KANGAROO SURVEY AND HABITAT ASSESSMENT

Scholars Drive – Link Road, Sippy Downs

For

Sunshine Coast Council

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All work conducted as part of this survey was conducted under the DES Scientific Purposes Permit number WISP 10189211 and DEEDI Animal Ethics Committee number CA 2020/08/1398 and in accordance with the relevant regulations.

STUDY TEAM

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DOCUMENT CONTROL

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Table of Contents:

Figures:

1.0 INTRODUCTION

Sunshine Coast Council have engaged Native Foresters to undertake an assessment of an Eastern Grey Kangaroo (*Macropus giganteus)* population within an area proposed for construction of a link road within the University of the Sunshine Coast (USC) Campus. The proposed link road is between Scholars Road and Parkville Street, Sippy Downs and its objective is to relieve traffic congestion related to adjacent schools.

1.1 Scope

This Kangaroo Survey and Habitat Assessment has been prepared for Sunshine Coast Council and relates to the proposed construction of a link road, connecting Scholars Drive to the northern end of Parkville Street, Sippy Downs. Refer to **Figure 1** for the survey area, **Figure 2** for the location of works on the university campus, **Figure 3** showing proposed works.

This report outlines the findings of the site survey and habitat assessment and proposes mitigation measures to ensure that impacts on Kangaroo populations and their habitats are avoided and/or minimised.

1.2 Objectives

The objectives of the FMP are as follows:

- To assess habitat value of works corridor of the proposed link road.
- To determine potential impacts to the Eastern Grey Kangaroo (*Macropus giganteus)* population in the vicinity as a result of the proposed works.
- To recommend mitigation and management actions that address and manage risks to the existing Kangaroo population within the subject site, including risks associated with vegetation clearing, earthworks, impacts to habitat areas and fauna rescue provisions.

1.3 Relevant Legislation and Guidelines

The following legislation and guidelines were considered relevant to the preparation of this FMP:

- *Nature Conservation Act 1992* (NCA) and Regulations – State
- *Animal Care and Protection Act 2001* - State
- *Code of Practice: Care of Sick, Injured or Orphaned Protected Animals in Queensland.*

