridae	*Chroicocephalus novaehollandiae*	silver gull		C		31
animals	birds	Laridae	*Gelochelidon nilotica*	gull-billed tern		SL		14
animals	birds	Laridae	*Thalasseus bengalensis*	lesser crested tern		C		12
animals	birds	Laridae	*Sternula albifrons*	little tern		SL		5
animals	birds	Maluridae	*Malurus cyaneus*	superb fairy-wren		C		1
animals	birds	Maluridae	*Malurus lamberti*	variegated fairy-wren		C		29
animals	birds	Maluridae	*Malurus melanocephalus*	red-backed fairy-wren		C		36
animals	birds	Meliphagidae	*Philemon corniculatus*	noisy friarbird		C		28
animals	birds	Meliphagidae	*Manorina melanocephala*	noisy miner		C		48
animals	birds	Meliphagidae	*Myzomela sanguinolenta*	scarlet honeyeater		C		22
animals	birds	Meliphagidae	*Philemon citreogularis*	little friarbird		C		2
animals	birds	Meliphagidae	*Gavicalis fasciogularis*	mangrove honeyeater		C		14
animals	birds	Meliphagidae	*Melithreptus albogularis*	white-throated honeyeater		C		17
animals	birds	Meliphagidae	*Plectorhyncha lanceolata*	striped honeyeater		C		2
animals	birds	Meliphagidae	*Acanthorhynchus tenuirostris*	eastern spinebill		C		2
animals	birds	Meliphagidae	*Lichmera indistincta*	brown honeyeater		C		19
animals	birds	Meliphagidae	*Entomyzon cyanotis*	blue-faced honeyeater		C		11
animals	birds	Meliphagidae	*Meliphaga lewinii*	Lewin's honeyeater		C		7
animals	birds	Meliphagidae	*Caligavis chrysops*	yellow-faced honeyeater		C		11
animals	birds	Meropidae	*Merops ornatus*	rainbow bee-eater		C		24
animals	birds	Monarchidae	*Monarcha melanopsis*	black-faced monarch		SL		4
animals	birds	Monarchidae	*Symposiachrus trivirgatus*	spectacled monarch		SL		2
animals	birds	Monarchidae	*Myiagra rubecula*	leaden flycatcher		C		12

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animals	birds	Monarchidae	*Myiagra inquieta*	restless flycatcher		C		1
animals	birds	Monarchidae	*Grallina cyanoleuca*	magpie-lark		C		55
animals	birds	Nectariniidae	*Dicaeum hirundinaceum*	mistletoebird		C		7
animals	birds	Neosittidae	*Daphoenositta chrysoptera*	varied sittella		C		6
animals	birds	Oriolidae	*Sphecotheres vieilloti*	Australasian figbird		C		17
animals	birds	Oriolidae	*Oriolus sagittatus*	olive-backed oriole		C		10
animals	birds	Pachycephalidae	*Pachycephala pectoralis*	golden whistler		C		10
animals	birds	Pachycephalidae	*Colluricincla megarhyncha*	little shrike-thrush		C		2
animals	birds	Pachycephalidae	*Pachycephala rufiventris*	rufous whistler		C		36
animals	birds	Pachycephalidae	*Colluricincla harmonica*	grey shrike-thrush		C		31
animals	birds	Pardalotidae	*Pardalotus punctatus*	spotted pardalote		C		6
animals	birds	Pardalotidae	*Pardalotus striatus*	striated pardalote		C		45
animals	birds	Passeridae	*Passer domesticus*	house sparrow	Y			7
animals	birds	Pelecanidae	*Pelecanus conspicillatus*	Australian pelican		C		17
animals	birds	Petroicidae	*Petroica rosea*	rose robin		C		6
animals	birds	Petroicidae	*Eopsaltria australis*	eastern yellow robin		C		10
animals	birds	Phaethontidae	*Phaethon lepturus*	white-tailed tropicbird		SL		1/1
animals	birds	Phalacrocoracidae	*Phalacrocorax sulcirostris*	little black cormorant		C		14
animals	birds	Phalacrocoracidae	*Microcarbo melanoleucos*	little pied cormorant		C		24
animals	birds	Phalacrocoracidae	*Phalacrocorax varius*	pied cormorant		C		5
animals	birds	Phalacrocoracidae	*Phalacrocorax carbo*	great cormorant		C		1
animals	birds	Phasianidae	*Pavo cristatus*	Indian peafowl	Y			1
animals	birds	Phasianidae	*Coturnix ypsilophora*	brown quail		C		4
animals	birds	Pittidae	*Pitta versicolor*	noisy pitta		C		1
animals	birds	Podargidae	*Podargus strigoides*	tawny frogmouth		C		15
animals	birds	Podicipedidae	*Tachybaptus novaehollandiae*	Australasian grebe		C		2
animals	birds	Pomatostomidae	*Pomatostomus temporalis*	grey-crowned babbler		C		2
animals	birds	Psittacidae	*Trichoglossus haematodus moluccanus*	rainbow lorikeet		C		71
animals	birds	Psittacidae	*Platycercus adscitus palliceps*	pale-headed rosella (southern form)		C		2
animals	birds	Psittacidae	*Trichoglossus chlorolepidotus*	scaly-breasted lorikeet		C		21
animals	birds	Psittacidae	*Parvipsitta pusilla*	little lorikeet		C		1
animals	birds	Psittacidae	*Platycercus adscitus*	pale-headed rosella		C		57
animals	birds	Psophodidae	*Psophodes olivaceus*	eastern whipbird		C		11
animals	birds	Ptilonorhynchidae	*Sericulus chrysocephalus*	regent bowerbird		C		1
animals	birds	Rallidae	*Gallinula tenebrosa*	dusky moorhen		C		6
animals	birds	Rallidae	*Porphyrio melanotus*	purple swamphen		C		8
animals	birds	Rallidae	*Gallirallus philippensis*	buff-banded rail		C		1
animals	birds	Rallidae	*Fulica atra*	Eurasian coot		C		1
animals	birds	Recurvirostridae	*Recurvirostra novaehollandiae*	red-necked avocet		C		6
animals	birds	Recurvirostridae	*Himantopus himantopus*	black-winged stilt		C		35
animals	birds	Rhipiduridae	*Rhipidura albiscapa*	grey fantail		C		21
animals	birds	Rhipiduridae	*Rhipidura rufifrons*	rufous fantail		SL		1
animals	birds	Rhipiduridae	*Rhipidura leucophrys*	willie wagtail		C		48
animals	birds	Scolopacidae	*Calidris acuminata*	sharp-tailed sandpiper		SL		22
animals	birds	Scolopacidae	*Tringa stagnatilis*	marsh sandpiper		SL		1
animals	birds	Scolopacidae	*Calidris ferruginea*	curlew sandpiper		E	CE	33

