

PLANS AND DOCUMENTS
referred to in the PDA APPROVAL
- 5 MAR 2015
MEDQ

environmental management



Fauna Management Plan

Flagstone West – Stage 1 Area

New Beith Road, Undullah
PEET Limited
19 February 2015
6207



Document Control

Title	Fauna Management Plan
Address	Flagstone West - Stage 1 Area (New Beith Road, Undullah)
Job Number	6207
Client	PEET Limited

Document Issue

Issue	Date	Prepared By	Checked By
Draft	07.11.2014	Keira Grundy	Murray Saunders
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Reports and/or Plans by Others

Reports and/or plans by others may be included within this Environmental Management report to support the document.

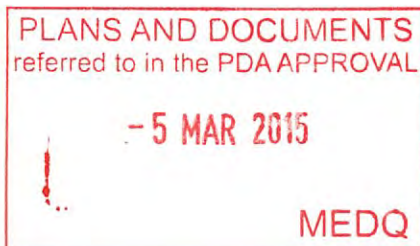




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I. Introduction

The *Environmental Management Division* of **Saunders Havill Group** was commissioned by **PEET Limited** to prepare a *Fauna Management Plan* (FMP) for Stage 1 Area of the proposed **Flagstone West** residential development within the Greater Flagstone Priority Development Area (PDA). This FMP is designed to manage impacts and protect native animals during the approved clearing and construction activities. **Figure 1** provides site context and **Figure 2** shows contemporary aerial imagery of the Stage 1 Application Area.

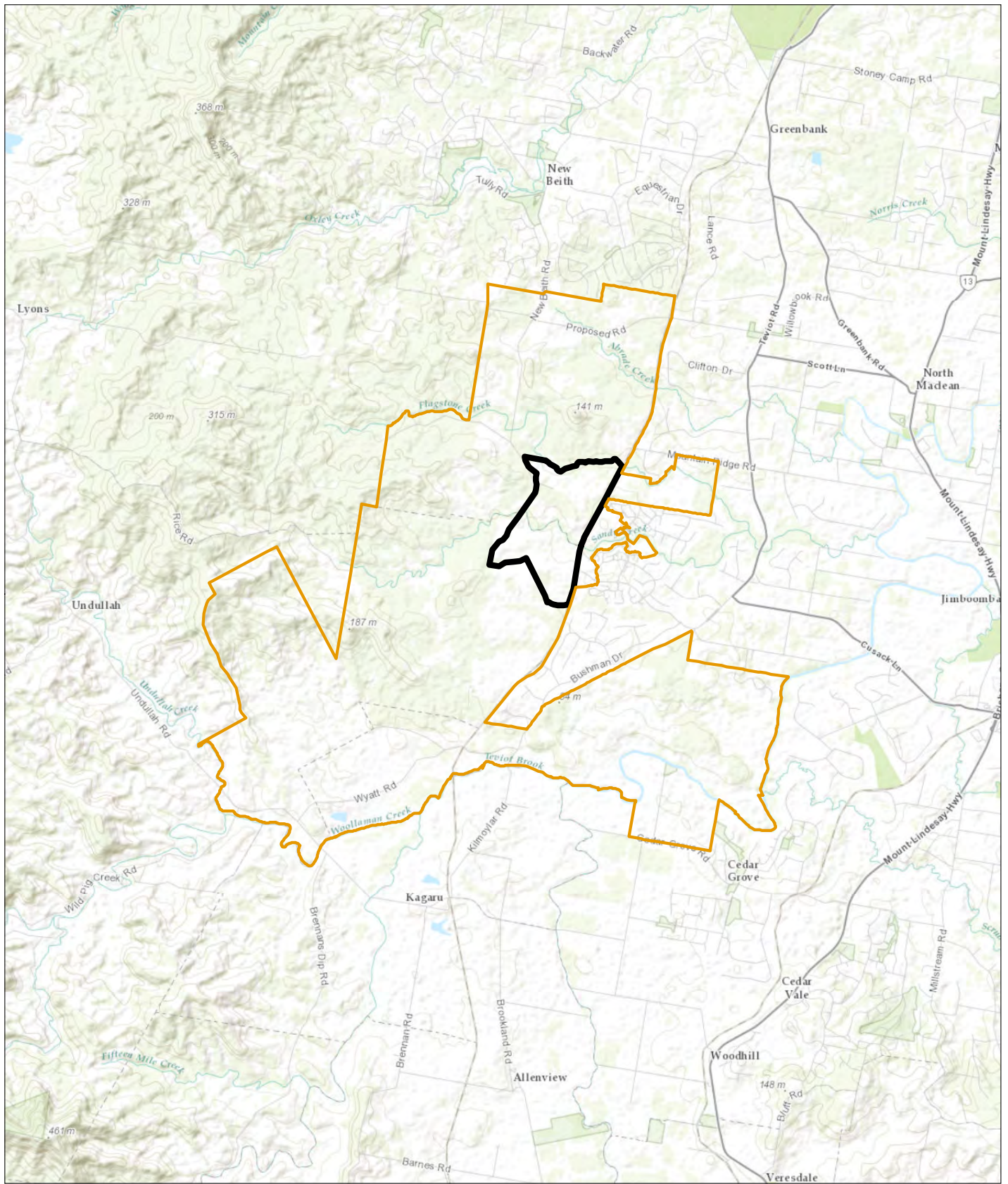
Stage 1 Area forms part of Context Plan Area 1 and is the first development stage of the PDA of Development Approval dated 19th October 2012 (EDQ Reference: DEV2012/209). Condition 25 of the PDA Development Approval required a Natural Environment Overarching Site Strategy (NEOSS) to be prepared for the entire PDA to provide for the strategic management of environmental features. The NEOSS dictates subsequent environmental plans and strategies to be prepared as part of operational works applications. The NEOSS requires a FMP to be prepared for each stage of development involving vegetation clearing.

This FMP for Stage 1 Area includes step by step procedures for the management of fauna prior to, during and post-vegetation clearing and construction activities to reduce potential impacts. Fauna management specifications and principles incorporated into this FMP apply generally to all native animals and focus on incorporating measures to minimise disturbance and avoid conflicts. Compliance with this FMP is compulsory and incorporates the use of expert consultants, including a registered and **Department of Environment and Heritage Protection** (EHP) approved Fauna Spotter and Catcher. **Section 2** outlines the methodology and content for this FMP.

In accordance with the stretch target espoused with the NEOSS this FMP adopts aspects of the: “*Code of Practice for Welfare of Wild Animals Affected by Land Clearing and Other Habitat Impacts and Wildlife Spotter /Catchers (Draft)*”.

I.I. Key Site Details

Address	New Beith Road, Undullah, Qld, 4285
RPD	Lot 908 on RP819216 & Lot 907 on RP819216
Local Government Area	Logan City Council
Assessment Manager	Economic Development Queensland
Planning Scheme	Greater Flagstone PDA
VMA 1999	Category B - Least Concern Remnant Vegetation Essential Habitat
Existing Land Use	Vacant
Proposed Land Use	Stage 1 Area of Flagstone West Master Planned Community



Legend



-  Greater Flagstone PDA
-  Context Plan Area 1

Figure 1 Site Context

File ref. 6207 E Figure 1 Site Context A
Date 12/11/2014
Project Flagstone West - Precinct 1

0 500 1,000 2,000 m

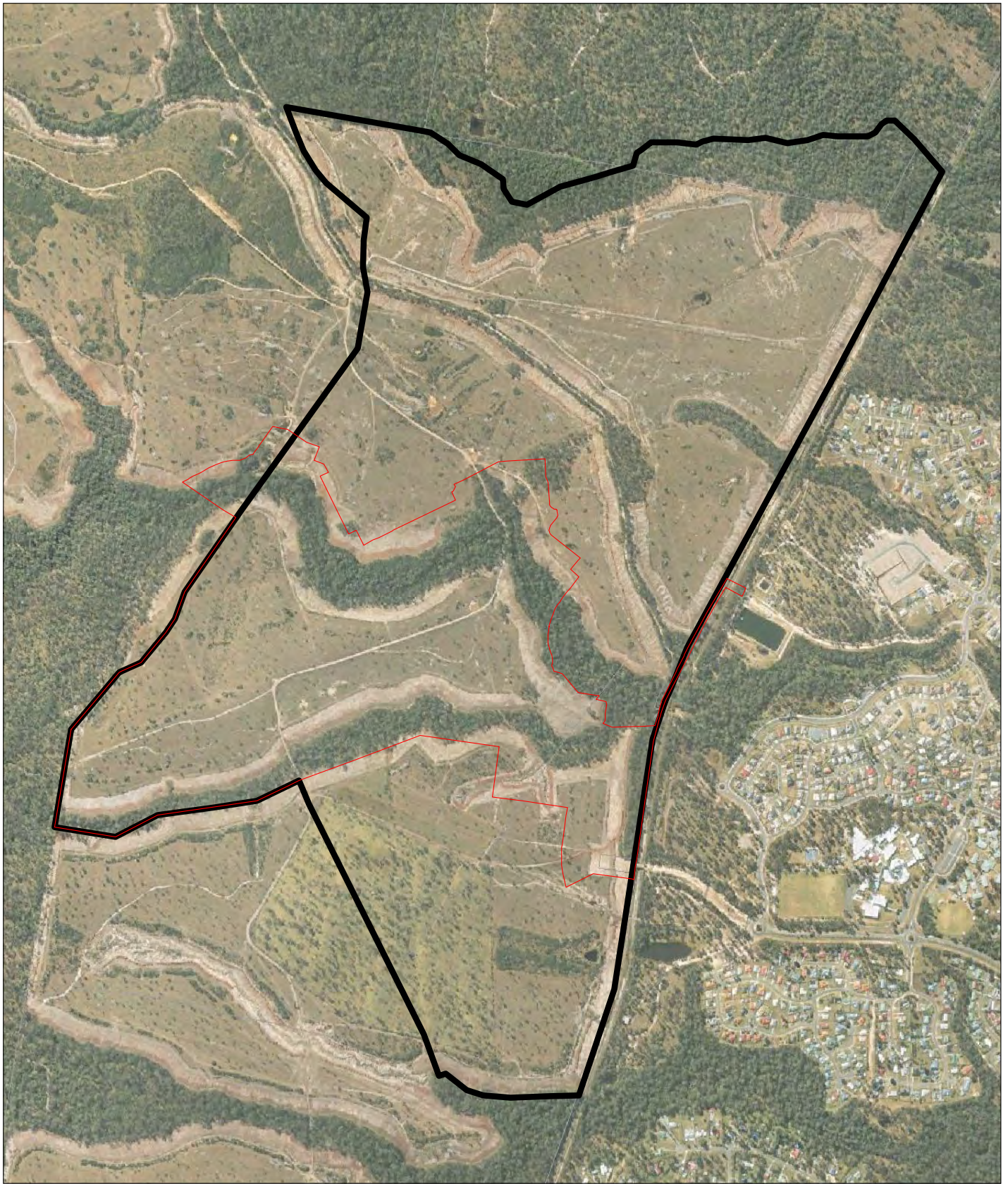
Scale (A4): 1:100,000 [GDA 1994 MGA Z56]



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Legend

- Logan DCDB
- Context Plan Area 1
- Stage 1 area

Figure 2 Site Aerial

File ref. 6207 E Figure 2 FMP Site Aerial A
Date 12/11/2014
Project Flagstone West - Precinct 1

0 100 200 400 600 m



Scale (A4): 1:15,000 [GDA 1994 MGA Z56]

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1.2. Legislative Context

1.2.1 Environment Protection and Biodiversity Conservation Act 1999

The Australia Government's key piece of environmental legislation is the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The EPBC Act aims to protect and manage matters of environmental significance which include nationally and internationally important flora, fauna, ecological communities and heritage places.

A Protected Matters Search for the allotment was undertaken through the Environment Protection and Biodiversity Conservation Online Protected Matters Search Tool. The search provides a list of wetlands of international significance, threatened ecological communities and threatened species which have the potential to be temporarily or permanently located within a 10km radius of the development site. **Table 1** lists a summary of these results relevant to the site. The complete results of this search are included in **Appendix A**. The Flagstone City Project retains a full approval achieved under the EPBC Act. Mandatory aspects of this approval are included in this FMP.

Table 1: EPBC Act 1999 Protected Matters Search Results

Wetlands of International Importance (RAMSAR)		
Moreton Bay – upstream from RAMSAR		
Threatened Ecological Communities		
Lowland Rainforest of Subtropical Australia – Critically Endangered: Community may occur		
Swamp Tea-tree (<i>Melaleuca irbyana</i>) Forest of South-east Queensland – Critically Endangered: Community likely to occur		
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland – Critically Endangered: Community likely to occur		
Threatened Species		
Scientific Name	Common Name	Status
Birds		
<i>Anthochaera phrygia</i>	Regent Honeyeater	Endangered
<i>Botaurus poiciloptilus</i>	Australasian Bittern	Endangered
<i>Dasyornis brachypterus</i>	Eastern Bristlebird	Endangered
<i>Erythrotriorchis radiatus</i>	Red Goshawk	Vulnerable
<i>Geophaps scripta scripta</i>	Squatter Pigeon (southern)	Vulnerable
<i>Lathamus discolor</i>	Swift Parrot	Endangered
<i>Poephila cincta cincta</i>	Black-throated Finch (southern)	Endangered
<i>Rostratula australis</i>	Australian Painted Snipe	Endangered
<i>Turnix melanogaster</i>	Black-breasted Button-quail	Vulnerable
Fish		
<i>Maccullochella mariensis</i>	Mary River Cod	Endangered
Mammals		
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat, Large Pied Bat	Vulnerable



Scientific Name	Common Name	Status
<i>Dasyurus hallucatus</i>	Northern Quoll	Endangered
<i>Dasyurus maculatus maculatus</i> (SE mainland population)	Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population)	Endangered
<i>Petrogale penicillata</i>	Brush-tailed Rock-wallaby	Vulnerable
<i>Phascolarctos cinereus</i> (combined populations of Qld, NSW and the ACT)	Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory)	Vulnerable
<i>Potorous tridactylus tridactylus</i>	Long-nosed Potoroo (SE mainland)	Vulnerable
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	Vulnerable
Reptiles		
<i>Coeranoscincus reticulatus</i>	Three-toed Snake-tooth Skink	Vulnerable
<i>Delma torquata</i>	Collared Delma	Vulnerable
<i>Furina dunmalli</i>	Dunmall's Snake	Vulnerable



1.2.2 Nature Conservation Act 1992

The *Nature Conservation Act 1992* (NCA) classifies and protects significant areas (protected areas) and protects threatened plant and animal species. The *Nature Conservation (Wildlife) Regulation 1994* (NCWR) lists plant and animal species presumed extinct, endangered, vulnerable, near threatened, least concern, international or prohibited. The schedules of this regulation were considered in this FMP using EHP's Wildlife Online database search for a 10km radius of the site. Fauna species listed under the NCWR with the potential to occur around the subject site are shown in **Table 2**. The complete results of this search are included **Appendix B**.

Table 2: NCA Wildlife Online Search Results

Scientific Name	Common Name	Status
Amphibians		
<i>Litoria brevipalmata</i>	Green Thighed Frog	Near Threatened
<i>Adelotus brevis</i>	Tusked Frog	Vulnerable
Birds		
<i>Accipiter novaehollandiae</i>	Grey Goshawk	Near Threatened
<i>Calyptorhynchus lathami</i>	Glossy Black-cockatoo	Vulnerable
<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	Near Threatened
<i>Falco hypoleucos</i>	Grey Falcon	Near Threatened
<i>Lewinia pectoralis</i>	Lewin's Rail	Near Threatened
<i>Ninox strenua</i>	Powerful Owl	Vulnerable
Mammals		
<i>Dasyurus maculatus maculatus</i>	Spotted-tailed Quoll (Southern Subspecies)	Vulnerable
<i>Petrogale penicillata</i>	brush-tailed rock-wallaby	Vulnerable
<i>Phascolarctos cinereus</i> (Southeast Queensland bioregion)	Koala (Southeast Queensland bioregion)	Vulnerable



2. Methodology

This FMP forms the stage specific strategy for fauna management for the Stage 1 Area. It has been developed in response to Condition 25 of the PDA Development Approval and specifications within the NEOSS. **Figure 3** illustrates the context in which this FMP sits as the overarching plan for native fauna management on the site. Separate FMPs will be prepared for each stage of the development.

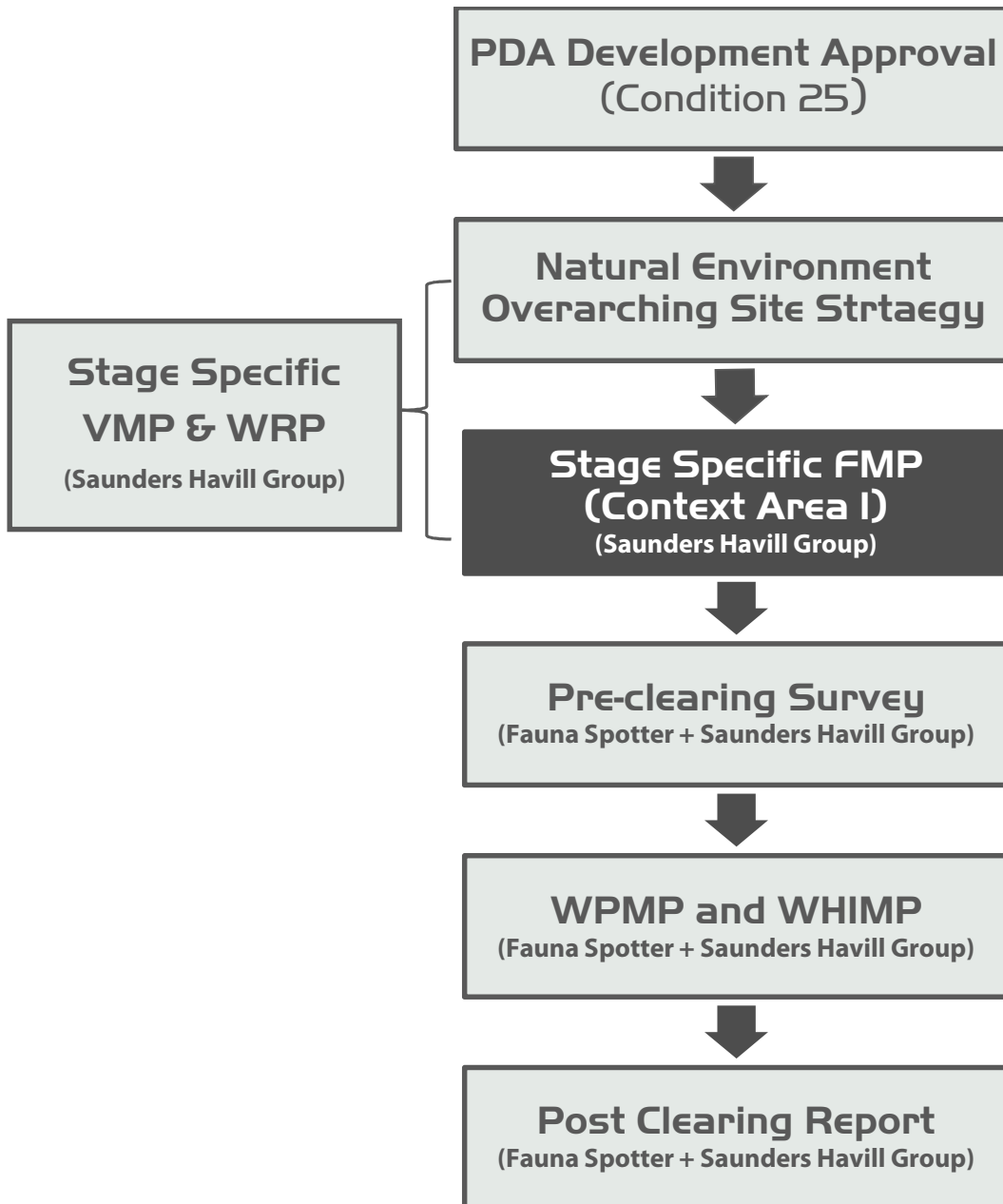


Figure 3: FMP Context and Framework



2.1. FMP Framework

This FMP provides a framework for fauna management within Stage 1 Area of the Greater Flagstone West PDA. This FMP should form part of the Construction Environmental Management Plan (CEMP) for this stage of works. To assist in achieving a leading practice model for Fauna Management prior to, during and post the completion of the construction works for Stage 1 Area, all land clearing will be managed in accordance with the *Code of Practice for Welfare of Animals effected by Land Clearing and Other Habitat Impacts and Wildlife Spotter/Catchers (Draft)* as prepared by the Wildlife Warriors and Voiceless (refer **Appendix C**). Under this Code, the following procedural guide will have been used to inform the framework for clearing works:

This FMP should be read in conjunction with approved Stage 1 Area environmental management plans including, the site specific:

- Vegetation Management Plan (VMP)
- Weed and Rehabilitation Plan (WRP)

These strategies are discussed in further detail in **Section 4** – Fauna Management Plan Specifications.

2.1.1 Pre-clearing Survey

Action 1 – Developer to Engage a Fauna Spotter Catcher

Action 1 requires that the developer engage a Wildlife Fauna Spotter / Catcher with full registrations and licences provided in accordance with the Queensland National Parks and Wildlife Services.

Action 2 – Developer to undertake Pre-clearing Survey

A Pre-clearing survey will be undertaken by a Queensland Parks Wildlife Service (QPWS) and EHP approved Fauna Spotter and Catcher at least two (2) weeks prior to the commencement of clearing activities at each stage. This survey must include a fauna assessment of the site, particularly for Koalas and animals using hollows, including bats. This survey will inform the updated Fauna Spotter Report and the Pre-Clearing Trapping and Release Plan for the project. Results from the pre-clearance surveys will be made available to EHP and will form part of the Post-clearing report.

2.1.2 Wildlife Protection and Management Plan & Wildlife and Habitat Impact Mitigation Plan

Action 3 – Fauna Spotter to Prepare a Wildlife Protection and Management Plan (WPMP)

Informed by the pre-clearing surveys, a Wildlife Protection Management Plan will be developed by an approved Fauna Spotter and Catcher a maximum of two (2) weeks prior to the commencement of any clearing activities. This report will provide extensive detail of the fauna likely to be impacted by the clearing works.

The WPMP will include a Pre-clearing Trapping and Release Plan, which will outline the methodology for the identification, trapping and relocation of native fauna. The WPMP should be submitted to the Queensland Department of Environment and Heritage Protection (EHP) and include the following information:

- Description of the project with reference to impacts on wildlife or wildlife habitat;
- Pre development plan of the site showing habitat areas including nests and hollows, features, corridors, riparian habitats and adjacent areas;



- Results of any fauna surveys including pre-clearance surveys;
- Contact details of the nearest veterinarian and agencies to be notified of injured wildlife;
- A wildlife and habitat impact assessment based on the proposed development works; and
- Confirmation of the release area.

Action 4 – Prepare a Wildlife and Habitat Impact Mitigation Plan (WHIMP)

Following completion and approval of the WPMP the fauna spotter should prepare a more specific Wildlife and Habitat Impact Mitigation Plan, which will include details on:

- Measures required to be completed to minimise wildlife and habitat impacts during operational works;
- Wildlife capture and removal plan;
- Contingency plan for wildlife requiring euthanasia, other veterinary procedures or captive care;
- Wildlife storage and housing plan and nest box replacement strategy;
- Wildlife release and disposal plan; and
- Post works measures to minimise impacts on wildlife.

Action 5 – Fauna Spotter Role at Pre-Start Meeting

Prior to the commencement of any construction works, a pre-start meeting is to be held between the project manager, site fore-person, plant operators and Local and State Government representatives. At the pre-start meeting, the Fauna Spotter is to outline the clearing process and the requirements of the approved WPMP.

Action 6 – During Construction

The Fauna Spotter is to be on-site during all phases of construction which involve potential impacts on wildlife or habitat. This will enable the Fauna Spotter to make any necessary adjustments to the approved Vegetation Management Plan and WPMP to cater for any specific issues encountered during the clearing works. Should an animal encountered during vegetation clearing, clearing will cease immediately until the animal moved away on its own accord. The relocation of animals is not proposed.

2.1.3 Post-clearing Wildlife Management Report

Action 7 – Post Works Reporting

During the course of all site works, including the pre-clearance surveys, the Fauna Spotter is to keep an accurate record of all animals encountered, captured, incidents and disposals for each stage of the project. The records should form part of the Wildlife Management Report to be issued under licence requirements to the State Government. A Post-clearing Wildlife Management Report will be developed and provided to EDQ no more than two (2) weeks after clearing activities have ceased. The Post-clearing Wildlife Management Report should consist of the following 3 sections:

1. Wildlife Habitat Management Plan – Aspects of the planning, design, construction and ongoing operation of the project in which risks to wildlife have been identified. This plan should also include recommendations and outline the type, frequency and timeframes for monitoring, as well as updates to describe measures taken to address an incident.
2. Wildlife Capture and Disposal Plan – Should contain details of any animal/s that were caught and/or sighted and released, and the placement of any release/s as well as details of any animals that were destroyed due



to injury, given to wildlife rescue groups etc. The following details for each captured animals should be included in the Wildlife Capture and Disposal Plan:

- a. Species
 - b. Identification name or number
 - c. Sex (M, F or unknown)
 - d. Approximate Age or Age Class (neonate, juvenile, sub-adult, adult)
 - e. Time and date of capture
 - f. Method of capture
 - g. Exact point of capture (GPS coordinates)
 - h. State of health
 - i. Incidents associated with capture likely to affect health
 - j. Veterinary intervention or treatments
 - k. Time held in captivity
 - l. Disposal method (euthanasia, translocation, re-release)
 - m. Date and time of disposal
 - n. Detailed of disposal (GPS points of release)
 - o. For released animals, location relative to point of capture
3. Animal Injury and Euthanasia Report – similar details for the Wildlife Capture and Disposal Plan should be included in this report.

Results from the pre-clearance surveys will be made available to the Department of the Environment and Queensland Department of Environment and Heritage Protection in the form of the Post-clearing Wildlife Management Report at the completion of each stage of clearing and at the completion of the action. Results will then be made available on the Saunders Havill Group, PEET and EDQ within two (2) weeks of the completion of clearing activities.

2.2. Roles and Responsibilities

2.2.1 Environmental Coordinator

Saunders Havill Group (SHG) is the Environmental Coordinator for the project and is responsible for the development of this overarching FMP and documentation for overarching environmental management. SHG will be responsible for managing non-compliance by appointed contractors and sub-contractors, including establishing additional management procedures and determining if EDQ notification should be made.

2.2.2 EDQ

Economic Development Queensland (EDQ) is the government approval authority for this project.

2.2.3 Site Supervisor

The 'Site Supervisor' is a representative of the Construction Contractor and responsible for overseeing all pre-clearing, clearing and construction activities are undertaken in accordance with the approved FMP, Pre-clearing Trapping and Release Plan and subsequent environmental management documentation. The Site Contractor will be responsible for engaging and the commission of the QWPS approved Fauna Spotter and Catcher.



