



Biodiversity Development Assessment Report

Indigenous Centre of Excellence
Western Sydney University, Parramatta South
Campus
171 Victoria Road, Parramatta, NSW 2150

26 July 2024



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Executive Summary

Land Eco Consulting (Land Eco) was commissioned by Western Sydney University ('the proponent') to prepare this Biodiversity Development Assessment Report (BDAR) for the proposed development of an Indigenous Centre of Excellence at Western Sydney University, 171 Victoria Road, Parramatta, NSW 2150, (Lot 100/-/DP816829) (the 'Subject Property').

The Applicant seeks development consent for the construction of a new state-of-the-art Indigenous Centre of Excellence as a new tertiary education facility on campus. The Indigenous Centre of Excellence project is funded by the NSW Government's Western Sydney Infrastructure Grants Program in association with Western Sydney University. The new Indigenous Centre of Excellence will be an important asset for both the University and local community alike, providing a space for the commitment to advancing Indigenous education, leadership, and reconciliation. The Indigenous Centre of Excellence will stand as a symbol of recognition of Indigenous land and the University's relationship with Indigenous communities. The Indigenous Centre of Excellence will represent a celebration of tens of thousands of years of Indigenous knowledges and histories, a legacy that the University is honoured to nurture and promote through further education opportunities for students and communities. The extent of this development is referred to as the 'Subject Land'.

The Subject Land is currently known as the P1 Car Park and is situated in the northern portion of the wider site campus. The Subject Land is approximately 12,150m² in size and is broadly rectangular in shape. It currently comprises of a hardstand area that accommodates approximately 284 car parking spaces. There is an existing single storey Central Energy Plant to the west of the development area which serves the wider campus; it remains outside of the scope of this SSDA.

The Subject Land is historically cleared with the exception of one mature *Melaleuca decora* (listed as Tree 40 (*Melaleuca linariifolia*) within the Arboricultural Impact Assessment (Tree Survey 2024)). The vegetation (excluding *Melaleuca decora*) within the Subject Land consists of historically planted non-indigenous native and exotic (non-native) trees with an exotic dominant understorey.

The proposed development is a State Significant Development (SSD-64916225) pursuant to Part 4, Division 4.7, Section 4.36(2) of the *Environmental Planning and Assessment Act 1979* (EP&A). The proponent has commissioned this BDAR to accompany the proposal in accordance with the Planning Secretary's Environmental Assessment Requirements (SEARs) for the proposed development and address the requirements of the NSW Biodiversity Offset Scheme (BOS). The proposed development requires the submission of a streamlined 'Planted Native Vegetation' BDAR as stipulated under the *NSW Biodiversity Conservation Act 2016* and in accordance with the Biodiversity Assessment Method (BAM). The BDAR is required to be undertaken by an accredited assessor to assess the impacts of the proposal.

Historical imagery indicates that the Subject Property was almost entirely cleared for use as a bitumen carpark, with the exception of one (1) mature *Melaleuca decora* (**Figure 5**). This remnant *Melaleuca decora* is proposed for retention. The remainder of the trees within the Subject Land appear to be historically planted for functional and aesthetic purposes. Pursuant of Appendix D of the BAM, these trees have been excluded from offset estimates, though have been considered for their potential to provide threatened species habitat and mitigation measures have been proposed where appropriate. In accordance with Appendix D of the BAM, no ecosystem credits or species credits are required to offset the proposed impacts, and as such, there is no assessment for the development in the BAM calculator (OEH 2024a).

The proposed development has been designed to avoid and minimise impacts on biodiversity values in keeping with the purposeful use of the Subject Land and its position within the City of Parramatta. This has been accomplished by siting the development on land which has been almost entirely historically cleared and currently functions as a carpark within a disturbed locality. The understorey vegetation of the Subject Land is exotic dominant. The development has been designed to enable the retention of the remnant *Melaleuca decora* (Tree Survey 2024) (JCB Architects 2024).

No plant community types (PCT) occur within the Subject Land, as the vegetation consisted of a mixed assemblage of planted native and exotic trees over an exotic dominant understorey layer. The soil profile has been historically modified leaving low potential for regeneration of native vegetation.

A total of zero (0) Ecosystem Credits must be retired to offset the biodiversity impacts of the proposed development (**Table 1**).

No threatened species have been recorded on the Subject Land.

A total of zero (0) Species Credits are required to be retired to offset the biodiversity impacts of the proposal.

Direct impacts will be limited to the removal of 0.48 ha of planted exotic and non-indigenous native trees and an exotic dominant understorey vegetation layer. Minor indirect impacts may influence adjoining habitat in vegetation proposed for retention, however these are not considered likely to cause an adverse impact beyond the status quo. No Serious and Irreversible Impact (SAIL) entities are considered likely to be impacted as a result of the proposed development.

In addition to offsetting, the *Biodiversity Conservation Act 2016* and its regulations requires that an applicant takes all reasonable effort to avoid and minimise potential impacts of the proposal on local biodiversity values. A series of mitigation and management measures have been identified, which are to be implemented as part of any construction environmental management plan produced for the site. These include measures to:

- Ensure all contractors employed to work within the Subject Land are suitably qualified, experienced and informed of the sensitive ecological features and potentially occurring threatened species;
- Assign a Project Ecologist to conduct and oversee all ecological compliance requirements associated with conducting a proposed development in line with all relevant state and commonwealth legislation and guidelines;

- Have an ecologist present during the clearing of threatened species habitat required for the proposed activity;
- Incorporate locally indigenous flora species in soft landscaping associated with the development;
- Implement vertebrate pest control during construction and operation of the development;
- Implement all relevant biological hygiene protocols and requirements as per NSW Government guidelines;
- Implement ongoing management of priority weeds according to statutory requirements; and
- Implement appropriate sound barriers, vegetation protection fencing, stockpiling and sediment control during construction.

The proponent is not required to retire biodiversity offset credits to meet their obligations to offset the residual impacts of the SSD.

The total number of Ecosystem Credits is presented (**Table 1**) and the total number of Species Credits is presented (**Table 2**).

Table 1. Impacts that require an offset - ecosystem credits

Vegetation zone	PCT	TEC/EC	Impact area (ha)	Number of ecosystem credits required
N/A	N/A	N/A	0	0

Table 2. Impacts that require an offset - species credits

Common name	Scientific name	Loss of habitat (ha) or individuals	Number of species credits required
N/A	N/A	0	0

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Glossary

Acronym/ Term	Definition
BAM	New South Wales Biodiversity Assessment Method
BOS	New South Wales Biodiversity Offset Scheme
BOSET	New South Wales Biodiversity Offset Scheme Entry Tool
BC Act	New South Wales Biodiversity Conservation Act 2016
BDAR	Biodiversity Development Assessment Report
CEEC	Critically Endangered Ecological Community
DA	Development Application pursuant to section 4 of the NSW Environmental Planning and Assessment Act 1979
DCP	Development Control Plan
Development	The use of land, and the subdivision of land, and the carrying out of a work, and the demolition of a building or work, and the erection of a building, and any other act, matter or thing referred to in section 26 that is controlled by an environmental planning instrument but does not include any development of a class or description prescribed by the regulations for the purposes of this definition (Environmental Planning and Assessment Act 1979).
DCCEW	Department of Climate Change, Energy, the Environment and Water
EEC	Endangered Ecological Community
EPBC Act	Commonwealth Environment Protection and Biodiversity Conservation Act 1999
EP&A Act	NSW Environmental Planning and Assessment Act 1979
ha	Hectares
km	Kilometre
KTP	Key Threatening Process (as listed in the BC Act)
LEP	Local Environment Plan
LGA	Local Government Area
Locality	The area within a 10km radius of the Subject Land. The same meaning when describing a local population of a species or local occurrence of an ecological community.
m	Metres
mm	Millimetres
NPWS	NSW National Parks and Wildlife Services
NSW	New South Wales
OEH	Office of Environment and Heritage (now the Department of Planning Industry and Environment)
Proposal	The development, activity or action proposed.
ROTAP	Rare or Threatened Australian Plants
SEPP	State Environmental Planning Policy
SSD	State Significant Development
Subject Land	Maximum extent of the proposed development within the Subject Property i.e. carpark P1 on the Corner of Victoria Road and Railway Street, Parramatta, NSW 2116
Subject Property	171 Victoria Road Parramatta NSW 2150 (100/-/DP816829)
Threatened species, populations and ecological communities	Species, populations and ecological communities specified in Schedules 1, 1A and 2 and <i>threatened species, population or ecological community</i> means a species, population or ecological community specified in any of those Schedules.
WSU	Western Sydney University

Declarations

i. Certification under clause 6.15 Biodiversity Conservation Act 2016

I certify that this report has been prepared based on the requirements of, and information provided under, the Biodiversity Assessment Method and clause 6.15 of the Biodiversity Conservation Act 2016 (BC Act).

Signature: 

Date: 26/07/2024

BAM Assessor Accreditation no: #BAAS18059

This BDAR has been prepared to meet the requirements of BAM 2020.

ii. Details and experience of author/s and contributors

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Stage 1: Biodiversity Assessment

1. Introduction

1.1 Proposed Development

1.1.1 Development Overview

Land Eco Consulting (Land Eco) was commissioned by Western Sydney University (WSU) ('the proponent') to prepare this Biodiversity Development Assessment Report (BDAR) for the proposed development of an Indigenous Centre of Excellence at Western Sydney University Rydalmere/Parramatta South campus at carpark P1 on the Corner of Victoria Road and Railway Street, Parramatta, NSW 2116. This development is proposed within the WSU Campus at 171 Victoria Rd Parramatta 2150 (Lot 100/-/DP816829) (the 'Subject Property').