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animals	birds	Scolopacidae	*Calidris ruficollis*	red-necked stint		SL		28
animals	birds	Scolopacidae	*Calidris tenuirostris*	great knot		E	CE	28
animals	birds	Scolopacidae	*Limosa lapponica baueri*	Western Alaskan bar-tailed godwit		V	V	46
animals	birds	Scolopacidae	*Numenius madagascariensis*	eastern curlew		E	CE	36
animals	birds	Scolopacidae	*Tringa incana*	wandering tattler		SL		1
animals	birds	Scolopacidae	*Limosa limosa*	black-tailed godwit		SL		4
animals	birds	Scolopacidae	*Arenaria interpres*	ruddy turnstone		SL		32
animals	birds	Scolopacidae	*Numenius phaeopus*	whimbrel		SL		53
animals	birds	Scolopacidae	*Tringa nebularia*	common greenshank		SL		24
animals	birds	Scolopacidae	*Calidris canutus*	red knot		E	E	18
animals	birds	Scolopacidae	*Tringa brevipes*	grey-tailed tattler		SL		36
animals	birds	Scolopacidae	*Xenus cinereus*	terek sandpiper		SL		26
animals	birds	Strigidae	*Ninox strenua*	powerful owl		V		1
animals	birds	Strigidae	*Ninox connivens*	barking owl		C		1
animals	birds	Strigidae	*Ninox boobook*	southern boobook		C		9
animals	birds	Sturnidae	*Acridotheres tristis*	common myna	Y			3
animals	birds	Sturnidae	*Sturnus vulgaris*	common starling	Y			4
animals	birds	Sulidae	*Morus serrator*	Australasian gannet		C		1
animals	birds	Threskiornithidae	*Platalea flavipes*	yellow-billed spoonbill		C		4
animals	birds	Threskiornithidae	*Platalea regia*	royal spoonbill		C		10
animals	birds	Threskiornithidae	*Threskiornis molucca*	Australian white ibis		C		35
animals	birds	Threskiornithidae	*Threskiornis spinicollis*	straw-necked ibis		C		11
animals	birds	Timaliidae	*Zosterops lateralis*	silvereye		C		39
animals	birds	Turnicidae	*Turnix varius*	painted button-quail		C		1
animals	birds	Turnicidae	*Turnix maculosus*	red-backed button-quail		C		1
animals	birds	Tytonidae	*Tyto tenebricosa tenebricosa*	sooty owl		C		1
animals	insects	Hesperiidae	*Cephrenes trichopepla*	yellow palm-dart				1
animals	insects	Nymphalidae	*Phaedyma shepherdi shepherdi*	white-banded plane (southern subspecies)				1
animals	insects	Nymphalidae	*Junonia villida villida*	meadow argus				1
animals	insects	Nymphalidae	*Danaus petilia*	lesser wanderer				4
animals	insects	Nymphalidae	*Tirumala hamata hamata*	blue tiger				4
animals	insects	Nymphalidae	*Danaus plexippus*	monarch	Y			5
animals	insects	Nymphalidae	*Vanessa kershawi*	Australian painted lady				4
animals	insects	Nymphalidae	*Melanitis leda bankia*	evening brown				2
animals	insects	Nymphalidae	*Danaus affinis affinis*	swamp tiger				2
animals	insects	Nymphalidae	*Doleschallia bisaltide australis*	leafwing				1
animals	insects	Nymphalidae	*Euploea corinna*	common crow				5
animals	insects	Papilionidae	*Graphium choredon*	blue triangle				5
animals	insects	Papilionidae	*Papilio aegeus aegeus*	orchard swallowtail (Australian subspecies)				2
animals	insects	Pieridae	*Pieris rapae*	cabbage white	Y			1
animals	insects	Pieridae	*Eurema hecabe*	large grass-yellow				2
animals	insects	Pieridae	*Catopsilia pomona*	lemon migrant				1
animals	mammals	Canidae	*Vulpes vulpes*	red fox	Y			3
animals	mammals	Leporidae	*Lepus europaeus*	European brown hare	Y			5

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	mammals	Macropodidae	*Wallabia bicolor*	swamp wallaby		C		1
animals	mammals	Molossidae	*Tadarida australis*	white-striped freetail bat		C		3
animals	mammals	Muridae	*Rattus rattus*	black rat	Y			1
animals	mammals	Muridae	*Mus musculus*	house mouse	Y			2
animals	mammals	Muridae	*Hydromys chrysogaster*	water rat		C		1
animals	mammals	Peramelidae	*Perameles nasuta*	long-nosed bandicoot		C		1
animals	mammals	Peramelidae	*Isoodon macrourus*	northern brown bandicoot		C		19
animals	mammals	Petauridae	*Petaurus breviceps*	sugar glider		C		1
animals	mammals	Phalangeridae	*Trichosurus vulpecula*	common brushtail possum		C		12
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		V	V	3919
animals	mammals	Pseudocheiridae	*Pseudocheirus peregrinus*	common ringtail possum		C		10
animals	mammals	Pseudocheiridae	*Petauroides volans volans*	southern greater glider		V	V	1
animals	mammals	Pteropodidae	*Pteropus poliocephalus*	grey-headed flying-fox		C	V	7
animals	mammals	Pteropodidae	*Pteropus alecto*	black flying-fox		C		45
animals	mammals	Tachyglossidae	*Tachyglossus aculeatus*	short-beaked echidna		SL		1
animals	ray-finned fishes	Ambassidae	*Ambassis agassizii*	Agassiz's glassfish				4
animals	ray-finned fishes	Anguillidae	*Anguilla reinhardtii*	longfin eel				29
animals	ray-finned fishes	Anguillidae	*Anguilla australis*	southern shortfin eel				15
animals	ray-finned fishes	Cichlidae	*Oreochromis mossambica*	Mozambique mouthbrooder	Y			9
animals	ray-finned fishes	Eleotridae	*Mogurnda adspersa*	southern purplespotted gudgeon				13
animals	ray-finned fishes	Eleotridae	*Hypseleotris galii*	firetail gudgeon				22
animals	ray-finned fishes	Eleotridae	*Gobiomorphus australis*	striped gudgeon				11
animals	ray-finned fishes	Eleotridae	*Hypseleotris compressa*	empire gudgeon				19
animals	ray-finned fishes	Eleotridae	*Hypseleotris klunzingeri*	western carp gudgeon				2
animals	ray-finned fishes	Melanotaeniidae	*Rhadinocentrus ornatus*	ornate rainbowfish				21
animals	ray-finned fishes	Melanotaeniidae	*Melanotaenia duboulayi*	crimsonspotted rainbowfish				1
animals	ray-finned fishes	Mugilidae	*Mugil cephalus*	sea mullet				8
animals	ray-finned fishes	Plotosidae	*Tandanus tandanus*	freshwater catfish				2
animals	ray-finned fishes	Poeciliidae	*Xiphophorus hellerii*	swordtail	Y			28
animals	ray-finned fishes	Poeciliidae	*Gambusia holbrooki*	mosquitofish	Y			30
animals	ray-finned fishes	Poeciliidae	*Xiphophorus maculatus*	platy	Y			3
animals	ray-finned fishes	Pseudomugilidae	*Pseudomugil signifer*	Pacific blue eye				1
animals	ray-finned fishes	Terapontidae	*Leiopotherapon unicolor*	spangled perch				1
animals	reptiles	Agamidae	*Intellagama lesueurii*	eastern water dragon		C		12
animals	reptiles	Agamidae	*Pogona barbata*	bearded dragon		C		10
animals	reptiles	Boidae	*Morelia spilota*	carpet python		C		17
animals	reptiles	Chelidae	*Chelodina expansa*	broad-shelled river turtle		C		1
animals	reptiles	Chelidae	*Chelodina longicollis*	eastern snake-necked turtle		C		2
animals	reptiles	Colubridae	*Boiga irregularis*	brown tree snake		C		1
animals	reptiles	Colubridae	*Dendrelaphis punctulatus*	green tree snake		C		16
animals	reptiles	Colubridae	*Tropidonophis mairii*	freshwater snake		C		4
animals	reptiles	Elapidae	*Pseudechis porphyriacus*	red-bellied black snake		C		2/1
animals	reptiles	Elapidae	*Demansia psammophis*	yellow-faced whipsnake		C		5
animals	reptiles	Elapidae	*Cacophis harriettae*	white-crowned snake		C		1
animals	reptiles	Gekkonidae	*Hemidactylus frenatus*	house gecko	Y			2
animals	reptiles	Pygopodidae	*Lialis burtonis*	Burton's legless lizard		C		1