Figure 1: Link Road alignment and survey area

Figure 2: Link Road location within USC Campus

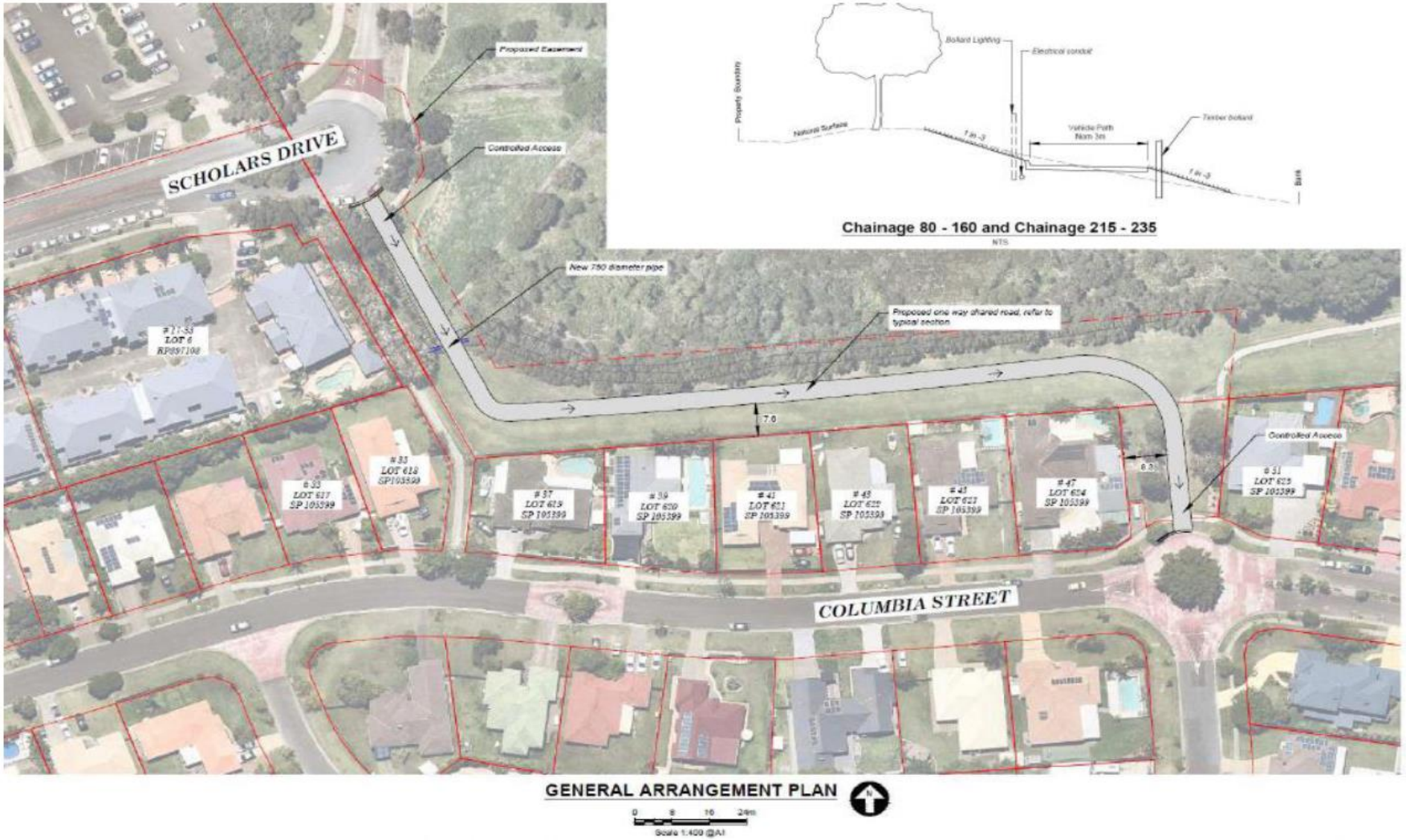

Figure 3: Proposed Works Alignment

1.4 Proposed Works

The proposed Scholars Drive Link Road is an approximately 250m long and 3m wide concrete vehicle access road that will operate one way, at 20km/h during peak school drop off and pickup times only to relieve congestion. The road will open to traffic via an automatic boom gate during peak times in the morning and afternoon. It will function as a pedestrian pathway at all other times.

Seventeen, 1m high bollard lights will be installed at 15m intervals along the uphill side of the link road. It's proposed that the bollard lights will be active for approximately 9 hours each night and will have a level of backward shielding fitted to minimise light spill towards the adjacent residences.

1.5 Site Description

The works area is a 3000m^2 corridor of lawn and slashed introduced grasses on the south-western boundary of the University of the Sunshine Coast (USC) Sippy Downs campus. The link road route is sited entirely within an established strip of mown lawn/paddock which serves as a buffer around the inside of the USC boundary in this area.

This grassed buffer area is sandwiched between an extensive, regenerating wetland system on the USC campus site, and the back fences of houses within the suburb of Chancellor Park. The link road will be located within several metres of the wetland, and up to 10m from the boundary fence. A high timber fence marks the boundary of the USC property and the adjacent suburb as shown in **Figure 4**.

Figure 4: Scholars Drive link looking east towards the Parkville Road connection

2.0 HABITAT ASSESSMENT

2.1 Methodology

A site field survey was conducted on the 5th October 2021. Weather was as follows:

- Low humidity, with approximate temperature range of 12.5 – 27 degrees Celsius.
- The Caloundra racecourse weather station recorded 0 mm of rain on the 5th October and a total of 11.4 mm of rain fell in the week preceding the survey.

The following methods were used to determine the habitat values for native fauna:

- A desktop review was undertaken to assist in determining the site's ecological attributes. The Queensland Government's Regulated Vegetation Management Map (DR) was consulted to determine the mapped vegetation category and the presence of Essential Habitat. A search of the Queensland Government's (DES) WildNET database was conducted to generate a list of confirmed rare and threatened species records for the survey area. The School of Science, Technology and Engineering research results and papers on Eastern grey kangaroos on the USC campus were consulted.
- A visual and active search for signs of Eastern Grey Kangaroo use or habitation in the proposed link road corridor.
- A fauna habitat assessment based on the suitable breeding habitats present, the listed species known to occur or potentially occurring within the locality and the occurrence of specific habitat features appropriate for these species.