The proposed development involves the construction of a building/centre- Indigenous Centre of Excellence at Western Sydney University Rydalmere/Parramatta South campus. The extent of the development is referred to as the 'Subject Land'. The Subject Land is approximately 1.2 ha. The development proposes to retain seven (7) trees and remove fifty-two (52) trees within the Subject Land (**Figure 3**). In total approximately 0.48 ha of vegetation (trees and understorey vegetation) are proposed for removal. The curtilage of the proposed building will include landscaping to integrate the new facility into the surrounding open space of the campus.

The proposed development is a State Significant Development (SSD-64916225) pursuant to Part 4, Division 4.7, Section 4.36(2) of the *Environmental Planning and Assessment Act 1979* (EP&A). The proponent has commissioned this BDAR to accompany the proposal in accordance with the State Environmental Requirements (SEARs) for the proposed development and address the requirements of the NSW Biodiversity Offset Scheme (BOS). The proposed development requires the submission of a BDAR as stipulated under the *NSW Biodiversity Conservation Act 2016* and in accordance with the Biodiversity Assessment Method (BAM). The BDAR is required to be undertaken by an accredited assessor to assess the impacts of the proposal.

The vegetation within the Subject Land includes one remnant *Melaleuca decora*, several planted ornamental trees (Tree Survey 2024) and an exotic dominant ground layer. The planted vegetation occurs in rows and small clusters and are similar in age class (**Plate 3**). The majority of the Subject Land has been historically cleared and replaced with a bitumen carpark.

Land Eco have produced this report to assess any potential impacts associated with the proposed development and recommend appropriate measures to mitigate any potential ecological impacts in line with the requirements of the Consent Authority, the NSW Planning Secretary.

1.1.2 Location and Existing Site

The Subject Property (i.e. WSU Campus) covers approximately 20.5 ha. The Subject Land (**Figure 1**) occurs within carpark 'P1' of WSU Campus on the Corner of Victoria Road and Railway Street, Parramatta, NSW 2116. The existing site is predominately a bitumen carpark surrounded by managed lawns, planted ornamental trees and footpaths. The Central Energy Plant, to the west of the carpark, is excluded from the Subject Land as no works are proposed in this area. It covers approximately 0.07 ha (774m) and is labelled 'Structure to be retained' in **Figure 1**. The Subject Land, which excludes this Central Energy Plant, is approximately 1.2 ha. The Subject Land is bordered by four roads/streets: Victoria Road (North), Railway Street (East), Fifth Street (South) and Bridge Street (West).

1.1.3 Proposed development and the Subject Land

The development assessed under State Significant Development (SSD) involves the construction of a 4-storey tall Indigenous Centre of Excellence. The building/centre will accommodate a library, an Elders lounge, Indigenous research and student facilities, internal and external gathering spaces, theatre, outdoor multipurpose sports court, cinema, exhibition galleries, teaching facilities and an Indigenous discovery space among other infrastructure. The development also proposes to widen the current access route and extend it at the north-west of the Subject Land to provide access to a proposed loading bay within the proposed building/centre. A portion of the retaining wall along this access road will be retained and other parts of the wall will be reconstructed. Parking spaces (~13) will also be constructed at the south-western portion of the Subject Land. The development will be landscaped with entirely indigenous plants and includes an artificial wetland habitat at the south-eastern portion of the Subject Land (Jila 2024) (**Figure 3**).

Multiple trees, shrubs and groundcovers occur within and adjacent the Subject Land. The proposed development will retain seven (7) trees (on the northern portion of the Subject Land) (JCB Architects 2024) (**Figure 3**) which belong to the following species; *Eucalyptus microcorys*, *Waterhousea floribunda* and *Melaleuca decora*. The *Melaleuca decora* is a mature specimen considered of 'high importance for retention' by Tree Survey (2024). It is an old tree that was present even in historical imagery from 1943. In total fifty-two (52) trees (*Prunus* sp., *Ficus hillii* and *Auranticarpa rhombifolia*) are proposed to be removed. These trees occur on the eastern, southern and western portions of the Subject Land (**Figure 3**). Additionally, all understorey vegetation within the Subject Land is proposed for removal. This vegetation is exotic dominant. In total 0.48 ha of vegetation (trees and understorey vegetation) are proposed for removal, 0.2 ha of which is planted native vegetation.

This BDAR assesses the direct vegetation impacts from the proposed development footprint, hereafter referred to as the 'Subject Land'.

1.1.4 Other documentation

Other documentation relevant to biodiversity to be submitted with the proposed development include:

- SSDA Drawings (JCB Architects 2024)
- Arboricultural Impact Assessment & Tree Protection Plan (Tree Survey 2024)
- Landscape Plans (Jila 2024)

1.2 Biodiversity Offset Scheme Entry

The proposed development is a State Significant Development (SSD-64916225) pursuant to Part 4, Division 4.7, Section 4.36(2) of the Environmental Planning and Assessment Act 1979 (EP&A). The proponent has commissioned this BDAR to accompany the proposal and address the requirements of the NSW Biodiversity Offset Scheme (BOS). The proposed development requires the submission of a BDAR as stipulated under the NSW Biodiversity Conservation Act 2016 and in accordance with the Biodiversity Assessment Method (BAM). The BDAR is required to be undertaken by an accredited assessor to assess the impacts of the proposal.

1.2.1 State Significant Development

In accordance with section 7.9(a) of the BC Act, an application for development consent under Part 4 Division 4.7 of the EP&A Act for a State Significant Development (SSD) is to be accompanied by a BDAR unless the Planning Agency Head and the Environment Agency Head determines that the proposed development is not likely to have any significant impact on biodiversity values.

The environmental impact statement (EIS) that accompanies any such application is to include the biodiversity assessment required by the environmental assessment requirements of the Planning Agency Head under the EP&A Act. This BDAR will form an appendix to the EIS prepared by Ethos Urban.

1.2.2 Area Clearing Threshold

The BC Act and its regulations stipulate the native vegetation clearing 'area threshold' values that determine whether a development is required to be assessed in accordance with the 'Biodiversity Offset Scheme' (BOS). Minimum entry thresholds for native vegetation clearing depend on the minimum lot size (shown in the Lot Size Maps made under the relevant Local Environmental Plan [LEP]), or actual lot size (where there is no minimum lot size provided for the relevant land under the LEP). The term 'vegetation clearing' includes all lopping, felling, slashing, or mowing of native trees, shrubs, or groundcover for the purpose of construction, landscaping, excavation or bushfire Asset Protection Zone (APZ) works.

Developments that trigger the BOS will require a 'Biodiversity Development Assessment Report' (BDAR) (this report) that addresses the Biodiversity Assessment Method and the retiring of Biodiversity Offset Credits.

There is no minimum lot size assigned by The City of Parramatta Council to the Subject Property (NSW DCCEEW 2024a). The actual lot size of the Subject Property is approximately 20.5 ha. This means the 'native vegetation clearing threshold' trigger for this BOS is 0.5 ha or more (Table 3). Approximately 0.2 ha of native vegetation is being removed (i.e. planted native vegetation) for the proposed development, the threshold is not exceeded and is therefore, not a trigger for the BOS.

Table 3. Biodiversity Offset Scheme Entry Thresholds

Minimum lot size associated with the property	Threshold for clearing, above which the BAM and offsets scheme apply
Less than 1 ha	0.25 ha or more
1 ha to less than 40 ha	0.5 ha or more
40 ha to less than 1000 ha	1 ha or more
1000 ha or more	2 ha or more

1.2.3 Biodiversity Value Mapping

At the time of preparing this report, the Subject Land contained no land mapped as a 'Biodiversity Value'. The closest purple mapped land occurs approximately 120 m north-east of the Subject Land along Vinyard Creek (**Figure 4**) (NSW DCCEEW 2024b). No native vegetation will be removed from purple mapped land therefore, this not a trigger for the BOS.

1.3 Excluded Impacts

1.3.1 Native Vegetation Regulatory Map

The entirety of the Subject Property is mapped as 'Land excluded from the LLS Act' by the Native Vegetation Regulatory Map (NSW NVRM 2024). Therefore, *Chapter 2 Vegetation in non-rural areas of the State Environmental Planning Policy (Biodiversity and Conservation) 2021* applies to this development.

1.4 Matters of National Environmental Significance

No matters of National Environmental Significance (MNES) were found to occur within the Subject Land.

Commonwealth listed threatened species that are MNES have potential to occur in the Subject Land on occasion. Impact to habitat is limited to the clearing of approximately 0.48 ha of degraded vegetation in an urban matrix. MNES that have the potential to occur within the Subject Land include nomadic fauna such as Grey-headed Flying-fox (*Pteropus poliocephalus*), and Swift Parrot (*Lathamus discolor*) and Large-eared Pied Bat (*Chalinolobus dwyeri*) that may forage or fly over the Subject Land in search of food on occasion. These species are highly unlikely to regularly utilise or rely heavily on the Subject Land owing to its small area and its position within a hostile urban matrix. As such, no further assessment under the EPBC Act is deemed necessary.

1.5 Information Sources

A detailed list of all sources utilised in the preparation of this BDAR is presented in the 'References' (**Section 14**) of this report.