2.2.4 Fauna Spotter and Catcher

A QPWS and EHP approved Fauna Spotter and Catcher is a person who holds a rehabilitation permit with an extended authority issued by the **Department of Environment and Heritage Protection** specifying the holder may take, keep or use an animal whose habitat is about to be destroyed by a human activity. A QPWS and EHP approved Fauna Spotter Catcher will be engaged by the proponent for pre-construction and construction stages of the project. It is noted that the Fauna Spotter and Catcher must hold a Rehabilitation Permit and a copy of this permit along with their contact details will be passed on to EDQ and the Environmental Coordinator. The engaged Fauna Spotter and Catcher will be responsible for undertaking pre-clearing surveys of the site and developing the Pre-clearing Trapping and Release Plan. The Fauna Spotter and Catcher must be present on site during all clearing activities and is responsible for the relocation of native fauna. A list of key contacts for the project is contained in **Section 7**.



3. Fauna Summary

3.1. Fauna Habitat Areas and Opportunities

The purpose of this FMP is to control the impacts of clearing activities on-site and to the surrounding area's fauna communities. An Ecological Assessment Report by **Saunders Havill Group** have identified the presence of suitable habitats observed along waterways to be retained by the development (Refer to **Plan 1** – Habitat Values). This FMP will outline a process for tree removal and the installation of nest boxes to replace removed hollows.

This FMP should be read in conjunction with the following documents, to be lodged separately:

- Approved Vegetation Management Plan
- Approved Weed Management and Rehabilitation Plan
- Approved Pre-Construction Certification of Landscape Design for Stage

Ecological features protected within Greater Flagstone PDA including biodiversity corridors along Flagstone Creek and Sandy Creek biodiversity values associated with the Karawatha-Greenbank-Flinders Peak Bioregional Corridor. Stage 1 Area is bordered by Sandy Creek to the north, the Sydney/Brisbane rail line to the east, a mapped watercourse to the south and a vegetated rural property known as 'Undullah' to the west. The site has been predominately cleared of vegetation. The **Direction of Clearing Plan** has been developed to direct clearing activities from open areas to less open areas, allowing fauna to naturally seek shelter in adjacent vegetated areas and protected waterway vegetation corridors (refer **Plan 2** – Direction of Clearing).

Clearing within the Stage 1 Application Area is considered fairly minor by comparison to the scale of the project and volume of lots and new infrastructure created. This is primarily because of the concentration of the development within the central portion of the application area which has been previously cleared and focus on retention and greenspace areas around the periphery of the site coinciding with Sandy Creek and the Sand Creek tributary to the south. Broadly the areas to be cleared and thus the subsequent habitat features affected are described as:

1. Sporadically located semi mature, mature and juvenile individual tree species previously retained at approximately 100 square metres centres over the allotment area.
2. Minor removal of Category X tree clusters along the edge of remnant and other retained areas where required to support earthworks finishes, infrastructure, stormwater and open space outcomes.
3. Four (4) separate future road crossings. Includes lineal clearing associated with the construction of access roads over Sandy Creek and the Sandy Creek tributary.
4. Lineal clearing associated with the construction of a Sewer Main connecting to the sewer treatment station in Flagstone East. This clearing is predominantly associated with retained screen planting along rail line.
5. Minor remnant clearing of protruding areas where required to balance earthworks finishes with basin and park outcomes.
6. The clearing of a small area of Least Concern Remnant adjoining the rail line not associated with any of the site watercourses
7. Removal of regenerating saplings associated with previous clearing areas.



The vast majority (95%) of the most significant vegetation on-site is retained and protected to site open space and greenspace designations (refer to **Plan 3- Summary of Vegetation Clearing**).

The following strategies have been developed as part of this FMP to mitigate the impact of development on native fauna and provide habitat enhancement:

1. **Direction of Clearing Plan** – to direct clearing activities from open areas to less open areas allowing fauna to naturally seek shelter in the adjacent National Park (Refer to **Plan2** – Direction of Clearing Plan);
2. **Fencing Management Strategy** – for the provision of permanent and temporary fencing around roads and construction areas; as identified by the Vegetation Management Plan, and
3. **Nest Box/Hollow Strategy** – for the installation of nest boxes in preserved remnant areas and the provision of hollow logs and branches to temporarily house translocated animals and provide permanent nesting sites. This is requirements of the NEOSS which states “no net loss of habitat features” and provisions a 1:1 replacement of nesting features i.e. tree with hollow cleared will require at least 1 nest box replacement. Habitat features are to be determined by the Fauna Spotter Catcher and form part of the WIMP and WPMP.

The below images reflect management strategies adopted in this FMP.



FAUNA SPOTTERS RETRIEVING FAUNA



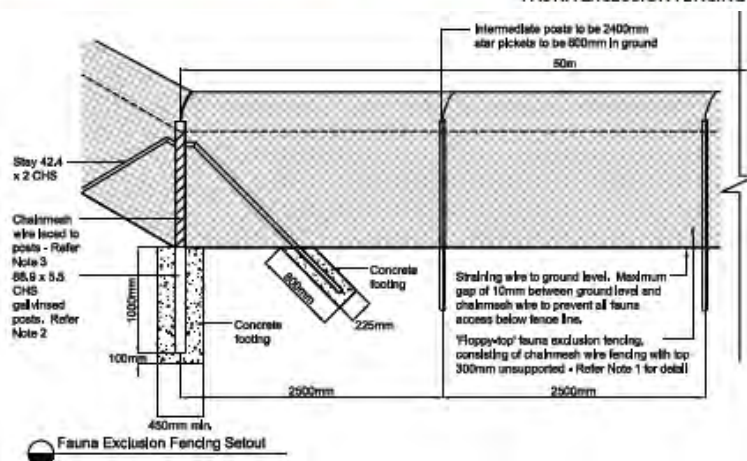
FAUNA EXCLUSION FENCING



FAUNA SIGNAGE



FAUNA SPOTTER DURING TREE CLEARING



CONSTRUCTION FENCING DETAIL



KOALA SIGNAGE



TREE PROTECTION & EROSION FENCE

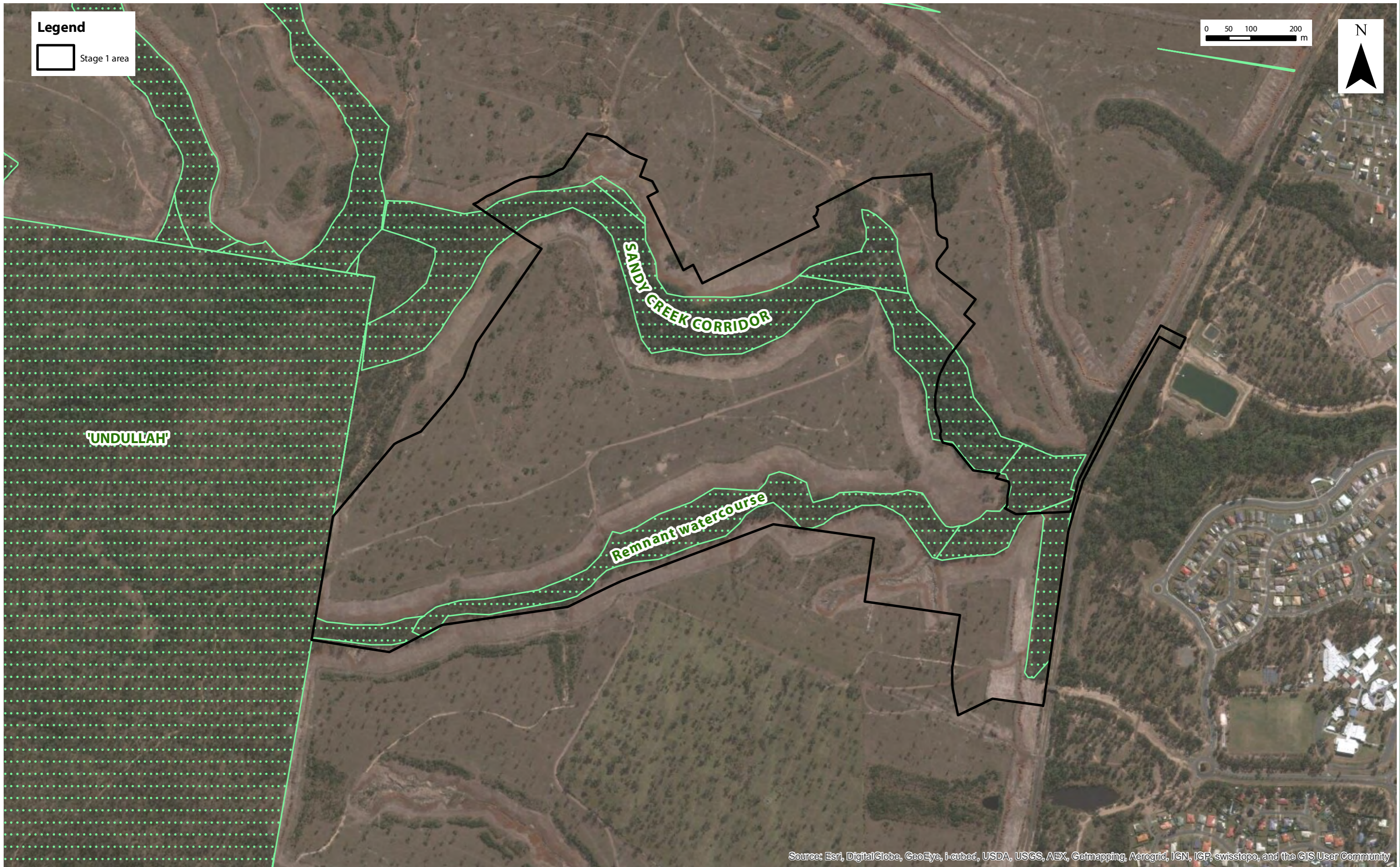


SIGNIFICANT TREE PROTECTION FENCING

Legend

 Stage 1 area

0 50 100 200
m



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



ISSUES:

Issue	Date	Description	Drawn	Checked
A	12/11/2014	Prelim Draft	AL	RM

Flagstone West Precinct 1

Vegetation Clearing Habitat Values




Date | 12/11/2014
 Scale | 1:7,683 @ A3
 Data Information:
 Universal Transverse Mercator
 GDA 1994 MGA Zone 56
 Client | PEET
 Project | Flagstone West
 Address/RPD | Flagstone City
 Source | QLD GIS Layers (QLD Gov. Info Services 2014),
 Aerial (Nearmap, 2014)

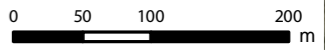
Plan 1

SHG File
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 PRIOR TO ANY DEMOLITION, EXCAVATION OR CONSTRUCTION ON SITE, THE RELEVANT AUTHORITY SHOULD BE CONTACTED FOR FURTHER UNDER-GROUND SERVICES AND DETAILED LOCATIONS OF ALL SERVICES.

Legend

-  Logan DCDB
-  Stage 1 area
-  Clearing works to ensure fauna movement to safe havens in creeks and western vegetated property



ISSUES:

Issue	Date	Description	Drawn	Checked
A	12/11/2014	Prelim Draft	AL	RM

Flagstone West Precinct 1

Vegetation Clearing Direction Plan








Date | 12/11/2014
 Scale | 1:5,500 @ A3
 Data Information:
 Universal Transverse Mercator
 GDA 1994 MGA Zone 56
 Client | PEET
 Project | Flagstone West
 Address/RPD | Flagstone City
 Source | QLD GIS Layers (QLD Gov. Info Services 2014),
 Aerial (Nearmap, 2014)

Plan 2

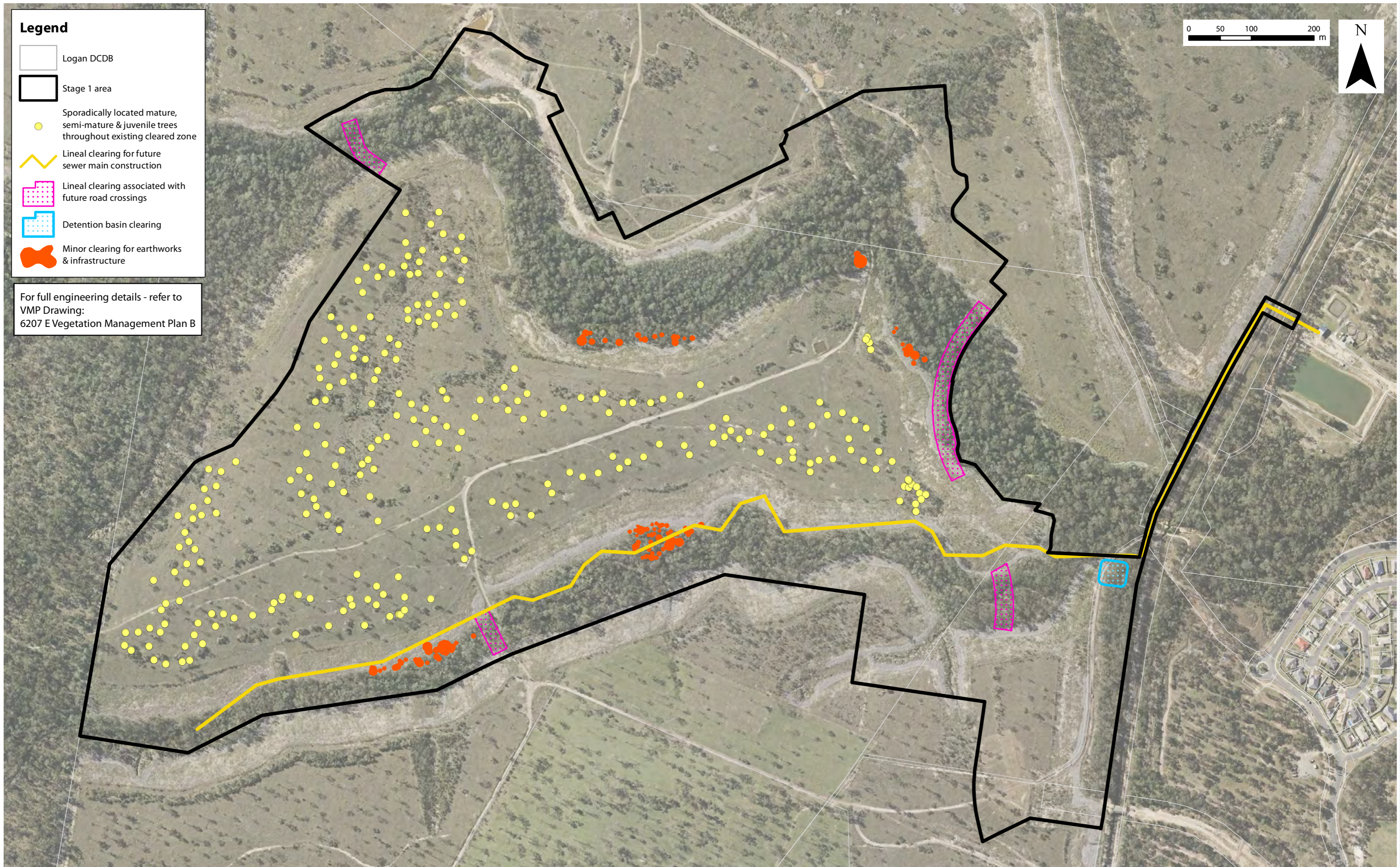
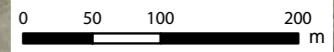
SHG File
 6207 E 02 Clearing Direction A

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 PRIOR TO ANY DEMOLITION, EXCAVATION OR CONSTRUCTION ON SITE, THE RELEVANT AUTHORITY SHOULD BE CONTACTED FOR FURTHER UNDER-GROUND SERVICES AND DETAILED LOCATIONS OF ALL SERVICES.

Legend

-  Logan DCDB
-  Stage 1 area
-  Sporadically located mature, semi-mature & juvenile trees throughout existing cleared zone
-  Lineal clearing for future sewer main construction
-  Lineal clearing associated with future road crossings
-  Detention basin clearing
-  Minor clearing for earthworks & infrastructure

For full engineering details - refer to VMP Drawing: 6207 E Vegetation Management Plan B



ISSUES:

Issue	Date	Description	Drawn	Checked
A	12/11/2014	Prelim Draft	AL	RM
B	19/02/2015	EDQ Update	TC	MS

Flagstone West Precinct 1

Vegetation Clearing Summary Plan

Date | 19/02/2015
 Scale | 1:5,500 @ A3
 Data Information:
 Universal Transverse Mercator
 GDA 1994 MGA Zone 56
 Client | PEET
 Project | Flagstone West
 Address/RPD | Flagstone City
 Source | QLD GIS Layers (QLD Gov. Info Services 2014),
 Aerial (Nearmap, 2014)

Plan 3

SHG File
 6207 E 03 Clearing Summary B

THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL GROUP CANNOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY.
 CONFIRM ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION AND DO NOT SCALE FROM THE DRAWINGS. ALL DIMENSIONS ARE IN MILLIMETRES. ANY DISCREPANCIES SHOULD BE CLARIFIED IN WRITING WITH SAUNDERS HAVILL GROUP PRIOR TO THE COMMENCEMENT OF WORK.
 PRIOR TO ANY DEMOLITION, EXCAVATION OR CONSTRUCTION ON SITE, THE RELEVANT AUTHORITY SHOULD BE CONTACTED FOR FURTHER UNDER-GROUND SERVICES AND DETAILED LOCATIONS OF ALL SERVICES.



3.2. Road Crossing Strategies

There are a number of road crossings intersecting waterways, gully lines and watercourses through the Flagstone City project. Where these crossings traverse major ecological corridors (such as Sandy and Flagstone Creek) they are required to provide a fauna responsive design structure in accordance with Volume 2 of the Department of Main Roads Fauna Sensitive Road Design Manual. None of these larger scale crossings over creek systems are proposed within stage 1 works with access provided over the tributary to Sandy Creek to the south. While the final design in this location considers low level fauna connectivity its primary focus is for the control and conveyance of hydrology and open space outcomes. This is based on the relative short catchment of the tributary, narrow band of existing natural values and site findings in the Context Planning and Plan of Development Reports.

3.3. Observed Fauna

A detailed fauna survey was undertaken by **Saunders Havill Group** on 2, 3 & 7th October 2014 to target threatened species identified as occurring within the locality. The report notes that several plant species were observed to be flowering or fruiting at the time of the survey.

The results of the survey identified two (2) amphibian species, fifty-six (56) bird species, nine (9) reptile species and six (6) mammal species (Refer to **Table 3 – Observed Species**). The majority of these species were observed around waterways which border the site to the north and south. Two (2) listed migratory bird species, *Ardea ibis* (Cattle Egret) and *Merops ornatus* (Rainbow bee-eater) were observed on the site. The survey did not identify the presence of EPBC and/or NCA listed threatened species.

The site is identified under the State Planning Policy 2/10: Koala Conservation in South East Queensland (Koala SPP) mapping as containing areas of Medium and Low Value Bushland and Medium and Low Value Rehabilitation (Refer to **Appendix D – Koala SPRP and SPP Searches**). While a number of suitable Koala habitat and food trees including *Eucalyptus racemosa* (Scribbly Gum) and *E. robusta* (Swamp Mahogany) were observed on site, no visible signs of Koala individuals or activity were observed during the field survey. This is likely due to the land being primarily cleared and remaining potential habitat being highly fragmented.

Table 3: Observed Fauna Species on site

Scientific Name	Common Name
Amphibians	
<i>Crinia parinsignifera</i>	Beeping Froglet
<i>Rhinella marina</i>	Cane Toad
Birds	
<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill
<i>Acanthorhynchus tenuirostris</i>	Eastern Spinebill
<i>Alectura lathami</i>	Australian Brush-turkey
<i>Anas superciliosa</i>	Pacific Black Duck
<i>Aquila audax</i>	Wedge-tailed Eagle



Scientific Name	Common Name
<i>Ardea ibis</i>	Cattle Egret
<i>Cacatua galerita</i>	Sulphur-crested Cockatoo
<i>Cacomantis flabelliformis</i>	Fan-tailed Cuckoo
<i>Centropus phasianinus</i>	Pheasant Coucal
<i>Chalcites lucidus</i>	Shining Bronze-cuckoo
<i>Chenonetta jubata</i>	Australian Wood Duck
<i>Colluricincla harmonica</i>	Grey Shrike-thrush
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike
<i>Coracina tenuirostris</i>	Cicadabird
<i>Cormobates leucophaea</i>	White-throated Treecreeper
<i>Corvus orru</i>	Torresian Crow
<i>Coturnix ypsilophora</i>	Brown Quail
<i>Cracticus nigrogularis</i>	Pied Butcherbird
<i>Cracticus tibicen</i>	Australian Magpie
<i>Cracticus torquatus</i>	Grey Butcherbird
<i>Dacelo novaeguineae</i>	Laughing Kookaburra
<i>Dicrurus bracteatus</i>	Spangled Drongo
<i>Egretta novaehollandiae</i>	White-faced Heron
<i>Entomyzon cyanotis</i>	Blue-faced Honeyeater
<i>Eolophus roseicapillus</i>	Galah
<i>Eurystomus orientalis</i>	Dollarbird
<i>Geopelia humeralis</i>	Bar-shouldered Dove
<i>Geopelia striata</i>	Peaceful Dove
<i>Grallina cyanoleuca</i>	Magpie Lark
<i>Hirundo neoxena</i>	Welcome Swallow
<i>Lopholaimus antarcticus</i>	Topknot Pigeon
<i>Malurus cyaneus</i>	Superb Fairy-wren
<i>Malurus lamberti</i>	Variegated Fairy-wren
<i>Malurus melanocephalus</i>	Red-backed Fairy-wren
<i>Manorina melanocephala</i>	Noisy Minor
<i>Meliphaga lewinii</i>	Lewin's Honeyeater
<i>Merops ornatus</i>	Rainbow Bee-eater
<i>Neochmia temporalis</i>	Red-browed Finch
<i>Ocyphaps lophotes</i>	Crested Pigeon



Scientific Name	Common Name
<i>Pachycephala refiventris</i>	Rufous Whistler
<i>Pardalotus striatus</i>	Striated Pardalote
<i>Philemon corniculatus</i>	Noisy Friarbird
<i>Platycercus adscitus palliceps</i>	Pale-headed Rosella
<i>Podargus strigoides</i>	Tawny Frogmouth
<i>Psophodes olivaceus</i>	Eastern Whipbird
<i>Pyrrholaemus sagittatus</i>	Speckled Warbler
<i>Rhipidura albiscapa</i>	Grey Fantail
<i>Rhipidura leucophrys</i>	Willie Wagtail
<i>Strepera graculina</i>	Pied Currawong
<i>Taeniopygia bichenovii</i>	Double-barred Finch
<i>Threskiornis molucca</i>	Australian White Ibis
<i>Todiramphus sanctus</i>	Sacred Kingfisher
<i>Trichoglossus chlorolepidotus</i>	Scaly-breasted Lorikeet
<i>Trichoglossus haematodus moluccanus</i>	Rainbow Lorikeet
<i>Vanellus miles</i>	Masked Lapwing
<i>Zosterops lateralis</i>	Silvereye
Mammals	
<i>Canis lupus familiaris</i>	Dog
<i>Lepus ecapensis</i>	Brown Hare
<i>Macropus giganteus</i>	Eastern Grey Kangaroo
<i>Sus scrofa</i>	Pig
<i>Trichosurus vulpecula</i>	Common Brushtail Possum
<i>Wallabia bicolor</i>	Swamp Wallaby
Reptiles	
<i>Cryptoblepharus virgatus</i>	Wall Skink
<i>Ctenotus taeniolatus</i>	Copper-tailed Skink
<i>Dendrelaphis punctulatus</i>	Common Tree Snake
<i>Diporiphora australis</i>	Tommy Roundhead Dragon
<i>Morelia spilota</i>	Carpet Python
<i>Physignathus lesueurii</i>	Eastern Water Dragon
<i>Pogon abarbata</i>	Bearded Dragon
<i>Pseudechis porphyroacus</i>	Red-bellied Black Snake
<i>Varanus varius</i>	Lace Monitor



3.4. Potential Fauna Species (Threatened)

Tables 1 & 2 (refer to **Appendices A & B** for full search results) list *endangered*, *vulnerable* and *near threatened* (EVNT) species which may occur within the general proximity (10km) of the development site. These species have been identified through the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) online Protected Matters Search tool and the *Nature Conservation Act* (NCA) Wildlife Online database search (discussed in **Section 1.2**).

A habitat suitability and risk assessment for significant fauna was undertaken by **Saunders Havill Group** in conjunction with the ecological surveys. The assessment focused on identifying habitat features typically associated with threatened species and native fauna groups. Five (5) significant fauna species were considered as possible occurrences on the site (refer to **Table 4**). Six (6) were considered known or possible occurrences within the site (refer to **Table 5**). The full assessment is contained in **Appendix E – Habitat Suitability and Risk Assessment**.

Table 4: Threatened Species with possible suitable habitat on-site

Scientific Name	Common Name	Habitat	EPBC Status	NCA Status
<i>Dasyurus maculatus maculatus</i>	Spot-tailed Quoll	The Spot-tailed Quoll has a preference for mature wet forest habitat. Unlogged forest or forest that has been less disturbed by timber harvesting is also preferable. Habitat requirements include suitable den sites such as hollow logs, tree hollows, rock outcrops or caves. Individuals require an abundance of food such as birds and small mammals, and large areas of relatively intact vegetation through which to forage.	Endangered	Vulnerable
<i>Delma torquata</i>	Collared Delma	In general, the species occurs on rocky hillsides on basalt and lateritic soils supporting open eucalypt and Acacia woodland with a sparse understorey of shrubs and tussocks or semi-evergreen vine thicket	Vulnerable	
<i>Ninox strenua</i>	Powerful Owl	This species endemic to eastern and south-eastern Australia, mainly on the coastal side of the Great Dividing Range from Mackay to south-western Victoria. The Powerful Owl inhabits a range of vegetation types, from woodland and open sclerophyll forest to tall open wet forest and rainforest. The species requires large tracts of forest or woodland habitat but can occur in fragmented landscapes as well. .	Vulnerable	
<i>Phascolarctos cinereus</i>	Koala	Koalas are found in a range of habitats, from coastal islands and tall eucalypt forests to low woodlands inland. The species is known from the surrounding area and evidence has been recorded on-site.	Vulnerable	Vulnerable
<i>Pteropus poliocephalus</i>	Grey-headed Flying Fox	Species generally roosts in camps in trees adjacent to larger permanent watercourse. The Grey-headed flying fox requires foraging resources and roosting sites. It is a canopy-feeding frugivore and nectarivore, which utilises vegetation communities including rainforests, open forests, closed and open woodlands, Melaleuca swamps and Banksia woodlands. It also feed son commercial fruit crops.	Vulnerable	



Table 5: Migratory Species with possible suitable habitat on site

Scientific Name	Common Name	Habitat	Status*
<i>Apus pacificus</i>	Fork-tailed Swift	This is an aerial species that hunts for food over varied habitats, including coastal areas. This species may occasionally occur over the site.	M
<i>Ardea alba</i>	Great egret. White Egret	This species occurs on tidal mudflats and other shallow wetland areas. Suitable habitat for this species may occur on the site within the wetland community. White b	M
<i>Ardea ibis</i>	Cattle Egret	This species occurs on tidal mudflats and other shallow wetland areas, and is also found on grazing land. Suitable habitat may occur on the site in areas that have been subject to cattle grazing.	M
<i>Haliaeetus leucogaster</i>	White-bellied Sea-eagle	The White-bellied Sea-eagle is found in coastal habitats and around terrestrial wetlands in tropical and temperate regions of mainland Australia and its offshore islands. The habitats are characterised by the presence of large areas of open water.	M
<i>Hirundapus caudacutus</i>	White-throated Needletail	This is an aerial species occupying airspace over forests, woodlands, farmlands, plains, coasts and towns. This species may occasionally occur over the site.	M
<i>Merops ornatus</i>	Rainbow Bee-eater	This species is associated with a variety of habitats, including wet and dry forests, woodlands and riparian areas. This species was recorded on the subject site.	M

*M: Migratory species are those species that are listed under an international agreement such as *JAMBA*, *CAMBA* and *Bonn Convention*.



