Travers

bushfire & ecology

flora & fauna assessment

Rezoning Application
Lot 1021 DP 1054632
Wycombe Road,
TERRIGAL

November 2013
(REF: A13105F)

Flora & Fauna Assessment

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Survey effort has been reduced to provide an indication of the insitu vegetation and fauna habitat present. The 7 part test of significance is based on this survey data and further survey may result in the observation of threatened species not considered in this assessment. Consequently, further target threatened species survey may be required by the determining authority. The mapping is indicative of available space and location of features which may prove critical in assessing the viability of the proposed works. Mapping has been produced on a map base with an inherent level of inaccuracy. Consequently the location of all mapped features is to be confirmed by a registered surveyor.

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List of abbreviations

APZ	asset protection zone
BPA	bushfire protection assessment
CLUMP	conservation land use management plan
CKH	Core Koala habitat
DCP	Development Control Plan
DEC	NSW Department of Environment and Conservation (superseded by DECC from 4/07)
DECC	NSW Department of Environment and Climate Change (superseded by DECCW from 10/09)
DECCW	NSW Department of Environment, Climate Change and Water (superseded by OEH from 4/11)
EEC	endangered ecological community
EPA	Environmental Protection Agency
EP&A Act	*Environmental Planning and Assessment Act*
EPBC Act	*Environment Protection and Biodiversity Conservation Act*
ESMP	ecological site management plan
FF	flora and fauna assessment
FM Act	*Fisheries Management Act*
FMP	fuel management plan
HTA	habitat tree assessment
IPA	inner protection area
LEP	Local Environment Plan
LGA	local government area
NES	national environmental significance
NPWS	NSW National Parks and Wildlife Service
NSW DPI	NSW Department of Industry and Investment
OEH	Office of Environment and Heritage (Part of the NSW Department of Premier and Cabinet)
OPA	outer protection area
PBP	*Planning for bushfire protection 2006*
PKH	Potential Koala habitat
POM	plan of management
RF Act	*Rural Fires Act*
RFS	NSW Rural Fire Service
ROTAP	rare or threatened Australian plants
SEPP 44	*State Environmental Protection Policy No 44 – Koala Habitat Protection*
SEWPAC	Department of Sustainability, Environment, Water, Population and Communities

SIS	species impact statement
SULE	safe useful life expectancy
TPO	tree preservation order
TPZ	tree preservation zone
TRRP	tree retention and removal plan
TSC Act	*Threatened Species Conservation Act*
VMP	vegetation management plan

Ecological Assessment

Travers bushfire & ecology has been engaged to undertake an ecological assessment within Lot 1021 DP 1054632, Wycombe & Beaufort Roads, Terrigal.

1.0 Proposed development

The site is currently zoned 7(c2) Scenic Protection - Rural Small Holdings and is proposed to be zoned E3 Environmental Management under the Draft Gosford LEP 2013. The site immediately adjoins a pocket of R2 Low Density Residential land to the east and a small recreation zoned lot to the north (Figure 1). The proposal is for a rezoning of the site as part of the R2 residential zone.

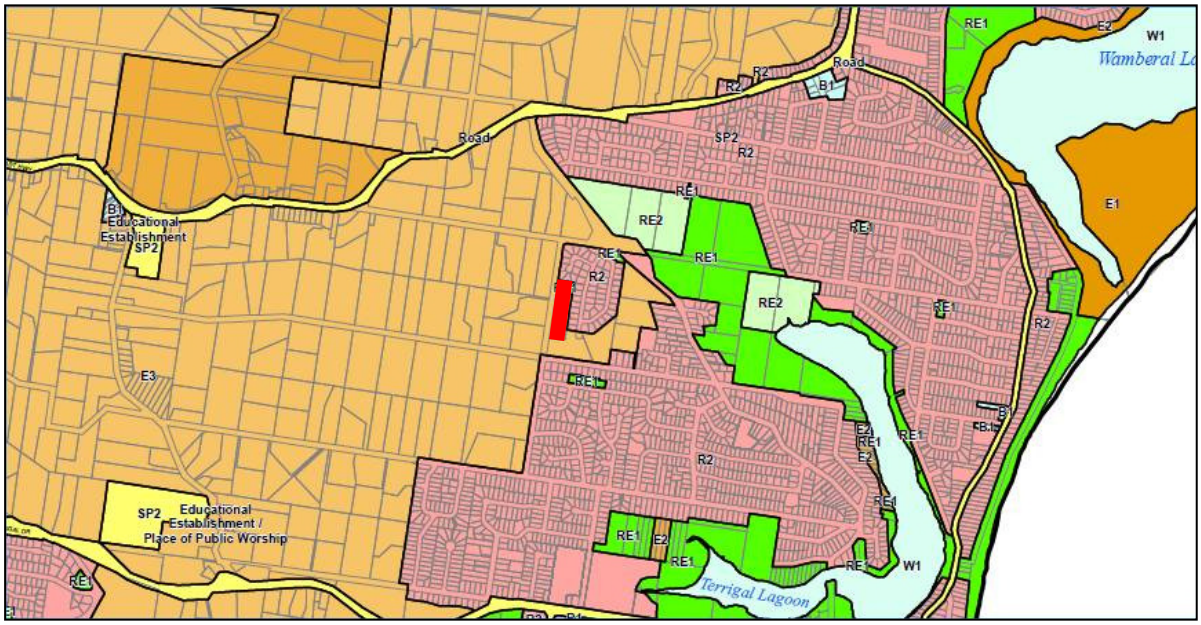

Figure 1 – Extract of Map 30 Draft LEP

2.0 Survey

A review of the *Atlas of NSW Wildlife* (OEH 2013) was undertaken prior to the site visit to determine threatened species previously recorded within 10km of the subject site.

Botanical survey was undertaken between 1800hrs and 1915hrs on 23 October 2013. Botanical survey included a random meander in accordance with Cropper (1993) to gain a full species list of the plants within the site, and then one (1) 20x20m quadrat was undertaken in the middle of where most trees occurred capable of accommodating a quadrat of this size. Flora species recorded during survey are listed in Table A1.1 in Attachment 1.

Fauna survey was conducted between 1700hrs and 2030hrs on 23 October 2013 including 2hrs of diurnal survey and 1.5hrs of nocturnal survey. Diurnal fauna survey included frog and reptile habitat searches, bird activity and call survey, predator scat searches, activity searches (scats, scratches, diggings, burrows, etc) and habitat tree survey. Nocturnal fauna

survey included spotlighting, frog call identification, *Anabat* recording (x1 passive station) and threatened owl and Koala call-playback. Fauna species recorded during survey are listed in Table A1.2 in Attachment 1.

Weather conditions were warm to hot with temperatures of 25-32°C. Winds were moderate from the west initially then swung to a southerly during the nocturnal survey. There was no rain at the time of the survey, however, it did rain later that evening after nocturnal survey was completed.

3.0 Site description

Table 1 provides a summary of the planning, cadastral, topographical, and disturbance details of the subject site.

Table 1 – Site features

Location	Wycombe Road, Terrigal
Size	Approximately 53m x 158m
Local government area	Gosford City Council
Elevation	25-40m (AHD)
Grid reference	353906E 6299903N
Topography	Situated on a slightly steep north easterly facing aspect.
Geology and soils	Geology; Narrabeen Group – Inter-bedded laminate, shale and quartz to lithic-quartz sandstone Soils; Erina Soil Landscape
Catchment and drainage	The stormwater flows through the subject site and onto Beaufort Road where it drains south east into Terrigal Lagoon. This then makes its way out the mouth of the lagoon into the Pacific Ocean. This has a high flow opening during high rain periods.
Vegetation	Remnant open forest, under-scrubbed and mostly cleared.
Existing land use	Open space
Clearing	There has been previous management within the site. Apart from remnant trees, the site has been stripped clear.

Figure 2 – Flora and fauna survey effort and results

4.0 Flora

All observed species are listed in Appendix 1 of this report. No threatened species were observed and there was low likelihood of any occurring given the previous disturbance history of the site. Native species diversity is very low.

Two (2) vegetation communities were recorded on site:

- Disturbed Blackbutt / Blue Gum Moist Open Forest
- Cleared Landscape

Vegetation on site is outside of any floodplain influence, therefore, none of the floodplain endangered ecological communities (EECs) apply to the site. No other EECs of the Sydney Basin Bioregion are likely to occur in close proximity to the subject site.

Disturbed Blackbutt / Blue Gum Moist Open Forest

This vegetation community occupies approximately 0.18ha of the subject site. On Figure 2 it has been mapped as occurring as two (2) polygons. The northern polygon is 0.03ha and contains a few remnant trees with a small remnant of understorey vegetation. The southern polygon contains remnant mid-storey trees with a ground layer dominated by non-native grasses and herbs. Within Quadrat 1, native grasses occupy 10-15% of the ground layer, herbs occupy 2-3% and exotics occupy the remaining approximately 85%.

Where canopy species were present, the trees were all *Eucalyptus pilularis* (Blackbutt) with one (1) *Eucalyptus saligna* (Blue Gum). More Blue Gums were located within the road reserve. Trees were up to 33m tall.

Mid-storey species include *Glochidion ferdinandi, Pittosporum undulatum, Acacia implexa, Acacia longifolia* and *Breynia oblongifolia.* These small trees and shrubs range from 1-10m in height.

The main native ground layer species include *Microlaena stipoides, Cynodon dactylon, Dianella caerulea, Dichondra repens, Geitonoplesium cymosum, Imperata cylindrica* var. *major* and *Panicum effusum.*

As there has been previous grazing and clearing on the property, with few remnant trees and a largely exotic ground layer, there is limited ecological value from a botanical perspective. The previous clearing and management means that the likelihood of any threatened species occurring is very low or unlikely.