2.2 Results

2.2.1 Desktop

Following database and document reviews:

- The works corridor does not contain remnant vegetation on the RVMM.
- The Wildnet database lists Eastern Grey Kangaroo (*Macropus giganteus)* as being recorded within 1 km of the works corridor, as well as five EVNT listed fauna species within 1km of the site:
    - *Litoria freycineti* (Wallum rocketfrog) – *Vulnerable*
    - *Litoria olongburensis* (Wallum sedgefrog) – *Vulnerable*
    - *Hirundapus caudacutus* (White-throated needletail) – *Vulnerable*
    - *Phascolarctos cinereus* (Koala) – *Vulnerable*
    - *Pteropus poliocephalus* (Grey-headed flying-fox) – *Vulnerable under the EPBC Act*
- The works are within the Mooloola River catchment and are just south of a mapped low-risk waterway under DAF mapping.
- The vegetation and habitats of the USC campus are well studied and support the breeding, foraging and habitation requirements of a diverse assemblage of almost 200 native fauna including 27 mammal species, 129 bird species, 20 reptile species, 8 amphibian species and 7 fish species (unpubl. data collected by S. Burnett, Jill Chamberlain, Gerard Mills 2007-2020). Refer to **Appendix B**.

2.2.2 Site Survey

A site survey was conducted in early October 2021. Around a dozen eastern grey kangaroo (*Macropus giganteus)* scats of different sizes were found throughout the study area, indicating that it is presently used as a foraging and/or movement pathway by a number of kangaroos.

The dry, elevated area of the proposed link road, mainly consisting of an unwatered lawn of couch and kikuyu grass (refer **Figure 4**). A short section of the route, at the Scholars Drive end, encompasses slashed *Setaria* tussocks which are a higher quality forage for the Eastern Gery Kangaroos than at other parts of the work's alignment as shown in **Figure 5**. The site survey coincided with an extended period of dry weather and the relative palatability of grasses along either section of the link may change under different times of the year. The alignment of the link road avoids any native vegetation. The current alignment will create a 0.13 ha island of lawn between the road and the USC/Chancellor Park boundary fence.

Figure 5: Scholars Drive link looking north towards the Scholars Drive connection

2.2.3 Habitat Assessment

The vegetation and habitats of the USC campus are well studied and support the breeding, foraging and habitation requirements of a diverse assemblage of native fauna species across habitats including wetlands, modified grasslands and fragmented forest communities which have been retained during the development of the area in recent years.

The unirrigated lawn and slashed, isolated tussocks of *Setaria* grass which constitute the vegetation of the proposed link road, is of limited value to any but a small handful of the common, urban-adapted species. The most notable exception to this is the Eastern Grey kangaroo, which utilises these lawns as evidenced by multiple fresh scats observed there during our site visit.

While the proposed works impact area is providing habitat for Kangaroos onsite it is not considered to be a preferred habitat area for the species within the wider area. USC campus is approximately 100 hectares in site and of this approximately 25-30 hectares may be utilized by the Easter grey kangaroo population for foraging.

The loss of approximately 0.3 ha of kangaroo grazing habitat is not considered a significant impact on the local population as the size of the local kangaroo population is so low that grazing habitat is not a likely limiting resource.

Further, GPS collaring on the USC campus shows that kangaroos prefer to graze on the watered lawns around the centre and north-east of the campus, and slashed *Setaria* paddocks in low lying eastern areas of the campus.

Kangaroos spent relatively little time on dry lawns of the type present in the proposed link road works corridor. This is backed up by the relatively low number (12) of individual kangaroo scats observed throughout the pegged route of the link road, and adjacent lawn. No fauna breeding places were identified in the immediate works area, and given the fact of it being entirely lawn and low slashed grasses, and mostly steep, it is unlikely that any species do use the site for that purpose.

2.3 Kangaroo Research at USC

The campus is home to a much-studied population of *M. giganteus*. This mob of kangaroos are a published case study in the interactions of urban kangaroos with the landscape (Brunton *et al.* 2018a), stress in urban kangaroos (Brunton *et al.* 2019a) and the conservation management of urban kangaroos (Brunton *et al.* 2018b). USC staff and students also regularly undertake surveys of the kangaroo population, and operate an informal network of correspondents who report kangaroo incidents (usually car strikes or dog attacks).

The development of Sippy Downs over the past 11 years, and the increased capacity and use of the road network have devastated the local kangaroo population (Brunton et al. 2018a). From 2010 to 2016 the kangaroo population declined from 84 to 16 individuals. The population has hovered around 12 adult kangaroos since then (S. Burnett unpublished data). Human-related deaths, primarily road kill the reason behind this continued low population size.