3.5. Potential Impacts

Impacts of the proposed development can generally be summarised as the following:

CONSTRUCTION IMPACTS	OPERATIONAL IMPACTS
<ul style="list-style-type: none"> - Direct removal of site vegetation - Loss of habitat - Loss of food sources - Excavation / compaction/ changes in existing ground levels - Altering of hydrological flows - Noise, vibration and dust - Fragmentation of habitat - Erosion and sedimentation - Threats associated with open cuts etc. and fauna entrapment 	<ul style="list-style-type: none"> - Weed introduction (garden escapees) - Increased hydrology with increased hardstand - Altering of run-off chemical and nutrient components (quality) - Barriers to fauna movement - Vehicle and pedestrian movement and trespass - Introduction of domestic and predatory species

Generally most impacts for developments are associated directly with vegetation clearing. The VMP will provide provisions for wildlife management to mitigate potential impacts during vegetation clearing and comply with legislative requirements and approval conditions. These will include:

- The Fauna Spotter (qualified by DEHP) must remain on site during all clearing works to undertake pre-clearing inspection, direct clearing activities and relocate fauna.
- Immediately prior to the commencement of clearing of native vegetation a daily visual inspection of the area must be carried out by a qualified Fauna Spotter.
- In the event of an animal being located and area of 5m radius should be established around the tree excluding machinery from the area until the animal has relocated (usually over night). Or
- If an animal requires relocating this must be undertaken by a suitable qualified fauna expert recognized by the Queensland Parks and Wildlife. For some fauna a permit will be required.
- Any native fauna orphaned or injured by the development process must be reported to the Department of Environment and Heritage Protection.
- The site supervisor is responsible for the safe management of site fauna and implementation of these specific fauna requirements
- Dogs will be restricted on site during construction activities to discourage wild dogs and encourage fauna movement outside construction hours. Dogs brought onto the premises for security must be controlled and contained.



4. Fauna Management Plan Specifications

4.1. Pre-construction

Management Item	Responsibility	Timing	Reporting
4.1.1 Temporary Fencing			
<p>Prior to the commencement of clearing activities, the applicant must fence the limits of vegetation strips and install fauna exclusive fencing. This fencing shall be inspected by EDQ or the Environmental Site Coordinator. Fencing shall be in accordance with the specifications shown in the approved Vegetation Management Plan, Wildlife Protection and Management Plan, and Wildlife and Habitat Impact Mitigation Plan.</p> <ul style="list-style-type: none"> ▪ Fencing shall be fauna friendly and erected to direct fauna towards vegetation associated Sandy Creek to the north, the unnamed mapped waterway to the south and remaining vegetation on the site known as Undullah to the west. Fencing shall be erected to the east to prevent fauna from entering the Brisbane/Sydney rail line as or the VMP. ▪ Fencing shall be erected prior to the commencement of clearing activities and shall be removed in accordance with the Pre-Clearing Trapping and Release Plan to enable animals to safely move to refuge areas. ▪ Within the tree protection zone, the following activities are not permitted: storage and mixing of materials, vehicle parking, liquid disposal, machinery repairs and/or refuelling, construction of site office or shed, combustion of any material, stockpiling of soil, rubble or debris, any filling or excavation including trenching, topsoil skimming and/or surface excavation, unless otherwise approved. ▪ Only approved weed management, landscape and revegetation works to occur beyond the temporary protection fencing. ▪ Fencing to be reinstated immediately if damaged or knocked down. 	SITE SUPERVISOR	No more than two weeks prior to clearing works commencing on-site.	Inspected by Proponent, EDQ or the Environmental Site Coordinator



<ul style="list-style-type: none"> Fencing to remain until the completion of all bulk earthworks and removed just prior to practical completion. 			
<p>4.1.2 Contractor Education and Awareness</p>			
<p>All site contractors and sub-contractors will be made aware of their responsibilities to protect native fauna. The Contractor will be responsible for the commissioning of the Pre-clearing Fauna Spotter Report and the Pre-clearing Trapping and Release Plan. The Fauna Management Plan is provided as a working document to assist on-site management and protection of native animals. This will generally form part of education and training in a broader Construction Management Plan but as a minimum will include:</p> <ul style="list-style-type: none"> Copy of Fauna Management Plan kept on site (Site Office) General education and awareness notification of contractors and sub-contractors involved in activities potentially impacting native animals as part of site induction – contractors must know the location of the FMP, key phone numbers including the nominated Fauna Spotter and EHP, and who to report to if potential breaches of the FMP occur. A list of relevant contact numbers as listed in Section 7 kept in a visible and accessible location in the site office. 	<p>SITE SUPERVISOR / THE PROPONENT</p>	<p>Prior to the commencement of construction and as part of the site induction for new staff and sub-contractors</p>	<p>SITE SUPERVISOR</p>
<p>4.1.3 Fauna Spotter and Catcher</p>			
<p>A Queensland Parks and Wildlife Service (QPWS) and EHP approved Fauna Spotter Catcher shall inspect the site no more than two weeks prior to clearing works commencing on-site and prepare a Fauna Spotter Report and Pre-clearing Trapping and Release Plan. The report must include a full list of fauna species encountered during the site survey, as well as the marking and identification of significant habitat trees. The Fauna Spotter Report shall be sent to the Environmental Coordinator, Proponent and EDQ prior to the pre-start meeting, for approval and inspection by the Environmental Coordinator.</p> <p>In addition, the EHP approved Fauna Spotter Catcher must assess the site for:</p>	<p>SITE SUPERVISOR / THE PROPONENT</p>	<p>No more than two weeks prior to clearing works commencing on site.</p>	<p>SITE SUPERVISOR</p>

environmental management fauna management plan



- The presence of native fauna and/or supporting habitat on-site,
- Available habitat suitable for likely fauna species,
- The presence of any fauna that is 'protected wildlife' as defined under the *Nature Conservation Act 1992* ('protected wildlife')
- The presence of any species that is a 'listed threatened species' under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) ('listed threatened species')

Section 5 details the documentation and actions to be taken if the assessment finds suitable habitat present adjacent to the site or protected/listed species present and/or if the relocation of fauna is required.

The EHP approved Fauna Spotter Catcher must be present during the pre-start meeting to identify all fauna habitat trees prior to the commencement of works to ensure wildlife is unharmed at the time of tree clearing operations

NB. The EHP approved Fauna Spotter Catcher is a person who holds a rehabilitation permit with an extended authority issued by the **Department of Environment and Heritage Protection** specifying the holder may take, keep or use an animal whose habitat is about to be destroyed by a human activity.'



4.2. Vegetation Clearing

Management Item	Responsibility	Timing	Reporting
4.2.1 Fauna Spotter Catcher			
<p>For all vegetation clearing:</p> <ol style="list-style-type: none"> I. Immediately prior to the commencement of clearing of native vegetation a daily visual inspection of the area must be carried out. II. In the event of an animal being located, an area of 5m radius should be established excluding machinery from the area until the animal has relocated (usually overnight). III. If any used hollows or nests are identified from inspection by the spotter catcher, the hollows and nest must be inspected with a torch and if fauna is identified a cherry picker and/or tree climber must be utilised to remove hollow and fauna prior to the tree being lowered. IV. The relocating of fauna is not permitted and fauna must move off at its own accord. There is no approval to relocate fauna as part of operational works onsite, refer to Section 5 of this document for further details. V. Any native fauna orphaned or injured by the development process must be immediately reported to the Queensland Parks and Wildlife Service (1300 130 372), EHP, RSPCA and the Environmental Coordinator and Proponent. VI. The Site Supervisor is responsible for the safe management of site fauna and implementation of these specific requirements. VII. All personnel on-site must undertake all works in accordance with all direction/s given by the EHP approved fauna spotter catcher. <p>SPECIFIC KOALA MANAGEMENT NOTES An EHP approved Koala Spotter is a person who holds a tertiary qualification in Biology or Zoology, or who is demonstrably experienced in the identification and location of Koalas in their natural habitat, and has an authorisation from EHP to conduct such activities. For example, demonstrably experienced may include a Koala keeper employed by a licenced Wildlife exhibitor (i.e. a zoo) may be capable of demonstrating competence in location Koalas.</p>	<p>Qualified and registered EHP approved Fauna Spotter and Catcher</p>	<p>Must be present for pre-start meeting, during clearing, construction and continue during the site clearing operations.</p>	<p>Proponent, the Environmental Site Coordinator or EDQ</p>



<p>Prior to the commencement and during felling operations, it is the responsibility of the EHP approved Fauna Spotter to:</p> <ol style="list-style-type: none"> 1. Be present at the site of felling operations 2. Identify any tree at the site which a Koala is present, as well as any tree that has a crown which is intermeshed or overlapping with such tree; and 3. Advise the person who is authorised to conduct the felling operation, or that person's representative, of the precise location of each such tree. 			
<p>4.2.2 Direction of Clearing</p>			
<p>Vegetation clearing activities must be in accordance with the Direction of Clearing Plan (refer to Plan 2) which directs clearing towards vegetation to be retained.</p>	<p>SITE SUPERVISOR / EARTHWORKS CONTRACTOR / SUB CONTACTOR</p>	<p>As part of clearing earthworks operations</p>	<p>Site Supervisor / Proponent / Environmental Coordinator / EDQ</p>
<p>4.2.3 Monitoring of Clearing/Earthworks</p>			
<p>Works are to be monitored to ensure on-site success of Direction of Clearing Plan and for immediate reporting of orphaned, injured, distressed, or killed native animals to QPWS, EHP, RSPCA, Environmental Coordinator and Proponent.</p>	<p>Qualified and registered EHP approved Fauna Spotter and Catcher as employed by the APPOINTED SITE CONTRACTOR.</p>	<p>As part of clearing/ earthworks operations</p>	<p>Site Supervisor / Proponent/ Environmental Coordinator / EDQ</p>
<p>4.2.4 Timing of Clearing</p>			
<p>No machinery use for vegetation clearing or damage of any kind shall occur on-site between 6pm and 6am.</p>	<p>SITE SUPERVISOR / EARTHWORKS CONTRACTOR / SUB CONTACTOR</p>	<p>As part of clearing earthworks operations</p>	<p>Site Supervisor / Proponent / Environmental Coordinator / EDQ</p>



4.2.4 Relocation / Translocation

Where works will result in unacceptable risks to health and safety of fauna, a range of measures may be used by the approved Fauna Spotted Catcher to minimise risks, including the temporary removal of animals from the site with the aim of returning animals back to habitat on site at the completion of risk associated works or to suitable habitat adjacent to the site. Appropriate measures are to be determined by the approved Fauna Spotter Catcher.

Note: Appropriate wildlife-proof barriers must be used between adjacent habitat and risk associated structures (i.e. roads) where translocation occurs.

Qualified and registered EHP approved Fauna Spotter and Catcher as employed by the APPOINTED SITE CONTRACTOR

As part of clearing/ earthworks operations

Site Supervisor / Proponent/ Environmental Coordinator / EDQ



4.3. Excavation, Earthworks and Access

Management Item	Responsibility	Timing	Reporting
4.3.1 Minimise Entrapment			
Trenches, manholes, excavation for footings, etc. while open pose threats to native animal entrapment and should be backfilled as soon as possible. In some locations barriers may be required overnight to eliminate the accidental capture of animals moving through the site.	SITE SUPERVISOR / EARTHWORKS / CONTRACTOR /SUB CONTRACTOR	As part of site earthworks	Site Supervisor / Proponent / Environmental Coordinator / EDQ
When trenches are not backfilled they are to be inspected at the commencement of each day for trapped or injured wildlife. Note: If during the inspection injured wildlife or entrapped native fauna is observed the Site Supervisor is to contact the Project Fauna Spotter immediately.	SITE SUPERVISOR	On-going	Site Supervisor / Proponent / Environmental Coordinator / EDQ
4.3.2 Regular and Defined Access			
To minimise impacts and conflicts between native animals, vehicular movement and access during construction and site access should be controlled via minimal entry and exit points.	SITE SUPERVISOR	On-going	Site Supervisor / Proponent / Environmental Coordinator / EDQ
4.3.3 Stockpile and Rubbish Locations			
Stockpiled vegetation, topsoil and other materials can quickly become temporary habitat for animals displaced during the actual clearing and earthworks. Rubbish, waste and litter provides opportunistic food course for native and exotic animals alike and often encourages predatory and feral species. Locations for stockpiles, designated rubbish points etc. should occur in cleared sections of the site, away from retained areas and the adjoining National Park, limiting interaction between these areas and core retention areas.	SITE SUPERVISOR	On-going	Site Supervisor / Proponent / Environmental Coordinator / EDQ



4.4. Nest Box/ Hollow Maintenance and Monitoring

Management Item	Responsibility	Timing	Reporting
4.4.1 Installation			
<p>As part of the Fauna Surveys, WIMP and WPMP the engaged EHP approved Fauna Spotter and Catcher will determine the number and specific location of nest boxes to be installed in retained vegetation bordering Sandy Creek and the waterway to the south prior to the pre-start meeting.</p> <p>All nest box locations are to be GPS recorded and coordinates provided to the Environmental Coordinator, Proponent, EDQ, EHP and Council.</p>	<p>NEST BOX CONTRACTOR / Qualified and registered EHP approved Fauna Spotter and Catcher</p>	<p>Prior to the pre-start meeting</p>	<p>Site Supervisor / Proponent / Environmental Coordinator / EDQ</p>
4.4.2 Maintenance and Monitoring			
<p>Nest boxes are to be monitored throughout all vegetation clearing activities.</p> <p>Nest boxes are to be maintained for 12 months. Maintenance activities include, but are not limited to, the following:</p> <ul style="list-style-type: none"> ▪ The replacement of failed or damaged nest boxes ▪ The removal of invasive species ▪ The removal of invasive species will be determined by the engaged EHP Fauna Spotter and Catcher or suitably qualified person. 	<p>NEST BOX CONTRACTOR</p>	<p>12 months</p>	<p>Site Supervisor / Proponent / Environmental Coordinator / EDQ</p>
4.4.3 Reporting Schedule and Pro forma			
<p>A reporting schedule and pro forma must be completed to report all nest box maintenance and monitoring activities throughout the construction period of the development. A copy of the reporting schedule and pro forma must be provided to the Environmental Coordinator and Proponent.</p>	<p>NEST BOX CONTRACTOR</p>	<p>Throughout the construction period of the development.</p>	<p>Site Supervisor / Proponent / Environmental Coordinator / EDQ</p>



4.5. Non-Compliance, Monitoring and Reporting

Management Item	Responsibility	Timing	Reporting
4.5.1 Non-Compliance			
<p>Despite the provisions in this Fauna Management Plan, there are likely to be possible non-compliance breaches. Where a contractor or sub-contractor witnesses or is involved in activities which do not comply with this FMP the following procedure shall be followed:</p> <ul style="list-style-type: none"> ▪ All breaches of the FMP must immediately be reported to the Proponent. ▪ If possible, prior approval / or communication on the breach should be discussed with the Environmental Coordinator. The Environmental Coordinator is responsible for establishing additional management procedures or determining if EDQ notification should be made. ▪ Non-compliance activities should be halted immediately and impacts rectified (fencing reinstalled, stock piling relocated, etc.). ▪ Site staff should notify the site supervisor who is responsible for either rectifying actions or contacting the Environmental Coordinator. ▪ All major breaches which fundamentally do not achieve the overall outcomes of the FMP and result in lost habitat or distress to native animals must be reported to the Environmental Coordinator, Proponent and applicable regulatory authorities. 	SITE SUPERVISOR	On-going	Site Supervisor / Proponent / Environmental Coordinator
4.5.2 Monitoring and Reporting			
<p>The site shall be monitored at all times. This should include:</p> <ul style="list-style-type: none"> ▪ Daily inspections by the Site Supervisor ▪ Weekly/fortnightly inspections by the Environmental Coordinator ▪ Random and periodical inspections by the Proponent <p>The Fauna Spotter and Catcher employed during pre-construction and on-site works shall provide a Post-clearing Report, to be given to the Environmental Coordinator and</p>	ALL SITE STAFF	On-going	QPWS /EDQ / DNPRSR / Environmental Coordinator / Proponent



the Proponent no more than two weeks after clearing has finished, specifying the following:

- Length and time of clearing
- Details of any fauna that were caught and/or signed and released and the placement of any release/s;
- Location and type of nest boxes installed on-site (geographically depicted);
- Inventory of species encountered during tree removal;
- Rates of nest box use by fauna, details of species utilising the nest boxes;
- Brief summary of any fauna handling, mortalities or other relevant fauna related incidents that may have occurring during tree removal; and
- Confirmation of the follow up monitoring of nesting boxes/ translocated hollow logs and branches and how they are to be maintained in future.

The Fauna Spotter and Catcher Post-clearing Report is to be submitted to the Environmental Coordinator, the Proponent, EDQ and EHP immediately following the completion of tree clearing activities and prior to commencement of the use of the premises.

4.5.3 Orphaned or Injured Fauna

All native animal fatalities must be reported immediately to the Environmental Coordinator, the Proponent, EHP and QPWS.

Where any site staff (contractors or sub-contractors) witnesses or locates distressed, injured or orphaned animals they should immediately contact the Environmental Coordinator, the Proponent, EHP or QPWS. Works within the area of the animal must cease until further instruction is provided by one of the above authorities.

Refer to **Section 7** for a list of key contacts.

ALL SITE STAFF

On-going

QPWS / EDQ / EHP
/ Environmental
Coordinator /
Proponent

Refer to **Section 7** for the contact details of responsible entities. The Environmental Coordinator's role has been to prepare this FMP and liaise with EDQ, PEET and the approved Fauna Spotter and Catcher and the Construction Contractor (to be appointed) to achieve the outcomes of this plan.



5. Fauna Spotter and Catcher Assessment

The Fauna Spotter and Catcher assessment as part of the pre-clearing surveys and updated Fauna Spotter Report, may reveal suitable fauna habitat adjacent on land within the Karawatha-Greenbank-Flinders Peak Bioregional Corridor for protected/listed species present on the site and/or the requirement for relocation of fauna. The following table details the actions to be taken in these events.

<p>Fauna Spotter and Catcher required – suitable habitat present adjacent to the site</p>	<p>If the engaged Fauna Spotter and Catcher’s assessment determines that no protected wildlife or listed species are present but that native fauna may be present with suitable habitat existing adjacent to the site, the following must be submitted to EDQ with a development application for operational work (vegetation clearing):</p> <ul style="list-style-type: none"> ▪ A letter from the Fauna Spotter and Catcher stating the spotter-catcher’s credentials and setting out a list of anticipated species; and ▪ A Fauna Management Plan (FMP) for EDQ’s approval.
<p>Fauna Spotter and Catcher required – protected / listed species present and/or relocation of fauna required</p>	<p>If the Fauna Spotter and Catcher’s Assessment determines that any protected wildlife or listed species are present, and/or native fauna are to be relocated, a Fauna Translocation Management Plan (FTMP) must be prepared in accordance with the Pre-clearing Trapping and Release Plan. The FTMP must be submitted to Department of National Parks, Recreation, Sport and Racing (DNPRSR) – Queensland Parks and Wildlife Service (QPWS) for endorsement. The following must then be submitted to EDQ with a development application for operational works (vegetation clearing):</p> <ul style="list-style-type: none"> ▪ A letter from the Fauna Spotter and Catcher stating the spotter-catcher’s credentials and setting out a list of anticipated species; ▪ A letter from QPWS stating its endorsement of the proposed FTMP; and ▪ A copy of the QPWS endorsed FTMP for EDQ’s approval.

The currency period of an FMP or FTMP submitted as a result of the above will be six months from the date of approval of the plan. An updated plan must be submitted to EDQ for approval if works are not substantially started within the six month period.



6. Koala SPRP

The site is not identified as within the Koala SPRP, however the following should be complied with as part of this FMP to ensure safe removal should any koalas be encountered on site.

- During construction phases measures are taken in construction practices to not increase the risk of death or injuries to Koalas.
- Native vegetation clearing is undertaken as sequential clearing under the guidance of a Koala spotter where the native vegetation is a non-juvenile koala habitat tree.
- Landscape activities provide food, shelter and movement opportunities for Koala consistent with the site design.



7. Site Contacts

The Proponent

Costas Alexandrou
PEET Limited
Ph. (07) 3237 2040

Site Supervisor

To be appointed.

Environmental Coordinator

Murray Saunders
Saunders Havill Group
Ph. (07) 3251 9444

Economic Development Queensland

Brandon Bouda
Ph. (07) 3452 7422

Logan City Council

Adam Avalos
Ph. (07)3412 4874

Fauna Spotter and Catcher

To be appointed.

Veterinarian (in closest proximity to application site)

Jimboomba Veterinary Surgery
10 Euphemia St, Jimboomba QLD 4280
Mon-Fri: 8:00am – 6:30pm, Sat: 8:00am – 5:00pm, Sun: 9:00am–4:00pm
Ph. (07) 5546 9540 / 1800 217 794

Queensland Parks and Wildlife Services

South East
60 Mount Nebo Road, The Gap QLD 4061
Ph. (07) 35122300

Department of Environmental and Heritage Protection

For wildlife incidents and licensing and permits:
Ph. 1300 130 372

RSPCA Queensland

For reporting injured, sick or orphaned wildlife:
Ph. 1300 ANIMAL (1300 264 625)



8. Appendices

Appendix A

Environment Protection and Biodiversity Conservation Act 1999 Protected Matters Database Search

Appendix B

Nature Conservation Act 1992 (Qld) Wildnet Database Search Results

Appendix C

Koala SPRP and SPP Mapping

Appendix D

DRAFT Code of Practice for Welfare of Animals effected by Land Clearing and Other Habitat Impacts and Wildlife Spotter / Catcher as prepared by the Wildlife Warriors and Voiceless

Appendix E

Threatened Species Habitat Suitability and Risk Assessment



Appendix A

Environment Protection and Biodiversity Conservation Act 1999 (Cth)
Protected Matters Search Results



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: 10/11/14 12:53:08

[Summary](#)

[Details](#)

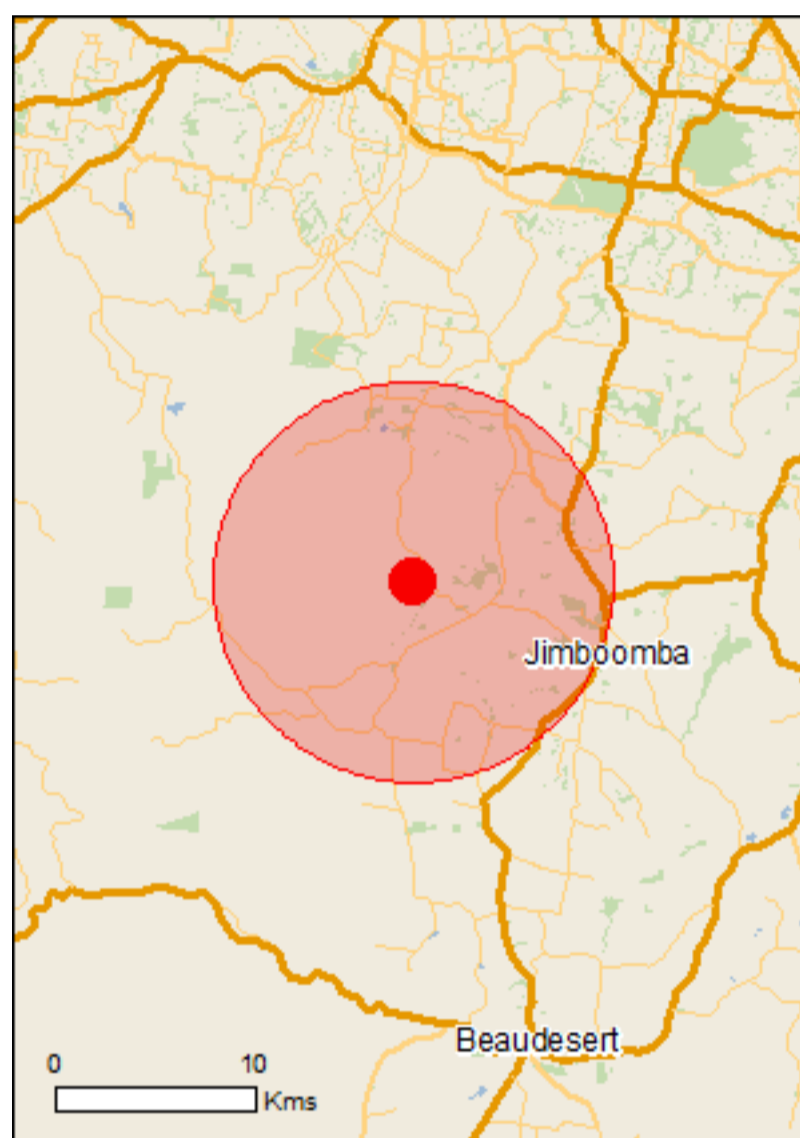
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

[Coordinates](#)

Buffer: 10.0Km



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 Areas:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	33
Listed Migratory Species:	12

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 and the heritage values of a place on the Register of the National Estate.

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.

