

Wentworthville Northside West Clinic Extension Biodiversity Development Assessment Report

Erilyan Pty Ltd

eco
logical
AUSTRALIA
A TETRA TECH COMPANY

1300 646 131
www.ecoaus.com.au

DOCUMENT TRACKING

Project Name	Wentworthville Northside West Clinic Extension Biodiversity Development Assessment Report
Project Number	19168
Project Manager	Roshan Kalugalage
Accredited Assessor Certification	Diane Campbell (BAAS17069) 
Prepared by	Stacey Wilson
Reviewed by	Diane Campbell
Approved by	Diane Campbell
Status	Final
Version Number	V3
Last saved on	15 November 2021

This report should be cited as 'Eco Logical Australia Click here to enter a year. Wentworthville Northside West Clinic Extension Biodiversity Development Assessment Report. Prepared for Erilyan Pty Ltd.'

ACKNOWLEDGEMENTS

This document has been prepared by Eco Logical Australia Pty Ltd with support from Erilyan Pty Ltd

Disclaimer

This document may only be used for the purpose for which it was commissioned and in accordance with the contract between Eco Logical Australia Pty Ltd and Erilyan Pty Ltd. The scope of services was defined in consultation with Erilyan Pty Ltd, by time and budgetary constraints imposed by the client, and the availability of reports and other data on the subject area. Changes to available information, legislation and schedules are made on an ongoing basis and readers should obtain up to date information. Eco Logical Australia Pty Ltd accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report and its supporting material by any third party. Information provided is not intended to be a substitute for site specific assessment or legal advice in relation to any matter. Unauthorised use of this report in any form is prohibited.

Executive Summary

Eco Logical Australia Pty Ltd (ELA) was engaged by Eriyan Pty Ltd to prepare this Biodiversity Development Assessment Report (BDAR). This BDAR was prepared to meet the requirements of the Biodiversity Assessment Method (BAM) 2020. The proposed development is to be assessed as a State Significant Development (SSD-17899480) under Part 4.7 (or 5.1) of the EP&A Act. SEARs were issued on 13 May 2021.

The development site is at 3-27 Lytton St, Wentworthville NSW 2145 (Lot 1 DP 787784) within the Cumberland local government area (LGA).

The proposed development will involve an extension to Northside Clinic and will generally include the demolition of existing structures, construction of new buildings, carpark spaces, entry roads, pedestrian links and associated landscape works.

Vegetation within the development site was identified as planted native vegetation. Therefore, this BDAR was prepared under the streamlined assessment module for planted native vegetation in accordance with Appendix D of BAM 2020. Species credits are not required to offset the proposed impacts.

One planted threatened species were identified within the study area; *Eucalyptus nicholii* (Narrow-leaved Black Peppermint), listed as vulnerable under both the *Biodiversity Conservation Act 2016* (BC Act) and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This species does not naturally occur on the Cumberland Plain and is well outside its natural range. The development site also contains planted native vegetation which includes feed tree species (*Eucalyptus microcorys*, *Eucalyptus saligna*, *Corymbia citriodora* and *Lophostemon confertus*) these species were considered foraging habitat for *Pteropus poliocephalus* (Grey-headed Flying-fox). Planted native vegetation also represents marginal foraging habitat for the Grey-headed Flying Fox.

Two Matters of National Environmental Significance (MNES) were identified as having potential to be adversely affected by the proposed works. *Pteropus poliocephalus* (Grey-headed Flying-fox) is listed as Vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and it is considered that this species is likely to use some of the development site for foraging. *Eucalyptus nicholii* is also a MNES and will be impacted by the proposed works. Application of the Commonwealth Significant Impact Criteria was undertaken for the Grey-headed Flying-fox and *Eucalyptus nicholii* and the assessments concluded that the project is unlikely to have a significant impact on these species.

Contents

1. Introduction	1
1.1. General description of the development site	1
1.2. Brief description of the proposal	1
1.3. Development site footprint.....	1
1.4. Sources of information used	1
1.5. Legislative context.....	6
2. Landscape features.....	8
3. Native Vegetation	9
3.1. Survey Effort.....	9
3.2. Vegetation present.....	9
3.3. Use of the streamlined assessment module – Planted native vegetation	9
4. Threatened species habitat	15
4.1. Habitat assessment	15
4.2. Threatened species and potential habitat for threatened species	15
5. Prescribed impacts	1
5.1. Prescribed biodiversity impacts	1
6. Avoiding and Minimising Impacts on Biodiversity Values.....	3
6.1. Locating a project to avoid and minimise impacts on biodiversity values	3
6.1.1. Direct and indirect impacts.....	3
6.1.2. Prescribed biodiversity impacts.....	4
7. Assessment of Impacts	5
7.1. Assessment of direct impacts	5
7.2. Assessment of indirect impacts	5
7.3. Mitigating and managing direct and indirect impacts.....	7
7.4. Mitigating prescribed impacts	9
8. Impact Summary	14
8.1. Serious and Irreversible Impacts (SAI)	14
8.2. Impacts requiring offsets	14
8.3. Impacts not requiring offsets.....	14
8.4. Areas not requiring assessment.....	14
9. Consistency with legislation and policy.....	15
9.1. Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).....	15

9.1.1. <i>Eucalyptus nicholii</i> (Narrow-leaved Black Peppermint)	15
9.1.2. <i>Pteropus poliocephalus</i> (Grey-headed Flying-fox)	17
10. Conclusion	19
11. References	20
Appendix A Definitions	22
Appendix B : Species recorded within the subject site	26

List of Figures

Figure 1: Location Map.....	3
Figure 2: Site Map	4
Figure 3: Construction and Operational footprint	5
Figure 4: Vegetation and threatened species identified within the development site	12
Figure 5: Planted native species at the front of the Northside Clinic (Lytton Street).	13
Figure 6: Planted native vegetation with mulched understorey along western edge of lot boundary...13	13
Figure 7: Planted native species within carpark, including one threatened species <i>Eucalyptus nicholii</i> (Narrow-leaved Black Peppermint) (circled red).	14
Figure 8: Direct impacts to planted native vegetation and threatened flora species	12
Figure 9: Indirect impact zone.....	13

List of Tables

Table 1: Legislative context	6
Table 2: Landscape features.....	8
Table 3: Decision-making key for the assessment of Planted native vegetation in accordance with Appendix D of the BAM 2020.....	10
Table 4: Direct impacts on prescribed biodiversity impacts	1
Table 5: Locating a proposal to avoid and minimise impacts on vegetation and habitat	3
Table 6: Locating a proposal to avoid and minimise prescribed biodiversity impacts	4
Table 7: Direct impacts on threatened species and threatened species habitat	5
Table 8: Indirect impacts	5
Table 9: Measures proposed to mitigate and manage impacts.....	8
Table 10: Mitigation measures for prescribed biodiversity impacts.....	9
Table 11: Impacts to native vegetation and threatened species that do not require offsets	14
Table 12: Application of the Significant Impact Criteria to <i>Eucalyptus nicholii</i>	15
Table 13: Application of the Significant Impact Criteria to the Grey-headed Flying-fox	17

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
DAWE	Commonwealth Department of Agriculture, Water and the Environment
DPIE	NSW Department of Planning, Industry and Environment
ELA	Eco Logical Australia Pty Ltd
EP&A Act	<i>NSW Environmental Planning and Assessment Act 1979</i>
EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
FM Act	<i>NSW Fisheries Management Act 1994</i>
GIS	Geographic Information System
IBRA	Interim Biogeographic Regionalisation for Australia
LGA	Local Government Area
LLS	Local Land Service
NSW	New South Wales
PCT	Plant Community Type
SEPP	State Environmental Planning Policy
SSD	State Significant Development
TEC	Threatened Ecological Community
WM Act	<i>NSW Water Management Act 2000</i>

1. Introduction

This Biodiversity Development Assessment Report (BDAR) has been prepared by Diane Campbell an Accredited Person (BAAS17069) and Stacey Wilson. This report was prepared to meet the requirements of the Biodiversity Assessment Method (BAM) 2020 under the NSW *Biodiversity Conservation Act 2016* (BC Act). The proposed development is to be assessed as a State Significant Development (SSD-17899480) under Part 4.7 (or 5.1) of the EP&A Act. SEARs were issued on 13 May 2021. This BDAR assesses the biodiversity impacts of the proposed development in accordance with the requirements of the BC Act and *Biodiversity Conservation Regulation 2017* (BC Regulation).

