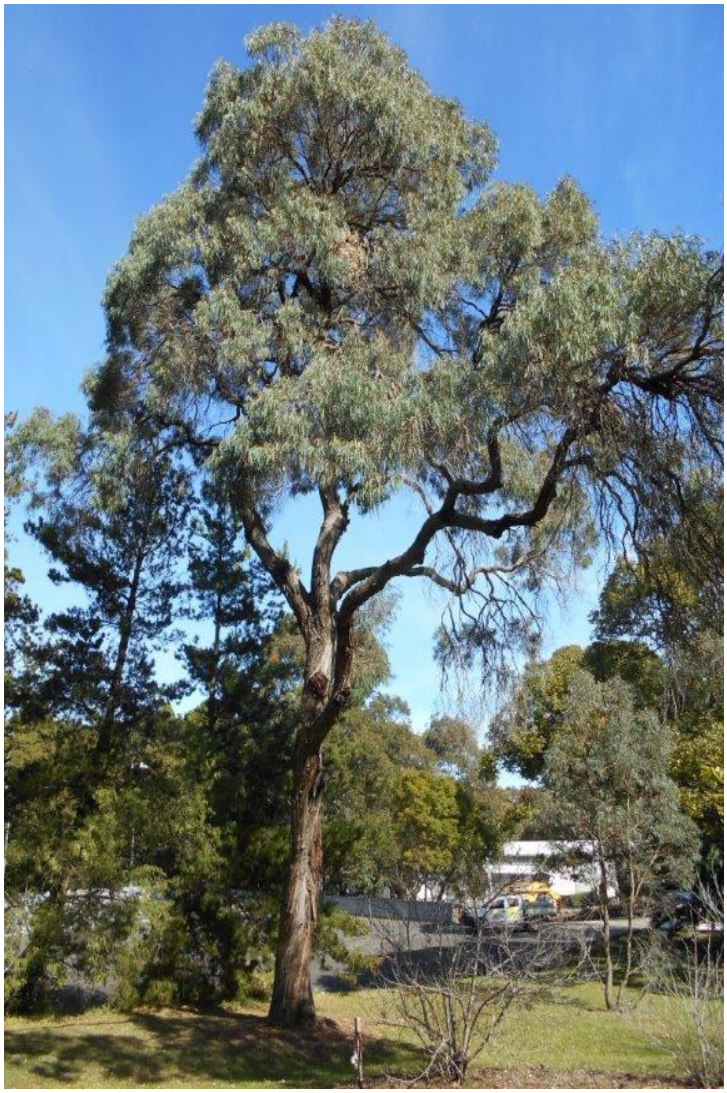
100 South Creek Road, Cromer

Biodiversity Constraints Assessment

Prepared for
EG Funds Management

16 August 2017



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Executive summary

Eco Logical Australia Pty Ltd (ELA) was engaged by EG Funds Management (EG) to prepare a Biodiversity Constraints Assessment for 100 South Creek Road, Cromer (the study area).

This report provides a description of the known and potential biodiversity constraints in the study area and provides detail on relevant biodiversity and planning legislation and controls at a Commonwealth, state and local government level. The report also provides an overview of the likely assessment requirements for threatened biodiversity as a result of potential future development in the study area.

The main finding of this report are as follows:

1. The following vegetation communities were identified in the study area:

    - Peppermint Angophora Forest (recognised as a vegetation community)
    - Native plantings and weeds – landscaped riparian area
    - Mixed native and exotic landscaped plantings

2. The study area contains areas of moderate and low levels of ecological constraint

3. The study area does not provide known or potential habitat for Threatened Ecological Communities or threatened flora species listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and/or the NSW *Threatened Species Conservation Act 1995:*

4. The study area provides potential habitat for the following threatened fauna species listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and/or *Threatened Species Conservation Act 1995*:

    - *Pteropus poliocephalus* (Grey-headed Flying-fox)
    - *Falsistrellus tasmaniensis* (Eastern False Pipistrelle)
    - *Mormopterus norfolkensis* (Eastern Freetail Bat)
    - *Saccolaimus flaviventris* (Yellow-bellied Sheathtail-bat)
    - *Scoteanax rueppellii* (Greater Broad-nosed Bat)
    - *Chalinolobus dwyeri* (Large-eared Pied Bat)
    - *Miniopterus australis* (Little Bent-wing Bat)
    - *Miniopterus schreibersii oceanensis* (Eastern Bent-wing Bat)

5. The arborist report has listed the trees which are most suitable for retention within the study area. Those trees that have been given the lowest rating should be determined to be a non-constraint on any proposed development. Those trees that have been given the highest rating are worthy of retention and should be incorporated as a part of the final design of the development proposal.

6. If was determined that the creekline does not meet the WM Act classification. Therefore, any activity in the study area is not within 40 m of what is classified as a 'river' therefore a controlled activity approval on waterfront land is not required under the NSW *Water Management Act. 2000*.

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7. Council's Protection of Waterways and Riparian Land Policy recommends a 10m riparian zone plus a 10m riparian buffer (total 20m buffer) on both sides of the creekline as part of any proposed development within the study area.

In November 2016 the NSW parliament passed the *Biodiversity Conservation Act 2016*. This new legislation will replace the *Threatened Species Conservation Act 1995* and is due to take effect on 25 August 2017. This report has been prepared in accordance with the legislation that applies as of the date of publication of this report and the transitional arrangements published by the government. Therefore, all further assessment of the study area will be undertaken in accordance with the NSW *Biodiversity Conservation Act 2016*.

A Biodiversity Development Assessment Report (BDAR) will be required for any development proposal in the study area following the implementation of the NSW *Biodiversity Conservation Act 2016*. The BDAR would function as an assessment of the impacts on biodiversity values (e.g. native vegetation and threatened species) and would outline the measures taken to avoid or minimise the impacts on biodiversity.

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1 Introduction

Eco Logical Australia Pty Ltd (ELA) was engaged by EG Funds Management (EG) to prepare a Biodiversity Constraints Assessment for 100 South Creek Road, Cromer (the study area).

This report provides a description of the known and potential biodiversity constraints in the study area and provides detail on relevant biodiversity and planning legislation and controls at a Commonwealth, state and local government level. The report also provides an overview of the likely assessment requirements for threatened biodiversity as a result of potential future development in the study area.

1.1 Study area

The following key terms and definitions are used in this report:

- *Study area* – 100 South Creek Road, Cromer

The study area is approximately 7.46 ha and comprises 1 lot: Lot 1 DP1220196.

The study area is located within the Northern Beaches local government area (LGA), formally Warringah LGA. The land is zones as IN2 General Industrial under the *Warringah Local Environment Plan 2011*.

The study area is positioned in an urban and industrial setting, fronting South Creek Road and Middleton Road, Cromer. The study area is adjacent to neighbouring residential allotments to the east and north, Cromer High School to the west and industrial and commercial complexes to the south, north and west. A formal drainage line flows through the study area from north to south and is pumped under South Creek Road to eventually confluence with a major creekline, South Creek which eventually empties into Dee Why Lagoon.

The study area and locality is displayed below in **Figure 1**.

Photo 1: Typical landscaping within the study area

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Figure 1: Study area

2 Methodology

2.1 Literature review and database search

A review of the following relevant data, background literature on the study area and locality, and relevant planning instruments and strategic documents was undertaken:

- Aerial photographs (Google Earth, Near Map)
- Atlas of NSW Wildlife (OEH 2017a)
- Commonwealth EPBC Act Protected Matters Search Tool (DotEE 2017a)
- Threatened species profiles (OEH 2017b)
- Final determinations for communities and species by the Scientific Committee (OEH 2017c)
- Commonwealth Species Profile and Threats Database (DotEE 2017b)
- Warringah Local Environment Plan 2011
- Warringah Development Control Plan 2011
- Warringah Biodiversity Conservation Study 2011
- Warringah Protection of Waterways and Riparian Land Policy 2009

Searches of the Atlas of NSW Wildlife and the online EPBC Act Protected Matters Search Tool were performed on 9 August 2017. This search encompassed all threatened fauna and flora species within 5 km of the study area.