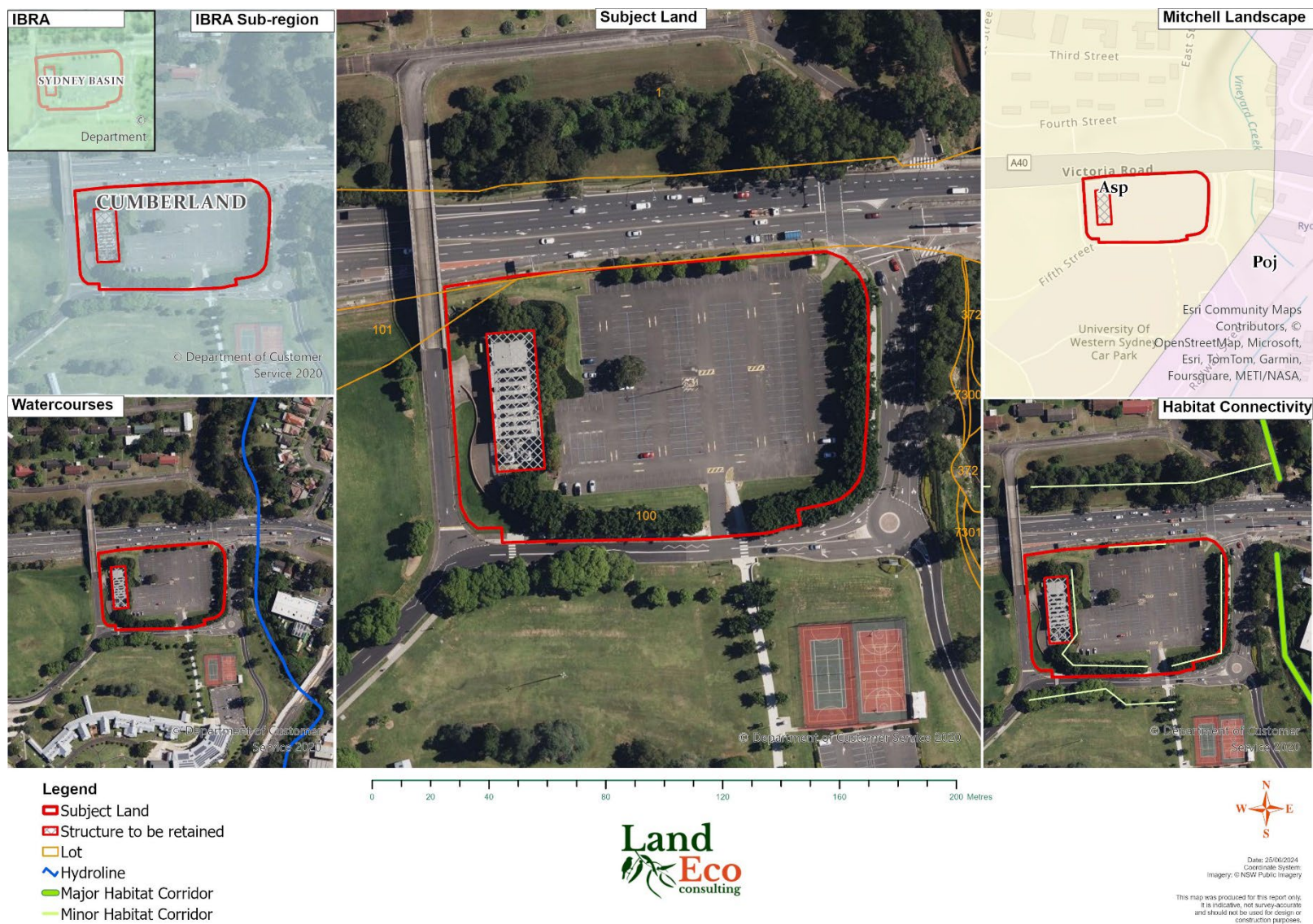


Figure 1. Subject Land in relation to nearby watercourses, habitat connectivity and IBRA and Sub-IBRA regions

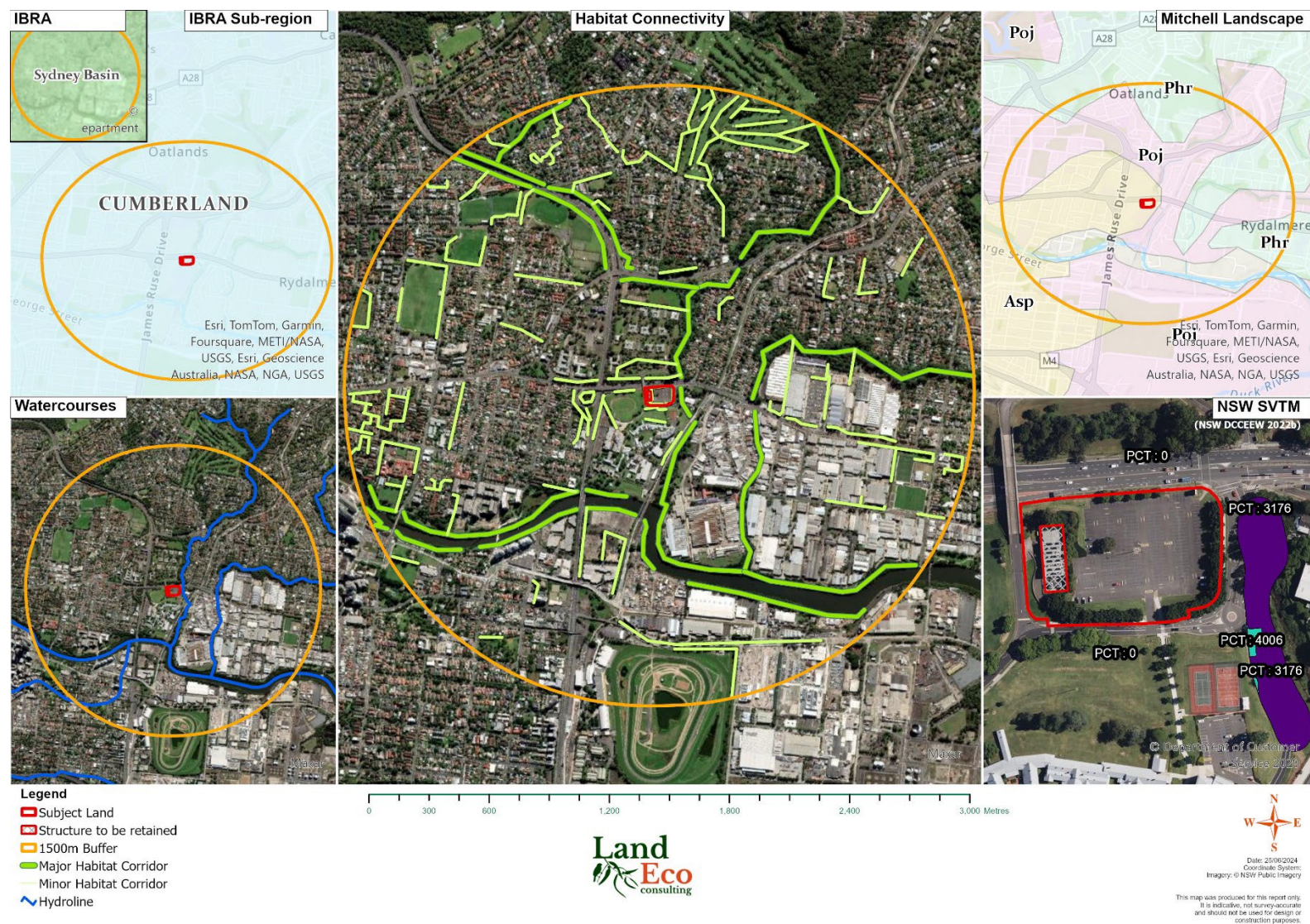


Figure 2. Watercourses, habitat connectivity, IBRA regions, Sub-IBRA regions within a 1500m buffer of the Subject Land and mapped NSW State Vegetation Type Mapping (NSW DCCEW 2022b) in proximity to the Subject Land.



Figure 4. The Subject Land in relation to Biodiversity Values Mapping (NSW DCCEW 2024b)

2. Planted Native Vegetation

The Subject Land has been historically cleared except for one tree, a mature *Melaleuca decora*. The vegetation within the Subject Land has since become dominated by an exotic understorey layer and an assemblage of planted non-indigenous native trees (*Auranticarpa rhombifolia*, *Ficus hillii*, *Waterhousea floribunda* and *Eucalyptus microcorys*) and non-native shrubs and trees (e.g. *Prunus* sp.). The historical imagery depicted in **Figure 5** historical imagery (NSW Historical imagery 2024) from 1970 shows that the Subject Land has been entirely cleared with only two trees remaining in the Subject Land. By 2009/2010 the carpark construction had been completed and only one tree was retained. A row of *Waterhousea floribunda* had been planted along the northern street frontage and the vegetation surrounding the Central Energy plant had also since been planted. These were likely planted for functional and aesthetic purposes. The locally indigenous native, *Melaleuca decora* situated near the centre of the Subject Land is the only remnant and non-planted tree within the Subject Land (**Figure 5**). This tree will be retained and not cleared.

No plant community type (PCT) can be attributed to the Subject Land, due to the limited diagnostic characteristics available from the vegetation within the Subject Lands. The vegetation almost entirely consists of a mixed assemblage of planted non-indigenous native and exotic trees over an exotic-dominant understorey (lawn and ornamental shrubs). The Subject Land is routinely managed as a garden and lawn, leaving low potential for regeneration of native vegetation.

