

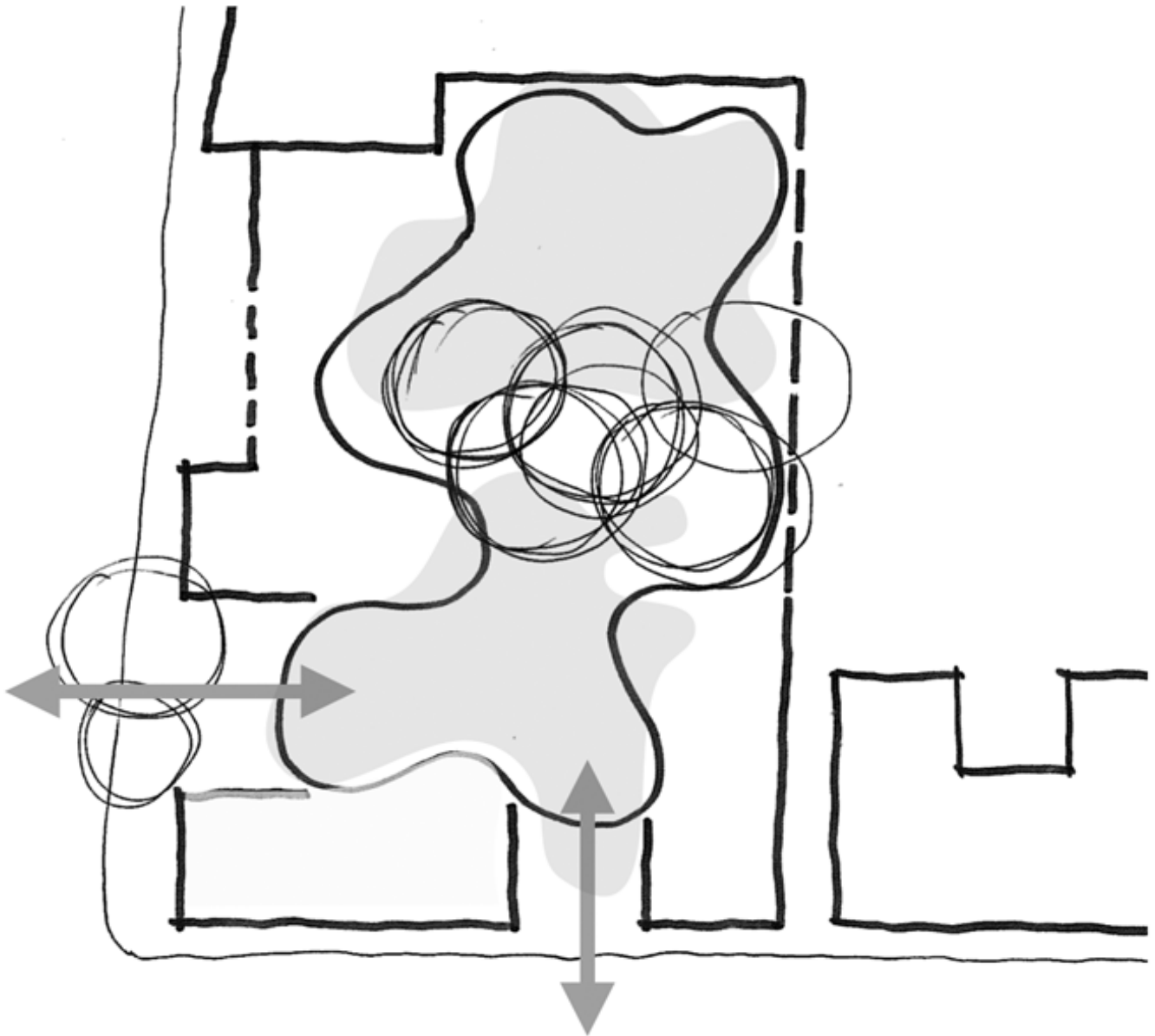
DARLINGTON PUBLIC SCHOOL REDEVELOPMENT

Appendix U — Biodiversity Development Assessment Report

SSD-9914

Prepared by EcoLogical

For NSW Department of Education



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Darlington Public School Redevelopment Biodiversity Development Assessment Report

School Infrastructure NSW

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Template 2.8.1

Executive Summary

Eco Logical Australia Pty Ltd was engaged by School Infrastructure NSW (NSWSI) to prepare a Biodiversity Development Assessment Report for the proposed Darlington Public School State Significant Development. Mace Group on behalf of SINSW proposed to redevelop Darlington Public School (the 'development site') in the City of Sydney local government area. The proposed redevelopment will be assessed as a State Significant Development (SSD) (application SSD 19_9914) in accordance with both the *State Environmental Planning Policy* (Educational Establishments and Child Care Facilities) 2017 and *NSW Environmental Planning and Assessment Act 1979*. The Secretary's Environmental Assessment Requirements (SEARs) have been issued and require the preparation of a Biodiversity Development Assessment Report (BDAR) under the *NSW Biodiversity Conservation Act 2016* (BC Act).

The development site will impact upon biodiversity values within the development site and as such a BDAR is required to assess the vegetation clearing under the BC Act. This report has been prepared to meet the requirements of the Biodiversity Assessment Method 2016 (BAM) established under Section 6.7 of the BC Act. Requirements of the *Sydney Local Environmental Plan 2012* and *Development Control Plan 2012* have also been addressed in this document.

The vegetation within the development site contains planted native and exotic vegetation. Under the BAM all vegetation native to NSW must be assigned a Plant Community Type (PCT). Where native vegetation has been planted and does not clearly confirm to any PCT, a 'best-fit' PCT must be assigned. Based on the available data the planted native vegetation conforms to PCT 1281 *Turpentine - Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion*. Although components of this PCT corresponds to Sydney Turpentine-Ironbark Forest listed under the BC Act and Commonwealth *Environment Protection and Biodiversity Act 1999* (EPBC Act), the planted vegetation does not correspond to a threatened ecological community (TEC).

During the field survey two threatened flora species listed under the BC Act and EPBC Act, *Eucalyptus scoparia* (Wallangarra White Gum) and *Eucalyptus nicholii* (Narrow-leaved Black Peppermint) were recorded within the development site. These species are widely cultivated and used in landscape plantings. These species occur in a restricted geographic area in the NSW Northern Tableland which does not include the development site. These species are also used widely as cultivated and planted specimens in the Sydney region. Therefore, these species do not represent the listed entities under the BC Act.

No other threatened flora or fauna species were recorded within the development site. There is potential that highly mobile threatened species may utilise the vegetation for foraging resources on occasion. Consideration has been given to these highly mobile species during the preparation of this BDAR.

Measures taken to avoid, minimise and mitigate impacts to the vegetation and species habitat present within the development site and methodologies to minimise impacts during construction and operation of the development have been included in this BDAR.

Following consideration of all the above aspects, the residual unavoidable impacts of the project were calculated in accordance with the BAM by utilising the Biodiversity Assessment Method Credit calculator (BAMC). For *PCT 1281_planted* the BAMC generated a vegetation integrity score of 17.1. Under the BAM, two (2) ecosystem credit are required to offset the removal of 0.16 ha of vegetation.

One Matter of National Environmental Significance (MNES) was identified as having potential to be adversely affected by the proposed works. *Pteropus poliocephalus* (Grey-headed Flying-fox) is listed as Vulnerable under the EPBC Act and it is considered that this species is likely to use some of the development site for foraging. Assessment of the Commonwealth Significant Impact Criteria was undertaken for the Grey-headed Flying-fox and concluded that the project would not have a significant impact on this species. Significant Impact Criteria was also conducted for two planted threatened species, *Eucalyptus nicholii* and *E. scoparia* and determined that the proposed works are unlikely to have a significant impact upon these planted species.

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Abbreviations

Abbreviation	Description
BAM	Biodiversity Assessment Method
BAMC	Biodiversity Assessment Method Credit Calculator
BC Act	<i>NSW Biodiversity Conservation Act 2016</i>
BDAR	Biodiversity Development Assessment Report
CEEC	Critically Endangered Ecological Community
DAW&E	Commonwealth Department of Agriculture, Water and the Environment (formally DoEE)
DCP	Development Control Plan
DoE	Department of Education
DoEE	Commonwealth Department of Environment and Energy (Now DAW&E)
DPE	NSW Department of Planning and Environment
DPIE	NSW Department of Planning, Infrastructure and Environment (previously known as OEH)
ELA	Eco Logical Australia Pty Ltd
EP&A Act	<i>NSW Environmental Planning and Assessment Act 1979</i>
EPBC Act	<i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i>
FM Act	<i>NSW Fisheries Management Act 1994</i>
GIS	Geographic Information System
GHFF	Grey-headed Flying-fox
HBT	Hollow-bearing tree
IBRA	Interim Biogeographic Regionalisation for Australia
LEP	Local Environmental Plan
LGA	Local Government Area
MNES	Matter of National Environmental Significance
NSW	New South Wales
NOW	NSW Office of Water
OEH	NSW Office of Environment and Heritage (now known as DPIE)
PCT	Plant Community Type
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SINSW	School Infrastructure NSW
SSD	State Significant Development
TEC	Threatened Ecological Community
VIS	Vegetation Information System
WM Act	<i>NSW Water Management Act 2000</i>

1. Stage 1: Biodiversity assessment

1.1 Introduction

This Biodiversity Development Assessment Report (BDAR) has been prepared by Belinda Failes, is an Accredited Person (BAAS18159) under the NSW *Biodiversity Conservation Act 2016* (BC Act). The report has been peer reviewed by Nicole McVicar (BAAS18077) who is also an accredited person under the BC Act.

1.1.1 General description of the development site

Mace Group have been engaged by School Infrastructure NSW (SINSW) to assist in the proposed redevelopment of Darlington Public School (SSD 19_9914) in accordance with both the State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017 and *Environmental Protection and Assessment Act 1979* (EP&A Act). The Secretary's Environmental Assessment Requirements (SEARs) have been issued and require the preparation of a Biodiversity Development Assessment Report (BDAR) under the NSW BC Act (see Table 1).

Darlington Public School is located at 417-445 Abercrombie Street at the corner of Abercrombie and Golden Grove Street (referred to as 'the development site'). The development site is 0.75 ha in size and located within the inner-west suburb of Darlington, approximately 3 km south of the Sydney central business district. The northern boundary of the development site abuts the historic University of Sydney Regiment building, Abercrombie Road forms the southern boundary, and Golden Grove Street forms the western boundary. The eastern boundary consists of the University of Sydney Business School and Abercrombie Student Accommodation.

The development site is located within the City of Sydney local government area (LGA). The development site is zoned SP2 Education Establishment under the *Sydney Local Environmental Plan 2012* (LEP). The proposed redevelopment allows for educational opportunities with consent approval under the LEP.

The development site consists of the following lots:

- Lot 100 DP 623500
- Lot 592 DP752049.

Darlington Public School currently accommodates educational facilities for 250 students (preschool and K-6) in 10 permanent home bases, three (3) preschool classrooms and one (1) allocated room used as an out-of-school-hours-care (OSHC) facility. Under the SSD application the proposed redevelopment will increase the capacity by up to 437 primary school students and 60 preschool children. The proposed works will include the demolition and redevelopment of the existing school which is nearing the end of its economic life and replacement with modern educational facilities.

The development site currently contains several multistorey buildings, playground equipment and scattered planted mixed native and exotic vegetation including several clusters of mature Eucalypt species which provides shade and aesthetic value.

This report includes two base maps, the Site Map Figure 1 and the Location Map Figure 2.

1.1.2 Development site footprint

The SSD application seeks consent for demolition of existing school buildings and construction of a new part 2, part 3-storey building, increasing the school capacity from 230 to 437 students. The works also include replacement of the existing child-care facility (to the same capacity of 60 students), earthworks and landscaping. For a detailed project description refer to the EIS prepared by Ethos Urban.

The development site footprint is provided in Figure 3. The proposed development will primarily utilise the existing building footprints and paved open space where available. Scattered planted canopy trees and some landscaped gardens will be impacted or removed to accommodate the new development.

It is understood that Early Works including some tree removal works, will be conducted prior to the SSD (Figure 1). Early Works will be assessed as a separate Development Application under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and submitted to the City of Sydney Council. ELA has been engaged to provide an assessment of the biodiversity impacts of the Early Works. As such Early Works are not assessed as part of this BDAR.

1.1.3 Response to SEARs

Table 1: BDARs response to SEARs

SEARs requirements	Addressed in BDAR
Biodiversity impacts related to the proposed development (SSD 9914) are to be assessed in accordance with the Biodiversity Assessment Method and documented in a Biodiversity Development Assessment Report (BDAR). The BDAR must include information in the form detailed in the Biodiversity Conservation Act 2016 (s6.12), Biodiversity Conservation Regulation 2017 (s6.8) and Biodiversity Assessment Method.	This BDAR reports assesses the biodiversity impacts and has been prepared in accordance with the BC Act, Biodiversity Conservation Regulation 2017 and BAM.
The BDAR must document the application of the avoid, minimise and offset framework including assessing all direct, indirect and prescribed impacts in accordance with the Biodiversity Assessment Method.	Avoiding impacts is addressed in Section 2.1 Direct impacts are addressed in Section 2.2. An assessment of Prescribed Impacts was conducted in Section 2.1.3 and determined that there were no Prescribed Impacts for the proposed development.
The BDAR must include details of the measures proposed to address the offset obligation as follows: <ul style="list-style-type: none"> the total number and classes of biodiversity credits required to be retired for the development/project the number and classes of like-for-like biodiversity credits proposed to be retired the number and classes of biodiversity credits proposed to be retired in accordance with the variation rules any proposal to fund a biodiversity conservation action any proposal to make a payment to the Biodiversity Conservation Fund. 	The BDAR has provided the total number of ecosystem credits required, like-for-like options and trading group in Section 2.5.5 (see Table 27).
If seeking approval to use the variation rules, the BDAR must contain details of the reasonable steps that have been taken to obtain requisite like-for-like biodiversity credits.	The SSD has not requested approval to use the variation rules.
The BDAR must be prepared by a person accredited in accordance with the Accreditation Scheme for the Application of the Biodiversity Assessment Method Order 2017 under s6.10 of the Biodiversity Conservation Act 2016.	This BDAR has been prepared by an accredited person under the BC Act and peer

SEARs requirements	Addressed in BDAR
	reviewed by an accredited person as stated in Section 1.1 of this BDAR.
Where a Biodiversity Assessment Report is not required, engage a suitably qualified person to assess and document the flora and fauna impacts related to the proposal.	A BDAR is required for State Significant Developments which impact upon biodiversity values.

1.1.4 Sources of information used

The following data sources were reviewed as part of this report:

- Biodiversity Assessment Methodology Calculator
- BioNet Vegetation Classification System
- BioNet / Atlas of NSW Wildlife 5 km database search (DPIE 2020a)
- EPBC Act Protected Matters Search Tool 5 km database search (DAW&E 2020a)
- The Native Vegetation of the Sydney Metropolitan Area (OEH 2013)
- Threatened Species Profiles (DPIE 2020b)
- Biodiversity values map and threshold tool (online tool) (DPIE 2020c)
- Aerial mapping (SIXMaps)
- Additional Geographic Information System (GIS) datasets including soil, topography, geology and drainage
- Architectural and Urban Design Statement (fjmt Studio 2020a)
- Landscape Plans (fjmt Studio 2020b)
- Request for Secretary's Environmental Assessment Requirements – Darlington Public School Redevelopment (Gardner Wetherill & Associates Pty Ltd 2019)
- Darlington Arboricultural Development Assessment Report (Moore Trees 2020).

Site Map **Darlington Public School SSD**

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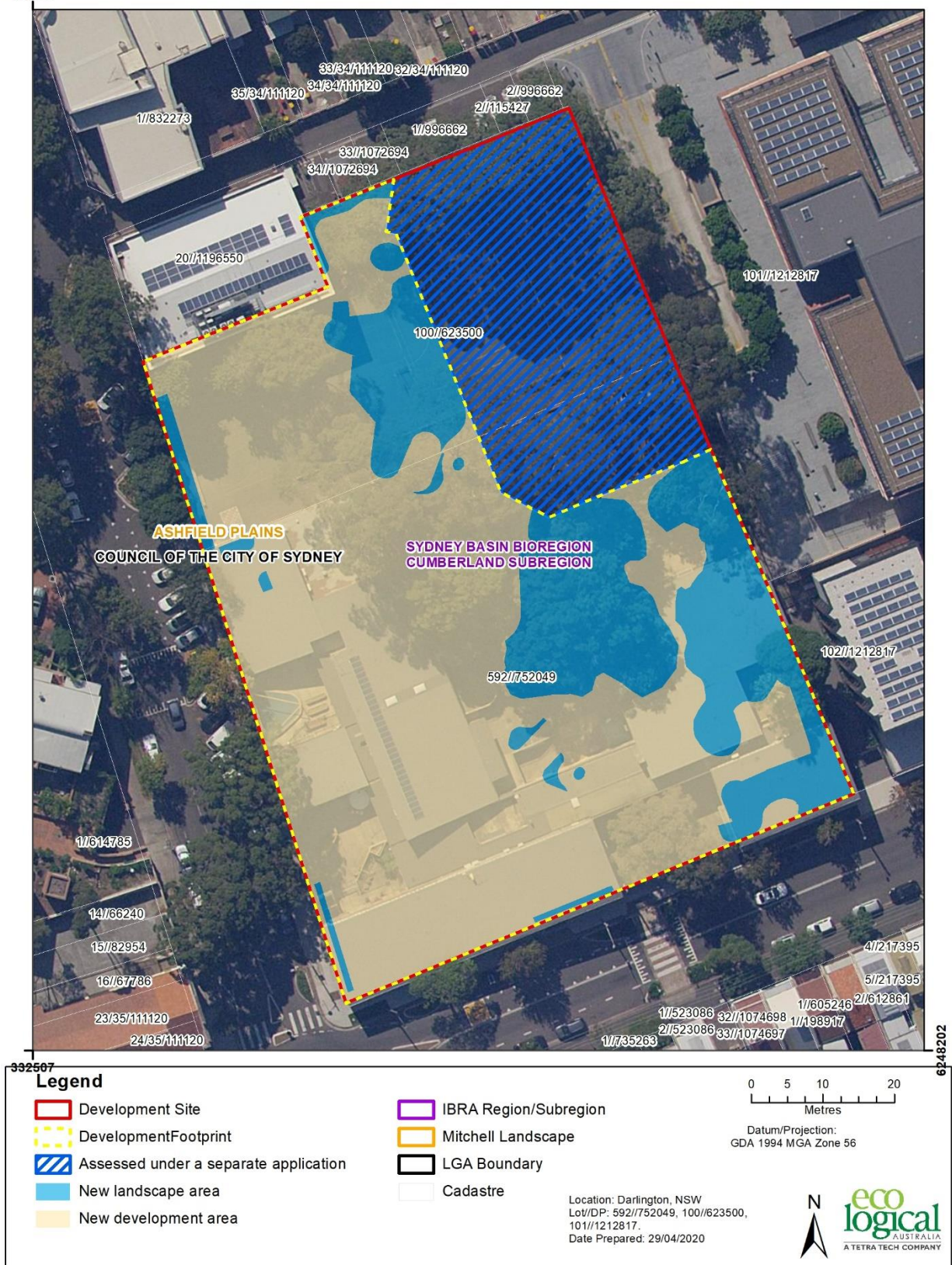