Species from the database searches were combined to provide an assessment of the likelihood of occurrence for each species **(Appendix A).** The likely occurrence of each species was determined before the site inspection by reviewing records in the area, considering the habitat available and using expert knowledge on the ecology of each species. This was then reviewed and refined following the site inspection.

Five terms for the likelihood of occurrence of species are used in this report, as defined below:

1. “known” = the species was or has been observed on the study area
2. “likely” = a medium to high probability that a species uses the study area
3. “potential” = suitable habitat for a species occurs on the study area, but there is insufficient information to categorise the species as likely, or unlikely to occur
4. “unlikely” = a very low to low probability that a species uses the study area
5. “no” = habitat at study area and in the vicinity is unsuitable for the species.

2.2 Site Inspection

One site inspection was undertaken by ELA senior ecologist Nicole McVicar on 10 August 2017 over approximately half a day. During the survey the weather was clear and maximum temperature for the day reached approximately 23°C.

The main aim of the inspection was to validate the extent and condition of the vegetation communities present, confirm the presence of any Threatened Ecological Communities (TECs), and identify any habitat attributes likely to support threatened flora and fauna within the study area.

Incidental fauna sightings within the study area were also recorded. Notes and photographs were taken during the site inspection.

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Photo 2: Typical landscaping planted areas in the study area

Limitations

No measurements of cover abundance for flora species, within vegetation survey plots or otherwise, were undertaken. No targeted flora or fauna survey was undertaken.

This assessment was not intended to provide an inventory of all species present across the study area but instead an overall assessment of the ecological values of the study area with particular emphasis on threatened species, TECs and key fauna habitat features. It is important to note that some species may not have been detected on the site during the inspection as they may be cryptic or seasonal and only detectable during flowering or during breeding. In this case the likelihood of their occurrence on site has been assessed based on the presence of potential habitat.

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3 Results

3.1 Data and literature review

3.1.1 Tree Survey Report Review

An arboricultural constraints report was prepared by Naturally Trees on 20 April 2015. This report was reviewed by ELA arborist Elizabeth Hannon and a brief summary is provided below.

The report is a Preliminary Tree Assessment as outlined in Table 1 of the arboricultural constraints report: Indicative Stages in Development and the Tree Management Process shown in AS4970-2009 – Protection of trees on development sites. This indicative stage is to evaluate trees on a site that would be suitable for retention and/or removal. The purpose of this stage of the assessment process is to guide the development layout.

The report has used recognised methodologies to assess the trees i.e., AS4970-2009 Protection of Trees on Development sites and Tree AZ (a measure of tree retention value) which is shown in Appendix 3 of the report. The basis of this methodology is negative selection.

The report has listed those trees most suitable for retention with an AA - A1 rating in accordance with the above mentioned Tree AZ and shown in the Tree Schedule in Appendix 2 of the report. Those trees that have been given the lowest rating should be determined to be a non-constraint on any proposed development. Those trees that have been given the highest rating are worthy of retention and should be incorporated as a part of the final design of the development proposal.

3.1.2 Legislative and planning context

3.1.2.1.1 Warringah Local Environmental Plan 2011

The Warringah Local Environmental Plan 2011 (LEP) is Council's key planning instrument which provides the frameworks for land zoning and development controls. Warringah's LEP aims to *protect the environment and the quality of life in Warringah while promoting sustainable development*. Clause 5.9 of the LEP covers protection of biodiversity values on the LGA.

Clause 5.9 Preservation of trees or vegetation

The objective of this clause is to preserve the amenity of the area, including biodiversity values, a through the preservation of trees and other vegetation.

This clause applies to species or kinds of trees or other vegetation that are prescribed for the purposes of this clause by a development control plan made by the Council.

3.1.2.1.2 Warringah Development Control Plan 2011

The Warringah Development Control Plan 2011 (DCP) contains more detailed planning controls in addition to those covered in the LEP.

In terms of terrestrial biodiversity and riparians areas, the following DCP controls are applicable to the study area and must be considered during planning and design stage of the development proposal. Refer to the DCP document for further details on the specific requirements of each clause listed below.

E1 Private Property Tree Management *This control applies to land which the LEP applies.*

E2 Prescribed Vegetation *This control applies to land to which the LEP applies*
All native vegetation identified on:

a) DCP Map Threatened and High Conservation Habitat

b) DCP Map Wildlife Corridors

c) DCP Map Native Vegetation

d) Known or potential habitat for threatened species, populations or ecological communities as listed under the NSW Threatened Species Conservation Act 1995 and/or the Commonwealth Environment Protection and Biodiversity Conservation Act 1999.

Development is to be situated and designed to minimise the impact on prescribed vegetation, including remnant canopy trees, understorey vegetation, and ground cover species.

The study area was not mapped under the DCP Native Vegetation, Threatened and High Conservation Habitat or Wildlife Corridor maps, however due to the presence of native vegetation and potential threatened species habitat in the study area it is prudent to consider this clause during planning and design stage of the development proposal.

E3 Threatened species, populations, ecological communities listed under State or Commonwealth legislation, or High Conservation Habitat

*This control applies to land identified on DCP Map Threatened and High Conservation Habitat and land identified as known or potential habitat for threatened species, as identified in the NSW Wildlife Atlas**

E4 Wildlife Corridors *This control applies to land identified on the DCP Map Wildlife Corridors*

The study area was not mapped under the DCP Wildlife Corridor map, however due to the presence of native vegetation in the study area it is prudent to consider this clause during the planning and design stage of the development proposal.

E5 Native Vegetation *This control applies to land identified on the DCP Map Native Vegetation.*

The study area was not mapped under the DCP Native Vegetation map, however due to the presence of native vegetation in the study area it is prudent to consider this clause during the planning and design stage of the development proposal.

E6 Retaining unique environmental features *This control applies to land to which the LEP applies.*

E7 Development on land adjoining public open space *This control applies to all land shown on DCP Map Land Adjoining Public Open Space.*

The study area was mapped on the DCP Map Land Adjoining Public Open Space.

E8 Waterways and Riparian Lands *This control applies to land identified as waterway or riparian land as shown on DCP Map Waterways and Riparian Lands.*

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The study area was not mapped under the DCP Waterways and Riparian Lands map, however due to the presence of the creekline it is prudent to consider this clause during the planning and design stage of the development proposal.

3.1.2.1.3 Warringah Biodiversity Conservation Study 2011 (Draft) (WBCS)

The WBCS is a strategic council document with the main objective to facilitate and prioritise management of biodiversity in the Warringah LGA. The prioritisation is based on a set of conservation assessment criteria, based on accepted scientific and natural resource management principles. A multiplier was also applied to each criteria to reflect the relative importance of the criteria. These conservation significance criteria and multipliers are as follows:

1. Threatened biota (multiplier x8)
2. Resilience (x4)
3. Distribution of exotics (x4)
4. Size (x5)
5. Connectivity (x4)
6. Perimeter to area ratio (x5)
7. Creekline (x1)
8. Vegetation community (x4)

This was used to categorise identified areas into the following conservation significance rankings:

1. Very high
2. High
3. Moderate
4. Local

The study also undertook a threat assessment based on known and potential threats to biodiversity. The threat criteria and type area as follows:

1. Land clearing – known and potential
2. Public land encroachment – known and potential
3. Weed invasion – altered hydrological regimes – known and potential
4. Weed invasion – edge effects – known and potential
5. Fauna predation – domestic cats and dogs – known and potential
6. Fauna predation – foxes – known and potential
7. Feral rabbits – known and potential
8. Uncontrolled recreational access – known and potential
9. Altered fire regimes – potential

This information was used to produce a ranking for identified assessment units with threat attribute data for each assessment unit.