Photos 1, 2 and 3 show the variation of vegetation across the site.

Photo 1 *– Remnant mid-storey vegetation of southern patch (Quadrat 1)*

Photo 2 *– Remnant trees in the northern patch*

<u>Cleared Landscape</u>

This describes the area within the subject site which was cleared at the time of inspection. This includes approximately 80% of the subject site. There are some planted shrubs on the southern and eastern perimeter, otherwise, the ground layer is comprised of >85% non-native grasses and herbs.

Photo 3 *– Cleared vegetation within the north eastern portion of the subject site*

4.1 Threatened flora species

Threatened Species Conservation Act (TSC Act) – A search of the *Atlas of NSW Wildlife* (OEH, 2013) provided a list of threatened flora species previously recorded within a 10km radius of the subject site. These species are listed in Attachment 2 (Table A2.1) and are considered for potential habitat within the subject site.

Environmental Protection and Biodiversity Conservation Act (EPBC Act) – A review of the schedules of the *EPBC Act* identified a list of threatened flora species or species habitat likely to occur within a 10km radius of the subject site.

These species have been listed in Attachment Table A2.2 and the following threatened flora species are considered to have potential habitat within the subject site. These species will be considered in the 7 part test of significance within Attachment 3:

Table 2 – Threatened flora species with suitable habitat present (state & national)

COMMON NAME	*TSC Act*	*EPBC Act*	Potential to occur
Syzygium paniculatum	V	V	low

Syzygium paniculatum occurs in littoral and subtropical rainforests and is widely planted in landscaping. Parts of Terrigal have sheltered vegetation that contains rainforest species in the mid-storey due to soil types, aspect and higher rainfall. The vegetation type present is normally not known to contain good quality habitat for this species, but given the occasional rainforest elements in an intact patch of vegetation, there is possibly a low likelihood for its occurrence. *Syzygium paniculatum* has been recorded in recent years and within a 3km radius of the site. Despite the low likelihood of potential habitat, no specimens were observed. Given previous land management, there is at very best a low likelihood of seed remaining in the soil seed bank.

4.2 Endangered populations

Eucalyptus oblonga at Bateau Bay is the only endangered flora population to occur within a 10km radius of the subject site. The subject site is not within the suburb of Bateau Bay nor does it contain any specimens of *Eucalyptus oblonga.*

5.0 Fauna

5.1 Fauna habitat

The fauna habitats present within the site are identified within Table 3.

Table 3 – Observed fauna habitat

Topography				
Flat	Gentle	Moderate ✓	Steep	Drop-offs
Vegetation structure				
Closed Forest	Open Forest	Woodland ✓	Heath	Grassland ✓
Disturbance history				
Fire	Under-scrubbing ✓	Cut and fill works		
Tree clearing ✓	Grazing			
Soil landscape				
DEPTH:	Deep	Moderate ✓	Shallow	Skeletal
TYPE:	Clay	Loam ✓	Sand	Organic
VALUE:	Surface foraging ✓	Sub-surface foraging ✓	Denning / burrowing	
WATER RETENTION:	Well drained ✓	Damp / moist	Water logged	Swamp / soak
Feed resources				
FLOWERING TREES:	Eucalypts ✓	Corymbias	Melaleucas	
	Banksias	Acacias		
SEEDING TREES:	Allocasuarinas	Conifers		
WINTER FLOWERING EUCALYPTS:	*C. maculata*	*E. crebra*	*E. globoidea*	*E. sideroxylon*
	E. squamosa	*E. grandis*	*E. multicaulis*	*E. scias*
	E. robusta	*E. tereticornis*	*E. agglomerata*	*E. siderophloia*
FLOWERING PERIODS:	Autumn	Winter	Spring	Summer ✓
OTHER:	Mistletoe	Figs / fruit ✓	Sap / manna	Termites
Foliage protection				
UPPER STRATA:	Dense	Moderate	Sparse ✓	
MID STRATA:	Dense	Moderate	Sparse ✓	
PLANT / SHRUB LAYER:	Dense	Moderate	Sparse ✓	
GROUNDCOVERS:	Dense ✓	Moderate	Sparse	
Hollows / logs				
TREE HOLLOWS:	Large	Medium ✓	Small	
TREE HOLLOW TYPES:	Spouts / branch ✓	Trunk ✓	Broken trunk	Basal cavities	Stags
GROUND HOLLOWS:	Large	Medium	Small	
Vegetation debris				
FALLEN TREES:	Large	Medium	Small	
FALLEN BRANCHES:	Large ✓	Medium	Small ✓	
LITTER:	Deep	Moderate	Shallow ✓	
HUMUS:	Deep	Moderate	Shallow	

Hollows identified were considered of low quality due to highly disturbed landscape surrounding these habitat trees. Two (2) hollow bearing trees were identified. Figure 2 shows the locations and Table 4 shows their attributes.

Table 4 – Habitat tree data

Tree No.	Scientific name	Common name	DBH (cm)	Spread (m)	Height (m)	Hollows & other habitat features recorded
T001	*Glochidion ferdinandi*	Cheese Tree	35/35	8	15	20cm trunk hollow of shallow depth (low)
T002	*Acacia implexa*	Hickory	60	10	15	15cm trunk hollow + loose bark & splits

5.2 Threatened fauna species

TSC Act – A search of the *Atlas of NSW Wildlife* (OEH, 2013) provided a list of threatened fauna species previously recorded within a 10km radius of the subject site. These species are listed in Table A2.2 (Appendix 2) and are considered for potential habitat within the subject site. Strictly estuarine and oceanic threatened species found within 10km have not been included as no marine / aquatic habitats occur within the subject site.

Based on the habitat assessment within Appendix 2, it is considered that the subject site provides low levels of potential habitat for the following state listed threatened fauna species:

Table 5 – State listed threatened fauna species with suitable habitat present

Square-tailed Kite	Little Lorikeet
Barking Owl	Varied Sittella
Grey-headed Flying-fox	Eastern Freetail-bat
Large-eared Pied Bat	Eastern Falsistrelle
Little Bentwing-bat	Eastern Bentwing-bat
Greater Broad-nosed Bat	

Note: Full habitat descriptions for these species are provided in Appendix 2.

SEPP 44 Koala Habitat Protection applies to land within local government areas (LGAs) listed under Schedule 1 of the policy. In addition, Part 2 of the policy outlines a three (3) step process to assess the likelihood of the land in question being potential Koala habitat (PKH) or core Koala habitat (CKH). Part 2 applies to land which has an area of greater than 1ha or has, together with any adjoining land in the same ownership, an area of more than 1ha.

The subject site is required to be considered under SEPP 44 as it falls within the Gosford LGA, which is listed on Schedule 1 of this policy. In addition, the total area of the subject site is greater than 1ha, hence Part 2 – Development Control of Koala Habitats, of the policy applies.

PKH is defined as land where at least 15% of the total number of trees in the upper or lower strata constitutes any of the tree species listed in Schedule 2 of the policy.

CKH is defined as an area of land with a resident population of Koalas, evidenced by attributes such as breeding females (i.e. females with young) and recent sightings, of and historical records of, a population.

Step 1 – Is the land PKH?

No Koala food tree species as listed on Schedule 2 of State Environmental Planning Policy No. 44 - Koala Habitat Protection, were observed within the subject site. Therefore, the subject site is not considered to be PKH.

Step 2 – Is the land CKH?

No Koalas were directly observed at the time of fauna survey, which included diurnal searches of trees and spotlighting. In addition, there was no secondary evidence of Koala habitation in the area including characteristic scratches on trees and scats beneath trees.

A search of the *Atlas of NSW Wildlife* (OEH 2013) found one (1) record of Koala habitation within a 10km radius of the subject site. This record was approximately 2km to the north west recorded in 1992. It is therefore considered that the subject site does not comprise CKH and, as such, no further matters relevant to this policy apply.

Fisheries Management Act (FM Act) – No habitats suitable for threatened aquatic species were observed within the subject site and, as such, the provisions of this act do not require any further consideration.

EPBC Act – A review of the schedules of the *EPBC Act* identified a list of threatened fauna species or species habitat likely to occur within a 10km radius of the subject site.

These species have been listed in Attachment 2 (Table A2.2). In accordance with Table A2.2, the following state and nationally listed threatened fauna species are considered to have potential habitat within the subject site.

Nationally listed threatened species

Based on the habitat assessment within Appendix 2, it is considered that the subject site provides varying levels of potential habitat for the following nationally listed threatened fauna species:

Table 6 – Nationally listed threatened fauna species with suitable habitat present

Grey-headed Flying-fox	Large-eared Pied Bat

No nationally listed threatened fauna species were recorded within the subject site during surveys undertaken.

As the subject site does not contain any likely roosting or subsequent breeding habitat and foraging habitat will remain well represented in the locality, it is concluded that there will not be any significant impact on these species, or other nationally listed threatened fauna species with potential to occur, as a result of the subdivision proposal.

Protected migratory species (national)

The *EPBC Act Protected Matters Report* provides additionally listed terrestrial, wetland and marine migratory species of national significance likely to occur, or with habitat for these species likely to occur, within a 10km radius of the subject site. These migratory species are considered for habitat suitability in Table A2.3 (Appendix 2). Threatened migratory species are assessed for habitat suitability in Table A2.2 (Appendix 2).

No nationally protected migratory bird species were recorded present during the survey or are considered likely to constrain development within the subject site.

5.3 Endangered populations

There are no endangered fauna populations within the Gosford LGA, or within 10km of the subject site.

6.0 Conclusions

The site has limited potential for the occurrence of threatened flora and fauna species. In respect to threatened flora species this is due to the habitat present and its low suitability for locally recorded threatened species.