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:	15
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine	None

Extra Information

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

Place on the RNE:	None
State and Territory Reserves:	1
Regional Forest Agreements:	None
Invasive Species:	37
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	Upstream from Ramsar

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
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur within area
Swamp Tea-tree (<i>Melaleuca irbyana</i>) Forest of South-east Queensland	Critically Endangered	Community likely to occur within area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area

Listed Threatened Species [\[Resource Information \]](#)

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat likely to 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
Lathamus discolor Swift Parrot [744]	Endangered	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Poephila cincta cincta Black-throated Finch (southern) [64447]	Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat likely to occur within area
Fish		
Maccullochella mariensis Mary River Cod [83806]	Endangered	Translocated population known to occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
Dasyurus hallucatus Northern Quoll [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 known to occur within area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	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
Other		
Cycas ophiolitica [55797]	Endangered	Species or species habitat likely to occur within area
Plants		
Arthraxon hispidus Hairy-joint Grass [9338]	Vulnerable	Species or species habitat may occur within area
Bosistoa selwynii Heart-leaved Bosistoa [13702]	Vulnerable	Species or species habitat likely to occur within area
Bosistoa transversa Three-leaved Bosistoa [16091]	Vulnerable	Species or species habitat likely to occur within area
Cupaniopsis tomentella Boonah Tuckeroo [3322]	Vulnerable	Species or species habitat likely to occur within area
Notelaea ipsviciensis Cooneana Olive [81858]	Critically Endangered	Species or species habitat may occur within area

Name	Status	Type of Presence
Notelaea lloydii Lloyd's Olive [15002]	Vulnerable	Species or species habitat likely to occur within area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat likely to occur within area
Phebalium distans Mt Berryman Phebalium [81869]	Critically Endangered	Species or species habitat may occur within area
Planchonella eerwah Shiny-leaved Condoe, Black Plum, Wild Apple [17340]	Endangered	Species or species habitat likely to occur within area
Plectranthus habrophyllus [64589]	Endangered	Species or species habitat likely to occur within area
Streblus pendulinus Siah's Backbone, Sia's Backbone, Isaac Wood [21618]	Endangered	Species or species habitat likely to occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area

Reptiles

Coeranoscincus reticulatus Three-toed Snake-tooth Skink [59628]	Vulnerable	Species or species habitat may occur within area
Delma torquata Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat 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		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to 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 likely to occur within area

Name	Threatened	Type of Presence
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		
Ardea alba Great Egret, White Egret [59541]		Species or species habitat known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat likely to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely 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		
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]		Species or species habitat known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat likely to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Endangered	Species or species habitat likely to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat likely to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may 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

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Henderson Reserve	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 Resources 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

Name	Status	Type of Presence
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 likely 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
Equus caballus Horse [5]		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 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
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
Cabomba caroliniana Cabomba, Fanwort, Carolina Watershield, Fish		Species or species

Name	Status	Type of Presence
Grass, Washington Grass, Watershield, Carolina Fanwort, Common Cabomba [5171] Chrysanthemoides monilifera		habitat likely to occur within area
Bitou Bush, Boneseed [18983] Chrysanthemoides monilifera subsp. rotundata		Species or species habitat may occur within area
Bitou Bush [16332] Cryptostegia grandiflora		Species or species habitat likely to occur within area
Rubber Vine, Rubbervine, India Rubber Vine, India Rubbervine, Palay Rubbervine, Purple Allamanda [18913] Eichhornia crassipes		Species or species habitat likely to occur within area
Water Hyacinth, Water Orchid, Nile Lily [13466] Genista monspessulana		Species or species habitat likely to occur within area
Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126] Hymenachne amplexicaulis		Species or species habitat likely to occur within area
Hymenachne, Olive Hymenachne, Water Stargrass, West Indian Grass, West Indian Marsh Grass [31754] Lantana camara		Species or species habitat likely to occur within area
Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892] Parkinsonia aculeata		Species or species habitat likely to occur within area
Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301] Parthenium hysterophorus		Species or species habitat likely to occur within area
Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566] Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii		Species or species habitat likely to occur within area
Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497] Salvinia molesta		Species or species habitat likely to occur within area
Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665] Senecio madagascariensis		Species or species habitat likely to occur within area
Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624] Solanum elaeagnifolium		Species or species habitat likely to occur within area
Silver Nightshade, Silver-leaved Nightshade, White Horse Nettle, Silver-leaf Nightshade, Tomato Weed, White Nightshade, Bull-nettle, Prairie-berry, Satansbos, Silver-leaf Bitter-apple, Silverleaf-nettle, Trompillo [12323]		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

Coordinates

-27.80466 152.94346

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 Heritage and Register of National Estate properties, Wetlands of International 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.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

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.

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:

- [-Department of Environment, Climate Change and Water, New South Wales](#)
- [-Department of Sustainability and Environment, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment and Natural Resources, South Australia](#)
- [-Parks and Wildlife Service NT, NT Dept of Natural Resources, Environment and the Arts](#)
- [-Environmental and Resource Management, Queensland](#)
- [-Department of Environment and Conservation, Western Australia](#)
- [-Department of the Environment, Climate Change, Energy and Water](#)
- [-Birds Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-SA 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, Atherton and Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [-State Forests of NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- 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.



Appendix B

Nature Conservation Act 1992 (Qld)
Wildlife Online Search Results



Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point

Species: All

Type: All

Status: Rare and threatened species

Records: All

Date: All

Latitude: -27.8047

Longitude: 152.9433

Distance: 10

Email: keiragrundy@saundershavill.com

Date submitted: Monday 10 Nov 2014 13:14:38

Date extracted: Monday 10 Nov 2014 13:20:05

The number of records retrieved = 16

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	Hylidae	<i>Litoria brevipalmata</i>	green thighed frog		NT		1
animals	amphibians	Limnodynastidae	<i>Adelotus brevis</i>	tusked frog		V		3
animals	birds	Accipitridae	<i>Accipiter novaehollandiae</i>	grey goshawk		NT		4
animals	birds	Cacatuidae	<i>Calyptorhynchus lathami</i>	glossy black-cockatoo		V		4
animals	birds	Ciconiidae	<i>Ephippiorhynchus asiaticus</i>	black-necked stork		NT		7
animals	birds	Falconidae	<i>Falco hypoleucos</i>	grey falcon		NT		1
animals	birds	Rallidae	<i>Lewinia pectoralis</i>	Lewin's rail		NT		1
animals	birds	Strigidae	<i>Ninox strenua</i>	powerful owl		V		4
animals	mammals	Dasyuridae	<i>Dasyurus maculatus maculatus</i>	spotted-tailed quoll (southern subspecies)		V	E	10
animals	mammals	Macropodidae	<i>Petrogale penicillata</i>	brush-tailed rock-wallaby		V	V	3
animals	mammals	Phascolarctidae	<i>Phascolarctos cinereus (southeast Queensland bioregion)</i>	koala (southeast Queensland bioregion)		V	V	194
plants	higher dicots	Lamiaceae	<i>Plectranthus habrophyllus</i>			E	E	1/1
plants	higher dicots	Myrtaceae	<i>Melaleuca irbyana</i>			E		5/2
plants	higher dicots	Sapindaceae	<i>Cupaniopsis tomentella</i>	Boonah tuckeroo		V	V	1
plants	higher dicots	Sapotaceae	<i>Planchonella eerwah</i>			E	E	1
plants	lower dicots	Cabombaceae	<i>Brasenia schreberi</i>			NT		1/1

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 C

Koala SPRP and SPP Mapping

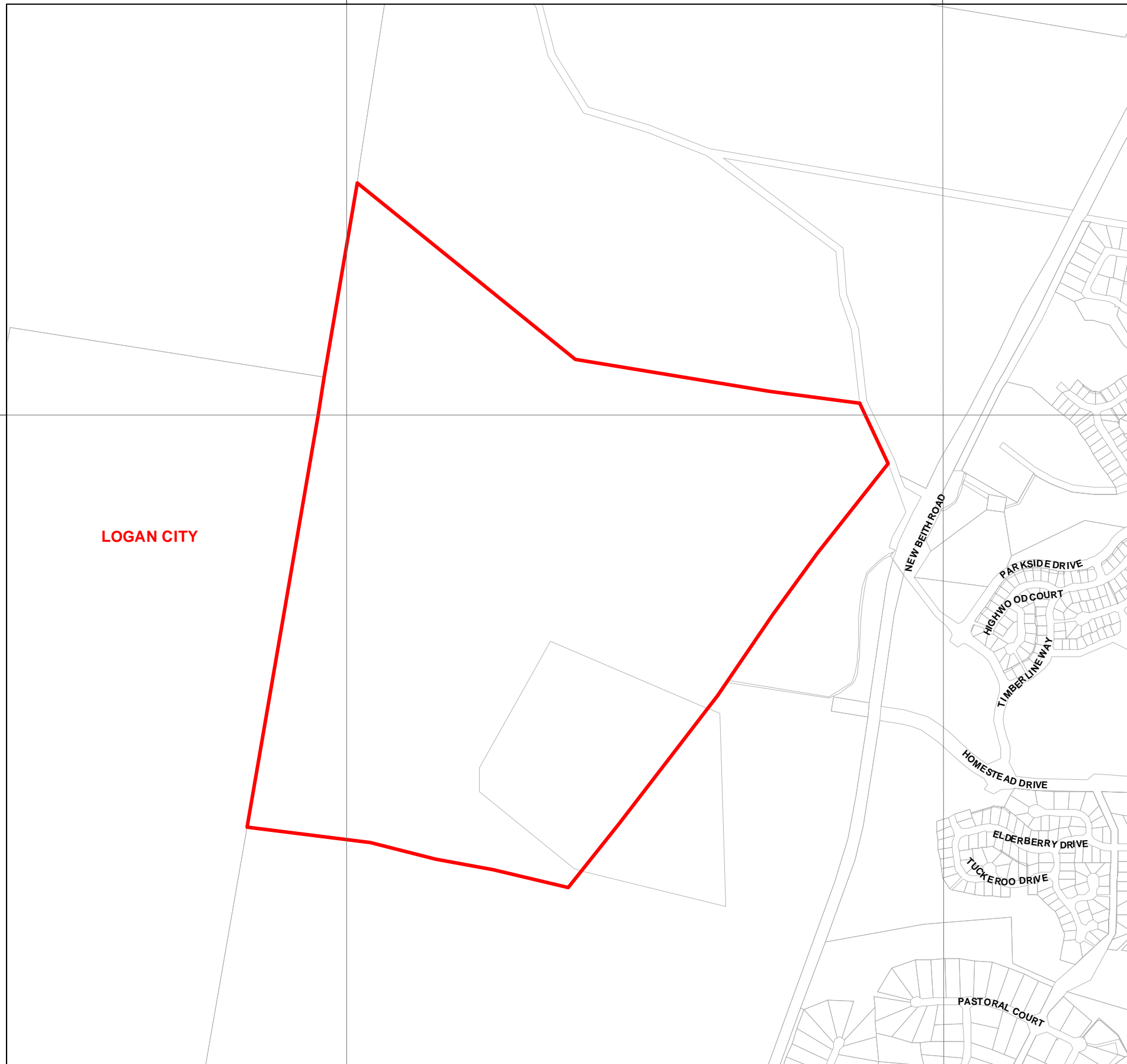
152°56'0"E

152°57'0"E

27°48'0"S

27°48'0"S

LOGAN CITY



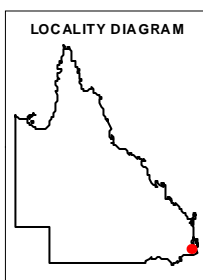
152°56'0"E

152°57'0"E

Koala Conservation in South East Queensland State Planning Regulatory Provisions

Requested By: KEIRAGRUNDY@SAUNDERSHAVILL.COM
Date: 12 Nov 14 Time: 16.40.37

Centred on Lot on Plan:
908 RP819216



This product is projected into GDA 1994 MGA Zone 56

- Area of Interest - Lot & Plan
- Priority Koala Assessable Development Areas
- Koala Assessable Development Areas
- Outside SPRP Koala Assessable Development Areas
- Koala SPRP - Identified Broad-Hectare Areas**
- Koala SPRP - Identified Broad-Hectare Areas
- Koala SPRP - Habitat Values**
- Bushland Habitat**
- High Value Bushland
- Medium Value Bushland
- Low Value Bushland
- Suitable for Rehabilitation**
- High Value Rehabilitation
- Medium Value Rehabilitation
- Low Value Rehabilitation
- Other Areas of Value**
- High Value Other
- Medium Value Other
- Low Value Other
- Generally not suitable
- Water
- Cadastral Boundaries
- Local Government Boundaries
- Road Names**

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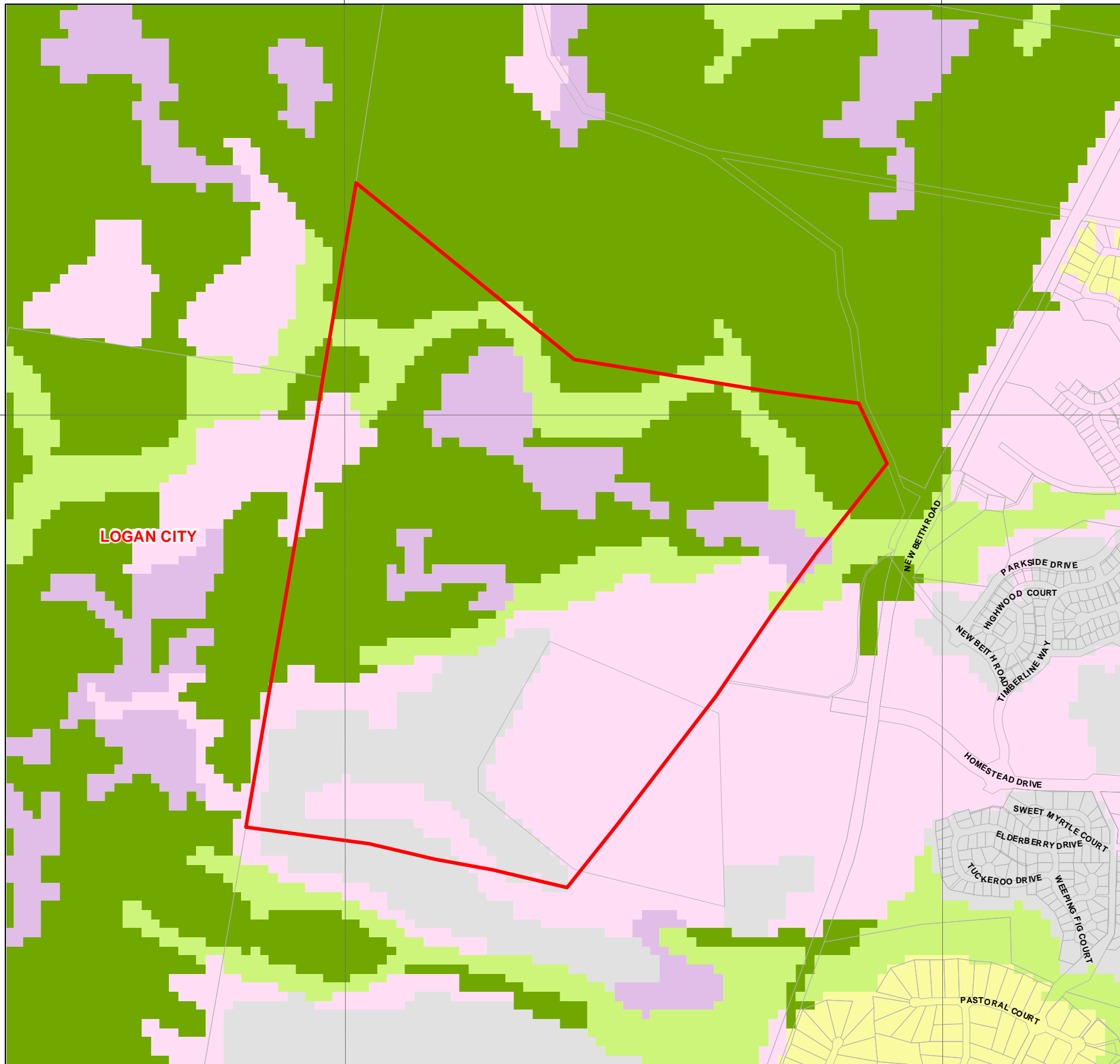
Note - These maps are not regulatory. Regulatory maps and requirements can be downloaded from the EHP website. Further information in relation to regulatory requirements for development and planning activities should be sought from the relevant Local Government Authority or the Department of Environment and Heritage Protection.

152°56'0"E

152°57'0"E

27°48'0"S

27°48'0"S



152°56'0"E

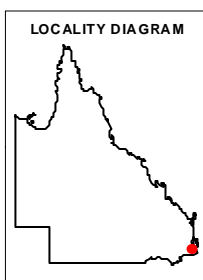
152°57'0"E

Koala Habitat in South East Queensland

Requested By: KEIRAGRUNDY@SAUNDERSHAVILL.COM

Date: 12 Nov 14 Time: 16.40.37

Centred on Lot on Plan:
908 RP819216



This product is projected into GDA 1994 MGA Zone 56

Area of Interest - Lot & Plan

Koala SPP - Habitat Values

Bushland Habitat

- High Value Bushland
- Medium Value Bushland
- Low Value Bushland

Suitable for Rehabilitation

- High Value Rehabilitation
- Medium Value Rehabilitation
- Low Value Rehabilitation

Other Areas of Value

- High Value Other
- Medium Value Other
- Low Value Other
- Generally not suitable
- Water

South East Queensland Koala Habitat Values western SEQ

- Bushland Habitat
- Suitable for rehabilitation
- Other areas of value
- Generally not suitable
- Water

Cadastral Boundaries

Local Government Boundaries

Road Names

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Appendix D

DRAFT Code of Practice for the Welfare of Wild Animals Affected by Land Clearing and Other Habitat Impacts and Wildlife Spotter/Catchers



AUSTRALIA ZOO
**WILDLIFE
WARRIORS**
WORLDWIDE



QUEENSLAND

CODE OF PRACTICE

FOR THE WELFARE OF WILD ANIMALS
AFFECTED BY LAND-CLEARING AND
OTHER HABITAT IMPACTS
AND
WILDLIFE SPOTTER/CATCHERS

Draft



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Australian Wildlife Hospital
(A division of Australia Zoo Wildlife Warriors Worldwide Ltd)

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1. Introduction and Background

1.1 Purpose of the Queensland code of practice for the welfare of wild animals affected by land-clearing and other habitat impacts and wildlife spotter/catchers (The Code).

This code of practice provides standards and guidelines to ensure that fair, reasonable and appropriate measures are used by those involved in the destruction or modification of wildlife habitats to minimise the adverse effects on wild animal welfare and conservation. The principles set out in the Code are for the guidance of developers, town planners, plant and machinery operators, tree loppers and surgeons, farmers, and any other person, entity or agency involved in activities which are likely to cause suffering or death of wild animals, either directly or indirectly, as a result of destruction, modification or disruption of wildlife habitats, including land-clearing.

The Code emphasises the responsibilities of all relevant parties to:

- take all reasonable steps necessary to prevent cruelty or suffering to animals;
- minimise the loss of wildlife caused directly or indirectly by development or land-clearing;
- conserve, as much as possible, the ecological values of development sites and their surrounding natural environment.

The Code also provides standard operating procedures and guidelines for wildlife spotter/catchers, on whom much of the responsibility rests to ensure compliance with this Code, in respect of projects for which they are contracted or employed.

Although the greater community is largely ignorant of the impacts of development on wildlife welfare, there exists, nevertheless, an expectation that animals, whether domestic or wild, should not be treated cruelly. This Code reflects that general societal view by providing standards and guidelines to minimise cruelty to, or suffering of, wild animals as a result of development processes. There is also a rising awareness in the general community of the importance of protecting ecosystems, an expectation of the use of environmentally sustainable practices and minimisation of ecological harm.

1.2 Wildlife loss associated with land-clearing

The clearing of native vegetation, whether remnant or regrowth, represents the most significant cause of mortality of wildlife in Queensland. Based on land clearing rates in the state during 1997-1999, an estimated 100 million native mammals, birds and reptiles died yearly as a result of broad-scale clearing of remnant native vegetation¹. That study did not seek to estimate wildlife loss associated with clearing of non-remnant (regrowth) vegetation, which suggests that the combined total may be significantly higher.

Land-clearing may also isolate populations or individuals in pockets of habitat, leaving them susceptible to misadventure, urbanisation edge effects, natural disasters, overpopulation, genetic degradation through inbreeding, and a range of other deleterious effects.

The concept of “extinction debt” relates to the likelihood of species extinctions sometime in the future as a result of passing a threshold of habitat loss and/or impact². Extinction of rare species from habitat fragments in Queensland has been documented as occurring rapidly from small fragments or more slowly (over decades) from larger habitat fragments^{3,4}.

1.3 Animal welfare issues associated with land-clearing

Aside from the long-term ecological consequences of such a massive loss of wildlife, there are serious animal welfare issues associated with the methods used in the clearing of vegetation while animals are present. Although some animals may be killed instantaneously, it is likely that a much larger proportion suffer painful, distressing or prolonged deaths. Furthermore, displaced animals that survive the process of clearing may be subject to misadventure, motor vehicle trauma, starvation or attack by other animals or predators.

1.3.1 Animal injuries associated with land-clearing

Animals injured directly in the process of vegetation clearing generally suffer from major crushing, deceleration or fall related injuries. Arboreal species may suffer from trauma associated with falling from a tree and/or crushing and avulsive injuries associated with boughs falling on or beside them. Such injuries include severe internal bleeding and organ disruption, multiple bone breaks, eye and head injuries. Animals resting in hollows, similarly, may receive crushing injuries if the hollow bough disintegrates, or suffer internal organ injuries and tearing as a result of rapid deceleration (deceleration injury).

Ground dwelling animals, such as bandicoots, echidnas, snakes and lizards most commonly suffer from crushing and avulsive injuries (such as traumatic limb amputation), or may be buried alive during earthworks.

Highly mobile species such as birds and macropods may avoid direct injury by machinery, but may suffer injuries by running into fences, motor vehicle strike or other misadventure.

Injuries suffered by animals during land-clearing vary from mild to severe and fatal, but these animals are only rarely presented to wildlife hospitals or shelters. This is primarily because they are less likely to be discovered by members of the community and are more usually buried or confined in piles of debris during the process of clearing, which are then subsequently burnt or chipped.

1.3.2 Misadventure and starvation associated with land-clearing

Animals that survive the process of land-clearing may succumb later to starvation, predation, territorial aggression, misadventure (such as drowning in swimming pools, entanglement in fences, and the like) domestic animal attack, motor vehicle strike and maladaptation to new habitat. A small proportion of animals may disperse to adjacent habitat with little ill-effect, but, contrary to popular belief, the proportion of animals successfully doing this is likely to be small.

1.3.3 Isolation of wildlife and habitat fragmentation

Developments or land-clearing that result in destruction or diminishment of habitat corridors or loss of habitat connectivity may result in reduction or loss of the ability of individuals of a species to disperse from the isolated habitat fragment. This may lead to loss of wildlife through overpopulation and starvation, misadventure during dispersal attempts, and loss of individuals through edge effects (such as domestic animal attack), as well as marked diminishment of ecological values generally. Wildlife populations isolated by loss of corridors present larger and more complex management problems for future developments impinging on the remaining habitat, or alternatively may reach a critical population density at which mass mortality occurs, or causes human-animal conflict issues for surrounding communities.

1.4 Removal of wildlife prior to land-clearing and eco-friendly development

The removal of wildlife from sites shortly prior to, and during vegetation clearing represents the most proximate mechanism for reducing wildlife injury and mortality associated with land clearing. This requires the use of personnel skilled in the detection and removal of wildlife from vegetation and other terrestrial habitats, and the adoption of protocols and procedures for the humane handling, housing and disposition of wildlife following removal from their habitats.

The application of ecologically sound design and planning principles to proposed developments represents the most important method of reducing and minimising adverse impacts on wildlife and the ecological values of habitat remnants. These principles should be rigorously applied to all development proposals at an early stage in planning to minimise the requirement for expensive (and less desirable) wildlife and habitat management alternatives, some which are detailed in this code. It is important that all parties involved in urban and rural planning and development projects attempt to adhere to ecologically sound and sustainable development principles.

1.5 Relevant legislation

A number of state and federal statutes provide some degree of legislative protection for wildlife likely to be affected by land-clearing, including the Queensland *Nature Conservation Act 1992*, the Queensland *Vegetation Management Act 1999*, and the Federal *Environmental Protection and Biodiversity Conservation Act 1999*. In respect of animal welfare and the prevention of cruelty, the Queensland *Animal Care and Protection Act 2001* provides legislative protection to animals generally.

¹Cogger, H., Ford, H., Johnson, C., Holman, J. & Butler, D. 2003, Impacts of Land Clearing on Australian Wildlife in Queensland (January 2003): WWF Australia Report, WWF Australia, Brisbane.

²Hanski, I. & Ovaskainen, O. 2002, Extinction Debt at Extinction Threshold, *Conservation Biology*, 16 (3), pp. 666–673.

³Laurence, W.F. 1990, Comparative responses of five arboreal marsupials to forest fragmentation, *Journal of Mammalogy*, 71, pp. 641-653.

⁴Laurence, W.F. 1995, Extinction and survival of rainforest mammals in a fragmented tropical landscape, Ch. 3 in *Landscape Approaches in Mammalian Ecology and Conservation*, ed. by W.Z. Lidecker Jr. University of Minnesota Press, Minneapolis.

2. Scope and Aims of the Code

2.1 Scope

This code of practice provides standards and guidelines for the humane treatment of wild animals affected by the clearing of vegetation or other natural or artificial terrestrial wildlife habitats. The first section deals with the general responsibilities of any person engaged in, or directing, an activity that involves the destruction or modification of wildlife habitats, including artificial habitats. The second section deals with the specific roles and responsibilities of wildlife spotter/catchers.

Many minor activities or development processes relevant to this Code may not require the use of a wildlife spotter/catcher (see Section 1 of the Code below). However, for larger projects or activities in which wildlife is likely to be at risk, the use of accredited wildlife spotter/catchers is required for compliance with this Code.

Responsibility for compliance with the Code, therefore, rests both with the developer and any other person whom, by virtue of their activities or involvement in a development, has a “duty of care” towards animals that may be affected by the development or activity, including wildlife spotter/catchers.

It is not the intent of the Code to provide detailed description of ecological assessment procedures, but rather Standard Operating Procedures (SOPs) for wildlife spotter/catchers, aimed at ensuring consistency and effectiveness of practice; and guidelines to assist developers and others in their legal and ethical obligations to minimise injury, hardship, suffering or death to wild animals, associated directly or indirectly with land-clearing and other development processes.

The Code provides standards and guidelines aimed at protecting the welfare of wildlife affected by land-clearing to a standard consistent with the intent of the Queensland *Animal Care and Protection Act 2001*, and the general views of society. It is the responsibility of any person or entity involved or engaging in relevant activities, to ensure compliance with relevant state and federal statutes, this Code, and other relevant codes of practice.

2.2 Aims

The broad aim of the Code is to provide standards and guidelines to ensure that all reasonable steps are taken to protect the welfare of wild animals affected by land-clearing or other forms of wildlife habitat modification or destruction.

The specific aims of this code of practice are:

- to provide standards and guidelines to prevent or minimise cruelty or harm to wild animals associated with, or resulting from land-clearing and other development processes causing habitat impacts;

- to define the requirements for accreditation and licensing of wildlife spotter/catchers;
- to provide standard operating procedures for wildlife spotter/catchers;
- to provide guidelines on the management of wildlife likely to be affected by land-clearing and other development processes;
- to provide guidelines for minimising the ecological harm caused by land-clearing and development.