The mapped vegetation within the study area was included as part of a larger parcel (assessment area 384) and was assigned to the lowest conservation ranking of *'local.'*

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3.1.2.1.4 NSW Water Management Act 2000 (WM Act)

This legislation is identified here because one 'minor stream' i.e. first order stream under the Strahler system has been identified in the west of the study area. A controlled activity approval under the WM Act may be required for certain types of developments and activities that are carried out in or within 40m of a river, lake or estuary.

3.1.2.1.5 NSW Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) states that if a species, population or ecological community listed in schedules 1, 1A and 2 of the NSW TSC Act is identified as having the potential to occur in the study area, a review of the factors set out to establish if there is likely to be a significant impact on that species, population ecological community or habitat, must be undertaken. Section 5A of the EP&A Act sets out factors that must be addressed as part of an assessment of significance. This enables a decision to be made as to whether there is likely to be a significant impact on a species, population or ecological community and hence if a Species Impact Statement (SIS) is required.

3.1.2.1.6 NSW Threatened Species Conservation Act 1995

The NSW *Threatened Species Act 1995* (TSC Act) aims to protect and encourage the recovery of threatened species, populations and communities listed under the Act. The Act is integrated with the NSW EP&A Act and requires consideration of whether a development or an activity is likely to significantly affect threatened species, populations and ecological communities or their habitat. This Act will be replaced by the NSW *Biodiversity Conservation Act 2016* as discussed below in **Section 3.1.2.1.7.**

3.1.2.1.7 NSW Biodiversity Conservation Act 2016

In November 2016 the NSW parliament passed the *Biodiversity Conservation Act 2016* (BC Act). This new legislation will replace the TSC Act and is due to take effect on 25 August 2017. In relation to development and impact assessment, the BC Act provides an updated methodology for assessment of biodiversity values within a proposed development site. This report has been prepared in accordance with the legislation that applies as of the date of publication of this report and the transitional arrangements published by the government. Therefore, all further assessment of the study area will be undertaken in accordance with the BC Act.

A Biodiversity Development Assessment Report will be required for any development proposal in the study area following the implementation of the BC Act. The BDAR would function as an assessment of the impacts on biodiversity values (e.g. native vegetation and threatened species) and would outline the measures taken to avoid or minimise the impacts on biodiversity.

3.1.2.1.8 State Environmental Planning Policy No 19 Bushland in Urban Areas (SEPP 19)

The aim of SEPP 19 is to protect and preserve bushland within urban areas due to:

(a) its value to the community as part of the natural heritage
(b) its aesthetic value, and
(c) its value as a recreational, educational and scientific resource.

The specific aims of this policy are:

(a) to protect the remnants of plant communities which were once characteristic of land now within an urban area

(b) to retain bushland in parcels of a size and configuration which will enable the existing plant and animal communities to survive in the long term
(c) to protect rare and endangered flora and fauna species,
(d) to protect habitats for native flora and fauna,
(e) to protect wildlife corridors and vegetation links with other nearby bushland,
(f) to protect bushland as a natural stabiliser of the soil surface,
(g) to protect bushland for its scenic values, and to retain the unique visual identity of the landscape,
(h) to protect significant geological features,
(i) to protect existing landforms, such as natural drainage lines, watercourses and foreshores,
(j) to protect archaeological relics,
(k) to protect the recreational potential of bushland,
(l) to protect the educational potential of bushland,
(m) to maintain bushland in locations which are readily accessible to the community, and
(n) to promote the management of bushland in a manner which protects and enhances the quality of the bushland and facilitates public enjoyment of the bushland compatible with its conservation.

Development in Northern Beaches (Warringah) Council must take SEPP 19 into account as part of the development assessment and approval process.

3.1.2.1.9 Environment Protection & Biodiversity Conservation Act 1999 (EPBC Act)

The Commonwealth EPBC Act Administrative Guidelines on Significance set out 'Significant Impact Criteria' that are to be used to assist in determining whether a proposed action is likely to have a significant impact on matters of national environmental significance (MNES). Threatened species listed under the EPBC Act are MNES. Significance Assessments are to be applied to flora and fauna species listed under the EPBC Act assessed during the literature review process and site inspection to occur or potentially occur in the study area, and would use the study area on a relatively frequent basis.

3.1.3 Mapped Vegetation Communities

Warringah Council vegetation mapping (2010) indicated the presence of the following vegetation within the study area:

- Native Vegetation – Highly Disturbed
- Cleared areas

These areas were validated during the site inspection.

3.1.4 Threatened flora and fauna

The Bionet search found that 18 threatened flora species and 92 threatened/migratory fauna species were previously recorded within 5 km radius of the study area. Seventy six EPBC listed threatened species, (including 18 threatened flora species and 58 threatened fauna species), three listed TECs and 51 listed migratory species were identified in the Commonwealth Protected Matters Search. Threatened species Atlas records within a 5km radius of the study area are displayed below in **Figure 2** and

Figure 3.

Syzygium paniculatum (Magenta Lilly Pilly) and *Eucalyptus nicholii* (Narrow-leaved Black Peppermint) listed under the TSC and EPBC Act were both recorded in the study area. These records should be treated with a caution as they are most likely to be a horticultural plantings. Likelihood of occurrence of

these threatened species in the study area and surrounds was assessed prior to the site inspection and refined after the site inspections to produce the Likelihood of Occurrence table provided in **Appendix A.**

Photo 3: Typical landscaping planted areas in the study area

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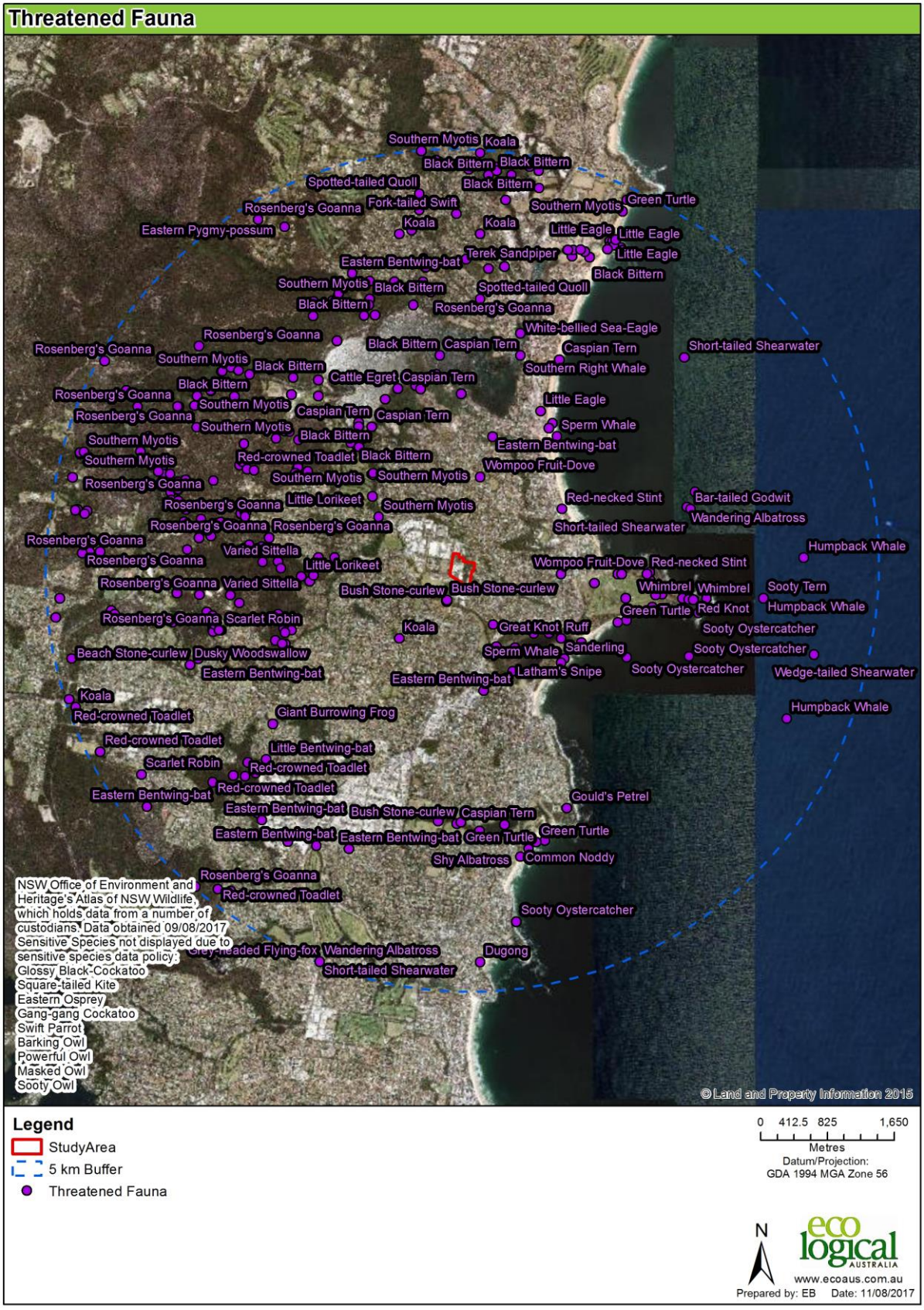