In respect to threatened fauna this is due to the previous clearing, lack of any significant habitat and scarcity of remnant vegetation present. The site does not form part of an extensive corridor of vegetation. The trees in the road reserve, and those adjacent on lands to the west, have some connective value within the local area for fauna. Whilst some threatened fauna species have a higher potential to frequent the site seasonally, or on occasion, the development area is not likely critical to life-cycle requirements or central to home ranges.

There are no large hollows present for breeding by threatened owls or cockatoos. There is no threatened frog breeding habitat present within the site or nearby.

Given consideration to the available habitat present, local records and species with potential to occur, the 7 part test of significance (Attachment 3) has concluded a not significant conclusion with respect to the potential impact upon threatened species, communities and populations. Therefore, a species impact statement should not be required for the proposed subdivision and development.

The potential impacts on nationally listed species are not likely to cause a significant impact and, as such, a referral to the *Department of Sustainability, Environment, Water, Population and Communities (SEWPAC)* is not required.

6.1 Recommendations

To minimise adverse ecological impacts, the following mitigation measures are proposed:

1. Undertake regular low impact weed control to minimise establishment and spread of invasive weeds e.g. Lantana, Morning Glory and Perennial Grasses.

2. Planting of native vegetation as part of landscaping works is recommended to maintain habitat for local fauna.

There are no recommendations in respect to protection or restoration of threatened fauna species habitat.

Attachment 1

Flora & Fauna Species Lists

Table A1.1 Flora species observed within the subject site

Family	Scientific name	Common name
TREES		
Lauraceae	*Cinnamomum camphora**	Camphor Laurel
Myrtaceae	*Eucalyptus pilularis*	Blackbutt
Myrtaceae	*Eucalyptus saligna*	Sydney Blue Gum
Euphorbiaceae	*Glochidion ferdinandi*	Cheese Tree
Pittosporaceae	*Pittosporum undulatum*	Sweet Pittosporum
SHRUBS		
Mimosaceae	*Acacia implexa*	Hickory
Mimosaceae	*Acacia longifolia* var. *longifolia*	Sydney Golden Wattle
Euphorbiaceae	*Breynia oblongifolia*	Coffee Bush
Rutaceae	*Citrus limon**	Lemon Tree
Fabaceae	*Indigofera australis*	Native Indigo
Verbenaceae	*Lantana camara**	Lantana
Oleaceae	*Ligustrum sinense**	Small-leaved Privet
Ochnaceae	*Ochna serrulata**	Mickey Mouse Plant
Oleaceae	*Olea europaea* subsp. *europaea**	European Olive
Rosaceae	*Prunus sp.**	Stone-fruit Tree
Rosaceae	*Rubus fruticosus* sp. agg.*	Blackberry Complex
Fabaceae	*Senna pendula* var. *glabrata**	-
GROUNDCOVERS		
Polygonaceae	*Acetosa saggitata**	Turkey Rhubarb
Poaceae	*Aira cupaniana**	Silvery Hairgrass
Asparagaceae	*Asparagus aethiopicus**	Asparagus Fern
Poaceae	*Axonopus fissifolius**	Narrow-leafed Carpet Grass
Asteraceae	*Bidens pilosa**	Cobbler's Pegs
Poaceae	*Briza maxima**	Quaking Grass
Poaceae	*Briza minor**	Shivery Grass
Poaceae	*Bromus* sp*	-
Poaceae	*Bromus cartharticus**	Prairie Grass
Apiaceae	*Centella asiatica*	Indian Pennywort
Asteraceae	*Cirsium vulgare**	Spear Thistle
Commelinaceae	*Commelina cyanea*	Native Wandering Jew
Asteraceae	*Conyza sumatrensis**	Fleabane
Poaceae	*Cynodon dactylon*	Common Couch
Phormiaceae	*Dianella caerulea* var. *caerulea*	Flax Lily
Convolvulaceae	*Dichondra repens*	Kidney Weed
Orchidaceae	*Dipodium variegatum*	Blotched Hyacinth Orchid
Poaceae	*Ehrharta erecta**	Panic Veldtgrass
Asteraceae	*Hypochaeris radicata**	Flatweed
Poaceae	*Imperata cylindrica* var. *major*	Blady Grass
Poaceae	*Lachnagrostis filiformis*	Blown Grass
Liliaceae	*Lilium formosanum**	Formosan Lily
Poaceae	*Lolium perenne**	Perennial Ryegrass
Fabaceae	*Lotus suaveolans**	Hairy Bird's Foot Trefoil
Fabaceae	*Medicago polymorpha**	Burr Medic
Poaceae	*Melinus repens**	Red Natal Grass
Poaceae	*Microlaena stipoides* var. *stipoides*	Weeping Grass
Poaceae	*Oplismenus aemulus*	Basket Grass
Poaceae	*Oplismenus imbecillis*	-
Poaceae	*Panicum effusum*	Hairy Panic
Poaceae	*Paspalum dilatatum**	Paspalum
Poaceae	*Pennisetum clandestinum**	Kikuyu
Euphorbiaceae	*Phyllanthus tenellus**	-

Family	Scientific name	Common name
Plantaginaceae	*Plantago lanceolata**	Ribwort
Dennstaedtiaceae	*Pteridium esculentum*	Bracken
Polygonaceae	*Rumex crispus**	Curled Dock
Asteraceae	*Senecio madagascariensis**	Fireweed
Malvaceae	*Sida rhombifolia**	Paddy's Lucerne
Solanaceae	*Solanum nigrum**	Black Nightshade
Asteraceae	*Sonchus oleraceus**	Common Sow-thistle
Asteraceae	*Taraxacum officinale**	Dandelion
Fabaceae	*Trifolium pratense**	Red Clover
Fabaceae	*Trifolium repens**	White Clover
Verbenaceae	*Verbena bonariensis**	Purpletop
VINES		
Luzuriagaceae	*Eustrephus latifolius*	Wombat Berry
Luzuriagaceae	*Geitonoplesium cymosum*	Scrambling Lily
Fabaceae	*Glycine clandestina*	Twining Glycine
Convolvulaceae	*Ipomoea indica**	Blue Morning Glory
Fabaceae	*Kennedia rubicunda*	Dusky Coral Pea
Caprifoliaceae	*Lonicera japonica**	Japanese Honeysuckle
Bignoniaceae	*Pandorea pandorana*	Wonga Vine
Fabaceae	*Vicia sativa* subsp. *sativa**	Common Vetch
* denotes exotic species		

Table A1.2 Fauna species observed within the subject site and nearby

Common name	Scientific name	Method observed	
Birds		**Oct 2013**	
Australian King Parrot	*Alisterus scapularis*	O W	
Australian Magpie	*Gymnorhina tibicen*	O W	
Australian Raven	*Corvus coronoides*	O W	
Channel-billed Cuckoo	*Scythrops novaehollandiae*	O W	
Common Koel	*Eudynamys scolopacea*	O W	
Common Myna *	*Acridotheres tristis*	O W	
Crested Pigeon	*Ocyphaps lophotes*	O	
Dollarbird	*Eurystomus orientalis*	O W	
Eastern Rosella	*Platycercus eximius*	O W	
Figbird	*Sphecotheres viridis*	O W	
Galah	*Cacatua roseicapilla*	O W	
Grey Butcherbird	*Cracticus torquatus*	O W	
Laughing Kookaburra	*Dacelo novaeguineae*	O W	
Little Corella	*Cacatua sanguinea*	O W	
Magpie-lark	*Grallina cyanoleuca*	O W	
Masked Lapwing	*Vanellus miles*	O W	
Noisy Miner	*Manorina melanocephala*	O W	
Pied Currawong	*Strepera graculina*	O W	
Rainbow Lorikeet	*Trichoglossus haematodus*	O W	
Satin Bowerbird	*Ptilonorhynchus violaceus*	O W	
Spotted Turtle-Dove *	*Streptopelia chinensis*	O W	
Sulphur Crested Cockatoo	*Cacatua galerita*	O W	
Superb Fairy-wren	*Malurus cyaneus*	O W	
Welcome Swallow	*Hirundo neoxena*	O W	
Mammals			
Domesticated Dog *	*Canis familiaris*	O	
Reptiles			
Delicate Skink	*Lampropholis delicata*	O	
Amphibians			
Dwarf Tree Frog	*Litoria fallax*	W	Offsite call
Laughing Tree Frog	*Litoria tyleri*	W	Offsite call

Note: * indicates introduced species
TS indicates threatened species

All species listed are identified to a high level of certainty unless otherwise noted as:

PR indicates species identified to a 'probable' level of certainty – more likely than not
PO indicates species identified to a 'possible' level of certainty – recorded to a moderate to high level of uncertainty usually applied to a threatened species of note.

