



total earth care

## Estuarine Risk Management Report – 214 Hudson Parade, Claireville

### Job No. 10028

Date: 20/09/2021

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To	Care of	Site Name and Location
UTZ Sanbury	Tom Dunsford  506 Miller Street, Cammeray M: 0414 622 941 E: tom@utzsanby.com	214 Hudson Parade, Claireville NSW, 2107

Dear Tom,

Thank you for inviting Total Earth Care to undertake the Estuarine Risk Management Report for the dwelling alterations at 214 Hudson Parade, Claireville. This letter report addresses the requirements stated under the *Coastal Management State Environmental Planning Policy 2018* (Coastal Management SEPP) and the Pittwater Local Environment Plan (LEP). Site-specific management measures to minimise environmental risk have been provided.

## 1 Introduction

### 1.1 The proposed development

The proposed development (proposal) comprises a single multistorey dwelling split into an upper (roadside) and a lower wing (south) with a courtyard in the middle. A pool would also be added along the western boundary between the two wings. See Appendix A for the proposed development plans.

Excavation below the upper wing would be 2.7 m and between 1.2 m and 3.3 m below the lower wing. The centre courtyard would be backfilled to be level. Other ground disturbance would occur with the replacement of the existing retaining wall on the lower end of the property and other surface disturbance through landscaping, the movement of vehicles and plant and workers. Vegetation removal is required however minimal.

### 1.2 The subject site

The subject site comprises 214 Hudson Pde, Claireville, Lot 41 DP13760. The site is located within the Northern Beaches Local Government Area (LGA). The subject site location is shown Appendix B.

## 2 Legislative context and development implications

### 2.1 Commonwealth legislation

#### 2.1.1 *Environment Protection and Biodiversity Conservation Act 1999*

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places which are considered Matters of National Environmental Significance (MNES). Under the EPBC Act, approval is required for actions that have, will have, or are likely to have a significant impact on MNES.

No MNES were observed on the site.

The Commonwealth Government has published Significant Impact Guidelines (DEE 2013) to assist in the determination of whether an action is likely to have a significant impact on a MNES. For the future

proposal, Assessments of Significance, following the guidelines, must be completed to determine if the development is likely to impact on any MNES. If it is deemed to have a significant impact, the proposal must be referred to the federal Minister for the Environment.

## 2.2 NSW Legislation

### 2.2.1 *Environmental Planning and Assessment Act 1979*

The *Environmental Planning and Assessment Act 1979* (EP&A Act) establishes the system of environmental planning and assessment in NSW. This proposal is subject to the environmental impact assessment and planning approval requirements of Division 4.1 of the EP&A Act. Division 4.1 of the EP&A Act specifies the environmental impact assessment requirements for activities undertaken by private developers which require development consent.

### 2.2.2 *2.1.2 State Environmental Planning Policy (Coastal Management) 2018*

The Coastal Management SEPP aims to promote an integrated and co-ordinated approach to land use planning in the coastal zone.

The entire site is mapped as a 'Coastal environment area' under the Coastal Management SEPP. As such the proposal is required to provide an assessment of the potential impacts to the coastal environmental area. This report has been prepared to satisfy this requirement.

### 2.2.3 *Biodiversity Conservation Act 2016*

The *Biodiversity Conservation Act 2016* (BC Act) seeks to conserve biological diversity and promote ecologically sustainable development, to prevent extinction and promote recovery of threatened species, populations and ecological communities and to protect Areas of Outstanding Biodiversity Value.

Under this Act areas of 'Biodiversity Value' are shown on the Biodiversity Values (BV) Map. This map identifies land with high biodiversity value, as defined by clause 7.3(3) of the Biodiversity Conservation Regulation 2017. Areas of Outstanding Biodiversity Value: are an area previously identified as critical habitat.

The site is not mapped on the BV Map. The site does not contain Areas of Outstanding Biodiversity Value.