Figure 2: Threatened fauna within a 5km radius

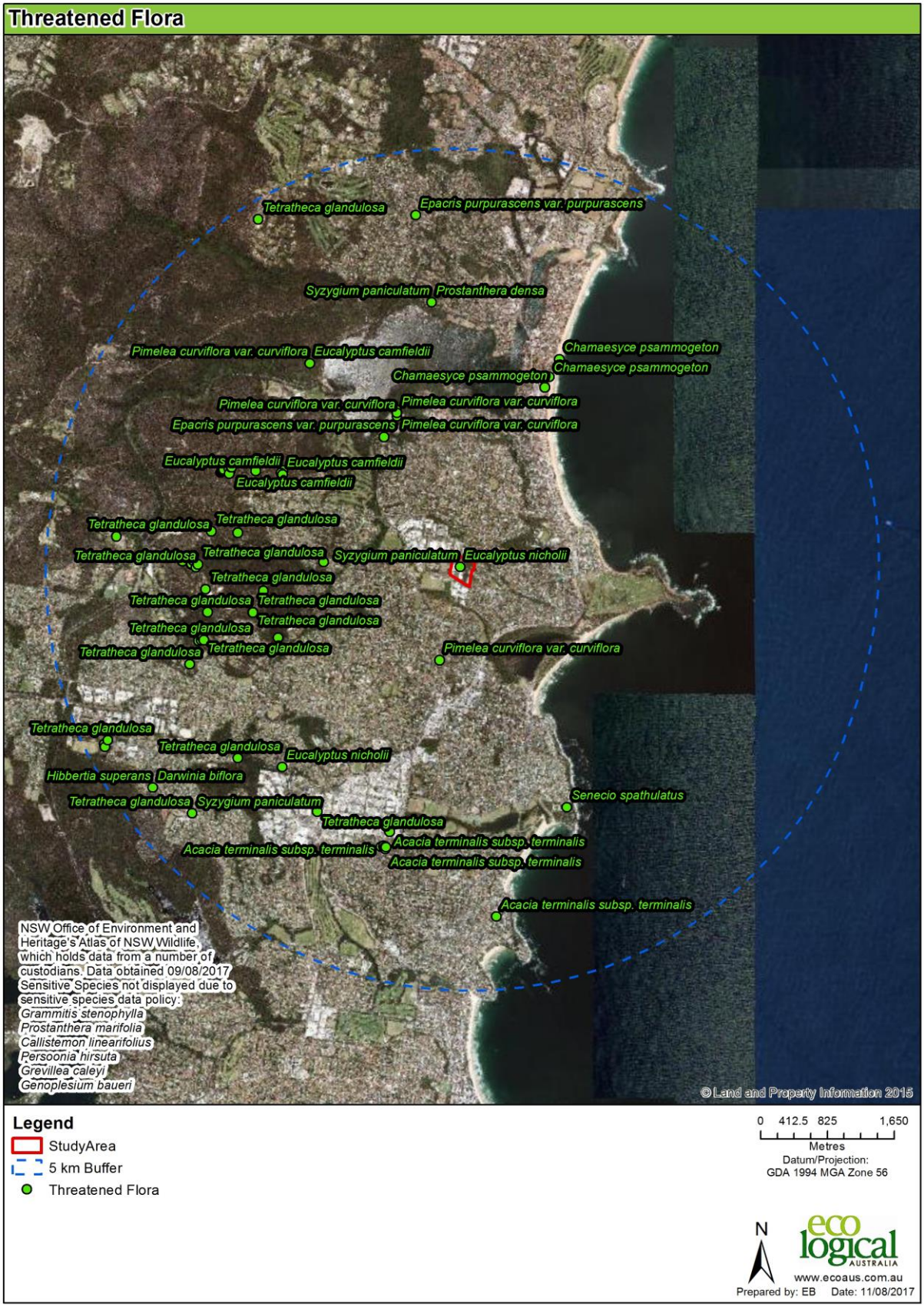

Figure 3: Threatened flora within a 5km radius

3.2 Site Inspection

3.2.1 Vegetation Communities

The vegetation in the study area is largely disturbed, with only one small patch of vegetation present representative of a local vegetation community in the north east corner of the study area. The vegetation communities are as follows:

- Peppermint Angophora Forest (recognised as a vegetation community)
- Native Plantings and Weeds – Landscaped Riparian Area
- Mixed Native and Exotic Landscaped Plantings

These are displayed below in **Figure 4**.

The dominant plant species present within Peppermint Angophora Forest are provided in the table below.

Table 1: Dominant plant species within Peppermint Angophora Forest

Dominant plant species within Peppermint Angophora Forest
Canopy *Eucalyptus Piperita* (Sydney Peppermint)*, Angophora costata* (Sydney Red Gum) *Eucalyptus scias* (Large – fruited Red Mahogany) (uncommon)
Midstory *Acacia parramattensis, Glochidion ferdinandi, Pittosporum undulatum, Elaeocarpus reticulatus*
Groundcover *Pteridium esculentum, Dianella caerulea, Smilax glyciphylla, Entolasia marginata, Lomandra longifolia, Calochlaena dubia*

Photo 4: Peppermint Angophora Forest in the study area

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The landscaped riparian area was planted with native species and displayed a moderate level of weed invasion. The dominant plant species area provided in the table below.