At the time of writing, the best estimate is that 13 adult grey kangaroos occupy the USC campus, which includes the link road site (Elizabeth Brunton, USC., pers. comm. 6/10/21).

3.0 POTENTIAL IMPACTS OF WORKS

3.1 Kangaroo population

Construction and operation of the link road has the potential to impact Kangaroos and their habitat unless appropriate mitigation strategies are employed. Potential impacts may include the following:

- Injuries to kangaroos when traversing the construction site. At certain phases of construction, kangaroos will potentially be exposed to construction materials and other hazards on which they may be injured. Scats detected during the site visit indicate that kangaroos do currently move through the future construction zone.
- The introduction of another vehicle movement corridor in the form of the link road increases the potential for Kangaroo and vehicle interactions. These can result both in Kangaroo mortality associated with vehicle strike as well as potential for vehicles to have crashes associated with avoidance of Kangaroos. When referring to the Sippy Downs kangaroo population, Brunton *et al.* (2018a) state that the long-term success of urban kangaroo populations is dependent on their ability to maintain home ranges with minimal exposure to traffic. Further they identify that the main risk to kangaroos in the Sippy Downs area is having to cross roads regularly to access food or shelter.
- The positioning of the link road alongside a hard fence (the USC-Chancellor Park boundary) creates a confined space in which startled kangaroos are likely to move erratically, and be prone to leaping in front of moving cars.
- Potential release of sediments and nutrients into adjacent wetland from earthworks if the area is not stabilised or if large rain events occur during works.

Continued modification of Kangaroo habitats within the area combined with the potential for species mortality associated with dog interactions and vehicle strikes remain the primary threats to the continued presence of the species in the area.

3.2 Sustainable Population Limit for USC

A sustainable population limit (or carrying capacity) is an estimate of the number of kangaroos an area can sustain, without supplementary feeding and watering and while meeting management objectives for the area (DELWP, 2014). The sustainable population limit is expressed as a ratio (kangaroos / ha).

In the Guide to preparing a Kangaroo Management Plan for Melbourne's Growth Corridors, DELWP uses a value of 1.0 kangaroo/ha as a rough guide to estimating the carrying capacity of a Australian grassy woodland site. If this were applied to the approximately 30ha of kangaroo habitat on the USC campus it suggests a carrying capacity of 30 kangaroos, or about twice the current population size.

The management of a population of kangaroos in this area is complex due to the USC campus containing various infrastructure, the increasing urbanisation of Sippy Downs, the presence of arterial roads, and lack of adjacent reserves for mobs to seek refuge. It is noted that the Mooloolah River National Park is across Claymore Road, but that it contains little kangaroo foraging habitat.

4.0 KANGAROO MANAGEMENT PLAN

The decline and continued high mortality rate affecting the USC kangaroo mob has lead to considerable effort being put into preserving this kangaroo population. Kangaroo passageways linking the campus with Mooloolah River National Park were incorporated into the Claymore Road upgrade in the late 2000s, and the University has actively managed kangaroo threats under its control, and supported research to better understand kangaroo ecology and conservation needs in urbanising landscapes (Brunton *et al.* 2018a, Brunton *et al.* 2018b, Brunton et al 2019a, 2019b, Brunton *et al.* 2020, Hume et al. 2019).

While it is not considered that the loss of a small area (approx. 3000m^2) of sub-optimum Kangaroo grazing area associated with works will impact on the potential survival of the species within the locality it is considered that the potential for further interactions with vehicles is a real and ongoing threat given the low population numbers of Kangaroos present.

It is therefore recommended that appropriate avoidance and mitigation strategies are employed to minimise the potential interaction of vehicles and native fauna, including Kangaroos, as follows:

4.1 Design Considerations

1. The alignment of the link road should be placed as close to the existing timber fence as possible in order to reduce the incentive for Kangaroos and other native fauna species to cross the paved road, thereby reducing the potential for vehicle interaction.
2. It is recommended that any areas of land that do remain between the road and the existing fence are not grassed to prevent them providing foraging areas for Kangaroos.
3. Any areas located between the fence could be paved for pedestrian or bicycle use or be mulched and planted with native groundcover species that do not provide foraging opportunities for Kangaroos or create habitat areas for other native fauna.
4. Do not include reticulated irrigation or drainage systems which could improve the quality of Kangaroo forage in proximity to the link road.
5. Do not provide day time shelter for kangaroos. This includes shrubs or trees under which kangaroos can seek shade during the day.