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animals	reptiles	Scincidae	*Carlia vivax*	tussock rainbow-skink		C		1
animals	reptiles	Scincidae	*Cryptoblepharus pulcher pulcher*	elegant snake-eyed skink		C		3
animals	reptiles	Scincidae	*Calyptotis scutirostrum*	scute-snouted calyptotis		C		3
animals	reptiles	Scincidae	*Lampropholis delicata*	dark-flecked garden sunskink		C		6
animals	reptiles	Scincidae	*Ctenotus spaldingi*	straight-browed ctenotus		C		3
animals	reptiles	Scincidae	*Lygisaurus foliorum*	tree-base litter-skink		C		1
animals	reptiles	Scincidae	*Anomalopus verreauxii*	three-clawed worm-skink		C		1
animals	reptiles	Scincidae	*Tiliqua scincoides*	eastern blue-tongued lizard		C		7
animals	reptiles	Typhlopidae	*Anilios wiedii*	brown-snouted blind snake		C		1/1
animals	uncertain	Indeterminate	*Indeterminate*	Unknown or Code Pending		C		1
fungi	Agaricomycetes	Agaricaceae	*Cyathus olla*			C		1/1
fungi	Agaricomycetes	Amanitaceae	*Amanita*					2/2
fungi	Agaricomycetes	Amanitaceae	*Amanita albidoides*			C		1/1
fungi	Agaricomycetes	Boletaceae	*Boletellus emodensis*			C		1/1
fungi	Agaricomycetes	Phallaceae	*Aseroe rubra*			C		1/1
fungi	Agaricomycetes	Polyporaceae	*Phaeotrametes decipiens*			C		1/1
fungi	arthoniomycetes	Opegraphaceae	*Opegrapha*					3/3
fungi	eurotiomycetes	Sphinctrinaceae	*Stenocybe*					1/1
fungi	lecanoromycetes	Caliciaceae	*Dirinaria picta*			C		1/1
fungi	lecanoromycetes	Caliciaceae	*Buellia bahiana*			C		1/1
fungi	lecanoromycetes	Caliciaceae	*Buellia dissa*			C		1/1
fungi	lecanoromycetes	Caliciaceae	*Buellia*					2/2
fungi	lecanoromycetes	Caliciaceae	*Pyxine subcinerea*			C		3/3
fungi	lecanoromycetes	Caliciaceae	*Buellia placodiomorpha*			C		2/2
fungi	lecanoromycetes	Caliciaceae	*Amandinea efflorescens*			C		1/1
fungi	lecanoromycetes	Caliciaceae	*Dirinaria melanoclina*			C		2/2
fungi	lecanoromycetes	Caliciaceae	*Dirinaria aegialita*			C		6/6
fungi	lecanoromycetes	Caliciaceae	*Dirinaria applanata*			C		12/12
fungi	lecanoromycetes	Caliciaceae	*Dirinaria confluens*			C		3/3
fungi	lecanoromycetes	Caliciaceae	*Dirinaria sekikaica*			C		2/2
fungi	lecanoromycetes	Caliciaceae	*Buellia subcallispora*			C		1/1
fungi	lecanoromycetes	Catillariaceae	*Catillaria flavicans*			C		1/1
fungi	lecanoromycetes	Coccocarpiaceae	*Coccocarpia palmicola*			C		1/1
fungi	lecanoromycetes	Graphidaceae	*Halegrapha mucronata*			C		3/3
fungi	lecanoromycetes	Haematommataceae	*Haematomma persoonii*			C		3/3
fungi	lecanoromycetes	Lecanoraceae	*Lecanora helva*			C		15/15
fungi	lecanoromycetes	Lecanoraceae	*Lecanora caesiorubella*			C		1/1
fungi	lecanoromycetes	Lecanoraceae	*Lecanora subumbrina*			C		1/1
fungi	lecanoromycetes	Lecanoraceae	*Lecanora argentata*			C		2/2
fungi	lecanoromycetes	Lecanoraceae	*Lecanora leprosa*			C		1/1
fungi	lecanoromycetes	Lecanoraceae	*Lecanora achroa*			C		1/1
fungi	lecanoromycetes	Ochrolechiaceae	*Ochrolechia*					1/1
fungi	lecanoromycetes	Ochrolechiaceae	*Ochrolechia subpallescens*			C		3/3
fungi	lecanoromycetes	Parmeliaceae	*Parmotrema austrosinense*			C		2/2
fungi	lecanoromycetes	Parmeliaceae	*Parmotrema reticulatum*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Parmotrema crinitum*			C		1/1

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fungi	lecanoromycetes	Parmeliaceae	*Parmotrema robustum*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Parmotrema tinctorum*			C		10/10
fungi	lecanoromycetes	Parmeliaceae	*Bulbothrix apophysata*			C		2/2
fungi	lecanoromycetes	Parmeliaceae	*Parmotrema austrocetratum*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Austroparmelina conlabrosa*			C		3/3
fungi	lecanoromycetes	Parmeliaceae	*Bulbothrix tabacina*			C		1/1
fungi	lecanoromycetes	Pertusariaceae	*Pertusaria leioplacella*			C		2/2
fungi	lecanoromycetes	Pertusariaceae	*Pertusaria irregularis*			C		1/1
fungi	lecanoromycetes	Pertusariaceae	*Pertusaria thiospoda*			C		2/2
fungi	lecanoromycetes	Pertusariaceae	*Pertusaria*					3/3
fungi	lecanoromycetes	Pertusariaceae	*Pertusaria elliptica var. elliptica*			C		1/1
fungi	lecanoromycetes	Physciaceae	*Hyperphyscia pandani*			C		1/1
fungi	lecanoromycetes	Physciaceae	*Physcia*					1/1
fungi	lecanoromycetes	Physciaceae	*Physcia jackii*			C		1/1
fungi	lecanoromycetes	Physciaceae	*Physcia minor*			C		5/5
fungi	lecanoromycetes	Physciaceae	*Physcia poncinsii*			C		1/1
fungi	lecanoromycetes	Physciaceae	*Physcia tribacoides*			C		1/1
fungi	lecanoromycetes	Physciaceae	*Heterodermia speciosa*			C		3/3
fungi	lecanoromycetes	Physciaceae	*Hyperphyscia adglutinata*			C		1/1
fungi	lecanoromycetes	Pilocarpaceae	*Micarea*					1/1
fungi	lecanoromycetes	Ramalinaceae	*Ramalina inflata subsp. perpusilla*			C		8/8
fungi	lecanoromycetes	Ramalinaceae	*Ramalina confirmata*			C		3/3
fungi	lecanoromycetes	Ramalinaceae	*Ramalina exiguella*			C		1/1
fungi	lecanoromycetes	Ramalinaceae	*Ramalina pacifica*			C		2/2
fungi	lecanoromycetes	Thelenellaceae	*Julella lactea*			C		1/1
plants	land plants	Acanthaceae	*Ruellia squarrosa*		Y			1/1
plants	land plants	Acanthaceae	*Hypoestes aristata*		Y			1/1
plants	land plants	Amaranthaceae	*Gomphrena celosioides*	gomphrena weed	Y			1
plants	land plants	Amaranthaceae	*Alternanthera denticulata*	lesser joyweed		C		1/1
plants	land plants	Amaranthaceae	*Alternanthera pungens*	khaki weed	Y			1
plants	land plants	Apocynaceae	*Parsonsia straminea*	monkey rope		C		1
plants	land plants	Arecaceae	*Syagrus romanzoffiana*	Queen palm	Y			1
plants	land plants	Asteraceae	*Emilia sonchifolia*		Y			1
plants	land plants	Asteraceae	*Praxelis clematidea*		Y			1
plants	land plants	Asteraceae	*Lagenophora sublyrata*			C		1/1
plants	land plants	Asteraceae	*Bidens pilosa*		Y			1
plants	land plants	Asteraceae	*Sphagneticola trilobata*		Y			1
plants	land plants	Basellaceae	*Anredera cordifolia*	Madeira vine	Y			1/1
plants	land plants	Byttneriaceae	*Commersonia dasyphylla*			C		2/2
plants	land plants	Caesalpiniaceae	*Senna pendula var. glabrata*	Easter cassia	Y			1
plants	land plants	Caryophyllaceae	*Spergularia marina*			C		1/1
plants	land plants	Casuarinaceae	*Allocasuarina littoralis*			C		1
plants	land plants	Casuarinaceae	*Casuarina glauca*	swamp she-oak		C		1
plants	land plants	Chenopodiaceae	*Enchylaena tomentosa var. glabra*			C		1/1
plants	land plants	Chenopodiaceae	*Suaeda australis*			C		1/1
plants	land plants	Commelinaceae	*Commelina diffusa*	wandering jew		C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	land plants	Convolvulaceae	*Polymeria calycina*	pink bindweed		C		1/1
plants	land plants	Euphorbiaceae	*Acalypha australis*		Y			1/1
plants	land plants	Euphorbiaceae	*Euphorbia prostrata*		Y			1
plants	land plants	Euphorbiaceae	*Macaranga tanarius*	macaranga		C		1
plants	land plants	Fabaceae	*Pultenaea retusa*			C		1/1
plants	land plants	Goodeniaceae	*Goodenia bellidifolia subsp. argentea*			C		1/1
plants	land plants	Haloragaceae	*Haloragis heterophylla*	rough raspweed		C		1/1
plants	land plants	Hemerocallidaceae	*Dianella caerulea*			C		1
plants	land plants	Hemerocallidaceae	*Dianella brevipedunculata*			C		1/1
plants	land plants	Hydrocharitaceae	*Limnobium laevigatum*		Y			1/1
plants	land plants	Lamiaceae	*Leonotis nepetifolia*		Y			1/1
plants	land plants	Lauraceae	*Cinnamomum camphora*	camphor laurel	Y			1
plants	land plants	Laxmanniaceae	*Lomandra laxa*	broad-leaved matrush		C		1/1
plants	land plants	Laxmanniaceae	*Eustrephus latifolius*	wombat berry		C		1/1
plants	land plants	Lindsaeaceae	*Lindsaea linearis*	screw fern		C		1/1
plants	land plants	Malvaceae	*Hibiscus tiliaceus*	cotton tree		C		1
plants	land plants	Meteoriaceae	*Papillaria crocea*			C		1/1
plants	land plants	Mimosaceae	*Acacia disparrima subsp. disparrima*			C		1
plants	land plants	Mimosaceae	*Acacia fimbriata*	Brisbane golden wattle		C		2
plants	land plants	Mimosaceae	*Acacia leiocalyx*			C		1
plants	land plants	Mimosaceae	*Acacia conferta*			C		1/1
plants	land plants	Mimosaceae	*Acacia leiocalyx subsp. leiocalyx*			C		2/2
plants	land plants	Mimosaceae	*Vachellia nilotica*	prickly acacia	Y			1/1
plants	land plants	Moraceae	*Ficus*					1
plants	land plants	Moraceae	*Maclura cochinchinensis*	cockspur thorn		C		1
plants	land plants	Moraceae	*Ficus coronata*	creek sandpaper fig		C		1
plants	land plants	Myrsinaceae	*Myrsine howittiana*			C		1/1
plants	land plants	Myrsinaceae	*Lysimachia arvensis*		Y			1
plants	land plants	Myrtaceae	*Eucalyptus tindaliae*	Queensland white stringybark		C		1
plants	land plants	Myrtaceae	*Corymbia intermedia*	pink bloodwood		C		1
plants	land plants	Myrtaceae	*Eucalyptus microcorys*			C		1
plants	land plants	Myrtaceae	*Eucalyptus resinifera*	red mahogany		C		1
plants	land plants	Myrtaceae	*Lophostemon suaveolens*	swamp box		C		2
plants	land plants	Myrtaceae	*Eucalyptus siderophloia*			C		1
plants	land plants	Myrtaceae	*Eucalyptus tereticornis*			C		2
plants	land plants	Myrtaceae	*Leptospermum trinervium*	woolly tea-tree		C		1/1
plants	land plants	Myrtaceae	*Melaleuca quinquenervia*	swamp paperbark		C		3/1
plants	land plants	Myrtaceae	*Leptospermum polygalifolium*	tantoon		C		1/1
plants	land plants	Myrtaceae	*Eucalyptus racemosa subsp. racemosa*	scribbly gum		C		2/1
plants	land plants	Myrtaceae	*Angophora leiocarpa*	rusty gum		C		1
plants	land plants	Myrtaceae	*Corymbia gummifera*	red bloodwood		C		1
plants	land plants	Myrtaceae	*Melaleuca irbyana*			E		1/1
plants	land plants	Myrtaceae	*Eucalyptus seeana*	narrow-leaved red gum		C		3/2
plants	land plants	Myrtaceae	*Melaleuca nodosa*			C		1/1
plants	land plants	Myrtaceae	*Syzygium*					1
plants	land plants	Myrtaceae	*Eucalyptus propinqua*	small-fruited grey gum		C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	land plants	Myrtaceae	*Angophora subvelutina*			C		1
plants	land plants	Najadaceae	*Najas tenuifolia*	water nymph		C		1/1
plants	land plants	Oxalidaceae	*Oxalis rubens*			C		1/1
plants	land plants	Papaveraceae	*Fumaria officinalis subsp. officinalis*		Y			1/1
plants	land plants	Phyllanthaceae	*Glochidion ferdinandi*			C		1
plants	land plants	Phyllanthaceae	*Glochidion sumatranum*	umbrella cheese tree		C		1
plants	land plants	Pittosporaceae	*Bursaria spinosa subsp. spinosa*			C		1/1
plants	land plants	Plantaginaceae	*Plantago myosuros subsp. myosuros*		Y			2/2
plants	land plants	Poaceae	*Paspalum notatum*	bahia grass	Y			1
plants	land plants	Poaceae	*Cynodon dactylon var. dactylon*		Y			1
plants	land plants	Poaceae	*Capillipedium spicigerum*	spicytop		C		1/1
plants	land plants	Poaceae	*Tripsacum dactyloides*		Y			1/1
plants	land plants	Poaceae	*Eriochloa procera*	slender cupgrass		C		1/1
plants	land plants	Poaceae	*Dichelachne montana*			C		2/2
plants	land plants	Poaceae	*Megathyrsus maximus*		Y			1
plants	land plants	Poaceae	*Paspalum mandiocanum*		Y			1/1
plants	land plants	Poaceae	*Phragmites australis*	common reed		C		1
plants	land plants	Polygonaceae	*Persicaria*					1
plants	land plants	Polygonaceae	*Persicaria strigosa*			C		1/1
plants	land plants	Pontederiaceae	*Heteranthera reniformis*		Y			1/1
plants	land plants	Proteaceae	*Banksia integrifolia*			C		1
plants	land plants	Rhamnaceae	*Alphitonia excelsa*	soap tree		C		2
plants	land plants	Rutaceae	*Boronia rosmarinifolia*	forest boronia		C		1/1
plants	land plants	Salviniaceae	*Salvinia molesta*	salvinia	Y			1/1
plants	land plants	Sapindaceae	*Dodonaea triquetra*	large-leaved hop bush		C		1/1
plants	land plants	Sapindaceae	*Cupaniopsis anacardioides*	tuckeroo		C		2
plants	land plants	Solanaceae	*Solanum nigrum*		Y			1
plants	land plants	Solanaceae	*Solanum seaforthianum*	Brazilian nightshade	Y			1
plants	land plants	Ulmaceae	*Celtis sinensis*	Chinese elm	Y			1