Figure 1: Site Map

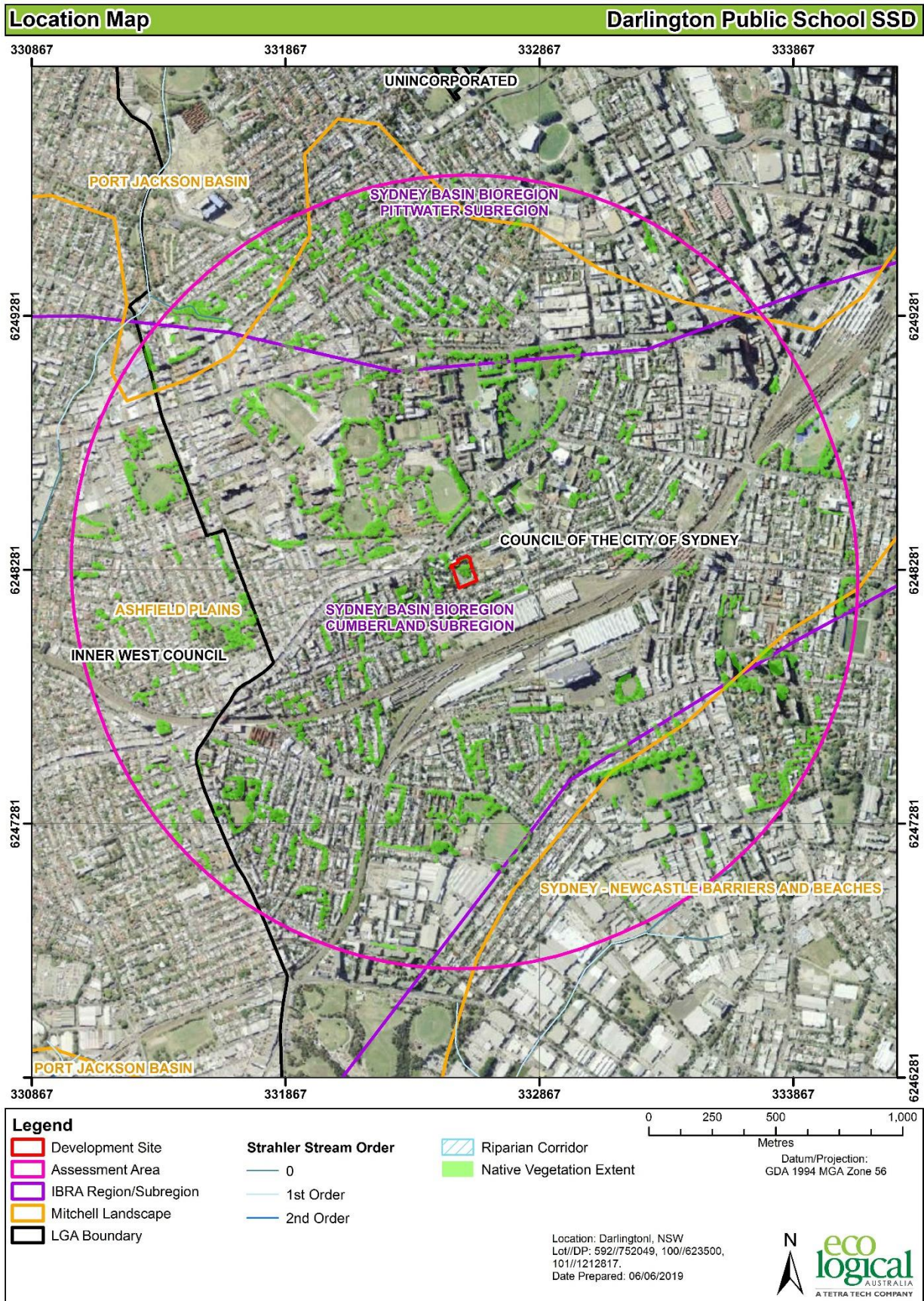


Figure 2: Location Map

Development Footprint

Darlington Public School SSD

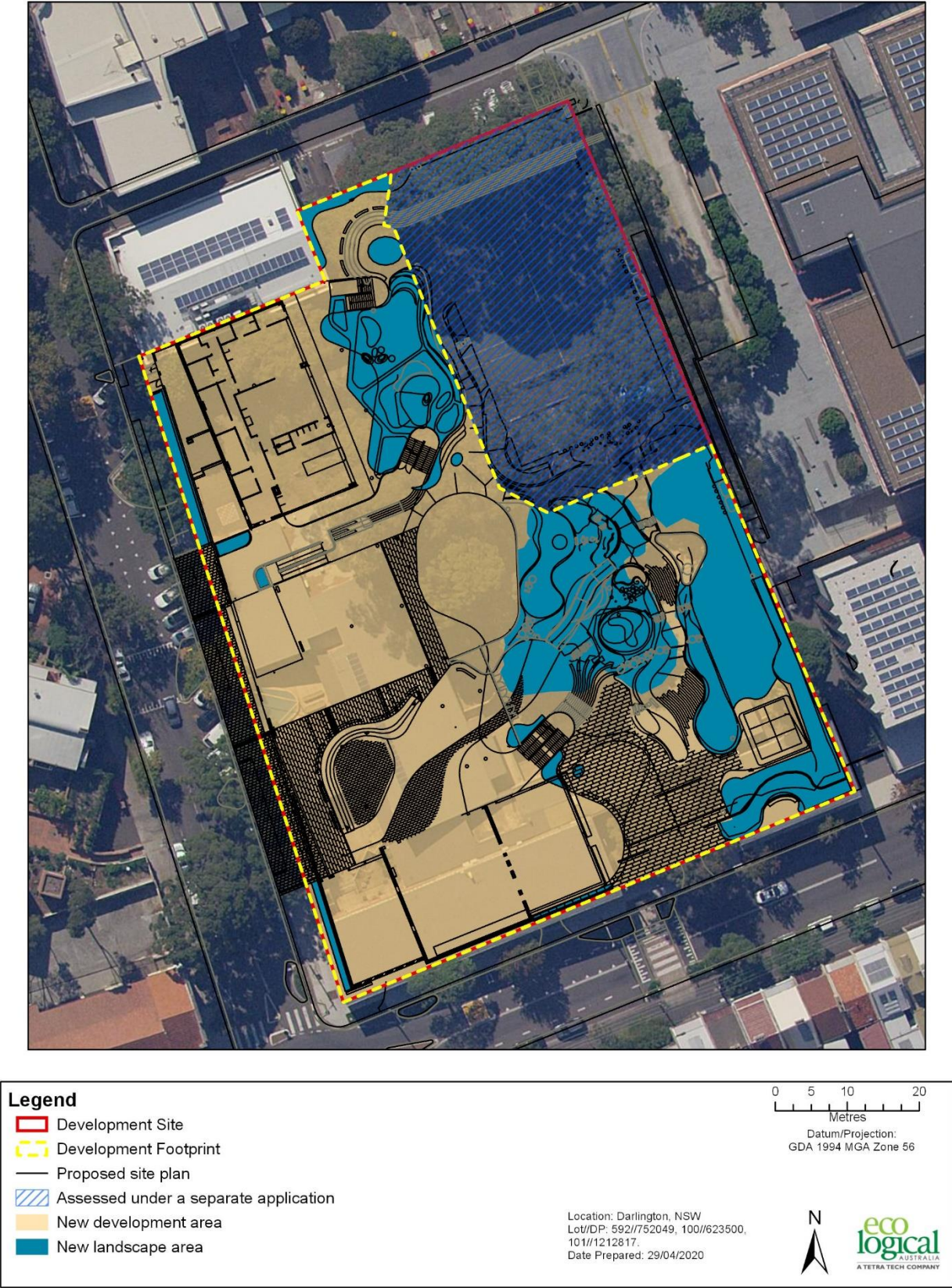


Figure 3: Final project footprint including construction and operation

1.2 Legislative context

Table 2: Legislative context

Name	Relevance to the project	Report Section
Commonwealth		
<i>Environmental Protection and Biodiversity Conservation Act 1999</i> (EPBC Act)	Matters of National Environmental Significance (MNES) have been identified within the development site. This report assessed impacts to MNES and concludes that the development is unlikely to have a significance impact on MNES.	2.6.1
State		
<i>Biodiversity Conservation Act 2016</i> (BC Act)	The proposed development requires submission of a BDAR (i.e. this report) under the BC Act.	All
<i>Environmental Planning and Assessment Act 1979</i> (EP&A Act)	The proposed development requires consent under the EP&A Act.	N/A
<i>Fisheries Management Act 1994</i> (FM Act)	The development does not involve impacts to Key Fish Habitat, does not involve harm to marine vegetation, dredging, reclamation or obstruction of fish passage. A permit or consultation under the FM Act is not required.	N/A
<i>Local Land Services Amendment Act 2016</i> (LLS Act)	The LLS Act does not apply to areas of the state to which the Vegetation SEPP applies. The Vegetation SEPP applies to the City of Sydney LGA.	N/A
<i>Water Management Act 2000</i> (WM Act)	The project does not involve works on waterfront land. A Controlled Activity Approval under s91 of the WM Act is not required.	N/A
Planning Instruments		
State Environmental Planning Policy (SEPP) – Coastal Management 2018	The proposed development is not located on land subject to SEPP coastal management.	N/A
SEPP (Koala Habitat Protection) 2019	The proposed development is not located within a LGA to which SEPP (Koala Habitat Protection) 2019 applies.	N/A
SEPP (Vegetation in Non-Rural Areas) 2017	This SEPP applies to development that does not require development consent. As this project requires consent under the EP&A Act, the Vegetation SEPP is not relevant.	N/A
Sydney Local Environmental Plan 2012 (LEP)	The development site is zoned SP2 under the Sydney LEP. The proposed works require development consent for the educational facilities.	2.6.2
Sydney Development Control Plan (DCP) 2012	The Sydney DCP has been reviewed for additional biodiversity provisions that may relate to the development site. Section 3.5.1 Urban Ecology of the DCP relates to the: <ul style="list-style-type: none"> Protection of existing habitat features within and adjacent to development sites Improve the diversity and abundance of locally indigenous flora and fauna species across the LGA. Under the DCP, development is to be consistent with the Street Tree Master Plan, Park Tree Management Plans and the Landscape Code. These matters have been addressed in this report.	2.6.3

1.3 Landscape features

1.3.1 IBRA regions and subregions

The development site falls within the Sydney Basin IBRA region and Cumberland subregion.

1.3.2 Mitchell Landscapes

The development site falls within the Ashfield Plains Mitchell Landscapes as outlined in Table 2 (DECC 2002) (Figure 2).

Table 3: Mitchell Landscapes

Mitchell Landscape	Description	Area within development site (ha)
Ashfield Plains	<p>Undulating hills and valleys on horizontal Triassic shale and siltstone, occasional quartz sandstones especially near the margin of the Port Jackson landscape. General elevation 0 to 45m. Coastal extension of the Cumberland Plain landscape (DECC 2002).</p> <p>Vegetation is typically open forest of <i>Eucalyptus fibrosa</i> Broad-leaved Ironbark, <i>Eucalyptus moluccana</i> (Grey Box), with <i>Leptospermum</i> sp (tea-tree) along creeks and forests of <i>Syncarpia glomulifera</i> (Turpentine), <i>Eucalyptus resinifera</i> (Red Mahogany), <i>Eucalyptus punctata</i> (Grey Gum), <i>Eucalyptus saligna</i> (Sydney Blue Gum) and <i>Eucalyptus pilularis</i> (Blackbutt) with a grassy understorey of <i>Themeda triandra</i> (Kangaroo Grass) on moister sites (DECC 2002).</p>	0.75

1.3.3 Rivers and streams

The development site does not contain any rivers and streams.

1.3.4 Wetlands

The development site does not contain any wetlands.

1.3.5 Connectivity features

The development site does not contain connectivity features with other vegetation patches in the adjoining land. Additionally, there are no native vegetation patches identified in adjoining lands.

1.3.6 Areas of geological significance and soil hazard features

The development site does not contain areas of geological significance and soil hazard features.

1.3.7 Site context

1.3.7.1 Method applied

The site based method has been applied to this development.

1.3.7.2 Percent native vegetation cover in the landscape

The current percent native vegetation cover in the landscape was assessed in a Geographic Information System (GIS) using aerial imagery sourced from SIX Maps using increments of 5%. The percent native vegetation cover within the 1,500 m buffer area is 9% (70 ha).

1.3.7.3 Patch size

Patch size was calculated using available vegetation mapping for all patches of intact native vegetation on and adjoining the development site. The patch size class is 25-100 ha (patch size area is 59 ha), this includes patches of Urban Exotic /Native vegetation as mapped by Office of Environment and Heritage (OEHS 2013) vegetation mapping.

1.4 Native vegetation

1.4.1 Survey effort

The vegetation assessment was conducted on 21 May 2019 to identify the vegetation type and condition of the vegetation community within the development site. One full-floristic and vegetation integrity plot was undertaken in accordance with the BAM (Table 4). A summary table of the extent of each Plant Community Type (PCT) recorded within the development site and the amount of each PCT impacted is provided in Table 5 below.

The site visit also involved an assessment of habitat features, including hollow-bearing trees (HBTs), threatened species foraging resources and gaps in roof cavities suitable for threatened microchiropteran (microbat) species.

All field data collected in the full-floristic and vegetation integrity plot is included in Appendix B.

Table 4: Full floristic and vegetation integrity plots

Veg Zone	PCT ID	PCT Name	Ancillary code	Condition	Area impacted (ha)	Plots required	Plots surveyed
1	1281	Turpentine - Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion	Planted	Low	0.16	1	1

Table 5: Summary of the PCTs in the development site and the extent of impacts and vegetation to be retained.

PCT and Veg Zone	Impacted area (ha)	development	Impacted (ha)	landscaping	TOTAL (ha)
PCT1281 Zone 1	0.12		0.04		0.16
Exotic	0.008		0.002		0.010
Cleared*	0.30		0.14		0.44
TOTAL	0.43		0.18		0.608**

* CLEARED INCLUDES EXISTING BUILDING AND INFRASTRUCTURE

** NOTE, DEVELOPMENT FOOTPRINT EXCLUDES THE DA AREA (0.12 HA)

1.4.2 Plant Community Types present

The development site contains planted native canopy, shrubs and occasionally ground cover species which are native to NSW, however, not considered locally indigenous to the area. Under the BAM all vegetation native to NSW requires consideration as to the 'best fit' PCT. Therefore, it was determined that the best fit PCT for the native vegetation represented in the development site was PCT 1281 *Turpentine - Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion* (Table 6, Figure 4, Photo 1). Justification regarding the selection of this PCT is provided below.

Some components of this PCT are listed as a threatened ecological community (TEC) under the BC and EPBC Act. However, the vegetation within the development site has been planted and does not represent a TEC (Table 7). Information regarding why the PCT mapped in the development site does not satisfy listing as a TEC is provided in Section 1.4.2 below.

Table 6: Plant Community Types within the development site

PCT ID	PCT Name	Vegetation Class	Vegetation Formation	Area (ha)	Percent cleared
1281	Turpentine - Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion	Northern Hinterland Wet Sclerophyll Forests	Wet Sclerophyll Forests (Grassy sub-formation)	0.16	90%

Table 7: Threatened Ecological Communities within the development site

PCT ID	BC Act				EPBC Act		
	Listing status*	Name		Area (ha)	Listing status*	Name	Area (ha)
1281	CEEC	Sydney Ironbark Forest	Turpentine	0**	CEEC	Turpentine Ironbark-Forest	0**

* CEEC – Critically endangered ecological community

**The planted vegetation within the development site has been mapped as PCT 1281, however, the vegetation within the development site does not represent the TEC (see justifications below).



Photo 1: Vegetation zone 2 – PCT 1281_planted (non-TEC)

1.4.2.1 PCT selection justification

Only one PCT was recorded within the development site, PCT 1281 *Turpentine - Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion*. The desktop database assessment and site inspection did not record remnant vegetation within the development site or within the broader locality of the development site. The absence of remnant vegetation makes the selection of an appropriate PCT problematic. Additionally, the BAM vegetation integrity data and floristic data could not be used to quantitatively determine the appropriate PCT as the vegetation within the development site has been planted and does not represent a local vegetation community.

The development site currently contains two mature *Eucalyptus saligna* (Sydney Blue Gum). Aerial photography interpretation of 1943 historical imagery of the development site identified that the development site in 1943 was already highly urbanised and lacked vegetation. Therefore, although

these two trees are mature, they are considered planted. The 1943 imagery also indicates that the surrounding lands lacks vegetation which may be considered remnant.

A review of available vegetation database mapping within the broader landscape of the development site recorded only one remaining patch of native vegetation which corresponds to a PCT. *PCT 1647 Red Bloodwood – Smooth – barked Apple heathy woodland on the Central and lower North Coast south-east* has been mapped 3.5 km to the south-east of the development site (SMCMA - OEH 2013). There is no connectivity with the site and this patch of vegetation. A description of this vegetation community indicates that this PCT occurs on sandy soils near coastal environments.

In the absence of suitable pre-European vegetation data, a description of the Mitchell Landscape was used as an indicator of the historical soil landscape and potential characteristic species represented within the development site. A description of the Mitchell Landscape within the development site is found in Table 3. In summary, the Ashfield Plains Mitchell Landscape may have contained open forest vegetation represented by; *Eucalyptus fibrosa*, *Eucalyptus moluccana* and *Syncarpia glomulifera*, *Eucalyptus resinifera*, *Eucalyptus punctata*, *Eucalyptus saligna* and *Eucalyptus pilularis* along creeks and forests. These dominant species were compared with vegetation descriptions present in the VIS online excel spreadsheet. Additionally, the VIS online database was filtered using a search of the IBRA-subregion and Mitchell Landscapes to determine an appropriate PCT. The results of these comparisons are provided in Table 8.

Table 8: PCT selection justification

PCT ID	PCT Name	Selection criteria	Justification
1281	Turpentine - Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion	IBRA region, subregion, Mitchell landscape and planting of canopy species <i>Syncarpia glomulifera</i> and <i>Eucalyptus saligna</i> .	This PCT has been accepted as the best fit PCT for planted native vegetation located in the development site based on the comparison of dominant canopy species between the VIS description and Mitchell Landscape description.
1647	Red Bloodwood – Smooth – barked Apple heathy woodland on the Central and lower North Coast south-east	A description of dominant species listed from the Mitchell landscape was compared within the VIS excel spreadsheet of dominant species within the IBRA subregion	This PCT has been mapped 3.5 km from the development site (SMCMA - OEH 2013). However, PCT 1647 represents sandstone heath vegetation which does not fit the development sites Mitchell Landscape description which indicates that the original soil landscape contained forest on clay soils.
725	Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion	A description of dominant species listed from the Mitchell landscape was	This PCT was not chosen as this PCT is distributed within the Hornsby and Gosford

PCT ID	PCT Name	Selection criteria	Justification
		compared within the VIS excel spreadsheet of dominant species within the IBRA subregion	areas and does not include the development site location.
830	Forest Red Gum - Grey Box shrubby woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion	A description of dominant species listed from the Mitchell landscape was compared within the VIS excel spreadsheet of dominant species within the IBRA subregion	This PCT was not chosen based on the description of characteristic species did not represent species within the development site.

1.4.2.2 Threatened Ecological Communities Justification

The BioNet Vegetation Classification lists PCT 1281 as a component of Sydney Turpentine Ironbark Forest which is listed as a critically endangered ecological community (CEEC) under the BC Act and EPBC Act (Table 7).

However, the vegetation present in the development site has been established through plantings and does not satisfy the listing criteria under the BC and EPBC Acts. The vegetation exists as a mix of planted eucalypt and exotic canopy species and horticultural varieties of native ground cover or shrubs. There is no evidence of remnant vegetation within the development site or broader landscape. Additionally, the soil profile has been substantially modified and does not represent original profile. Therefore, the vegetation within the development site does not form part of the Sydney Turpentine Ironbark Forest TEC listings under the BC or EPBC Acts.

1.4.3 Vegetation integrity assessment

A vegetation integrity assessment using the Credit Calculator (BAMC) was undertaken and the results are outlined in Table 9.

Table 9: Vegetation integrity

Veg Zone	PCT ID	Ancillary code	Condition	Impact area (ha)	Composition Condition Score	Structure Condition Score	Function Condition Score	Current vegetation integrity score
1	1281	Planted (non TEC)	Low	0.16	11.6	12.6	45.3	17.1

Plant Community Types

Darlington Public School SSD

332504



332504

6248202

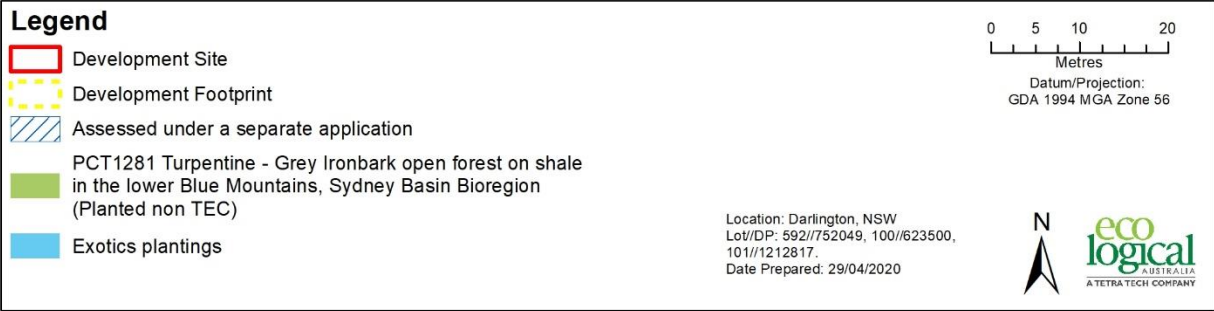


Figure 4 Plant Community Types and native vegetation extent

Vegetation Zones and Survey Plots **Darlington Public School SSD**



Figure 5 Plot location

1.5 Threatened species

1.5.1 Ecosystem credit species

Ecosystem credit species predicted to occur at the development site, their associated habitat constraints, geographic limitations and sensitivity to gain class are included in Table 10.