3. Important Guiding Principles Underpinning the Code and Definitions

IMPORTANT PRINCIPLES

3.1 Duty of care

“*Duty of care*” obligations to wild animals, in respect of the Code, are similar to those underpinning the Queensland *Animal Care and Protection Act 2001*. However, in respect of this Code the *duty of care* responsibility rests individually and collectively on any and all parties involved with, engaged in, or directing land-clearing or the destruction or modification of wildlife habitats. The duty of care does not require specific knowledge of wildlife presence, only a general awareness of what might constitute a habitat of wild animals.

Furthermore, the *duty of care* exists in respect of any wildlife habitat, irrespective of whether animals are known to use the habitat or not. In other words, wildlife must be *assumed* to be present in potential wildlife habitat unless or until proven otherwise by a person suitably experienced and/or accredited to make that judgment.

Duty of care relates to the legal responsibility of a person, or persons, involved in an activity that may result in harm to or death of an animal or animals, to take all fair, reasonable and appropriate steps to avoid or minimise that risk. Failure to meet *duty of care* responsibilities, that is; failing to take fair, reasonable and appropriate measures to avoid or protect wild animals from harm, may result in prosecution under the Queensland *Animal Care and Protection Act 2001* or the *Nature Conservation Act 1992* irrespective of proof of animal death or injury.

3.2 Due diligence

The term “*due diligence*” relates to the application of sufficient and appropriate techniques to detect the presence of animals, or determine the absence of animals, in a tree, structure or other habitat. It also applies to determination of whether a structure, habitat feature or site is likely to be important or essential to the survival of a wild animal or population. It may also apply to assessment of the risk posed by a development process, activity or structure, to wildlife or their habitats.

Due diligence is a requirement of the Code, and must be performed prior to engaging in an activity or development process relevant to this Code.

3.3 Fair, reasonable and appropriate measures

The principle of “*fair, reasonable and appropriate measures*” includes guidelines, recommendations and standard operating procedures included in this Code, plus any other measure or activity that is available, suitable and appropriate to minimise the risk of harm to animals, or deleterious impacts on the natural environment. This guiding principle recognises that any process that causes significant disruption or destruction of wild animal habitats may result in the death of some animals, (particularly small animals such as skinks, small frogs and the like), in spite of efforts to avoid it.

Current societal attitudes lead to an expectation that fair and appropriate steps are taken to avoid or minimise cruelty or suffering to animals, and that due respect is given to minimising adverse impacts on their habitats. The expertise of wildlife spotter/catchers and other suitably qualified or experienced people is important in determining what constitutes *fair, reasonable and appropriate measures*, in the present circumstances.

DEFINITIONS

For the purposes of this Code:

“**vegetation**” is any native or non-native tree, shrub or plant, including grasses and mangroves, including “remnant vegetation” and “regrowth (non-remnant) vegetation”.

“**animal**”, “**wildlife**” and “**fauna**” are any free-living native or non-native vertebrate animal, including feral animal and declared pest animal species, and any invertebrate animal specifically protected under the *Queensland Nature Conservation Act 1992* or its regulations, or the *Queensland Animal Care and Protection Act 2001* or its regulations.

“**significant wildlife**”, “**significant fauna**”, “**significant species**” are any species listed under federal, state or local statutes or policy as endangered, vulnerable or rare, local significant, critically endangered, or any designation other than common.

“**wildlife habitat**” is any natural terrestrial, subterranean or aquatic habitat, or man-made structure, or other structure known to be, or reasonably likely to be used by wildlife. Wildlife habitats include, but are not necessarily limited to:

- (a) vegetation, or vegetated areas, including forests, plains, mangroves, wetlands, heathlands, dunes, deserts, and marine environments; whether classified as “remnant” or “non-remnant”, and whether native, non-native or artificially created;
- (b) freshwater and marine habitats;
- (c) caves, rocky outcrops, river banks and other natural geological features;
- (d) man-made or artificial structures or habitats, such as drains, buildings, dams, canals, bridges, telecommunication towers, or any other structure known, or reasonably likely to be used by wildlife.

“wildlife corridor” is any section, strip or area of wildlife habitat (whether degraded or not), or cleared area, that is known to be used as, or may reasonably be expected to act as, a corridor for wildlife movement, between, or linking wildlife habitat areas.

“essential wildlife habitat” is any wildlife habitat block or area, or feature that is reasonably likely to be essential to the survival of one or more wild animals, such as a dam that is the only source of water for a wild animal or local wildlife population. (Note: “essential wildlife habitat” has a different meaning and application in respect of the *Vegetation Management Act*.)

“land-clearing”, “development processes”, and “relevant activity” mean any process or activity that involves, causes, or results in, either directly or indirectly, the removal, destruction, or significant modification of natural or man-made wildlife habitats, that are known to contain, or may reasonably be expected to contain, support, or be used by, wildlife, for their survival, movement and reproduction, to an extent that is reasonably likely to cause death, suffering or significant hardship.

“wildlife spotter/catcher” is any person accredited in accordance with this code and licensed under the Queensland *Nature Conservation Act 1992* to conduct and/or supervise the preparation and implementation of Wildlife Protection and Management Plans, and the detection, capture, removal and disposal of wildlife from sites proposed to be developed.

“developer” is any person, corporation, entity, government body or agency conducting or proposing to conduct land clearing, vegetation clearing or other development processes, or any activity that results in the modification or destruction of wildlife habitats or corridors. For the purposes of the Code, this definition includes plant and machinery operators, tree loppers, site foremen, and any other person or persons engaging in, directing or supervising any activity or process involving the destruction or modification of a wildlife habitat, or other development process relevant to this Code.

“standard operating procedures (SOP)” are any documented procedures or protocols required to be routinely applied by relevant personnel to ensure compliance with the Code, or other relevant codes of practice.

“Wildlife Protection and Management Plan (WPMP)” is a document prepared by an accredited and licensed wildlife spotter/catcher, that defines all of the actions and measures, and their timing, in relation to a development or activity, required to protect the welfare of wild animals and minimise the adverse ecological impacts of that development or activity, to a level or standard required by the Code, and consistent with the intent of the Queensland *Animal Care and Protection Act 2001* and the Queensland *Nature Conservation Act 1992*. The WPMP is prepared before the onset of operational works, and must be approved by the Queensland DERM prior to implementation.

“Wildlife Management Report” is a document prepared by an accredited and licensed wildlife spotter/catcher at the completion of a project, which details the wildlife and habitat management procedures used and recommended for the development. It contains detailed returns on animal capture, movement and disposal.

“Department of Environment and Resource Management” or **“DERM”** refer to the Queensland Government Agency responsible for the administration and enforcement of the Queensland *Nature Conservation Act 1992* and its regulations, and the management of wildlife and the natural environment in Queensland.

“Queensland Primary Industries and Fisheries” or “QPI&F” is a part of the Queensland Government Department of Employment, Economic Development and Innovation (DEEDI). The Animal Welfare Unit is a division within that department which is responsible for the administration of the *Animal Care and Protection Act 2001*.

CODE OF PRACTICE

SECTION 1: GENERAL PRINCIPLES FOR THE WELFARE OF WILD ANIMALS LIKELY TO BE AFFECTED BY DEVELOPMENT PROCESSES

Responsibilities of a developer

1.1. A developer must not proceed with any development process or activity (as defined in the previous section) without first:

- (a) determining whether, or not, a site, or portion of a site, or structure, that is proposed to be subject to a development process, is likely to be used as a wildlife habitat; and
- (b) applying due diligence in determining the presence or absence of wild animals (if a site or structure contains a wildlife habitat); and
- (c) determining that the site is *not* an essential wildlife habitat, and is *not* part of a wildlife corridor; and
- (d) determining that any wild animals using the habitat or site are unlikely to suffer any harm, or injury or death as a result of the proposed development process or activity; or
- (e) applying fair, reasonable and appropriate measures to avoid such harm, injury or death, including engaging a wildlife spotter/catcher in circumstances defined by this Code.

1.2. In the case of minor projects or activities, such as minor earth works on previously cleared land, or the removal of one or more small trees, the requirement for due diligence may be satisfied by simple observation.

For example: if a small tree is to be removed, “due diligence” and “fair, reasonable and appropriate measures” may be satisfied simply by close observation of the tree to confirm the absence of nests, hollows, animals under sloughing bark, and the absence of animals in the boughs or canopy.

1.3. A development assessor (usually a local government authority) may approve a development under the provisions of the IPA/IDAS regulatory framework with specific reference or conditions relating to compliance with this Code. However, approval of a development without specific reference to the Code does not relieve a developer of their obligations in respect of this Code.

Requirement for engagement of a wildlife spotter/catcher

1.4. In the case of any proposed project, activity or process, in which a lay person could not reasonably be expected to make the determinations defined in section 1.1 (a-e) above, then a licensed wildlife spotter/catcher or other appropriately qualified or experienced person, must be engaged to perform the same.

1.5. Furthermore, if a site, or portion of a site, or structure, forms part of a wildlife corridor, or forms a significant part of a wild animal's home range or territory, such that its destruction may result in harm or death to the animal, or have a significant adverse ecological effect, then a licensed wildlife spotter/catcher must be engaged to prepare and implement a *Wildlife Protection and Management Plan (WPMP)*, to ensure compliance with this Code.

For example: the removal of a pole or stag used as a nesting site by ospreys must not occur without an appropriate replacement and the involvement of a licensed wildlife spotter/catcher.

1.6. Certain criteria relating to a site or proposed development processes or activities may determine the need for the engagement of a wildlife spotter/catcher, and include, but are not limited to:

- (a) removal of any tree, or trees, containing hollow boughs or trunks, bird or possum nests or dreys, or other features indicative of current or recent use by wildlife;
- (b) removal of all or part of a significant wildlife corridor, or essential wildlife habitat;
- (c) any process or activity that, for compliance with the Code, requires the capture, trapping or removal of native animals;
- (d) removal of any complex structure or habitat feature (such as an old farm shed, or log pile) which cannot, by cursory observation, be determined to be uninhabited by wildlife.

Discharge of a developer's responsibilities under the Code

1.7. If a developer has satisfied the provisions of section 1.1 above, then that is sufficient discharge of their responsibilities under this code, and a development activity or process may proceed, subject to other relevant regulatory approvals.

1.8. If a wildlife spotter/catcher, engaged in that role for a project or activity, makes a determination (in writing) that a development process is *unlikely* to cause significant adverse effects on wild animals, then that will be sufficient discharge of a developer's responsibilities in respect of this Code, and the development activity or process may proceed.

- 1.9. Notwithstanding sections 1.7 and 1.8 above, if new information becomes available regarding the presence of animals on, or using a site, then any determinations regarding the need for engagement of a wildlife spotter/catcher, and/or fair, reasonable and appropriate measures to protect the welfare of animals, must be reviewed.

Removal of wildlife from a site without assistance from a wildlife spotter/catcher

- 1.10. A person, other than an accredited and licensed wildlife spotter/catcher, may not catch, remove, harass or disturb any permanently protected animal (which includes all native vertebrate animals) under the Queensland *Nature Conservation Act 1992* and this Code, unless that person is licensed to do so by DERM. In general, such licensing will be limited to accredited wildlife spotter/catchers.
- 1.11. Notwithstanding section 1.10 above, if an animal has wandered onto a site that has previously been assessed as fulfilling the requirements of this Code, *and* an accredited wildlife spotter/catcher is not immediately available, then the animal may be encouraged to move off the site, with due care and attention paid to minimising the stress or danger to the animal, subject to the following criteria being met:
- (a) the animal can be easily encouraged to move back into safe habitat without capture or undue interference or distress; and
 - (b) suitable habitat is easily able to be reached by the animal; and
 - (c) there are no proximate risks (such as busy roads) to the animal's safety; and
 - (d) there are no other apparent reasons to require the animal's capture (such as significant injury or illness).

For example: if a wallaby or group of wallabies is grazing on grassland (the development site) which is adjacent to an area of secure bushland, and no proximate danger is apparent (such as a busy road), then the animals may be carefully encouraged back into the vegetated area prior to the onset of operational works.

- 1.12. However, if a potential risk or danger to an animal is apparent (such as proximity to a busy road), or an animal would more appropriately be captured and translocated, then a licensed wildlife spotter/catcher must be engaged to manage the situation.
- 1.13. Notwithstanding section 1.12 above, if a wildlife spotter/catcher is not available within a reasonable timeframe, then a developer may contact the local or regional office of DERM, or the local regulatory authority, for direction on an alternative course of action that will comply with the requirements and intent of the Code.

Use of wildlife spotter/catchers for development activities or processes

1.14. Licensed wildlife spotter/catchers must be used in all circumstances requiring, or likely to require, or cause:

- (a) the capture or removal of wildlife as required by the Code (except as exempted by virtue of section 1.11 of the Code, above);
- (b) the preparation of a *Wildlife Protection and Management Plan*;
- (c) the destruction or modification of an essential wildlife habitat or habitat feature, or a wildlife corridor;
- (d) any impact, either through operational works, or by virtue of the design or functioning of a development after completion, that is likely to have a significant adverse effect on a wild animal or wildlife population.

For example: if a development will require the construction of a road (which is likely to become busy) through a wildlife habitat, or if, by virtue of the development, an existing road is likely to bear a significant increase in traffic, then the engagement of a wildlife spotter/catcher and the preparation of a WPMP is required for compliance with the Code, even if the road is not part of the development or site.

1.15. The omission of a “wildlife spotter/catcher must be used” condition, or similar condition, on a local government development approval is not sufficient grounds for exemption from compliance with the requirements of section 1.14 above.

SECTION 2: ACCREDITATION, LICENSING AND RESPONSIBILITIES OF WILDLIFE SPOTTER CATCHERS

Roles of wildlife spotter/catchers

2.1. The proper conduct of wildlife management procedures at land-clearing and development sites involves processes such as:

- fauna and flora assessment;
- species identification;
- animal trapping, capture and handling;
- assessment of animal health and injuries;
- assessment of development risks and impacts on wildlife and ecosystems;
- preparation of *Wildlife Protection and Management Plans*;
- husbandry of captured wild animals;
- identification of suitable wildlife release sites;
- emergency management and/or euthanasia of injured or sick animals.

2.2. It is therefore necessary that personnel conducting these activities are suitably trained in these techniques, and also accredited and licensed by appropriate government authorities.

Licensing of wildlife spotter/catchers

2.3. A person engaged as, or performing the duties of a wildlife spotter/catcher in Queensland must be accredited and currently licensed as such by DERM.

2.4. A person engaged as, or performing the duties of a wildlife spotter/catcher must have knowledge of, or be competent in:

- (a) survey techniques for all vertebrate fauna;
- (b) identification of vertebrate fauna, and significant invertebrate fauna;
- (c) the humane capture, trapping and handling of vertebrate fauna;
- (d) identification of habitat and or habitat resources of significant fauna;
- (e) ecological processes and the relevance for fauna;

- (f) locally occurring species, and those listed specifically under federal, state and local legislation or policy as significant;
- (g) data recording and written reporting;
- (h) humane techniques for emergency euthanasia of vertebrate animals;
- (i) all state, federal and local statutes and laws, and international agreements, relevant to the conduct of activities and responsibilities of wildlife spotter/catchers, including, but not limited to:
 - 1) the Queensland *Animal Care and Protection Act 2001*
 - 2) the Queensland *Nature Conservation Act* and its subordinate legislation
 - 3) the Queensland *Vegetation Management Act*
 - 4) the *Integrated Planning Act* and *Integrated Development Assessment System*
 - 5) JAMBA, CAMBA and other international wildlife agreements
 - 6) the federal *Environment Protection and Biodiversity Conservation Act*

2.5. A person engaged in the role of a wildlife spotter/catcher must have appropriate equipment at their disposal for the detection and humane capture, husbandry and management of vertebrate fauna (*a list of recommended equipment is contained in Appendix 1 to this Code*).

2.6. A person engaged in the role of a wildlife spotter/catcher should maintain currency of vaccination against the following infections or infectious conditions:

- (a) Australian Bat Lyssavirus (ABL) – rabies vaccination
- (b) *Coxiella burnetti* (Q Fever) – Q Fever vaccination
- (c) Tetanus

2.7. A person engaged in the role of a wildlife spotter/catcher should maintain currency of certification and/or competency relating to:

- (a) use of chainsaws
- (b) use of elevated work platform
- (c) construction blue card
- (d) basic first aid

Powers of wildlife spotter/catchers under this Code

2.8. A licensed wildlife spotter/catcher engaged in that role for a development or activity may make an *Animal Welfare Direction* in respect of operations, activities or structures that may impact on the welfare of wild animals. The direction should be made in an approved written format (Appendix 2). This direction may define the timing of and actions or measures required to protect the welfare of animals likely to be affected by such operational works, activities or structures. Any breach of the direction may be considered to be a breach of this Code.

For example: the wildlife spotter/catcher may make a direction that a wildlife-proof fence be constructed along the border of a busy road adjacent to a development site to prevent animals from moving onto the road during clearing activities.

2.9. Such directions may form part of the *Wildlife Protection and Management Plan*, or may be made separately upon identification of a specific risk. An *Animal Welfare Direction* shall be made in writing in an approved form, and copies given to all relevant persons; or, in the case of a clear and present risk to animal welfare, an *Animal Welfare Direction* may be made verbally. In general, an *Animal Welfare Direction* will only be used in circumstances in which the wildlife spotter/catcher considers that there exists a real and proximate risk to animal welfare.

2.10. In circumstances in which an *Animal Welfare Direction* has been breached, or in the opinion of the wildlife spotter/catcher an activity is occurring, or is likely to occur that may result in significant risk of harm to, or death of animals, the wildlife spotter/catcher may make a *Stop Work Order*. This order will remain in force until the wildlife spotter/catcher is satisfied that appropriate measures have been taken to mitigate the risk.

Responsibilities of wildlife spotter/catchers

2.11. The wildlife spotter/catcher has ethical responsibilities guided by the *Animal Care and Protection Act 2001* and *Nature Conservation Act 1992* to ensure the protection of the welfare of wild animals in respect of a development or activity for which they are acting in that role. A wildlife spotter/catcher also has an obligation to comply with this Code.

2.12. In terms of the performance of duties and standard operating procedures required by the Code for each project, the wildlife spotter/catcher's responsibilities include, but are not limited to:

- (a) thorough site assessment and fauna survey (or validation of a previously conducted fauna survey);
- (b) preparation of a *Wildlife Protection and Management Plan* (WPMP);

- (c) ensuring that relevant persons associated with developments and operational works or activities are provided with copies of the WPMP and understand their responsibilities under the *Animal Care and Protection Act 2001*, and the importance of complying with *Animal Welfare Directions*;
- (d) clearly identifying to all relevant persons the specific wildlife welfare risks associated with the project, and recommended risk mitigation measures;
- (e) ensuring the timely and appropriate removal and management of animals from development sites prior to and/or during operational works or activities;
- (f) ensuring the appropriate housing, husbandry, veterinary assessment and care, translocation, euthanasia or other appropriate disposal of animals removed from development sites;
- (g) preparation of a *Wildlife Management Report (WMR)* on completion of a development project or activity, which is to be submitted in a timely manner to the local regulatory authority, the Animal Welfare Unit of DEEDI and DERM if required;
- (h) notification of the Director of the Animal Welfare Unit, DEEDI, or his delegate, of breaches of the *Animal Care and Protection Act 2001*.

2.13. In addition, the wildlife spotter/catcher should be aware of their own “duty of care” obligations under the Queensland *Animal Care and Protection Act 2001*, as these apply to animals captured, trapped or held in the course of their duties.

Use of unlicensed personnel by a wildlife spotter/catcher

- 2.14. In order to ensure compliance with the Code and other regulations regarding the welfare and protection of wild animals on a site, a licensed wildlife spotter/catcher must ensure that the level of supervision of personnel involved in the capture, management and care of animals takes into account their experience and competence.
- 2.15. Licensed wildlife spotter/catchers are responsible for the proper supervision and direction of their personnel.

Accountability of wildlife spotter/catchers for powers given under this code

- 2.16. Accredited and licensed wildlife spotter/catchers must be accountable for the correct and proper use of any powers given under the Code, and appropriate discharge of their responsibilities in respect of the Code.
- 2.17. Wildlife spotter/catchers are commonly contracted by a developer or developer’s agent to perform services required as a condition of a development approval, and therefore have certain responsibilities towards their employer. They also have important responsibilities to

the community generally to ensure that all reasonable measures are taken to protect the welfare of wild animals likely to be impacted by a development.

- 2.18. Any powers given to a wildlife spotter/catcher under the provisions of the Code must be used strictly in accordance with the intent and provisions of the Code.
- 2.19. This Code confers no specific legal powers to a wildlife spotter/catcher in respect of any Federal or State Act or Regulation. However, breaches of this Code may concurrently breach relevant Acts or Regulations, and as such may lead to investigation and prosecution under the provisions of those Acts, in particular, the Queensland *Animal Care and Protection Act 2001*.

Disagreement between a developer and a wildlife spotter/catcher

- 2.20. In some circumstances there may arise some disagreement between a developer and a wildlife spotter/catcher with regard to what constitutes “fair, reasonable and appropriate measures” to protect the welfare of wildlife. Such disagreements may occur particularly in instances in which a measure, or measures, proposed by a wildlife spotter/catcher, is/are time or resource intensive. In such instances, resolution of disagreements should be attempted by reference to this Code, or some other standard operating procedure or code of practice. In all cases, however, the welfare of animals is of paramount importance and is the primary responsibility of the wildlife spotter/catcher.
- 2.21. Irreconcilable disputes between a developer or their agent, and the wildlife spotter/catcher should be referred, for resolution, to a tribunal consisting of a representative of DERM, a representative of the local regulatory authority and a representative of the Queensland Association of Professional Wildlife Managers.

Termination of a contract by a developer

- 2.22. A developer may wish to terminate the contract of the wildlife spotter/catcher and contract a new wildlife spotter/catcher for completion of a project. However:
 - 2.22.1. If the reason for termination is as a result of disagreement over a measure or measures proposed by a wildlife spotter/catcher in the interests of protecting the welfare of wild animals, then the termination may only occur with the written consent of the Tribunal.
 - 2.22.2. A developer may terminate a contract with a wildlife spotter/catcher without the written consent of the Tribunal if:

- (a) the wildlife spotter/catcher has failed to perform any standard operating procedure or duty reasonably expected to be performed in the course of their duties as a wildlife spotter/catcher; or
- (b) the wildlife spotter/catcher has misused a power given under the Code; or
- (c) the wildlife spotter/catcher has failed to perform their duties to a standard expected, or in accordance with their contract; or
- (d) any other reason, notwithstanding section 2.22.1 above.

Termination of a contract by a wildlife spotter/catcher

- 2.23. A wildlife spotter/catcher may terminate a contract with a developer for any reason, by giving due notice in writing, stating the reasons for termination of the contract, to:
- (a) the developer or developer's nominated agent; and
 - (b) DERM; and
 - (c) the relevant local government authority in respect of developments requiring approval from local government.
- 2.24. Notwithstanding section 2.23 above, a wildlife spotter/catcher may be sued under Common Law for damages resulting from breach of contract.

Misconduct by a wildlife spotter/catcher

- 2.25. A wildlife spotter/catcher may be guilty of misconduct if:
- (a) there has been an abuse of the powers given under the Code; that is, either *Animal Welfare Directions* or *Stop Work Orders* have been issued inappropriately, and/or in circumstances not supported by the Code;
 - (b) he or she has failed to apply due diligence in the detection of wildlife at a site, resulting in injury or death to a wild animal, or the likelihood of injury or death to a wild animal;
 - (c) he or she has failed to apply, or define in the *Wildlife Protection and Management Plan*, fair, reasonable and appropriate measures, resulting in injury or death to a wild animal, or the likelihood of injury or death to a wild animal;
 - (d) he or she has failed to make adequate or appropriate provision for the husbandry and veterinary needs of a captured animal, particularly those that are sick or injured.*

*Note: Under the provisions of the current *Animal Care and Protection Act 2001*, any person “in charge” of an animal has a duty of care to provide for its husbandry and veterinary needs irrespective of ownership of the animal.

STANDARD OPERATING PROCEDURES FOR WILDLIFE SPOTTER/CATCHERS

SECTION 3: SITE ASSESSMENT

General principles

- 3.1. The wildlife spotter/catcher has a significant burden of responsibility to ensure that the animal welfare and ecological impacts resulting from a development or activity, for which they are engaged in that role, are minimised.
- 3.2. The general principles of due diligence in the detection of wildlife, and fair, reasonable and appropriate measures in preventing wildlife loss or ecological damage, apply to the practice of wildlife spotter/catching as they do for any individual engaged in a relevant activity.
- 3.3. Wildlife spotter/catchers are expected to have specialised knowledge in the detection, identification and removal of wildlife; assessment of potential impacts of developments or activities on wildlife; an understanding of basic ecological principles; good animal handling and husbandry skills; local knowledge of appropriate release sites for wildlife; and a good general understanding of local, state, and federal statutes and non-statutory instruments and agreements relating to wildlife, habitat and development issues.
- 3.4. Wildlife spotter/catchers should maintain currency of information in their field of expertise by attendance at workshops, training days and by other means of continuing education.
- 3.5. In order to ensure consistency between, and high standards of practice by, wildlife spotter/catchers, the following minimum Standard Operating Procedures should be applied.

Wildlife Protection and Management Plan (WPMP)

- 3.6. A WPMP should be prepared for any project or activity in which:
 - (a) wild animals are likely to be captured or removed from a site to comply with the Code;
 - (b) an essential wildlife habitat or wildlife corridor will be, or is likely to be impacted by the development or activity; or
 - (c) operational works, or any of the operational aspects or features of the completed development, will have, or are likely to have significant impacts on local wildlife populations.

- 3.7. The WPMP should be in the format shown in Appendix 3 of the Code.
- 3.8. Notwithstanding sections 3.6 and 3.7 above, if a *Vegetation and Fauna Management Plan* has been prepared by other consultants to a project, a separate WPMP may not need to be prepared if:
- (a) The *Vegetation and Fauna Management Plan* describes all of the measures required for wildlife management that would otherwise have been provided for in a WPMP; and
 - (b) The *Vegetation and Fauna Management Plan* makes a provision for all relevant wildlife protection and management measures to be conducted by an accredited and licensed wildlife spotter/catcher; and
 - (c) The wildlife protection and management measures satisfy the requirements this Code of Practice.
- 3.9. The detail in the WPMP should reflect the complexity or scale of wildlife management required for the site or activity.

For example: for a project in which a large area of highly significant wildlife habitat will be cleared the WPMP will be a long, thorough and detailed document, whereas that for the removal of a few small eucalypts would be short and simple.