Definitions of terminology used throughout this report are presented in Appendix A.

1.1. General description of the development site

The development site is at 23-27 Lytton St, Wentworthville NSW 2145 (Lot 1 DP 787784) and is within the Cumberland local government area (LGA). The development site is zoned R4: High Density Residential under the Holroyd LEP.

The development site is currently an existing residential medical facility with existing buildings, carparks, and landscaped gardens.

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

1.2. Brief description of the proposal

The site is proposed for redevelopment including the demolition of existing structures, construction of new buildings, carpark spaces, entry roads, pedestrian links, and associated landscape works.

1.3. Development site footprint

The subject land boundary and final proposal footprint, including the construction footprint, are presented in Figure 3.

1.4. Sources of information used

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

- NSW Government BioNet Vegetation Classification (2021)
- NSW BioNet / Atlas of NSW Wildlife 5 km database search (accessed 26 May 2021)
- The Native Vegetation of the Sydney Metropolitan Area v.3 (NSW Office of Environment & Heritage (OEH) 2016)
- NSW Government ePlanning Spatial Viewer
- Arboricultural Development Impact Assessment prepared by Birds Tree Consultancy (Dated 30 April 2021)
- Additional Geographic Information Systems (GIS) datasets including soil, topography, geology, and drainage.
- Threatened Biodiversity Data Collection
- NSW Planning Portal (DPIE)

- National Flying-fox monitor viewer (DAWE 2020)

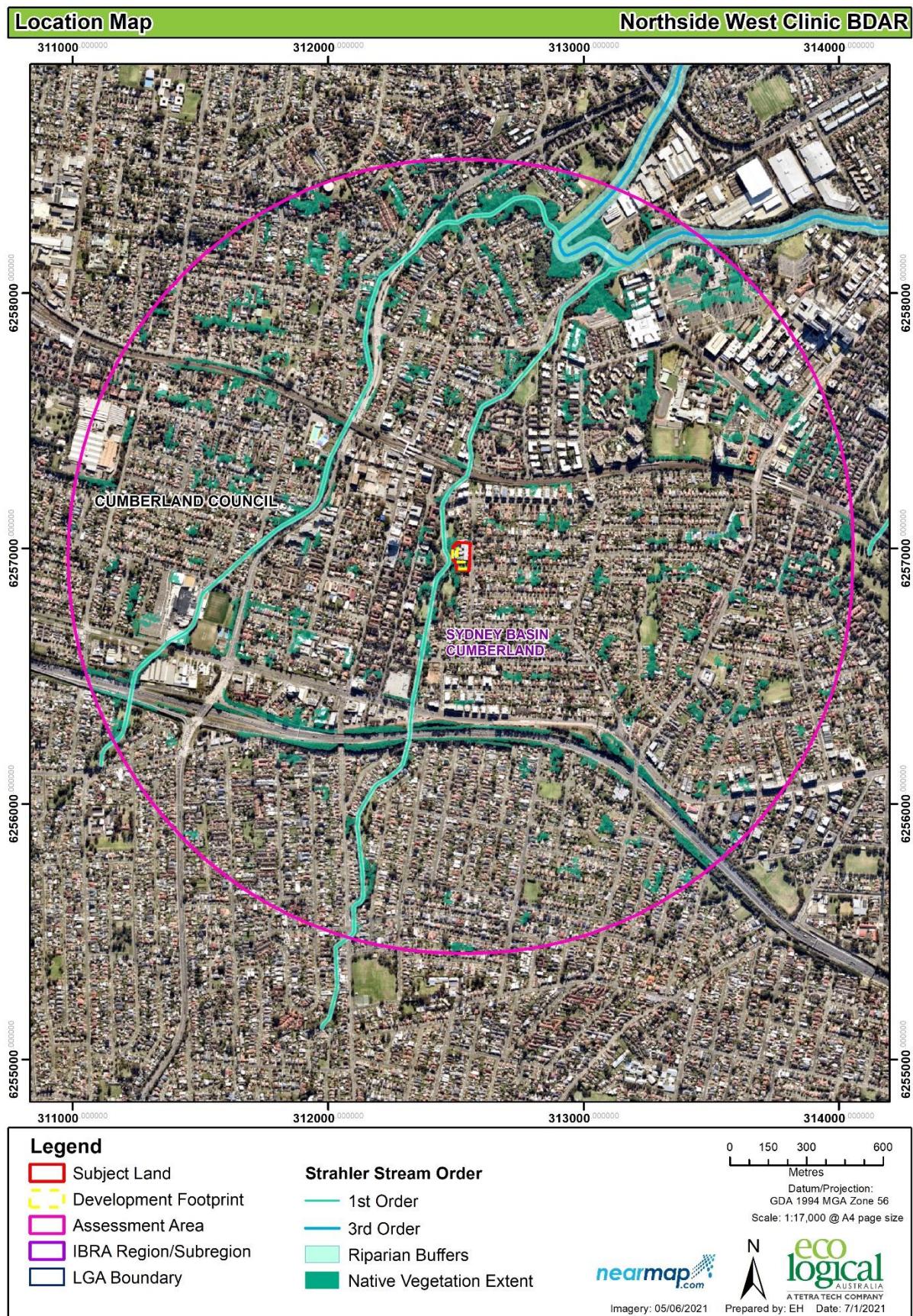


Figure 1: Location Map



Figure 2: Site Map



Figure 3: Construction and Operational footprint

1.5. Legislative context

Legislation relevant to the development site is outlined in Table 1.

Table 1: Legislative context

Name	Relevance to the project
Commonwealth	
<i>Environmental Protection and Biodiversity Conservation Act 1999</i>	Matters of National Environmental Significance (MNES) have been identified on or near the development site. This report assesses impacts to MNES and concludes that the development is not likely to have a significant impact on MNES.
State	
<i>Environmental Planning and Assessment Act 1979</i>	<p>The EP&A Act is the principal planning legislation for NSW. It provides a framework for the overall environmental planning and assessment of development proposals.</p> <p>The proposed development is to be assessed as a State Significant Development (SSD-17899480) under Part 4.7 (or 5.1) of the EP&A Act. SEARs were issued on 13 May 2021. This report addresses Biodiversity requirements as follows:</p> <p><i>"11. Biodiversity</i></p> <ul style="list-style-type: none"> • <i>Provide a Biodiversity Development Assessment Report (BDAR), that assesses the biodiversity impacts of the proposed development in accordance with the requirements of the Biodiversity Conservation Act 2016, Biodiversity Conservation Regulation 2017 and Biodiversity Assessment Method, except where a BDAR waiver has been issued in relation to the development or the development is located on biodiversity certified land.</i> • <i>Where a BDAR is not required, because a BDAR waiver has been issued, in relation to the development, provide:</i> <ul style="list-style-type: none"> ○ <i>a copy of the BDAR waiver and demonstrate that the proposed development is consistent with that covered in BDAR waiver.</i> ○ <i>an assessment of flora and fauna impacts where significant vegetation or flora and fauna values would be affected by the proposed development."</i>
<i>Biodiversity Conservation Act 2016</i>	The proposed development is to be assessed as a SSD and therefore requires submission of a Biodiversity Development Assessment Report.
<i>Local Land Services Amendment Act 2016</i>	The LLS Act does not apply to areas of the state to which the SEPP Vegetation applies. The Vegetation SEPP applies to the Cumberland local government area.
<i>Fisheries Management Act 1994</i>	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.
<i>Water Management Act 2000</i>	The project does not involve works on waterfront land. A Controlled Activity Approval under s91 of the WM Act is not required.
Planning Instruments	
<i>State Environmental Planning Policy (Coastal Management) 2018</i>	The proposed development is located on land to which this SEPP does not apply.
<i>State Environmental Planning Policy (Koala Habitat Protection) 2021</i>	This SEPP does not apply to the Cumberland LGA in which the development site is located.