Table 10: Predicted ecosystem credit species

Species	Common Name	Habitat constraints/ Geographic limitations	Sensitivity to gain class	NSW listing status	EPBC Listing status	Justification if species excluded
<i>Anthochaera phrygia</i>	Regent Honeyeater (Foraging)	N/A	High	CE	CE	<u>Excluded</u> Habitat features for this species are not present at this site. The development site does not comprise of key plant species required for foraging.
<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	N/A	Moderate	V	Not listed	<u>Excluded</u> No suitable vegetation to provide foraging/shelter/breeding habitat within the development site.
<i>Calyptorhynchus lathamii</i>	Glossy Black-Cockatoo (Foraging)	Other Presence of <i>Allocasuarina</i> and <i>Casuarina</i> species	High	V	Not Listed	<u>Excluded</u> Habitat features for this species are not present at this site. The development site does not comprise of key plant species required for foraging.
<i>Chthonicola sagittata</i>	Speckled Warbler	N/A	High	V	Lot Listed	<u>Excluded</u> Habitat present does not contain suitable habitat features for this species such as abundance of fallen logs. The vegetation within the development site is substantially modified and urbanised.
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	N/A	High	V	E	<u>Excluded</u> Habitat features for this species are not present at this site. This species requires habitat features such as maternal den sites, an abundance of food (birds and small mammals) and large areas of relatively intact vegetation to forage in (DECC 2007).

Species	Common Name	Habitat constraints/ Geographic limitations	Sensitivity to gain class	NSW listing status	EPBC Listing status	Justification if species excluded
<i>Glossopsitta pusilla</i>	Little Lorikeet	N/A	High	V	Not Listed	Included There is only one BioNet record for this species and this record is recent (2015). Seasonal foraging habitat was identified in this assessment.
<i>Lathamus discolor</i>	Swift Parrot (Foraging)	N/A	Moderate	E	CE	Excluded Habitat features associated with this species are not present on the development site. There are no habitat features required for this species such as the favoured feed trees or lerp infestations.
<i>Melanodryas cucullata</i>	Hooded Robin (south-eastern form)	N/A	Moderate	V	Not Listed	Excluded Habitat features associated with this species are not present on the development site. This species requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses which the development site does not contain. No individuals have been recorded within 5 km of the development site.
<i>Micronomus norfolkensis</i>	Eastern Freetail-bat	N/A	High	V	Not Listed	Included There are 10 BioNet records for this species within a 5 km radius of the development site. Seasonal foraging habitat was identified in this assessment.
<i>Miniopterus australis</i>	Little Bent-winged Bat (Foraging)	N/A	High	V	Not Listed	Included There is only one BioNet record for this species within a 5 km radius of the development site. Seasonal foraging habitat was identified in this assessment.
<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat (Foraging)	N/A	High	V	Not Listed	Included There are 42 BioNet records for this species within a 5 km radius of the development site. Seasonal foraging habitat was identified in this assessment.

Species	Common Name	Habitat constraints/ Geographic limitations	Sensitivity to gain class	NSW listing status	EPBC Listing status	Justification if species excluded
<i>Petroica boodang</i>	Scarlet Robin	N/A	Moderate	V	Not Listed	<u>Excluded</u> Habitat features associated with this species includes an abundance of logs and fallen timber, these features were not present in the development site.
<i>Petroica phoenicea</i>	Flame Robin	N/A	Moderate	V	Not Listed	<u>Excluded</u> Habitat features associated with this species are not present in the development site. This species requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses which the development site does not contain. No individuals have been recorded within 5 km of the development site.
<i>Phascolarctos cinereus</i>	Koala (Foraging)	N/A	High	V	V	<u>Excluded</u> Habitat present is highly urbanised landscape which is substantially degraded such that this species is unlikely to utilise the development site. Habitat was not considered suitable due to the high disturbance and limited feed trees.
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox (Foraging)	N/A	High	V	V	<u>Included</u> There are 1161 BioNet records for this species within a 5 km radius of the development site. Seasonal foraging habitat was identified in this assessment.

1.5.2 Species credit species

Species credit species predicted to occur at the development site (i.e. candidate species), their associated habitat constraints, geographic limitations and sensitivity to gain class are shown in Table 11. Habitat assessments were undertaken during the field survey on 21 May 2019 to determine the likelihood of threatened species occurring within the development site on an intermittent or permanent basis.

It should be noted that two flora species listed under the BC Act and EPBC Act, which have been planted as horticultural varieties were present within the development site.

Eucalyptus nicholii (Narrow-leaved Black Peppermint) is listed as vulnerable under the BC Act and EPBC Act was recorded within development site. *Eucalyptus nicholii*'s natural distribution is restricted to the New England Tablelands which is over 400 km from the development site. This species occurs in dry grassy woodlands on ridges. The development site does not contain dry grassy woodlands and is not located on a ridgetop. The Threatened Species Profile for *Eucalyptus nicholii* states that this species is often planted as an urban street tree (DPIE 2020).

Eucalyptus scoparia (Wallangarra White Gum) is listed as endangered under the BC Act and vulnerable under the EPBC Act. This species has been planted as landscaping trees and was not recorded within remnant or part of a native vegetation patch. This threatened species is known from only three locations in NSW near Tenterfield, which is more than 640 km from the development site. The development site is not connected to the known geographic distribution of this species. *Eucalyptus scoparia* occurs in open eucalypt forests and heath, typically at high altitudes. The development site does not represent suitable habitat for this species.

One *Eucalyptus nicholii* was located near the southern boundary (identified as Tree 3 in the arborist report, Moore Trees 2020). One *Eucalyptus scoparia* was identified in a cluster of trees along the northern boundary (identified as Tree 31 in the arborist report, Moore Trees 2020). Both trees will be removed for the proposed development.

Although *Eucalyptus nicholii* and *E. scoparia* are listed as threatened species under the BC Act, these specimens are considered planted for the following reasons:

- The specimens were located within a horticultural garden which contains a highly modified soil profile
- The vegetation with the development site has been planted and does not contain remnant vegetation.
- The development site is located outside of the natural distribution for these species.
- The genetic origins for planted threatened species are of unknown source and therefore, do not contribute to the genetic pool for these species.

Given that these species are located outside of their natural range of distribution and/or outside their natural habitat, and the fact these species have clearly been planted due to the landscaped setting, these species were not considered candidate species credit species and do not require additional assessment under the BAM. Impacts to these species in accordance with the EPBC Act have been assessed in accordance with the Significance Impact Criteria and are provided in Section 2.6.1.

Habitat assessments involved searches of all possible hollow-bearing trees within the development site, on ground inspection using binoculars of roof cavities for possible entrance for microbats, indirect evidence of fauna use within the development site.

Two hollow-bearing trees (HBT) were recorded within the development site. No evidence of microbat occupation, in the form of scats, markings, were observed around the entrances. A range of peri-urban bird species were observed foraging in the development site during site inspection, of which only one species (Rainbow Lorikeet (*Trichoglossus haematodus*)) are known to utilise HBTs for nesting. This species is not listed as a threatened species under the BC or EPBC Acts.

Additionally, two small ventilation vents were observed with nesting material within the University of Sydney Regiment building along the northern boundary of the development site. The vents were located within the exposed brick wall and currently contain nesting material (sticks) possibly from peri-urban birds. It is unlikely that these vents will provide suitable habitat for microbats due to the obstruction of the nesting material and the lack of depth of the vents. Furthermore, this building is located outside of the development site and will be retained under the proposed works. An inspection of the remaining buildings within the development site did not identify possible openings within the roof cavities which indicate habitat for microbats.

The vegetation within the development site contains occasional foraging habitat for urbanised fauna species (birds and arboreal mammals). The vegetation within the development site lacks important habitat features. Additionally, the vegetation patch is small in size and lacks connectivity (i.e. via watercourse or vegetative corridors) to other patches of habitat (including core bushland). Therefore, fauna species utilising the vegetation on site is restricted to highly mobile species which may utilise urban landscape environments.

Table 11: Candidate species credit species

Species	Common Name	Habitat constraints/ Geographic limitations	Sensitivity to gain class	NSW listing status	EPBC Listing status	Justification if species excluded
<i>Acacia bynoeana</i>	Bynoe's Wattle	N/A	High	E	V	<u>Excluded</u> The presence of this species was not identified (conspicuous species) and it was determined that the habitat is substantially degraded such that this species is unlikely to utilise the development site.
<i>Acacia prominens</i> – endangered population	Gosford Wattle Endangered population, Hurstville and Kogarah LGAs	N/A	High	E	Not Listed	<u>Excluded</u> The development site is not located within the Gosford, Hurstville or Kogarah LGAs. This species is <u>not</u> considered a candidate species for this assessment.
<i>Acacia pubescens</i>	Downy Wattle	N/A	High	V	V	<u>Excluded</u> The presence of this species was not identified (conspicuous species) and it was determined that the habitat features associated with this species are not present within the development site.
<i>Anthochaera phrygia</i>	Regent Honeyeater (Breeding)	N/A	High	CE	CE	<u>Excluded</u> The development site is not located within any of the four known NSW breeding areas. It is

Species	Common Name	Habitat constraints/ Geographic limitations	Sensitivity to gain class	NSW listing status	EPBC Listing status	Justification if species excluded
						not recorded within the mapped Important Areas in the BOAMS (dated 24/04/2020). Specific habitat features for this species were not recorded within the development site.
<i>Caladenia tessellata</i>	Thick Lip Spider Orchid	N/A	Moderate	E	V	<u>Excluded</u> Habitat for this species was not considered suitable in the development site. The site is substantially degraded, and this species occurs in grassy sclerophyll woodlands which were not recorded within the development site. Furthermore, this species is only known from old records in Sydney area.
<i>Calyptrorhynchus lathamii</i>	Glossy Black-Cockatoo (Breeding)	Hollow bearing trees Living or dead tree with hollows > 15cm diameter and > 5 m above ground	High	V	Not Listed	<u>Excluded</u> This is a dual credit species, and only a species credit species when specific habitat constraints are present for breeding. The development site does not contain larger patches of intact vegetation or trees with large hollows that are suitable for the species to utilise the site.
<i>Camarophyllopsis kearneyi</i>	<i>Camarophyllopsis kearneyi</i>	Lane Cove Bushland Park	High	E	Not Listed	<u>Excluded</u> The development site is not in within Lane Cove Bushland Park (it is located 13 km away to the north of the Development Site). This species is unlikely to occur within the development site.
<i>Epacris purpurascens</i> var. <i>purpurascens</i>	<i>Epacris purpurascens</i> var. <i>purpurascens</i>	N/A	Moderate	V	Not Listed	<u>Excluded</u> The presence of this species was not identified (conspicuous species) and it was determined that the habitat is substantially degraded such that this species is unlikely to utilise the development site.
<i>Eucalyptus nicholii</i>	Narrow-leaved Black Peppermint	N/A	High	V	V	<u>Excluded</u> This species was identified within the development site. This species has been planted. However, in accordance with the BAM

Species	Common Name	Habitat constraints/ Geographic limitations	Sensitivity to gain class	NSW listing status	EPBC Listing status	Justification if species excluded
						<p>threatened species should be considered in this assessment. This species is not associated with PCT 1281 and was added as a candidate species within the BAMC.</p> <p>The BioNet Atlas notes that this species is frequently planted well outside of its natural range.</p> <p>Based on the rational provided in the section above, it was determined that this species is not a candidate species credit species.</p>
<i>Eucalyptus scoparia</i>	Wallangarra White Gum	Cliffs or within 100 m/ Rocky areas or within 100 m	Very High	E	V	<p><u>Excluded</u></p> <p>This species was identified within the development site. This species has been planted. However, in accordance with the BAM threatened species should be considered in this assessment. This species is not associated with PCT 1281 and was added into the BAMC.</p> <p>The BioNet Atlas notes that this species is frequently planted well outside of its natural range.</p> <p>Based on the rational provided in the section above, it was determined that this species is not a candidate species credit species.</p>
<i>Grevillea parviflora</i> subsp. <i>parviflora</i>	Small-flower Grevillea	N/A	High	V	V	<p><u>Excluded</u></p> <p>The presence of this species was not identified (conspicuous species) and it was determined that the habitat features associated with this species are not present within the development site and the habitat is highly urbanised such that this species is unlikely to occur in the development site.</p>
<i>Grevillea parviflora</i> subsp. <i>supplicans</i>	Grevillea parviflora subsp. <i>supplicans</i>	N/A	High	E	Not Listed	<p><u>Excluded</u></p> <p>The presence of this species was not identified (conspicuous species) and it was determined that the habitat features associated with this species are not present within the</p>

Species	Common Name	Habitat constraints/ Geographic limitations	Sensitivity to gain class	NSW listing status	EPBC Listing status	Justification if species excluded
						development site and the habitat is highly urbanised such that this species is unlikely to occur in the development site.
<i>Gyrostemon thesioides</i>	<i>Gyrostemon thesioides</i>	N/A	High	E	Not Listed	<u>Excluded</u> The presence of this species was not identified (conspicuous species) and it was determined that the habitat features associated with this species are not present within the development site and the habitat is highly urbanised such that this species is unlikely to occur in the development site.
<i>Hibbertia puberula</i>	<i>Hibbertia puberula</i>	N/A	High	E	Not Listed	<u>Excluded</u> The presence of this species was not identified, and it was determined that the habitat features associated with this species are not present within the development site. The site is substantially degraded such that this species is unlikely to utilise the development site.
<i>Hibbertia superans</i>	<i>Hibbertia superans</i>	Other Ridgetops	High	E	Not Listed	<u>Excluded</u> The presence of this species was not identified, and it was determined that the habitat features associated with this species are not present within the development site. The site is substantially degraded such that this species is unlikely to utilise the development site.
<i>Hygrocybe anomala</i> var. <i>ianthinomarginata</i>	-	Lane Cove Bushland Reserve	High	V	Not Listed	<u>Excluded</u> The development site is not in within Lane Cove Bushland Reserve (it is located approximately 13 km away to the north of the development site). This species is unlikely to occur within the development site.
<i>Hygrocybe aurantipes</i>	-	Lane Cove Bushland Reserve	High	V	Not Listed	<u>Excluded</u> The development site is not in within Lane Cove Bushland Reserve (it is located

Species	Common Name	Habitat constraints/ Geographic limitations	Sensitivity to gain class	NSW listing status	EPBC Listing status	Justification if species excluded
						approximately 13 km away to the north of the development site). This species is unlikely to occur within the development site.
<i>Hygrocybe austropratensis</i>	-	Lane Cove Bushland Reserve	High	E	Not Listed	<u>Excluded</u> The development site is not in within Lane Cove Bushland Reserve (it is located approximately 13 km away to the north of the development site). This species is unlikely to occur within the development site.
<i>Hygrocybe collucera</i>		Lane Cove Bushland Reserve	High	E	Not Listed	<u>Excluded</u> The development site is not in within Lane Cove Bushland Reserve (it is located approximately 13 km away to the north of the development site). This species is unlikely to occur within the development site.
<i>Hygrocybe griseoramosa</i>		Lane Cove Bushland Reserve	High	E	Not Listed	<u>Excluded</u> The development site is not in within Lane Cove Bushland Reserve (it is located approximately 13 km away to the north of the development site). This species is unlikely to occur within the development site.
<i>Hygrocybe lanecovensensis</i>		Lane Cove Bushland Reserve	High	E	Not Listed	<u>Excluded</u> The development site is not in within Lane Cove Bushland Reserve (it is located approximately 13 km away to the north of the development site). This species is unlikely to occur within the development site.
<i>Hygrocybe reesia</i>		Lane Cove Bushland Reserve	High	V	Not Listed	<u>Excluded</u> The development site is not in within Lane Cove Bushland Reserve (it is located approximately 13 km away to the north of the development site). This species is unlikely to occur within the development site.
<i>Lathamus discolor</i>	Swift Parrot (Breeding)	Other As per mapped areas	Moderate	E	CE	<u>Excluded</u> BCT have confirmed that the development site does not occur

Species	Common Name	Habitat constraints/ Geographic limitations	Sensitivity to gain class	NSW listing status	EPBC Listing status	Justification if species excluded
						within mapped important areas for this species (June 2019). Habitat features associated with this species are not present on the development site. The development site does not contain habitat features required for this species. There are none of the favoured feed trees or lerp infestations.
<i>Litoria aurea</i>	Green and Golden Bell Frog	Semi-permanent/ephemeral wet areas Within 1km of wet areas, Swamps Within 1km of swamps Waterbodies Within 1km of waterbody	High	E	V	<u>Excluded</u> Habitat features associated with this species are not present on the development site. The development site does not contain suitable waterbodies for this species to utilise the site for breeding, wintering, foraging or sheltering. There are no BioNet records for this species within 5 km of the development site.
<i>Meridolum corneovirens</i>	Cumberland Plain Land Snail	N/A	High	E	Not Listed	<u>Excluded</u> Habitat features associated with this species are not present in the development site. This species occurs within Cumberland Plain Woodland and associated shale vegetation communities. The development site does not support these habitat features.
<i>Miniopterus australis</i>	Little Bent-winged Bat (Breeding)	Caves Cave, tunnel, mine, culvert or other structure known or suspected to be used for breeding including species recorded in BioNet with microhabitat code 'IC -in cave' Observation type code 'E nest roost' With numbers of individuals >500 Or from the scientific literature	Very High	V	Not Listed	<u>Excluded</u> Habitat features for this species are not present within the development site. Existing buildings within the site do not contain suitable breeding habitat for this species.

Species	Common Name	Habitat constraints/ Geographic limitations	Sensitivity to gain class	NSW listing status	EPBC Listing status	Justification if species excluded
<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat (Breeding)	Caves Cave, tunnel, mine, culvert or other structure known or suspected to be used for breeding including species recorded in BioNet with microhabitat code 'IC -in cave' Observation type code 'E nest roost' With numbers of individuals >500 Or from the scientific literature	Very High	V	Not Listed	<u>Excluded</u> Habitat features for this species are not present within the development site. Exiting buildings within the site do not contain suitable breeding habitat for this species.
<i>Myotis macropus</i>	Southern Myotis	Hollow bearing trees Within 200 m of riparian zone Other Bridges, caves or artificial structures within 200 m of riparian zone This includes rivers, creeks, billabongs, dams and other waterbodies on or within 200m of the site	High	V	Not Listed	<u>Excluded</u> Habitat features associated with this species are not present on the development site. There are no suitable waterbodies, creeks or dams within the development site which may contain suitable habitat for this species.
<i>Persoonia hirsuta</i>	Hairy Geebung	N/A	High	E	E	<u>Excluded</u> The presence of this species was not identified (conspicuous species) and it was determined that the habitat features associated with this species are not present within the development site and the habitat is highly urbanised such that this species is unlikely to occur in the development site.
<i>Petaurus norfolcensis</i>	Squirrel Glider	N/A	High	V	Not Listed	<u>Excluded</u> Habitat present is substantially urbanised and degraded such that this species is unlikely to utilise the development site. Habitat in the development site is isolated and

Species	Common Name	Habitat constraints/ Geographic limitations	Sensitivity to gain class	NSW listing status	EPBC Listing status	Justification if species excluded
						disturbed. Additionally, this species has a strong preference for old growth forests which does not include the development site. Additionally, there are no BioNet records for this species within a 5 km radius of the development site.
<i>Phascolarctos cinereus</i>	Koala (Breeding)	Other Areas identified via survey as important habitat	High	V	V	<u>Excluded</u> This is a dual credit species, and only a species credit species when specific habitat constraints are present for breeding. Habitat present is substantially urbanised and degraded such that this species is unlikely to utilise the site for breeding.
<i>Pimelea curviflora</i> var. <i>curviflora</i>	Pimelea curviflora var. <i>curviflora</i>	N/A	High	V	V	<u>Excluded</u> The presence of this species was not identified (conspicuous species) and it was determined that the habitat is substantially degraded such that this species is unlikely to utilise the development site.
<i>Pomaderris prunifolia</i> – endangered population	Endangered population in Parramatta, Auburn, Strathfield and Bankstown LGA	N/A	High	E2	V	<u>Excluded</u> The development site is not located within the LGA for this endangered population. Furthermore, the presence of this species was not identified (conspicuous species) and it was determined that the habitat is substantially degraded such that this species is unlikely to utilise the development site.
<i>Pommerhelix duralensis</i>	Dural Woodland Snail	Other Leaf litter and shed bark or within 50m of litter or bare ground Rocky areas Rocks or within 50m of rocks Fallen/standing dead timber including logs Including logs and bark or within 50m of logs or bark	High	E	E	<u>Excluded</u> Habitat present is substantially degraded such that this species is unlikely to utilise the development site. Habitat is isolated and disturbed. There are no BioNet records for this species within a 5 km radius of the development site.