CODES

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

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

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

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

APPENDIX

D

DESKTOP ASSESSMENT RESULTS

Scientific Name	Common Name	Status#		Source^	General habitat requirements	Are these requirements known or expected to be present on site?	Known: The species has been positively recorded in the site area by a qualified ecologist[1] during past 30 years.	Likley: Suitable habitat for the species occurs in the site area and proximate records exist	Possible: Suitable habitat for the species occurs in the site area but no recent records from the site or proximate areas exist OR suitable habitat for the species may not occur in the site area but recent records from proximate areas exist	Unlikely: Suitable habitat for the species does not occur in the site area, and no recent records from the within the site or proximate areas exist	Likelihood of Occurrence of Suitable Habitat
		NC Act	EPBC Act								
BIRDS											
Anous stolidus	Common noddy	-	Mi, Ma	WO	Breeds around islands, rocky islet and stacks with precipitous cliffs, on coral or sand shoals and cays. In non-breeding is found over open ocean.	No	No	No	No	Yes	Unlikley
Anthochaera phrygia	Regent honeyeater	E	CE	PMST	Occurs in dry Box-Ironbark eucalypt woodland and dry sclerophyll forest associations in areas of low to moderate relief, wherein they prefer moister, more fertile sites available, for example along creek flats, or in broad river valleys and foothills.	No	No	No	No	Yes	Unlikley
Apus pacificus	Fork-tailed swift	-	Mi, Ma	PMST	This species is an almost exclusively aerial species, flying from <1 m to >300 m above ground overflying a range of habitat types over inland plains but sometimes above foothills or in coastal areas. Likely roost aerially, but have been observed landing.	Yes	No	No	Yes	No	Possible
Ardenna carneipes	Flesh-footed shearwater	-	Mi, Ma	PMST	Found mostly over subtropical continental shelves and slopes, occasionally over inshore waters. Breeds on islands.	No	No	No	No	Yes	Unlikley
Botaurus poiciloptilus	Australasian bittern	-	E	PMST	Freshwater wetlands with tall dense vegetation	Yes	No	No	Yes	Yes	Possible
Calidris acuminata	Sharp-tailed sandpiper	-	Mi	WO	Found on muddy edges of shallow wetlands, fresh or brackish, with sedges, grass, and saltmarsh vegetation present. For example, lakes, swamps, dams, saltpans, flooded paddocks, sheltered intertidal mudflats.	Yes	No	No	No	Yes	Unlikley
Calidris cantus	Red knot		E	PMST, WO	Inhabits intertidal mudflats, sandflats and sandy beaches of sheltered coasts and sometimes on sandy ocean beaches or shallow pools on exposed rock platforms. They are occasionally seen on terrestrial saline wetlands near the coast and on sewage ponds and saltworks.	Yes	No	No	Yes	No	Possible
Calidris tenuirostris	Great knot	E	CE, Mi, Ma	WO	Sheltered coastal areas with large intertidal mud or sandflats, such as bays, harbours, estuaries, inlets, lagoons. Sometimes occur on exposed reef or rocky platforms, ponds in saltworks, coastal swamps, or mangroves.	No	No	No	Yes	No	Possible
Calidris ferruginea	Curlew sandpiper	E	CE, Mi, Ma	WO	Intertidal mudflats in sheltered coastal areas, including bays, inlets, estuaries and lagoons. Sometimes occur around non-tidal swamps, lakes or ponds near the coast, in fresh or brackish waters.	Yes	No	No	Yes	No	Possible
Calidris ruficollis	Red-necked stint	-	Mi, Ma	WO	Found in coastal areas, including in sheltered inlets, bays, lagoons and estuaries with intertidal mudflats, often near spits, islets and banks and, sometimes, on protected sandy or coralline shores.	No	No	No	No	Yes	Unlikley
Calonectris laucomelas	Streaked shearwater		Mi, Ma	PMST	Marine and partly pelagic, also occurring over inshore waters. Typically breeds on offshore islands.	No	No	No	No	Yes	Unlikley
Charadrius leschenaultia	Greater sand plover	V	V, Mi, Ma	PMST	Coastal habitats, including estuary and littoral areas. This includes sheltered muddy, sandy or shelly beaches, with large intertidal sand and mudflats, and sandy estuarine lagoons.	No	No	No	Yes	No	Possible
Charadrius mongolus	Lesser sand plover	E	E, Mi, Ma	PMST	Coastal species. Occurs on large intertidal mud or sandflats in harbours, estuaries, and sheltered bays. Can sometimes be found near saltworks, coastal saltpans, brackish swamps, and riverbed islands.	No	No	No	Yes	No	Possible