Name	Relevance to the project	
Holroyd Environment Plan 2013	Local Plan (LEP)	<p>The subject site is zoned R4: High Density Residential under the Holroyd LEP.</p> <p>The subject site is not located on the Biodiversity (or Riparian) overlay and therefore does not require any further considerations under the Holroyd LEP.</p>
Holroyd Development Control Plan (DCP) 2013		<p>There are no further provisions from the Holroyd DCP requiring assessment in relation to the subject site.</p>

2. Landscape features

The site-based method was applied for this assessment; therefore, the assessment area is the 1,500 m buffer surrounding the outside edge of the boundary of the subject land.

The landscape features considered for this assessment are presented in Table 2, Figure 1 and Figure 2.

Table 2: Landscape features

Landscape feature	Description	Data source
IBRA Region(s)	The assessment area and development site are within the Sydney Basin IBRA Region.	Interim Biogeographic Regionalisation for Australia, Version 7
IBRA subregion(s)	The assessment area and development site are within the Cumberland IBRA subregion.	Interim Biogeographic Regionalisation for Australia, Version 7
NSW (Mitchell) Landscapes	Cumberland	NSW (Mitchell) Landscapes - version 3.1 (DPIE 2016)
Rivers and streams	No rivers or streams are present within the development site.	NSW LPI Waterway mapping, Aerial imagery
Estuaries and wetlands	The development site and assessment area do not contain estuaries or wetlands.	NSW directory of important wetlands
Connectivity of different areas of habitat	Marginal connectivity is present within the assessment area throughout the vegetated corridors of Finlaysons Creek, to the west of the development site (Figure 1). Vegetation within the development site is fragmented and lacks connectivity. At best, planted vegetation may provide stepping-stone habitat linking vegetation within the development site to that within the nearby riparian corridors for highly mobile species.	Aerial imagery
Geological features of significance and soil hazard features	The development site and assessment area do not contain any geological features of significance (i.e., karst, caves, crevices, cliffs etc.) or soil hazard features.	Aerial imagery
Biodiversity Values	The development site and assessment area do not include areas mapped under the NSW Biodiversity Values Map (accessed 22 June 2021).	Biodiversity Values Map and Threshold Tool
Areas of Outstanding Biodiversity Value	The development site does not include areas of declared Areas of Outstanding Biodiversity Values (accessed 22 June 2021).	Register of Declared Areas of Outstanding Biodiversity Value (DPIE 2021)

3. Native Vegetation

3.1. Survey Effort

Vegetation survey was undertaken within the development site by Stacey Wilson on 26 May 2021.

The site was traversed on foot to:

- Determine if any of the vegetation met descriptions for any plant community types (PCTs) and associated threatened ecological communities (TECs)
- Search for any threatened flora species that may be present
- Search for hollows, nests or dreys, or any other habitat feature that may be important for threatened fauna species.

Mapping was undertaken using ArcGIS Collector on a mobile phone. Where any habitat features or trees of potential importance were observed, waypoints were taken using ArcGIS Collector. Tree numbers were noted and compared with the Arboricultural Impact Assessment Report (Birds Tree Consultancy 2021).

3.2. Vegetation present

The development site and footprint did not contain any naturally occurring or remnant native vegetation. This means that no PCTs could be assigned to the vegetation present (Figure 4). The vegetation present contained a mix of planted native and non-native plants with some contained within landscaped garden beds. (Figure 5 to Figure 7).

The canopy contained a wide variety of intermixed native and non-native trees and included *Eucalyptus microcorys* (Tallowwood), *Eucalyptus saligna* (Sydney Blue Gum), *Cinnamomum camphora* (Camphor Laurel), *Casuarina glauca* (Swamp Oak), *Cupressus sempervirens* (Mediterranean Cypress) with *Corymbia citriodora* (Lemon Scented Gum), *Lophostemon confertus* (Brush Box) and *Triadica sebifera* (Chinese Tallow). Smaller trees included *Melaleuca quinquenervia* (Broad-leaved Paperbark), *Jacaranda mimosifolia* (Jacaranda), *Callistemon viminalis* (Weeping Bottlebrush) and *Callistemon citrinus* (Crimson Bottlebrush). There was also one planted threatened species, *Eucalyptus nicholii* (Narrow-leaved Black Peppermint) within a landscaped garden bed in the centre of the carpark area (Figure 7). This species does not naturally occur on the Cumberland Plain and is well outside its natural range. This species has been used extensively in the Sydney metropolitan area as part of landscaping projects, typical of the 1970s.

Garden beds also contained a mix of native and non-native plants including *Grevillea banksii* (Red Silky Oak), *Lomandra longifolia* (Spiny-headed Mat-rush), *Plumbago auriculata* (Blue Plumbago), *Asplenium australasicum* (Bird's Nest Fern), *Dites bicolor* (African Lily), *Nephrolepis cordifolia* (Fishbone Fern) and *Nandina domestica* (Heavenly Bamboo). The occasional cosmopolitan native species such as *Dichondra repens* (Kidney Weed) and *Hardenbergia violacea* (Purple Coral Pea) were present.

3.3. Use of the streamlined assessment module – Planted native vegetation

Due to the presence of planted native vegetation within the development site, this BDAR was prepared under the streamlined assessment module for planted native vegetation in accordance with Appendix

D of BAM 2020. This appendix contains a decision-making key which provides a framework for the assessment of planted native vegetation. This framework is applied to the proposal in Table 3.

Table 3: Decision-making key for the assessment of Planted native vegetation in accordance with Appendix D of the BAM 2020