Under section 7.8 of the BC Act, if any threatened species or ecological communities under the BC Act are identified on the site, or are determined to have a high likelihood of occurring on site, an Assessment of Significance (5 part test) should be completed once any development design is finalised. If a significant impact is determined, then the proposal would trigger the Biodiversity Offset Scheme (BOS), and require a Biodiversity Development Assessment Report (BDAR) to be prepared by a Biodiversity Assessment Method (BAM) accredited assessor. No significant impact was found to matter protected under the BC Act on site.

## 2.3 Local Legislation

### 2.3.1 *Pittwater Local Environmental Plan 2014*

The site is mapped as Class 5 Acid Sulfate Soils (ASS) under the Pittwater LEP. Under the LEP, an ASS management plan is required for Class 5 land under the ASS map for:

- Works within 500 metres of adjacent Class 1, 2, 3 or 4 land that is below 5 metres Australian Height Datum and by which the watertable is likely to be lowered below 1 metre Australian Height Datum on adjacent Class 1, 2, 3 or 4 land.

The proposal does not meet these requirements and therefore a ASS management plan is not required.

The site is mapped as a 'Terrestrial biodiversity' area under the LEP, and Section 7.6 (4) states that development consent cannot be granted unless:

- the development is designed, sited and will be managed to avoid any significant adverse environmental impact, or
- if that impact cannot be reasonably avoided by adopting feasible alternatives—the development is designed, sited and will be managed to minimise that impact, or

- if that impact cannot be minimised—the development will be managed to mitigate that impact.

### 2.3.2 Pittwater Development Control Plan (DCP) 2021

The site is mapped as Pittwater Landscape Environmentally Sensitive Land. As it zoned as E4, under section D10.13 under the DCP 60% of the site is to be landscaped. The current proposal would have 53.77% of the site landscaped (see Appendix A).

## 3 Methods

### 3.1 Desktop

A preliminary desktop study was conducted to assess the likelihood of the site to support threatened species, populations or threatened ecological communities, or their habitats. A desktop review of relevant reports and data was conducted prior to the field survey. Sources of data which were reviewed include:

- Recent vegetation mapping (OEH 2016) was used to determine the likelihood of any nearby areas of endangered ecological communities.
- Biodiversity Offset Scheme Entry Threshold Map (DPIE 2021b)
- ePlanning Spatial Viewer (DPIE 2021c).

### 3.2 Site survey

A diurnal field survey was conducted on September 1st 2021. The adjacent coastal area was assessed for surface hydrology, erosion capacity, run off potential and ecologically sensitive areas. A general botanical survey was conducted with reference to existing vegetation community descriptions (OEH 2016) and soil types (DPIE 2021a). Threatened flora likely to occur within the locality were surveyed using the *NSW Guide to Surveying Threatened Plants* (OEH 2020). General flora surveys were conducted by random meander (Cropper 1993) and the visual assessment of vegetation structure. The identification of native and exotic plant species was in accordance with:

- Field Guide to the Native Plants of Sydney (Robinson 2003)
- *Flora of NSW, Volumes 1-4* (Harden 1992, 1993, 2000, 2002)
- Weeds of the south-east: an identification guide for Australia (Richardson et al. 2011)
- *PlantNET* (BGT 2021), with reference to recent taxonomic changes.

Incidental fauna sightings were recorded and fauna habitat was surveyed with reference to results from the desktop study and local knowledge of the area including the presence of threatened species in the locality.

### 3.3 Limitations

The field surveys were conducted over one day in September 2021. As the surveys were undertaken at a discrete time of the year and during the day, it is possible that some species that may utilise the site were not recorded (i.e. migratory species, species present in soil bank, nocturnal species).

As stated by the DEC (2004) 'The absence of a species from survey data does not necessarily mean it does not inhabit the survey area. It may simply mean that the species was not detected at that time with the survey method adopted and the prevailing seasonal or climatic conditions.' Therefore, the relative brevity of the survey and its timing mean that the full spectrum of fauna species and ecological processes likely to occur on the site cannot be fully quantified or described in this report.