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		NC Act	EPBC Act								
Charadrius bicinctus	Double-banded plover	-	Mi, Ma	WO	Inhabits littoral, estuarine, fresh or saline terrestrial wetlands; saltmarsh; grasslands; pasture; rocky, sandy or muddy beaches; coastal lagoons and inland saltlakes.	Yes	No	No	Yes	No	Possible
Charadrius veredus	Oriental plover	-	Mi, Ma	WO	Estuarine mudflats and sandbanks, sandy or rocky ocean beaches, and other coastal habitats. Can also inhabit inland grasslands.	Yes	No	No	Yes	No	Possible
Cuculus optatus	Oriental cuckoo	-	Mi, Ma	WO	Usually inhabits forest canopy, open wooded areas, hill country, coniferous forest, and sometimes above the tree line.	No	No	No	No	Yes	Unlikley
Dasyornis brachypterus	Eastern bristlebird	E	E	PMST	Inhabits low dense vegetation in a broad range of habitat types including sedgeland, heathland, swampland, shrubland, sclerophyll forest and woodland, and rainforest	No	No	No	No	Yes	Unlikley
Limosa lapponica baueri	Western Alaskan bar-tailed godwit	V	V	WO	Occurs mostly in coastal habitats, including large intertidal mud and sandflats, estuaries, harbours, bays, seagrass beds. Also sometimes found in brackish wetlands, sandy ocean beaches, rocky platforms, mangroves.	No	No	NO	Yes	No	Possible
Erythrotriochis radiatus	Red goshawk	E	V	PMST	Forest and woodland with a mosaic of vegetation types, large prey populations (birds), and permanent water. The vegetation types include eucalypt woodland, open forest, tall open forest, gallery rainforest, swamp sclerophyll forest, and rainforest margins.	No	No	No	No	Yes	Unlikley
Fregata ariel	Lesser frigatebird	-	Mi, Ma	PMST	Inhabits small and remote islands (tropical and sub-tropical), also found in mangroves, bushes, and bare ground. Forages coastally	No	No	No	No	Yes	Unlikley
Fregata minor	Great frigatebird	-	Mi, Ma	PMST	Inhabits small and remote islands (tropical and sub-tropical), also found in mangroves, bushes, and bare ground. Forages coastally.	No	No	No	No	Yes	Unlikley
Gelochelidon nilotica	Gull-billed tern	-	Mi	WO	Inhabits freshwater swamps, brackish and salt lakes, beaches and estuarine mudflats, floodwaters, sewage farms, irrigated croplands and grasslands. Rarely found over the ocean.	No	No	No	No	Yes	Unlikley
Hirundapus caudacutus	White-throated needletail	-	Mi, Ma	WO	Almost exclusively aerial, up to heights of 1000 m. Mostly occur over open forest, rainforest, clearings, and sometimes below the canopy. Sometimes occur over sandy beaches and mudflats.	Yes	No	Yes	No	No	Likely
Hydroprogne caspia	Caspian tern	-	Mi	WO	Found in open wetlands, including lakes and rivers. Generally prefer sheltered shallow water near the margins, but can also be found in open coastal waters. Often found foraging in tidal channels, or over submerged mudbanks	Yes	No	No	Yes	No	Possible
Sterna hirundo	Common tern	-	Mi	WO	Mostly found in marine zones, but are commonly observed in near-coastal waters, both on ocean beaches, platforms and headlands and in sheltered waters, such as bays, harbours and estuaries with muddy, sandy or rocky shores.	Yes	No	No	Yes	No	Possible
Thalasseus bergii	Crested tern	-	Mi, Ma	WO	The species inhabits tropical and subtropical coastlines, foraging in the shallow waters of lagoons, muddy shores. Occasionally seen on rocky outcrops in open sea and in mangrove swamps.	No	No	No	No	Yes	Unlikely
Sternula albifrons	Little tern	-	Mi, Ma	PMST	Sheltered coastal habitats such as lagoons, river mouths, estuaries, lakes, bays, harbours, and exposed ocean beaches.	No	No	No	Yes	No	Possible
Lathamus discolor	Swift parrot	E	E	PMST	A variety of woodlands with mature eucalypts, where nectar production is plentiful and reliable.	No	No	No	No	Yes	Unlikely

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		NC Act	EPBC Act								
Limosa lapponica	Bar-tailed godwit	-	Mi, Ma	PMST	Mainly coastal habitats, including intertidal sand and mudflats, harbours, estuaries, around seagrass beds, and sometimes around saltworks, brackish coastal wetlands, sandy ocean beaches, rock platforms.	Yes	No	No	Yes	No	Possible
Limosa limosa	*Black tailed godwit*		Mi, Ma	PMST	Found in sheltered bays, estuaries and lagoons with large intertidal mudflats or sandflats, or spits and banks of mud, sand or shell-grit; occasionally recorded on rocky coasts or coral islets.	No	No	No	No	Yes	Unlikley
Monarcha melanopsis	Black-faced monarch	-	V, Mi	PMST	Found mostly in rainforest environments, sometimes in open eucalypt forests, mountain gullies, coastal foothills and scrub, and occasionally among mangroves.	Yes	No	No	Yes	No	Possible
Monarcha trivirgatus	Spectacled monarch	-	Mi	PMST	Occurs mainly in rainforests within thick understorey, waterside vegetation, wet gullies, and mangroves.	Yes	No	No	Yes	No	Possible
Ninox strenua	Powerful owl	V	Yes	WO	Open forests and woodlands, as well as along sheltered gullies in wet forests with dense understoreys, especially along watercourses. Requires large and medium trees with hollows for nesting.	No	No	No	Yes	No	Possible
Numenius madagascariensis	Eastern curlew	V	CE	PMST	Forages on soft sheltered intertidal sandflats or mudflats, open and without vegetation or covered with seagrass, often near mangroves, on saltflats and in saltmarsh, rockpools and among rubble on coral reefs, and on ocean beaches near the tideline.	No	No	No	Yes	No	Possible
Pachyptila turtur subantarctica	Fairy prion	-	V	PMST	Breeding occurs on subantarctic islands outside Australia, such as Macquarie, Bishop, and Clerk Islands. Some migrate towards southern Australia and NZ during Winter.	No	No	No	No	Yes	Unlikley
Pandion cristatus	Eastern osprey	-	Mi	WO	Coastal and littoral habitats, mainly tropical and temperate terrestrial wetlands such as mangrove swamps, estuaries, rivers, lakes. Preference for coastal cliffs and elevated offshore islands. Forage in large areas of water (fresh, saline, or brackish).	Yes	No	No	Yes	No	Possible
Pluvialis fulva	Pacific golden plover	-	Mi	WO	Usually coastal environments- beaches, mud and sandflats, sheltered harbours and estuaries.	No	No	No	Yes	No	Possible
Rostratula australis	Australian painted snipe	V	E	PMST	Shallow inland wetlands, either freshwater or brackish, that are either permanently or temporarily filled.	Yes	No	No	Yes	No	Possible
Rhipidura rufifrons	Rufous fantail	-	Mi	PMST	Found mainly in wet sclerophyll forests, often in gullies, sometimes found in subtropical and temperate rainforest.	No	No	No	No	Yes	Unlikely
Thalassarche cauta steadi	White-capped albatross	V	V	PMST	Found in subantarctic and subtropical waters, both inshore and offshore. Nest on Auckland Island.	No	No	No	No	Yes	Unlikely
Tringa brevipes	Grey-tailed tattler	-	Mi	WO	Sheltered coasts with reef and rock platforms, intertidal mudflats, rocky/coral reefs, rock/shell/gravel shores, estuaries, lagoons, mangroves. In Moreton Bay, most common in areas with dense seagrass beds.	No	No	No	No	Yes	Unlikely
Numenius phaeopus	Whimbrel	-	Mi, Ma	WO	Prefers sheltered coastal areas - intertidal mudflats, harbours, lagoons, estuaries, also sometimes open unvegetated mudflats, beaches, reefs. Roosting and feeding in mangroves.	Yes	Yes	Yes	Yes	No	Possible
Arenaria interpres	Ruddy turnstone	-	Mi, Ma	WO	Mostly occurs in coastal regions, with coral reef or exposed rocky coastline. Often found near shallow tidal pools, sometimes found on sand, shell, or coral beaches.	No	No	No	No	Yes	Unlikley