E - Nest / roost	H - Hair / feathers / skin	P - Scat	W - Heard call
F - Tracks / scratchings	K - Dead	Q - Camera	X - In scat
FB - Burrow	O - Observed	T - Trapped / netted	Y - Bone / teeth / shell
G - Crushed cones	OW - Obs & heard call	U - *Anabat* / ultrasound	Z - In raptor / owl pellet

Attachment 2

Threatened Flora & Fauna Species Habitat Assessment

Table A2.1 – Threatened flora species habitat assessment

Scientific name DATABASE SOURCE	***TSC Act***	***EPBC Act***	**Growth form and habitat requirements**	**Recorded on site (✓)**	**If not recorded onsite**				**Considered in 7 part test of significance (✓)**
					Suitable habitat present (✓)	**Nearby and / or high number of record(s) (✓)** *Notes 1,2 & 3*	**Record(s) from recent years (✓)** *Notes 1,2 & 3*	**Potential to occur**	
Acacia bynoeana EPBC	E1	V	Erect or spreading shrub to 0.3m high growing in heath and dry sclerophyll Open Forest on sandy soils. Often associated with disturbed areas such as roadsides. Distribution limits N-Newcastle S-Berrima.	x	x	-	-	x	x
Acacia pubescens OEH EPBC	V	V	Spreading shrub 1-4m high open sclerophyll growing in open forest and woodlands on clay soils. Distribution limits N-Bilpin S-Georges River.	x	x	-	-	x	x
Asterolasia elegans EPBC	-	E	Erect shrub 1-3m high growing in moist sclerophyll forests on Hawkesbury sandstone slopes hillsides. Distribution limits Maroota region.	x	x	-	-	x	x
Astrotricha crassifolia EPBC	V	V	Shrub to 2.4m high. Grows in dry sclerophyll woodland on sandstone. Distribution limits N-Patonga S-Royal NP.	x	x	-	-	x	x
Caladenia tessellata EPBC	E1	V	Terrestrial orchid. Clay-loam or sandy soils. Distribution limits N-Swansea S-south of Eden.	x	marginal	x	x	unlikely	x
Chamaesyce psammogeton OEH	E1	-	Prostrate herb. Coastal dunes. Distribution limits N-Tweed Heads S-Jervis Bay.	x	x	-	-	-	x
Cryptostylis hunteriana EPBC	V	V	Saprophytic orchid. Grows in swamp heath on sandy soils. Distribution limits N-Gibraltar Range S-south of Eden.	x	x	-	-	x	x
Darwinia glaucophylla OEH	V	-	Spreading prostrate shrub with ascending branchlets to 0.15m high. Grows in heath on shallow soils. Distribution limits Gosford district.	x	x	-	-	x	x

Scientific name DATABASE SOURCE	***TSC Act***	***EPBC Act***	**Growth form and habitat requirements**	**Recorded on site (✓)**	**If not recorded onsite**				**Considered in 7 part test of significance (✓)**
					Suitable habitat present (✓)	**Nearby and / or high number of record(s) (✓)** *Notes 1,2 & 3*	**Record(s) from recent years (✓)** *Notes 1,2 & 3*	**Potential to occur**	
Dendrobium melaleucaphilum OEH	E1`	-	Epiphytic orchid which usually occurs on the bark of Melaleuca styphelioides in coastal swamps. Distribution N-Border Ranges S-Blue Mountains.	x	x	-	-	x	x
Diuris praecox OEH EPBC	V	V	Terrestrial orchid. Grows in sclerophyll forest near the coast. Distribution limits N-Nelson Bay S-Ourimbah.	x	x	-	-	x	x
Epacris purpurascens var. *purpurascens* OEH	V	-	Erect shrub to 1.5m high growing in sclerophyll forest and scrub and near creeks and swamps on Sandstone. Distribution limits N-Gosford S-Blue Mountains.	x	x	-	-	x	x
Eucalyptus camfieldii OEH EPBC	V	V	Stringybark to 10m high. Grows on coastal shrub heath and woodlands on sandy soils derived from alluviums and Hawkesbury sandstone. Distribution limits N-Norah Head S-Royal NP.	x	x	-	-	x	x
Eucalyptus glaucina OEH	V	V	Gum to 30m high. Grows in dry open forest and woodlands on clay soils. Distribution limits N-Tweed Heads S-Hunter Valley.	x	x	-	-	x	x
Hibbertia procumbens OEH	E1	-	Prostrate shrub with linear leaves which occurs in heath on sandy soils but is only known from Mangrove Mountain.	x	x	-	-	x	x
Leptospermum deanei EPBC	V	V	Shrub to 5m high. Grows on forested slopes. Distribution limits Near watershed of Lane Cove River.	x	x	-	-	x	x

Scientific name DATABASE SOURCE	***TSC Act***	***EPBC Act***	**Growth form and habitat requirements**	**Recorded on site (✓)**	**If not recorded onsite**				**Considered in 7 part test of significance (✓)**
					Suitable habitat present (✓)	**Nearby and / or high number of record(s) (✓)** *Notes 1,2 & 3*	**Record(s) from recent years (✓)** *Notes 1,2 & 3*	**Potential to occur**	
Lindsaea fraseri OEH	E1	-	Ground fern with slender fronds up to 60cm in length. Grows in poorly drained, infertile soils in swamp forest or open eucalypt forest, usually as part of a ferny understorey. Confined to the far north coast areas of NSW and into QLD.	x	x	-	-	x	x
Melaleuca biconvexa OEH EPBC	V	V	Tall shrub. Grows in wetlands adjoining perennial streams and on the banks of those streams, generally within the geological series known as the Terrigal Formation. Distribution limits N-Port Macquarie S-Jervis Bay.	x	x	-	-	x	x
Pelargonium sp. *Striatellum* EPBC	E1	E	Herb to 90cm tall which grows in damp places especially beside streams and lakes. Occasionally in swamp forest or associated with disturbance. Varied distribution from SE NSW to QLD.	x	x	-	-	x	x
Persoonia hirsuta OEH	E1	E	Erect to decumbent shrub. Grows in dry sclerophyll forest and woodland on Hawkesbury sandstone with infrequent fire histories. Distribution limits N-Glen Davis S-Hill Top.	x	x	-	-	x	x
Prostanthera askania OEH	E1	E	Erect shrub. Grows in sclerophyll forest on ridges in or adjacent to Rainforest. Distribution limits Strickland SF region.	x	x	-	-	x	x
Prostanthera junonis EPBC	E1	E	Small shrub. Grows in sclerophyll forest and heath in shallow soil on sandstone. Distribution limits Somersby region.	x	x	-	-	x	x
Pultenaea glabra OEH EPBC	V	V	Erect shrub. Grows in moist, sheltered section of dry sclerophyll forest on sandstone in Higher Blue Mountains and Glen Davis areas.	x	x	-	-	x	x

Scientific name DATABASE SOURCE	***TSC Act***	***EPBC Act***	**Growth form and habitat requirements**	**Recorded on site (✓)**	**If not recorded onsite**				**Considered in 7 part test of significance (✓)**
					Suitable habitat present (✓)	**Nearby and / or high number of record(s) (✓)** *Notes 1,2 & 3*	**Record(s) from recent years (✓)** *Notes 1,2 & 3*	**Potential to occur**	
Pultenaea maritima OEH EPBC	V,P	-	*Pultenaea maritima* occurs in New South Wales and Queensland and is restricted to grasslands on exposed coastal headlands. Within NSW, the species has been recorded from Newcastle north to Byron Bay.	x	x	-	-	x	x
Rhizanthella slateri EPBC	V	E	Underground orchid that is poorly known. Grows in sclerophyll forests. Usually only seen if the soil is disturbed. Flowers in Oct – Nov.	x	x	-	-	x	x
Senecio spathulatus OEH	E	-	A low growing daisy that prefers primary dunes. Known to occur at Cape Howe and between Kurnell north to Myall Lakes National Park. Also occurs in coastal locations in eastern Victoria.	x	x	-	-	x	x
Streblus pendulinus EPBC	-	E	Tree or large shrub to 6m tall. Coastal species along watercourses in warmer rainforest area.	x	x	-	-	x	x
Syzygium paniculatum OEH EPBC	V	V	Small tree. Subtropical and littoral rainforest on sandy soil. Distribution limits N-Forster S-Jervis Bay.	x	marginal	✓	✓	low	✓
Tetratheca glandulosa OEH EPBC	V	V	Spreading shrub to 0.2m high. Sandy or rocky heath or scrub. Distribution limits N-Mangrove Mountain S-Port Jackson.	x	x	-	-	x	x
Tetratheca juncea OEH EPBC	V	V	Prostrate shrub to 1m high. Dry sclerophyll forest and heath. Distribution limits N-Bulahdelah S-Port Jackson.	x	x	-	-	x	x

Scientific name DATABASE SOURCE	***TSC Act***	***EPBC Act***	**Growth form and habitat requirements**	**Recorded on site (✓)**	**If not recorded onsite**				**Considered in 7 part test of significance (✓)**
					Suitable habitat present (✓)	**Nearby and / or high number of record(s) (✓)** *Notes 1,2 & 3*	**Record(s) from recent years (✓)** *Notes 1,2 & 3*	**Potential to occur**	
Wilsonia backhousei OEH	V	-	Perennial subshrub with procumbent branches. Grows in coastal saltmarshes. *Wilsonia backhousei* is salt tolerant and is found in intertidal saltmarshes and, more rarely, on seacliffs. In New South Wales *Wilsonia backhousei* is scattered along the coast, reaching a northern limit at Wamberal Lagoon. In the Sydney region there has been a considerable decline in the abundance of the species over the last 100yrs, largely as a result of loss of habitat. Distribution limits N-Sydney S-South of Eden.	x	x	-	-	x	x

OEH	- Denotes species listed within 10km of the subject site on the *Atlas of NSW Wildlife*
EPBC	- Denotes species listed within 10km of the subject site in the *EPBC Act* habitat search
V	- Denotes vulnerable listed species under the relevant Act
E or E1	- Denotes endangered listed species under the relevant Act
NOTE:	1. This field is not considered if no suitable habitat is present within the subject site 2. 'records' refer to those provided by the *Atlas of NSW Wildlife* 3. 'nearby' or 'recent' records are species specific accounting for home range, dispersal ability and life cycle

A detailed assessment in accordance with Section 5A of the *Environmental Planning and Assessment Act* (*EP&A Act)* will be completed for these species in Attachment 3 of this report.

Table A2.2 provides an assessment of potential habitat within the subject site for state and nationally listed threatened fauna species recorded within 10km on the *Atlas of NSW Wildlife* (OEH) or indicated to have potential habitat present within 10km on the *EPBC Act* Protected Matters Tool.