Table 2: Dominant plant species within planted riparian area

Dominant plant species within planted riparian area
Canopy *Casuarina glauca* (Swamp Oak) *Angophora costata* (Sydney Red Gum) *Glochidion ferdinandi* (Cheese Tree), Banksia integrifolia (Coastal Banksia), *Allocasuarina torulosa,* (Forest Oak) *Allocasuarina littoralis* (Black She-oak) *Syzygium paniculatum* (Magenta Lilly Pilly) (planted), *Melaleuca quinquenervia* **Weeds** *Camphor laurel*
Midstory *Monotoca scoparia, Pittosporum undulatum, Elaeocarpus reticulatus, Acmena smithii, Hakea sericea, Banksia spinulosa, Melaleuca linariifolia, Leptospermum polygalifolium* **Weeds** *Erythrina crista – galli, Ochna serrulata, Strelitzia sp. Phoenix canariensis, Araujia sericifera, Monstera deliciosa..*
Groundcover *Gahnia sieberiana, Dianella caerulea, , Lomandra longifolia, Hypolepis muelerii* **Weeds** *Setaria palmifolia, Asparagus aethiopicus, Tradescantia fluminensis, Parietaria judaica, Ehrharta erecta, Acetosa sagittata.*

Photo 5: Riparian planted area

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The remainder of the study area comprised mixed native and exotic landscaped canopy and midstory plantings including *Eucalyptus robusta, Eucalyptus botryoides, Eucalyptus punctata, Corymbia maculata, Casuarina glauca, Eucalyptus microcorys, Eucalyptus moluccana, Syzygium paniculatum, Syncarpia glomulifera, Eucalyptus citriodora, Grevillea robusta, Eucalyptus nicholii, Ficus rubiginosa, Angophora costata, Glochidion ferdinandi, Cinnamomi camphora*, and *Araucaria heterophylla.*

Photo 6: Typical landscape plantings in the study area

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Figure 4: Vegetation communities, riparian areas and ecological constraints

3.2.2 Habitat Elements

The study area does not provide habitat for TECs. Accordingly, for any development, including subdivision, a detailed impact assessment for TECs under NSW and Commonwealth biodiversity and planning legislation will not be required.

The fauna habitat in the study area was considered to be reasonable despite the small amount of remnant native vegetation remaining in the study area. This is because the planted areas contained numerous large trees with a dense canopy cover in places, therefore providing good canopy shelter and foraging habitat. One hollow bearing tree was identified within the study area. This was a small hollow and most likely utilised by common urban bird species.

Midstory and groundcover plantings and weeds were common and dense in places providing suitable habitat for common native fauna. Long- nosed bandicoot *(Perameles nasuta*) diggings were observed in many on the garden areas and common native bird species were observed utilising the study area, for example Eastern Rosella *(Platycercus eximius),* King Parrot *(Alisterus scapularis),* Brush *Turkey (Alectura lathami),* Grey Butcherbird *(Cracticus torquatus),* and Eastern Whipbird *(Psophodes olivaceus).*

Is it recognised that planted tree species (in particular *Ficus* and *Eucalyptus* species) provide seasonal foraging resources for threatened fauna species, in particular Grey-headed Flying – fox (*Pteropus poliocephalus)* and microbats. Also, *Eucalyptus robusta* and *Corymbia maculata* are recognised as preferred season foraging species for the threatened Swift parrot (*Lathamus discolor).*

Common Eastern Froglets (*Crinia signifera)* were heard calling in the riparian area this these areas provided good habitat for common amphibian species. The riparian area is unlikely to support threatened amphibian species however further survey may be prudent during the planning and design stage of any development in the study area.

Pipes and culverts provide potential habitat for threatened microbats: these habitat elements will therefore require further assessment during the planning and design stage of any proposed development.

Photo 7: Peppermint Angophora Forest in the study area

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3.2.3 Threatened Flora

Based on the habitat present in the study area and a review of database records, it is considered unlikely for any threatened flora to occur in the study area and have potential to be impacted by any proposed works.

3.2.4 Threatened Fauna

Based on the habitat present in the study area and a review of database records, the following species were considered likely to use occur in the study area and have potential to be impacted by any proposed works including subdivision.

1. Potential habitat

- *Pteropus poliocephalus* (Grey-headed Flying-fox) *(TSC and EPBC Act)*
- *Falsistrellus tasmaniensis* (Eastern False Pipistrelle) *(TSC Act)*
- *Mormopterus norfolkensis* (Eastern Freetail Bat) *(TSC Act)*
- *Saccolaimus flaviventris* (Yellow-bellied Sheathtail-bat) *(TSC Act)*
- *Scoteanax rueppellii* (Greater Broad-nosed Bat) *(TSC Act)*
- *Chalinolobus dwyeri* (Large-eared Pied Bat) *(TSC and EPBC Act)*
- *Miniopterus australis* (Little Bent-wing Bat) *(TSC Act)*
- *Miniopterus schreibersii oceanensis* (Eastern Bent-wing Bat) *(TSC Act)*

Accordingly, for any development, including subdivision, an assessment of impacts on these species under the NSW and Commonwealth biodiversity and planning legislation will be required.

It must also be noted that some threatened fauna species that are highly mobile, wide ranging and vagrant may use portions of the study area intermittently for foraging. For these fauna species, the habitat present likely to be impacted is not considered to be important to the threatened species, particularly in relation to the amount of similar good quality habitat remaining in the surrounding landscape. As such, assessment under NSW and Commonwealth legislation may not be required.

3.2.5 Riparian Assessment

The creekline within the study area has been classified as a first order creek under the Strahler classification. This creekline alignment has been modified and flows through the study area from north to south through a combination of open channels and underground pipes.

A desktop assessment found that the creekline does not meet the WM Act classification: the study area is not within 40 m of what is classified as a 'river' (1:25,000 topographic mapping), therefore a controlled activity approval on waterfront land is not required under the WM Act.

The creekline is not identified on Council's DCP Waterways and Riparian Land Map, however due to the presence of the creekline, the Council's Protection of Waterways and Riparian Land Policy applies to the study area and depending on the type of development proposed, a Council Waterway Impact Statement may still be required.

Council's Protection of Waterways and Riparian Land Policy recommends a 10 metre riparian zone plus a 10 metre riparian buffer (total 20m buffer) on both sides of the creekline. This constraint has been displayed in **Figure 4**.

In terms of future development in the study area, the policy states: "*Where development is proposed within waterways and riparian land, a Waterway Impact Statement shall be submitted with the development application to enable Council to assess how the application meets the policy objectives, and*

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identify potential impacts. A Waterway Impact Statement is to demonstrate to Council the development will either enhance, or as a minimum, will not adversely affect ecological function or limit opportunities to reinstate the area in the future to the greatest possible extent.

It is recommended that further advice is sought from Council at the time of development application planning and preparation regarding whether or not a Waterway Impact Statement would be required.

Photo 8: Creekline in the south of the study area before being piped under South Creek Road

3.2.6 Ecological constraints

Vegetation communities identified were mapped and assigned an ecological constraint level. This has been summarised below in **Table 3** and displayed in **Figure 4**.The study area has been classified as containing a moderate and low level of ecological constraint. The level of ecological constraints assigned is related to the presence of the revegetated riparian area, and remnant Peppermint Angophora Forest. Note that the 20m riparian buffer is classified as a moderate constraint regardless of the vegetation community.

The arborist report has listed trees most suitable for retention within the study area. Those trees that have been given the lowest rating should be determined to be a non-constraint on any proposed development. Those trees that have been given the highest rating are worthy of retention and should be incorporated as a part of the final design of the development proposal.

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Future development in the study area will however be subject to further assessment under the new BC Act and key legislation and planning principles identified in this report.

Photo 9: Typical landscaped environment within the study area.

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Table 3: Summary of vegetation communities, condition and level of ecological constraint

Vegetation community	Listed under the EPBC Act	Listed under the TSC Act	Known habitat EPBC Act threatened species (Atlas record)	Known habitat TSC Act threatened species (Atlas record)	Potential EPBC Act and/or TSC Act threatened species habitat (refer to section 0 and 3.2.4 for details)	Bushland Condition	Area (ha)	Ecological constraint level
Peppermint Angophora Forest	No	No	No	No	Yes marginal	Moderate	0.47	**Moderate**
Native Planting and Weeds Landscaped Riparian Area	No	No	No	No	Yes, marginal	Moderate	0.26	**Moderate**
Mixed Native and Exotic Landscape Planting and Weeds	No	No	No	No	Yes, marginal	NA – landscaped areas	2.74	**Low** (note that where this vegetation community is mapped within the 20m riparian buffer it is classified as a moderate constraint)

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4 Conclusion

Eco Logical Australia Pty Ltd (ELA) was engaged by EG Funds Management (EG) to prepare a Biodiversity Constraints Assessment for 100 South Creek Road, Cromer (the study area).