4.2 Construction Considerations

1. Prepare a Construction Environmental Management Plan for the proposed works.
2. Works to be undertaken in accordance with Council's Least Concern Fauna Species Management Program.
3. Invite qualified person to present site specific induction for all site personnel which includes the presence of Kangaroo and other native fauna species onsite and the findings of this KMP.

4. The site should have effective temporary construction fencing in place at all stages where fauna injury risks are present. Ensure that gates are closed, and without gaps each evening.
5. No excavated holes should remain open onsite as they have the potential to act as traps for native fauna species and/or may injure kangaroos.
6. If a listed fauna species is identified on site prior to or during works, works to occur in accordance with an approved Species Management Plan for the listed species.

4.3 Post-Construction Considerations

1. Maintain the proposed limited use of the link road i.e. limited speeds and only during school drop off and pickup times.
2. Council to establish signage encouraging the reporting of kangaroo issues on the link road.
3. Council to consider road speed reductions within the area to reduce potential for car strikes.
4. Council to consider fauna signage on local roads to inform residents and road users to drive with care.
5. Council to undertake an education program for local residents, regarding dog management in the area i.e. keeping dogs on leash, ensuring dogs are not roaming at night, microchipping dogs, etc. in relation to protection of native fauna species.
6. Council to review wildlife corridors in the area and determine if more wildlife corridors can be established to facilitate kangaroo movement into and out of the USC site for greater gene flow and population augmentation.
7. Monitoring of the movement and foraging patterns of the remaining Kangaroo population onsite should be continued by USC and SCC in order to understand how the operation of the link road impacts on the species. If it is determined that the operation of the link road is having a negative impact on the population or is directly responsible for Kangaroo mortality, adaptive management strategies to reduce detrimental impacts should be employed.
8. Maintaining attributes of the road and landscaped verges as per **Section 4.2** above to maintain the site to be as unappealing to kangaroos as possible.

The implementation of design and construction strategies to avoid and mitigate potential impacts on Kangaroo populations remaining in the area combined with implementation of the existing management protocols developed by USC may assist in preserving this vulnerable Kangaroo population.

5.0 SUMMARY

The assessment of the proposed works corridor for the link road between Scholar Drive and Parkville Road found:

- The proposed works corridor does not require removal of native vegetation.
- The Eastern Grey Kangaroo (*Macropus giganteus*) population in Sippy Downs may use this grassy area for foraging and movement
- Interactions with vehicles within the area are the main threat to the kangaroo population on the USC campus.
- The corridor does not contain significant habitat features for other native fauna.
- The works would result in a loss of approximately 3000m^2 of grassed areas, which due to lack of watering, is sub-optimum grazing for the kangaroo population on site.
- The works would not directly impact on the kangaroo population by removing any limiting resource.
- The works and ongoing operation of the Link Rd have the potential to add another source of mortality to the threatened kangaroo mob which inhabit the USC campus although this should be mitigated by the vehicle movement parameters i.e. reduced speed and limited opening times as well as appropriate design modifications to reduce the occurrence of the species adjacent to vehicle movement corridors.

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APPENDIX A – INCIDENT AND COMPLAINT FORM

Incident Reference No.	Nature of Incident		
	□Fauna □Habitat □Water quality □Other – Specify		
PROJECT SITE			
Project Name:			
Project Manager:			
Project Manager's Contact Details:			
INCIDENT DETAILS			
Submitter's Name:			
Submitter's Contact Details:			
Date of Incident:		**Time**	
Location of Incident:			
Description of Incident			
Reported to – Name:		**Position**	
Date Reported:		**Time**	
CORRECTIVE ACTIONS IMPLEMENTED			
FURTHER ACTION REQUIRED?			
Did the incident have potential for off-site environmental harm?	□Yes □No		
Details of potential harm			
Did correction action stop environmental harm?	□Yes □No		
Is further corrective action or assessment required?	□Yes □No	**Attach Details**	
Does the incident require referral to regulatory authorities?	□Yes □No □Unsure		
If so has referral occurred?	□Yes □No □Unsure	**Date**	
SIGN OFF			
All actions completed satisfactorily	□Yes □No		
Signature		**Date**	
Name		**Position**	