Species	Common Name	Habitat constraints/ Geographic limitations	Sensitivity to gain class	NSW listing status	EPBC Listing status	Justification if species excluded
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox (Breeding)	Other Breeding camps	High	V	V	<u>Excluded</u> This is a dual credit species, and only a species credit species when specific habitat constraints are present for breeding. The development site does not contain any breeding sites (i.e. riparian corridors) that are suitable for the species to utilise.
<i>Rhodamnia rubescens</i>	Scrub Turpentine	N/A	High	CE	Not Listed	<u>Excluded</u> The presence of this species was not identified (conspicuous species) and it was determined that the habitat features associated with this species are not present within the development site and the habitat is highly urbanised such that this species is unlikely to occur in the development site.
<i>Syzygium paniculatum</i>	Magenta Lily Pilly	N/A	Moderate	E	V	<u>Excluded</u> The presence of this species was not identified (conspicuous species) and it was determined that the habitat features associated with this species are not present within the development site and the habitat is highly urbanised such that this species is unlikely to occur in the development site.
<i>Tetratheca glandulosa</i>	Tetratheca glandulosa	N/A	High	V	Not Listed	<u>Excluded</u> Habitat features (i.e. sandstone ridgetops) associated with this species are not present on the development site.
<i>Wahlenbergia multicaulis</i> – endangered population	Tadgell's Bluebell in the LGAs of Auburn, Bankstown, Baulkham Hills, Canterbury, Hornsby, Parramatta and Strathfield	Other Land situated in damp, disturbed sites	High	E	Not Listed	<u>Excluded</u> The development site does not occur within the LGA distribution of this species.

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

1.5.3 Targeted surveys

Due to the high level of modification of vegetation within the development site and lack of potential habitat, targeted surveys were not conducted for species credit species.

Justification for the exclusion of species credit species is provided Table 11.

1.5.4 Use of local data

The use of local data is not proposed.

1.5.5 Expert reports

Expert reports have not been used as part of this BDAR.

2. Stage 2: Impact assessment (biodiversity values)

2.1 Avoiding impacts

2.1.1 Locating a project to avoid and minimise impacts on vegetation and habitat

The development has been located in a way which avoids and minimises impacts as outlined in Table 12.

Table 12: Locating a project to avoid and minimise impacts on vegetation and habitat

Approach	How addressed	Justification
Locating the project in areas where there are no biodiversity values	The project (i.e. the proposed development footprint) has utilised existing development areas, cleared lands and planted gardens to minimise impacts on areas with the highest biodiversity values.	The project has utilised areas with existing development in the development footprint to reduce impacts to areas of biodiversity values. Native planted canopy species have been retained within the development site where possible and the loss of canopy species will be replaced through revegetation works which includes native planted canopy species.
Locating the project in areas where the native vegetation or threatened species habitat is in the poorest condition	The project has been located to limit the impacts to planted native vegetation and reduce the extent of clearing of potential foraging habitat for threatened fauna species (i.e. canopy species).	The project has utilised area of existing buildings or paved areas to reduce the extent of native vegetation removal. Where native vegetation will be removed, landscaping will incorporate additional native canopy species to replace vegetation loss.
Locating the project in areas that avoid habitat for species and vegetation in high threat categories (e.g. an EEC or CEEC), indicated by the biodiversity risk weighting for a species	The project has been located to avoid removal of vegetation in high threat categories. The project has been located to minimise the removal of habitat for species in high threat categories.	The development site does not contain any vegetation in high threat categories (EEC or TEC).
Locating the project such that connectivity enabling movement of species and genetic material between areas of adjacent or nearby habitat is maintained	The project has been located to retain canopy species which provides connectivity across the local area.	The project has been located to maintain scattered canopy trees across the centre of the development site and along the perimeter. This will enable continued connectivity across the landscape for mobile fauna species and movement of genetic material.

2.1.2 Designing a project to avoid and minimise impacts on vegetation and habitat

The development has been designed in a way which avoids and minimises impacts as outlined in Table 13.

Table 13: Designing a project to avoid and minimise impacts on vegetation and habitat

Approach	How addressed	Justification
Reducing the clearing footprint of the project	The project has been designed to reduce the clearing footprint of the project.	The placement of the development site footprint has been strategically designed to avoid complete removal of native planted vegetation within the development site. Clusters of native canopy trees will be retained within the development site where possible. Landscaping plans have incorporated planting with native canopy trees to increase the biodiversity values within the development site.
Locating ancillary facilities in areas where there are no biodiversity values	Ancillary features have been located in areas where there are no biodiversity values.	Ancillary features will be located in built and paved areas to reduce impacts to planted native vegetation. Some removal of planted native vegetation is required for the development footprint; however, these impacts will be kept to a minimum by retaining as much planted native vegetation within the development site as possible and reinstating the loss of canopy species through landscaping following construction works.
Locating ancillary facilities in areas where the native vegetation or threatened species habitat is in the poorest condition (i.e. areas that have a lower vegetation integrity score)	Ancillary features have been located in areas where native vegetation is in the poorest condition.	Ancillary features will be located along the northern section of the development site where native planted vegetation is currently in poor condition (see Arborist report). Some removal of native vegetation is required for the works; however, effort has been to retain a high portion of the native planted vegetation and landscaping works will reinstate the loss of native canopy species.
Locating ancillary facilities in areas that avoid habitat for species and vegetation in high threat status categories (e.g. an EEC or CEEC)	Ancillary features have been located in areas that avoid habitat for species and vegetation in high threat categories.	The majority of the development site contains mixed exotic and planted native vegetation which does not support vegetation in high threat categories (e.g. EEC or CEEC). The development site contains substantial amount of cleared lands which will be utilised for ancillary facilities and will not impact upon any high threat category vegetation.
Providing structures to enable species and genetic material to move across barriers or hostile gaps	The development has been designed to maintain a vegetated corridor enabling movement of species and genetic material.	The project has been designed to retain native planted vegetation within the development site. The development site has been designed so that it does not impact on potential stepping stone

Approach	How addressed	Justification
		corridors. Existing vegetated corridors will be maintained with connectivity in all directions, allowing for the continued movement of species and genetic material across the landscape. Given that no corridors will be impacted, additional structures are not necessary.
Making provision for the demarcation, ecological restoration, rehabilitation and/or ongoing maintenance of retained native vegetation habitat on the development site.	Vegetation in the middle of the development site will be retained. Additional species will be planted to enhance the canopy cover within the development site following construction.	Vegetation to be retained in the development site. Additional species will be planted to enhance the canopy cover within the development site following construction.
Efforts to avoid and minimise impacts through design must be documented and justified	The project has been designed to reduce the clearing footprint of the project.	The placement of the development footprint has been strategically designed to retain native planted vegetation where possible. Effort has been made to reinstate the loss of native canopy species into the new landscape design.

2.1.3 Prescribed biodiversity impacts

The list of potential prescribed biodiversity impacts as per the BAM is provided below:

- Occurrences of karst, caves, crevices and cliffs - none occur within the development site
- Occurrences of rock - no rock outcrops or scattered rocks occur within the development site
- Occurrences of human made structures and non-native vegetation – **Yes, see below.**
- Hydrological processes that sustain and interact with the rivers, streams and wetlands - none occur within the development site.
- Proposed development for a wind farm and use by species as a flyway or migration route - the project does not involve any wind farm development.

The development site contains both human made structures and vegetation (native and non-native). Additional information regarding consideration of human made structures are provided below. Non-native vegetation was identified and assessed for any potential to provide habitat for threatened flora and fauna species, including presence of HBTs.

As the development site is located in a heavily urbanised area, almost the entire development site contains human made structures. Consideration was given during the literature review to buildings or structures that could potentially be utilised as a roosting resource by microbats. Visual surveys were conducted during the field survey to visually determine if the buildings within the development site contain potential openings, possibly utilised by microbats.

Potential threatened microbats surveyed include:

- *Saccolaimus flaviventris* (Yellow-bellied Sheath-tail Bat)

- *Miniopterus australis* (Little Bentwing-bat)
- *Miniopterus schreibersii oceanensis* (Eastern Bentwing-bat).

Existing buildings within the development site did not contain any visible small gaps which may contain potential roost sites for microbats. Additionally, most of the buildings are multi-storey with a corrugated iron flat roof which are not particularly suitable for microbats. However, the presence of roof-roosting microbats within the development footprint cannot be completely disregarded.

Non-native vegetation within the development site did not contain potential habitat for roosting or foraging habitat for microbats. However, the development site contains a small number of exotic palms and *Harpephyllum caffrum* (Kaffar Plum) and nectar producing species which may be utilised on occasion by one threatened fauna species, *Pteropus poliocephalus* (Grey-headed Flying Fox).

The development site has the prescribed biodiversity impacts as outlined in Table 14.

Table 14: Prescribed biodiversity impacts

Prescribed biodiversity impact	Description in relation to the development site	Threatened species or ecological communities effected
Impacts of development on the habitat of threatened species or ecological communities associated with: <ul style="list-style-type: none"> • karst, caves, crevices, cliffs and other geological features of significance, or • rocks, or • human made structures, or • non-native vegetation 	<p>The development site contains a number of existing buildings and a small amount of exotic vegetation.</p> <p>The buildings were inspected during field surveys and do not provide potential microbat roosts. The vegetation within the development site contains fruit bearing and nectar producing non-native vegetation canopy, in landscaped areas which will be removed as part of the project.</p> <p>The project will result in a reduction in the extent of foraging habitat and reduction in availability of their prey items. Roosting habitat for microbats in not native vegetation is considered to be negligible.</p>	<p>Potential roosting habitat for threatened microbat <i>Saccolaimus flaviventris</i> (Yellow-bellied Sheath-tail Bat), (Eastern False Pipistrelle), <i>Miniopterus australis</i> (Little Bentwing-bat) and <i>Miniopterus schreibersii oceanensis</i> (Eastern Bentwing-bat).</p> <p>Potential foraging habitat for other threatened microbat species above non-native vegetation canopy.</p> <p>Potential foraging habitat for <i>Pteropus poliocephalus</i> (Grey-headed Flying Fox).</p>
Impacts of development on the connectivity of different areas of habitat of threatened species that facilitates the movement of those species across their range	<p>The proposed development will require the removal of non-native vegetation from within the development site.</p> <p>The development will result in a minor reduction in the extent of existing non-native vegetation within the development site which provides stepping stone habitat between urban fragmented patches of vegetation</p>	<p>Reduction in extent of potential foraging habitat for Grey-headed Flying Fox.</p> <p>Reduction in extent of foraging habitat for other threatened microbats.</p>
Impacts of development on movement of threatened species that maintains their lifecycle	The proposed development will result in reduction of vegetation within the development site and marginal loss of connectivity for mobile threatened species.	Grey-headed Flying Fox and microbat species.

2.1.3.1 Locating a project to avoid and minimise prescribed biodiversity impacts

The development has been located in a way which avoids and minimises prescribed biodiversity impacts as outlined in Table 15.

Table 15: Locating a project to avoid and minimise prescribed biodiversity impacts

Approach	How addressed	Justification
Locating the envelope of surface works to avoid direct impacts on habitat features	Habitat features including HBTs, foraging habitat for GHFF and threatened microbats within the development site will be removed.	The development has avoided complete removal of vegetation by designing the new development to retain as much vegetation within the development site as possible. Some areas of non-native vegetation, two HBTs and all existing buildings will be removed over a two staged process.
Locating the envelope of sub-surface works, both in the horizontal and vertical plane, to avoid and minimise operations beneath the habitat features, e.g. locating long wall panels away from geographical features of significance or water dependent plant communities and their supporting aquifers.	The development will involve minor excavation works. However, the works will not impact upon water dependent plant communities or their supporting aquifers.	There are no geographic features of significance of water dependent plant communities recorded within or adjacent to the development site.
Locating the project to avoid severing or interfering with corridors connecting different areas of habitat, migratory flight paths to important habitat or preferred local movement pathways	The vegetation with the development site has been planted and located within a highly urbanised and fragmented environment. Some of the vegetation within the development site will be retained so the stepping stone corridors may be retained across the development site.	Although the development will result in the removal of some native and exotic vegetation within the development site, the connectivity will be retained through vegetation along the perimeter and scattered throughout the development site.
Optimising project layout to minimise interactions with threatened and protected species and ecological communities, e.g. designing turbine layout to allow buffers around features that attract and support aerial species, such as forest edges, riparian corridors and wetlands, ridgetops and gullies	The planning proposal has been located in an area which avoids impacts to areas of high biodiversity value in the locality.	The development site does not contain areas of high biodiversity values. The project layout has utilised existing buildings and paved areas where possible for the development footprint. Some removal of native and exotic vegetation is required; however, these are limited to low biodiversity values vegetation.

2.1.3.2 Designing a project to avoid and minimise prescribed biodiversity impacts

The development has been designed in a way which avoids and minimises prescribed biodiversity impacts as outlined in Table 16.

Table 16: Designing a project to avoid and minimise prescribed biodiversity impacts

Approach	How addressed	Justification
Engineering solutions, e.g. proven techniques to minimise fracturing of bedrock underlying features of geological significance, water dependent communities and their supporting aquifers; proven engineering solutions to restore connectivity and favoured movement pathways	The development design has utilised the existing cleared, urban and disturbed areas and the works will not involve deep excavations into the bedrock.	The development design has utilised the zoning which allows multi-storey buildings and therefore reduces the need to conduct deep excavation works. There are no known ground water or water dependent communities within the development site.
Design of project elements to minimise interactions with threatened and protected species and ecological communities, e.g. designing turbines to dissuade perching and minimise the diameter of the rotor swept area, Designing fencing to prevent animal entry to transport corridors	The development design has utilised areas with minimal impacts to biodiversity values.	The development design has utilised existing disturbed areas to minimise interactions with threatened species habitat.
Design of the project to maintain environmental processes critical to the formation and persistence of habitat features not associated with native vegetation	The formation of habitat features such as canopy species has been retained within the development site.	Potential foraging habitat for Grey-headed Flying Fox will be retained within the development site. Additional resources will be planted following landscaping works.
Design of the project to maintain hydrological processes that sustain threatened species and TECs	There are no threatened species or TECs which are depend upon hydrological processes recorded within the development site.	There are no threatened species or TECs which are dependent upon hydrological processes identified within the subject site or development site.
Design of the project to avoid and minimise downstream impacts on rivers, wetlands and estuaries by control of the quality of water released from the site.	There are no waterbodies recorded within the development site or in adjoining lands.	There are no waterbodies recorded within the development site or in adjoining lands.

2.2 Assessment of Impacts

2.2.1 Direct impacts

The direct impacts of the development are provided below:

- native vegetation - Table 17
- threatened species and threatened species habitat - Table 18
- prescribed biodiversity impacts are outlined in Section 2.2.2

Direct impacts including the final project footprint (construction and operation) are shown on Figure 6.

The direct impacts of the development footprint includes the demolition and construction works and short-term impacts associated with landscaping. Landscaping works includes the removal of groundcover and potential pruning of canopy during construction. Landscaping works will retain the canopy structure.

A separate management zone has been included for 0.12 ha of direct removal of PCT 1281 and 0.04 ha disturbance for landscaping impacts to PCT 1281.

Table 17: Direct impacts to 'native vegetation' as defined under the BAM

PCT ID	PCT Name	Vegetation Class	Vegetation Formation	Total clearing (ha)
1281	<i>Turpentine - Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion</i>	North Coast Wet Sclerophyll Forests	Wet Sclerophyll Forests (Shrubby sub-formation)	0.16*

* IMPACTED PCT 1281 INCLUDES 0.12 HA FOR DIRECT REMOVAL AND 0.04 HA FOR LANDSCAPING.

2.2.2 Change in vegetation integrity

The change in vegetation integrity as a result of the development is outlined in Table 18.

Two management zones were added for PCT 1281 to account for different impacts on the vegetation. This includes removal of PCT 1281 vegetation for construction works and impacts to PCT 1281 during landscaping works. These two management zones were entered into the BAMC as separate zones as some of the characteristics of the landscaping vegetation zone will remain (i.e. the canopy structure). The future integrity score assumes that the canopy will remain in this zone. Therefore, the species diversity and percent cover will remain, however, the ground cover and midstorey will be reduced (see Table 30 in Appendix B). The combined change to the vegetation integrity score is -17.1.

Table 18: Change in vegetation integrity

Veg Zone	PCT ID	Management zone	Area (ha)	Current vegetation integrity score	Future vegetation integrity score	Change in vegetation integrity	Total change in VI score
1	1281	Direct	0.12	18.8	0	-18.8	-17.1
1	1281	Landscaping	0.04	18.8	6.6	-12.1	

2.2.3 Indirect impacts

The indirect impacts of the development are outlined in Table 19.

Table 19: Indirect impacts

Indirect impact	Project phase	Nature	Extent	Frequency	Duration	Timing
Sedimentation and contaminated and/or nutrient rich run-off	Construction	Runoff during construction works	Confined to development site with sediment fencing	During heavy rainfall or storm events	During rainfall events	Short-term impacts
Noise, dust or light spill	Construction	Noise and dust created from machinery (no night works proposed therefore no light spill)	Noise and dust likely to carry beyond development site boundary	Daily, during construction works	Sporadic throughout construction period	Short-term impacts
Inadvertent impacts on adjacent habitat or vegetation	Construction	Damage to adjacent habitat or vegetation	Adjacent vegetation	Daily, during construction works	Throughout construction period	Short-term impacts
Transport of weeds and pathogens from the site to adjacent vegetation	Construction	Spread of weed seed or pathogens	Potential for spread into adjacent habitat	Daily, during construction works	Sporadic throughout construction period	Potentially long-term impacts
Vehicle strike	Construction / operation	Potential for native fauna to be struck by working machinery and moving vehicles	Within access road and development site	Daily, during both construction and operational phases.	Throughout life of project	Short-term impacts
Rubbish dumping	Construction / operation	Illegal dumping by local residents/ construction crews	Potential for rubbish to spread via wind into adjacent vegetation	Potential to occur at any time throughout construction or operational phases	Throughout life of project	Short-term impacts
Increase in pest animal populations	Construction / operation	Potential to increase if introduced	In vegetation in the southern portion of the development site	Potential to occur at any time throughout construction or operational phases	Throughout life of project	Short-term impacts
Increased risk of fire	Construction / operation	Potential due to presence of vegetation retained in the south of the development site	In vegetation in the southern portion of the development site	Potential to occur at any time, although, more likely during dry, windy conditions	Throughout life of project	Short-term and long-term impacts

2.2.4 Prescribed biodiversity impacts

An assessment of impacts of the development on prescribed biodiversity impacts is outlined in Table 20 in accordance with Section 9.2.1 of the BAM.

Table 20: Direct impacts on prescribed biodiversity impacts

BAM Criteria	Justification
9.2.1.3 The assessment of the impacts of the development on the habitat of threatened species or ecological communities associated with human made structures	
a) identify the human made structures with potential to be habitat for threatened species or ecological communities	<p>The development site is located within a highly urbanised area. The proposed development will involve the removal of a number of existing educational building for redevelopment. A ground inspection of the buildings did not detect potential gaps suitable for microbat access into the roof cavities.</p> <p>No other human made structures with potential habitat for threatened species or ecological communities were identified in the development site.</p>
b) identify the species and ecological communities likely to use the habitat	<p>The following threatened microbat species may utilise buildings as occasional roosting habitat: <i>Saccolaimus flaviventris</i> (Yellow-bellied Sheathtail Bat) <i>Miniopterus australis</i> (Little Bentwing-bat) and <i>Miniopterus schreibersii oceanensis</i> (Eastern Bentwing-bat). There are BioNet records for these species within a 5 km radius for these species.</p>
c) describe the nature, extent and duration of short and long-term impacts	<p>The impact involves the permanent removal of several multistorey education facilities. This is considered a long-term impact. Construction of new building may result in the production of noise and vibration which is considered a short-term impact. These impacts are likely to be minor considering alternative roost locations which may occur within the development site are likely to be used by microbats under these circumstances.</p>
d) describe, with reference to relevant literature the importance within the bioregion of the habitat of these species or ecological communities	<p>According to literature documented in Australian Bat (Churchill 2009) the preferred roosting habitat of the following species includes:</p> <ul style="list-style-type: none"> • Yellow-bellied Sheathtail Bat – this species will utilise tree hollows or buildings in small groups. There is potential that this species may utilise the buildings and tree hollows recorded within the development site. • Little Bentwing-bat – this species forms specific maternity roosts in caves. They occasionally utilise buildings in the absence of other alternative roost locations (such as mines, culverts). There is potential that this species may on occasion utilise buildings as an alternative roost location. • Eastern Bentwing-bat – this species primarily roosts in caves, however, it occasionally roosts in human made structures such as buildings. There is potential that this species may on occasion utilise buildings as an alternative roost location.