This report provides a description of the known and potential biodiversity constraints in the study area and provides detail on relevant biodiversity and planning legislation and controls at a Commonwealth, state and local government level. The report also provides an overview of the likely assessment requirements for threatened biodiversity as a result of potential future development in the study area.

The main finding of this report are as follows:

1. The following vegetation communities were identified in the study area:

    - Peppermint Angophora Forest (recognised as a vegetation community)
    - Native plantings and weeds – landscaped riparian area
    - Mixed native and exotic landscaped plantings

2. The study area contains areas of moderate and low levels of ecological constraint.

3. The study area does not provides known or potential habitat for Threatened Ecological Communities or threatened flora species listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and/or the *Threatened Species Conservation Act 1995:*

4. The study area provides potential habitat for the following threatened fauna species listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and/or *Threatened Species Conservation Act 1995*:

    - *Pteropus poliocephalus* (Grey-headed Flying-fox)
    - *Falsistrellus tasmaniensis* (Eastern False Pipistrelle)
    - *Mormopterus norfolkensis* (Eastern Freetail Bat)
    - *Saccolaimus flaviventris* (Yellow-bellied Sheathtail-bat)
    - *Scoteanax rueppellii* (Greater Broad-nosed Bat)
    - *Chalinolobus dwyeri* (Large-eared Pied Bat)
    - *Miniopterus australis* (Little Bent-wing Bat)
    - *Miniopterus schreibersii oceanensis* (Eastern Bent-wing Bat)

5. The arborist report has listed the trees which are most suitable for retention within the study area. Those trees that have been given the lowest rating should be determined to be a non-constraint on any proposed development. Those trees that have been given the highest rating are worthy of retention and should be incorporated as a part of the final design of the development proposal.

6. If was determined that the creekline does not meet the WM Act classification. Therefore, any activity in the study area is not within 40 m of what is classified as a 'river' therefore a controlled activity approval on waterfront land is not required under the NSW *Water Management Act. 2000*.

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7. Council's Protection of Waterways and Riparian Land Policy recommends a 10m riparian zone plus a 10m riparian buffer (total 20m buffer) on both sides of the creekline as part of any proposed development within the study area.

In November 2016 the NSW parliament passed the *Biodiversity Conservation Act 2016*. This new legislation will replace the *Threatened Species Conservation Act 1995* and is due to take effect on 25 August 2017. This report has been prepared in accordance with the legislation that applies as of the date of publication of this report and the transitional arrangements published by the government. Therefore, all further assessment of the study area will be undertaken in accordance with the NSW *Biodiversity Conservation Act 2016*.

A Biodiversity Development Assessment Report will be required for any development proposal in the study area following the implementation of the NSW *Biodiversity Conservation Act 2016*. The BDAR would function as an assessment of the impacts on biodiversity values (e.g. native vegetation and threatened species) and would outline the measures taken to avoid or minimise the impacts on biodiversity.

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Appendix A Likelihood of Occurrence Table

An assessment of likelihood of occurrence was made for threatened and migratory species identified from the database search. This assessment applies to the entire study area. Five terms for the likelihood of occurrence of species are used in this report. This assessment was based on database or other records, presence or absence of suitable habitat, features of the proposal site, results of the field survey and professional judgement. The terms for likelihood of occurrence are defined below:

- "known" = the species was or has been observed on the site
- "likely" = a medium to high probability that a species uses the site
- "potential" = suitable habitat for a species occurs on the site, but there is insufficient information to categorise the species as likely to occur, or unlikely to occur
- "unlikely" = a very low to low probability that a species uses the site
- "no" = habitat on site and in the vicinity is unsuitable for the species.

CE = Critically Endangered; E = Endangered; E2 = Endangered Population; V = Vulnerable

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Table 4: Threatened flora and fauna likelihood of occurrence

Scientific Name	Common Name	TSC Act	EPBC Act	Habitat Associations	Likelihood of Occurrence	Likelihood an impact assessment will be required?
Acacia terminalis subsp. terminalis	Sunshine Wattle	E	V	Acacia terminalis subsp. terminalis has a very limited distribution, mainly in near-coastal areas from the northern shores of Sydney Harbour south to Botany Bay, with most records from the Port Jackson area and the eastern suburbs of Sydney. It occurs in coastal scrub and dry sclerophyll woodland on sandy soils	Unlikely	No. Suitable habitat not recorded in the study area.
Callistemon linearifolius	Netted Bottle Brush	V		Callistemon linearifolius has been recorded from the Georges River to Hawkesbury River in the Sydney area, and north to the Nelson Bay area of NSW, growing in dry sclerophyll forest. For the Sydney area, recent records are limited to the Hornsby Plateau area near the Hawkesbury River.	Unlikely	No. Suitable habitat not recorded in the study area.

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Scientific Name	Common Name	TSC Act	EPBC Act	Habitat Associations	Likelihood of Occurrence	Likelihood an impact assessment will be required?
Darwinia biflora		V	V	Recorded in Ku-ring-gai, Hornsby, Baulkham Hills and Ryde local government areas, in an area bounded by Maroota, North Ryde, Cowan and Kellyville.	Unlikely	No. Suitable habitat not recorded in the study area.
Epacris purpurascens var. purpurascens		V		Recorded from Gosford in the north, to Narrabeen in the east, Silverdale in the west and Avon Dam vicinity in the South. Habitat exhibits a strong shale influence in the soils.	Unlikely	No. Suitable habitat not recorded in the study area.
Eucalyptus camfieldii	*Camfield's Stringybark*	V	V	Eucalyptus camfieldii is associated with shallow sandy soils bordering coastal heath with other stunted or mallee eucalypts, often in areas with restricted drainage and in areas with laterite influenced soils, thought to be associated with proximity to shale.	Unlikely	No. Suitable habitat not recorded in the study area.
Eucalyptus nicholii	*Narrow-leaved Black Peppermint*	V	V	New England Tablelands from Nundle to north of Tenterfield.	No. Specimens found on Atlas and identified in the study area are landscape plantings	No. Specimens found on Atlas and identified in the study area are landscape plantings

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Scientific Name	Common Name	TSC Act	EPBC Act	Habitat Associations	Likelihood of Occurrence	Likelihood an impact assessment will be required?
Eucalyptus scoparia	*Wallangarra White Gum*	E	V	Open eucalypt forest, woodlands and heaths near Tenterfield.	No. Specimens found on Atlas and identified in the study area are landscape plantings	No. Specimens found on Atlas and identified in the study area are landscape plantings
Grevillea caleyi	Caley's Grevillea	E	E	Grevillea caleyi is restricted to an 8 km square area around Terrey Hills, approximately 20 km north of Sydney. It occurs in three major areas of suitable habitat, namely Belrose, Ingleside and Terrey Hills / Duffys Forest within the Ku-ring-gai, Pittwater and Warringah LGAs. It occurs on ridgetops between elevations of 170 to 240 m asl, on laterite soils in open or low open forests, generally dominated by Eucalyptus sieberi, Corymbia gummifera and E. haemastoma	Unlikely	No. Suitable habitat not recorded in the study area.