The Subject Land contains planted native vegetation that:

- Does not 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, and
- was not planted for the purpose of environmental rehabilitation or restoration under an existing conservation obligation listed in BAM Section 11.9(2.), and the primary objective was not to replace or regenerate a plant community type or a threatened plant species population or its habitat, and
- was not planted for the purpose of providing threatened species habitat under one of the following:
 - a. a species recovery project
 - b. Saving our Species 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 or 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,
 - g. approved vegetation management plan (e.g. as required as part of a Controlled Activity Approval for works on waterfront land under the NSW Water Management Act 2000).
- was not planted for revegetation, environmental rehabilitation or restoration, and
- was planted for functional and aesthetic purposes.

The one *Melaleuca decora* situated near the centre of the Subject Land is the only remnant and non-planted tree within the Subject Land. This tree is proposed for retention and is not considered likely to be impacted by the proposed development with the implementation of protection mechanisms in Tree Surveys (2024) Tree Protection Plan.

As the native vegetation was planted for functional and aesthetic purposes surrounding the existing facilities within the Subject Land, it meets subsection D.1 (5.i.) of the decision tree in Appendix D of the BAM. This was determined based on the mixed assemblage of non-indigenous native species planted in rows along road/street frontages surrounding the carpark (**Plate 3**).

3. Non- Native Vegetation

The vegetation within the Subject Land, excluding the planted native canopy trees discussed in **Section 2**, consists primarily of managed manicured lawns as shown in **Plate 1** or as dense screening tree, shrub and understorey vegetation around the Central Energy Plant shown partly in **Plate 2**. A BAM plot was conducted within this dense screening vegetation surrounding the Central Energy Plant. As demonstrated in **Appendix 2**, the understorey vegetation within the BAM Plot was determined to be exotic dominant.

The trees within this zone mainly comprised of *Prunus* sp., an environmental weed in NSW. *Auranticarpa rhombifolia* and *Eucalyptus microcorys* were also recorded in this zone. These are non-indigenous native species.

Land Eco ecologists also opportunistically assessed the grassland vegetation found along the perimeters of the Subject Land surrounding the carpark. The lawn consisted primarily of *Stenotaphrum secundatum*, a widely cultivated exotic species that is often used as a lawn grass. This grassland is under management as a manicured lawn and likely has been managed as such for many years. Ecologists found the grassland vegetation consisted of <15% native species. The grassland was therefore categorised as exotic dominant vegetation.

As such, the grassland and dense screening understorey vegetation surrounding the Central Energy Plant is categorised as 'Exotic Dominant Vegetation' and is shown in **Figure 6**.

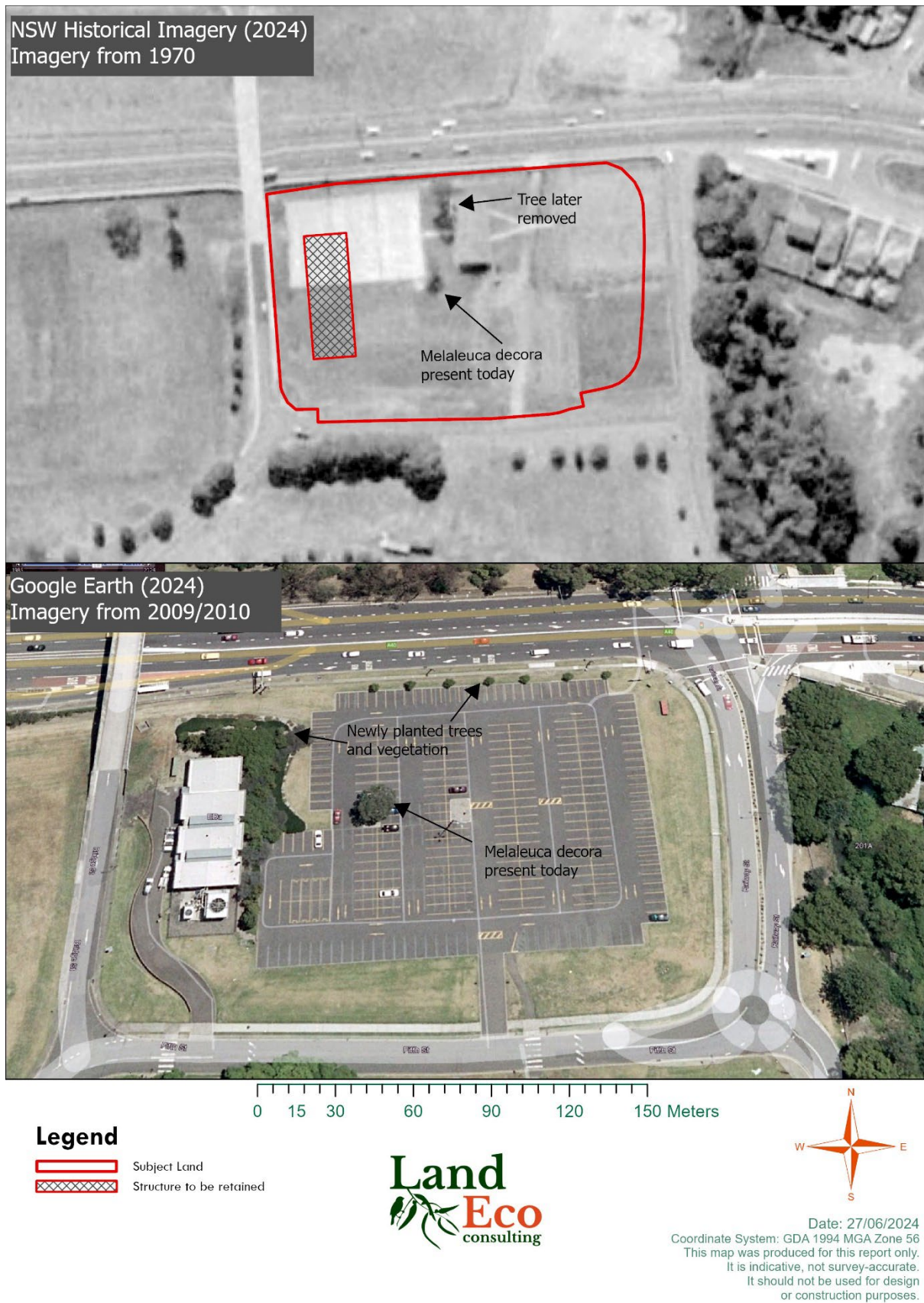


Figure 5. Historical imagery of the Subject Land: (Top) Image from 1970 of the Subject Land with only two trees present (after a clearing event). (Bottom) Image from 2009/2010 shows newly planted vegetation and the one tree which was retained within the Subject Land (a *Melaleuca decora*).

4. Method

4.1 Site Context Methods

4.1.1 Landscape Features

The Subject Land consists predominantly of bitumen carpark with managed lawns, trees and footpaths along the peripheries.

The carpark is located west of Vineyard Creek which is a tributary of the Parramatta River.

This section details the landscape features and associated habitat values in and around the Subject Land. A table is provided which details the Landscape Features as required by the BAM (**Table 5**).

4.2 Native vegetation, threatened ecological communities and vegetation integrity methods

4.2.1 Existing Information

A review of the following mapping resource was undertaken relevant to the Subject Land:

- NSW State Vegetation Type Map (NSW DCCEEW 2022b).

This resource mapped no vegetation communities within the Subject Land. Two vegetation communities were however mapped on land immediately adjacent (east) to the Subject Land (NSW DCCEEW 2022b) (**Figure 2**).

The mapped vegetation communities adjacent to the Subject Land are:

- PCT 4006: Northern Paperbark-Swamp Mahogany Saw-sedge Forest
- PCT 3176: Sydney Enriched Sandstone Moist Forest

4.2.2 Mapping Native Vegetation Extent

Land Eco mapped the native vegetation extent within the Subject Land by:

- Viewing recent aerial imagery (Nearmap 2024) for differences in texture that would suggest different vegetation zones; followed by;
- conducting a ground-based meandering transect, identifying native vegetation and marking the extent using a Garmin 65S hand-held GPS.

4.2.3 Plot-based Vegetation Survey

One representative BAM VIS plot was allocated to the vegetation within the Subject Land using GIS to capture a representative sample of the vegetation proposed for removal.

On the 6th June 2024, two Ecologists visited the Subject Land and sampled a BAM VIS plot in accordance with the method outlined in **Section 4.2.4 (Figure 6)**. The full species name, percentage cover, and estimate of abundance all native and exotic vascular plant species was recorded.

4.2.4 Vegetation Integrity Survey

One irregular BAM VIS plot was allocated to the vegetation within the Subject Land using GIS to capture a representative sample of the vegetation proposed for removal. This was located to provide a representative assessment of vegetation integrity. These survey plots were established around the longest patch of continuous vegetation that was representative of the vegetation within the Subject Land. The BAM plot was conducted in the vegetation surrounding the Central Energy Plant and is illustrated in **Figure 6**.

- one 400 m² plot to assess all the composition and structure attributes
- one 1000 m² plot, to assess the function attributes (number of large trees, stem size classes, tree regeneration and length of logs)
- five 1 m² subplots, to assess average litter cover (and other optional ground cover components) for the plot.

The presence of hollow-bearing trees, vegetation composition, vegetation structure, and vegetation function were all assessed according to the protocol outlined in Section 4.3.4 of the BAM (NSW DPIE 2020a).