These limitations have been partly addressed by identifying potential habitats for fauna species and assessing the potential for these species to occur on the site based on previous records, the type and condition of habitats present, the land use throughout the site, surrounds and the landscape context.

All spatial data collected used a hand-held GPS which is accurate to 5 metres.

## 4 Existing Environment

### 4.1 Coastal Area

The South end of the site backs on to Refuge Cove which is part of the Hawkesbury River Estuary. The cove experiences high levels of marine traffic by recreational boats and ferries and from residents accessing Scotland Island.

The property has a boat ramp and jetty below a steeply sloping terrace. The waterfront vegetation has been historically destroyed due to previous development. The remaining marine habitat consists of shallow sandstone rock shelf dominated by molluscs (Figure 4-1).

### 4.2 Vegetation Communities

The vegetation on site is majoritively planted exotics and weeds, no native plant communities exist on site.

### 4.3 Flora

A total of 29 plant species were recorded during the flora survey of which 6 were native and 23 were exotic. No threatened species were recorded during the site visit. A mature *Corymbia Maculata* (Spotted Gum) present in the adjacent lot (Lot 42 DP13760) and may have a root zone that extends into the site. All flora species recorded during the current survey are listed in Appendix C.

### 4.4 Fauna

A total of four fauna species were recorded during the site survey, three of which were native birds. No threatened fauna species were recorded during the site visit. Fauna species recorded during the site survey are listed in Appendix C.



Figure 4-1. Shallow marine community adjacent to site.

## 5 Ecological Constraints

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The soil on site is highly erodible sandy soil and disturbing it through excavations is a high risk for erosion and sedimentation into the coastal area. The steep slope on the southern end of site is the most at risk if disturbed and thus is a major constraint to the proposal.

## 6 Impact Assessment

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This section considers the potential construction and operational impacts of the proposal on the coastal environmental area. It is assessed against the relevant criteria set out in Division 3 Section 13 of the Coastal Management SEPP.

### 6.1 The integrity and resilience of the biophysical, hydrological (surface and groundwater) and ecological environment

#### 6.1.1 Construction impacts

##### 6.1.1.1 Biophysical impacts

Erosion and run off caused by excavation and the replacement of the retaining wall may cause sedimentation of the marine environment below. With stringent erosion and sediment controls this impact is moderate and temporary. Minor indirect impacts to the biophysical environment are also possible due to contaminated run-off from the construction site in high rainfall events.

As the site is mapped as a Class 5 ASS, there is low potential for ASS materials to be disturbed during construction works, as such, no ASS management is warranted for the proposal.

With the observation of the mitigation measures provided in Section 7, the risk of impacts to the biophysical environment are acceptable.

##### 6.1.1.2 Hydrological impacts

Construction works would not directly alter the surface or groundwater hydrology of the coastal environmental area. Due to the construction site being located at a higher elevation than the water level any minor volume of surface water absorbed would not alter the groundwater levels. The existing contours of the southern slope are being retained and therefore would not significantly alter drainage.

With the observation of the mitigation measures provided in Section 7, the risk of impacts to the hydrological environment is negligible.

##### 6.1.1.3 Ecological integrity impacts

Ecological integrity refers to the ability of the coastal environment to maintain ecological process that provide support for a diverse community of organisms. Sedimentation and run off from the proposal caused by rainfall may smother aquatic organisms, determining the ecosystems health. With the mitigation measures Section 7, the impacts to ecological integrity are minor.

Ecological integrity of the terrestrial environment would be improved through planting of native plants, particularly those that provide nectar for pollinators.

#### 6.1.2 Operational impacts

The development would not change the surface drainage significantly as the existing contouring of the south terrace would be maintained. Once stabilised, the development would not be a high risk to erosion and run off into the coastal area. Therefore, the operational impacts of the proposal to the integrity and resilience of the biophysical, hydrological (surface and groundwater) and ecological environment would be minor and acceptable.