Table A2.2 – Threatened fauna species habitat assessment

Common name ***Scientific name*** DATABASE SOURCE	***TSC Act***	***EPBC Act***	**Preferred habitat** ***Distribution limit***	**Recorded on site (✓)**	**If not recorded onsite**				**Considered in 7 part test of significance (✓)**
					Suitable habitat present (✓)	**Nearby and / or high number of record(s) (✓)** *Notes 1,2 & 3*	**Record(s) from recent years (✓)** *Notes 1,2 & 3*	**Potential to occur**	
Wallum Froglet *Crinia tinnula* OEH	V	-	Found in acidic paperbark swamps and wallum country with dense groundcover. Breeds in temporary and permanent pools and ponds of high acidity. *Distribution Limit: N-Tweed Heads S-Kurnell.*	x	x	-	-	x	x
Giant Burrowing Frog *Heleioporus australiacus* OEH EPBC	V	V	Inhabits open forests and riparian forests along non-perennial streams, digging burrows into sandy creek banks. *Distribution Limit: N-Near Singleton S-South of Eden.*	x	x	-	-	x	x
Stuttering Frog *Mixophyes balbus* OEH EPBC	E	V	Terrestrial inhabitant of rainforest and wet sclerophyll forests. *Distribution Limit: N-near Tenterfield S-South of Bombala*.	x	x	-	-	x	x
Giant Barred Frog *Mixophyes iteratus* OEH EPBC	E	E	Terrestrial inhabitant of rainforest and open forests. *Distribution Limit: N-Border Ranges National Park. S-Narooma.*	x	x	-	-	x	x
Red-crowned Toadlet *Pseudophryne australis* OEH	V	-	Prefers sandstone areas, breeds in grass and debris beside non-perennial creeks or gutters. Individuals can also be found under logs and rocks in non-breeding periods. *Distribution Limit: N-Pokolbin. S-near Wollongong.*	x	x	-	-	x	x

Common name ***Scientific name*** DATABASE SOURCE	***TSC Act***	***EPBC Act***	**Preferred habitat** ***Distribution limit***	**Recorded on site (✓)**	**If not recorded onsite**				**Considered in 7 part test of significance (✓)**
					Suitable habitat present (✓)	**Nearby and / or high number of record(s) (✓)** *Notes 1,2 & 3*	**Record(s) from recent years (✓)** *Notes 1,2 & 3*	**Potential to occur**	
Green and Golden Bell Frog *Litoria aurea* OEH EPBC	E	V	Prefers the edges of permanent water, streams, swamps, creeks, lagoons, farm dams and ornamental ponds. Often found under debris. *Distribution Limit: N-Byron Bay S-South of Eden.*	x	x	-	-	x	x
Green-thighed Frog *Litoria brevipalmata* OEH	V	-	Found in rainforests and open forests within or at the edge of streams, swamps, lagoons, dams and ponds. *Distribution Limit: N-Border Ranges National Park. S-Near Gosford.*	x	x	-	-	x	x
Littlejohn's Tree Frog *Litoria littlejohnii* EPBC	V	V	Found in wet and dry sclerophyll forest associated with sandstone outcrops at altitudes 280-1,000m on eastern slopes of Great Dividing Range. Prefers flowing rocky streams. *Distribution Limit: N-Hunter River S-Eden.*	x	x	-	-	x	x
Rosenberg's Goanna *Varanus rosenbergi* OEH	V	-	Hawkesbury sandstone outcrop specialist. Inhabits woodlands, dry open forests and heathland sheltering in burrows, hollow logs, rock crevices and outcrops. *Distribution Limit: N-Nr Broke. S-Nowra Located in scattered patches near Sydney, Nowra and Goulburn.*	x	x	-	-	x	x
Broad-headed Snake *Hoplocephalus bungaroides* EPBC	E	V	Sandstone outcrops, exfoliated rock slabs and tree hollows in coastal and near coastal areas. *Distribution Limit: N-Mudgee Park. S-Nowra.*	x	x	-	-	x	x

Common name *Scientific name* DATABASE SOURCE	*TSC Act*	*EPBC Act*	Preferred habitat *Distribution limit*	Recorded on site (✓)	If not recorded onsite				Considered in 7 part test of significance (✓)
					Suitable habitat present (✓)	Nearby and / or high number of record(s) (✓) *Notes 1,2 & 3*	Record(s) from recent years (✓) *Notes 1,2 & 3*	Potential to occur	
Stephens' Banded Snake *Hoplocephalus stephensii* OEH	V	-	A nocturnal and partly arboreal species that inhabits open and closed forest communities sheltering under bark, in hollows and under exfoliating slabs of granite. *Distribution Limit: N-Border Ranges National Park. S-Gosford.*	x	x	-	-	x	x
Red-tailed Tropicbird *Phaethon rubricauda* OEH	V		Inhabits tropical seas, islands and coasts and is seldom near land except at nesting sites, which are cliff cavities and onshore bushes. *Ranges in oceans surrounding Australia, except south of W.A. and west of S.A. seas.*	x	x	-	-	x	x
Wompoo Fruit-dove *Ptilinopus magnificus* OEH	V	-	Inhabits large undisturbed patches of lowland and adjacent highland rainforest and moist eucalypt forests where it feeds on fruit. *Distribution Limit: N-Tweed Heads. S-Sydney.*	x	x	-	-	x	x
Superb Fruit-dove *Ptilinopus superbus* OEH	V	-	Rainforests, adjacent mangroves, eucalypt forests, scrubland with native fruits. *Distribution Limit: N-Border Ranges National Park. S-Bateman's Bay.*	x	x	-	-	x	x
Black-necked Stork *Ephippiorhynchus asiaticus* OEH	E	-	Occurs in tropical to warm temperate terrestrial wetlands, estuarine and littoral habitats such as mangroves, tidal mudflats, floodplains, open woodlands, irrigated lands, bore drains, sub-artesian pools, farm dams and sewerage ponds. *Distribution Limit: N-Tweed Heads. S-Nowra.*	x	x	-	-	x	x

Common name *Scientific name* DATABASE SOURCE	*TSC Act*	*EPBC Act*	Preferred habitat *Distribution limit*	Recorded on site (✓)	If not recorded onsite				Considered in 7 part test of significance (✓)
					Suitable habitat present (✓)	Nearby and / or high number of record(s) (✓) *Notes 1,2 & 3*	Record(s) from recent years (✓) *Notes 1,2 & 3*	Potential to occur	
Australasian Bittern *Botaurus poiciloptilus* OEH EPBC	E	E	Found in or over water of shallow freshwater or brackish wetlands with tall reedbeds, sedges, rushes, cumbungi, lignum and also in ricefields, drains in tussocky paddocks, occasionally saltmarsh, brackish wetlands. *Distribution Limit: N-North of Lismore. S- Eden.*	x	x	-	-	x	x
Black Bittern *Ixobrychus flavicollis* OEH	V	-	Found in shadowy, leafy waterside trees such as callistemons, casuarinas, paperbarks, eucalypts, mangroves and willows along tidal creeks, freshwater and brackish streams and ponds, sheltered mudflats and oyster slats. *Distribution Limit: N-Tweed Heads. S-South of Eden.*	x	x	-	-	x	x
Black-breasted Buzzard *Hamirostra melanosternon* OEH	V	-	Utilises variety of open habitats from riverine and tropical eucalypt woodlands to shrub steppes, arid scrubs, grassy plains and sandy deserts. *Distribution Limit: N-Hungerford. S-Robinvale.*	x	x	-	-	x	x
Little Eagle *Hieraaetus morphnoides* OEH	V	-	Utilises plains, foothills, open forests, woodlands and scrublands; river red gums on watercourses and lakes. *Distribution Limit - N-Tweed Heads. S-South of Eden.*	x	x	-	-	x	x
Square-tailed Kite *Lophoictinia isura* OEH	V	-	Utilises mostly coastal and sub-coastal open forest, woodland or lightly timbered habitats and inland habitats along watercourses and mallee that are rich in passerine birds. *Distribution Limit: N-Goondiwindi. S-South of Eden.*	x	✓	✓	✓	✓	✓

Common name ***Scientific name*** DATABASE SOURCE	***TSC Act***	***EPBC Act***	**Preferred habitat** ***Distribution limit***	**Recorded on site (✓)**	**If not recorded onsite**				**Considered in 7 part test of significance (✓)**
					Suitable habitat present (✓)	**Nearby and / or high number of record(s) (✓)** *Notes 1,2 & 3*	**Record(s) from recent years (✓)** *Notes 1,2 & 3*	**Potential to occur**	
Osprey *Pandion haliaetus* OEH	V	-	Utilises waterbodies including coastal waters, inlets, lakes, estuaries and offshore islands with a dead tree for perching and feeding. *Distribution Limit: N-Tweed Heads. S-South of Eden.*	x	x	-	-	x	x
Red Goshawk *Erythrotriorchis radiatus* EPBC	E	V	Inhabits tall open forests and woodlands. Breeds in tall trees adjacent to watercourses of wetlands. *Distribution Limit: N-Border Ranges National Park. S-Foster.*	x	x	-	-	x	x
Black Falcon *Falco subniger* OEH	V	-	Inhabits plains, grasslands, foothills, timbered watercourses, wetland environs, crops; occasionally over towns and cities. *N-Tweed Heads. S-South of Eden*	x	x	-	-	x	x
Bush Stone-curlew *Burhinus grallarius* OEH	E	-	Utilises open forests and savannah woodlands, sometimes dune scrub, savannah and mangrove fringes. *Distribution Limit: N-Border Ranges National Park. S-Near Nowra.*	x	x	-	-	x	x
Comb-crested Jacana *Irediparra gallinacean* OEH	V	-	Floating vegetation of deep and permanent vegetation-choked tropical and warm temperate wetlands and dams. Occasionally feeds along muddy wetland margins. *Distribution Limit: N-Tweed Heads. S-Ku-ring-gai Chase National Park.*	x	x	-	-	x	x
Australian Painted Snipe *Rostratula australis* EPBC	E	V	Most numerous within the Murray-Darling basin and inland Australia within marshes and freshwater wetlands with swampy vegetation. *Distribution Limit: N-Tweed Heads. S-South of Eden.*	x	x	-	-	x	x