4.3 Threatened Flora Survey Methods

4.3.1 Review of Existing Information

Land Eco reviewed any existing information on native vegetation relevant to the Subject Land and land within the 1500 m buffer area. This includes:

- individual species records that are held in the NSW Wildlife Atlas BioNet (NSW DCCEEW 2024c);
- existing maps of native vegetation in the area such as those held by the Department, or a local government authority;
- information from publicly accessible ecological reports, soil surveys or previous native vegetation surveys that is relevant to the Subject Land (where available).

4.3.2 Habitat Constraints Assessment

Land Eco compiled a detailed summary of potential microhabitats for threatened fauna species as well as habitat constraints present on the Subject Land. Where relevant, habitat features were mapped and photographed.

4.4 Threatened Fauna Survey Methods

4.4.1 Review of Existing Information

Land Eco reviewed any existing information on threatened fauna relevant to the Subject Land and land within the 1500 m buffer area. This includes:

- survey data or individual species records that are held in NSW Wildlife Atlas BioNet (NSW DCCEEW 2024c);
- information in ecological reports, soil surveys or previous fauna surveys that is relevant to the Subject Land (where available).

4.4.2 Habitat Constraints Assessment

The Land Eco Consulting Ecologists compiled a detailed summary of potential microhabitats for threatened fauna species as well as habitat constraints present on the Subject Land, including both Species Credit and Ecosystem Credit threatened fauna species.

4.5 Weather Conditions

The weather for the BAM VIS plot survey was overcast and cool with a light breeze and scattered showers (**Table 4**). The weather conditions in the lead up to and during all surveys were suitable for the surveys undertaken.

Table 4. Environmental conditions during and leading up to the biodiversity survey (BOM 2024). Monthly averages are shown in bold.

Survey undertaken (e.g. method / targeted species)	Date	Time	Temperature (°C) (min. & max.)	Wind (light, mod...)	Rainfall (mm)
N/A	April	N/A	11.0 – 29.6	N/A	170.0 (total)
N/A	May	N/A	6.8 – 23.5	N/A	114.0 (total)
Site Assessment BAM VIS plot survey	06/06/24	11.05-14:55	11.0 – 16.2	Light	6.4

4.6 Limitations

All field-based observations were made during a single site visit in June 2024.

5. Site Context

5.1 Assessment Area

The Assessment Area includes a 1500 m buffer zone surrounding the Subject Land (**Figure 2**).

5.2 Landscape Features

Landscape features identified within the Subject Land and assessment are detailed and presented in **Table 5**. A discussion of relevant landscape features is provided below.

5.2.1 IBRA Bioregions and Subregions

In accordance with BAM Subsection 3.1.3(2) the Subject Land has been mapped to IBRA Bioregion and Subregion. The Subject Land occurs within the 'Sydney Basin' Interim Biogeographic Regionalisation for Australia ver. 7 (IBRA) bioregion, and 'Cumberland' IBRA subregion (DEE 2016; **Figure 2**).

5.2.2 Rivers, Streams, Estuaries and Wetlands

This subsection details wetlands, rivers and streams classified according to stream order (as described in BAM Appendix E and Subsection 3.1.3(3)).

There are no mapped watercourses within the Subject Land. A second order tributary of the Parramatta Creek, Vineyard Creek, occurs approximately 34 m east of the Subject Land. As such, the proposed development is on waterfront land (though outside of the Vegetated Riparian Zone) and will require approval from the NSW Natural Resources Access Regulator. The Parramatta River occurs approximately 500m south of the Subject Land (**Figure 2**).

5.2.3 Habitat Connectivity

In accordance with connectivity of different areas of habitat (as described in BAM Subsection 3.1.3(5–6)) the assessor must identify the connectivity of different areas of habitat that may facilitate the movement of threatened species across their range and identify these on the Location Map (**Figure 1**; **Figure 2**).

Significant biodiversity links are those that connect different areas of habitat, facilitating movement of threatened species across their distribution. The presence of significant biodiversity links on a site contributes to the biodiversity value of that subject land at the landscape scale. Connectivity can be identified at different scales depending on the target species and can include recognised biodiversity corridors in a plan approved by NSW DCCEEW (e.g. priority investment areas), a local corridor identified by a local council, flyways for migratory species or a riparian buffer of a stream, wetland or estuary.

Land Eco has identified routes of habitat connectivity within the Assessment Area and has classified them into two categories:

- Minor Habitat Corridor – a local-scale habitat connection consisting of a narrow or disturbed vegetation corridor (i.e. canopy connectivity); and
- Major Habitat Corridor – a locally significant habitat corridor consisting of remnant vegetation, reserves, densely vegetation riparian corridors or wetlands.

Owing to the location of the Subject Property within a hostile urban matrix, it is considered that the vegetation within the Subject Land only serves as a stepping stone for urban-adapted fauna, forming part of minor habitat corridors. These habitat corridors are unlikely to be regularly frequented by sensitive or threatened fauna due their disjointed, disturbed nature. Minor and major habitat corridors occur within the 1500 m buffer area (**Figure 2**). The vegetation along Vineyard Creek (adjacent to the Subject Land) however likely serves as a major habitat corridor for fauna. The proposed development is not likely to have an adverse impact upon this habitat and as such this habitat corridor is unlikely to be affected by the development.

5.2.4 Karst, Caves, Crevices, Cliffs, Rocks or Other Geological Features of Significance

In accordance with BAM Subsections 3.1.3(7.) and 3.1.3(12.) the assessor must detail karst, caves, crevices, cliffs, rocks and other geological features of significance and for vegetation clearing proposals, soil hazard features.

No karsts, caves, crevices or cliffs were identified within the Subject Land or in close proximity. This was determined as a result of a comprehensive site-based assessment.

5.2.5 Areas of Outstanding Biodiversity Value

No areas of Outstanding Biodiversity Value occur within the Subject Land or Assessment Area.

5.2.6 Mitchell Landscapes

NSW Landscapes Mapping: Background and Methodology (Mitchell 2002; OEH 2016a) groups ecosystems into meso-ecosystems representing larger natural entities based on topography and geology. The naming of ecosystems and meso-ecosystems was standardised so that each name provided location information and a meaningful descriptive landscape term.

The Subject Land occurs over the 'Ashfield Plains' Mitchell Landscape (**Figure 1**).

5.2.6.1 Landscape Ecosystem: Ashfield Plains

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, local relief <20m. Coastal extension of the Cumberland Plain landscape. Red and brown texture-contrast soils on crests grading to yellow harsh texture-contrast soils in valleys. Open forest of broad-leaved ironbark (*Eucalyptus fibrosa* ssp. *fibrosa*), grey box (*Eucalyptus moluccana*), with tea-tree (*Leptospermum* sp.) along creeks and forests of turpentine (*Syncarpis glomulifera*), red mahogany (*Eucalyptus resinifera*), grey gum (*Eucalyptus punctata*), Sydney blue gum (*Eucalyptus saligna*) and blackbutt (*Eucalyptus pilularis*) with a grassy understorey of kangaroo grass (*Themeda triandra*) on moister sites (Mitchell 2002; OEH 2016a).

Table 5. Summary of Landscape features identified within the Subject Land and surrounding 1500 m buffer.

Landscape Feature	Identification of Landscape Feature on Site
Rivers and Streams (classified according to stream order)	There are no mapped watercourses within the Subject Land. A second order tributary of the Parramatta Creek, Vineyard Creek, occurs approximately 34 m east of the Subject Land. The Parramatta River occurs approximately 500 m south of the Subject Land (Figure 2).
Wetlands (within, adjacent to and downstream of site)	No watercourses or aquatic habitat features occur within the Subject Land. The Subject Land is mapped within the 'Coastal Use Areas Map' as per the State Environmental Planning Policy (Coastal Management) 2018. The Subject Land is not located within any mapped Littoral Rainforest, Coastal Wetlands as per the State Environmental Planning Policy (Coastal Management) 2018. Coastal Wetlands are mapped occurring approximately 270m from the Subject Land, however, no impacts to this habitat are expected to occur as a consequence of the proposed development.
Connectivity features	Owing to the location of the Subject Property within a hostile urban matrix, it is considered that the vegetation within the Subject Land only serves as a stepping stone for urban-adapted fauna and as such, forms part of minor habitat corridor (Figure 1). This minor habitat corridor is unlikely to be frequented by sensitive or threatened fauna. Minor and major habitat corridors occur within the 1500 m buffer area (Figure 2). The vegetation along Vineyard Creek adjacent to the Subject Land, is likely to serve as part of a major habitat corridor for fauna. The proposed development is not likely to impact upon this habitat and as such this major habitat corridor is unlikely to be affected by the development.
Areas of geological significance and soil hazard features	There are no areas of geological significance within the Subject Land.

5.2.7 Additional Landscape Features Identified

No additional landscape features are identified in the Subject Land for the proposed development.

5.2.8 Soil Hazard Features

The proposed development does not require approval from the Native Vegetation Panel under Part 5A of the LLS Act or Chapter 2 of the Biodiversity and Conservation SEPP as is mapped as 'Category 1 – Exempt Land', therefore the soil hazard features are not relevant to this development.

5.3 Native Vegetation Cover

This proposed only used the streamlined assessment module for planted native vegetation (Appendix D), and as such, does not require an assessment of the percent of native vegetation cover (**Table 6**).

Table 6. Native vegetation cover in the Assessment Area

Assessment area (ha)	N/A
Total area of native vegetation cover (ha)	N/A
Percentage of native vegetation cover	N/A
Class (0-10, >10-30, >30-70 or >70%)	N/A



Figure 6. Field validated vegetation mapping within the Subject Land and BAM Plot



Plate 1. Carpark P1 vehicle entry from Fifth Street (Google Earth 2024).