Question	Response and justification
<p>1) Does the planted native vegetation occur within an area that contains a mosaic of planted and remnant native vegetation and which can be reasonably assigned to a PCT known to occur in the same IBRA subregion as the proposal?</p> <ul style="list-style-type: none"> i Yes – the planted native vegetation must be allocated to the best-fit PCT and the BAM must be applied. ii No – Go to 2. 	<p>No – some listed canopy species do not occur naturally on the Cumberland Plain (e.g., <i>Corymbia citriodora</i> and <i>Eucalyptus nicholii</i>). All species on site are not remnant and would not naturally occur together within the same PCT.</p>
<p>2. Is the planted native vegetation:</p> <ul style="list-style-type: none"> a. Planted for the purpose of environmental rehabilitation or restoration under an existing conservation obligation listed in BAM Section 11.9(2.), and b. The primary objective was to replace or regenerate a plant community type of a threatened plan species or its habitat? <ul style="list-style-type: none"> i Yes – the planted native vegetation must be assessed in accordance with Chapters 4 and 5 of the BAM ii No – Go to 3. 	<p>No – planted native vegetation was not representative of a PCT.</p>
<p>3. Is the planted / translocated native vegetation individuals of a threatened species or other native species planted/ translocated for the purpose of providing threatened species habitat under one of the following:</p> <ul style="list-style-type: none"> a. A species recovery project b. <i>Saving our Species</i> project c. Other types of government funded restoration project d. Condition of consent for a development approval that required those species to be planted or translocated for the purpose of providing threatened species habitat e. Legal obligation as part of a condition of ruling of court. This includes regulatory directed or ordered remedial plantings (e.g. Remediation Order for clearing without consent issued under the BC Act or the Native Vegetation Act) f. Ecological rehabilitation to re-establish a PCT or TEC that was, or is carried out under a mine operations plan, or g. Approved vegetation management plan (e.g. as required as part of a Controlled Activity Approval for works on waterfront land under the NSW <i>Water Management Act 2000</i>)? <ul style="list-style-type: none"> i Yes – the planted native vegetation must be assessed in accordance with Chapters 4 and 5 of the BAM ii No – Go to 4. <ul style="list-style-type: none"> • 	<p>No – the tree species present are commonly used as street trees and are not representative of a PCT or TEC, therefore it is unlikely that they were planted or translocated for the purposes of a. through g.</p>
<p>4. Was the planted native vegetation (including individuals of a threatened flora species) undertaken voluntarily for revegetation, environmental rehabilitation, or restoration within a legal obligation to secure or provide for management of the native vegetation?</p> <ul style="list-style-type: none"> i Yes – Go to D.2 Assessment of planted native vegetation for threatened species habitat (the use of Chapters 4 and 5 of the BAM are not required to be applied) ii No – Go to 5. <ul style="list-style-type: none"> • 	<p>No – the planted native vegetation forms part of the landscaping for the existing Northside Clinic and includes non-native vegetation.</p>

Question	Response and justification
<p>5. Is the planted native vegetation (including individuals of a threatened flora species) planted for functional, aesthetic, horticultural or plantation forestry purposes? This includes examples such as; windbreaks in agricultural landscapes, roadside plantings (including street trees, median stripes, roadside batters), landscaping in parks, gardens and sport fields/complexes, macadamia plantations or teatree farms?</p> <ul style="list-style-type: none"> i Yes – Go to D.2 Assessment of planted native vegetation for threatened species habitat (the use of Chapters 4 and 5 of the BAM are not required to be applied) ii No – Go to 6. <p>6. Is the planted native vegetation a species listed as a widely cultivated native species on a list approved by the Secretary of the Department (or an officer authorised by the Secretary)?</p> <ul style="list-style-type: none"> i Yes – Go to D.2 Assessment of planted native vegetation for threatened species habitat (the use of Chapters 4 and 5 of the BAM are not required to be applied) ii No – There may be other types of occurrences of planted native vegetation that do not easily fit into the decision-making key above. 	<p>Yes – the planted native vegetation forms part of the landscaping for the existing Northside Clinic.</p> <p>N/A</p>



Figure 4: Vegetation and threatened species identified within the development site



Figure 5: Planted native species at the front of the Northside Clinic (Lytton Street).



Figure 6: Planted native vegetation with mulched understorey along western edge of lot boundary.



Figure 7: Planted native species within carpark, including one threatened species *Eucalyptus nicholii* (Narrow-leaved Black Peppermint) (circled red).

4. Threatened species habitat

4.1. Habitat assessment

There were few fauna habitat types present due to the modified and maintained nature of the development site. The trees within the site have been planted and are mid-height (to approximately 14 – 18 metres) (Walker and Hopkins, 1990), no remnant trees occur. In general, the development of hollows can take decades and up to 200 years (Mackowski 1984; Menkorst 1984; and Scotts 1991). It is therefore highly unlikely that there would be hollows not visible from the ground, since the trees are relatively young.

The garden beds do provide some habitat for fauna species, but these are likely to be peri-urban and disturbance tolerant since the Northside Clinic is operational and has visitors using the walking paths around the gardens, and cars moving around the carpark space and entry and exit points.

A few common bird species were recorded flying over the development site, including *Manorina melanocephala* (Noisy Miner), *Trichoglossus moluccanus* (Rainbow Lorikeet) and *Gymnorhina tibicen* (Australian Magpie). None of these are listed as threatened under either the BC Act or EPBC Act.

There were no areas of rock outcrop, waterways, or coarse woody debris. This means that fauna habitats were highly limited and unlikely to support populations of any threatened fauna species. There were no hollows likely to support breeding for mammals such as possums or gliders or hollows to support roosting for any birds, including owls.

The outsides of the buildings were inspected for any obvious signs of entry / exit points for microchiropteran bats. There were no obvious holes in the roof area that could be seen from the ground. The Northside Clinic has recently undergone significant refurbishment and is highly unlikely to contain any habitat for roosting or breeding microchiropteran bats. Furthermore, the clinic is operational, and it is unlikely that roosting in the buildings would provide a quiet and dark enough space suitable for bats.

4.2. Threatened species and potential habitat for threatened species

One planted threatened species were identified within the study area; *Eucalyptus nicholii* (Narrow-leaved Black Peppermint), listed as vulnerable under both the BC Act and EPBC Act. This species does not naturally occur on the Cumberland Plain and is well outside its natural range.

The development site contains planted native vegetation which includes feed tree species (*Eucalyptus microcorys*, *Eucalyptus saligna*, *Corymbia citriodora* and *Lophostemon confertus*) for *Pteropus poliocephalus* (Grey-headed Flying-fox), which is listed as vulnerable under both the BC Act and EPBC Act. Planted native vegetation within the development site (0.14ha) represents marginal foraging habitat for the species. No breeding habitat (camps) would be affected. The nearest Nationally Important Flying-fox Camp is located approximately 2 km to the east in Parramatta Park, with an individual count of 2,500-9,999 in August 2020 (DAWE 2021).

5. Prescribed impacts

5.1. Prescribed biodiversity impacts

The development site has the prescribed biodiversity impacts as outlined in Chapter 6 of the BAM 2020 (Table 4).

Table 4: Direct impacts on prescribed biodiversity impacts

Prescribed biodiversity impact	Description (Nature, extent and frequency)	Consequences	Justification	Additional information
Karst, caves, crevices, cliffs, rocks and other geological features of significance		N/A – the development site does not contain geological features of significance		
Human made structures		N/A – Human-made structures within the development site are considered highly unlikely to contain any habitat for roosting or breeding microchiropteran bats.		
Non-native vegetation	Non-native trees (e.g., <i>Jacaranda mimosifolia</i>) may provide seasonal foraging habitat for Grey-headed Flying-fox.	Non-native trees available as foraging habitat for Grey-headed Flying-fox within the development site are not of great importance given that similar vegetation is readily available within the assessment area.	The proposed development would result in the permanent removal of non-native vegetation during construction as a one-off event. The removal of this habitat is considered a short-term impact because the proposed development includes new landscaping as part of the extension upgrades.	The removal of small areas of exotic vegetation is unlikely to affect the persistence of Grey-headed Flying-fox in the locality or bioregion. Similar vegetation and larger tracts of native vegetation are available within the assessment area. These areas are just as likely, if not more likely to be used than the exotic trees within the development site.
Habitat connectivity	Connectivity within the study area may provide stepping-stone dispersal habitat for highly mobile threatened species, including Grey-headed Flying-fox.	Connectivity within the development site is limited to planted vegetation which provides, at most, stepping-stone dispersal habitat within the fragmented landscape of the Northside Clinic. Large areas of higher quality	The proposed development would result in the permanent removal of fragmented dispersal habitat for highly mobile species during construction. This one-off event is considered a short-term impact because the proposed development	The consequences of proposed impacts to stepping-stone dispersal habitat would be minimal.