BAM Criteria	Justification
e) predict the consequences of the impacts for the local and bioregional persistence of the suite of threatened species and communities likely to use these areas as habitat, with reference to relevant literature and other published sources of information.	<p>While these species of microbats have been known to utilise human structures for roosting, preferred roosting habitat for these species are non-human made structures (tree hollows or caves). Additionally, only one of the species is likely to utilise buildings more regularly including breeding times, this species is the Yellow-bellied Sheathtail Bat. The other species of microbats may utilise the buildings on occasion while traversing through the landscape or if other alternative roosting resources are not present. It should be noted that the development site provides marginal foraging and alternative roosting habitat in the form of buildings for a number of microbat species. The development site does not contain important habitat for these species.</p> <p>There is potential that the removal of the buildings may impact upon the number of available roosting resources (if the buildings actually contain suitable gaps in the roof cavity) for microbats migrating to breeding or non-breeding habitats such as the two Bentwing species. There is no available literature which has considered the impacts of removal of human made structures on microbat species.</p> <p>The Priority Action Statement for the Yellow-bellied Sheathtail-bat lists several recommended actions for help in the recovery of this species, those pertaining to retention of roosting habitat focus on the retention of large hollow-bearing trees and retention of vegetated areas. The Priority Action Statement for the Little Bentwing Bat and Eastern Bentwing Bat include further investigation of the wintering roosts for these species which includes tree hollows and undertaking restoration activities to create habitat and connectivity in the landscape. There is no mention of the use of buildings for Bentwing Bat species.</p> <p>The habitat within the development site is unlikely to be important for any of these microbat species.</p>

9.2.1.4 The assessment of the impacts of development on the habitat of threatened species or ecological communities associated with non-native vegetation

a) identify the species and ecological communities likely to use the habitat	Several non-native tree species are present in the development site which have been planted within residential gardens or are invasive weeds. Non-native species which have been identified as potential foraging species for Grey-headed Flying fox include Kaffir Plum and Palm species.
(b) describe the nature, extent and duration of short and long-term impact	The proposed development will result in the permanent removal of a small number of non-native trees (listed above) which provide potential foraging habitat for Grey-headed Flying-fox.
(c) describe, with reference to relevant literature and other reliable published sources of information, the importance within the bioregion of the habitat to these species or ecological communities	These non-native foraging species are in relatively low abundance within the development site and most species would provide only small amounts of secondary foraging habitat. Flowering resources in the form of native planted <i>Eucalyptus</i> , <i>Melaleuca</i> and <i>Callistemon</i> sp. would more likely be utilised for foraging resources by Grey-headed Flying-fox.
(d) predict the consequences of the impacts for the local and bioregional persistence of the suite of threatened species and communities likely to use	The consequences of the permanent removal of those species listed above for the local and bioregional persistence of the Grey-headed Flying-fox is predicted to be negligible.

BAM Criteria	Justification
these areas as habitat, with reference to relevant literature and other published sources of information.	
9.2.1.5 The assessment of the impacts of development on the connectivity of different areas of habitat of threatened species that facilitates the movement of those species across their range must:	
(a) identify the area/s of connectivity joining different areas of habitat that intersect with the subject land and the areas of habitat that are connected according to Paragraph 4.2.1.3	The development site includes predominately disturbed and non-native species. The vegetation within the development site is relatively small and disconnected from areas of high biodiversity value. Connectivity across the subject lands is limited to scattered street plantings. Due to the presence of major roads and urbanised landscape only highly mobile species are likely to utilise the vegetation within the development site.
(b) identify the species and ecological communities likely to benefit from the connectivity	The species most likely to utilise the connectivity would be Grey-headed Flying-fox, microbat species, and Little Lorikeet.
(c) describe the nature, extent and duration of short and long-term impacts	The proposed development will result in the permanent removal of 0.16 ha of native and 0.010 ha of exotic vegetation which forms a stepping stone corridor for highly mobile species. As some vegetation will be retained, some connectivity will be retained within the development site and in the adjacent broader locality.
(d) describe, with reference to relevant literature and other reliable published sources of information, the importance of the area of connectivity within the bioregion	<p>The connectivity is considered limited except for highly mobile species which easily move across disturbed landscapes. The connecting habitat provides potential foraging habitat for the above listed species, which is part of a fragmented network of urban vegetation within the eastern suburbs. Within the Sydney Basin Bioregion, the removal of 0.16 ha native planted and 0.010 ha of exotic vegetation is considered to provide negligible connectivity on a landscape scale. The removal of connecting habitat would not prevent the highly mobile Grey-headed Flying-fox, Little Lorikeet or microbats from moving across the landscape in search of foraging resources.</p> <p>The removal of a small amount of connecting habitat from the development site is unlikely to be of importance to any threatened species within the bioregion considering the availability of connectivity retained within the subject site and immediately adjacent to the subject site.</p>
(e) predict the consequences of the impacts for the bioregional persistence of the suite of threatened species and communities currently benefitting from the connectivity with reference to relevant literature and other published sources of information and taking into consideration mobility, abundance, range and other relevant life history factors.	The habitat to be removed forms part of a network or stepping stone habitat in the form of canopy and ground layer garden plantings. Only highly mobile species are likely to utilise the stepping stone vegetation from the development site. Under the proposal, canopy species will be retained within the development site to provide additional connectivity. The proposed development will not result in a loss of connectivity for the highly mobile species likely to utilise it.

2.2.5 Mitigating and managing impacts

Measures proposed to mitigate and manage impacts at the development site before, during and after construction are outlined in Table 22.

Table 21: Measures proposed to mitigate and manage impacts

Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
Instigating clearing protocols including pre-clearing surveys, daily surveys and staged clearing, the presence of a trained ecological or licensed wildlife handler during clearing events	Moderate	Minor	Pre-clearance survey of trees to be removed and identification/location of habitat trees by a suitably qualified ecologist. Trees identified for retention should be clearly delineated as a 'No Go' zone with high visibility bunting. Any tree removal is to be undertaken by a suitably qualified and insured arborist.	Any fauna utilising habitat within the development site will be identified and managed to ensure clearing works minimise the likelihood of injuring resident fauna	During clearing works	Project Manager / Ecologist
Protection or displacement of resident fauna	Minor	Negligible	Supervision by a qualified ecologist / licensed wildlife handler during habitat tree removal (i.e. trees which contains hollows or nests) in accordance with best practice methods.	Relocation of fauna in a sensitive manner	Prior to and during clearing works	Project Manager / ecologist
Installing artificial habitats for fauna in adjacent retained vegetation and habitat or human made structures to replace the habitat resources lost and encourage animals to move from the impacted site, e.g. nest boxes	Minor	Negligible	Any trees removed that have hollows/hollow trunks/fissures should be used as replacement hollows and attached to trees within the within the development site/subject site. If it is impractical to use salvaged hollows as replacement tree hollows, compensatory nest boxes should be installed within vegetation to be retained. Nest boxes should be installed at a ratio of 1 nest box per hollow removed. There are two tree hollows (shown in Figure 5). Recommended installation of two nest boxes with entrance diameter of approximately 10 cm.	Replacement of habitat features removed.	Prior to and during clearing works	Project Manager/ Ecologist
Programming construction activities to avoid impacts; for example, timing construction activities for when migratory species are absent	Minor	Negligible	Where possible the removal of hollow-bearing trees (shown in Figure 5) to occur outside of spring breeding season.	impacts to fauna during nesting/nursing avoided	During clearing works	Project Manager

Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
from the site, or when particular species known to or likely to use the habitat on the site are not breeding or nesting						
Clearing protocols that identify vegetation to be retained, prevent inadvertent damage and reduce soil disturbance	Moderate	Minor	Install tree protection fencing around trees proposed for retention.	Trees to be retained not disturbed/impacted	Tree protection fencing to be set up prior to any works occurring on site and to remain throughout duration of construction works	Project Manager
Staff training and site briefing to communicate environmental features to be protected and measures to be implemented	Minor	Negligible	Construction staff to be briefed prior to work commencing to be made aware of sensitive biodiversity values present and environmental procedures such as: <ul style="list-style-type: none"> Importance of retained vegetation areas and 'No Go' zones Site environmental procedures (vegetation management, sediment and erosion control, exclusion fencing and noxious weeds) What to do in case of environmental emergency (chemical spills, fire, injured fauna) Key contacts in case of environmental emergency 	All staff entering the Development Site are fully aware of all the ecological values present within the Lot and environmental aspects relating to the development and know what to do in case of any environmental emergencies	To occur for all staff entering/working at the development site. Site briefings should be updated based on phase of the work and when environmental issues become apparent.	Project Manager
Sediment barriers or sedimentation ponds to control the quality of water released from the site into the receiving environment	Minor	Negligible	Sediment control works to be done in accordance with Sediment, Erosion and Dust Control plans (prepared by Bonacci). Soil and erosion measures such as sediment fencing, clean water diversion must be in place prior the commencement of the construction work.	Erosion and sedimentation will be controlled	For the duration of construction works	Project Manager

Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
Noise barriers or daily/seasonal timing of construction and operational activities to reduce impacts of noise	Minor	Negligible	Considering the highly urbanised nature of the development site, the project is unlikely to result in impacts on wildlife resulting from noise. Daily timing of construction activities is recommended in accordance with Table 1 of Interim Noise Guidelines (2009)	Noise impacts associated with the development will be managed in accordance with guidelines	For the duration of construction works	Project Manager
Adaptive dust monitoring programs to control air quality	Minor	Negligible	Dust suppression measures to be done in accordance with Sediment, Erosion and Dust Control plans (prepared by Bonacci) and implemented during construction works to limit dust on site.	Mitigate dust created during construction activities	For the duration of construction works	Project Manager
Hygiene protocols to prevent the spread of weeds or pathogens between infected areas and uninfected areas	Moderate	Minor	Priority weeds present within the development site listed under the NSW <i>Biosecurity Act 2015</i> for the Greater Sydney Region will be removed. Priority weeds located within the development site includes <i>Asparagus aethiopicus</i> and <i>Celtis sinensis</i> .	Prevent spread of weeds or pathogens	For the duration of construction works	Project Manager
Hygiene protocols to prevent the spread of weeds or pathogens between infected areas and uninfected areas	Moderate	Minor	Vehicles, machinery and building refuse should remain only within the development site and not impinge on the areas of retained native planted vegetation to be retained in the development site.	Spread of weeds prevented	Post-construction	Project Manager
Use of indigenous species from locally occurring plant community for landscape plantings in the development site	Minor	Negligible	No remnant native vegetation is present within the site. Native vegetation present consists of street trees and garden plantings and is in general not representative of an indigenous PCT. It is recommended that landscape plantings be undertaken as part of the development in accordance with City of Sydney DCP (Clause 3.5) increasing the presence of locally indigenous species.	Areas within the development site will be landscaped using appropriate species	Throughout construction and following completion of construction activities	Project Manager
Development control measures to regulate activity in vegetation and habitat adjacent to residential development including controls on rubbish disposal, wood collection,	Minor	Negligible	Strategy to be developed and implemented as part of the residential development may include: <ul style="list-style-type: none"> Signage to indicate areas not to be disturbed i.e. No Go zones Rubbish disposal guidance Prohibition of wood collection (if appropriate) 	Strategy to protect vegetation and habitat adjacent to development	To be developed to provide awareness to residents of housing development.	Client

Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
fire management and disturbance to nests and other niche habitats			<ul style="list-style-type: none"> Prohibition of bush rock removal (if appropriate) Controls on pet ownership such as prohibitions on allowing pets to roam beyond fenced areas 			
Making provision for the ecological restoration, rehabilitation and/or ongoing maintenance of retained native vegetation habitat on or adjacent to the development site	Minor	Negligible	Where possible, landscaping in the development site should consider the use of locality derived native species and those found within the PCT historically represented in the development site. Suggested canopy species include <i>Eucalyptus saligna</i> , <i>Syncarpia glomulifera</i> , <i>E. punctata</i> and <i>E. paniculata</i> and shrubs such as <i>Pittosporum undulatum</i> , <i>Polyscias sambucifolia</i> , <i>Acacia falcata</i> , <i>Allocasuarina torulosa</i> , <i>Elaeocarpus reticulatus</i> , <i>Exocarpos cupressiformis</i> and <i>Melaleuca decora</i> .	Areas within the development site will be landscaped using appropriate species	Throughout construction and following completion of construction activities.	Project Manager

2.2.6 Serious and Irreversible Impacts (SAIL)

The vegetation within the development site (PCT 1281) is not part of the Sydney Turpentine Ironbark Forest TEC and therefore, is not considered a candidate for Serious and Irreversible Impacts (SAIL).

Additionally, *Eucalyptus scoparia* is listed as candidate species for SAIL. There are no naturally occurring populations for this species within the locality of the development site. This species has been established through cultivation of unknown genetic material. This specimen is not considered important to the overall population of this species. Planted individuals are not considered to hold conservation value and therefore, a detailed SAIL assessment has not been conducted for this planted species.

As the development footprint does not impact upon SAIL consideration of SAIL is not required for this report.

2.3 Risk assessment

A risk assessment has been undertaken for any residual impacts likely to remain after the mitigation measures (Section Table 21) have been applied. Likelihood criteria, consequence criteria and the risk matrix are provided in Table 22, Table 23 and Table 24 respectively.

Table 22: Likelihood criteria

Likelihood criteria	Description
Almost certain (Common)	Will occur, or is of a continuous nature, or the likelihood is unknown. There is likely to be an event at least once a year or greater (up to ten times per year). It often occurs in similar environments. The event is expected to occur in most circumstances.
Likely (Has occurred in recent history)	There is likely to be an event on average every one to five years. Likely to have been a similar incident occurring in similar environments. The event will probably occur in most circumstances.
Possible (Could happen, has occurred in the past, but not common)	The event could occur. There is likely to be an event on average every five to twenty years.
Unlikely (Not likely or uncommon)	The event could occur but is not expected. A rare occurrence (once per one hundred years).
Remote (Rare or practically impossible)	The event may occur only in exceptional circumstances. Very rare occurrence (once per one thousand years). Unlikely that it has occurred elsewhere; and, if it has occurred, it is regarded as unique.

Table 23: Consequence criteria

Consequence category	Description
Critical (Severe, widespread long-term effect)	Destruction of sensitive environmental features. Severe impact on ecosystem. Impacts are irreversible and/or widespread. Regulatory and high-level government intervention/action. Community outrage expected. Prosecution likely.
Major	Long-term impact of regional significance on sensitive environmental features (e.g. wetlands). Likely to result in regulatory intervention/action. Environmental harm either temporary or permanent, requiring immediate attention. Community outrage possible. Prosecution possible.

Consequence category	Description
(Wider spread, moderate to long term effect)	
Moderate (Localised, short-term to moderate effect)	Short term impact on sensitive environmental features. Triggers regulatory investigation. Significant changes that may be rehabilitated with difficulty. Repeated public concern.
Minor (Localised short-term effect)	Impact on fauna, flora and/or habitat but no negative effects on ecosystem. Easily rehabilitated. Requires immediate regulator notification.
Negligible (Minimal impact or no lasting effect)	Negligible impact on fauna/flora, habitat, aquatic ecosystem or water resources. Impacts are local, temporary and reversible. Incident reporting according to routine protocols.

Table 24: Risk matrix

Consequence	Likelihood				
	Almost certain	Likely	Possible	Unlikely	Remote
Critical	Very High	Very High	High	High	Medium
Major	Very High	High	High	Medium	Medium
Moderate	High	Medium	Medium	Medium	Low
Minor	Medium	Medium	Low	Low	Very Low
Negligible	Medium	Low	Low	Very Low	Very Low

Table 25: Risk assessment

Potential impact	Project phase	Risk (pre-mitigation)	Risk (post mitigation)
Vegetation clearing	Construction / operation	Medium	Low
Sedimentation and contaminated and/or nutrient rich run-off	Construction	Medium	Low
Noise, dust or light spill	Construction	Low	Very Low
Inadvertent impacts on adjacent habitat or vegetation	Construction	Medium	Low
Transport of weeds and pathogens from the site to adjacent vegetation	Construction	Medium	Low
Vehicle strike	Construction / operation	Low	Very Low
Rubbish dumping	Construction / operation	Low	Very Low

Potential impact	Project phase	Risk (pre-mitigation)	Risk (post mitigation)
Increase in predatory species populations	Construction / operation	Low	Very Low
Increase in pest animal populations	Construction / operation	Low	Very low
Increased risk of fire	Construction /operation	Medium	Low
Disturbance to specialist breeding and foraging habitat, e.g. beach nesting for shorebirds.	Construction / operation	Medium	Low
Sedimentation and contaminated and/or nutrient rich run-off	Construction	Low	Very Low

2.4 Adaptive management strategy

This section is required for those impacts that are infrequent, cumulative or difficult to predict. Impacts associated with the proposed development have been considered and addressed in Section 2.5 and no further impacts are required to be addressed. For major projects: details of the adaptive management strategy proposed to monitor and respond to impacts on biodiversity values that are uncertain.

Development Footprint

Darlington Public School SSD

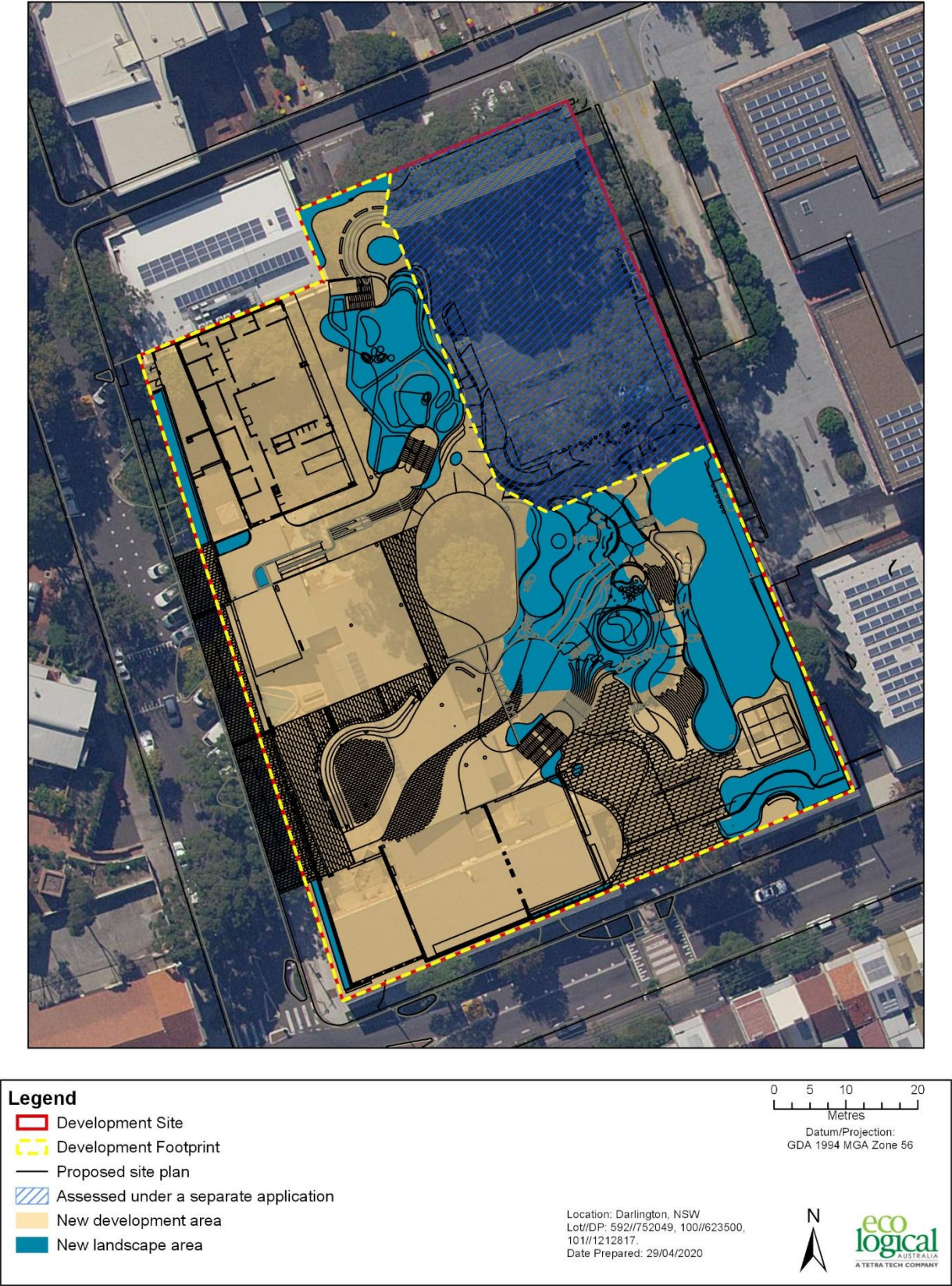


Figure 6: Final project footprint including construction and operation

2.5 Impact summary

Following implementation of the BAM and the BAMC, the following impacts have been determined.