Common name ***Scientific name*** DATABASE SOURCE	***TSC Act***	***EPBC Act***	**Preferred habitat** ***Distribution limit***	**Recorded on site (✓)**	**If not recorded onsite**				**Considered in 7 part test of significance (✓)**
					Suitable habitat present (✓)	**Nearby and / or high number of record(s) (✓)** *Notes 1,2 & 3*	**Record(s) from recent years (✓)** *Notes 1,2 & 3*	**Potential to occur**	
Gang-gang Cockatoo *Callocephalon fimbriatum* OEH	V	-	Prefers wetter forests and woodlands from sea level to > 2,000m on the Great Dividing Range, timbered foothills and valleys, timbered watercourses, coastal scrubs, farmlands and suburban gardens. *Distribution Limit: mid north coast of NSW to western Victoria.*	x	x	-	-	x	x
Glossy Black-Cockatoo *Calyptorhynchus lathami* OEH	V	-	Open forests with *Allocasuarina* species and hollows for nesting. *Distribution Limit: N-Tweed Heads. S-South of Eden.*	x	x	-	-	x	x
Little Lorikeet *Glossopsitta pusilla* OEH	V	-	Inhabits forests, woodlands; large trees in open country; timbered watercourses, shelterbeds, and street trees. *Distribution Limit: N-Tweed Heads. S-South of Eden.*	x	✓	✓	✓	✓	✓
Swift Parrot *Lathamus discolour* OEH EPBC	E	E	Inhabits eucalypt forests and woodlands with winter flowering eucalypts. *Distribution Limit: N-Border Ranges National Park. S-South of Eden.*	x	x	-	-	x	x
Turquoise Parrot *Neophema pulchella* OEH	V	-	Inhabits coastal scrubland, open forest and timbered grassland, especially ecotones between dry hardwood forests and grasslands. *Distribution Limit: N-Near Tenterfield. S-South of Eden.*	x	x	-	-	x	x

Common name ***Scientific name*** DATABASE SOURCE	***TSC Act***	***EPBC Act***	**Preferred habitat** ***Distribution limit***	**Recorded on site (✓)**	**If not recorded onsite**				**Considered in 7 part test of significance (✓)**
					Suitable habitat present (✓)	**Nearby and / or high number of record(s) (✓)** *Notes 1,2 & 3*	**Record(s) from recent years (✓)** *Notes 1,2 & 3*	**Potential to occur**	
Barking Owl *Ninox connivens* OEH	V	-	Inhabits principally woodlands but also open forests and partially cleared land and utilises hollows for nesting. *Distribution Limits: N-Border Ranges National Park. S-Eden.*	x	✓	✓	✓	✓	✓
Powerful Owl *Ninox strenua* OEH	V	-	Forests containing mature trees for shelter or breeding and densely vegetated gullies for roosting. *Distribution Limits: N-Border Ranges National Park. S-Eden.*	x	x	-	-	x	x
Masked Owl *Tyto novaehollandiae* OEH	V	-	Open forest and woodlands with cleared areas for hunting and hollow trees or dense vegetation for roosting. *Distribution Limit: N-Border Ranges National Park. S-Eden.*	x	x	-	-	x	x
Sooty Owl *Tyto tenebricosa* OEH	V	-	Tall, dense, wet forests containing trees with very large hollows. *Distribution Limit: N-Border Ranges National Park. S-South of Eden.*	x	x	-	-	x	x
Eastern Bristlebird *Dasyornis brachypterus* EPBC	E	E	Coastal woodlands, dense scrubs and heathlands, especially where low heathland borders taller woodland or dense tall tea-tree. *Distribution Limit: N-Tweed Heads. S-South of Eden.*	x	x	-	-	x	x
Speckled Warbler *Chthonicola sagittata* OEH	V	-	Found in temperate eucalypt woodland and open forest including forest edges, wooded farmland and urban areas with mature eucalypts. *Distribution Limit: N-Urbanville. S-Eden.*	x	x	-	-	x	x

Common name *Scientific name* DATABASE SOURCE	*TSC Act*	*EPBC Act*	Preferred habitat *Distribution limit*	Recorded on site (✓)	If not recorded onsite				Considered in 7 part test of significance (✓)
					Suitable habitat present (✓)	Nearby and / or high number of record(s) (✓) *Notes 1,2 & 3*	Record(s) from recent years (✓) *Notes 1,2 & 3*	Potential to occur	
White-fronted Chat *Epithianura albifrons* OEH	V	-	Found in open damp ground, grass clumps, fencelines, heath, samphire saltmarshes, mangroves, dunes, saltbush plains. *Distribution Limit: N-Tweed Heads. S-South of Eden.*	x	x	-	-	x	x
Regent Honeyeater *Xanthomyza Phrygia* OEH EPBC	E4A	E	Found in temperate eucalypt woodland and open forest including forest edges, wooded farmland and urban areas with mature eucalypts. *Distribution Limit: N-Urbanville. S-Eden.*	x	x	-	-	x	x
Grey-crowned Babbler *Pomatostoomus temporalis temporalis* OEH	V	-	Found in dry open forests, woodland scrubland, farmland with isolated trees. Distribution Limit mostly west of Great Dividing Range except Hunter Valley. *Distribution Limit: N-Qld widespread. S-Mornington Pen. E-se SA.*	x	x	-	-	x	x
Varied Sittella *Daphoenositta chrysoptera* OEH	V	-	Open eucalypt woodlands / forests (except heavier rainforests); mallee, inland acacia, coastal tea-tree scrubs; golf courses, shelterbelts, orchards, parks, scrubby gardens. *Distribution Limit: N-Border Ranges National Park. S-South of Eden.*	x	x	-	-	x	x
Scarlet Robin *Petroica boodang* OEH	V	-	Found in foothill forests, woodlands, watercourses; in autumn-winter, more open habitats: river red gum woodlands, golf courses, parks, orchards, gardens. *Distribution Limit: N-Tweed Heads. S-South of Eden.*	x	x	-	-	x	x

Common name ***Scientific name*** DATABASE SOURCE	***TSC Act***	***EPBC Act***	**Preferred habitat** ***Distribution limit***	**Recorded on site (✓)**	**If not recorded onsite**				**Considered in 7 part test of significance (✓)**
					Suitable habitat present (✓)	**Nearby and / or high number of record(s) (✓)** *Notes 1,2 & 3*	**Record(s) from recent years (✓)** *Notes 1,2 & 3*	**Potential to occur**	
Diamond Firetail *Stagonopleura guttata* OEH	V	-	Found in Eucalypt woodlands, forests and mallee where there is grassy understorey west of the Great Div. also drier coastal woodlands of the Cumberland Plain and Hunter Richmond and Clarence River Valleys. *Distribution Limit: N-Rockhampton Q. S-Eyre Pen Kangaroo Is. SA.*	x	x	-	-	x	x
Spotted-tailed Quoll *Dasyurus maculatus* OEH EPBC	V	E	Dry and moist open forests containing rock caves, hollow logs or trees. *Distribution Limit: N-Mt Warning National Park. S-South of Eden.*	x	x	-	-	x	x
Eastern Quoll *Dasyurus viverrinus* OEH	E	-	Dry and moist sclerophyll forests containing hollow logs, rock caves, abandoned burrows or trees with open grazing land interspersed. *Distribution Limit: N-Kempsey. S-South of Eden.*	x	x	-	-	x	x
Southern Brown Bandicoot *Isoodon obesulus* OEH	E	E	Utilises a range of habitats containing thick ground cover - open forest, woodland, heath, cleared land, urbanised areas and regenerating bushland. *Distribution Limit: N-Kempsey. S-South of Eden.*	x	x	-	-	x	x
Koala *Phascolarctos cinereus* OEH EPBC	V	V	Inhabits both wet and dry eucalypt forest on high nutrient soils containing preferred feed trees. *Distribution Limit: N-Tweed Heads. S-South of Eden.*	x	x	-	-	x	x

Common name *Scientific name* DATABASE SOURCE	*TSC Act*	*EPBC Act*	Preferred habitat *Distribution limit*	Recorded on site (✓)	If not recorded onsite				Considered in 7 part test of significance (✓)
					Suitable habitat present (✓)	Nearby and / or high number of record(s) (✓) *Notes 1,2 & 3*	Record(s) from recent years (✓) *Notes 1,2 & 3*	Potential to occur	
Eastern Pygmy Possum *Cercatetus nanus* OEH	V	-	Found in a variety of habitats from rainforest through open forest to heath. Feeds on insects but also gathers pollen from banksias, eucalypts and bottlebrushes. Nests in banksias and myrtaceous shrubs. *Distribution Limit: N-Tweed Heads. S-Eden.*	x	x	-	-	x	x
Yellow-bellied Glider *Petaurus australis* OEH	V	-	Tall mature eucalypt forests with high nectar producing species and hollow bearing trees. *Distribution Limit- N-Border Ranges National Park. S-South of Eden*.	x	x	-	-	x	x
Squirrel Glider *Petaurus norfolcensis* OEH	V	-	Mixed aged stands of eucalypt forest & woodlands including gum barked & high nectar producing species & hollow bearing trees. *Distribution Limit: N-Tweed Heads. S-Albury.*	x	x	-	-	x	x
Long-nosed Potoroo *Potorous tridactylus* OEH EPBC	V	V	Coastal heath and dry and wet sclerophyll forests with a dense understorey. *Distribution Limit: N-Mt Warning National Park. S-South of Eden.*	x	x	-	-	x	x
Parma Wallaby *Macropus parma* OEH	V	-	Inhabits rainforests and wet and dry sclerophyll forests with a dense understorey and associated grassy patches. *Distribution Limit: N-Border Ranges National Park. S-Morton National Park.*	x	x	-	-	x	x