Prescribed biodiversity impact	Description (Nature, extent and frequency)	Consequences	Justification	Additional information
		native vegetation are present within the assessment area. Therefore, this habitat is not considered important to connectivity within the bioregion.	includes new landscaping as part of the Northside Clinic upgrades. This new landscape would provide similar connectivity.	
Water bodies, water quality and hydrological processes	N/A – the development site does not contain water bodies and would not result in prescribed impacts to hydrological processes			
Wind turbine strikes on protected animals	N/A – the development does not involve the construction of wind turbines.			
Vehicle strikes	N/A – the proposed development would be unlikely to result in vehicle strike during construction or during operation as a medical clinic.			

6. Avoiding and Minimising Impacts on Biodiversity Values

6.1. Locating a project to avoid and minimise impacts on biodiversity values

6.1.1. Direct and indirect impacts

The development has been located and designed in a way which avoids and minimises impacts as outlined in Table 5.

Table 5: Locating a proposal to avoid and minimise impacts on vegetation and habitat

BAM location and design principles	How addressed and justification
Locating the proposal (including ancillary facilities) in areas lacking biodiversity values	The surface works will affect planted vegetation and stepping-stone dispersal habitat. However, these habitat features are not considered to be of major importance. Furthermore, similar habitat features are abundant within the assessment area and vegetation will be reinstated within the development site as part of the proposed development, which includes landscaping.
Locating the proposal (including ancillary facilities) in areas where the native vegetation or threatened species habitat is in the poorest condition	The proposal has been focused on areas that have previously been cleared or contain planted vegetation. Habitat for the threatened Grey-headed Flying-fox present within the subject land is considered marginal. Habitat in the development site for this species comprises planted native and non-native vegetation. This vegetation has been managed and contains little in the way of structural and species diversity.
Locating the proposal (including ancillary facilities) in areas that avoid habitat for species with a high biodiversity risk weighting or land mapped on the important habitat map, or native vegetation that is a TEC, a highly cleared PCT or an entity at risk of a serious and irreversible impact (SAll)	The proposal would not affect areas mapped on the important habitat map, a TEC or a highly cleared PCT. The proposal would remove marginal foraging habitat for Grey-headed Flying-fox, however similar foraging habitat is widely available within the assessment area. No SAll entities were identified within the development site.
Locating the proposal in areas outside of the buffer area around breeding habitat features such as nest trees or caves	The subject land does not contain breeding habitat features such as nest trees, caves, ledges or rocky overhangs.
Reducing the proposal's clearing footprint by minimising the number and type of facilities	The objective of the proposal is to extend and upgrade the existing Northside Clinic, therefore minimising the number and type of facilities is not a feasible design principle. The proposal's clearing footprint makes use of areas which are currently cleared or contain buildings. Clearing would be limited to planted vegetation not corresponding to a native PCT.
Designing a proposal to include actions and activities that provide for rehabilitation, ecological restoration and/or ongoing maintenance of retained areas of native vegetation, threatened species, threatened ecological communities and their habitat on the subject land	The proposal would only remove planted vegetation. The proposal includes landscaping which would also consist of planted native and exotic species similar to those proposed for removal.

6.1.2. Prescribed biodiversity impacts

The development has been located and designed in a way which avoids and minimises prescribed biodiversity impacts as outlined in Table 6.

Table 6: Locating a proposal to avoid and minimise prescribed biodiversity impacts

BAM Section 7.2 location and design principles	How addressed / Justification
Locate surface works and design measures to avoid direct impacts on the habitat features identified as potential prescribed biodiversity impacts	The surface works will affect non-native vegetation and stepping-stone dispersal habitat. However, these habitat features are not considered to be of great importance. Furthermore, similar habitat features are abundant within the assessment area and will be reinstated as part of the proposed development, which includes landscaping.
Locate subsurface works, in both the horizontal and vertical planes, and design measures to avoid and minimise operations beneath the habitat features identified as potential prescribed biodiversity impacts	N/A – the development site does not include geological features of significance or groundwater-dependent plant communities
Locate the proposal to avoid severing or interfering with corridors connecting different areas of habitat and migratory flight paths, to important habitat or local movement pathways	The proposed development will remove planted vegetation which provides, at most, stepping stone dispersal habitat within the fragmented landscape of the Northside Clinic. This habitat will be reinstated as part of the proposed development, which includes landscaping.
Optimise the proposal layout and include design elements to minimise interactions with threatened entities	N/A – the proposed development does not include the construction of structures which could regularly interact with threatened entities (e.g., wind turbines).
Locate the proposal to avoid impacts on water bodies or hydrological processes and design measures that maintain hydrological processes that sustain threatened entities and control the quality of water released from the site, to avoid or minimise downstream impacts on threatened entities	N/A – the development site does not contain water bodies and would not result in prescribed impacts to hydrological processes.
Engineering solutions, such as proven techniques to: <ul style="list-style-type: none"> minimise fracturing of bedrock underlying features of geological significance or groundwater-dependent communities and their supporting aquifers restore connectivity and movement pathways 	N/A – the development site does not have prescribed impacts that require engineering solutions.

7. Assessment of Impacts

7.1. Assessment of direct impacts

The proposed development would directly affect 0.14 ha of planted native vegetation which does not conform to a PCT or TEC. One threatened flora species would be removed (Table 7). A map displaying the direct impacts to planted native vegetation and threatened flora species is displayed in Figure 8. Species credits are not required to offset the proposed impacts in accordance with Appendix D.2 of BAM 2020.

The development site would not directly affect any threatened fauna species or breeding habitat for threatened fauna species. The planted vegetation may be potential foraging habitat for Grey-headed Flying Fox.

Table 7: Direct impacts on threatened species and threatened species habitat

Species	Common Name	Direct impact number of individuals / habitat (ha)	BC Act listing status	EPBC Act status
<i>Eucalyptus nicholii</i>	Narrow-leaved Black Peppermint	1	Vulnerable	Vulnerable

7.2. Assessment of indirect impacts

An indirect impact area of 2 m was applied adjoining the direct impact area. The indirect impact zone is shown in Figure 9. The indirect impacts of the development are outlined in Table 8.

Table 8: Indirect impacts

Indirect impact	Description (nature, extent, and frequency)	Biodiversity affected	Duration/ Timing	Consequence
Inadvertent impacts on adjacent habitat or vegetation	N/A - There is no native vegetation adjacent to the development site.	N/A	N/A	N/A
Reduced viability of adjacent habitat due to edge effects	N/A – Vegetation adjacent to the development site is limited to urban plantings.	N/A	N/A	N/A
Reduced viability of adjacent habitat due to noise, dust or light spill	N/A – Vegetation adjacent to the development site is limited to urban plantings.	N/A	N/A	N/A
Transport of weeds and pathogens from the site to adjacent vegetation	N/A – Vegetation adjacent to the development site is limited to urban plantings and contains a similar exotic, maintained	N/A	N/A	N/A

Indirect impact	Description (nature, extent, and frequency)	Biodiversity affected	Duration/ Timing	Consequence
	understorey which is currently subject to weeds			
Increased risk of starvation or exposure and loss of shade or shelter	N/A – the development site contains a marginal amount of foraging habitat for highly mobile species, the removal of the vegetation is unlikely to cause starvation or exposure or loss of shelter for these species.	N/A	N/A	N/A
Loss of breeding habitat	N/A – no breeding habitat for fauna identified within the development site. Development site does not provide suitable habitat for threatened flora species.	N/A	N/A	N/A
Trampling of threatened species	N/A – one threatened tree species was identified on site and may be wholly removed as part of the works, if retained, this species would not be at risk of trampling.	N/A	N/A	N/A
Inhibition of nitrogen fixation and increased soil salinity	N/A – The proposal is unlikely to exacerbate the inhabitation of nitrogen fixation or increased soil salinity given the that the development site is significantly disturbed.	N/A	/N/A	N/A
Fertiliser drift	N/A – Vegetation adjacent to the development site is limited to urban plantings.	N/A	N/A	N/A
Rubbish dumping	Illegal dumping by construction crews, may affect local fauna which visit site intermittently	Potential for rubbish to spread via wind outside the development site.	Potential to occur at any time throughout	Rubbish is unlikely to remain into the operational phase of the proposal