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Scientific Name	Common Name	TSC Act	EPBC Act	Habitat Associations	Likelihood of Occurrence	Likelihood an impact assessment will be required?
Genoplesium baueri	Bauer's Midge Orchid	V	-	Known from coastal areas from northern Sydney south to the Nowra district. Previous records from the Hunter Valley and Nelson Bay are now thought to be erroneous. Grows in shrubby woodland in open forest on shallow sandy soils.	Unlikely.	No. Suitable habitat not recorded in the study area.
Persoonia hirsuta	Hairy Geebung	E	E	*Persoonia hirsuta* occurs from Singleton in the north, south to Bargo and the Blue Mountains to the west. It grows in dry sclerophyll eucalypt woodland and forest on sandstone	Unlikely.	No. Suitable habitat not recorded in the study area.
Pimelea curviflora var. *curviflora*	*Pimelea curviflora* var. *curviflora*	V	V	*Pimelea curviflora* var. *curviflora* is confined to the coastal area of Sydney between northern Sydney in the south and Maroota in the north-west. It grows on shale/lateritic soils over sandstone and shale/sandstone transition soils on ridgetops and upper slopes amongst woodlands.	Unlikely.	No. Suitable habitat not recorded in the study area.

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Scientific Name	Common Name	TSC Act	EPBC Act	Habitat Associations	Likelihood of Occurrence	Likelihood an impact assessment will be required?
Syzygium paniculatum	Magenta Lilly Pilly	E	V	Only in NSW, in a narrow, linear coastal strip from Upper Lansdowne to Conjola State Forest. Subtropical and littoral rainforest on gravels, sands, silts and clays."	No. Specimens found on Atlas and identified in the study area are landscape plantings	No. Specimens found on Atlas and identified in the study area are landscape plantings.
Tetratheca glandulosa	*Tetratheca glandulosa*	V	V	Associated with ridgetop woodland habits on yellow earths and also in sandy or rocky heath and scrub. Often associated with sandstone / shale interface where soils have a stronger clay influence. Flowers July to November.	Unlikely	No. Suitable habitat not recorded in the study area.

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Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Likelihood of occurrence	Likelihood an impact assessment will be required?
Pseudophryne australis	Red-crowned Toadlet	V		Confined to the Sydney Basin, from Pokolbin in the north, the Nowra area to the south, and west to Mt Victoria in the Blue Mountains.	Unlikely.	No. Suitable habitat not recorded in the study area.
Heleioporus australiacus	Giant Burrowing Frog	V	V	Forages in woodlands, wet heath, dry and wet sclerophyll forest. Associated with semi-permanent to ephemeral sand or rock based streams where the soil is soft and sandy so that burrows can be constructed.	Unlikely.	No. Suitable habitat not recorded in the study area.
Litoria aurea	Green and Golden Bell Frog	E	V	This species has been observed utilising a variety of natural and man-made waterbodies such as coastal swamps, marshes, dune swales, lagoons, lakes, other estuary wetlands, riverine floodplain wetlands and billabongs, stormwater detention basins, farm dams, bunded areas, drains, ditches and any other structure capable of storing water.	Unlikely	Unlikely. Further survey may be required at time of development assessment..
Anthochaera phrygia	Regent Honeyeater	E	E	Inland slopes of south-east Australia, and less frequently in coastal areas. In NSW, most records are from the North-West Plains, North-West and South-West Slopes, Northern Tablelands, Central Tablelands and Southern Tablelands regions; also recorded in the Central Coast and Hunter Valley regions.	Unlikely.	Unlikely. Further survey may be required at time of development assessment.

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Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Likelihood of occurrence	Likelihood an impact assessment will be required?
Apus pacificus	Fork-tailed Swift		Mi	Sometimes travels with Needletails. Varied habitat with a possible tendency to more arid areas but also over coasts and urban areas.	Unlikely – flyover species	No
Artamus cyanopterus	Dusky Woodswallow	V		Widespread in eastern, southern and south western Australia. Inhabits dry open eucalypt forests and woodlands	Unlikely	No
Callocephalon fimbriatum	Gang-gang Cockatoo	V		The Gang-gang Cockatoo is distributed from southern Victoria through south- and central-eastern New South Wales. In New South Wales, the Gang-gang Cockatoo is distributed from the south-east coast to the Hunter region, and inland to the Central Tablelands and south-west slopes.	Unlikely	No
Calyptorhynchus lathami	Glossy Black-Cockatoo	V		In NSW, widespread along coast and inland to the southern tablelands and central western plains, with a small population in the Riverina.	Unlikely	No. Suitable habitat not recorded in the study area.
Daphoenositta chrysoptera	Varied Sittella	V		Distribution in NSW is nearly continuous from the coast to the far west. Inhabits eucalypt forests and woodlands, mallee and Acacia woodland.	Unlikely	No
Glossopsitta pusilla	Little Lorikeet	V		In NSW, found from the coast westward as far as Dubbo and Albury.	Unlikely –may utilise some eucalypts for marginal foraging.	Unlikely. Further survey may be required at time of development assessment.

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Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Likelihood of occurrence	Likelihood an impact assessment will be required?
Hieraaetus morphnoides	Little Eagle	V		The Little Eagle is widespread in mainland Australia, central and eastern New Guinea. The Little Eagle is seen over woodland and forested areas, The population of Little Eagle in NSW is considered to be a single population. It tends to avoid rainforest and heavy forest.	Unlikely – may fly over site	No
Hirundapus caudacutus	White-throated Needletail		Ma Mi	Forages aerially over a variety of habitats usually over coastal and mountain areas, most likely with a preference for wooded areas. Has been observed roosting in dense foliage of canopy trees, and may seek refuge in tree hollows in inclement weather.	Unlikely – may fly over site	No
Ixobrychus flavicollis	Black Bittern	V		In NSW, records are scattered along the east coast, with individuals rarely being recorded south of Sydney or inland. Terrestrial and estuarine wetlands. Also flooded grassland, forest, woodland, rainforest and mangroves where permanent water is present.	Unlikely	No
Lathamus discolor	Swift Parrot	E	E	Migrates from Tasmania to mainland in Autumn-Winter. In NSW, the species mostly occurs on the coast and south west slopes.	Unlikely – some potential marginal foraging resources with flowering eucalypts	Unlikely. Further survey may be required at time of development assessment.

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Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Likelihood of occurrence	Likelihood an impact assessment will be required?
Lophoictinia isura	Square-tailed Kite	V	—	In coastal areas associated tropical and temperate forests and woodlands on fertile soils with an abundance of passerine birds. May be recorded inland along timbered watercourses In NSW it is commonly associated with ridge or gully forests	Unlikely – flyover species	No
Ninox connivens	Barking Owl	V		Wide but sparse distribution in NSW, avoiding the most central arid regions. Core populations exist on the western slopes and plains and in some northeast coastal and escarpment forests.	Unlikely. May use area for marginal foraging.	Unlikely. Further survey may be required at time of development assessment.
Ninox strenua	Powerful Owl	V		In NSW, it is widely distributed throughout the eastern forests from the coast inland to tablelands, with scattered records on the western slopes and plains.	Unlikely. May use area for marginal foraging. .	Unlikely. Further survey may be required at time of development assessment.