- 3.10. The WPMP must include the following:
- 1) A description of the project (including timeframes for operational works) with special reference to features likely to affect wildlife or wildlife habitats.
 - 2) A pre-development site plan with recent aerial photograph (if available) showing wildlife habitats, corridors, riparian features, and relevant adjacent habitat. Proposed development site plan should indicate areas of habitat likely to be removed or affected, and structures, roads or other potential hazards that may impact on wildlife after the development is completed.
 - 3) Fauna survey results, including reference to species that were not detected, but are likely to be present (Wildnet, Queensland Museum databases).
 - 4) Wildlife and habitat impact assessment detailing all aspects of development activities, operational works, and features likely to have an impact on wildlife, as well as likely future impacts on wildlife after completion of the development or activity. This section should include reference to adjacent habitat as well as that contained on site.
 - 5) *Wildlife and Habitat Impact Mitigation Plan* indicating:
 - (a) measures required to be taken to minimise wildlife and habitat effects during operational works;
 - (b) wildlife capture and removal plan;
 - (c) contingency plan for wildlife requiring euthanasia, other veterinary procedures or captive care;

- (d) wildlife storage and housing plan;
- (e) wildlife release and disposal plan;
- (f) measures required to be taken to minimise adverse wildlife impacts following completion of works.

Approval of Wildlife Protection and Management Plan

- 3.11. A completed WPMP should be submitted to DERM for approval, prior to implementation.
- 3.12. In the case of a development or activity requiring local government approval, a DERM-approved WPMP should be submitted to the relevant local government authority prior to its implementation.

Wildlife Protection and Management Plan not required

- 3.13. A wildlife spotter/catcher is not required to prepare a WPMP if:
- (a) wildlife are not detected at a site, or will not be impacted by activities proposed for the site; and
 - (b) wildlife will not be required to be captured or moved from the site; and
 - (c) the site is not wholly, or part of, an essential wildlife habitat or wildlife corridor; and
 - (d) operational works, or operational aspects or features of the completed development, are unlikely to have adverse effects on local wildlife populations or individuals.
- 3.14. If an activity or development fulfils the requirements of section 3.12 above and is an activity or development requiring local government approval, then the wildlife spotter/catcher should give notice in writing to the relevant local government authority, that a WPMP is not required, and the reasons for that.

Site and Fauna Surveys

- 3.15. Each site or project must be assessed using fauna survey equipment and methodologies sufficient for the wildlife spotter/catcher to form a reasonably accurate picture of the species diversity and, whenever possible, broad estimates of the number of individuals likely to be present.

- 3.16. Such assessments, along with the project design and operational works plans and schedules, form the basis of the information required for the formulation of the WPMP.
- 3.17. In some instances, site, fauna and flora surveys may have been previously conducted by other consultants to the project. In such cases, duplication is not required by the wildlife spotter/catcher unless discrepancies are suspected or observed.
- 3.18. The use of resource bases such as the Queensland Museum, DERM, and Queensland Herbarium are encouraged in the preparation of fauna and/or flora surveys by wildlife spotter/catchers.

Site Survey

- 3.19. A site survey should be conducted and a basic site plan drawn up indicating terrain features, waterways, vegetation types and other habitat features. DERM regional ecosystem (RE) maps should be consulted to determine if vegetated areas have been mapped as requiring special attention. Detailed site plans may be available from surveyors consulting on larger projects.
- 3.20. Site survey plans should be of sufficient detail to enable easy interpretation of the WPMP.

For example: large habitat/hollow-bearing trees should be individually identified, as should special habitat features likely to contain ground dwelling or burrowing wildlife, known feed trees of significant species, such as Casuarinas with chewed cones, and the like.

Fauna Survey

- 3.21. Fauna survey methodology and effort should reflect the size, biodiversity and ecosystem attributes of the proposed development site. Survey methodology recommendations are provided in Appendix 4.
- 3.22. Fauna surveys must take into account seasonal, temporal and climatic variation in the detectability of fauna species, in particular, those species known to be cryptic.
- 3.23. Specific methodology and/or effort should be employed for the detection of significant fauna, particularly those classified under State or Federal legislation, or those listed as locally significant.
- 3.24. Fauna surveys may have been performed by other consultants to development projects, but it is not uncommon for such surveys to be deficient with respect to fauna present on, or utilising the site. Furthermore, such surveys may give little indication of the numbers of individuals present. Hence, the wildlife spotter/catcher should validate the findings of any previous fauna surveys, by conducting their own inspection of the site and/or performing additional surveys.

- 3.25. The results of the wildlife spotter/catcher's own fauna survey, or discrepancies identified by the wildlife spotter/catcher in previous fauna surveys, should be reported in the *Wildlife Protection and Management Plan*.

Reduction of wildlife load prior to operational works

- 3.26. Significant effort may be required to avoid or minimise the injury to, or death of wild animals from vegetation clearing, habitat damage or other operational works. The measures and timing of such measures should be defined in the *Wildlife Protection and Management Plan*.
- 3.27. Wildlife load reduction measures must be implemented or conducted by the wildlife spotter/catcher for an appropriate period of time immediately prior to the onset of operational works. Such measure may include, but not be limited to:
- (a) thorough fauna trapping using an appropriate range of trapping methods;
 - (b) erection of fauna exclusion fencing;
 - (c) use of fauna aversion techniques;
 - (d) manual or pharmacological capture and removal of fauna.
- 3.28. Wildlife load reduction methods and effort must be appropriate for the diversity and abundance of fauna present, and be guided by the results of prior fauna survey and the extent and nature of proposed operational works.
- 3.29. The seasonal, temporal, climatic and behavioural variation in the detection, and ease of capture of different fauna species must be reflected in the timing and methods used for wildlife load reduction.

Wildlife safety risk mitigation measures

- 3.30. In some circumstances, the removal of wildlife from development sites may not be necessary due to the retention of habitat, and/or minimal impacts of the development or activity on wildlife or habitats. However, operational works may still present hazards to wildlife retained on site or inhabiting areas adjacent to the site.

For example:

- I. Operational works may require the use of heavy earthmoving equipment on a site adjacent to wallaby habitat bounded by a major road. Risk mitigation may require temporary fencing of the road to minimise risk of motor vehicle accident.*

- II. *Operational works may require the construction of deep ditches or footings, presenting risks to wildlife wandering onto the site. Risk mitigation may require the use of temporary wildlife-proof fencing around trenches during operation works.*

3.31. It is the responsibility of the wildlife spotter/catcher to identify significant wildlife safety risks both for wildlife retained on site, as well as wildlife in adjacent areas or widely ranging wildlife that may use, or move through the site during operational works. Measures required for mitigation of such risks should be included in the *Wildlife Protection and Management Plan*.

Pre-works meeting

3.32. After preparation and approval of the WPMP, and prior to the onset of operational works or land-clearing, the wildlife spotter/catcher should have a briefing meeting with the project manager, site foreman and plant operators, for the purposes of discussing the requirements of the plan.

3.33. The wildlife spotter/catcher should clearly detail the sequence of land-clearing and wildlife capture, identify special habitat features, state any requirements for special plant or equipment (such as cherry pickers or cranes), and clearly outline the importance of compliance with any *Animal Welfare Directions*.

3.34. The wildlife spotter/catcher should ensure that the project manager or developer understand fully the requirements of the WPMP, and request their sign-off on the plan.

Vegetation or other habitat clearing or destruction

3.35. A wildlife spotter/catcher must be present during the clearing of any vegetation or damage or disturbance to any structures that may serve as habitat or refugia for wild animals.

3.36. The wildlife spotter/catcher must clearly define the allowable and non-allowable methods of vegetation clearing, such that the risk of harm or death to wild animals is minimised.

3.37. Acceptable and unacceptable methods of vegetation clearing or removal should be explicitly indicated in the *Wildlife Protection and Management Plan*, and should be discussed with the project manager well prior to the scheduled start of operational works.

3.38. Any technique, method or machine that causes, or may cause, an unmitigated risk of harm to wild animals must not be used as the primary method of vegetation removal. Unacceptable methods include, but are not limited to:

- (a) the use of mobile mulching machines (for example: excavator-mounted mulching head or grinder) as the primary vegetation removal technique;
 - (b) the felling of hollow-bearing trees prior to thorough wildlife removal;

 - (c) the mulching or burning of vegetation windrows or other potential wildlife refugia without appropriate level of supervision by a wildlife spotter/catcher;

 - (d) the burning of standing vegetation or other habitat or refugia of wild animals.
- 3.39. Notwithstanding section 3.37 above, if the wildlife spotter/catcher has *positively* determined the absence of wild animals from a section of vegetation, then such methods or machinery may be used to clear that section only; however, the wildlife spotter/catcher must supervise such vegetation removal, and maintain radio communication with machinery operators.
- 3.40. A wildlife spotter/catcher must have, and maintain, a clear view of vegetation or habitat features being cleared by machinery, such that wild animals that are disturbed or uncovered during such activities are rapidly detected.
- 3.41. A wildlife spotter/catcher must, at all times, maintain two-way radio contact with machinery operators during the removal of vegetation or other potential wildlife habitats or refugia.
- 3.42. If wildlife is detected during such activities, the wildlife spotter/catcher must take immediate action to notify the machinery operator to cease work, either verbally using two-way radio or by visual commands, until such time as the wildlife is captured or otherwise removed from danger.
- 3.43. A wildlife spotter/catcher must not authorise, and must, in the WPMP, expressly prohibit, the felling of a tree known to contain, or likely to contain wildlife, including any hollow-bearing tree, by any means or method that is likely to:
- (a) injure or kill any wild animal;
 - (b) result in the unmanaged dispersal or escape of arboreal fauna.
- 3.44. Notwithstanding section 3.42 above, any hollow-bearing tree, stag or other tree that may previously have contained wildlife, may be felled by any method if:
- (a) the wildlife spotter/catcher has determined definitively that no wild animals are present in the tree at the time of felling; or
 - (b) the wildlife spotter/catcher has removed all wild animals from the tree immediately prior to felling.
- 3.45. Methods which a wildlife spotter/catcher may approve and use for the felling of a hollow-bearing tree containing, or likely to contain, wild animals are limited to:
- (a) segmental removal of the tree by a tree surgeon, with hollow-bearing limbs being checked by the wildlife spotter/catcher and cleared of fauna using a cherry picker;

- (b) segmental removal of the tree by a tree surgeon, with hollow-bearing limbs plugged and lowered to the ground for inspection by the wildlife spotter/catcher;
 - (c) use of an excavator with vertical grab to lower the main trunk (after removal of lateral limbs);
 - (d) a combination of the above methods.
- 3.46. For smaller trees, or in circumstances where access of a cherry picker is impossible, an excavator with a vertical tree-grab attachment may be used to lower a tree to the ground for inspection by the wildlife spotter/catcher.
- 3.47. A wildlife spotter/catcher must not authorise or recommend the “bumping” of a hollow-bearing tree with an excavator or other machine as a method of dispersing wild animals.

Timing and sequence of vegetation clearing

- 3.48. Whenever possible, vegetation clearing should be scheduled for mid to late summer so that:
- (a) impacts on nesting and hatching avifauna and herpetofauna are minimized (greatest impacts in spring);
 - (b) likelihood of detection and capture of herpetofauna is maximised;
 - (c) wildlife load reduction measures are most productive.
- 3.49. Clearing of vegetation sequentially or segmentally to encourage natural movement of wild animals into habitat remnants may be appropriate as an adjunctive measure when:
- (a) suitable habitat of sufficient area and resources is adjacent to the vegetation clearing boundary;
 - (b) target wildlife species are able to avoid potential harm caused by vegetation clearing;

For example: sequential clearing may be a sufficient measure to mitigate risk of harm to wallabies where suitable adjacent habitat exists, but is not an appropriate measure for arboreal fauna using tree hollows for nesting, or for herpetofauna, when clearing occurs during cold weather.
 - (c) mitigation measures are in place to avoid or minimise harm to wild animals that do not respond appropriately to sequential clearing.

For example: erection of wildlife-proof fences to prevent wildlife moving on to roads or into built-up areas.
- 3.50. Sequential clearing must not be used as a substitute for wildlife load reduction, when wildlife load reduction is essential for proper management of wildlife in the present circumstance.

*For example: sequential clearing **must not** be used as a primary fauna management measure when remnant habitat is likely to be insufficient to sustain displaced fauna, or is deficient in key resources, such as water sources, food trees or shelter opportunities or refugia.*

Vegetation and rubble piles

- 3.51. It is essential that piles of rubble, felled timber or any other material, proposed to be burnt, buried or chipped, are not left to serve as refugia for displaced or roaming wildlife. Felled vegetation piles and earth often provide attractive habitats for a range of small mammals, birds, reptiles and frogs, presenting a high risk of poor animal welfare outcomes if not managed appropriately.
- 3.52. Appropriate risk mitigation measures include immediate destruction or removal of such materials, or erection of wildlife-proof barriers to prevent wildlife use.
- 3.53. Old (>12 hours) piles of felled vegetation or other material must be treated in the same way as any other potential wildlife habitat, and must be assumed to be inhabited by wildlife, unless proven otherwise.
- 3.54. Cleared vegetation windrows or piles that have been left standing for >12 hours.

Design features and wildlife safety risks

- 3.55. In addition to wildlife risks associated with operational works, the wildlife spotter/catcher must attempt to identify any features of the design or plan of the completed project that may present a significant risk to wildlife, and recommend risk mitigation measures.

For example: swimming pools are a common cause of wildlife death by drowning. Wildlife species that are commonly affected include koalas and bandicoots which may be able to traverse pool fencing. Risk mitigation measures in sensitive areas may include provision of wildlife ramps or exit mechanisms from pools (such as thick ropes) and modification of pool fences to prevent wildlife incursion.

- 3.56. Design features likely to have undesirable impacts on wildlife should be brought to the attention of the developer. Early intervention in terms of recommending design changes may lead to significant reduction in costs associated with wildlife management and impact mitigation measures, caused by poor design.

Notification of unmanageable wildlife risk situations

3.57. In circumstances that result in risks to wild animal welfare or safety that are unable to be adequately managed, the wildlife spotter/catcher has an obligation to notify both DERM and local government regulatory authorities.

For example: an approved development may cause an essential wildlife corridor to be severed or significantly affected, resulting in starvation or misadventure of isolated wildlife.

3.58. Unmanageable wildlife risk situations are *serious* animal welfare issues that may require intervention beyond the scope of the wildlife spotter/catcher contract with the developer, and it is essential that regulatory authorities are appropriately informed of such circumstances.

3.59. Notification of unmanageable wildlife risk situations should be made in writing in the approved form (Appendix 2), and submitted promptly to DERM and local regulatory authority when appropriate. A copy should also be submitted to the developer.

3.60. If possible, the wildlife spotter/catcher should attempt to identify potential unmanageable wildlife risk situations pre-emptively, by developing a sound knowledge of surrounding habitat and important ecological features.

SECTION 4: WILDLIFE MANAGEMENT

General Principles

- 4.1. It is the responsibility of the wildlife spotter/catcher to direct and/or take all reasonable steps to protect the welfare of wildlife that may be impacted by vegetation clearing, construction, operational works or design features of development sites.
- 4.2. In many cases this will necessitate the removal and relocation of wildlife to other suitable habitat, or temporary housing of displaced wildlife during operational works.
- 4.3. It is preferable to remove as much wildlife as possible prior to the commencement of vegetation clearing to minimise the risk of injury to animals during the clearing process (see sections 3.25 to 3.28 above).
- 4.4. Attention must be paid to all habitat strata (arboreal, terrestrial, leaf litter etc), as well as all taxonomic groups in the removal of animals.
- 4.5. Seasonal and temporal variation in the visibility of animals must be taken into account when wildlife detection and capture procedures are being performed.

For example: many herpetofauna are primarily nocturnal, and are less visible and active during winter months. They are therefore much more at risk from earth works and land-clearing during these times, and in colder weather.

- 4.6. Particular attention must be paid to the results of the fauna survey to ensure that the specific methods used to detect and capture animals reflect the diversity of species expected at the site.

For example: in a site identified as habitat for bandicoots, echidnas or other ground-dwelling fauna, it is insufficient to simply concentrate effort on habitat trees. Thorough searching of all strata and wildlife habitats is necessary.

Removal of terrestrial wildlife

- 4.7. Terrestrial wildlife may be removed from the site prior to the onset of vegetation clearing using a variety of trapping methods. These methods will generally have been detailed in the fauna survey report prepared by the wildlife spotter/catcher or by other consultants to the project.
- 4.8. Specific habitat features of interest, such as log piles, rocky outcrops, riparian and wetland areas should be indicated on the site map prepared by the wildlife spotter/catcher and deserve special attention. These areas should be cleared or disturbed only after less

important surrounding habitat areas have been cleared. This is important because it provides opportunity for more intensive trapping around the feature, improved visibility for the wildlife spotter/catcher, and allows more flexibility to apply less destructive clearing methods.

- 4.9. The wildlife spotter/catcher must ensure that he/she has adequate numbers of appropriately trained staff working on habitat features likely to contain high numbers of wildlife that may scatter when the feature is disturbed.
- 4.10. It is the responsibility of the wildlife spotter/catcher to ensure that clearing methods used on terrestrial habitat features of special interest are appropriate to ensure minimal risk of injury or death to wildlife contained therein.

For example: log piles should be gently dismantled one by one, rather than bulldozed en masse. Hollow logs should be carefully inspected using a torch, and may require windows to be cut with a chainsaw for thorough inspection, prior to disposal or burning.

- 4.11. The wildlife spotter/catcher should pay particular attention to observing for the presence of burrows, tracks, scats, or other indications of recent use by wildlife substrates adjacent to rock or log piles or other habitat features.

Removal of arboreal wildlife

- 4.12. Removal of arboreal wildlife should be accomplished initially by thorough trapping efforts. Appropriate use of traps will minimise the risk of injury to wildlife collected by more direct methods, or at the time of clearing.
- 4.13. Trees contain a variety of different habitats for wildlife including hollows in the limbs and primary trunk, under bark, as well as foliage and upper limbs. All such habitats should be thoroughly explored for the presence of wildlife.
- 4.14. It is the responsibility of the wildlife spotter/catcher to ensure that appropriate methods are used to retrieve wildlife from arboreal habitats such that the risk of injury to the resident wild animals is minimised.
- 4.15. Trees containing wildlife *must not* be felled until all reasonable efforts have been made to remove wildlife.
- 4.16. Habitat trees of high importance should be felled last, after surrounding less important vegetation has been cleared to allow easy access of special plant and equipment (such as cherry pickers), traps (such as koala traps), and to allow unhindered lowering of hollow-bearing limbs. It is not acceptable to fell or push over hollow-bearing trees without first removing wildlife, due to the high risk of severe deceleration and/or crushing injuries to wildlife inhabiting such trees.

- 4.17. Hollow-bearing limbs can be cut and lowered gently to the ground using a variety of techniques, such as the use of cranes or special rigging. Prior to any intervention, exit holes should be plugged with rags or newspaper to prevent escape of wildlife during cutting or lowering of hollow-bearing limbs.

Removal of specific arboreal species

Koalas:

- 4.18. Under most circumstances koalas should be removed using koala traps set at or before dusk. It is desirable that traps are fitted with an indicator or transmitter to allow remote monitoring of trap operation. Traps without such remote monitoring devices should be checked a minimum of once every two hours.
- 4.19. Trapping represents the safest option (for both wildlife spotter/catcher and koala) for the capture of koalas. Pole and flagging techniques may be used if koalas are low to the ground and unlikely to be injured by an accidental fall or deliberate jump.
- 4.20. Cherry pickers may be used in circumstances which preclude the use of other methods.
- 4.21. Noosing techniques traditionally used for capture of koalas present unacceptable risks and must not be used under any circumstances.
- 4.22. Notwithstanding section 4.21 above, the use of a solid ring attached to a pole as an adjunct to traditional pole and flagging techniques, is acceptable in some circumstances, as long as the ring is of sufficient diameter to pass freely over the head of a koala (approximately 150mm diameter).

Possums and gliders:

- 4.23. Large possums (common brushtail possum and bobuck) may be captured using similar traps to those used for koalas, conventional baited traps, or manually with the assistance of cherry pickers.
- 4.24. Any noosing technique carries risk and is unacceptable.
- 4.25. The placement of appropriately sized and baited nest boxes in targeted trees may facilitate the removal of larger arboreal mammal species that are not utilising hollows.
- 4.26. Smaller possums and other arboreal species likely to use tree hollows or nest boxes, should be captured during daylight hours by blocking the entrance holes, and gentle removal of the hollow-bearing limb, or nest-box.

Tree kangaroos:

- 4.27. It is recommended that specialist advice is sought by wildlife spotter/catchers in the capture of tree kangaroos.
- 4.28. Notwithstanding section 4.27 above, modified koala traps may be useful in the capture of tree kangaroos from trees with sufficient isolation of their canopy to cause the animal to climb to the ground in order to move to another tree.

Preservation of tree hollows and other habitat features

- 4.29. Whenever possible, the integrity and structure of tree hollows contained in trees which are to be removed should be preserved. These should be relocated to appropriate habitat retained on the site, or to appropriate habitat close to the site.
- 4.30. The wildlife spotter/catcher should aim to ensure that there is no net loss of important habitat features, such as tree hollows.
- 4.31. In the case of tree hollows containing wildlife that are particularly sensitive to translocation (such as greater gliders for example), special efforts should be made to record the height and orientation of the hollow, and tree species from which it was obtained to enable it to be reproduced at the translocation site.
- 4.32. Other valuable habitat features such as large fallen logs, log piles, rock piles or outcrops etc should be preserved as much as possible, and translocated and re-established at appropriate habitat close to their site of removal.
- 4.33. In the interests of “no net loss” of tree hollows, the wildlife spotter/catcher should ensure that in instances in which natural tree hollows are destroyed, the replacement of artificial hollows occurs at a rate of 4 artificial replacements per natural hollow destroyed. This replacement should occur irrespective of whether hollows were used by wildlife at the time, or not.

Species Identification

- 4.34. All species removed or captured for translocation must be properly identified by the wildlife spotter/catcher to the species level.
- 4.35. For correct identification of any specimens that cannot be identified by the wildlife spotter/catcher the Queensland Museum should be consulted.
- 4.36. DERM must be notified within 24 hours of capture of any animal unable to be identified.

- 4.37. Any captured animal must not be disposed of unless its species has been positively identified.

Notification of species of special significance

- 4.38. Any individual animal captured by a wildlife spotter/catcher of a species that is indicated in lists published periodically by the Queensland Museum, or DERM as species of special significance, must be retained by the wildlife spotter/catcher, or retained at an approved wildlife holding facility pending notification by DERM as to its disposal. Species lists may vary according to bio-geographic region.
- 4.39. The finding of specimens of species outside of their known geographic range should be reported to the Queensland Museum, DERM and (when appropriate) the local regulatory authority. Photographs or other confirmatory information should be supplied.

Restraint and holding of captured wildlife

- 4.40. All animals removed from development sites must be captured, restrained and held in a manner that is unlikely to result in injury, unacceptable distress or suffering. Animal welfare is the primary priority and responsibility of the wildlife spotter/catcher.

Capture, restraint and examination

- 4.41. In general, capture methods that utilise netting, bagging, restraint with a blanket, trapping (not including snaring) or (in special circumstances) sedation/anaesthesia, are preferable to direct manual restraint.
- 4.42. As soon as possible after capture, and prior to release, all animals should be examined for signs of injury or illness. Restraint for examination may only require placing an animal into a transport cage for observation, or may require manual restraint using a calico bag, cloth or blanket.
- 4.43. Physical examination of an animal should include observation of normal movement, check for injuries, discharges, lumps, asymmetry, breathing pattern, bleeding or any other lesion indicative of injury or significant illness.
- 4.44. Any animal showing signs of injury or illness, or showing abnormal behaviour should be immediately referred to an experienced wildlife veterinarian or approved wildlife rehabilitation facility.

Capture and restraint of macropods

- 4.45. Capture and restraint of macropods carries a high risk of injury and fatal hyperthermia/myopathy syndrome, and must not be performed by inexperienced personnel, or without appropriate equipment and sedation.
- 4.46. Capture and restraint of healthy macropods (other than pouch young) must be performed using sedation or anaesthesia due to the high risk of development of myopathy, and other capture and restraint-associated conditions. Sedative and anaesthetic drugs may only be used under the direct supervision of a registered veterinarian, or by appropriately licensed persons.

Short-term holding

- 4.47. Captured animals may be held for short periods of time in calico bags, transport cages, box traps or any other appropriate container as long as the following criteria are met, and due regard is given for species differences:
- (a) the animal is protected from extremes of temperature;
 - (b) the animal is protected from accidental trauma by other animals, equipment, machinery and the like;
 - (c) the animal is protected from adverse sensory stimuli such as loud noises;
 - (d) the bag or container provides sufficient airflow to allow normal air exchange and radiation/dispersal of heat;
 - (e) the container, receptacle or bag is protected from direct sunlight, rain, wind or other environmental conditions likely to cause suffering or harm to the animal;
 - (f) the animal is able to hide, or be protected from threatening stimuli (such as providing a hide box, or covering a wire transport cage with a towel or blanket);
 - (g) the animal is checked regularly during its period of confinement;
 - (h) the container, bag or receptacle is clean, hygienic and safe for the animal.
- 4.48. All mammals and birds held in short term containment for more than 4 hours, must be given access to water.
- 4.49. Mammals and birds held in bags of calico or other material for longer than 2 hours must be transferred to appropriate transport or holding boxes or enclosures containing hide spaces or boxes when appropriate for the species.
- 4.50. All neonatal or juvenile animals other than completely independent juveniles must be fed and contained in a manner appropriate for their age and species. Supplemental warmth must be provided to any nestling or juvenile unable to adequately thermoregulate.

4.51. All dependent young unable to be returned to parental care within a reasonable timeframe or unlikely to be accepted back by their parents must be immediately transferred to a licensed wildlife carer or approved wildlife rehabilitation facility.

4.52. The following guidelines should be followed for short to medium term (4-24 hours) containment of adult animals (Table 1). Maximum times are indicated in hours unless otherwise indicated. Animals should be released or transferred to an approved wildlife holding facility for long-term holding at or before the expiry of the times indicated in the last column.

Species	Water	Food	Max. time in bag	Max. time in short-term enclosure (eg transport box)
Macropod	4	12	4 (*)	4 (*)
Koala	4	4	2	4
Echidna	4	8	2	24
Bandicoot	4	8	2	24
Possum/glider	4	8	2	24
Rodent	4	8	2	24
Insect bat	4	4	12 (**)	12
Dasyurid	4	4	2	24
Flying fox	4	8	2 (***)	12
Wombat	4	8	n/a	4
Snake	24	7 days	24	24
Lizard	24	2 days	24	24
Turtle	24	2 days	24	24
Frog	12 (#)	24	8 (#)	24

- * With sedation/anaesthesia only
- ** Only if fed and watered every 4 hours
- *** Calico bags containing flying foxes must be hung rather than laid down.
- # Containers for frogs must prevent drying. Plastic boxes with ventilation are preferred.