### 6.2 The coastal environmental values and natural coastal processes

The proposal is on an existing residential lot. The waterfront structures including the jetty and boatshed would not be changed, therefore the proposal would have no construction or operational impact to the coastal environmental values and natural coastal processes

## 6.3 Water quality

### 6.3.1 Construction impacts

Potential contamination and sedimentation in run off from the proposal may impact local water quality, particularly during high rainfall events. With stringent erosion and sediment controls, this impact is moderate and temporary.

### 6.3.2 Operational impacts

The development would not increase run off into the coastal area during operation. The dwelling would not be used for chemical processing or industrial processes. Operational impacts to water quality are negligible.

## 6.4 Marine vegetation, native vegetation and fauna and their habitats

### 6.4.1 Construction impacts

The site has very limited habitat value due to its lack of vegetation and therefore is unlikely to support threatened species. No native trees would be cleared as a result of this proposal. The vegetation on the existing terracing would be removed, potentially disturbing invertebrate prey species for birds and reptiles that may use that vegetation, however it would be replaced therefore the impact is minor.

The marine environment is high disturbed, with large volumes of marine traffic. The marine vegetation would be impacted if large amounts of sediment and commination occurred during a high rainfall event, however with the mitigation measures listed in Section 7 this would be moderate and temporary.

### 6.4.2 Operational impacts

Landscaping with native plants would increase the foraging habitat present on site and enhance the sites biodiversity value.

## 7 Mitigation Measures

The required mitigation measures are provided in Table 7-1.

Table 7-1. Mitigation measures

Mitigation measure	Responsibility	Timing
Sediment fences are to be installed down slope of works and maintained and checked daily.	Construction contractor	Pre-construction, Construction
A floating sediment curtain is to be installed on the foreshore prior to commencement of works on the lower wing. The curtain is to be maintained and checked daily and not removed until the ground has been stabilised.	Construction contractor	Pre-construction, Construction
Detailed design should incorporate replacement of the retaining wall in stages, minimising the area of exposed soil on the slope as much as possible.	Construction contractor	Pre-construction
Bare soil after the removal of vegetation on the southern terraces must be stabilised with jute as soon as possible. Landscape planting to occur in the jute. Planting densities should be minimum 4 plants per square metre.	Construction contractor	Construction
All sedimentation and erosion control measures would be designed, installed, and maintained using procedures outlined in the Standards of the Soil Conservation Service of NSW, WR Volume 4 and <i>Managing Urban Stormwater: Soils and Construction 2004</i> 4th edition by Landcom. Controls are to be maintained daily and installed prior to any construction activity.	Construction contractor	Pre-construction, Construction
If sedimentation in the marine area is detected or sediment controls fail, works are to stop, the erosion and sediment control plan must be audited, and issues addressed.	Construction contractor	Pre-construction, Construction

Mitigation measure	Responsibility	Timing
Check weather forecast daily to avoid construction during potential wet weather and implement a contingency plan for flash flooding.	Construction contractor	Construction
Store all potential contaminants on robust waterproof membrane on the northern end of site. Store all chemicals and fuels in accordance with relevant Australian Standards and Safety Data Sheets. Record stored chemicals on site register. Bunded areas to have 110% capacity of stored liquid volume. Chemicals and fuels in vehicles must be tightly secured.	Construction contractor	Construction
Keep functioning spill kit on site for clean-up of accidental chemical or fuel spills. Keep the spill kits stocked and located for easy access. Spill kit should have the capacity to contain a large spill in the marine area.	Construction contractor	Construction
Stockpile areas should be located on level ground on the north end of site and be appropriately bunded, covered and secured.  Do not stockpile materials within 40m of the rear or the property boundary (south boundary).	Construction contractor	Construction
Minimise ground disturbance and stabilise disturbed areas progressively.	Construction contractor	Construction
Stop work during heavy rainfall or in waterlogged conditions when there is a risk of sediment loss off site.	Construction contractor	Construction
If works encroach in the tree protection zone of the <i>Corymbia maculata</i> (Spotted Gum) in Lot 42 DP13760 a tree assessment must be performed by a suitably qualified arborist to determine that the works would not impact the tree. Adjust detailed design if necessary to avoid impact.	Construction contractor	Pre-construction
Manage waste and any excess spoil from pile installation in accordance with the <i>NSW EPA Waste Classification Guidelines</i> (EPA 2014).	Construction contractor	Pre-construction, Construction