2.5.1 Serious and Irreversible Impacts (SII)

As discussed in Section 2.2.6, no candidate entities for SII are present in the development site or are likely to be impacted by the development. Therefore, it is unlikely that the development would result in a SII.

2.5.2 Impacts requiring offsets

The impacts of the development requiring offsets for native vegetation are outlined in Table 26 and shown in Figure 7.

Table 26: Impacts to native vegetation requiring offsets

Veg zone	PCT ID	PCT Name	Vegetation Class	Vegetation Formation	Direct impact (ha)
1	1281 planted (non TEC)	Turpentine - Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion	Northern Hinterland Wet Sclerophyll Forests	Wet Sclerophyll Forests (Grassy sub-formation)	0.16

2.5.3 Impacts not requiring offsets

All native vegetation within the development site which will be removed requires offsets.

2.5.4 Areas not requiring assessment

Areas not requiring assessment include existing buildings, paved playing areas, paths and exotic vegetation. The development site contained exotic vegetation (0.010 ha) which was classified as shown in Figure 4. These areas were not consistent with any listed PCT, nor did they contain any threatened species, hence further assessment under the BAM was not required. Areas not requiring assessment are shown on Figure 8.

2.5.5 Credit summary

The number of ecosystem credits required for the development are outlined in Table 27. A total of (two) ecosystem credits are required for impacts to PCT 1281_planted. The like-for-like options and trading group is provided in Table 27. No candidate species credit species or likely habitat was recorded within the development site; hence no species credits are required to offset the development. The biodiversity credit report is included in Appendix C.

Table 27: Ecosystem credits required

PCT ID	PCT Name	Credit class	Trading group	Total impacts (ha)	Credits required
1281	Turpentine - Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion	Northern Hinterland Wet Sclerophyll Forests this includes PCTs 1281, 1845	Northern Hinterland Wet Sclerophyll Forests > 90% cleared group	0.16	2

Impacts Requiring Offset

Darlington Public School SSD

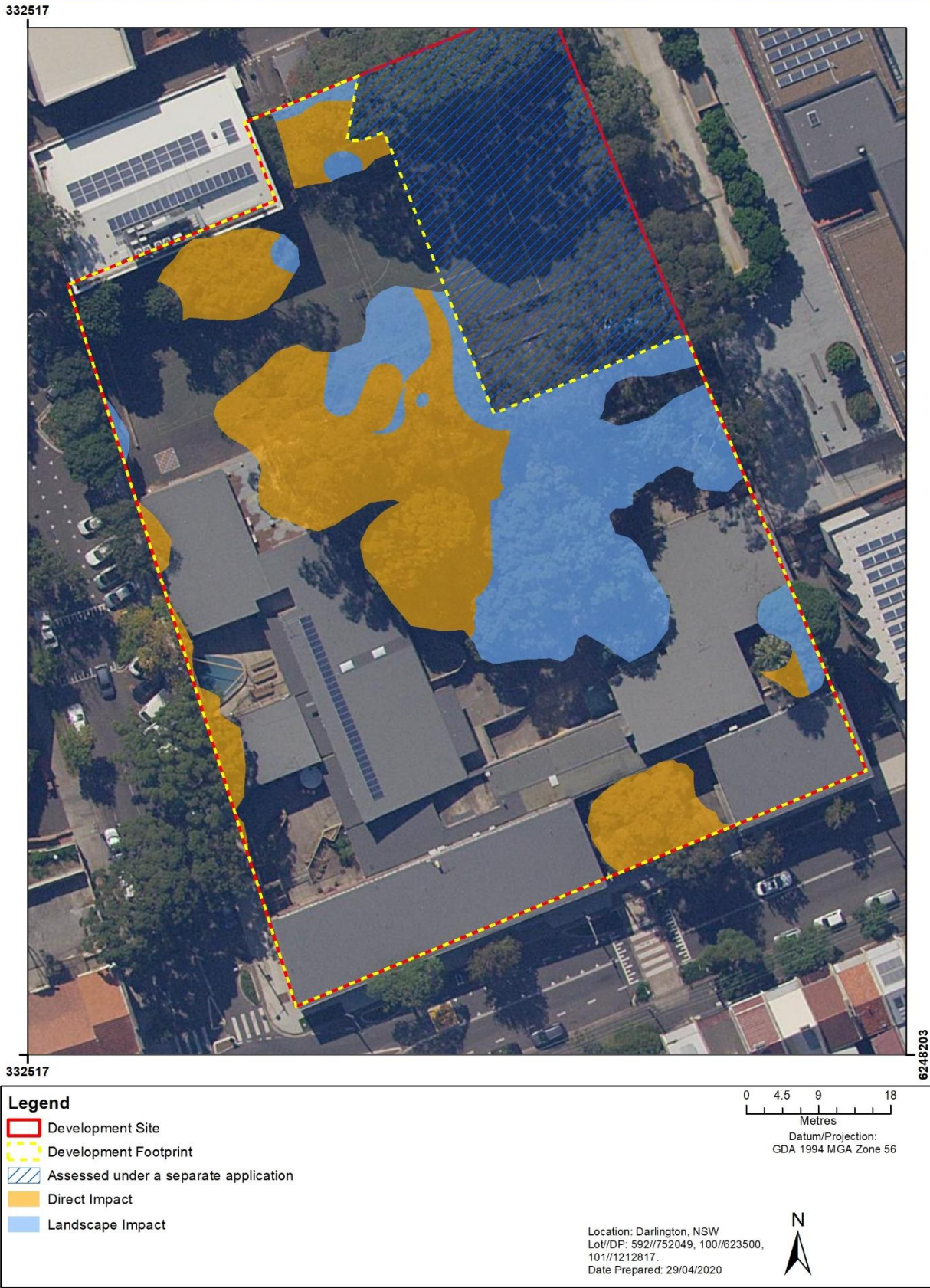
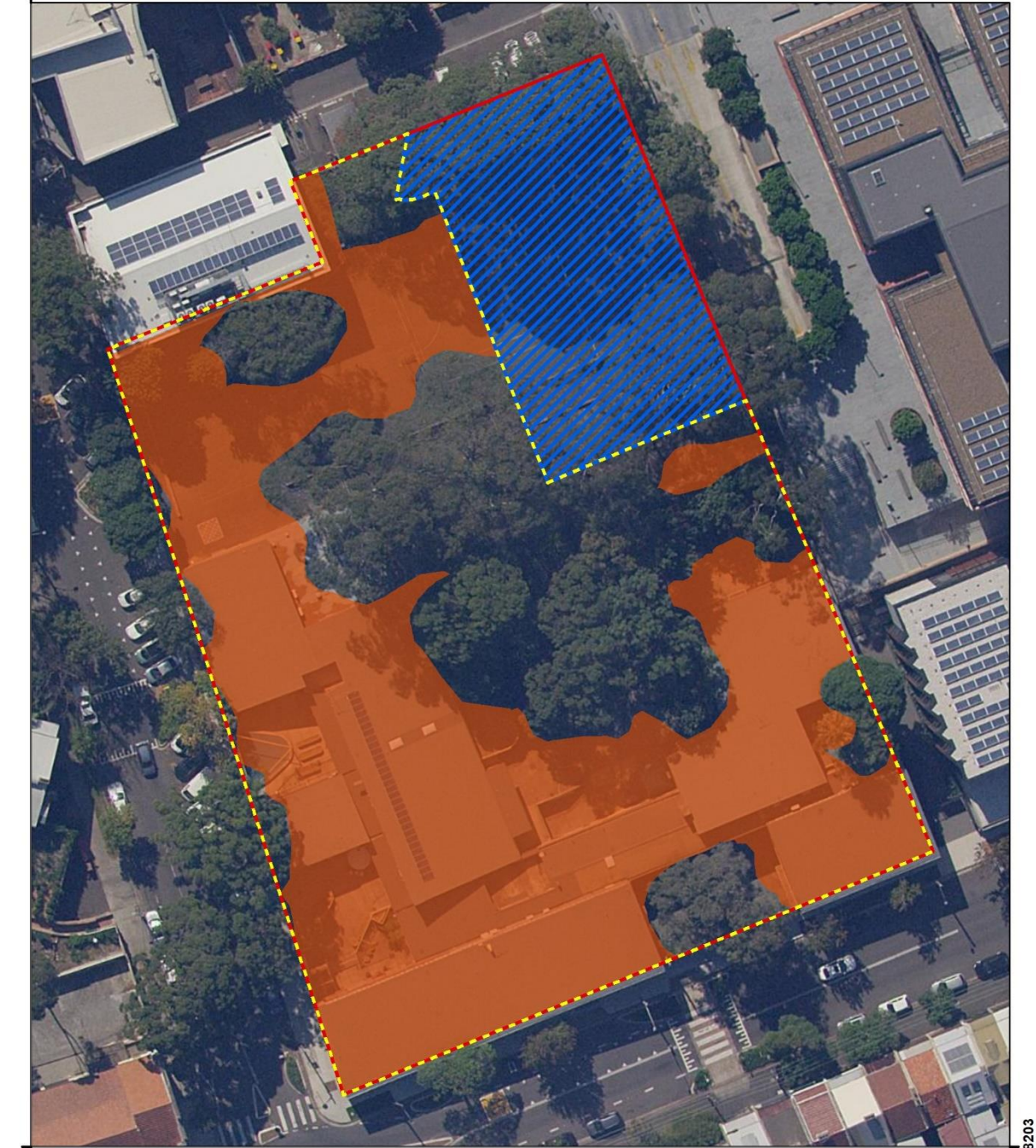


Figure 7 Impacts requiring offset

No Assessment Required

Darlington Public School SSD

332513



6248203

332513



Figure 8 Areas not requiring assessment

2.6 Consistency with legislation and policy

Additional matters relating to impacts on flora and fauna which are not covered by the BC Act must also be addressed for the proposed development. Potential “Matters of National Environmental Significance” (MNES) in accordance with the EPBC Act have been addressed in Section 2.6.1. Matters relating to City of Sydney Council planning instruments have been addressed in Section 2.6.3.

2.6.1 Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

The EPBC Act establishes a process for assessing the environmental impact of activities and developments where “Matters of National Environmental Significance” (MNES) may be affected. Under the Act, any action which “has, will have, or is likely to have a significant impact on a matter of MNES” is defined as a “controlled action”, and requires approval from the Commonwealth Agriculture, Water and the Environment (DAW&E), which is responsible for administering the EPBC Act.

A habitat assessment and Likelihood of Occurrence was completed and one MNES *Pteropus poliocephalus* (Grey-headed Flying-fox) was assessed under the act as there are 1161 BioNet records for this species within the broader landscape (5 km radius) of the development site.

Additionally, two planted threatened species were also recorded within the development site and require assessment under the EPBC Act, *Eucalyptus nicholii* and *E. scoparia*.

The following assessments have been prepared in accordance with the EPBC Act Matters of National Environmental Significance: Significant Impact Guidelines 1.1. These guidelines have been established to assist proponents to determine whether a proposed action is likely to result in a significant impact on a matter of national environmental significance.

2.6.1.1 *Pteropus poliocephalus* (Grey-headed Flying-fox)

The Grey-headed Flying-fox is listed as a vulnerable species under the EPBC Act. This species utilises a wide variety of habitats (including disturbed areas) for foraging and have been recorded travelling long distances on feeding forays. Fruits and flowering plants of a wide variety of species are the main food source. The species roosts in large ‘camps’ of up to 200 000 individuals. Camps are usually formed close to water and along gullies, however, the species has been known to form camps in urban areas (DECCW 2009).

The Centennial Park Grey-headed Flying-fox (GHFF) camp is known from the locality to be within 5 km of the development site (DAW&E 2020b). The vegetation within the development site provides potential foraging habitat. It is considered likely that this species would use the site on occasion for foraging purposes. According to the National Flying-fox Monitoring Program, no GHFF camps currently occur or have been recorded within the development site (DAW&E 2020b). The distribution and habitat associations for this threatened species are presented in Appendix D.

Table 28: EPBC Act of Significance for *Pteropus poliocephalus* (Grey-headed Flying-fox)

Criterion	Assessment
Criterion a: lead to a long-term decrease in the size of an important population of a species	The Matters of National Environmental Significance Impact Guidelines 1.1 (Commonwealth of Australia, 2013) defines an important population as a population that is necessary for a species' long-term survival and recovery. This may include populations identified as such in recovery plans, and/or that are:

Criterion	Assessment
	<ul style="list-style-type: none"> • Key source populations either for breeding or dispersal • Populations that are necessary for maintaining genetic diversity, and/or • Populations that are near the limit of the species range <p>No important populations have been recorded within the development site, however, the development site provided potential foraging resource for an important population. The site does not support key source populations for breeding or dispersal, populations necessary for maintaining genetic diversity, or populations near the limit of the species range. According to the National Flying-fox Monitoring Program, no Grey-headed Flying Fox camps currently occur or have ever been recorded within the development site (DoEE 2019). The nearest active GHFF camp occurs approximately 5 km to the south-east of the development site, within Centennial Park (DAW&E 2020b).</p>
Criterion b: reduce the area of occupancy of an important population	No important populations have been recorded within the development site, however, the vegetation within the development site may contain potential foraging resources for an important population. As the extent of vegetation removal is only minor and foraging resources will be retained in the development site, therefore, the proposed works would not reduce the area of occupancy of an important population.
Criterion c: fragment an existing important population into two or more populations	No important populations have been recorded within the development site. The potential foraging habitat to be removed is marginal relative to adjacent potential habitat within the region. Whilst the potential foraging habitat may contribute as a 'stepping stone' for this highly mobile species to other more substantial foraging habitat sites, this function is unlikely to be significantly inhibited by the proposed works. Furthermore, this species has been recorded in urban environments and is likely to continue to forage adjacent to the development site and across the broader locality.
Criterion d: adversely affect habitat critical to the survival of a species	<p>Approximately half of the potential foraging habitat in canopy trees within the development site will be removed by the proposal. These individual trees represent a negligible amount of potential foraging resources in the locality.</p> <p>Potential foraging habitat in the form of street trees will persist in close proximity to the development site. Given that this species is highly mobile (traveling up to 50 km to forage), it is considered unlikely that the works would adversely affect habitat critical to the survival of this species</p>
e: disrupt the breeding cycle of an important population	According to the National Flying-fox Monitoring Program, no Grey-headed Flying Fox camps currently occur or have ever been recorded within the development site (DPIE 2020a). The nearest active Grey-headed Flying Fox camp occurs approximately 5 km to the south-east of the development site, within Centennial Park (DAW&E 2020b). Thus, no important population of Grey-headed Flying Fox occurs within the development site, and the proposed works are unlikely to disrupt the breeding cycle of an important population.
Criterion f: Adversely affect habitat critical to the survival of a species; modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The potential foraging habitat to be removed is marginal and of low quality. Given the small amount of potential foraging habitat to be removed, that potential foraging habitat will persist adjacent to the development site and across the locality, and that this species is highly mobile, it is unlikely that the habitat to be removed would cause the species to decline. Furthermore, according to the National Flying-fox Monitoring Program, no Grey-headed Flying Fox camps currently occur or have ever been recorded within the development site (DPIE 2020b). The nearest active Grey-headed Flying Fox camp occurs approximately 5 km to the south-east of the development site, within Centennial Park (DAW&E 2020b). Therefore, no known Grey-headed Flying Fox roosting camps for this species will be impacted by the proposed works.
Criterion g: Result in invasive species that are harmful to a vulnerable species becoming	The proposed works will not result in the establishment of an invasive species that is harmful to Grey-headed Flying Fox.

Criterion	Assessment
established in the vulnerable species' habitat	
Criterion h: Introduce disease that may cause the species to decline	The proposed works will not result in the introduction of a disease that is harmful to the Grey-headed Flying Fox.
Criterion i: Interfere substantially with the recovery of the species	Considering the above factors, the proposed works will not interfere substantially with the recovery of the species.
Conclusion	In consideration of the above, the proposed works are considered unlikely to have a significant impact on the Grey-headed Flying Fox.

2.6.1.2 *Eucalyptus nicholii* (Narrow-leaved Black Peppermint)

Eucalyptus nicholii (Narrow-leaved Black Peppermint) is listed as vulnerable under the EPBC Act. The distribution and habitat associations for this threatened species are presented in Appendix D. One individual was identified within the development site. Within NSW, the species is known from New England Tablelands, located over 400 km north of the development site. Thus, it is likely that this species has been planted on the development site. The proposed development will remove the individual.

Criterion	Question	Response
An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:		
1)	lead to a long-term decrease in the size of an important population of a species	An important population is defined as a population that is necessary for a species' long-term survival and recovery. The <i>Eucalyptus nicholii</i> proposed to be removed was likely planted, and therefore does not form part of an important population. Consequently, it is considered that the proposed development will not lead to a long-term decrease in the size of an important population of the species.
2)	reduce the area of occupancy of an important population	This species typically grows in the far north of NSW. The <i>Eucalyptus nicholii</i> proposed to be removed was outside of its natural range and likely planted. Therefore, it is unlikely to form part of an important population. Consequently, it is considered that the proposed development will not reduce the area of occupancy of an important population of the species.
3)	fragment an existing important population into two or more populations	The <i>Eucalyptus nicholii</i> proposed to be removed was identified outside of the known habitat for the species in a disturbed site and is therefore does not form part of an important population. Consequently, it is considered that the proposed development will not fragment an existing important population.
4)	adversely affect habitat critical to the survival of a species	The <i>Eucalyptus nicholii</i> proposed to be removed was identified outside of the known habitat for the species in a disturbed site and is therefore it is not considered to be important or critical to the survival of the species. Consequently, it is considered that the proposed

Criterion	Question	Response
		development will not adversely affect habitat critical to the survival of the species.
5)	disrupt the breeding cycle of an important population	Not applicable.
6)	modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The <i>Eucalyptus nicholii</i> proposed to be removed was identified outside of the known habitat for the species in a disturbed site. It is considered unlikely that the development site will modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
7)	result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	The study area is currently in a disturbed and modified condition and does not represent known habitat for this threatened species. Consequently, the proposed development is unlikely to result in the establishment of an invasive species that is harmful to the species.
8)	introduce disease that may cause the species to decline, or	It is considered unlikely that the proposed action would introduce disease that may cause the decline of <i>Eucalyptus nicholii</i> .
9)	interfere substantially with the recovery of the species.	There is no National Recovery Plan for this species at present. The Approved Conservation Advice under the EPBC Act for this species lists the following threats: seed collectors, inappropriate grazing, fire management, road construction and road reserve management activities. The proposed action does not include nor is likely to exacerbate these threats. Therefore, the proposed removal of the single planted <i>Eucalyptus nicholii</i> specimen would not interfere substantially with the recovery of this species.
Conclusion	Is there likely to be a significant impact?	<p>No. The proposed action is unlikely to have a significant impact on the <i>Eucalyptus nicholii</i> for the following reasons:</p> <ul style="list-style-type: none"> • The individual to be removed was planted and does not form part of an important population • The development site is located outside of the known distribution and habitat for this species. • Only one individual of this planted threatened species is proposed for removal.

2.6.1.3 *Eucalyptus scoparia* (Wallangarra White Gum)

Eucalyptus scoparia (Wallangarra White Gum) is listed as vulnerable under the EPBC Act. The distribution and habitat associations for this threatened species are presented in Appendix D. One individual was identified within the development site. Within NSW, the species is known from Tenterfield, located over 600 km north of the development site. Thus, it is likely that this species has been planted on the development site. The proposed development will remove one individual.