Indirect impact	Description (nature, extent, and frequency)			Biodiversity affected	Duration/ Timing	Consequence
					construction phases	
Wood collection	N/A –	The development site is significantly disturbed; such that woody debris is absent.		N/A	N/A	N/A
Removal and disturbance of rocks including bush rock	N/A –	The development site is significantly disturbed, such that bush rocks are absent.		N/A	N/A	N/A
Increase in predators	N/A –	The development site is unlikely to result in an increase in predators.		N/A	N/A	N/A
Increase in pest animal populations	N/A –	The development site is unlikely to result in an increase in pest animal populations.		N/A	N/A	N/A
Changed fire regimes	N/A – The proposal site would not change fire regimes.		N/A		N/A	N/A
Disturbance to specialist breeding and foraging habitat, e.g. beach nesting for shorebirds.	N/A –	The development site does not contain specialists breeding or foraging habitat.	N/A		N/A	N/A
Sedimentation and contaminated and/or nutrient rich run-off	N/A – The proposal is unlikely to exacerbate the inhabitation of nitrogen fixation or increased soil salinity given the that the development site is significantly disturbed.		N/A		N/A	N/A

7.3. Mitigating and managing direct and indirect impacts

Measures proposed to mitigate and manage impacts at the development site before, during and after construction are outlined in Table 9.

Table 9: Measures proposed to mitigate and manage impacts

Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
Measures for mitigating impacts related to the displacement of resident fauna:						
timing works to avoid critical life cycle events such as breeding or nursing	Moderate	Minor	Carry out pre-clearance survey to ensure fauna are not present prior to clearing	Impacts to fauna during nesting/nursing avoided	During clearing works	Project Manager
Measures for mitigating indirect impacts on native vegetation and habitat include, but are not limited to:						
temporary fencing to protect significant environmental features such as riparian zones	Moderate	Minor	Bunting tape or similar to be used to delineate the TPZ of any no-go areas outside the development site to protect any trees to be retained.	Any trees to be retained within the development footprint will be identified and minimise the accidental removal/ impact to trees.	During clearing works	Project Manager / Ecologist
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 subject land. Washdown protocols for vehicles should be observed to prevent the entry of soil borne pathogens such as Phytophthora. Weed management to be undertaken where required.	Spread of weeds and pathogens prevented	During clearing works and Post-construction	Project Manager

7.4. Mitigating prescribed impacts

Measures proposed to mitigate and manage prescribed biodiversity impacts at the development site before, during and after construction are outlined in Table 27.

Table 10: Mitigation measures for prescribed biodiversity impacts

Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
Scheduling timing of construction activities to avoid critical life cycle events	N/A	N/A	N/A	N/A	N/A	N/A
Instigating clearing protocols including pre-clearing surveys, daily surveys and staged clearing, and using a trained ecological or licensed wildlife handler during clearing, construction and maintenance activities for human made structures and non-native vegetation	Moderate	Minor	Pre-clearance survey of non-native vegetation to be removed and identification/location of active nests by a suitably qualified ecologist	Any fauna utilising habitat within the subject land will be identified and managed to ensure clearing works minimise the likelihood of injuring resident fauna	During clearing works	Project Manager / Ecologist
Retaining habitat features within the subject land or relocating them to adjacent retained remnant vegetation	Minor	N/A	The proposed development will remove planted vegetation which provides, at most, stepping stone dispersal habitat within the fragmented landscape of the Northside Clinic. This habitat will be reinstated as part of the proposed development, which includes landscaping.	Stepping stone foraging habitat is reinstated for highly mobile species	Post construction	Project Manager
Installing artificial connectivity measures to re-	Minor – connectivity within the development	N/A	The proposed development will remove planted vegetation which	Stepping stone foraging habitat is	Post construction	Project Manager

Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
establish connections between habitat and favoured transport corridors	site is already highly fragmented		provides, at most, stepping stone dispersal habitat within the fragmented landscape of the Northside Clinic. This habitat will be reinstated as part of the proposed development, which includes landscaping.	reinstated for highly mobile species		
Erecting temporary fencing to protect significant environmental features such as karst, caves, rock outcrops and water bodies	N/A	N/A	N/A	N/A	N/A	N/A
Replacing habitat provided by human made structures and non-native vegetation with alternative habitat	N/A	N/A	N/A	N/A	N/A	N/A
Sediment barriers or sedimentation ponds to control the quality of water released from the site into the receiving environment	N/A	N/A	N/A	N/A	N/A	N/A
Staff training and site briefing to communicate environmental features to be protected and measures implemented to protect them	N/A	N/A	N/A	N/A	N/A	N/A
Ecological restoration, rehabilitation	N/A	N/A	N/A	N/A	N/A	N/A

Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
<p>actions and/or maintenance of retained native vegetation on or adjacent to the subject land</p> <p>Development control measures that regulate the types of activities that can occur in native vegetation and habitat adjacent to residential development including prohibiting the collection of bush rocks</p>	N/A	N/A	N/A	N/A	N/A	N/A



Figure 8: Direct impacts to planted native vegetation and threatened flora species



Figure 9: Indirect impact zone

8. Impact Summary

8.1. Serious and Irreversible Impacts (SAII)

The development does not have any Serious and Irreversible Impacts (SAII).

8.2. Impacts requiring offsets

There are no impacts that require offsets

8.3. Impacts not requiring offsets

The impacts of the development not requiring offset for native vegetation and threatened species are outlined in Table 11.

Table 11: Impacts to native vegetation and threatened species that do not require offsets

Native vegetation / threatened species and or habitat impacted	Direct impact (ha / number of individuals)	Rationale
Planted vegetation	0.14 ha	Under Appendix D: Streamlined assessment module – Planted native vegetation of the BAM 2020, the use of Chapters 4 and 5 are not required to be applied.
<i>Eucalyptus nicholii</i> (Narrow-leaved Black Peppermint)	1 individual	Species credits are not required to offset the proposed impacts in accordance with Appendix D.2 of BAM 2020.
Foraging habitat for <i>Pteropus poliocephalus</i> (Grey-headed Flying-Fox).	0.14 ha	The 0.14 ha of planted native vegetation does not conform to a PCT or TEC and under Chapters 4 and 5 of the BAM Species credits are not required to offset the proposed impacts in accordance with Appendix D.2 of BAM 2020.

8.4. Areas not requiring assessment

There are no areas that do not require assessment.

9. Consistency with legislation and policy

9.1. Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

The EPBC Act establishes a regime for assessing and regulating the environmental impact of activities (including development) where a Matters of National Environmental Significance (MNES) may be affected. Under the EPBC 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 Minister. The Commonwealth Department of Agriculture, Water and the Environment (DAWE), is responsible for administering the EPBC Act.

The process includes undertaking an Assessment of Significance for listed threatened species and ecological communities that represent a matter of MNES that will be impacted as a result of the proposed action. The Significant Impact Guidelines 1.1 – Matter of National Environmental Significance’ published by DAWE (2009a) provide overarching guidance on determining whether an action is likely to have a significant impact on a MNES.

The following two MNES were assessed in accordance with the Significant Impact Guidelines 1.1:

- *Eucalyptus nicholii* (Narrow-leaved Black Peppermint)
- *Pteropus poliocephalus* (Grey-headed Flying-Fox).