## 8 Conclusion

The proposal may cause moderate sedimentation through run off during high rainfall events. Overall, with the mitigation measures listed above, the proposal has a low risk of adversely impacting the coastal environment area. As such, the requirements of the Coastal Management SEPP are satisfied and the proposal can proceed.

Please do not hesitate to contact me with any further questions regarding this advice.

Kind Regards,



Ailis Chapman | Ecologist

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## References

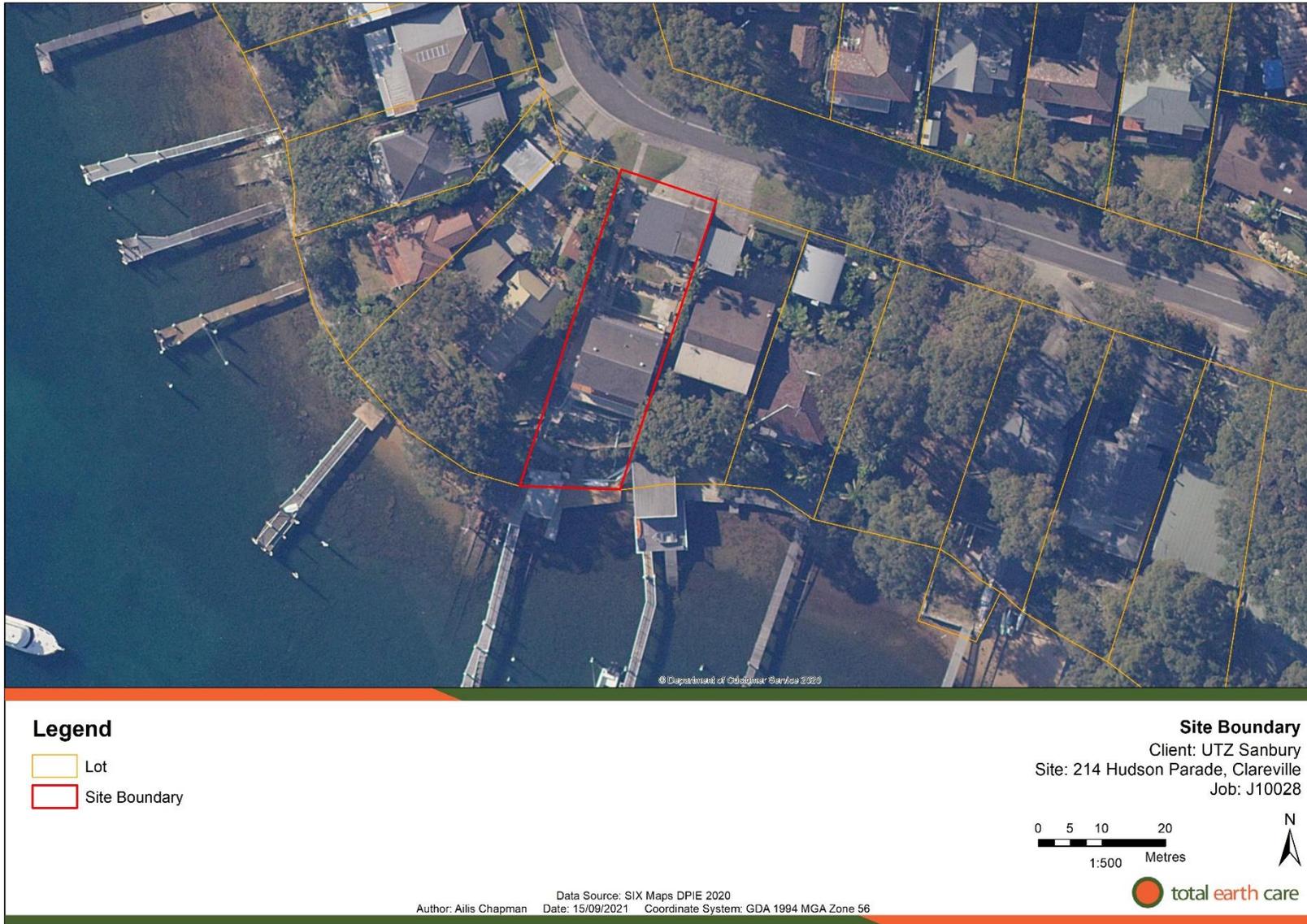
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## Appendix A. Preliminary Site Plans