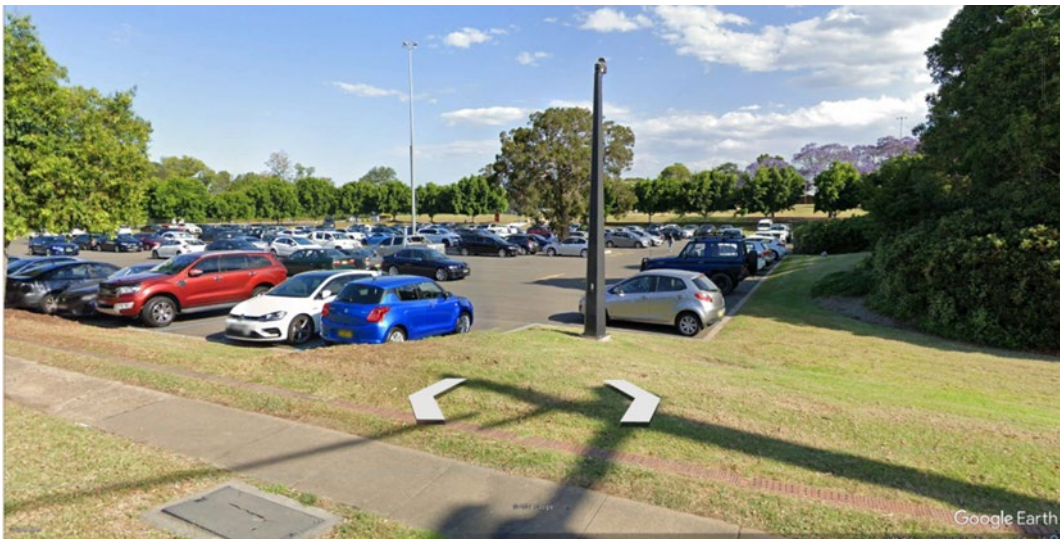


Plate 2. High vehicle usage (Google Earth 2024).

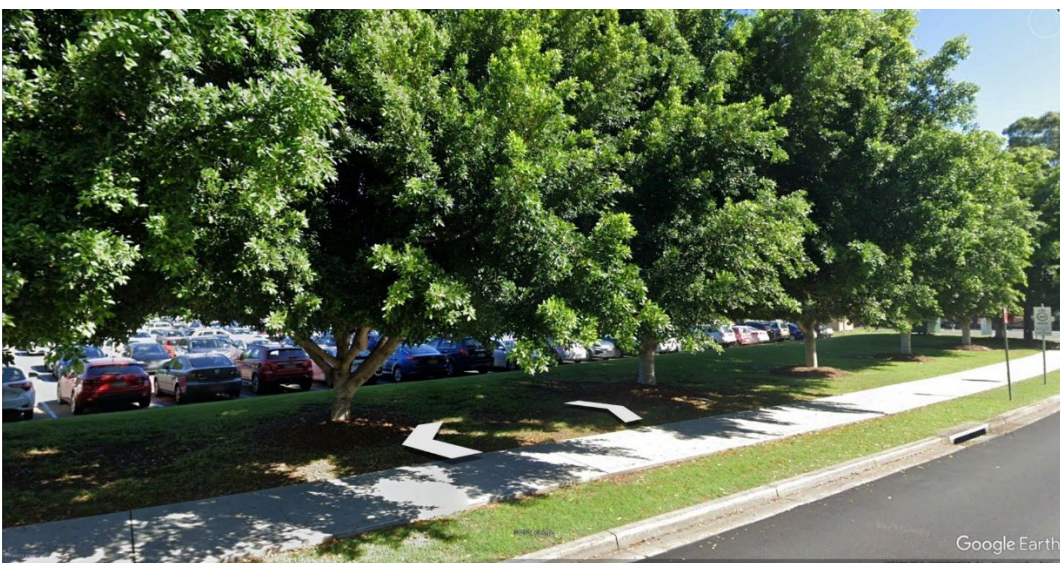


Plate 3. View of Subject Land from Railway Street of planted *Ficus hillii* in rows along road/street frontages (Google Earth 2024).

6. Habitat Suitability for Threatened Species

6.1 Threatened Species Habitat

Land Eco conducted a desktop assessment of the threatened flora and fauna species recorded within the 10 km locality of the Subject Land using NSW Wildlife Atlas Data (BioNet) (NSW DCCEEW 2024c). Land Eco then conducted a site-based habitat assessment to identify habitat features and species that may utilise them.

No evidence of threatened species credit species was identified during the site-based assessment. The vegetation within the Subject Land is highly degraded and occurs within a dense urban matrix surrounded by roads, railways and buildings and shares poor connectivity with remnant vegetation. Disturbance from high vehicle and pedestrian usage further reduces the habitat potential within the Subject Land (**Plate 2**). Woody debris and dense leaf litter is largely absent from the Subject Land.

Locally common, highly mobile threatened fauna species such as Grey-headed Flying Fox (*Pteropus poliocephalus*) and ecosystem credit microbats may occasionally forage in and around the canopies of planted trees within the Subject Land. The Subject Land is considered only suitable habitat for common, urban-adapted fauna.

7. Identifying Prescribed Impacts

This chapter of the report details the type and extent of impacts to biodiversity that will occur as a result of the proposed development (**Table 7**). Prescribed additional biodiversity impacts (prescribed impacts) must be assessed as part of the BOS, as per clause 6.1 of the BC Regulation. Such prescribed impacts (including direct and indirect impacts) are impacts:

- a. on the habitat of threatened entities including:
 - i. karst, caves, crevices, cliffs, rocks and other geological features of significance, or
 - ii. human-made structures, or
 - iii. non-native vegetation
- b. on areas connecting threatened species habitat, such as movement corridors
- c. that affect water quality, water bodies and hydrological processes that sustain threatened entities (including from subsidence or upsidence from underground mining)
- d. on threatened and protected animals from turbine strikes from a wind farm
- e. on threatened species or fauna that are part of a TEC from vehicle strikes.

If relevant, these features must be identified on a map.

Table 7. Prescribed impacts identified

Feature	Present	Description of feature characteristics and location	Threatened entities that use, are likely to use, or are part of the habitat feature.	Describe how these features provide habitat for, or are used by, each threatened entity
Karst, caves, crevices, cliffs, rocks or other geological features of significance	☐ Yes / ☒ No	N/A	N/A	N/A
Human-made structures	☒ Yes / ☐ No	No structures within the Subject Land however there are structures adjacent to the Subject Land.	Threatened microbat species	The proposed development may indirectly impact upon potentially roosting microbats, however these impacts are mostly temporary associated with construction and/or unlikely to be adversely exacerbated beyond current levels associated with the existing carpark and surrounding roads.
Non-native vegetation	☒ Yes / ☐ No	The Subject Land contains several weed species	Urban Adapted, Mobile Threatened Species	The weed-infested vegetation offers potential foraging habitat to a small range of threatened species.

Feature	Present	Description of feature characteristics and location	Threatened entities that use, are likely to use, or are part of the habitat feature.	Describe how these features provide habitat for, or are used by, each threatened entity
Habitat connectivity	☒ Yes / ☐ No	The Subject Land is not considered as containing substantial habitat connectivity. It occurs in a dense urban matrix and may only be used as a stepping stone for urban-adapted mobile fauna, particularly birds and possums.	Urban Adapted, Mobile Threatened Species	Urban adapted, mobile threatened species may occasionally utilise the Subject Land as a stepping stone while foraging.
Waterbodies, water quality and hydrological processes	☐ Yes / ☒ No	N/A	N/A	N/A
Wind turbine strikes (wind farm development only)	☐ Yes / ☒ No	N/A	N/A	N/A
Vehicle strikes	☒ Yes / ☐ No	Low speed-limit driveways and roads are part of the proposed development.	No threatened entities are likely to be significantly impacted by the risk vehicle strikes. The Subject Land occurs in an area adjacent to busy roads, where vehicles are highly prevalent.	N/A

Stage 2: Impact Assessment (Biodiversity Values and Prescribed Impacts)

This section of the BDAR details impacts associated with the SSD, and highlights efforts the applicant has taken, or will take, to ensure the SSD avoids and minimises the impacts as much as feasible.

8. Avoid and Minimise Impacts

8.1 Avoid and Minimise Direct and Indirect Impacts

8.1.1 Project Location

The Subject Land occurs within the precinct of Rydalmere, in the City of Paramatta Local Government Area (LGA). The proposed development has been located within a dense urban matrix and is surrounded by existing urban infrastructure such as education, public use and transport facilities as well as busy roads. The long-term viability of the vegetation within the Subject Land is low, with native vegetation regeneration sparse across the Subject Land and on-going effects from surrounding land uses (educational precincts, roads, footpaths and public use facilities). The Subject Land is suitably located adjacent to existing developments on predominantly historically cleared land which currently functions as a carpark for WSU. By doing so, the proposal avoids the need to clear remnant vegetation of conservation value.

8.1.2 Project Design

The proposed development will retain seven (7) trees within the Subject Land. The development has been designed to retain the remnant *Melaleuca decora* (Tree Survey 2024) (JCB Architects 2024). This tree likely provides various habitat resources to fauna particularly during flowering events (e.g. foraging and sheltering). It is an old tree that was present in historical imagery from 1943 (Figure 5). The Indigenous Centre of Excellence is proposed to be located on Darug land. This project works closely with Indigenous elders, community members, and stakeholders to ensure that the Indigenous Centre reflects the principles of Darug people and reflects the current and historic vegetation in the locality. Inspiration for the planting schedule has been taken from recent surveys of Vineyard Creek's vegetation and on 'original' ecological communities found across the Parramatta River catchment (Jila 2024).