Table 1: Guidelines for the short to medium term (4-24 hours) containment of adult animals

Long-term animal holding

- 4.53. Animals may require long-term holding (> 24 hours) for a variety of reasons, such as:
- (a) delayed access to appropriate release sites;
 - (b) accumulation of a number of individuals for group release;
 - (c) treatment of injuries or illness;
 - (d) inclusion in radio-tracking studies or other research;
 - (e) hand-rearing of dependent young;
 - (f) temporary housing during operational works prior to return to site.
- 4.54. Long-term holding of native animals should only occur in circumstances approved by DERM and in facilities approved for such reason by DERM.
- 4.55. Care and husbandry of animals in long-term care should be in accordance with the *Code of Practice - Care of orphaned, sick or injured protected animals by wildlife care volunteers* (DERM), and current best practice.
- 4.56. Facilities used by wildlife spotter/catchers for the holding of native animals awaiting translocation or relocation back to the original development site are restricted to those facilities approved for that express purpose by DERM. *(Such facilities may charge a fee for animal holding services, which the developer should be informed of prior to engagement by the wildlife spotter/catcher.)*

Disposal of wildlife

- 4.57. The ideal outcome for wildlife removed from a site during operational works is to be relocated back to the same site at the completion of works, so long as suitable and sufficient habitat remains. This ensures that any potential adverse ecological consequences associated with translocation and the potential adverse effects (on the individual) of placement in unfamiliar territory are avoided. However, this outcome is generally only achievable if there has been significant retention of habitat, and appropriately “eco-friendly” design and planning.
- 4.58. Translocation of animals is not a preferred option unless retention at, or relocation back to, the original site is inappropriate.
- 4.59. In order of preference, outcomes for removed wildlife are as follows:
- (a) relocation back to suitable and sufficient habitat on original site following operational works;

- (b) translocation to suitable habitat adjacent to site;
- (c) translocation to distant suitable habitat;
- (d) placement in captive institution for educational, conservation or research purposes;
- (e) euthanasia.

4.60. Each of these options is dependent on fulfillment of a number of conditions and criteria which affect its relative suitability under different circumstances.

4.61. In determining the most suitable option for each individual, the wildlife spotter/catcher must ensure that the chosen option is appropriate in terms of both animal welfare and ecological outcomes.

4.62. Any animal showing obvious clinical signs, or behaviour consistent with injury or illness must be treated in an appropriate manner, as detailed in sections 4.100-4.105 below.

Relocation of animals back to original site at completion of operational works

4.63. In some circumstances, the extent of destruction of habitat may not be sufficient to warrant permanent translocation of animals, but operational works or other factors may present unacceptable risks to the health and safety of some animals present on site.

4.64. In such cases, a range of measures may be used by the wildlife spotter/catcher to mitigate or minimise risks, including the temporary removal of animals from the site, with the aim of returning animals back to their habitats at the completion of risk-associated works.

4.65. Important criteria for return of animals to the original development site include:

- (a) sufficient habitat is, or will be retained on site to support the animal population, taking into account factors such as: viability of prey species populations; availability of nesting sites or hollows; availability of clean water; and availability of sufficient food resources;
- (b) habitat corridors retained are of suitable size, topography and vegetation cover to provide effective routes for normal ecological processes such as immigration, emigration, recruitment and dispersal;
- (c) habitat blocks and corridors are of sufficient size to maintain ecological integrity and effectiveness, taking into account likely edge effects;
- (d) long-term risk factors to individual and population survival associated with the development have been (or will be) adequately managed or mitigated.

For example: domestic animal control, motor vehicle/road impacts, swimming pool risk.

- 4.66. The temporary removal of native animals destined for return back to the site of origin, is conditional upon the availability of appropriate long-term holding facilities and resources, and the suitability of the species and individuals for long-term holding.
- 4.67. In some instances (for example: macropods), it may be appropriate to construct temporary holding yards or enclosures on site during operational works, which are removed on completion of risk-associated works.

Translocation of animals to suitable habitat adjacent to development site

4.68. If development of a site occurs adjacent to a large area of similar habitat, with little retention of habitat on site, native animals are most appropriately translocated into adjacent areas. Criteria for use of adjacent habitat are as for 4.65 (a-d) above, but include:

- (a) translocation of animals into adjacent habitat should only occur if the likelihood of significant impacts on resident animals in the recipient habitat is considered to be low (i.e. recipient habitat is not considered to be at maximum carrying capacity for that species);
- (b) recipient habitat is of sufficient size to allow for dispersal of individuals from the point of release, with minimal likelihood of misadventure;
For example: koalas may disperse long distances from the point of release, particularly in already occupied habitat and should not be released into small habitat fragments bounded by busy roads or other hazards.
- (c) recipient habitat is the same or very similar in type to the donor habitat, or is known to be able to support the species proposed to be translocated, and contains appropriate and sufficient sources of food and water;
- (d) the recipient habitat is known to contain, or historically contained, the species proposed to be translocated;
- (e) the recipient habitat is either permanently protected or not likely to be developed in the foreseeable future.

4.69. Additional conditions for translocation of animals to adjacent habitat include:

- (a) appropriate wildlife-proof barriers must be used between adjacent habitat and risk-associated structures, such as swimming pools, busy roads, trenches, canals etc;
- (b) translocated animals show no signs of infectious/contagious disease and must be in good health and body condition;
- (c) species for which there is little or no information regarding efficacy of translocation should be fitted with radio-telemetry devices and radio-tracked for appropriate periods of time;
- (d) for species utilising tree hollows: that appropriate numbers and types of natural or artificial hollows or nest boxes are placed into recipient habitat to provide for the nesting requirements of translocated animals.

Translocation of animals to distant habitat

4.70. If development of a site is such that wildlife habitats are completely removed, or retained habitats (including habitats adjacent to the site) are insufficient to support retention of animals on or adjacent to the site, then animals inhabiting the site may be translocated to other areas of suitable habitat that may be distant to the site.

4.71. Criteria for choice of recipient sites include:

- (a) habitat is suitable for translocated species, either currently or historically inhabited by that species;
- (b) recipient habitat is not considered to be at carrying capacity for that species, and has sufficient food and water to sustain population increase resulting from translocation;
- (c) recipient habitat is of sufficient size, and/or with sufficient habitat corridors and connectivity to allow for expected dispersal of translocated individuals from the release site without significant likelihood of misadventure;
- (d) recipient habitat is either permanently protected or not likely to be developed within the foreseeable future;
- (e) notification of the proposed translocation is provided to DERM prior to translocation of any animals.

4.72. Conditions for translocation of animals to distant habitat sites include:

- (a) animals are not showing signs of infectious/contagious diseases and are in good health and body condition;
- (b) species for which there is little or no information regarding the efficacy of translocation should be fitted with radio-telemetry devices and radio-tracked for appropriate periods of time;
- (c) for species utilising tree hollows: that appropriate numbers and types of natural or artificial hollows or nest boxes are placed into recipient habitat to provide for the nesting requirements of translocated animals;
- (d) translocated animals must be released at a point with sufficient proximity to water and food sources that maximise their chances of survival;
- (e) soft release methods should be used for species that are known to be susceptible to maladaptation syndromes and/or are likely to be exposed to excessive territorial aggression from resident conspecifics or other species;
- (f) written permission from DERM has been obtained prior to translocation to distant site(s).

Placement of animals into permanent care or captivity

- 4.73. In some cases, animals may be captured or acquired by the wildlife spotter/catcher, that are either unsuitable for release back into the wild, or for which there is no suitable or appropriate habitat to be released into.
- 4.74. Unreleaseable native animals may be valuable for education, conservation and research purposes and may be suitable for permanent placement into a captive facility.
- 4.75. The Queensland branch of the Australasian Regional Association of Zoological Parks and Aquaria (ARAZPA) provides mechanisms for the placement of unreleaseable native animals into their member park animal collections.
- 4.76. Other alternatives for captive placement of unreleaseable animals may also be available by negotiation with DERM. These options should only be considered for animals that are unable or unlikely to survive in the wild, or for which no suitable translocation site is available.
- 4.77. Criteria for placement of unreleaseable native animals into captivity include:
- (a) the animal is likely to be given a quality of life sufficient to justify keeping it alive;
 - (b) the proposed recipient person or institution has suitable long-term holding facilities and sufficient resources (including veterinary care) to maintain an acceptable quality of life for the animal for the term of its natural life;
 - (c) the animal provides some educational, conservation or research benefit;
 - (d) the animal is not suffering from incurable disease likely to significantly affect its quality of life now, or in the future;
 - (e) appropriate licences and permits are obtained by the recipient institution or person for the acquisition and keeping of the animal.

Placement of animals into temporary care or captivity

- 4.78. In some cases, a native animal removed from a site may require hand-rearing (in the case of dependent young) or rehabilitation because of injury or illness. In these cases, the responsibility for the ultimate disposal of the animal may be shared by the licensed wildlife carer or care organisation, in accordance with the relevant Code of Practice.
- 4.79. A healthy native animal removed from a development site, may be placed into temporary captive care at a facility approved for that purpose by DERM for the following reasons:
- (a) during operational works, for ultimate relocation back to the original habitat site;
 - (b) the purposes of “soft release” into other appropriate habitat;
 - (c) for the purposes of accumulation of sufficient individuals to allow release of a viable “colony” or family group, for relevant species;
 - (d) pending definitive identification of an unidentified animal, or confirmation of species identification by the Queensland Museum;
 - (e) pending inclusion in an approved radio-tracking or research project;
 - (f) pending approval by DERM for the euthanasia of healthy native fauna (see section 4.84-4.86 below);
 - (g) for any other reason justifiable on animal welfare or ecological grounds.
- 4.80. Notwithstanding section 4.79 above, a healthy native animal should be held in temporary care only for the minimum amount of time required to achieve the relevant objective. Husbandry-related health issues, conditioning/imprinting and loss of survival skills and muscle tone may be consequences of excessive periods in captivity, leading to reduced survival following release.

Notification of intention to keep native animals in temporary or permanent care

- 4.81. The wildlife spotter/catcher should notify DERM, within 72 hours of capture, of a requirement or intention to place a healthy native animal into temporary or permanent care. The wildlife spotter/catcher should retain acknowledgement of the notification by DERM for inclusion in the *Wildlife Management Report* (see section 5.2 below).

Euthanasia of animals

4.82. In some circumstances, the euthanasia of some animals removed from a development site is the most appropriate or humane option. Reasons for euthanasia of animals include:

- (a) the animal is either feral, and/or a declared pest;
- (b) the animal is suffering from injuries or illness sufficient to warrant euthanasia on humane grounds;
- (c) the animal is unlikely to survive if released back into the wild.

4.83. Euthanasia of animals must be conducted in accordance with the provisions of the *Queensland Animal Care and Protection Act 2001*. In most cases, euthanasia should be performed by a registered veterinarian following anaesthesia of the animal.

Euthanasia of healthy protected fauna

4.84. The euthanasia of healthy native animals must be performed only:

- (a) as a last resort if no other approved alternative measure is possible;
- (b) after submission of a euthanasia request to DERM stating the species, number, age group, sex, reason for euthanasia, proposed method of euthanasia and the credentials and experience of the person performing euthanasia;
- (c) only after a written approval is obtained from DERM.

4.85. Dependent neonates of animals being killed must also be killed, or appropriate provision made for their care, in accordance with the relevant Code of Practice.

4.86. The euthanasia of healthy specimens of protected native animals must not be considered as a cheap or convenient alternative to the other preferred options described in previous sections.

Euthanasia of feral or declared pests, or other non-native species

4.87. The euthanasia of feral/non-native animals must be performed:

- (a) only by a suitably qualified and experienced person;
- (b) in accordance with the provisions of the Queensland *Animal Care and Protection Act 2001*;
- (c) only if dependent young are able to be humanely captured and killed, or provision made for their care;
- (d) in the case of domestic species, only if appropriate investigations have been made to rule out ownership of the animal(s).

4.88. In the case of a domestic animal whose status as feral (rather than owned) is not clearly determined, then the animal should be surrendered to the local government animal control authority.

Emergency euthanasia of sick or injured animals

4.89. If an animal is found to be suffering from injuries or illness likely to cause extreme suffering and/or distress, and a high likelihood of death, a wildlife spotter/catcher or other competent person may perform immediate euthanasia if the following conditions are met:

- (a) the assistance of a veterinarian is not available within an appropriate timeframe given the suffering of the animal; and,
- (b) the time taken to transport the animal to a veterinarian would impose undue further suffering on the animal; and,
- (c) the requirements of the *Animal Care and Protection Act 2001* will be met in respect of the method of euthanasia; and,
- (d) the chosen method of euthanasia will cause instant or rapid insensibility (loss of consciousness), followed shortly afterwards, (and before return of consciousness), by death; and,
- (e) the person proposing to conduct the euthanasia procedure is competent at the procedure; and,
- (f) The carcass is not disposed of until death is confirmed.

4.90. It is recommended that all wildlife spotter/catchers are appropriately trained in humane methods of euthanasia.

Use of veterinarians and veterinary services or drugs

- 4.91. Due to the nature of wildlife management, capture and translocation, the use of veterinary drugs and services is occasionally required.
- 4.92. Reasons for veterinary involvement in wildlife management processes include:
- (a) use of restricted drugs for sedation or anaesthesia of animals;
 - (b) examination and veterinary management of sick, injured or orphaned animals;
 - (c) euthanasia of animals;
 - (d) consultation on animal welfare issues;
 - (e) assessment and management of wildlife population health and reproduction.

Nomination of veterinarian on Wildlife Protection and Management Plan

- 4.93. A wildlife spotter/catcher must nominate one or more registered veterinarians, whom they will use in the event that veterinary services are required.
- 4.94. A nominated veterinarian must be able to provide resources and facilities appropriate for responding to wildlife emergencies that may occur in the field.
- 4.95. The nominated veterinarian(s) must be indicated in the *Wildlife Protection and Management Plan* under the section entitled "Contingency plan for wildlife requiring euthanasia, other veterinary procedures or captive care."
- 4.96. It is preferable that nominated veterinarians are experienced with wildlife, although it is recognised that, in some areas of the state, this may not be possible.

Wildlife spotter/catcher to inform client of obligations regarding the provision of veterinary care

- 4.97. It is the responsibility of the wildlife spotter/catcher to inform the client and/or project manager of the potential for requirement of veterinary services, and the expected costs of such services.
- 4.98. The wildlife spotter/catcher must also ensure that the client or authorised representative is aware of their "duty of care" obligations to animals captured or injured in the course of the conduct of relevant activities.
- 4.99. It is recommended that the wildlife spotter/catcher prepare a document detailing the above, to be signed by the client or client's authorised representative.

Provision of veterinary care to sick or injured animals

- 4.100. The wildlife spotter/catcher must make provision for the prompt veterinary examination and treatment of any animal injured, or caused to be sick, as a result of development processes or activities.
- 4.101. If an injured animal has not already been captured, then the wildlife spotter/catcher must make every reasonable attempt to capture the animal for the purposes of veterinary assessment and treatment. This may include the engagement of a veterinarian for the purposes of darting the animal with a tranquilliser or anaesthetic.
- 4.102. The wildlife spotter/catcher must also make provision for the veterinary assessment and treatment of any animal captured or trapped that is showing evidence of any significant injury or illness, irrespective of the cause of the injury or illness.

For example: a captured koala that is showing obvious signs of Chlamydial infection, such as weeping eyes or “dirty tail” should be referred to an approved wildlife rehabilitation facility for veterinary assessment and treatment, rather than being released back into the wild in that condition.

- 4.103. Any native animal requiring in-patient veterinary care must be referred to a recognised wildlife veterinary hospital or facility, or a private veterinary practice that has appropriate wildlife experience and facilities for the housing and treatment of native animals.
- 4.104. A wildlife spotter/catcher has not fulfilled their duty of care obligation to a sick or injured animal simply by delivering it to a veterinarian, unless that veterinarian or veterinary practice fulfils the requirements of section 4.103 above, and agrees to provide an appropriate level of care to the animal.
- 4.105. Similarly, the wildlife spotter/catcher has not sufficiently discharged their duty of care in respect of a sick or injured animal by simply delivering it to a wildlife rehabilitator.

Requirement for presence of veterinarian on site

- 4.106. In rare circumstances, a wildlife spotter/catcher may consider that, despite all reasonable measures being taken, a development process, activity or structure is likely to result in significant harm, injury or death to an animal.
- 4.107. In such circumstances the wildlife spotter/catcher must arrange for a registered veterinarian to be present on site, for the period of time during which the risk is present. If possible, the veterinarian should be experienced in the management and care of wildlife.
- 4.108. If any restricted or controlled drug is proposed to be used by a wildlife spotter/catcher, then this use must be on the direction of, and under the direct supervision of a registered veterinarian, except as allowed by licensing of non-veterinarians under the provisions of the *Queensland Health (Drugs and Poisons) Regulation 1996*, and relevant policy of Queensland Health.

Requirement for monitoring of sedated or anaesthetised animals

- 4.109. Both the wildlife spotter/catcher and on-site veterinarian have a 'duty of care' towards any animal affected by sedative or anaesthetic drugs, and must ensure that an appropriate level and duration of monitoring is applied to prevent injury, predation, drowning or other incident that may result from the impairment of the animal's normal abilities or responses.

SECTION 5: RECORD KEEPING AND REPORTING

Preparation of a Wildlife Management Report

- 5.1. During the course of the development or activity, the wildlife spotter/catcher should keep an accurate record of all animal captures, incidents and disposals for that project.
- 5.2. At the completion of a project, the wildlife spotter/catcher should prepare a *Wildlife Management Report* (WMR) in the approved format (Appendix 5) for submission to the Animal Welfare Unit, Queensland PI&F and DERM.
- 5.3. If the development or activity for which the *Wildlife Management Report* was prepared was subject to local government approval, then the report should also be submitted to the relevant local government authority.
- 5.4. The *Wildlife Management Report* consists of three sections:
 - (a) *Wildlife and Habitat Management Plan*
 - (b) *Wildlife Capture and Disposal Record*
 - (c) *Animal Injury and Euthanasia Report*

Wildlife and habitat management plan

- 5.5. The *Wildlife and Habitat Management Plan* should contain the following information:
 - (a) Aspects of the design or planning of the development identified as risks to wildlife, essential wildlife habitat or wildlife corridors, and the measures taken to mitigate or avoid the risks;
 - (b) Aspects of operational works identified as risks to wildlife health or safety, and the measures taken to mitigate or avoid the risks;
 - (c) Aspects of the operation or function of the finished development (including traffic impacts) identified as posing risks to wildlife health and safety either presently or in the future, and the measures taken, or required to be taken, to mitigate or avoid those risks;
 - (d) Recommendations on the type, frequency and timeframes for monitoring of wildlife and habitat impacts resulting from the development.
 - (e) Requirements for ongoing wildlife, habitat or ecological management measures for the site or development to mitigate or avoid present or future wildlife impacts.

- (f) Any measures taken to replace or improve wildlife or habitat outcomes, including compensatory vegetation planting, nest-box or tree hollow replacement, and the like.
- (g) Recommendations and/or outcomes associated with unmanageable wildlife risks identified as being caused by, or associated with the development or activity (include measures recommended or implemented by government agencies such as DERM and relevant local government authorities).

5.6. The detail contained in the *Wildlife and Habitat Management Plan* should reflect the size and/or likely environmental impacts of the development or activity.

Wildlife capture and disposal record

5.7. The *Wildlife Capture and Disposal Record* must contain the following details for each captured animal classified as *endangered*, *vulnerable* or *rare* under State legislation, classified by the local regulatory authority as *locally significant* or under the federal *EPBC Act* as *critically endangered*, *endangered* or *vulnerable*:

- (a) species;
- (b) identification name or number;
- (c) sex (M, F, or unknown);
- (d) approximate age or age class (neonate, juvenile, sub-adult, adult);
- (e) time and date of capture;
- (f) method of capture;
- (g) exact point of capture (GPS point);
- (h) state of health;
- (i) incidents associated with capture likely to affect the animal;
- (j) veterinary intervention or treatments;
- (k) time held in captivity;
- (l) disposal (euthanasia, re-release, translocation etc);
- (m) date and time of disposal;
- (n) details of disposal (if released, exact point of release GPS);
- (o) for released animals: distance in metres from point of capture to point of release.

- 5.8. For captured animals not listed in legislation as defined in section 5.7 above, such details should be recorded if fewer than 10 individuals are captured, however if greater than 10 individuals are captured, the following details should be recorded in the *Wildlife Capture and Disposal Report*:
- (a) species;
 - (b) total number captured;
 - (c) general location of capture;
 - (d) general location of release site;
 - (e) adverse incidents, mortality or euthanasia report;
 - (f) method of capture.
- 5.9. If any native animals were, or are presently, held in temporary or permanent captive care, then the wildlife spotter/catcher should provide details of the reason for such holding and a copy of DERM acknowledgement of notification (see section 4.78-4.80 above).
- 5.10. Furthermore, the wildlife spotter/catcher should indicate the availability of husbandry and veterinary records for each animal placed into temporary or permanent captive care.

Animal injury and euthanasia report

- 5.11. A separate *Animal Injury and Euthanasia Report* must form part of the *Wildlife Management Report*, detailing the circumstances, management and final outcome of every animal injury or incident, and the circumstances and reason for each animal euthanasia.
- 5.12. For each animal euthanasia requiring a DERM permit or written approval (see section 4.84-4.86), the reference or permit number must be recorded.
- 5.13. A “nil return” *Animal Injury and Euthanasia Report* should be included in the *Wildlife Management Report* if there were no animal injuries or euthanasia.
- 5.14. In tabulated form, the *Animal Injury and Euthanasia Report* should indicate, for each animal:
- (a) species;
 - (b) sex (if identified);
 - (c) unique identification name or code (as used in the *Wildlife Capture and Disposal Record*);
 - (d) age class (neonate, juvenile, sub-adult, adult);
 - (e) nature and details of incident or condition resulting in injury or euthanasia;
 - (f) initial management or intervention (e.g. taken to veterinarian – give details);
 - (g) final outcome;

- (h) method of euthanasia, by whom; or details of disposal;
- (i) current location of animal or details and method of disposal;
- (j) any other relevant information.

Reporting

5.15. The wildlife spotter/catcher should prepare and submit to the Animal Welfare Unit, Queensland PI&F and also DERM the following documents within one (1) month of completion of each project:

- (a) Wildlife Protection and Management Plan;*
- (b) Wildlife Management Report.*

5.16. If a development or activity is subject to approval by a local government, then the wildlife spotter/catcher shall submit a copy of the WPMP and WMR to the appropriate local government authority within one (1) month of completion of the project.

Appendix 1: Recommended Equipment for Wildlife Spotter/Catchers

A wildlife spotter/catcher must have the following essential equipment at his/her disposal at all times:

- 4-wheel drive vehicle
- 2-way radios
- Cages of various sizes and construction
- Various traps for animal capture
- Calico bags of various sizes
- Various nets with extendable handles
- Leather and latex gloves
- Towels
- Blankets
- Spray marking paint
- Flagging tape
- Chain saw
- Extension ladder
- GPS unit
- Digital camera
- Complete set of field guide publications to enable identification of wildlife to species level
- Snake handling equipment
- Binoculars
- Torches
- Waders
- Range of containers to hold and transport aquatic fauna
- Scales
- 10 x lens and vernier calipers
- Full set of PPE

Appendix 2: Form for making an Animal Welfare Direction

ANIMAL WELFARE DIRECTION

This Animal Welfare or Animal Protection Direction is made at:

Location:

Date:

Exact location of development or activity site	
Registered owner of the site	
Responsible person to whom this direction is made	
Position of responsible person (eg site foreman, project manager etc)	
Circumstances in which animal welfare or protection is at risk (describe in detail)	
Specific activity or process that may risk animal welfare or protection	

Activity is to:	<input type="checkbox"/> cease immediately <input type="checkbox"/> continue, but only with mitigation measures in place <input type="checkbox"/> continue with caution and WSC present at all times
Risk mitigation measures required	
Period of time over which activity may occur	

.....
Signature of Responsible Person

.....
Signature of WSC

.....
Position

.....
Name (printed)

.....
Name (printed)

At completion:

Was the activity or process conducted in accordance with this Direction?

Yes

No Give details:.....

Did an adverse animal welfare or protection incident occur: Yes No
If yes, an adverse incident report must be completed.

Appendix 3: Wildlife Protection and Management Plan

Appendix 4: Fauna Survey Methodology

The following methodologies are provided as guidelines when conducting fauna surveys prior to wildlife habitat disturbance:

- a) **Diurnal searches** – Intensive investigation of the ground layer (i.e. under logs, rocks, leaf litter) and low vegetation (i.e. under tree bark and tree stumps) and caves targeting amphibians, reptiles, bats and animal traces (i.e. scats, owl pellets, remains and tracks). Minimum effort: approximately 4 person hours per day conducted in the middle of the day.
- b) **Pitfall traps** – This method targets amphibians, reptiles and small mammals, particularly those mammals not readily recorded using other trapping methods (for example: planigales and dunnarts). These traps should be cleared early morning and late afternoon. Minimum effort: Thirty (30) or more pitfall traps divided into four or eight lines comprising approximately four (4) pits (20L bucket) and a 15-20m drift fence. However, the number of buckets per line is often best determined on individual site characteristics and may require 6-20 pits on a 50m drift fence. Trapping duration is a minimum of four (4) days and nights.
- c) **Spotlighting** – Nocturnal observations using both high powered spotlights and head torches. This method targets nocturnal flying, arboreal and terrestrial mammals, birds (owls and nightjars), reptiles (geckos) and amphibians. Call playback can also assist this method when targeting specific species (owls and amphibians). Minimum effort: approximately 3 person hours per day commencing in the early evening.
- d) **Elliot traps** – This method targets small arboreal and terrestrial mammals. These traps should be cleared each morning by 7:00am and reset late in the afternoon after 5:00pm. Trap placement will be influenced by vegetation diversity, the size and shape of the habitat area and by naturally occurring features such as logs, rock outcrops, tree bases and clumping vegetation. As a guide, all distinctly different broad vegetation communities should be surveyed. Minimum effort: 100 traps over four nights, arranged in 5-10 transects with 10 or 20 traps in each transect with trap placement at 5m apart. A variety of baits should be utilised such as rolled oats with peanut butter +/- honey, bacon, tinned fish. When conducting arboreal trapping with this method, a diluted honey and water mixture may be sprayed on the trunk and branches near the trap to act as an attractant to species such as sugar and squirrel gliders.
- e) **Cage traps** - This method targets medium to large arboreal and terrestrial mammals. These traps should be cleared each morning by 7:00am and reset late in the afternoon after 5:00pm. Trap placement will be influenced by vegetation diversity, the size and shape of the habitat area and by naturally occurring features such as logs, rock outcrops, tree bases and clumping vegetation. As a guide, all distinctly different broad vegetation communities should be surveyed. Minimum effort: 20 traps over four nights, arranged in 5 transects with trap placement at 5-20m apart. A variety of baits should be utilised such as rolled oats with peanut butter +/- honey, bacon, tinned fish.