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		NC Act	EPBC Act								
Xenus cinereus	Terek sandpiper	-	Mi, Ma	WO	Forages on intertidal mudflats, in sheltered estuaries, harbours, lagoons, mudbanks, and near mangroves. Occasionally found on sandy beaches among seaweed. Roosts among mangroves.	Yes	No	No	Yes	No	Possible
Tringa nebularia	Common greenshank	-	Mi	PMST	Found in sheltered coastal habitats and inland wetlands, with large mudflats, saltmarsh, mangroves, or seagrass. Can inhabit artificial wetlands such as flooded cropland and sewage farms, but mostly occur around rivers, estuaries, creeks, lakes.	Yes	No	No	Yes	No	Possible
Tringa stagnatilis	Marsh sandpiper	-	MI	WO	Inhabits permanent or ephemeral wetlands such as swamps, saltpans, estuaries, intertidal mudflats. Rarely occur on beaches.	Yes	No	No	Yes	No	Possible
MAMMALS											
Petauroides volans	Greater glider	-	V	PMST	Largely restricted to eucalypt forests and woodlands. It is primarily folivorous, with a diet mostly comprising eucalypt leaves, and occasionally flowers. During the day it shelters in tree hollows, with a particular selection for large hollows in large, old trees	Yes	No	Yes	No	No	Likely
Phascolarctos cinereus	Koala	V	V	PMST	Eucalypt woodland, and forests	Yes	Yes	Yes	No	No	Known
Pteropus poliocephalus	Grey-headed flying-fox	-	V	PMST	Suitable foraging resources and roosting sites are provided by a variety of forest types including rainforests, open forests, closed and open woodlands, Melaleuca swamps and Banksia woodlands. The primary food source is blossom from Eucalyptus and related genera.	Yes	No	Yes	No	No	Likely
Xeromys myoides	Water mouse	V	V	PMST	Mangroves and the associated saltmarsh, sedgelands, clay pans, heathlands and freshwater wetlands.	Yes	No	No	Yes	No	Possible
PLANTS											
Arthraxon hispidus	Hairy-joint grass	V	V	PMST	Fringes of rainforest and wet Eucalypt forests	Yes	No	No	Yes	No	Possible
Bosistoa transversa	Three-leaved bosistoa	-	V	PMST	Wet sclerophyll forest, dry sclerophyll forest and rainforest up to 300 m in altitude. Associated vegetation includes *Argyrodendron trifoliolatum, Syzygium hodgkinsoniae, Endiandra pubens, Dendrocnide photinophylla, Acmena ingens, Diploglottis australis* and *Diospyros mabacea.*	Yes	No	No	Yes	No	Possible
Corchorus cunninghamii	Native jute	E	E	PMST	Ecotone of wet sclerophyll forest and dry to dry-subtropical rainforest (e.g. araucarian microphyll vine forest), and in Hoop Pine (Araucaria cunninghamii) plantations. It often occurs on hill crests, exposed slopes, ridges or upper slopes of hilly terrain on south or south-east aspect.	No	No	No	No	Yes	Unlikely

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		NC Act	EPBC Act								
Macadamia integrifolia	Macadamia nut	V	V	PMST	Remnant rainforest, preferring partially open areas such as rainforest edges. High nutrient alluvial and volcanic soils predominate often with considerable exposure of rock fragments or substrate, mostly basalt and diorite. The surface soils are uniformly dark, slightly acid (pH 5.5–6.5) and varying in texture from clayey-sand through various loams to silty-clay. All sites are well-drained, some excessively so.	No	No	No	No	Yes	Unlikely
Melaleuca irbyana		E	-	WO	Open eucalypt forest in clay, sandstone or alluvial soils.	Yes	Yes	No	No	No	Likely
Phaius australis	Lesser swamp-orchid	E	E	PMST	Swampy grassland or swampy forest including rainforest, eucalypt or paperbark forest, mostly in coastal areas.	Yes	No	No	Yes	No	Possible
Samadera bidwillii		V	V	PMST	Occurs in lowland rainforest often with *Araucaria cunninghamii* or on rainforest margins, but it can also be found in other forest types, such as open forest and woodland, it is commonly found in areas adjacent to both temporary and permanent watercourses up to 510 m altitude.	Yes	No	No	Yes	No	Possible
V = Vulnerable; E = Endangered; CE = Crritically Endangered; Mi = Migratory											

APPENDIX

E

QUATERNARY RESULTS

	T1	T2	Shrub	Groundcover
Q1	*Eucalyptus tereticornis*	*Eucalyptus tereticornis*	*Acacia crassa*	*Imperata cylindrica*
	Eucalyptus siderophloia	*Lophostemon suaveolens*		*Themeda triandra*
		Angophora leiocarpa		*Gahnia aspera*
Height	16	12	2	
Cover	60	40	20	70

	T1	T2	Shrub	Groundcover
Q2	*Eucalyptus racemosa*	*Eucalyptus racemosa*	*Allocasuarina littoralis*	*Gahnia aspera*
	Eucalyptus tereticornis	*Allocasuarina littoralis*	*Acacia maidenii*	*Lomandra filiformis*
	Corymbia intermedia	*Angophora leiocarpa*		*Eremochloa bimaculata*
	Eucalyptus siderophloia	*Lophostemon suaveolens*		
Height	20	14	3	
Cover	75.00%	50%	10.00%	10

	T1	T2	Shrub	Groundcover
Q3	*Eucalyptus racemosa*	*Melaleuca quinquenervia*	*Alphitonia excelsa*	*Ghana aspera*
	Angophora leiocarpa	*Allocasuarina littoralis*	*Allocasuarina littoralis*	*Passiflora suberosa*
	Allocasuarina littoralis	*Acacia disparrima*	*Lophostemon confertus*	
Height	18	12	3	
Cover	70.00%	45%	10.00%	10

	T1	T2	Shrub	Groundcover
Q4	*Eucalyptus racemosa*	*Melaleuca quinquenervia*	*Allocasuarina littoralis*	*Passiflora suberosa*
	Corymbia intermedia	*Allocasuarina littoralis*	*Banksia integrifolia*	*Oplismenus hirtellus*
			Acacia crassa	*Imperata cylindrica*
			Lophostemon suaveolens	
Height	18	14	6	
Cover	70	60	25.00%	50

	T1	T2	Shrub	Groundcover
Q5	*Eucalyptus tereticornis*	*Eucalyptus siderophloia*	*Acacia crassa*	*Imperata cylindrica*
	Eucalyptus siderophloia	*Lophostemon suaveolens*	*Allocasuarina littoralis*	*Cymbopogon refractus*
		Allocasuarina littoralis		
Height		*Corymbia intermedia*		
Cover	18	12	4	
	50	25%	5.00%	60

	T1	T2	S	G
Q6	*Corymbia intermedia*	*Eucalyptus tereticornis*	*Alphitonia excelsa*	*Lomandra filiformis*
		Allocasuarina littoralis	*Allocasuarina littoralis*	*Oplismenus hirtellus*

	T1	T2	Shrub	Groundcover
		Eucalyptus propinqua		*Lantana montevidensis*
Height	14	10	6	
Cover	60.00%	50%	30.00%	30