9.1.1. *Eucalyptus nicholii* (Narrow-leaved Black Peppermint)

Eucalyptus nicholii is listed as vulnerable under the EPBC Act. This species is commonly planted and was identified within the development site, which is well outside its natural range. The species is sparsely distributed but widespread on the New England Tablelands from Nundle to north of Tenterfield, being most common in central portions of its range. Significant Impact Criteria for this species are applied in Table 12.

Table 12: Application of the Significant Impact Criteria to *Eucalyptus nicholii*

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 <i>Note: An ‘important population’ is a population that is necessary for a species’ long-term survival and recovery.</i>	The <i>Eucalyptus nicholii</i> proposed to be removed was planted, and therefore does form part of an important population. Consequently, it is considered unlikely that the proposed action would 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 NSW North Coast. The <i>Eucalyptus nicholii</i> proposed to be removed was planted outside of its natural range. Therefore, it does not form part of an important population. Consequently, the proposed action would 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 therefore does not form part of an important population. Consequently, it is considered

Criterion	Question	Response
		unlikely that the proposed action would fragment an existing important population.
4)	<p>Adversely affect habitat critical to the survival of a species</p> <p><i>Note: 'Habitat critical to the survival of a species or ecological community' refers to areas that are necessary:</i></p> <ul style="list-style-type: none"> • <i>for activities such as foraging, breeding, roosting, or dispersal</i> • <i>for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)</i> • <i>to maintain genetic diversity and long-term evolutionary development, or</i> • <i>for the reintroduction of populations or recovery of the species or ecological community.</i> 	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 not considered to be important or critical to the survival of the species. Consequently, it is considered that the proposed action would not adversely affect habitat critical to the survival of the species.
5)	Disrupt the breeding cycle of an important population	Not applicable, specimen is not part of an important population.
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 proposed action would 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 development site is in a disturbed and modified condition and does not represent known habitat for this threatened species. Consequently, the proposed action would be 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 Commonwealth SPRAT Profile for this species lists the following threats: seed collectors, inappropriate grazing and 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 <i>Eucalyptus nicholii</i> specimen would not interfere substantially with the recovery of this species.
Conclusion	Is there likely to be a significant impact?	No. The proposed action is unlikely to have a significant impact on <i>Eucalyptus nicholii</i> because it was planted in a disturbed site outside of its natural distribution.

9.1.2. *Pteropus poliocephalus* (Grey-headed Flying-fox)

The Grey-headed Flying-fox is listed as vulnerable under the EPBC Act. Grey-headed Flying-foxes are generally found within 200 km of the eastern coast of Australia, from Rockhampton in Queensland to Adelaide in South Australia. This species was not identified within the development site during surveys, however vegetation within the development site as the potential to provide seasonal foraging habitat. No camps were identified within the development site. Significant Impact Criteria for this species are applied in Table 13.

Table 13: Application of the Significant Impact Criteria to the Grey-headed Flying-fox

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)	<p>Lead to a long-term decrease in the size of an important population of a species</p> <p><i>Note: An 'important population' is a population that is necessary for a species' long-term survival and recovery.</i></p>	No roosting habitat (camps) will be affected by the proposed action. The proposed action would affect 0.14 ha of native vegetation, some of which comprises marginal foraging habitat for the Grey-headed Flying-fox. The Grey-headed Flying-fox is recorded as travelling long distances (up to 50 km) on feeding forays. Given the proximity of more suitable habitat in connective vegetation within the assessment area, the removal of this potential foraging habitat would not lead to the long-term decrease in the size of an important population of Grey-headed Flying-fox.
2)	Reduce the area of occupancy of an important population	The proposed action would affect 0.14 ha of potential foraging habitat for this species. The Grey-headed Flying-fox is not known to occupy the development site in the form of a camp but may occasionally forage within the development site. The Grey-headed Flying-fox is recorded as travelling long distances on feeding forays and would likely utilise the potential foraging habitat outside of the development site.
3)	Fragment an existing important population into two or more populations	According to the National Recovery Plan for the Grey-headed Flying-fox 2021, "the Grey-headed Flying-fox is considered to be a single, mobile population with individuals distributed across Queensland, New South Wales, Victoria, South Australia, Tasmania and the ACT." The proposed action would not fragment an existing important population into two or more populations. No camps would be affected by the proposed action and other areas of foraging habitat are available for this highly mobile species within the region.
4)	<p>Adversely affect habitat critical to the survival of a species</p> <p><i>Note: 'Habitat critical to the survival of a species or ecological community' refers to areas that are necessary:</i></p> <ul style="list-style-type: none"> • <i>for activities such as foraging, breeding, roosting, or dispersal</i> • <i>for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of</i> 	The National Recovery Plan for the Grey-headed Flying-fox 2021 identifies 'a continuous temporal sequence of productive foraging habitats, linked by migration corridors or stopover habitats, and suitable roosting habitat within nightly commuting distance of foraging areas' as habitat critical to the survival of the species. The proposed action would affect 0.14 ha of native vegetation, some of which may represent habitat critical survival to this species. However, this impact is considered unlikely to have an adverse effect given that the species is recorded as travelling long distances (50 km) on feeding forays and

Criterion	Question	Response
	<p><i>the species or ecological community, such as pollinators)</i></p> <ul style="list-style-type: none"> • <i>to maintain genetic diversity and long-term evolutionary development, or</i> • <i>for the reintroduction of populations or recovery of the species or ecological community.</i> 	similar habitat is available adjacent to the development site.
5)	Disrupt the breeding cycle of an important population	The proposed action would not disrupt the breeding cycle of the Grey-headed Flying-fox given that no camps would be affected by the proposed action and suitable foraging habitat is available adjacent to the development site.
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 proposed action would remove 0.14 ha of vegetation, including marginal foraging habitat for the Grey-headed Flying-fox. It is unlikely that the extent of this vegetation removal would cause the species to decline because suitable habitat is available adjacent to the development site.
7)	Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	The proposed action is unlikely to result in the establishment of an invasive species that is harmful to the Grey-headed Flying-fox.
8)	Introduce disease that may cause the species to decline, or	Grey-headed Flying-fox are reservoirs for the Australian bat lyssavirus, Hendra Virus and Menangle virus which can cause clinical disease and mortality in Grey-headed Flying-fox. The proposed action would not increase the incidence of this disease.
9)	Interfere substantially with the recovery of the species.	The proposed action would remove suitable foraging habitat for this species; however this would not interfere substantially with recovery objectives listed in the National Recovery Plan for the Grey-headed Flying-fox 2021. The proposed action would not affect any camps and suitable foraging habitat is available adjacent to the development site.
Conclusion	Is there likely to be a significant impact?	<p>No. The proposed action is unlikely to have a significant impact on the Grey-headed Flying-fox for the following reasons:</p> <ul style="list-style-type: none"> • No camps would be removed by the proposed action. • More suitable foraging habitat for this highly mobile species is available adjacent to the development site and throughout the region.

10. Conclusion

Eco Logical Australia Pty Ltd (ELA) was engaged by Eriyan Pty Ltd to prepare a BDAR to meet the requirements of the BAM 2020 and the SEARs pertaining to biodiversity for State Significant Development (SSD-17899480) issued on 13 May 2021.

The development site at 23-27 Lytton St, Wentworthville NSW 2145 (Lot 1 DP 787784) and is within the Cumberland local government area (LGA). The site was traversed on foot to:

- Determine if any of the vegetation met descriptions for any plant community types (PCTs) and associated threatened ecological communities (TECs)
- Search for any threatened flora species that may be present
- Search for hollows, nests or dreys, or any other habitat feature that may be important for threatened fauna species.