APPENDIX B – Fauna recorded on USC campus

SCIENTIFIC NAME	**COMMON NAME**
AMPHIBIANS	
*Bufo marinus**	Cane Toad
Crinia tinnula	Wallum Froglet
Limnodynastes peroni	Striped Marsh Frog
Litoria caerulea	Common Tree Frog
Litoria fallax	Eastern Sedgefrog
Litoria gracilenta	Graceful Tree Frog
Litoria nasuta	Striped-Rocket Frog
Litoria rubella	Naked Tree Frog
Pseudophryne raveni	Raven's Brood Frog
BIRDS	
Acanthiza pusilla	Brown Thornbill
Accipiter cirrhocephalus	Collared Sparrowhawk
Accipiter fasciatus	Brown Goshawk
Accipiter novaehollandiae	Grey Goshawk
*Acridotheres tristis**	Common Myna*
Acrocephalus stentoreus	Clamorous Reed-Warbler
Anas rhyncotis	Australian Shoveler
Anas superciliosa	Pacific Black Duck
Anhinga melanogaster	Darter
Anseranas semipalmata	Magpie Goose
Anthochaera chrysoptera	Little Wattlebird
Anthus novaeseelandiae	Richard'S Pipit
Ardea alba	Great Egret
Ardea ibis	Cattle Egret
Ardea intermedia	Intermediate Egret
Ardea pacifica	White-Necked Heron
Artamus cyanopterus	Dusky Woodswallow
Artamus leucorynchus	White-Breasted Woodswallow
Aviceda subcristata	Pacific Baza
Aythya australis	Hardhead
Cacatua galerita	Sulphur-Crested Cockatoo
Cacatua roseicapilla	Galah
Cacatua sanguinea	Little Corella
Cacomantis flabelliformis	Fantailed Cuckoo
Calyptorhynchus funereus	Yellow-Tailed Black-Cockatoo
Centropus phasianinus	Pheasant Coucal
Chenonetta jubata	Australian Wood Duck
Chlidonias hybridus	Whiskered Tern

Chrysococcyx lucidus	Shining Bronze Cuckoo
Chrysococcyx minutillus	Little Bronze Cuckoo
Circus approximans	Swamp Harrier
Circus assimilis	Spotted Harrier
Cisticola exilis	Golden-Headed Cisticola
Colluricincla harmonica	Grey Shrike-Thrush
Colluricincla megarhyncha	Little Shrike-Thrush
Coracina novaehollandiae	Black-Faced Cuckoo-Shrike
Coracina tenuirostris	Cicadabird
Corvus orru	Torresian Crow
Coturnix ypsilophora	Brown Quail
Cracticus nigrogularis	Pied Butcherbird
Cracticus torquatus	Grey Butcherbird
Cygnus atratus	Black Swan
Dacelo novaeguineae	Laughing Kookaburra
Dendrocygna arcuata	Wandering Whistling-Duck
Dendrocygna eytoni	Plumed Whistling-Duck
Dicaeum hirundinaceum	Mistletoebird
Dicrurus bracteatus	Spangled Drongo
Egretta garzetta	Little Egret
Egretta novaehollandiae	White-Faced Heron
Elanus axillaris	Black-Shouldered Kite
Elseyornis melanops	Black-Fronted Dotterel
Entomyzon cyanotis	Blue-Faced Honeyeater
Eopsaltria australis	Eastern Yellow Robin
Eudynamys scolopacea	Eastern Koel
Falco berigora	Brown Falcon
Falco cenchroides	Nankeen Kestrel
Falco longipennis	Australian Hobby
Fulica atra	Eurasian Coot
Gallinago hardwickii	Latham's Snipe
Gallinula tenebrosa	Dusky Moorhen
Gallirallus philippensis	Buff-Banded Rail
Geopelia humeralis	Bar-Shouldered Dove
Gerygone olivacea	White-Throated Gerygone
Glossopsitta concinna	Musk Lorikeet
Grallina cyanoleuca	Magpie-Lark
Gymnorhina tibicen	Australian Magpie
Haliaeetus leucogaster	White-Bellied Sea-Eagle
Haliastur indus	Brahminy Kite
Haliastur sphenurus	Whistling Kite
Himantopus himantopus	Black-Winged Stilt
Hirundapus caudacutus	White-Throated Needletail
Hirundo ariel	Fairy Martin