8.2 Avoid and Minimise Prescribed Impacts

8.2.1 Project Location

Impacts from the clearing of native vegetation and threatened species habitat have been avoided or minimised by locating the proposal in areas detailed in Table 8.

The proposed development will influence the following: habitat connectivity, non-native vegetation and the risk of vehicle strikes across the Subject Property, however, none of these influences are considered likely to have a significant impact on any threatened entity.

Table 8. Measures to locate the proposal to avoid or minimise direct and indirect impacts on native vegetation, threatened species, threatened ecological communities and their habitat

How has the proposal has been located in areas lacking biodiversity values?	The Subject Land occurs in the precinct of Rydalmere, in the City of Paramatta LGA. The proposed development has been located within an almost entirely historically cleared area that is currently used as a carpark. One remnant tree is located within the carpark but is proposed for retention post development. The remainder of the vegetation within the Subject Land is limited to non-indigenous native and exotic trees planted for aesthetic value and an exotic dominant understorey vegetation. As such, the long-term viability of the vegetation within the Subject Land is low. The Subject Land is suitably located adjacent to existing urban infrastructure (educational precincts, railways, busy roads and public use facilities). The proposed development avoids the need to clear remnant vegetation of high conservation value.
How has the proposal has been located in areas where the native vegetation or threatened species habitat is in the poorest condition (i.e. areas that have a low vegetation integrity score)?	With the exception of one remnant tree (which is proposed for retention), the canopy within the Subject Land consists of trees planted for aesthetic value, while the understorey vegetation is a sparse cover of predominantly exotic shrubs and ground cover. The vegetation within the Subject Land is in poor condition and does not provide substantial habitat that would be relied heavily upon by any threatened species. The Subject Land also contains several high threat exotic weeds.
How does the proposal 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 or a highly cleared PCT.	The development has been sited on an area with minimal habitat value and only a small area of vegetation is proposed to be cleared as the development has been predominantly sited on a bitumen carpark. The proposal will not impact upon land mapped on the important habitat map (OEH 2024a). No PCT was assigned to the vegetation within the Subject Land due to limited diagnostic characterises of the Subject Lands vegetation. i.e. the canopy trees are all relatively recently planted (with the exception of one tree) and the understorey vegetation is exotic dominant. No TEC or 'a highly cleared PCT' will be impacted by the proposed development.
Has the proposal been located outside of the buffer area around breeding habitat features such as nest trees or caves?	No hollow-bearing trees, nest trees, wetlands or other important breeding habitat features were located within the Subject Land or on adjacent land and therefore will not be disturbed by the proposed development.
Has the proposal sought alternative:	
• modes or technologies that would avoid or minimise impacts on biodiversity values	N/A
• routes that would avoid or minimise impacts on biodiversity values	N/A
• locations that would avoid or minimise impacts on biodiversity values	The Subject Land is adjacent to existing urban developments and is suitable for the proposed development. The development has been designed around the biodiversity values within the Subject Land, namely the remnant <i>Melaleuca decora</i> (Tree Survey 2024) (JCB Architects 2024).
• sites within a property on which the proposal is located that would avoid or minimise impacts on biodiversity values.	The proposal is located within the WSU Campus (Subject Property). The Subject Land covers a portion of the property (north-east) and is currently used as a carpark for the campus. The Subject Land is adjacent to Vineyard creek (a second order tributary of the Parramatta River). However, Railway Street lies between the Subject Land and the creek. It is therefore unlikely that the development will impact upon the aquatic habitat of the creek. The Subject Land is not situated in an environmentally sensitive area, or on land mapped as containing Terrestrial Biodiversity (NSW DCCEEW 2024a) or land mapped as containing Biodiversity Values (NSW DCCEEW 2024b).
Detail the site constraints that have contributed to selecting this location	
• bushfire protection requirements, including clearing for asset protection zones	The Subject Land is not located on bushfire prone land (NSW DCCEEW 2024a).
• flood planning levels	A small portion along the northern boundary of the Subject Land is identified as a 'Low Risk Area' for flooding, described as an area where "flooding is extremely rare" (City of Parramatta 2024). This is not considered to be a substantial constraint contributing to the selection of the location of the Subject Land. All 'Medium/High Risk Areas' have been avoided.
• servicing constraints.	The development has been located adjacent to existing urban development along Victoria Road and Railway Street and the associated services.

8.2.2 Project Design

This BDAR documents the reasonable measures taken by the proponent to avoid or minimise clearing of native vegetation and threatened species habitat during proposal design, including placement of temporary and permanent ancillary construction and maintenance facilities (Table 9).

Table 9. Design the proposal to avoid or minimise direct and indirect impacts on native vegetation, threatened species, threatened ecological communities and their habitat

Efforts to reduce the proposal's clearing footprint by minimising the number and type of facilities	The proposed development is located within the WSU Campus. The majority of the Subject Land is historically cleared and consists predominantly of bitumen carpark. The development has been designed around the remnant <i>Melaleuca decora</i> (Tree Survey 2024) (JCB Architects 2024) which is proposed for retention. The development proposes to utilise the already existing road at the western side of the Subject Land. Works are proposed to widen this current access route and extend it at the north-west of the Subject Land to provide access to a proposed loading bay within the proposed building/centre. A portion of the retaining wall along this access road will be retained and other parts of the wall will be reconstructed. By utilising existing road networks, the development will retain six (6) planted native trees in addition to the one (1) <i>Melaleuca decora</i> (Tree Survey 2024) (JCB Architects 2024).
Efforts to locate ancillary facilities in areas that have no biodiversity values	The development does not propose additional ancillary facilities. All construction works will be restricted to one building/centre, extending an existing road and associated landscaping. The development has been designed around the one remnant <i>Melaleuca decora</i> (Tree Survey 2024) (JCB Architects 2024). Additionally, by utilising existing road networks, the development will retain six (6) planted native trees in addition to the one (1) remnant tree (Tree Survey 2024) (JCB Architects 2024). All the canopy trees proposed for removal were planted relatively recently for aesthetic purposes and are not locally indigenous. Additionally, the understorey vegetation within the Subject Land is exotic dominant as such all the vegetation proposed to be impacted for the development offers minimal biodiversity values.
Efforts to locate ancillary facilities in areas where the native vegetation or threatened species habitat is in the poorest condition (i.e. areas with the lowest vegetation integrity scores)	It is considered that threatened species are highly unlikely to utilise the Subject Land owing to its degraded state and occurrence in a dense urban matrix. All the canopy trees proposed for removal were planted relatively recently for aesthetic purposes and are not locally native. Additionally, the understorey vegetation within the Subject Land is exotic dominant, as such all the vegetation proposed to be impacted for the development offers minimal biodiversity values.
Efforts to locate ancillary facilities in areas that avoid habitat for species and vegetation that has a high threat status (e.g. an endangered ecological community (EEC) or critically endangered ecological community (CEEC) or is an entity at risk of a serious and irreversible impact (SAIL))	It is considered that threatened species are highly unlikely to utilise the Subject Land owing to its degraded state and occurrence in a dense urban matrix. The development will not impact upon an endangered ecological community (EEC), a critically endangered ecological community (CEEC) or on an entity at risk of a serious and irreversible impact (SAIL).
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.	Inspiration for the planting schedule has been taken from recent surveys of Vineyard Creek's vegetation and on 'original' ecological communities found across the Parramatta River catchment (Jila 2024). The Subject Land will be landscaped with entirely Indigenous plants and aims to create a wetland habitat (Jila 2024).

9. Impact Assessment

9.1 Direct Impacts

In accordance with section 8 of the BAM, the assessor must determine the direct impacts on threatened entities and their habitat. The BDAR or BCAR must include an assessment of the impacts of the proposal on threatened entities and their habitat and describe the direct impacts of the proposal on native vegetation, TECs and threatened species habitat.

9.1.1 Residual Direct Impacts

While all effort has been taken to avoid and minimise impacts, residual impacts will occur as a result of the development. A summary of the residual impacts upon PCTs and threatened species is presented (**Table 10**). These impacts are unlikely to have an adverse impact on any threatened species.

Table 10. Summary of residual direct impacts

Direct impact (Describe the impact on PCT/TEC/EC or threatened species and their habitat)	BC Act status	EPBC Act status	SAIL entity	Project phase/timing of impact (e.g. construction, operation, rehabilitation)	Extent (ha, number of individuals)
Planted Native Vegetation	-	-	No	Construction, Operation	0.2 ha
Foraging habitat of mobile, urban adapted threatened fauna	Ranging from Vulnerable to Critically Endangered	Ranging from Vulnerable to Critically Endangered.	No	Construction, Operation	0.48 ha of vegetation (planted native and exotic canopy vegetation and exotic dominant understorey vegetation (provide potential foraging habitat).

9.1.2 Change in Vegetation Integrity Scores

The change in VIS from the proposed development across all vegetation zones is presented (**Table 11**). No VIS has been calculated as all of the vegetation proposed for removal is being assessed under Appendix D of the BAM.

Table 11. Impacts to vegetation integrity

Vegetation zone	PCT ID	Management zone	Area (ha)	Before development				After development				Change	
				Composition	Structure	Function	VI score	Composition	Structure	Function	VI score	Change in VI score	
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

9.2 Indirect Impacts

A detailed summary of residual indirect impacts to threatened entities is provided in **Table 12**.