Q1



Q2



Q3

N/A

Q4



Q5



Q6

APPENDIX

F

FLORA SPECIES LIST

Species	Common Name	Status	*WoNS*	*Biosecurity Act 2014*	Planted
Abrus precatorius sub africanus	Crab's eye creeper	Exotic	-	-	-
Acacia concurrens	Black Wattle	Native	-	-	-
Acacia disparrima	Hickory wattle	Native	-	-	-
Acacia falcata	Sickle wattle	Native	-	-	-
Acacia fimbriata	Brisbane golden wattle	Native	-	-	-
Acacia leiocalyx	Black wattle	Native	-	-	-
Acacia maidenii	Maiden's wattle	Native	-	-	-
Acrostichum speciosum	Mangrove fern	Native	-	-	-
Adiantum hispidulum	Rough maidenhair fern	Native	-	-	-
Aegiceras corniculatum	River mangrove	Native	-	-	-
Ageratum houstonianum	Blue billy goat	Exotic	-	-	-
Alectryon tomentosa	Hairy bird's eye	Exotic	-	-	-
Allocasuarina littoralis	Black she oak	Exotic	-	-	-
Alloteropsis semialata	Cockatoo grass	Native	-	-	-
Alphitonia excelsa	Soap tree	Native	-	-	-
Alternanthera denticulata	Lesser joyweed	Exotic	-	-	-
Amyema congener subsp. congener		Native	-	-	-
Andropogon virginicus	Whisky grass	Exotic	-	-	-
Angophora leiocarpa	Rusty Gum	Native	-	-	-
Araucaria bidwillii	Bunya pine	Native	-	-	Planted
Archontophoenix alexandrae	Alexandra palm	Native	-	-	-
Ardisia humilis		Exotic	-	-	-
Asparagus aethiopicus	Basket asparagus	Exotic	✓	-	-
Asparagus africanus	Asparagus fern	Exotic	✓	-	-
Astrotricha latifolia	Star bush	Exotic	-	-	-
Avicennia marina	Grey mangrove	Native	-	-	-
Bacopa monnieri	Water hyssop	Native	-	-	-
Baccharis halimifolia	Groundsel	Exotic	-	Restricted	-
Banksia integrifolia	Coastal banksia	Native	-	-	-
Barleria repens	Coral creeper	Exotic	-	-	-
Bidens pilosa	Cobbler’s pegs	Exotic	-	-	-
Blechnum indicum	Bungwall	Native	-	-	-
Brachychiton acerifolius	Flame tree	Native	-	-	-
Breynia oblongifolia	Coffee bush	Native	-	-	-
Brunoniella australis		Native	-	-	-
Bryophyllum delagoense	Mother of millions	Exotic	-	Restricted	-
Bryophyllum pinnatum	Resurrection plant	Exotic	-	Restricted	-
Buckinghamia celsissima	Ivory curl	Native	-	-	-
Capillipedium spicigerum	Scented top grass	Native	-	-	-
Cassytha pubescens		Native	-	-	-

Species	Common Name	Status	*WoNS*	*Biosecurity Act 2014*	Planted
Casuarina glauca	Swamp oak	Native	-	-	-
Celtis sinensis	Chinese elm	Exotic	-	-	-
Centella asiatica	Penny wort	Exotic	-	-	-
Cestrum nocturnum	Night Jessamine	Exotic	-	-	-
Cheilanthes distans	Resurrection fern	Native	-	-	-
Chionanthus ramiflora	Northern olive	Native	-	-	-
Chloris gayana	Rhodes grass	Exotic	-	-	-
Chrysocephalum apiculatum	Yellow buttons	Exotic	-	-	-
Cinnamomum camphora	Camphor laurel	Exotic	-	Restricted	-
Cirsium vulgare	Spear thistle	Exotic	-	-	-
Clematicissus opaca	Pepper vine	Native	-	-	-
Clerodendrum floribundum	Lolly bush	Native	-	-	-
Conyza bonariensis	Tall fleabane	Exotic	-	-	-
Corymbia citriodora subsp. variegata	Spotted gum	Native	-	-	-
Corymbia intermedia	Pink blood wood	Native	-	-	-
Corymbia torelliana	Cadagi	Native	-	-	-
Corymbia trachyphloia	Brown bloodwood	Native	-	-	-
Crotalaria pallida	Streaked rattlepod	Exotic	-	-	-
Cryptocarya glaucescens	Jackwood	Native	-	-	-
Cupaniopsis anacardioides	Tuckeroo	Native	-	-	-
Cymbopogon refractus	Barbed wire grass	Native	-	-	-
Cynodon dactylon	Couch	Exotic	-	-	-
Cyperus brevifolius	Mullumbimby couch	Exotic	-	-	-
Cyperus polystachyos	Bunchy sedge	Exotic	-	-	-
Daviesia ulicifolia	Gorse bitter pea	Native	-	-	-
Desmodium rhytidophyllum		Native	-	-	-
Desmodium uncinatum	Silver desmodium	Exotic	-	-	-
Dianella brevipedunculata	Blue flax-lilly	Native	-	-	-
Dianella longifolia	Blueberry lilly	Native	-	-	-
Dichanthium sericeum	Queensland blue grass	Native	-	-	-
Dichondra repens	Kidney weed	Exotic	-	-	-
Dodonaea triquetra	Hop bush	Native	-	-	-
Echinopogon caespitosus	Hedge-hog grass	Native	-	-	-
Einadia hastata	Saltbush	Native	-	-	-
Emilia sonchifolia	Little Emily	Exotic	-	-	-
Enchylaena tomentosa	Ruby saltbush	Native	-	-	-
Epaltes australis		Native	-	-	-
Eragrostis tenuifolia	Elastic grass	Exotic	-	-	-
Eremochloa bimaculata	Poverty grass	Native	-	-	-
Eremophila debilis	Winter apple	Native	-	-	-

Species	Common Name	Status	*WoNS*	*Biosecurity Act 2014*	Planted
Eucalyptus microcorys	Tallowwood	Native	-	-	-
Eucalyptus moluccana	Gum-toped box	Native	-	-	-
Eucalyptus propinqua	Grey Gum	Native	-	-	-
Eucalyptus racemosa	Scribbly gum	Native	-	-	-
Eucalyptus seeana	Narrow-leaved red gum	Native	-	-	-
Eucalyptus siderophloia	Northern grey ironbark	Native	-	-	-
Eucalyptus tereticornis	Forest red gum	Native	-	-	-
Eugenia unifolia	Brazilian cherry	Exotic	-	-	-
Eustrephus latifolius	Wombat berry	Native	-	-	-
Excoecaria agallocha	Milky mangrove	Native	-	-	-
Exocarpos latifolius	Bush cherry	Native	-	-	-
Ficus benjamina	Weeping fig	Exotic	-	-	-
Ficus obliqua	Small-leaved fig	Native	-	-	-
Fimbristylis ferruginea	Rusty sedge	Native	-	-	-
Fimbristylis polytrichoides		Native	-	-	-
Flindersia schottiana	Bumpy ash	Native	-	-	-
Gahnia aspera	Sword sedge	Native	-	-	-
Geitonoplesium cymosum	Scrambling lily	Native	-	-	-
Geodorum densiflora	Pink nodding orchid	Exotic	-	-	-
Glochidion ferdinandi	Cheese tree	Native	-	-	-
Glossocardia bidens	Native cobbler's pegs	Native	-	-	-
Glycine clandestina		Native	-	-	-
Glycine tomentella		Native	-	-	-
Gmelina leichhardtii	White Beech	Native	-	-	-
Gomphocarpus physocarpus	Balloon cottonbush	Exotic	-	-	-
Gomphrena celosioides	Gomphrena weed	Exotic	-	-	-
Goodenia rotundifolia	Forest goodenia	Native	-	-	-
Grevillea baileyana	White oak	Native	-	-	-
Grevillia robusta	Silky oak	Native	-	-	-
Hakea florulenta		Native	-	-	-
Haloragis heterophylla	Rough raspwort	Native	-	-	-
Heteropogon contortus	Black spear grass	Native	-	-	-
Hibbertia diffusa	Wedge guinea flower	Native	-	-	-
Hibbertia vestita	Guinea flower	Native	-	-	-
Hybanthus stellarioides	Spade flower	Native	-	-	-
Hypericum gramineum	Native St John Wort	Native	-	-	-
Hypoxis pratensis	Golden weather grass	Native	-	-	-
Imperata cylindrica	Blady grass	Native	-	-	-
Jacaranda mimosifolia	Jacaranda	Exotic	-	-	-
Jacksonia scoparia	Dogwood	Native	-	-	-
Jagera pseudorhus	Foambark	Native	-	-	-