Hirundo neoxena	Welcome Swallow
Hirundo nigricans	Tree Martin
Irediparra gallinacea	Comb-Crested Jacana
Lalage leucomela	Varied Triller
Lichenostomus chrysops	Yellow-Faced Honeyeater
Lichmera indistincta	Brown Honeyeater
Lonchura castaneothorax	Chestnut-Brested Mannikin
Macropygia amboinensis	Brown Cuckoo Dove
Malurus lamberti	Variegated Fairy-Wren
Malurus melanocephalus	Red-Backed Fairy-Wren
Manorina melanocephala	Noisy Miner
Megalurus timoriensis	Tawny Grassbird
Meliphaga lewinii	Lewin's Honeyeater
Melithreptis albogularis	White-Throated Honeyeater
Merops ornatus	Rainbow Bee-Eater
Microeca fascinans	Jacky Winter
Milvus migrans	Black Kite
Myiagra rubecula	Leaden Flycatcher
Myzomela sanguinolenta	Scarlet Honeyeater
Neochmia temporalis	Red-Browed Finch
Nettapus coromandelianus	Cotton Pygmy-Goose
Nycticorax caledonicus	Nankeen Nightheron
Ocyphaps lophotes	Crested Pigeon
Oriolus sagittatus	Olive-Backed Oriole
Pachycephala pectoralis	Golden Whistler
Pachycephala rufiventris	Rufous Whistler
Pandion haliaetus	Eastern Osprey
Pardalotus striatus	Striated Pardalote
Passer domesticus	House Sparrow
Pelecanus conspicillatus	Australian Pelican
Phalacrocorax melanoleucos	Little Pied Cormorant
Phalacrocorax sulcirostris	Little Black Cormorant
Philemon citreogularis	Little Friarbird
Philemon corniculatus	Noisy Friarbird
Phylidonyris nigra	White-Cheeked Honeyeater
Platalea regia	Royal Spoonbill
Platycercus adscitus	Pale-Headed Rosella
Podargus strigoides	Tawny Frogmouth
Podiceps cristatus	Great Crested Grebe
Porphyrio porphyrio	Purple Swamphen
Porzana pusilla	Bailon's Crake
Psophodes olivaceus	Eastern Whipbird
Rhipidura fuliginosa	Grey Fantail
Rhipidura leucophrys	Willie Wagtail

Sericornis frontalis	White-Browed Scrubwren
Sphecotheres viridis	Figbird
Strepera graculina	Pied Currawong
*Streptopelia chinensis**	Spotted Turtle-Dove*
Sturnus vulgaris	Common Starling*
Symposiachrus trivirgatus	Spectacled Monarch
Tachybaptus novaehollandiae	Australasian Grebe
Taeniopygia bichenovii	Double-Barred Finch
Threskiornis molucca	Australian White Ibis
Threskiornis spinicollis	Straw-Necked Ibis
Todiramphus macleayii	Forest Kingfisher
Todiramphus sanctus	Sacred Kingfisher
Trichoglossus chlorolepidotus	Scaly-Breasted Lorikeet
Trichoglossus haematodus	Rainbow Lorikeet
Vanellus miles novaehollandiae	Masked Lapwing
Zosterops lateralis	Silvereye
MAMMALS	
Antechinus flavipes	Yellow-Footed Antechinus
Austronomus australis	White-Striped Mastiff Bat
Canis lupus dingo	Dingo
Chalinolobus gouldii	Gould'S Wattled Bat
Felis catus	Domestic Cat
Hydromys chrysogaster	Water Rat
Isoodon macrourus	Northen Brown Bandicoot
Lepus capensis	Brown Hare
Macropus giganteus	Eastern Grey Kangaroo
Melomys burtoni	Grassland Melomys
Melomys cervinipes	Fawn-Footed Melomys
Miniopterus australis	Little Bentwing Bat
Miniopterus oceanensis	Common Bentwing Bat
Mormopterus beccari	Beccari's Freetail Bat
Mormopterus ridei	Eastern Freetail Bat
Mus musculus	House Mouse
Myotis adversus	Fishing Bat
Nyctophilus sp.	Long-Eared Bat Sp.
Petaurus norfolcensis	Squirrel Glider
Planigale maculata	Common Planigale
Pseudocheirus peregrinus	Common Ringtail Possum
Pteropus alecto	Black Fruitbat
Pteropus poliocephalus	Grey-Headed Fruitbat
Rattus lutreolus	Swamp Rat
Rattus rattus	Black Rat
Rattus tunneyi	Pale Field Rat