Vegetation within the development site was identified as planted native vegetation. Therefore, this BDAR was prepared under the streamlined assessment module for planted native vegetation in accordance with Appendix D of BAM 2020. Species credits are not required to offset the proposed impacts. Planted native vegetation will be reinstated as part of the proposed development.

This BDAR assesses prescribed biodiversity impacts which are considered minor. ELA does not recommend offsets to these residual unavoidable impacts. Mitigation measures relating to the displacement of resident fauna and indirect impacts on native vegetation and are provided in Section 7.3 and 7.4.

One planted threatened species was identified within the study area:

- *Eucalyptus nicholii* (Narrow-leaved Black Peppermint), listed as vulnerable under both the BC Act and EPBC Act

This species does not naturally occur on the Cumberland Plain and is well outside its natural range.

The development site contains planted native vegetation which includes feed tree species (*Eucalyptus microcorys*, *Eucalyptus saligna*, *Corymbia citriodora* and *Lophostemon confertus*) for *Pteropus poliocephalus* (Grey-headed Flying-fox), which is listed as vulnerable under both the BC Act and EPBC Act. Planted native vegetation within the development site (0.14 ha) represents marginal foraging habitat for the species. No breeding habitat (camps) would be affected.

In accordance with Appendix D of BAM 2020, no offsets are required for impacts to planted *Eucalyptus nicholii* or Grey-headed Flying-fox habitat. Significant Impact Criteria were also applied for each of these species as they are all listed as MNES under the EPBC Act. It was concluded that the proposed action would not result in a significant impact to any of the three species.

11. References

Department of Agriculture, Water and the Environment (DAWE) 2020a. Protected Matters Search Tool [online]. Available: <http://www.environment.gov.au/epbc/protect/index.html> (Accessed: March 2020).

Department of Agriculture, Water and the Environment (DAWE) 2020c. Species Profile and Threats Database. Available <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>.

Department of Agriculture, Water and the Environment (DAWE) 2021. *National Flying-fox monitoring viewer*. Available: <https://www.environment.gov.au/webgis-framework/apps/ffc-wide/ffc-wide.jsf> (Accessed 3 May 2021).

Department of Environment and Climate Change. (DECC) 2002, 'Descriptions for NSW (Mitchell) Landscapes Version 2'. Sourced February 2020 from: <http://www.environment.nsw.gov.au/resources/conservation/landscapesdescriptions.pdf>

Department of Environment and Climate Change. 2002, 'Descriptions for NSW (Mitchell) Landscapes Version 2'. Sourced 7 November 2017 from: <http://www.environment.nsw.gov.au/resources/conservation/landscapesdescriptions.pdf>

Department of Planning, Industry and Environment (DPIE). 2020a. Threatened Species Database (5 km radius search). OEH Sydney, NSW. (Data viewed May 2020).

Department of Planning, Industry and Environment (DPIE). 2020b. Threatened Species Profiles. Available: <http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?>

Department of Planning, Industry and Environment (DPIE). 2020c. Biodiversity Values Map and Threshold Tool (online). Available: <https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BOSETMap> (Accessed March 2020).

Department of the Environment (DotEE) 2013 Matters of National Environmental Significance Significant impact guidelines 1.1 Environment Protection and Biodiversity Conservation Act 1999.

Department of the Environment and Energy (DotEE) 2009. Draft National Recovery Plan for the Grey-headed Flying-fox (*Pteropus poliocephalus*), Commonwealth of Australia 2017.

Mackowski, C.M. 1984, *The ontogeny of hollows in Blackbutt (*Eucalyptus pilularis*) and its relevance to the management of forests for Possums, Gliders and Timber, Possums and Gliders*, A.P. Smith and I.D. Hume (eds.), Australian Mammal Society, Sydney. pp 553-67.

Menkhorst, P. W. 1984, *Use of Nest Boxes by Forest Vertebrates in Gippsland: Acceptance, Preference and Demand*, . Australian Wildlife Research, 11, pp 255-264.

Scotts, D. J. 1991, *Old-growth forests: their ecological characteristics and value to forest-dependent vertebrate fauna of south-east Australia, Conservation of Australia's Forest Fauna.*, Lunney, D. (ed.), The Royal Zoological Society of New South Wales, Sydney. pp 147-159.

Walker J & Hopkins MS, 1990. *Vegetation*. In RC McDonald, RF Isbell, JG Speight, J Walker & MS Hopkins (eds), Australian Soil and Land Survey Field Handbook. Inkata Press, Melbourne.

Appendix A Definitions

The following terminology has been used throughout this report for the purposes of describing the impacts of the proposal in the context of a biodiversity assessment in accordance with the NSW Biodiversity Assessment Method 2020. This terminology may or may not align with other technical documents associated with the proposed development.

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.
Extent of occurrence (EOO)	Measures the spatial spread of a taxon to determine the degree to which risks from threatening factors could impact an entire population and is not intended to be an estimate of the amount of occupied or potential habitat.
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).
NSW (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 DPIE, 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.
Residual impact	An impact on biodiversity values after all reasonable measures have been taken to avoid, minimise or mitigate the impacts of development. Under the BAM, an offset requirement is determined 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 DPIE 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 : Species recorded within the subject site

Scientific Name	Common Name
<i>Casuarina glauca</i>	Swamp Oak
<i>Melaleuca quinquenervia</i>	Broad-leaved Paperbark
<i>Cotula australis</i>	Common Cotula
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush
<i>Plumbago auriculata</i>	Blue Plumbago
<i>Eucalyptus microcorys</i>	Tallowwood
<i>Eucalyptus nicholii</i>	Narrow-leaved Black Peppermint
<i>Nandina domestica</i>	Heavenly Bamboo
<i>Ehrharta erecta</i>	Panic Veldtgrass
<i>Callistemon citrinus</i>	Crimson Bottlebrush
<i>Cupressus sempervirens</i>	Mediterranean Cypress
<i>Hedera helix</i>	Common Ivy
<i>Solanum nigrum</i>	Blackberry Nightshade
<i>Corymbia citriodora</i>	Lemon-scented Gum
<i>Lophostemon confertus</i>	Brush Box
<i>Triadica sebifera</i>	Chinese Tallow
<i>Callistemon salignus</i>	Willow Bottlebrush
<i>Casuarina cunninghamiana</i>	River Oak
<i>Eucalyptus saligna</i>	Sydney Blue Gum
<i>Bidens pilosa</i>	Cobblers Pegs
<i>Russelia equisetiformis</i>	Coral Plant
<i>Clivia miniata</i>	Bush Lily
<i>Cinnamomum camphora</i>	Camphor Laurel
<i>Anredera cordifolia</i>	Madeira Vine
<i>Dichondra repens</i>	Kidney Weed
<i> Hardenbergia violacea</i>	Purple Coral Pea
<i>Magnolia grandiflora</i>	Southern Magnolia
<i>Asplenium australasicum</i>	Bird's Nest fern
<i>Nephrolepis cordifolia</i>	Fishbone Fern
<i>Grevillea banksii</i>	Red Silky Oak
<i>Davallia canariensis</i>	Deer Foot Fern
<i>Arabidopsis thaliana</i>	Mouse-ear Cress
<i>Phormium tenax</i>	New Zealand Flax
<i>Sonchus oleraceus</i>	Common Sowthistle

Scientific Name	Common Name
<i>Jacaranda mimosifolia</i>	Jacaranda
<i>Dietes bicolor</i>	African Lily
<i>Syagrus romanzoffiana</i> (seedling)	Queen Palm



eco
logical
AUSTRALIA
A TETRA TECH COMPANY



1300 646 131
www.ecoaus.com.au