Common name ***Scientific name*** DATABASE SOURCE	***TSC Act***	***EPBC Act***	**Preferred habitat** ***Distribution limit***	**Recorded on site (✓)**	**If not recorded onsite**				**Considered in 7 part test of significance (✓)**
					Suitable habitat present (✓)	**Nearby and / or high number of record(s) (✓)** *Notes 1,2 & 3*	**Record(s) from recent years (✓)** *Notes 1,2 & 3*	**Potential to occur**	
Brush-tailed Rock-wallaby *Petrogale penicillata* EPBC	E	V	Found in rocky gorges with a vegetation of rainforest or open forests to isolated rocky outcrops in semi-arid woodland country. *Distribution Limit: N-North of Tenterfield. S-Bombala.*	x	x	-	-	x	x
Grey-headed Flying-fox *Pteropus poliocephalus* OEH EPBC	V	V	Found in a variety of habitats including rainforest, mangroves, paperbark swamp, wet and dry open forest and cultivated areas. Forms camps commonly found in gullies and in vegetation with a dense canopy. *Distribution Limit: N-Tweed Heads. S-Eden.*	x	✓	✓	✓	✓	✓
Yellow-bellied Sheathtail-bat *Saccolaimus flaviventris* OEH	V	-	Rainforests, sclerophyll forests and woodlands. *Distribution Limit: N-North of Walgett. S-Sydney.*	x	✓	✓	✓	✓	✓
East-coast Freetail Bat *Micronomus norfolkensis* OEH	V	-	Inhabits open forests and woodlands foraging above the canopy and along the edge of forests. Roosts in tree hollows, under bark and buildings. *Distribution Limit: N-Woodenbong. S-Pambula.*	x	✓	✓	✓	✓	✓
Large-eared Pied Bat *Chalinolobus dwyeri* OEH EPBC	V	V	Warm-temperate to subtropical dry sclerophyll forest and woodland. Roosts in caves, tunnels and tree hollows in colonies of up to 30 animals. *Distribution Limit: N-Border Ranges National Park. S-Wollongong.*	x	✓	✓	✓	✓	✓

Common name ***Scientific name*** DATABASE SOURCE	***TSC Act***	***EPBC Act***	**Preferred habitat** ***Distribution limit***	**Recorded on site (✓)**	**If not recorded onsite**				**Considered in 7 part test of significance (✓)**
					Suitable habitat present (✓)	**Nearby and / or high number of record(s) (✓)** *Notes 1,2 & 3*	**Record(s) from recent years (✓)** *Notes 1,2 & 3*	**Potential to occur**	
Eastern Falsistrelle *Falsistrellus tasmaniensis* OEH	V	-	Recorded roosting in caves, old buildings and tree hollows. *Distribution Limit: N-Border Ranges National Park. S-Pambula.*	x	✓	✓	✓	✓	✓
Golden-tipped Bat *Kerivoula papuensis* OEH	V	-	Rainforest and adjoining moist open forest habitats, roosting in tree hollows and dense vegetation. *Distribution Limit: N-Border Ranges National Park. S-South of Eden.*	x	x	-	-	x	x
Little Bentwing-bat *Miniopterus australis* OEH	V	-	Roosts in caves, old buildings and structures in the higher rainfall forests along the south coast of Australia. *Distribution Limit: N-Border Ranges National Park. S-Sydney.*	x	✓	✓	✓	✓	✓
Eastern Bentwing-bat *Miniopterus orianae oceansis* OEH	V	-	Prefers areas where there are caves, old mines, old buildings, stormwater drains and well-timbered areas. *Distribution Limit: N-Border Ranges National Park. S-South of Eden.*	x	✓	✓	✓	✓	✓
Large-footed Myotis *Myotis macropus* OEH	V	-	Roosts in caves, mines, tunnels, buildings, tree hollows and under bridges. Forages over open water. *Distribution limits: N-Border Ranges National Park. S-South of Eden.*	x	x	-	-	x	x

Common name ***Scientific name*** DATABASE SOURCE	***TSC Act***	***EPBC Act***	**Preferred habitat** ***Distribution limit***	**Recorded on site (✓)**	**If not recorded onsite**				**Considered in 7 part test of significance (✓)**
					Suitable habitat present (✓)	**Nearby and / or high number of record(s) (✓)** *Notes 1,2 & 3*	**Record(s) from recent years (✓)** *Notes 1,2 & 3*	**Potential to occur**	
Greater Broad-nosed Bat *Scoteanax rueppellii* OEH	V	-	Inhabits areas containing moist river and creek systems, especially tree lined creeks. *Distribution Limit: N-Border Ranges National Park. S-Pambula.*	x	✓	✓	✓	✓	✓
Eastern Chestnut Mouse *Pseudomys gracilicaudatus* OEH	V	-	Inhabits heathland including dense wet heath and swampy areas, occasionally in woodland with grassy understorey. *Distribution Limit: N-Border Ranges National Park. S-Brisbane Water National Park.*	x	x	-	-	x	x
New Holland Mouse *Pseudomys novaehollandiae* EPBC	-	V	Occurs in heathlands, woodlands, open forest and paperbark swamps and on sandy, loamy or rocky soils. Coastal populations have a marked preference for sandy substrates, a heathy understorey of leguminous shrubs less than 1m high and sparse ground litter. Recolonise of regenerating burnt areas. *Distribution Limit: N-Border Ranges National Park. S-South of Eden.*	x	x	-	-	x	x
Giant Dragonfly *Petalura gigantean* OEH	E	-	Inhabits large relatively deep permanent swamps and bogs with high water quality and moss or other soft vegetation along the edge for egg laying. *It occurs in the far NE NSW, south to Kempsey, & in a patch between Gosford & Nowra.*	x	x	-	-	x	x

OEH	-	Denotes species listed within 10km of the subject site on the *Atlas of NSW Wildlife*
EPBC	-	Denotes species listed within 10km of the subject site in the *EPBC Act* habitat search
V	-	Denotes vulnerable listed species under the relevant Act

Common name ***Scientific name*** DATABASE SOURCE		***TSC Act***	***EPBC Act***	**Preferred habitat** ***Distribution limit***	**Recorded on site (✓)**	**If not recorded onsite**				**Considered in 7 part test of significance (✓)**
						Suitable habitat present (✓)	**Nearby and / or high number of record(s) (✓)** *Notes 1,2 & 3*	**Record(s) from recent years (✓)** *Notes 1,2 & 3*	**Potential to occur**	
E	- Denotes endangered listed species under the relevant Act									
NOTE:	1. This field is not considered if no suitable habitat is present within the subject site 2. 'records' refer to those provided by the *Atlas of NSW Wildlife* database 3. 'nearby' or 'recent' records are species specific accounting for home range, dispersal ability and life cycle									

A detailed assessment in accordance with Section 5A of the *EP&A Act* will be completed for these species in Attachment 3 of this report.

Table A2.3 provides an assessment of potential habitat within the subject site for nationally protected migratory fauna species recorded within 10km on the *EPBC Act* Protected Matters Tool. Nationally threatened migratory species are considered in Table A2.2.

Table A2.3 – Migratory fauna habitat assessment

Common name ***Scientific name***	**Preferred habitat** ***Migratory breeding***	**Suitable habitat present (✓)**	**Recorded on site (✓)**	**Comments**
White-bellied Sea Eagle (*Haliaeetus leucogaster*)	Coasts, islands, estuaries, inlets, large rivers, inland lakes, reservoirs. *Sedentary; dispersive.*	x	x	
White-throated Needletail (*Hirundapus caudacutus*)	Airspace over forests, woodlands, farmlands, plains, lakes, coasts, towns; companies forage often along favoured hilltops and timbered ranges. *Breeds Siberia, Himalayas, east to Japan. Summer migrant to eastern Australia.*	x	x	
Rainbow Bee-eater (*Merops ornatus*)	Open woodlands with sandy, loamy soil; sandridges, sandspits, riverbanks, road cuttings, beaches, dunes, cliffs, mangroves, rainforest, woodlands, golf courses. *Breeding resident in northern Australia. Summer breeding migrant to south east and south west Australia.*	x	x	
Black-faced Monarch (*Monarcha melanopsis*)	Rainforests, eucalypt woodlands; coastal scrubs; damp gullies in rainforest, eucalypt forest; more open woodland when migrating. *Summer breeding migrant to coastal south east Australia, otherwise uncommon.*	x	x	
Satin Flycatcher (*Myiagra cyanoleuca*)	Heavily vegetated gullies in forests, taller woodlands, usually above shrub-layer; during migration, coastal forests, woodlands, mangroves, trees in open country, gardens. *Breeds mostly south east Australia and Tasmania over warmer months, winters in north east Qld.*	x	x	
Rufous Fantail (*Rhipidura rufifrons*)	Undergrowth of rainforests / wetter eucalypt forests / gullies; monsoon forests, paperbarks, sub-inland and coastal scrubs; mangroves, watercourses; parks, gardens. On migration, farms, streets buildings. *Breeding migrant to south east Australia over warmer months. Altitudinal migrant in north east NSW in mountain forests during warmer months.*	x	x	
Great Egret (*Ardea alba*)	Shallows of rivers, estuaries; tidal mudflats, freshwater wetlands; sewerage ponds, irrigation areas, larger dams, etc. *Dispersive; cosmopolitan.*	x	x	
Cattle Egret (*Ardea ibis*)	Stock paddocks, pastures, croplands, garbage tips, wetlands, tidal mudflats, drains. *Breeds in summer in warmer parts of range including NSW.*	x	✓	Unlikely. Species has a close association with grazing stock which were not present during survey.