Criterion	Question	Response
		An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

Criterion	Question	Response
1)	lead to a long-term decrease in the size of an important population of a species	An important population is defined as a population that is necessary for a species' long-term survival and recovery. The <i>Eucalyptus scoparia</i> proposed to be removed was likely planted, and therefore does not form part of an important population. Consequently, it is considered that the proposed development will not lead to a long-term decrease in the size of an important population of the species.
2)	reduce the area of occupancy of an important population	This species typically grows in the far north of NSW. The <i>Eucalyptus scoparia</i> proposed to be removed was outside of its natural range and likely planted. Therefore, it is unlikely to form part of an important population. Consequently, it is considered that the proposed development will not reduce the area of occupancy of an important population of the species.
3)	fragment an existing important population into two or more populations	The <i>Eucalyptus scoparia</i> proposed to be removed was identified outside of the known habitat for the species in a disturbed site and is therefore does not form part of an important population. Consequently, it is considered that the proposed development will not fragment an existing important population.
4)	adversely affect habitat critical to the survival of a species	The <i>Eucalyptus scoparia</i> proposed to be removed was identified outside of the known habitat for the species in a disturbed site and is therefore it is not considered to be important or critical to the survival of the species. Consequently, it is considered that the proposed development will not adversely affect habitat critical to the survival of the species.
5)	disrupt the breeding cycle of an important population	Not applicable.
6)	modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The <i>Eucalyptus scoparia</i> proposed to be removed was identified outside of the known habitat for the species in a disturbed site. It is considered unlikely that the development site will modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
7)	result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	The study area is currently in a disturbed and modified condition and does not represent known habitat for this threatened species. Consequently, the proposed development is unlikely to result in the establishment of an invasive species that is harmful to the species.
8)	introduce disease that may cause the species to decline, or	It is considered unlikely that the proposed action would introduce disease that may cause the decline of <i>Eucalyptus scoparia</i> .
9)	interfere substantially with the recovery of the species.	There is no National Recovery Plan for this species at present. The Approved Conservation Advice under the EPBC Act for this species lists the following threats: clearing and fragmentation of habitat, timber collection, damage to juvenile plants by bushwalkers, illegal seed collection, and

Criterion	Question	Response
		a limited gene pool. The proposed action does not include nor is likely to exacerbate these threats. Therefore, the proposed removal of the single planted <i>Eucalyptus scoparia</i> specimen would not interfere substantially with the recovery of this species.
Conclusion	Is there likely to be a significant impact?	<p>No. The proposed action is unlikely to have a significant impact on the Wallangarra White Gum for the following reasons:</p> <ul style="list-style-type: none"> • The individual to be removed was planted and does not form part of an important population • The development site is located outside of the known distribution and habitat for this species. • Only one individual of this planted threatened species is proposed for removal.

2.6.2 Sydney Local Environmental Plan 2012 (LEP)

The development site is currently zone SP2 Educational Establishment which allows for proposed the redevelopment with consent approval.

Clause 5.9 Preservation of Trees or vegetation has been repealed under the LEP. There are no additional clauses which relates to this development.

2.6.3 Sydney Development Control Plan 2012 (DCP)

Clause 3.5 Urban Ecology of the DCP objectives are as follows:

- Protect existing habitat features within and adjacent to development sites.
- Improve the diversity and abundance of locally indigenous flora and fauna species across the LGA.

The provisions of the clause are as follows:

- Development is to be consistent with the Street Tree Master Plan, Park Tree Management Plans and the Landscape Code.
- Existing habitat features including cliff lines, rocky outcrops, waterbodies, trees, shrubs and groundcover vegetation are to be retained.
- New habitat features including trees, shrubs and groundcover vegetation, waterbodies, rockeries and green roofs and walls are to be included, wherever possible.
- Link and enhance existing and potential biodiversity corridors wherever possible.
- Landscaping is to comprise a mix of locally indigenous tree, shrub and groundcover species as outlined in City's Landscape Code. Where this is not possible it is preferred that plants native to Australia are used.
- Shrubs are to be densely planted and trees are to be well-spaced, as outlined in the City's Landscape Code.

The proposed development has, as much as possible, aimed to conserve the majority of the native planted vegetation within the development site and minimise unnecessary damage or removal of trees. Landscaping will be conducted in accordance with the above clause and include revegetation using locally indigenous native flora species.

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Appendix A Definitions

Terminology	Definition
Biodiversity credit report	The report produced by the Credit Calculator that sets out the number and class of biodiversity credits required to offset the remaining adverse impacts on biodiversity values at a development site, or on land to be biodiversity certified, or that sets out the number and class of biodiversity credits that are created at a biodiversity stewardship site.
BioNet Atlas	The BioNet Atlas (formerly known as the NSW Wildlife Atlas) is the OEH database of flora and fauna records. The Atlas contains records of plants, mammals, birds, reptiles, amphibians, some fungi, some invertebrates (such as insects and snails) and some fish
Broad condition state:	Areas of the same PCT that are in relatively homogenous condition. Broad condition is used for stratifying areas of the same PCT into a vegetation zone for the purpose of determining the vegetation integrity score.
Connectivity	The measure of the degree to which an area(s) of native vegetation is linked with other areas of vegetation.
Credit Calculator	The computer program that provides decision support to assessors and proponents by applying the BAM, and which calculates the number and class of biodiversity credits required to offset the impacts of a development or created at a biodiversity stewardship site.
Development	Has the same meaning as development at section 4 of the EP&A Act, or an activity in Part 5 of the EP&A Act. It also includes development as defined in section 115T of the EP&A Act.
Development footprint	The area of land that is directly impacted on by a proposed development, including access roads, and areas used to store construction materials.
Development site	An area of land that is subject to a proposed development that is under the EP&A Act.
Ecosystem credits	A measurement of the value of EECs, CEECs and threatened species habitat for species that can be reliably predicted to occur with a PCT. Ecosystem credits measure the loss in biodiversity values at a development site and the gain in biodiversity values at a biodiversity stewardship site.
High threat exotic plant cover	Plant cover composed of vascular plants not native to Australia that if not controlled will invade and outcompete native plant species.
Hollow bearing tree	A living or dead tree that has at least one hollow. A tree is considered to contain a hollow if: (a) the entrance can be seen; (b) the minimum entrance width is at least 5 cm; (c) the hollow appears to have depth (i.e. you cannot see solid wood beyond the entrance); (d) the hollow is at least 1 m above the ground. Trees must be examined from all angles.
Important wetland	A wetland that is listed in the Directory of Important Wetlands of Australia (DIWA) and SEPP 14 Coastal Wetlands
Linear shaped development	Development that is generally narrow in width and extends across the landscape for a distance greater than 3.5 kilometres in length
Local population	The population that occurs in the study area. In cases where multiple populations occur in the study area or a population occupies part of the study area, impacts on each subpopulation must be assessed separately.
Local wetland	Any wetland that is not identified as an important wetland (refer to definition of Important wetland).
Mitchell landscape	Landscapes with relatively homogeneous geomorphology, soils and broad vegetation types, mapped at a scale of 1:250,000.

Terminology	Definition
Multiple fragmentation impact development	Developments such as wind farms and coal seam gas extraction that require multiple extraction points (wells) or turbines and a network of associated development including roads, tracks, gathering systems/flow lines, transmission lines
Operational Manual	The Operational Manual published from time to time by OEH, which is a guide to assist assessors when using the BAM
Patch size	An area of intact native vegetation that: a) occurs on the development site or biodiversity stewardship site, and b) includes native vegetation that has a gap of less than 100 m from the next area of native vegetation (or ≤ 30 m for non-woody ecosystems). Patch size may extend onto adjoining land that is not part of the development site or stewardship site...
Proponent	A person who intends to apply for consent to carry out development or for approval for an activity.
Reference sites	The relatively unmodified sites that are assessed to obtain local benchmark information when benchmarks in the Vegetation Benchmarks Database are too broad or otherwise incorrect for the PCT and/or local situation. Benchmarks can also be obtained from published sources.
Regeneration	The proportion of over-storey species characteristic of the PCT that are naturally regenerating and have a diameter at breast height < 5 cm within a vegetation zone.
Remaining impact	An impact on biodiversity values after all reasonable measures have been taken to avoid and minimise the impacts of development. Under the BAM, an offset requirement is calculated for the remaining impacts on biodiversity values.
Retirement of credits	The purchase and retirement of biodiversity credits from an already-established biobank site or a biodiversity stewardship site secured by a biodiversity stewardship agreement.
Riparian buffer	Riparian buffers applied to water bodies in accordance with the BAM
Sensitive biodiversity values land map	Development within an area identified on the map requires assessment using the BAM.
Site attributes	The matters assessed to determine vegetation integrity. They include: native plant species richness, native over-storey cover, native mid-storey cover, native ground cover (grasses), native ground cover (shrubs), native ground cover (other), exotic plant cover (as a percentage of total ground and mid-storey cover), number of trees with hollows, proportion of over-storey species occurring as regeneration, and total length of fallen logs.
Site-based development	A development other than a linear shaped development, or a multiple fragmentation impact development
Species credits	The class of biodiversity credits created or required for the impact on threatened species that cannot be reliably predicted to use an area of land based on habitat surrogates. Species that require species credits are listed in the Threatened Biodiversity Data Collection.
Subject land	Is land to which the BAM is applied in Stage 1 to assess the biodiversity values of the land? It includes land that may be a development site, clearing site, proposed for biodiversity certification or land that is proposed for a biodiversity stewardship agreement.
Threatened Biodiversity Data Collection	Part of the BioNet database, published by OEH and accessible from the BioNet website.
Threatened species	Critically Endangered, Endangered or Vulnerable threatened species as defined by Schedule 1 of the BC Act, or any additional threatened species listed under Part 13 of the EPBC Act as Critically Endangered, Endangered or Vulnerable.

Terminology	Definition
Vegetation Benchmarks Database	A database of benchmarks for vegetation classes and some PCTs. The Vegetation Benchmarks Database is published by OEH and is part of the BioNet Vegetation Classification.
Vegetation zone	A relatively homogenous area of native vegetation on a development site, land to be biodiversity certified or a biodiversity stewardship site that is the same PCT and broad condition state.
Wetland	An area of land that is wet by surface water or ground water, or both, for long enough periods that the plants and animals in it are adapted to, and depend on, moist conditions for at least part of their life cycle. Wetlands may exhibit wet and dry phases and may be wet permanently, cyclically or intermittently with fresh, brackish or saline water
Woody native vegetation	Native vegetation that contains an over-storey and/or mid-storey that predominantly consists of trees and/or shrubs

Appendix B Vegetation plot data

Table 29: Vegetation integrity data (Composition, Structure and function)

Plot location data							
Plot no.	PCT	Vegetation Zone	Condition	Zone	Eastings	Northings	Bearing
2	1281	1	Planted	56	332597	6248291	235

Composition (number of species)						
Plot no.	Tree	Shrub	Grass	Forb	Fern	Other
2	3	1	3	2	0	0

Structure (Total cover %)						
Plot no.	Tree	Shrub	Grass	Forb	Fern	Other
2	21	0.1	0.7	0.2	0	0

Function											
Plot no.	Large Trees	Hollow trees	Litter Cover	Length Fallen Logs	Tree Stem 5-9	Tree Stem 10-19	Tree Stem 20-29	Tree Stem 30-49	Tree Stem 50-79	Tree Regen	High Threat Weed Cover
2	1	1	13	0	0	1	0	0	1	0	6.5

Table 30: Change in vegetation integrity scores for each management zone

Veg zone	Management zone	Area ha	Composition	Structure	Function	Vegetation integrity score	Change in score	Total Change in integrity score
1	Direct	0.07	11.6	12.6	45.3	18.8	-18.8	--17.1
2	Landscaping	0.01	5.5	6	8.9	6.6	-12.1	-17.1

Table 31: Species matrix (species recorded by plot)

Stratum	Form	Species name	Exotic (*)	High Threat Weed (*)	Cover (%) Plot 1
U	TG	<i>Casuarina glauca</i>			1
U	TG	<i>Corymbia maculata</i>			10
G	GG	<i>Cyperus eragrostis</i>	*		0.5
G	F	<i>Dianella caerulea var. caerulea</i>			0.1

Stratum	Form	Species name	Exotic (*)	High Threat Weed (*)	Cover (%) Plot 1
G	GG	<i>Eleusine indica</i>	*	*	0.5
U	TG	<i>Eucalyptus saligna</i>			10
M	SG	<i>Grevillea sp.</i>			0.1
G	GG	<i>Lomandra longifolia</i>			0.1
G	GG	<i>Lomandra sp.</i>			0.1
G	GG	<i>Pennisetum sp.</i>	*	*	0.5
U	TG	<i>Pinus radiata</i>	*	*	1
G	GG	<i>Poa annua</i>	*		0.1
G	F	<i>Sonchus sp.</i>			0.1
G	GG	<i>Stenotaphrum secundatum</i>	*	*	5
G	GG	<i>Trifolium sp.</i>	*		0.1

Table 32: Other species recorded

Botanic Name	Common Name	Exotic/ Native*
<i>Agapanthus sp.</i>	Agapanthus	E
<i>Brachychiton acerifolius</i>	Illawarra Flame Tree	N
<i>Callistemon salignus</i>	Willow Bottlebrush	N
<i>Celtis sinensis</i>	Celtis	E
<i>Chlorophytum sp.</i>		E
<i>Doryanthes excelsa</i>	Gynea Lily	N
<i>Elaeocarpus reticulatus</i>	Blueberry Ash	N
<i>Eucalyptus microcorys</i>	Tallowwood	N
<i>Eucalyptus scoparia</i>		N
<i>Grevillea sp.</i>		N
<i>Hymenosporum flavum</i>		E
<i>Liquidambar sp.</i>		E
<i>Melaleuca quinquenervia</i>	Broad-leaf Melaleuca	N
<i>Murraya sp.</i>		E
<i>Nandina domestica</i>		E
<i>Prunus sp.</i>		E
<i>Syzygium sp.</i>		N

Botanic Name	Common Name	Exotic/ Native*
<i>Yucca sp.</i>		E

* ALL NATIVE SPECIES HAVE BEEN PLANTED

Appendix C Biodiversity credit report



BAM Credit Summary Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00015933/BAAS18159/19/00015935	Darlington Public School redevelopment SSD	28/04/2020
Assessor Name	Report Created	BAM Data version *
Belinda Jane Failes	30/04/2020	25
Assessor Number	BAM Case Status	Date Finalised
BAAS18159	Open	To be finalised
Assessment Revision	Assessment Type	
1	Major Projects	
* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.		

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	Vegetation integrity loss / gain	Area (ha)	Constant	Species sensitivity to gain class (for BRW)	Biodiversity risk weighting	Potential SAIL	Ecosystem credits
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Assessment Id	Proposal Name	Page 1 of 2
00015933/BAAS18159/19/00015935	Darlington Public School redevelopment SSD	



BAM Credit Summary Report

Sydney Turpentine - Ironbark forest								
1	1281_Planted	17.1	0.2	0.25	High Sensitivity to Potential Gain	2.50		2
							Subtotal	2
							Total	2

Species credits for threatened species

Vegetation zone name	Habitat condition (HC)	Area (ha) / individual (HL)	Constant	Biodiversity risk weighting	Potential SAIL	Species credits
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Appendix D EPBC Act Likelihood of Occurrence

An assessment of likelihood of occurrence was made for threatened and migratory species identified from the Protected Matters Search Tool. 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 site inspection and professional judgement. Some Migratory or Marine species identified from the Commonwealth database search have been excluded from the assessment, due to lack of habitat. 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 within the study area and in the vicinity is unsuitable for the species.

A test of significance was conducted for threatened species or ecological communities that were recorded within the study area or had a higher likelihood of occurring and were not recorded during the site visit. It is 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 and likely to be impacted is not considered to be important to the threatened species, particularly in relation to the amount of similar habitat remaining in the surrounding landscape. As such, a test of significance in reference to Commonwealth legislation was not considered necessary.

Information provided in the habitat associations’ column has primarily been extracted (and modified) from the Commonwealth Species Profile and Threats Database and the NSW Threatened Species Data Collection.

Scientific Name	Common Name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence on site	Habitat on site directly or indirectly impacted	Impact Assessment Required
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FAUNA

<i>Anthochaera phrygia</i>	Regent Honeyeater	CE	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. Eucalypt woodland and open forest, wooded farmland and urban areas with mature eucalypts, and riparian forests of <i>Casuarina cunninghamiana</i> (River Oak).	Potential - occasional seasonal foraging habitat features associated with this species were identified within the development site. The development site is not within an important breeding area for the species.	Yes (minor foraging only)	No – the species is highly mobile and preferable foraging habitat is available within the broader locality.
<i>Apus pacificus</i>	Fork-tailed Swift	M	Recorded in all regions of NSW. Riparian woodland., swamps, low scrub, heathland, saltmarsh, grassland, Spinifex sandplains, open farmland and inland and coastal sand-dunes.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Ardea ibis</i>	Cattle Egret	Mar	Widespread and common across NSW. Grasslands, wooded lands and terrestrial wetlands.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Botaurus poiciloptilus</i>	Australasian Bittern	E	Found over most of NSW except for the far north-west. Permanent freshwater wetlands with tall, dense vegetation, particularly <i>Typha</i> spp. (bullrushes) and <i>Eleocharis</i> spp. (spikerushes).	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	M	Summer migrant. Widespread in most regions of NSW, especially in coastal areas, but sparse in the south-central Western Plain and east Lower Western Regions. Shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation.	Unlikely - suitable habitat not identified within the site.	N/A	No

Scientific Name	Common Name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence on site	Habitat on site directly or indirectly impacted	Impact Assessment Required
<i>Calidris canutus</i>	Red Knot	E	Red Knots are widespread around the Australian coast, less in the south and with few inland records. Small numbers visit Tasmania and off-shore islands. It is widespread but scattered in New Zealand. They breed in North America, Russia, Greenland and Spitsbergen. Red Knots are a non-breeding visitor to most continents.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Calidris ferruginea</i>	Curlew Sandpiper	CE, M	Occurs along the entire coast of NSW, and sometimes in freshwater wetlands in the Murray-Darling Basin. Littoral and estuarine habitats, including intertidal mudflats, non-tidal swamps, lakes and lagoons on the coast and sometimes inland.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Calidris tenuirostris</i>	Great Knot	CE	Sheltered coastal habitats containing large intertidal mudflats or sandflats, including inlets, bays, harbours, estuaries and lagoons. Often recorded on sandy beaches with mudflats nearby, sandy spits and inlets, or exposed reefs or rock platforms.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Charadrius leschenaultii</i>	Greater Sand Plover	V	Entirely coastal in NSW, foraging on intertidal sand and mudflats in estuaries, roosting during high tide on sandy beaches or rocky shores.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Charadrius mongolus</i>	Lesser Sand Plover	E	Favours coastal areas including beaches, mudflats and mangroves where they forage. They may be seen roosting during high tide on sandy beaches or rocky shores.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V	Recorded from Rockhampton in Qld south to Ulladulla in NSW. Largest concentrations of populations occur in the sandstone escarpments of the Sydney basin and the NSW north-west slopes. Wet and dry sclerophyll forests, Cyprus Pine dominated forest, woodland, sub-alpine woodland, edges of rainforests and sandstone outcrop country.	Unlikely - there is no suitable breeding habitat such as caves, overhangs, mines or culverts present for the species to utilise the site.	N/A	No

Scientific Name	Common Name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence on site	Habitat on site directly or indirectly impacted	Impact Assessment Required
<i>Dasyornis brachypterus</i>	Eastern Bristlebird	E	There are three main populations: Northern - southern Qld/northern NSW, Central - Barren Ground NR, Budderoo NR, Woronora Plateau, Jervis Bay NP, Booderee NP and Beecroft Peninsula and Southern - Nadgee NR and Croajingalong NP in the vicinity of the NSW/Victorian border. Central and southern populations inhabit heath and open woodland with a heathy understorey. In northern NSW, habitat comprises open forest with dense tussocky grass understorey.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Dasyurus maculatus maculatus</i>	Spotted-tailed Quoll	E	Found on the east coast of NSW, Tasmania, eastern Victoria and north-eastern Qld. Rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline.	Unlikely – suitable habitat, in the form of maternal den sites or large areas of relatively intact vegetation, were not identified within the site.	N/A	No
<i>Diomedea antipodensis</i>	Antipodean Albatross	V	The Antipodean Albatross is marine, pelagic and aerial. It is endemic to New Zealand, however forages on cephalopods, fish and crustaceans in open water in the south-west Pacific Ocean, Southern Ocean and the Tasman Sea, notably off the coast of NSW.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Diomedea antipodensis gibsoni</i>	Gibson's Albatross	V	The Gibson's Albatross is marine, pelagic and aerial. It is endemic to New Zealand, however forages on cephalopods, fish and crustaceans in open water in the south-west Pacific Ocean, Southern Ocean and the Tasman Sea, notably off the coast of NSW.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Diomedea epomophora</i>	Southern Royal Albatross	V	The Southern Royal Albatross is marine and pelagic. During the non-breeding season it has a wide and possibly circumpolar distribution, ranging north to about 35°S. It is moderately common throughout the year in offshore waters of southern Australia, mostly off southeastern NSW, Victoria and Tasmania. It has been observed where the water surface temperature is 6 to 20°C.	Unlikely - suitable habitat not identified within the site.	N/A	No