- f) **Hair tubes** – This method is additional to the above methods which target mammal species. Hair tubes of different sizes should be baited with a variety of baits (i.e. rolled oats with peanut butter +/- honey, bacon, tinned fish) and left *in situ* for a minimum of two (2) weeks. Upon collection, hair samples should be identified by a suitably qualified person with demonstrated experience in identifying mammal species from hair samples.
- g) **Bird surveys** – Fixed or random transects are walked with five (5) minutes spent stationary at designated locations along the transects. Birds are recorded indicating the method of identification (i.e. call or visual observation) and the type and location of habitat. Minimum effort: 30-60 minutes commencing prior to and during dawn to early morning and prior to dusk.
- h) **Harp traps, mist nets and sonic bat detectors** - These methods target insectivorous bats. Trap and sonic detector (i.e. ANABAT) should be located within suitable habitat where insectivorous bats are likely to frequent (i.e. natural flyways between vegetation and narrow forest tracks). Calls recorded from a sonic detector (i.e. ANABAT) should be analysed by a suitably qualified person to ensure accurate species identification.

Appendix 5: Wildlife Management Report



Appendix E

Threatened Species Habitat Suitability and Risk Assessment



HABITAT ASSESSMENT FOR LISTED EPBC SPECIES (6207) 10km Search

Matters of National Environmental Significance						
Wetlands of International Importance	Moreton Bay	RAMSAR Listed	Within 10km of Ramsar	The site is located approximately 15 kilometres directly east of Moreton Bay.	There will be no measurable affect to Moreton Bay.	Low
Listed Threatened Ecological Communities						
Name	Status	Type of Presence	Description of Community	Likelihood of Occurrence	Risk	
<i>Lowland rainforest of Subtropical Australia</i>	Critically Endangered	This Threatened Ecological Community is listed as a community that may occur within the area.	Typically there is a relatively low abundance of species from the genera <i>Eucalyptus</i> , <i>Melaleuca</i> and <i>Casuarina</i> . Buttresses are common as is an abundance and diversity of vines. This community is usually associated Regional Ecosystems 12.3.1, 12.5.13, 12.8.3, 12.8.4, 12.8.13, 12.11.1, 12.11.10, 12.12.1, and 12.12.16.	No species representing these characteristics or vegetation communities were observed within the assessment area.	No Risk	
<i>Swamp Tea Tree (Melaleuca irbyana) forest of South-east Queensland</i>	Critically Endangered	This Threatened Ecological Community is listed as a community likely to occur within the area.	The listed swamp tea-tree forest community is based on two regional ecosystem communities including 12.9-10.11 and 12.3.3c. This community usually comprises low open to closed forest, closed scrub or thickets of <i>Melaleuca irbyana</i> with or without emergent tree layer of scattered <i>Eucalypts</i> .	No species representing these characteristics or vegetation communities were observed within the assessment area.	No Risk	
<i>White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland</i>	Critically Endangered	This Threatened Ecological Community is listed as a community likely to occur within the area.	This threatened community is characterised by a species-rich understorey of native tussock grasses, herbs and scattered shrubs and the dominance of White Box, Yellow Box, or Blakely's Red gum trees. This community is usually associated with Regional Ecosystem 11.8.2a, 11.8.8, 11.9.9a, 13.3.1, 13.11.8, and 13.12.9. It can also be a small component of Regional Ecosystem 11.3.23, 12.8.16, 13.3.4, 13.11.3 and 13.11.4.	No species representing these characteristics or vegetation communities were observed within the assessment area.	No Risk	
Birds						
Species	Common Name	Status	EPBC Code	Description of Community / Habitat	Likelihood of Occurrence	Risk
<i>Anthochaera phrygia</i>	Regent Honeyeater	Endangered	82338	Regent Honeyeaters mostly occur 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. These areas are generally associated with creek flats and river valleys and foothills. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes. They are a generalist forager, which mainly feed on nectar from a wide range of eucalypts and mistletoes.	The site is covered in both remnant and non remnant vegetation communities dominated by eucalypt and <i>Corymbia</i> species however all riparian areas are highly disturbed. Very few mature large specimens remain throughout the majority of the site as a result of historical logging practices and vegetation clearing.	No Risk



<i>Botaurus poiciloptilus</i>	Australasian Bittern	Endangered	1001	The Australasian Bittern occurs in terrestrial wetlands and, rarely, estuarine habitats, mainly in the temperate southeast and southwest. It favours wetlands with tall dense vegetation, where it forages in still, shallow water up to 0.3 m deep, often at the edges of pools or waterways, or from platforms or mats of vegetation over deep water. It favours permanent and seasonal freshwater habitats, particularly those dominated by sedges, rushes and / or reeds or cutting grass growing over muddy or peaty substrate. The Australasian Bittern occurs in the far South-East of Queensland; it has been reported North to Baralaba and West to Wyandra, although in most years it is probably confined to a few coastal swamps. It is rarely recorded in Queensland, and possibly survives only in protected areas such as the Cooloola and Fraser regions.	No suitable habitat was observed throughout the assessment area.	No Risk
<i>Dasyornis brachypterus</i>	Eastern Bristlebird	Endangered	533	The Eastern Bristlebird inhabits low dense vegetation in a broad range of habitat types including sedgeland, heathland, swampland, shrubland, sclerophyll forest and woodland, and rainforest. It occurs near the coast, on tablelands and in ranges. The Eastern Bristlebird is found in habitats with a variety of species compositions, but is defined by a similar structure of low, dense, ground or understorey vegetation.	The majority of the investigation area along the waterways contain severe Lantana camara infestations. No suitable habitat was observed throughout the assessment area.	No Risk
<i>Erythrotriorchis radiatus</i>	Red Goshawk	Vulnerable	942	A wide ranging and highly mobile species generally observed over eucalypt habitats. This species prefers 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. Habitat has to be open enough for fast attack and manoeuvring in flight, but provide cover for ambushing of prey.	Due to a lack of records within the local area, it is unlikely that this species will occur. However, possible foraging habitat throughout the mapped remnant areas. There is no evidence of permanent residence on site and very few areas containing permanent water.	No Risk
<i>Geophaps scripta scripta</i>	Squatter Pigeon (southern)	Vulnerable	64440	This species inhabits open grasslands and woodlands typically with a native understorey although may occur in artificial pasture.	No confirmed local records. The species is now very rarely observed in southern Queensland. Not expected onsite and no direct impact from proposed actions.	No Risk



<i>Lathamus discolor</i>	Swift Parrot	Endangered	744	Swift Parrots breed in Tasmania during spring to early summer. During autumn and winter the species migrates to the mainland where it follows a nomadic existence linked to the availability and timing of flowering of trees in various locations. While the species is very uncommon in south-east Queensland, its occurrence cannot be completely discounted. There are suitable winter flowering species present on the site which may attract birds during flowering (e.g. <i>E. tereticornis</i>).	Due to a lack of records within the local area and south east Queensland, it is highly unlikely that this species will occur.	No Risk
<i>Peophila cincta cincta</i>	Black-throated Finch (southern)	Endangered	64447	The Black-throated Finch (southern) occurs mainly in grassy, open woodlands and forests, typically dominated by Eucalyptus, Corymbia and Melaleuca, and occasionally in tussock grasslands or other habitats (for example freshwater wetlands), often along or near watercourses, or in the vicinity of water. It occurs at two general locations: in the Townsville region, where it is considered to be locally common at a few sites around Townsville and Charters Towers; and at scattered sites in central-eastern Queensland (between Aramac and Great Basalt Wall National Park). It has been absent from Brisbane and its surrounds since the 1930s.	Due to a lack of records within the local area, it is highly unlikely that this species will occur.	No Risk
<i>Rostratula australis</i>	Australian Painted Snipe	Endangered	77037	The Australian Painted Snipe is usually found in shallow inland wetlands, either freshwater or brackish, that are either permanently or temporarily filled. The species has a scattered distribution throughout many parts of Australia, with a single record from Tasmania.	No suitable habitat was observed throughout the assessment area.	No Risk
<i>Turnix melanogaster</i>	Black-breasted Button-quail	Vulnerable	923	Typical habitat occurs in dry rainforest and vegetation immediately adjacent to rainforest. However the species has also been recorded in a variety of low coastal heathlands around Frazer Island and nearby mainland. Deep leaf litter in which the species can forage appears to be particularly favoured.	Habitats on the site are highly disturbed due to prior logging regimes, weed invasion and prior pastoral/grazing activities. Although this species is known to favour areas with a dense shrub layer, including thick Lantana camara patches, no evidence (i.e.: platelets) has been observed on site. Evidence of feral pigs and dogs may have also contributed to a lack of records.	No Risk
Fish						
Species	Common Name	Status	EPBC Code	Description of Community / Habitat	Likelihood of Occurrence	Risk



<i>Maccullochella mariensis</i>	Mary River Cod	Endangered	83806	The Mary River Cod occurs mainly in pools within relatively undisturbed tributaries. They prefer relatively large and deep shaded pools with abundant, slowly flowing water.	No suitable habitat to support this species was observed throughout the assessment area.	No Risk
Mammals						
Species	Common Name	Status	EPBC Code	Description of Community / Habitat	Likelihood of Occurrence	Risk
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	Vulnerable	183	The Large-eared Pied Bat roosts on sandstone cliffs and fertile woodland valley habitat within close proximity of each other. However in South-east Queensland habitat includes rainforest and moist eucalypt forest habitats at high elevations.	No confirmed local records of this uncommon species.	No Risk
<i>Dasyurus hallucatus</i>	Northern Quoll	Endangered	331	The Northern Quoll is known to occur as far south as Gracemere and Mt Morgan, south of Rockhampton and as far north as Cooktown. There have also been occasional records as far south as Maleny on the Sunshine coast hinterland. The species occupies rocky areas, eucalypt forest and woodlands, rainforests, sandy lowlands and beaches, shrubland, grassland and desert. Preferred habitat in Queensland suggests the Northern Quoll are more likely to be present in high relief areas that have shallower soils, greater cover of boulders, less fire impact and were close to permanent water.	This species prefers tropical climates and has only occasionally been recorded in areas to the north of Brisbane. No suitable den sites were observed on site. Sandy Creek may provide suitable foraging habitat but is outside of the known range for the species.	No Risk
<i>Dasyurus maculatus maculatus</i>	Spot-tailed Quoll	Endangered	75184	The Spot-tailed Quoll has a preference for mature wet forest habitat. Unlogged forest or forest that has been less disturbed by timber harvesting is also preferable. This predominantly nocturnal species rests during the day in dens. Habitat requirements include suitable den sites such as hollow logs, tree hollows, rock outcrops or caves. Individuals require an abundance of food such as birds and small mammals, and large areas of relatively intact vegetation through which to forage.	Although no suitable den sites were observed on site, it may be possible that the site could be used for foraging purposes, including Flagstone Creek which may act as a corridor for species distribution. Although no evidence has been found throughout the field assessment, consideration to this species is important.	Low Risk
<i>Petrogale penicillata</i>	Brush-tailed Rock-wallaby	Vulnerable	225	This species prefers rocky habitats, including loose boulder-piles, rocky outcrops, steep rocky slopes, cliffs, gorges and isolated rock stacks. Most populations have been found on north facing slopes but have occurred on south facing slopes. This species browse on vegetation in and adjacent to rocky areas eating grasses and forbs as well as the foliage and fruits of shrubs and trees.	No suitable habitat located on site.	No Risk



<i>Phascolarctos cinereus</i>	Koala	Vulnerable	85104	They are found in a range of habitats, from coastal islands and tall eucalypt forests to low woodlands inland. The species is known from the surrounding area and evidence has been recorded on-site.	Extensive searches of this species, including SAT surveys and spotlighting did not find any individual specimens. However some old scats were observed throughout the site in various locations. The site is highly disturbed with intensive logging regimes and severe infestations of <i>Lantana camara</i> have also reduced the quality of habitat for this species.	Medium / High Risk
<i>Potorous tridactylus tridactylus</i>	Long-nosed Potoroo	Vulnerable	66645	Species generally prefers rainforest and adjacent to wet sclerophyll forest, coastal heathlands and similar habitats with a dense understorey. Like all Potoroos, fungi are the major component of the diet and is also known to feed on invertebrates.	No suitable habitat was observed throughout the assessment area.	No Risk
<i>Pteropus poliocephalus</i>	Grey-headed Flying Fox	Vulnerable	186	Species generally roosts in camps in trees adjacent to larger permanent watercourse. The Grey-headed flying fox requires foraging resources and roosting sites. It is a canopy-feeding frugivore and nectarivore, which utilises vegetation communities including rainforests, open forests, closed and open woodlands, Melaleuca swamps and Banksia woodlands. It also feed on commercial fruit crops. The primary food source is blossom from Eucalyptus and related genera.	No camps were observed throughout the assessment area however food resources cover the site. This species is highly likely to occur when the Eucalypts are in flower.	Low Risk
Reptiles						
Species	Common Name	Status	EPBC Code	Description of Community / Habitat	Likelihood of Occurrence	Risk
<i>Coeranoscincus reticulatus</i>	Three-toed Snake-tooth Skink	Vulnerable	59628	Found mostly in closed forest and possibly open layered Eucalyptus forest. Generally recorded in moist layered forest on loamy basaltic soils, but also found in closed forest overlying silica sand dunes at Cooloola. Within forests, this species is found in well-mulched, loose, friable rainforest soil in leaf litter, often immediately adjacent to fallen tree trunks. Much of the lowland closed forest within its range has been cleared for agriculture and grazing, pasture improvement, crop production, tropical fruit production, and native forest logging. Suitable habitat has generally been reduced to patches, especially in lowland areas.	No suitable habitat was observed throughout the assessment area.	No Risk
<i>Delma torquata</i>	Collared Delma	Vulnerable	1656	In general, the species occurs on rocky hillsides on basalt and lateritic soils supporting open eucalypt and Acacia woodland with a sparse understorey of shrubs and tussocks or semi-evergreen vine thicket.	No suitable habitat was observed throughout the assessment area.	Low Risk



<i>Furina dunmalli</i>	Dunmall's Snake	Vulnerable	59254	Dunmall's Snake has been found in a broad range of habitats, including forests and woodlands on black alluvial cracking clay and clay loams dominated by Brigalow other Wattles, native Cypress or Bull-oak, and various Blue Spotted Gum, Ironbark, White Cypress Pine and Bull oak open forest and woodland associations on sandstone derived soils. Dunmall's Snake occurs primarily in the Brigalow Belt region in the South-eastern interior of Queensland. Records indicate sites at elevations between 200–500 m above sea level. The snake is very rare or secretive with limited records existing. It has been recorded at Archokoora, Oakey, Miles, Glenmorgan, Wallaville, Gladstone, Lake Broadwater, Mount Archer, Exhibition Range National Park, roadside reserves between Inglewood and Texas, Rosedale, Yeppoon and Lake Broadwater Conservation Park.	No suitable habitat was observed throughout the assessment area.	No Risk
Listed Migratory Species						
Migratory Marine Birds						
Species	Common Name	Status	EPBC Code	Description of Community / Habitat	Likelihood of Occurrence	Risk
<i>Apus pacificus</i>	Fork-tailed Swift	Migratory	678	This species is almost exclusively aerial and mostly occur over inland palins but sometimes above foothills or in coastal areas.	Possible as a fly over species however no impact to this species is likely to occur.	No Risk
Migratory Terrestrial Species						
Species	Common Name	Status	EPBC Code	Description of Community / Habitat	Likelihood of Occurrence	Risk
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	Migratory	943	The White-bellied Sea-eagle is found in coastal habitats and around terrestrial wetlands in tropical and temperate regions of mainland Australia and its offshore islands. The habitats are characterised by the presence of large areas of open water.	Known from the area and regularly recorded. This species would occur over the site but would be unlikely to use the site for feeding due to low value habitats, or nesting due to a lack of suitable trees.	No Risk
<i>Hirundapus caudacutus</i>	White-throated Needle tail	Migratory	682	The White-throated needle tail is almost exclusively aerial. This species has been recorded roosting in trees in forests and woodlands, both among dense foliage in the canopy or in hollows. The species breeds in wooded lowlands and sparsely vegetated hills, as well as mountains covered with coniferous forests.	Low potential to occur on site within roosting periods.	No Risk
<i>Merops ornatus</i>	Rainbow Bee-eater	Migratory	670	The rainbow bee-eater occurs mainly in open forests and woodlands, shrub lands, and in various cleared or semi-cleared habitats, including farmland and areas of human habitation.	Habitat available on site and species recorded throughout field survey.	Low / Medium Risk



<i>Monarcha melanopsis</i>	Black-faced Monarch	Migratory	609	The Black-faced Monarch mainly occurs in rainforest ecosystems, including semi-deciduous vine thickets, complex notophyll vine forests, tropical (mesophyll) rainforest, subtropical (notophyll) rainforest, mesophyll (broadleaf) thicket/shrubland, warm temperate rainforest, dry (monsoon) rainforest and occasionally cool temperate rainforest.	No suitable habitat was observed throughout the assessment area.	No Risk
<i>Monarcha trivirgatus</i>	Spectacled Monarch	Migratory	610	The Spectacled Monarchs natural habitats are subtropical or tropical moist lowland forests, subtropical or tropical mangrove forests, and subtropical or tropical moist montane forests. Its preference is for thick understorey areas.	No suitable habitat was observed throughout the assessment area.	No Risk
<i>Myiagra cyanoleuca</i>	Satin Flycatcher	Migratory	612	Satin Flycatchers inhabit heavily vegetated gullies in eucalypt dominated forests and taller woodlands, and on migration occur in coastal forests, woodlands, mangroves and drier woodlands and open forests.	No suitable habitat was observed throughout the assessment area.	No Risk
<i>Rhipidura rufifrons</i>	Rufous Fantail	Migratory	592	The Rufous fantail mainly inhabits wet sclerophyll forests, often in gullies dominated by Eucalypts such as Eucalyptus microcorys, Eucalyptus pilularis, Eucalyptus resinifera and a number of other Eucalyptus species.	No suitable habitat was observed throughout the assessment area.	No Risk
Migratory Wetland Species						
Species	Common Name	Status	EPBC Code	Description of Community / Habitat	Likelihood of Occurrence	Risk
<i>Ardea alba</i>	Great Egret	Migratory	59541	The Great Egret has been recorded in a wide range of wetland habitats including inland and coastal, freshwater and saline, permanent and ephemeral, open and vegetated, large and small, natural and artificial.	Although a number of small dams were observed throughout the broader area, no specimens were recorded at the time of the assessment.	No Risk
<i>Ardea ibis</i>	Cattle Egret	Migratory	59542	The Cattle egret occurs in tropical and temperate grasslands, wooded lands and terrestrial wetlands. It often forages away from water on low lying grasslands, improved pastures and croplands and is commonly found in cattle fields and other farm areas that contain livestock.	Observed on site where recent slashing has occurred.	No Risk
<i>Gallinago hardwickii</i>	Latham's Snipe	Migratory	863	Latham's Snipe occurs in permanent and ephemeral wetlands. They usually inhabit open, freshwater wetlands with low, dense vegetation.	No suitable habitat was observed throughout the assessment area.	No Risk
<i>Rostratula benghalensis</i>	Painted Snipe	Endangered/ Migratory	889	The Australian Painted Snipe generally inhabits shallow terrestrial freshwater wetlands, including temporary and permanent lakes, swamps and clay pans. The also utilise inundated or waterlogged grassland or saltmarsh, dams, rice crops, sewage farms and bore drains.	No suitable habitat was observed throughout the assessment area.	No Risk
Other Matters Protected by the EPBC Act						
Listed Marine Species (others not listed above)						



Species	Common Name	Status	EPBC Code	Description of Community / Habitat	Likelihood of Occurrence	Risk
<i>Anseranas semipalmata</i>	Magpie Goose		978	The magpie goose is mainly found in shallow wetlands with dense growth or rushes or sedges.	No suitable habitat was observed throughout the assessment area.	No Risk
<i>Pandion haliaetus</i>	Osprey		952	Eastern Ospreys occur in littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands. They are mostly found in coastal areas but occasionally travel inland along major rivers.	No suitable habitat was observed throughout the assessment area.	No Risk

HABITAT ASSESSMENT FOR LISTED NCA SPECIES (6207) 10km Search

Birds						
Species	Common Name	Status	Description of Community / Habitat	Likelihood of Occurrence	Risk	
<i>Accipiter novaehollandiae</i>	Grey Goshawk	Near Threatened	The Grey Goshawk is found in coastal areas in northern and eastern Australia. The white morph is predominant in the more open forests of north-western Australia and coastal Victoria and is the only form found in Tasmania. The grey morph is more common in the thicker, sub-tropical forests of the east coast.	Limited suitable habitat observed during site investigation	Low Risk	
<i>Calyptorhynchus lathamii</i>	Glossy cockatoo	Black- Vulnerable	The species is uncommon although widespread throughout suitable forest and woodland habitats, from the central Queensland coast to East Gippsland in Victoria, and inland to the southern tablelands and central western plains of NSW. The Glossy Black-Cockatoo is highly dependent on the distribution of Allocasuarina species and is found in open forest and woodlands of the coast and the Great Dividing Range where stands of sheoak occur. Black Sheoak (<i>Allocasuarina littoralis</i>) and Forest Sheoak (<i>A. torulosa</i>) are important foods. Requires tree hollows for breeding.	Flora species utilised for foraging by this species were present in the areas of retained vegetation along watercourses and not within the greater extent of the landscape. Foraging of she-oak species is generally season in nature with birds often returning to areas previously utilised. Limited to no signs of repeated foraging on sheoaks in the area were observed.	Low Risk	
<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	Near Threatened	The Black-necked Stork is restricted mainly to coastal and near-coastal areas of northern and eastern Australia. Throughout the monsoonal areas of northern Australia, the Black-necked Stork is still widespread, but fewer numbers appear southwards to eastern Australia. The Black-necked Stork inhabits wetlands, such as floodplains of rivers with large shallow swamps and pools, and deeper permanent bodies of water. Occasionally individuals will stray into open grass, woodland areas or flooded paddocks in search of food	Habitat features that this species generally utilises were not observed during the site investigation. Habitats within the investigation area are generally dry waterways with sandy creek being the only semi permanent waterway in the area.	Low Risk	
<i>Falco hypoleucos</i>	Grey Falcon	Near Threatened	The distribution of this species is centred on inland drainage systems where there is an average annual rainfall of less than 500 mm. It favours timbered lowland plains, particularly acacia shrublands that are crossed by tree-lined watercourses, but frequents other grassland and	Limited suitable habitat observed during site investigation.	Low Risk	



			woodland habitats. It hunts birds (mostly parrots and pigeons), insects (Johnstone and Storr 1998), and mammals, and will also feed on carrion.		
<i>Lewinia pectoralis</i>	Lewin's Rail	Near Threatened	All races of Lewin's Rail are endemic to Australia and can be found in narrow coastal fringes along the eastern and southern coast of the Australian continent and Tasmania. <i>Lewinia pectoralis</i> is found in a narrow coastal strip along the NSW north coast and in southern QLD up to about Fraser Island, towards the north of which they are scarce again. Another populated patch is found from the tropic of Capricorn northward, to about Cairns, QLD. Lewin's Rails tend to live in dense reeds around swamps, with a preference for coastal regions.	No suitable habitat was observed on site. This species prefers dense reeds around swamps in the coastal areas and would be highly unlikely to utilise the type of vegetation within the investigation area.	Low Risk
<i>Ninox strenua</i>	Powerful Owl	Vulnerable	The Powerful Owl is endemic to eastern and south-eastern Australia, mainly on the coastal side of the Great Dividing Range from Mackay to south-western Victoria. The Powerful Owl inhabits a range of vegetation types, from woodland and open sclerophyll forest to tall open wet forest and rainforest. The Powerful Owl requires large tracts of forest or woodland habitat but can occur in fragmented landscapes as well. The species breeds and hunts in open or closed sclerophyll forest or woodlands and occasionally hunts in open habitats. It roosts by day in dense vegetation comprising species such as Turpentine <i>Syncarpia glomulifera</i> , Black She-oak <i>Allocasuarina littoralis</i> , Blackwood <i>Acacia melanoxylon</i> , Rough-barked Apple <i>Angophora floribunda</i> , Cherry Ballart <i>Exocarpus cupressiformis</i> and a number of eucalypt species.	Although no suitable patches of remnant vegetation were observed within the investigation area there is still suitable large tracts of forests and woodlands to the west of the site. This species has been known to hunt in these large tracts of open habitat and in areas of fragmented habitat similar to that observed within the investigation area.	Medium Risk
Amphibians					
Species	Common Name	Status	Description of Community / Habitat	Likelihood of Occurrence	Risk
<i>Litoria brevipalmata</i>	Green Thighed Frog	Near Threatened	Isolated localities along the coast and ranges from just north of Wollongong to south-east Queensland. Green-thighed Frogs occur in a range of habitats from rainforest and moist eucalypt forest to dry eucalypt forest and heath, typically in areas where surface water gathers after rain. It prefers wetter forests in the south of its range, but extends into drier forests in northern NSW and southern Queensland	This species generally prefers moister environs associated with rainforest and moist eucalypt forests. The habitat preference for this species would not be the dry and semi seasonal waterways throughout the investigation. May utilise the area but the likelihood is low.	Low Risk
<i>Adelotus brevis</i>	Tusked Frog	Vulnerable	Coast and adjacent ranges from central Queensland to southern NSW. Prefers rainforests, wet forests and flooded grassland and pasture. They are usually found near creeks, ditches and ponds, and call while hidden amongst vegetation or debris.	No rainforest or wet forest vegetation was observed that would supply suitable habitat for this species.	No Risks
Mammals					
Species	Common Name	Status	Description of Community / Habitat	Likelihood of Occurrence	Risk



<i>Dasyurus maculatus maculatus</i>	Spot-tailed Quoll	Endangered	The Spot-tailed Quoll has a preference for mature wet forest habitat. Unlogged forest or forest that has been less disturbed by timber harvesting is also preferable. This predominantly nocturnal species rests during the day in dens. Habitat requirements include suitable den sites such as hollow logs, tree hollows, rock outcrops or caves. Individuals require an abundance of food such as birds and small mammals, and large areas of relatively intact vegetation through which to forage.	Although no suitable den sites were observed on site, it may be possible that the site could be used for foraging purposes, including Sandy Creek which may act as a corridor for species distribution. Lathough no evidence has been found throughout the field assessment, consideration to this species is important.	Low Risk
<i>Petrogale penicillata</i>	Brush-tailed Rock-wallaby	Vulnerable	This species prefers rocky habitats, including loose boulder-piles, rocky outcrops, steep rocky slopes, cliffs, gorges and isolated rock stacks. Most populations have been found on north facing slopes but have occurred on south facing slopes. This species browse on vegetation in and adjacent to rocky areas eating grasses and forbs as well as the foliage and fruits of shrubs and trees.	The site has been extensively cleared of remnant vegetation and contains a number of scattered trees. No exposed rocky habitat is located on site.	No Risk
<i>Phascolarctos cinereus</i>	Koala	Vulnerable	They are found in a range of habitats, from coastal islands and tall eucalypt forests to low woodlands inland. The species is known from the surrounding area and evidence has been recorded on-site.	Extensive searches of this species, including SAT surveys and spotlighting did not find any individual specimens. However some old scats were observed throughout the site in various locations. The site is highly disturbed with severe infestations of Lantana camara throughout the waterways and have also reduced the quality of habitat for this species.	Medium Risk