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## Appendix B. Site location



## Appendix C. Flora and Fauna Inventory

**Table B 1. Flora species identified on site during the site survey.**

Family	Scientific Name	Common Name	Exotic	BC Status	EPBC Status
Apiaceae	<i>Foeniculum vulgare</i>	Fennel	*		
Araliaceae	<i>Hedera helix</i>	English Ivy	*		
Asteraceae	<i>Ageratina adenophora</i>	Crofton Weed	*		
Asteraceae	<i>Bidens pilosa</i>	Cobbler's Pegs	*		
Asteraceae	<i>Conyza bonariensis</i>	Flaxleaf Fleabane	*		
Asteraceae	<i>Erigeron karvinskianus</i>	Bony-tip Fleabane	*		
Asteraceae	<i>Gazania tometosa</i>	Silver Leaf Gazania	*		
Asteraceae	<i>Taraxacum</i> spp.	Dandelion			
Blechnaceae	<i>Blechnum</i> spp.				
Brassicaceae	<i>Cardamine hirsuta</i>	Common Bittercress	*		
Caryophyllaceae	<i>Stellaria</i> spp.	Prickly Starwort			
Crassulaceae	<i>Crassula ovata</i>	Jade Plant	*		
Davalliaceae	<i>Davallia solida</i> var. <i>pyxidata</i>	Hare's Foot Fern			
Davalliaceae	<i>Nephrolepis cordifolia</i>	Fishbone Fern			
Fabaceae (Faboideae)	<i>Trifolium</i> spp.		*		
Geraniaceae	<i>Geranium</i> spp.				
Hydrangeaceae	<i>Hydrangea</i> spp.		*		
Iridaceae	<i>Dietes bicolor</i>		*		
Lamiaceae	<i>Lavandula</i> spp.		*		
Malaceae	<i>Rhaphiolepis indica</i>	Indian Hawthorn	*		
Malvaceae	<i>Hibiscus rosa-sinensis</i>	Chinese Hibiscus	*		
Moraceae	<i>Ficus pumila</i>	Creeping Fig	*		
Poaceae	<i>Briza minor</i>	Shivery Grass	*		
Poaceae	<i>Cenchrus clandestinus</i>	Kikuyu Grass	*		
Poaceae	<i>Ehrharta erecta</i>	Panic Veldtgrass	*		
Primulaceae	<i>Lysimachia arvensis</i>	Scarlet Pimpernel	*		
Strelitziaceae	<i>Strelitzia reginae</i>		*		
Theaceae	<i>Camellia japonica</i>	Camellia	*		
Zingiberaceae	<i>Hedychium gardnerianum</i>	Ginger Lily	*		

**Table B 2. Fauna species identified on site during the site survey.**

Family	Scientific Name	Common Name	Exotic	BC Status	EPBC Status
Cacatuidae	<i>Cacatua galerita</i>	Sulphur-crested Cockatoo		P	
Hirundinidae	<i>Hirundo neoxena</i>	Welcome Swallow		P	
Psittacidae	<i>Trichoglossus haematodus</i>	Rainbow Lorikeet		P	
Scincidae	<i>Lampropholis guichenoti</i>	Pale-flecked Garden Sunskink		P	