Scoteanax/Scotorepens orion	Greater Or Eastern Broad-Nosed Bat
Scotorepens sp./Chalinolobus nigrogriseus	Central Easterbroad-Nosed Bat Or Hoary Wattled Bat
Trichosurus vulpecula	Common Brushtailed Possum
*Vulpes vulpes**	Red Fox*
REPTILES	
Anomolopus verreauxii	Vereaux's Skink
Cyclodomorphus gerrardii	Pink-Tongued Skink
Demansia psammophis	Yellow-Faced Whip-Snake
Demansia vestigiata	Lesser Black Whip Snake
Eulamprus quoyii	Golden Water Skink
Hemidactylus frenatus	Asian House Gecko
Lampropholis amicula	Secretive Shade Skink
Lampropholis delicata	Garden Skink
Lampropholis guichenoti	Grass Skink
Lialis burtonis	Burton's Legless Lizard
Morelia spilota	Carpet Python
Physignathus leseuerii	Eastern Water Dragon
Pogona barbata	Eastern Bearded Dragon
Pseudechis porphyriaceus	Red-Bellied Black Snake
Pseudonaja textilis	Eastern Brown Snake
Pygopus lepidopodus	Eastern Scaly-Foot
Tiliqua scincoides	Blue-Tongued Lizard
Tropidonophis mairii	Freshwater Snake
Varanus varius	Lace Monitor
Wollumbinia latisternum	Saw-Shelled Turtle

KEY V- Vulnerable * Introduced

APPENDIX C - RELOCATION PROCEDURE

OBECTIVE OF RELOCATION PROCEDURE:	**TO PREVENT INJURY OR DEATH TO NATIVE FAUNA FOUND WITHIN THE CLEARING/ CONSTRUCTION ZONE PRIOR TO OR DURING WORKS.**
Steps to follow in the event of relocation:	
1.	Work will cease in the immediate vicinity of the sighting until the animal has moved off or a suitably qualified Fauna Spotter-catcher has removed it.
2.	All fauna species 'not of concern' will be managed by the Fauna Spotter-catcher and all personnel working on site in accordance the *Animal Care and Protection Act 2001, Nature Conservation Act 1992* and the *Code of Practice: Care of Sick, Injured or Orphaned Protected Animals in Queensland*.
3.	If any EVNT listed fauna are found onsite during clearing or construction, work will immediately cease in the vicinity of the sighting, EHP will be notified and a Species Management Plan will be prepared.
4.	If the animal appears to be healthy, a relocation zone within an adjacent area of suitable, undisturbed habitat will be determined by the Ecologist/Fauna Spotter-catcher.
5.	Care will be taken to ensure that aquatic and amphibian specimens are kept moist and free of disease following the procedures contained in the *Interim hygiene protocol for handling amphibians* (EHP, 2013, **Appendix C**). Disposable gloves will be worn when handling frogs. To prevent cross-contamination, new gloves and a clean plastic bag will be used for each frog specimen. Unnecessary handling will be avoided and specimens released as soon as possible, to minimise stress incurred.
6.	In the event a frog appears to be sick, or is dead, the procedures for handling sick or dead frogs outlined in the *Interim hygiene protocol for handling amphibians* will be followed (EHP, 2013, **Appendix C**). Frogs exhibiting one or more of the symptoms for sick frogs and considered unlikely to survive transportation will be euthanased. Typical clinical signs of frogs with Chytridiomycosis include lethargy, inappetence, skin discoloration, presence of excessive sloughed skin, and sitting unprotected during the day with hind legs held loosely to the body. Details of sick or dead listed frogs found on the project site will be recorded and reported to SCC/EHP using the Sick or Dead Frog Collection Form template (**Appendix E**).
7.	Any animal requiring care or treatment will be immediately transported to a veterinarian or licensed wildlife carer.
8.	Specimens will be relocated into appropriate habitat features to prevent predation from other fauna.
9.	Fauna should be released at a time and place that will not endanger it (i.e. release should not increase the risk of stress or predation to the species).
10.	Details of fauna relocations will be recorded using the Translocation Record Form template (**Appendix E**).

Native Foresters