Scientific Name	Common Name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence on site	Habitat on site directly or indirectly impacted	Impact Assessment Required
<i>Diomedea exulans</i>	Wandering Albatross	V	The Wandering Albatross is marine, pelagic and aerial. It occurs where water surface temperatures range from -2° to 24°C. In the Australasian region, it occurs inshore, offshore and in pelagic waters.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Diomedea sanfordi</i>	Northern Royal Albatross	E	This species breeds on Chatham Island and Taiaroa Head on the South Island of New Zealand. It can be found in open waters off SE Australia.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Epinephelus daemeli</i>	Black Rockcod	V	This species is a marine species.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Fregetta grallaria grallaria</i>	White-bellied Storm Petrel		The White-bellied Storm-Petrel breeds on small offshore islets and rocks in the Lord Howe Island group, including Roach Island and Balls Pyramid. In the non-breeding season, it reaches and forages over near-shore waters along the continental shelf of mainland Australia.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Gallinago hardwickii</i>	Latham's Snipe	M	Migrant to east coast of Australia, extending inland west of the Great Dividing Range in NSW. Freshwater, saline or brackish wetlands up to 2000 m above sea-level; usually freshwater swamps, flooded grasslands or heathlands.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Grantiella picta</i>	Painted Honeyeater	V	Widely distributed in NSW, predominantly on the inland side of the Great Dividing Range but avoiding arid areas. Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Heleioporus australiacus</i>	Giant Burrowing Frog	V	South eastern NSW and Victoria, in two distinct populations: a northern population in the sandstone geology of the Sydney Basin as far south as Ulladulla, and a southern population occurring from north of Narooma through to Walhalla, Victoria. Heath, woodland and open dry sclerophyll forest on a variety of soil types except those that are clay based.	Unlikely - suitable habitat not identified within the site.	N/A	No

Scientific Name	Common Name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence on site	Habitat on site directly or indirectly impacted	Impact Assessment Required
<i>Hirundapus caudacutus</i>	White-throated Needletail	M	All coastal regions of NSW, inland to the western slopes and inland plains of the Great Divide. Occur most often over open forest and rainforest, as well as heathland, and remnant vegetation in farmland.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Hoplocephalus bungaroides</i>	Broad-headed Snake	V	Largely confined to Triassic and Permian sandstones within the coast and ranges in an area within approximately 250 km of Sydney. Dry and wet sclerophyll forests, riverine forests, coastal heath swamps, rocky outcrops, heaths, grassy woodlands.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Isoodon obesulus</i>	Southern Brown Bandicoot (eastern)	E	Found in south-eastern NSW, east of the Great Dividing Range south from the Hawkesbury River. Heath or open forest with a heathy understorey on sandy or friable soils.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Lathamus discolor</i>	Swift Parrot	CE	Migrates from Tasmania to mainland in Autumn-Winter. In NSW, the species mostly occurs on the coast and south west slopes. Box-ironbark forests and woodlands.	Potential – foraging habitat features associated with this species were identified within the development site.	Yes (minor foraging only)	No – the species is highly mobile and more foraging habitat is available within the broader locality.
<i>Limosa lapponica</i>	Bar-tailed Godwit	M	Summer migrant to Australia. Widespread along the coast of NSW, including the offshore islands. Also numerous scattered inland records. Intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons, bays, seagrass beds, saltmarsh, sewage farms and saltworks, saltlakes and brackish wetlands near coasts, sandy ocean beaches, rock platforms, and coral reef-flats. Rarely inland wetlands, paddocks and airstrips.	Unlikely - suitable habitat not identified within the site.	N/A	No

Scientific Name	Common Name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence on site	Habitat on site directly or indirectly impacted	Impact Assessment Required
<i>Limosa lapponica menzbieri</i>	Northern Siberian Bar-tailed Godwit	CE	Mainly coastal, usually sheltered bays, estuaries and lagoons with large intertidal mudflats or sandflats. This species has been recorded across coastal Australia during non-breeding seasons.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Litoria aurea</i>	Green and Golden Bell Frog	V	Since 1990, recorded from ~50 scattered sites within its former range in NSW, from the north coast near Brunswick Heads, south along the coast to Victoria. Records exist west to Bathurst, Tumut and the ACT region. Marshes, dams and stream-sides, particularly those containing <i>Typha</i> spp. (bullrushes) or <i>Eleocharis</i> spp. (spikerushes). Some populations occur in highly disturbed areas.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Macronectes giganteus</i>	Southern Giant-Petrel	E	The Southern Giant-Petrel is marine bird that occurs in Antarctic to subtropical waters. It possibly concentrates north of 50° S in winter, as it is rare in waters of the southern Indian Ocean, but common off South America, South Africa, Australia and New Zealand. It occurs in both pelagic and inshore waters.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Macronectes giganteus</i>	Northern Giant-Petrel	V	The Northern Giant-Petrel is marine and oceanic. Visits areas off the Australian mainland mainly during the winter months (May-October). Immature and some adult birds are commonly seen during this period in offshore and inshore waters from around Frenamtle (WA) to around Sydney (NSW).	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Macquaria australasica</i>	Macquarie Perch	E	Habitat for the Macquarie perch is on the bottom or mid-water in slow-flowing rivers with deep holes, typically in the upper reaches of forested catchments with intact riparian vegetation. Macquarie perch also do well in some upper catchment lakes. In some parts of its range, the species is reduced to taking refuge in small pools which persist in midland–upland areas through the drier summer periods.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Monarcha melanopsis</i>	Black-faced Monarch	M	In NSW, occurs around the eastern slopes and tablelands of the Great Divide, inland to Coutts Crossing, Armidale, Widden Valley, Wollemi	Unlikely - habitat present is substantially degraded	N/A	No

Scientific Name	Common Name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence on site	Habitat on site directly or indirectly impacted	Impact Assessment Required
			National Park and Wombeyan Caves. It is rarely recorded farther inland. Rainforest, open eucalypt forests, dry sclerophyll forests and woodlands, gullies in mountain areas or coastal foothills, Brigalow scrub, coastal scrub, mangroves, parks and gardens.	such that this species is unlikely to utilise the site for foraging or breeding.		
<i>Motacilla flava</i>	Yellow Wagtail	M	Regular summer migrant to mostly coastal Australia. In NSW recorded Sydney to Newcastle, the Hawkesbury and inland in the Bogan LGA. Swamp margins, sewage ponds, saltmarshes, playing fields, airfields, ploughed land, lawns.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Myiagra cyanoleuca</i>	Satin Flycatcher	M	In NSW, widespread on and east of the Great Divide and sparsely scattered on the western slopes, with very occasional records on the western plains. Eucalypt-dominated forests, especially near wetlands, watercourses, and heavily-vegetated gullies.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Neophema chrysogaster</i>	Orange-bellied Parrot	CE	Breeds only in coastal south-west Tasmania and spends the winter in coastal Victoria and South Australia (March/April - October/November), mostly within 3 km of the coast. It nests in hollows in eucalypt trees which grow adjacent to its feeding plains.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Numenius madagascariensis</i>	Eastern Curlew	CE	Summer migrant to Australia. Primarily coastal distribution in NSW, with some scattered inland records. Estuaries, bays, harbours, inlets and coastal lagoons, intertidal mudflats or sandflats, ocean beaches, coral reefs, rock platforms, saltmarsh, mangroves, freshwater/brackish lakes, saltworks and sewage farms.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Pachyptila turtur subantarctica</i>	Fairy Prion	V	Breeds on Macquarie Island and a number of other subantarctic islands outside of Australia. Some individuals may migrate towards New Zealand and southern Australia in winter.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Petauroides volans</i>	Greater Glider	V	This population on the south coast of NSW is bounded by the Moruya River to the north, Coila Lake to the south and the Princes Highway	Unlikely - habitat present is substantially degraded such that this species is	N/A	No

Scientific Name	Common Name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence on site	Habitat on site directly or indirectly impacted	Impact Assessment Required
			and cleared land exceeding 700 m in width to the west. Eucalypt forests and woodlands.	unlikely to utilise the site for foraging or breeding.		
<i>Petrogale penicillata</i>	Brush-tailed Rock-wallaby	V	In NSW they occur from the Qld border in the north to the Shoalhaven in the south, with the population in the Warrumbungle Ranges being the western limit. Rocky escarpments, outcrops and cliffs with a preference for complex structures with fissures, caves and ledges.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Phascolarctos cinereus</i>	Koala	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. Eucalypt woodlands and forests.	Unlikely - Habitat present is substantially degraded such that this species is unlikely to utilise the site for foraging or breeding.	N/A	No
<i>Prototroctes macraena</i>	Australian Grayling	V	The historic distribution of the Australian Grayling included coastal streams from the Grose River southwards through NSW, Vic. and Tas. On mainland Australia, this species has been recorded from rivers flowing east and south of the main dividing ranges. This species spends only part of its lifecycle in freshwater, mainly inhabiting clear, gravel-bottomed streams with alternating pools and riffles, and granite outcrops but has also been found in muddy-bottomed, heavily silted habitat.	Unlikely - Habitat present is substantially degraded such that this species is unlikely to utilise the site for foraging or breeding.	N/A	No
<i>Pseudomys novaehollandiae</i>	New Holland Mouse	V	Fragmented distribution across eastern NSW. Open heathlands, woodlands and forests with a heathland understorey, vegetated sand dunes.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Pterodroma leucoptera leucoptera</i>	Gould's Petrel	E	The Australian subspecies of the Gould's Petrel breeds only on Cabbage Tree Island and on nearby Boondelbah Island, near Port Stephens, in NSW. Gould's Petrel is a pelagic marine species, spending much of its time foraging at sea and coming ashore only to breed.	Unlikely - suitable habitat not identified within the site.	N/A	No

Scientific Name	Common Name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence on site	Habitat on site directly or indirectly impacted	Impact Assessment Required
<i>Pterodroma neglecta neglecta</i>	Kermadec Petrel	V	The Kermadec Petrel (western) is a pelagic seabird that occurs in tropical, subtropical and temperate waters of the Pacific Ocean. In Australia, the Kermadec Petrel (western) breeds on Balls Pyramid, which lies to the south of Lord Howe Island, and on Phillip Island, in the Norfolk Island group. It occasionally reaches the eastern coast of mainland Australia.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	Along the eastern coast of Australia, from Bundaberg in Qld to Melbourne in Victoria. Subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops.	Likely – seasonal foraging habitat available within the study area. No camps identified within study area.	Yes (foraging only)	Yes
<i>Rhipidura rufifrons</i>	Rufous Fantail	M	Coastal and near coastal districts of northern and eastern Australia, including on and east of the Great Divide in NSW. Wet sclerophyll forests, subtropical and temperate rainforests. Sometimes drier sclerophyll forests and woodlands.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Rostratula australis</i>	Australian Painted Snipe	E	In NSW most records are from the Murray-Darling Basin. Other recent records include wetlands on the Hawkesbury River and the Clarence and lower Hunter Valleys. Swamps, dams and nearby marshy areas.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Sternula nereis nereis</i>	Australian Fairy Tern	V	The Fairy Tern (Australian) nests on sheltered sandy beaches, spits and banks above the high tide line and below vegetation. The subspecies has been found in embayments of a variety of habitats including offshore, estuarine or lacustrine (lake) islands, wetlands and mainland coastline.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Synemon plana</i>	Golden Sun Moth	CE	It is found in native open temperate grasslands and open grassy woodlands dominated by <i>Austrodanthonia</i> spp.	Unlikely - suitable habitat not identified within the site.	N/A	No

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<i>Thalassarche bulleri</i>	Buller's Albatross	V	This species breeds in New Zealand but regularly visits Australian marine waters.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Thalassarche bulleri platei</i>	Northern Buller's Albatross	V	This species is a non-breeding visitor to Australian waters. This species is mostly limited to the Pacific Ocean and Tasman Sea and not the east coast of Australia mainland.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Thalassarche cauta cauta</i>	Shy Albatross	V	Most common distribution occurs below 25° S in southeastern and Tasmanian shelf waters. During non-breeding seasons the Shy Albatross extends across the continental shelf in subantarctic and subtropical waters including NZ. It spends most of its life out to sea coming to shore to breed in September at Stradbroke Island in Qld and south to Tasmania.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Thalassarche cauta stadi</i>	White-capped Albatross	V	This species breeds predominately in New Zealand. It may forage in marine waters off eastern mainland Australia.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Thalassarche eremita</i>	Chatham Albatross	E	The Chatham Albatross is a marine species that breeds on Pyramid Rock, Chatham Islands, off the coast of New Zealand. It occurs in subantarctic and subtropical waters and has been noted in shelf-waters around breeding islands, over continental shelves during the non-breeding season, and occurs inshore and offshore.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Thalassarche impavida</i>	Campbell Albatross	V	This species is a non-breeding migrant to Australian waters. Forages in temperate waters.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Thalassarche melanophrys</i>	Black-browed Albatross	V	Commonly occurring in southern Australian waters in winter. Breeds on offshore Islands off southern Australia including Heard Is, Macquarie Is and McDonald Is, to name a few. It is a marine specialist	Unlikely - suitable habitat not identified within the site.	N/A	No

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<i>Thalassarche salvini</i>	Salvin's Albatross	V	foraging for fish, crustaceans and squid in Antarctic, subantarctic and temperate waters. The Salvin's Albatross is a non-breeding visitor to Australian waters.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Thinornis rubricollis rubricollis</i>	Hooded Plover (eastern)	V	This species utilises sandy beaches along south-eastern Australia.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Tringa nebularia</i>	Common Greenshank	M	Summer migrant to Australia. Recorded in most coastal regions of NSW; also widespread west of the Great Dividing Range. Terrestrial wetlands and sheltered coastal habitats.	Unlikely - suitable habitat not identified within the site.	N/A	No

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<i>Acacia bynoeana</i>	Bynoe's Wattle	V	Found in central eastern NSW, from the Hunter District (Morisset) south to the Southern Highlands and west to the Blue Mountains. Heath or dry sclerophyll forest on sandy soils.	Unlikely - the presence of this species was not identified (conspicuous species) and suitable habitat was not identified within the site.	N/A	No
<i>Acacia pubescens</i>	Downy Wattle	V	Restricted to the Sydney region around the Bankstown-Fairfield-Rookwood and Pitt Town area, with outliers occurring at Barden Ridge, Oakdale and Mountain Lagoon. Open woodland and forest, including Cooks River/Castlereagh Ironbark Forest, Shale/Gravel Transition Forest and Cumberland Plain Woodland. Occurs on alluviums, shales and at the intergrade between shales and sandstones.	Unlikely - the presence of this species was not identified (conspicuous species) and suitable habitat was not identified within the site.	N/A	No

Scientific Name	Common Name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence on site	Habitat on site directly or indirectly impacted	Impact Assessment Required
<i>Acacia terminalis</i> subsp. <i>terminalis</i>	Sunshine Wattle	E	Limited mainly to near-coastal areas from the northern shores of Sydney Harbour south to Botany Bay. Coastal scrub and dry sclerophyll woodland on sandy soils.	Unlikely - the presence of this species was not identified (conspicuous species) and it was determined that the habitat is substantially disturbed such that this species is unlikely to utilise the development site.	N/A	No
<i>Allocasuarina glareicola</i>	-	E	Primarily restricted to the Richmond (NW Cumberland Plain) district, but with an outlier population found at Voyager Point, Liverpool. Castlereagh woodland on lateritic soil. Found in open woodland with <i>Eucalyptus parramattensis</i> , <i>Eucalyptus fibrosa</i> , <i>Angophora bakeri</i> , <i>Eucalyptus sclerophylla</i> and <i>Melaleuca decora</i> .	Unlikely - the presence of this species was not identified (conspicuous species) and suitable habitat was not identified within the site.	N/A	No
<i>Asterolasia elegans</i>	-	E	Occurs north of Sydney, in the Baulkham Hills, Hawkesbury and Hornsby local government areas. Likely to occur in the western part of Gosford local government area. Hawkesbury sandstone. Found in sheltered forests on mid- to lower slopes and valleys.	Unlikely – the development site is not within the seven recognised populations of the species.	N/A	No
<i>Caladenia tessellata</i>	Thick Lip Spider Orchid	V	Currently known from two disjunct areas; one population near Braidwood on the Southern Tablelands and three populations in the Wyong area on the Central Coast. Grassy sclerophyll woodland on clay loam or sandy soils, or low woodland with stony soil.	Unlikely – the development site is not within the recognised populations of the species.	N/A	No
<i>Cryptostylis hunteriana</i>	Leafless Tongue Orchid	V	in NSW, recorded mainly on coastal and near coastal ranges north from Victoria to near Forster, with two isolated occurrences inland north-west of Grafton. Coastal heathlands, margins of coastal	Unlikely - suitable habitat not identified within the site.	N/A	No

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			swamps and sedgelands, coastal forest, dry woodland, and lowland forest.			
<i>Eucalyptus camfieldii</i>	Camfield's Stringybark	V	Narrow band from the Raymond Terrace area south to Waterfall. Coastal heath on shallow sandy soils overlying Hawkesbury sandstone, mostly on exposed sandy ridges.	Unlikely - the presence of this species was not identified (conspicuous species) and suitable habitat was not identified within the site.	N/A	No
<i>Eucalyptus nicholii</i>	Narrow-leaved Black Peppermint	V	In NSW it is known from Walcha-Niangala region (east of Tamworth) to just north of Glen Innes in NSW. This species is sparsely distributed but most commonly occurs in the central portions of its range.	Known – one individual of this species was identified within the development site. The development site is located outside of the geographic distribution for this species. This species is considered a planted specimen of unknown genetic source material.	Yes	Yes
<i>Eucalyptus scoparia</i>	Wallangarra White Gum	V	In NSW it is known from only three locations near Tenterfield. Open eucalypt forest, woodland and heaths on well-drained granite/rhyolite hilltops, slopes and rocky outcrops, typically at high altitudes.	Known – one individual of this species was identified within the development site. The development site is located outside of the geographic distribution for this species. This species is considered a planted specimen of unknown genetic source material.	Yes	Yes

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<i>Genoplesium baueri</i>	Bauer's Midge Orchid	E	Has been recorded from locations between Nowra and Pittwater and may occur as far north as Port Stephens. Dry sclerophyll forest and moss gardens over sandstone.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Melaleuca biconvexa</i>	Biconvex Paperbark	V	Only found in NSW, populations found in the Jervis Bay area in the south and the Gosford-Wyong area in the north. Damp places, often near streams or low-lying areas on alluvial soils.	Unlikely - the presence of this species was not identified (conspicuous species) and suitable habitat was not identified within the site.	N/A	No
<i>Persicaria elatior</i>	Tall Knotweed	V	In south-eastern NSW recorded from Mt Dromedary, Moruya State Forest near Turlinjah, the Upper Avon River catchment north of Robertson, Bermagui, and Picton Lakes. In northern NSW known from Raymond Terrace (near Newcastle) and the Grafton area (Cherry Tree and Gibberagee State Forests). Beside streams and lakes, swamp forest or disturbed areas.	Unlikely - the presence of this species was not identified, and suitable habitat was not identified within the site.	N/A	No
<i>Persoonia hirsuta</i>	Hairy Geebung	E	Scattered distribution around Sydney, from Singleton in the north, along the east coast to Bargo in the south and the Blue Mountains to the west. Sandy soils in dry sclerophyll open forest, woodland and heath on sandstone.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Pimelea curviflora</i> var. <i>curviflora</i>	-	V	Confined to the coastal area of the Sydney and Illawarra regions between northern Sydney and Maroota in the north-west and Croom Reserve near Albion Park in the south. Woodland, mostly on shale/lateritic soils over sandstone and shale/sandstone transition soils on ridgetops and upper slopes.	Unlikely - The presence of this species was not identified (conspicuous species) and it was determined that the habitat is substantially degraded such that this	N/A	No

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					species is unlikely to utilise the development site.		
<i>Pimelea spicata</i>	Spiked flower	Rice-	E	Two disjunct areas; the Cumberland Plain (Marayong and Prospect Reservoir south to Narellan and Douglas Park) and the Illawarra (Landsdowne to Shellharbour to northern Kiama). Well-structured clay soils. Eucalyptus moluccana (Grey Box) communities and in areas of ironbark on the Cumberland Plain. Coast Banksia open woodland or coastal grassland in the Illawarra.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Syzygium paniculatum</i>	Magenta Lilly	Lilly	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.	Unlikely - The presence of this species was not identified (conspicuous species) and it was determined that the habitat is substantially disturbed such that this species is unlikely to utilise the development site.	N/A	No
<i>Thesium australe</i>	Austral Toadflax		V	In eastern NSW it is found in very small populations scattered along the coast, and from the Northern to Southern Tablelands. Grassland on coastal headlands or grassland and grassy woodland away from the coast.	Unlikely - suitable habitat not identified within the site.	N/A	No