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Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Likelihood of occurrence	Likelihood an impact assessment will be required?
Petroica boodang	Scarlet Robin	V		The Scarlet Robin is found in south-eastern and south-western Australia, as well as on Norfolk Island. In Australia, it is found south of latitude 25°S, from south-eastern Queensland along the coast of New South Wales (and inland to western slopes of Great Dividing Range) to Victoria and Tasmania, and west to Eyre Peninsula, South Australia; it is also found in south-west Western Australia. The Scarlet Robin lives in open forests and woodlands in Australia, while it prefers rainforest habitats on Norfolk Island. During winter, it will visit more open habitats such as grasslands and will be seen in farmland and urban parks and gardens at this time.	Unlikely	No

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Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Likelihood of occurrence	Likelihood an impact assessment will be required?
Ptilinopus superbus	Superb Fruit Dove	V		Rainforest and closed forests. May also forage in eucalypt or acacia woodland where there are fruit-bearing trees. Forages high in the canopy, eating the fruits of many tree species such as figs and palms. Part of the population is migratory or nomadic. At least some of the population, particularly young birds, moves south through Sydney, especially in autumn. Breeding takes place from September to January. The nest is a structure of fine interlocked forked twigs, and is usually 5-30 metres up in rainforest and rainforest edge tree and shrub species.	Unlikely	No
Tyto tenebricosa	Sooty Owl	V		Sooty Owls are associated with tall wet old growth forest on fertile soil with a dense understorey and emergent tall Eucalyptus species. Pairs roost in the daytime amongst dense vegetation, in tree hollows and sometimes in caves. The Sooty Owl is typically associated with an abundant and diverse supply of prey items and a selection of large tree hollows	Unlikely. May use area for marginal foraging.	Unlikely. Further survey may be required at time of development assessment.

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Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Likelihood of occurrence	Likelihood an impact assessment will be required?
Tyto novaehollandiae	Masked Owl	V		Associated with forest with sparse, open, understorey, typically dry sclerophyll forest and woodland and especially the ecotone between wet and dry forest, and non-forest habitat. Known to utilise forest margins and isolated stands of trees within agricultural land and heavily disturbed forest where its prey of small and medium sized mammals can be readily obtained.	Unlikely. May use area for marginal foraging.	Unlikely. Further survey may be required at time of development assessment.
Dasyurus maculatus	Spotted-tailed Quoll	V	E	Found on the east coast of NSW, Tasmania, eastern Victoria and north-eastern Qld.	Unlikely	No. Suitable habitat not recorded in the study area.
Chalinolobus dwyeri	Large-eared Pied Bat	V	V	The Large-eared Pied Bat has been recorded in a variety of habitats, including dry sclerophyll forests, woodland, sub-alpine woodland, edges of rainforests and wet sclerophyll forests. This species roosts in caves, rock overhangs and disused mine shafts and as such is usually associated with rock outcrops and cliff faces. Found in well-timbered areas containing gullies.	Potential – study area may be used for potential foraging. Roosting habitat potential also in the study area.	Likely. Known records do occur within 5km radius of the study area. Suitable habitat does occur in the study area. Further survey may be required at time of development assessment.

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Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Likelihood of occurrence	Likelihood an impact assessment will be required?
Cercartetus nanus	Eastern Pygmy Possum	V		Found in wet and dry eucalypt forest, subalpine woodland, coastal banksia woodland and wet heath. Pygmy-Possums feed mostly on the pollen and nectar from banksias, eucalypts and understory plants and will also eat insects, seeds and fruit. Small tree hollows are favoured as day nesting sites, but nests have also been found under bark, in old birds' nests and in the branch forks of tea-trees	Unlikely	No. Suitable habitat not recorded in the study area.
Falsistrellus tasmaniensis	Eastern False Pipistrelle	V		Prefers moist habitats with trees taller than 20m. Roosts in tree hollows but has also been found roosting in buildings or under loose bark.	Potential – study area may be used for potential foraging. Roosting habitat potential also in the study area	Likely. Known records do occur within 5km radius of the study area. Suitable habitat does occur in the study area. Further survey may be required at time of development assessment.

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Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Likelihood of occurrence	Likelihood an impact assessment will be required?
Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern)	E	E	Found in south-eastern NSW, east of the Great Dividing Range south from the Hawkesbury River. Habitat is heath or open forest with a heathy understorey on sandy or friable soils. Largely crepuscular. They feed on a variety of ground-dwelling invertebrates and the fruit-bodies of hypogenous (underground-fruiting) fungi. Their searches for food often create distinctive conical holes in the soil. Nest during the day in a shallow depression in the ground covered by leaf litter, grass or other plant material. Nests may be located under Xanthorrhoea spp. (Grass trees), blackberry bushes and other shrubs, or in rabbit burrows. Mating occurs any time of the year, usually following heavy rain.	Unlikely	No. Suitable habitat not recorded in the study area.
Miniopterus australis	Little Bentwing-bat	V		East coast and ranges south to Wollongong in NSW.	Potential – study area may be used for potential foraging. Roosting habitat potential also in the study area.	Likely. Known records do occur within 5km radius of the study area. Suitable habitat does occur in the study area. Further survey may be required at time of development assessment.

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Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Likelihood of occurrence	Likelihood an impact assessment will be required?
Miniopterus schreibersii oceanensis	Eastern Bentwing-bat	V		In NSW it occurs on both sides of the Great Dividing Range, from the coast inland to Moree, Dubbo and Wagga Wagga. Maternity roosts may be located in caves, abandoned mines, concrete bunkers and lava tubes. Over-wintering roosts used outside the breeding period include cooler caves, old mines, stormwater channels, under bridges and occasionally buildings.	Potential – study area may be used for potential foraging. Roosting habitat potential also in the study area.	Likely. Known records do occur within 5km radius of the study area. Suitable habitat does occur in the study area. Further survey may be required at time of development assessment.
Mormopterus norfolkensis	Eastern Freetail-bat	V		Found along the east coast from south Qld to southern NSW.	Potential – study area may be used for potential foraging. Roosting habitat potential also in the study area.	Likely. Known records do occur within 5km radius of the study area. Suitable habitat does occur in the study area. Further survey may be required at time of development assessment.
Myotis macropus	Southern Myotis	V		In NSW, found in the coastal band. It is rarely found more than 100 km inland, except along major rivers.	Potential – study area may be used for potential foraging. Roosting habitat potential also in the study area.	Likely. Known records do occur within 5km radius of the study area. Suitable habitat does occur in the study area. Further survey may be required at time of development assessment.

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Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Likelihood of occurrence	Likelihood an impact assessment will be required?
Phascolarctos cinereus	Koala	V	V	In NSW it mainly occurs on the central and north coasts with some populations in the west of the Great Dividing Range. There are sparse and possibly disjunct populations in the Bega District, and at several sites on the southern tablelands.	Unlikely	No. Suitable habitat not recorded in the study area.
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	Along the eastern coast of Australia, from Bundaberg in Qld to Melbourne in Victoria.	Yes – study area may be used for potential foraging.	Likely. Further survey may be required at time of development assessment.
Saccolaimus flaviventris	Yellow-bellied Sheathtail – bat	V		Found in almost all habitats, from wet and dry sclerophyll forest, open woodland open country, mallee, rainforests, heathland and waterbodies. Roosts in tree hollows; may also use caves; has also been recorded in a tree hollow in a paddock and in abandoned sugar glider nests. The Yellow-bellied Sheathtail-bat is dependent on suitable hollow-bearing trees to provide roost sites, which may be a limiting factor on populations in cleared or fragmented habitats.	Potential – study area may be used for potential foraging. Roosting habitat potential also in the study area.	Likely. Further survey may be required at time of development assessment.

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Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Likelihood of occurrence	Likelihood an impact assessment will be required?
Scoteanax rueppellii	Greater Broad-nosed Bat	V		Associated with moist gullies in mature coastal forest, or rainforest, east of the Great Dividing Range tending to be more frequently located in more productive forests. Within denser vegetation types use is made of natural and man-made openings such as roads, creeks and small rivers, where it hawks backwards and forwards for prey.	Potential – study area may be used for potential foraging. Roosting habitat potential also in the study area.	Likely. Further survey may be required at time of development assessment.
Varanus rosenbergi	Rosenberg's Goanna	V		In NSW, found on the Sydney Sandstone in Wollemi National Park, in the Goulburn and ACT regions and near Cooma in the south. Also recorded from the South West Slopes near Khancoban and Tooma River.	Unlikely.	No. Suitable habitat not recorded in the study area.

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