Common name ***Scientific name***	**Preferred habitat** ***Migratory breeding***	**Suitable habitat present (✓)**	**Recorded on site (✓)**	**Comments**
Latham's Snipe (*Gallinago hardwickii*)	Soft wet ground or shallow water with tussocks and other green or dead growth; wet parts of paddocks; seepage below dams; irrigated areas; scrub or open woodland from sea-level to alpine bogs over 2,000m; samphire on saltmarshes; mangrove fringes. *Breeds Japan. Regular summer migrant to Australia. Some overwinter.*	x	x	
Fork-tailed Swift (*Apus pacificus*)	Aerial: over open country, from semi-arid deserts to coasts, islands; sometimes over forests, cities. *Breeds Siberia, Himalayas, east to Japan south east Asia. Summer migrant to east Australia. Mass movements associated with late summer low pressure systems into east Australia. Otherwise uncommon.*	x	x	

Attachment 3

7 Part Test of Significance

7 Part Test of Significance
(Section 5A *EP&A Act* 1979)

Council is required to consider the impact upon threatened species, populations and / or EECs from any development or activity via the process of a 7 part test of significance. The significance of the assessment is then used to determine the need for a more detailed species impact statement (SIS).

The following 7 part test of significance relies on the ecological assessment provided in the main body of the report and should be read as such.

Flora and fauna investigations of the subject site, together with habitat assessments, have resulted in the identification of potential habitat for a variety of threatened species. An assessment of these species is as follows:

Threatened flora

- *Syzygium paniculatum*

Endangered ecological communities

- nil

Threatened fauna

- Square-tailed Kite
- Barking Owl
- Grey-headed Flying-fox
- East-coast Freetail Bat
- Eastern Falsistrelle
- Eastern Bentwing-bat
- Little Lorikeet
- Varied Sittella
- Yellow-bellied Sheathtail-bat
- Large-eared Pied Bat
- Little Bentwing-bat
- Greater Broad-nosed Bat

Endangered populations

- *Eucalyptus oblonga* at Bateau Bay

The 7 part test of significance is as follows.

a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction

Despite the presence of potential habitat, no threatened species were recorded during the flora and fauna survey. It is considered that the proposal is unlikely to disrupt the life cycle for any of these listed species such that a viable local population would be placed at risk of extinction.

b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction

There is only one (1) endangered flora population within the Gosford LGA, that is:

- *Eucalyptus oblonga* at Bateau Bay

The subject site is not within Bateau Bay and no specimens of *Eucalyptus oblonga* were observed.

Therefore, it is considered that the action proposed is not likely to have an adverse effect on the life cycle of these species that constitute the endangered populations such that a viable local population of these species is likely to be placed at risk of extinction.

c) In the case of a critically endangered or endangered ecological community, whether the action proposed:

i. Is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

No EEC is present within the subject site or likely to be indirectly impacted upon.

ii. Is likely to substantially and adversely modify the composition such that its local occurrence is likely to be placed at risk of extinction,

No EEC is present within the subject site or likely to be indirectly impacted upon.

d) In relation to the habitat of threatened species, populations or ecological community:

It is considered that the habitat attributes of the subject site provide known or potential habitat for *Syzygium paniculatum,* Square-tailed Kite, Little Lorikeet, Barking Owl, Varied Sittella, Grey-headed Flying-fox, Large-eared Pied Bat, Eastern Falsistrelle, East-coast Freetail Bat, Greater Broad-nosed Bat, Little Bentwing-bat, Eastern Bentwing-bat and Yellow-bellied Sheathtail-bat.

i. The extent to which habitat is likely to be removed or modified as a result of the action proposed, and

Approximately 0.18ha of disturbed vegetation providing habitat for the aforementioned species is likely to be removed for future development of the site, including the loss of two (2) hollow bearing trees.

ii. Whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

There are a lot of fragmented landscapes in the local area but immediately north, south and east is residential development containing no connective values. There is some remnant vegetation on the rural residential properties to the west. The removal of a few trees for future development on site will not likely fragment or isolate habitat from one area and considering the size of the likely vegetation removed and its condition, it is not expected to provide any pending fragmentation or isolation issue.

iii. The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality

Given the lack of threatened species records, no EECs, no endangered populations, a low native species diversity, small size of impact and previous disturbance history, the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population and ecological communities in the locality is considered to be minimal.

e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly)

The site has not been identified as critical habitat within the provisions of the *TSC Act.* Therefore, this matter does not require any further consideration at this time.

f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan

Draft state recovery plans have been prepared for the following threatened species with potential habitat within the subject site:

- Barking Owl (*Ninox connivens*) (NPWS 2003)

It is considered that the proposed development is generally consistent with the objectives or actions of the above mentioned draft and approved recovery plans.

g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

A key threatening process is defined in the *TSC Act* as a process that threatens, or could threaten, the survival or evolutionary development of species, populations or ecological communities.

The current list of key threatening processes under the *TSC Act*, and whether the proposed activity is recognised as a threatening process, is shown below.

Listed key threatening process (as described in the final determination of the Scientific Committee to list the threatening process)	**Is the development or activity proposed of a class of development or activity that is recognised as a threatening process?**		
	Likely	**Possible**	**Unlikely**
Alteration of habitat following subsidence due to longwall mining			✓
Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands			✓
Anthropogenic Climate Change			✓
Bushrock removal			✓
Clearing of native vegetation	✓		
Competition and habitat degradation by feral goats			✓
Competition and grazing by the feral European Rabbit (*Oryctolagus cuniculus*)			✓
Competition from feral honeybees			✓
Death or injury to marine species following capture in shark control programs on ocean beaches			✓
Entanglement in, or ingestion of anthropogenic debris in marine and estuarine environments			✓
Forest eucalypt dieback associated with over-abundant psyllids			✓

Listed key threatening process (as described in the final determination of the Scientific Committee to list the threatening process)	Is the development or activity proposed of a class of development or activity that is recognised as a threatening process?		
	Likely	Possible	Unlikely
and bell miners			
High frequency fire resulting in the disruption of life-cycle processes in plants and animals and loss of vegetation structure and composition			✓
Herbivory and environmental degradation caused by feral deer			✓
Importation of red imported fire ants into NSW			✓
Infection by *Psittacine circoviral* (beak and feather) disease affecting endangered psittacine species and populations			✓
Infection of frogs by amphibian chytrid causing the disease chytridiomycosis			✓
Introduction and establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae		✓	
Infection of native plants by *Phytophthora cinnamomi*		✓	
Introduction of the large earth bumblebee (*Bombus terrestris*)			✓
Invasion and establishment of exotic vines and scramblers			✓
Invasion and establishment of Scotch Broom (*Cytisus scoparius*)			✓
Invasion and establishment of the Cane Toad (*Bufo marinus*)			✓
Invasion, establishment and spread of *Lantana camara*			✓
Invasion of native plant communities by bitou bush & boneseed *Chrysanthemoides monilifera*			✓
Invasion of native plant communities by exotic perennial grasses			✓
Invasion of native plant communities by African Olive (*Olea europaea* subsp. *cuspidata*)			✓
Invasion of the Yellow Crazy Ant (*Anoplolepis gracilipes*)			✓
Loss of hollow bearing trees	✓		
Loss and / or degradation of sites used for hill-topping by butterflies			✓
Predation and hybridisation by feral dogs (*Canis lupus familiaris*)			✓
Predation by the European Red Fox (*Vulpes vulpes*)			✓
Predation by the Feral Cat (*Felis catus*)			✓
Predation by Plague Minnow or Mosquito Fish (*Gambusia holbrooki)*			✓
Predation by the Ship Rat (*Rattus rattus*) on Lord Howe Island			✓
Predation, habitat degradation, competition & disease transmission from Feral pigs (*Sus scofa*)			✓
Removal of dead wood and dead trees	✓		

Summary of "likely" or "possible" Key Threatening Processes

Clearing of native vegetation

The proposal is of a class of development recognised as a threatening process. Approximately 0.18ha of disturbed vegetation would likely be removed or modified. The vegetation was not considered to be significant as it does not form part of any EEC and has low native species diversity given previous disturbances. The native vegetation does not currently host any threatened species and has limited threatened species habitat potential.

Infection of native plants by Phytophthora cinnamomi

The proposal may temporarily increase the risk of fungal infection on site as it may be spread via vehicular movement and relocation of soil and vegetation. Consequently standard *Phytophthora cinnamomi* protocol applies to the cleaning of all plant, equipment, hand tools and work boots prior to delivery onsite to ensure that there is no loose soil or vegetation material caught under or on the equipment and within the tread of vehicle tyres. Any equipment found to contain soil or vegetation material is to be cleaned in a quarantined work area or wash station and treated with anti-fungal pesticides.

Introduction and establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae

Myrtle Rust may be spread via machinery, animals and humans as well as by environmental factors such as wind. The presence of machinery and construction works is likely to slightly increase the potential for spread of this newly listed key threatening process. Similar protocols as to *Phytophthora cinnamomi* should be applied.

Loss of hollow bearing trees

Two (2) hollow bearing trees are likely to be removed by future development on site. Based upon the current survey, they appear to be unused and have either shallow depth or are considered low quality.

Removal of dead wood and dead trees

The proposal will require the removal of dead wood and / or dead trees. Only one (1) tree presented with above average levels of dead wood. Given the low quality habitat present within the subject site, the removal of dead wood and dead trees is not considered likely to impact on threatened species or the biodiversity of the local area.