Species	Common Name	Status	*WoNS*	*Biosecurity Act 2014*	Planted
Jasminum suavissimum	Star jasmine	Exotic	-	-	-
Lantana camara	Lantana	Exotic	✓	Restricted	-
Lantana montevidensis	Creeping lantana	Exotic	-	Restricted	-
Laxmannia gracilis	Slender wire lilly	Native	-	-	-
Lepidosperma laterale	Variable sword sedge	Native	-	-	-
Leptospermum polygalifolium	Wild may	Native	-	-	-
Ligustrum sinense	Small leaf privet	Exotic	-	Restricted	-
Livistona australis	Cabbage palm	Native	-	-	-
Lobelia purpurascens	White root	Native	-	-	-
Lomandra confertifolia subsp. pallida		Native	-	-	-
Lomandra filiformis	Wattle mat-rush	Native	-	-	-
Lomandra laxa		Native	-	-	-
Lomandra longifolia	Spiny-headed mat-rush	Native	-	-	-
Lophostemon suaveolens	Swamp box	Native	-	-	-
Lygodium microphyllum	Climbing maiden hair	Native	-	-	-
Macaranga tanarius	Macaranga	Native	-	-	-
Mangifera indica	Mango	Exotic	-	-	-
Marsdenia rostrata	Milk vine	Native	-	-	-
Megathyrsus maximus	guinea grass	Exotic	-	-	-
Melaleuca nodosa	Prickly-leaved paperbark	Native	-	-	-
Melaleuca quinquenervia	Broad-leaved paperbark	Native	-	-	-
Melaleuca salicina	White bottlebrush	Native	-	-	-
Melia azedarach	White cedar	Native	-	-	-
Melicope elleryana	Pink doughwood	Native	-	-	-
Melinis repens	Red natal	Exotic	-	-	-
Mentha australis	River mint	Native	-	-	-
Microlaena stipoides	Weeping grass	Native	-	-	-
Monotoca scoparia	Prickly broom heath	Native	-	-	-
Murdannia graminea	Slug weed	Native	-	-	-
Murraya koenigii	Curry bush	Exotic	-	-	-
Murraya paniculata	Mock orange	Exotic	-	-	-
Myoporum acuminatum	Coastal boobialla	Native	-	-	-
Notelaea longifolia	Native olive	Native	-	-	-
Ochna serratula	Micky Mouse weed	Exotic	-	-	-
Olea europaea	Common olive	Exotic	-	-	-
Oplismenus hirtellus		Native	-	-	-
Opuntia stricta	Prickly pear	Exotic	✓	Restricted	-
Ottochloa gracillima		Native	-	-	-
Oxalis corniculata	Yellow wood sorrel	Exotic	-	-	-
Ozothamnus diosmifolius	Rice flower	Native	-	-	-

Species	Common Name	Status	*WoNS*	*Biosecurity Act 2014*	Planted
Pandorea pandorana	Wonga wonga vine	Native	-	-	-
Panicum effusum	Hairy panic	Native	-	-	-
Panicum queenslandicum	Coolabah grass	Native	-	-	-
Parsonsia straminea	Monkey rope	Native	-	-	-
Paspalum scrobiculatum	Ditch millet	Native	-	-	-
Passiflora foetida	Stinking passion fruit	Exotic	-	-	-
Passiflora suberosa	Corky passion	Exotic	-	-	-
Phytolacca octandra	Ink weed	Exotic	-	-	-
Pimelea linifolia	Slender rice flower	Native	-	-	-
Pinus elliottii	Slash pine	Exotic	-	-	-
Pittosporum ferrugineum	Rusty pittosporum	Native	-	-	-
Plantago debilis		Native	-	-	-
Platycerium bifurcatum	Elk horn	Native	-	-	-
Plectranthus parviflorus	Cockspur flower	Native	-	-	-
Polymeria calycina		Native	-	-	-
Polyscias elegans	Celery wood	Native	-	-	-
Praxelis clematidea	Praxelis	Exotic	-	-	-
Pseuderanthemum variable	Love flower	Native	-	-	-
Psidium cattleianum var. cattleianum	Cherry guava	Exotic	-	-	-
Psidium guajava	Guava	Exotic	-	-	-
Pteridium esculentum	Bracken fern	Native	-	-	-
Pterocaulon redolens		Native	-	-	-
Richardia brasiliensis	Mexican clover	Exotic	-	-	-
Rostellularia obtusa		Native	-	-	-
Rumex brownii	Hooked dock	Native	-	-	-
Sarcocornia quinqueflora	Samphire	Native	-	-	-
Schefflera actinophylla	Umbrella tree	Native	-	-	-
Schinus terebinthifolius	Pepper tree	Exotic	-	Restricted	-
Senecio madagascariensis	Fire weed	Exotic	✓	Restricted	-
Senna pendula var. glabrata	Easter cassia	Exotic	-	-	-
Senna septemtrionalis	Smooth senna	Exotic	-	-	-
Sida rhombifolia	Arrow leaf sida	Exotic	-	-	-
Smilax australis	Barbed wire vine	Native	-	-	-
Solanum chrysotrichum	Giant devil’s fig	Exotic	-	-	-
Solanum mauritianum	Wild tobacco	Exotic	-	-	-
Solanum seaforthianum	Brazilian nightshade	Exotic	-	-	-
Solanum stelligerum	Devil's needles	Native	-	-	-
Sporobolus americanum	Rat’s tail grass	Exotic	-		
Sporobolus pyramidalis	Giant rat’s tail grass	Exotic	-	Restricted	-
Sporobolus virginicus	Marine couch	Native	-	-	-

Species	Common Name	Status	*WoNS*	*Biosecurity Act 2014*	Planted
Stephania japonica	Tape Vine	Native	-	-	-
Syagrus romanzoffiana	Cocos palm	Exotic	-	-	-
Syzygium australe	Brush cherry	Native	-	-	-
Tetragonia tetragonoides	New Zealand spinach	Native	-	-	-
Themeda triandra	Kangaroo grass	Native	-	-	-
Trema tomentosa	Poison peach	Native	-	-	-
Tricoryne anceps subsp. pterocaulon		Native	-	-	-
Tricoryne elatior	Yellow Autumn-lilly	Native	-	-	-
Triglochin striata	Streaked arrowgrass	Native	-	-	-
Urena lobata	Urena burr	Exotic	-	-	-
Urochloa decumbens	Signal grass	Exotic	-	-	-
Urochloa mutica	Para grass	Exotic	-	-	-
Velleia spathulata	Wild pansies	Native	-	-	-
Vernonia cinerea	Purple fleabane	Exotic	-	-	-
Wahlenbergia gracilis	Blue bells	Native	-	-	-
Westringia eremicola	Slender westringia	Native	-	-	-
Wikstroemia indica	Tie bush	Native	-	-	-
Xanthorrhoea latifolia		Native	-	-	-

APPENDIX

G

FAUNA SPECIES LIST

Species Name	Common Name	Status	Conservation Status		Biosecurity Act 2014
			EPBC Act	NC Act	
Birds					
Alectura lathami	Australian brush turkey	Native	-	Least Concern	-
Cacatua sanguinea	Little corella	Native	-	Least Concern	-
Coracina novaehollandiae	Black-faced cuckoo shrike	Native	-	Least Concern	-
Corvus orru	Torresian crow	Native	-	Least Concern	-
Cracticus tibicen	Magpie	Native	-	Least Concern	-
Cracticus torquatus	Grey butcherbird	Native	-	Least Concern	-
Dacelo novaeguineae	Laughing Kookaburra	Native	-	Least Concern	-
Dicrurus bracteatus	Spangled drongo	Native	-	Least Concern	-
Gavicalis fasciogularis	Mangrove honeyeater	Native	-	Least Concern	-
Geophelia humeralis	Bar-shouldered dove	Native	-	Least Concern	-
Gerygone levigaster	Mangrove gerygone	Native	-	Least Concern	-
Malurus cyaneus	Superb fairy wren	Native	-	Least Concern	-
Manorina melanocephal	Noisy minor	Native	-	Least Concern	-
Meliphaga lewinii	Lewin's Honeyeater	Native	-	Least Concern	-
Merops ornatus	Rainbow bee-eater	Native	Marine	Least Concern	-
Pachycephala pectoralis	Golden whistler	Native	-	Least Concern	-
Philemon corniculatus	Noisy friarbird	Native	-	Least Concern	-
Podargus strigoides	Tawny frogmouth	Native	-	Least Concern	-
Rhipidura leucophrys	Willy Wagtail	Native	-	Least Concern	-
Sericornis frontalis	White-browed scrub wren	Native	-	Least Concern	-
Sphecotheres vieilloti	Australasian fig bird	Native	-	Least Concern	-
Streptopelia chinensis	Spotted dove	Native	-	Least Concern	-
Trichoglossus moluccanus	Rainbow lorikeet	Native	-	Least Concern	-
Mammals					
Capra aegagrus hircus	Goat	Exotic	-	-	-
Macropus giganteus	Eastern grey kangaroo	Native	-	Least Concern	-
Macropus rufogriseus	Red neck wallaby	Native	-	Least Concern	-
Mus musculus	House Mouse	Native	-	-	-
Phascolarctos cinereus	Koala	Native	Vulnerable	Vulnerable	-
Pteropus alecto	Black flying fox	Native	-	Least Concern	-
Rattus rattus	Black rat	Native		-	-
Tachyglossus aculeatus	Echidna	Native	-	Least Concern	-
Trichosurus vulpecula	Brushtail possum	Native	-	Least Concern	-
Vulpes vulpes	Fox	Exotic	-	-	Restricted
Wallabia bicolor	Swamp wallaby	Native	-	Least Concern	-
Reptiles					
Cryptoblepharus virgatus	Wall skink	Native	-	Least Concern	-
Hemidactylus frenatus	Asian house gecko	Exotic	-	-	-
Physignathus lesueurii	Eastern water dragon	Native	-	Least Concern	-
Amphibian					
Rhinella marina	Cane toad	Exotic	-	-	-