Table 12. Summary of residual indirect impacts

Indirect impact (Describe impact, e.g. transport of weeds and pathogens from the site to adjacent vegetation)	Impacted entities (PCT/threatened entity and their habitats and where relevant, EPBC Act listing)	Extent (ha or zone reference)	Frequency	Duration (long-term/short-term/medium-term)	Project phase/ timing of impact (e.g. construction, operation, rehabilitation)	Likelihood and consequences
(a) inadvertent impacts on adjacent habitat or vegetation	Mobile Ecosystem Credit Species	Vegetation and habitat adjacent to the Subject Land	During Construction and Ongoing	Long-term	Construction, Operation	In the unlikely event adjacent vegetation is cleared on accident, it is unlikely that this would cause significant impacts to threatened ecological communities or threatened species. The locality is already highly developed, as such the impact is unlikely to be significant. The proposed development has the potential to result in soil disturbance impacting adjacent vegetation and waterways including increased stormwater runoff and soil sedimentation, however erosion and sedimentation controls will adequately mitigate these impacts.
(b) reduced viability of adjacent habitat due to edge effects	Mobile Ecosystem Credit Species	Vegetation and habitat adjacent to the Subject Land	During Construction and Ongoing	Long-term	Construction, Operation	The Subject Land and adjacent habitat is already impacted due to edge effects from existing surrounding urban land uses including weed infestation, pedestrian impact, gross pollutants and litter. While the proposed development has the potential to exacerbate these impacts, this is unlikely to substantially reduce the viability of adjacent habitat beyond its current condition.
(c) reduced viability of adjacent habitat due to noise, dust or light spill	Mobile Ecosystem Credit Species	Vegetation and habitat adjacent to the Subject Land	During Construction and Ongoing	Long-term	Construction, Operation	The proposed development may result in the increase of noise, dust or light spill associated with the construction activities and operation of the development. However, the adjacent habitat is already impacted in these ways by the current surrounding urban land uses and roads. The proposed development is

Indirect impact (Describe impact, e.g. transport of weeds and pathogens from the site to adjacent vegetation)	Impacted entities (PCT/threatened entity and their habitats and where relevant, EPBC Act listing)	Extent (ha or zone reference)	Frequency	Duration (long-term/short-term/medium-term)	Project phase/ timing of impact (e.g. construction, operation, rehabilitation)	Likelihood and consequences
						unlikely to exacerbate this reality beyond the current condition.
(d) transport of weeds and pathogens from the site to adjacent vegetation	-	Vegetation and habitat adjacent to the Subject Land	During Construction	Short-term	Construction	The proposed development will result in soil disturbance on the Subject Land which may result in the propagation and spread of weed propagules from the soil bank to parts of the adjacent vegetation. The Subject Land and adjacent vegetation already contain several weed species. There is the potential for the construction vehicles to transport novel weeds onto the Subject Land and surrounds however this is unlikely to exacerbate this reality beyond the current condition.
(e) increased risk of starvation, exposure and loss of shade or shelter	Mobile Ecosystem Credit Species	Vegetation and habitat adjacent to the Subject Land	During Construction and Operation	Short-term, Possible long-term	Construction, Operation	The proposed development will remove a small amount of habitat within the Subject Land. However, the increased risk of starvation, exposure, and loss of shade shelter is unlikely to be a significant impact at a species level, as the habitat within the Subject Land is not considered to be highly suitable and therefore is unlikely to be relied upon by threatened or protected fauna. The Subject Land occurs within a dense urban matrix that does not support habitat for mobile threatened or protected fauna. More suitable habitat within the locality occurs along Vineyard Creek adjacent to the Subject Land.
(f) disturbance to breeding habitats	N/A	N/A	N/A	N/A	N/A	N/A
(g) trampling of threatened flora species	N/A	N/A	N/A	N/A	N/A	N/A
(h) inhibition of nitrogen fixation and increased soil salinity	N/A	Vegetation and habitat adjacent to the Subject Land	During Construction and Operation	Long-term	Construction, Operation	The Subject Land is currently predominantly bitumen carpark and within an already degraded locality, it is therefore unlikely that the proposed development will inhibit nitrogen fixation beyond its current condition.

Indirect impact (Describe impact, e.g. transport of weeds and pathogens from the site to adjacent vegetation)	Impacted entities (PCT/threatened entity and their habitats and where relevant, EPBC Act listing)	Extent (ha or zone reference)	Frequency	Duration (long-term/short-term/medium-term)	Project phase/ timing of impact (e.g. construction, operation, rehabilitation)	Likelihood and consequences
(i) fertiliser drift	N/A	Vegetation and habitat adjacent to the Subject Land	During Construction and Operation	Long-term	Construction, Operation	As the proposed development plans to landscape using entirely native species (Jila 2024), the use of fertiliser is not expected to increase beyond current garden maintenance activities. The potential for fertiliser drift associated with the proposed development is therefore not expected to exacerbate this reality beyond the current condition.
(j) rubbish dumping	Mobile ecosystem Credit species	Vegetation and habitat adjacent to the Subject Land	During Construction and Operation	Short-term, Possible long-term	Construction, Operation	The construction and operation of the building/centre development may increase anthropogenic litter, however regular Council collections and rubbish management systems of WSU and their maintenance staff will service the facility, limiting its impact.
(k) bush rock removal and disturbance	N/A	N/A	N/A	N/A	N/A	N/A
(l) increase in predatory species populations	Mobile Ecosystem Credit Species	Subject Property	Ongoing	Long-term	Construction, Operation	It is likely that predatory animals occur in high densities already as the locality is disturbed and situated in an urban environment. The proposed development is unlikely to exacerbate this reality beyond the current condition.
(m) increase in pest animal populations	Mobile Ecosystem Credit Species	Subject Property	Ongoing	Long-term	Construction, Operation	It is likely that pest animals occur in high densities already as the locality is disturbed and situated in an urban environment. The proposed development is unlikely to exacerbate this reality beyond the current condition.
(n) increased risk of fire	Mobile Ecosystem Credit Species	Subject Property	During Construction and Operation	Long-term	Construction, Operation	The risk of fire/ the spread of fire is relatively low within this urban environment due to the sparse vegetative cover. The proposed development is unlikely to change the

Indirect impact (Describe impact, e.g. transport of weeds and pathogens from the site to adjacent vegetation)	Impacted entities (PCT/threatened entity and their habitats and where relevant, EPBC Act listing)	Extent (ha or zone reference)	Frequency	Duration (long-term/short-term/medium-term)	Project phase/ timing of impact (e.g. construction, operation, rehabilitation)	Likelihood and consequences
						risk of fire in the Subject Land beyond its current condition.
(o) disturbance to specialist breeding and foraging habitat, e.g. beach nesting for shorebirds.	N/A	N/A	N/A	N/A	N/A	No specialist habitat occurs within the Subject Land.

9.3 Prescribed Impacts

This section of the report addresses impact mitigation measures for prescribed impacts.

9.3.1 Karst, caves, crevices, cliffs, rocks or other geological features of significance

Not Applicable

9.3.2 Human-made structures

The Subject Land is adjacent to human-made structures detailed in **Table 13**

Table 13. Residual prescribed impacts - impacts to human-made structures

Nature	Threatened fauna or flora protected fauna that are at risk	SAll entities at risk	Likelihood	Extent	Duration	Consequences
Works are proposed to take place around the Central Energy Plant located within the Subject Land	Ecosystem credit microbats	-	Low	This structure will be retained post-development	During construction and post-construction	The proposed development may indirectly impact upon potentially roosting microbats, however these impacts are unlikely to be adversely exacerbated beyond current levels associated with the existing carpark and surrounding roads.

9.3.3 Non-native vegetation

The Subject Land contains some non-native vegetation detailed in **Table 14**.

Table 14. Residual prescribed impacts – impacts to non-native vegetation

Nature	Threatened fauna or flora protected fauna that are at risk	SAll entities at risk	Likelihood	Extent	Duration	Consequences
The Subject Land is infill planted with exotic and non-indigenous native trees and has an exotic dominate understorey vegetation which contains several weed species.	Mobile Ecosystem Credit Species	-	High	0.48 ha of infill planted canopy and exotic dominate understorey vegetation occurs within the Subject Land	Construction and Operation	The proposed development will remove this vegetation, which may provide occasional foraging habitat to a small range of mobile ecosystem credit species. This impact is unlikely to be significant for any of these species.

9.3.4 Habitat connectivity

The Subject Land contains habitat connectivity that will be impacted by the proposed development as detailed in **Table 15**.

Table 15. Residual prescribed impacts – impacts to habitat connectivity

Nature	Threatened fauna or flora protected fauna that are at risk	SAIL entities at risk	Likelihood	Extent	Duration	Consequences
The mixed native/exotic canopy trees within the Subject Land may act as a stepping-stone for fauna moving across the landscape.	Mobile Ecosystem Credit Species	-	High	Vegetation removal will moderately disrupt this connectivity, however disjunct flyway corridors will remain in a similar manner in the landscape post-development.	This impact will be permanent.	The removal of habitat from the Subject Land will remove habitat that may be used as a stepping stone for highly mobile, urban-adapted fauna as they navigate the locality. The habitat within the locality is already fragmented and not likely to be important to threatened species owing to its situation within a dense urban matrix. As such, the proposed development is unlikely to have a significant impact on habitat connectivity at the landscape level. Additionally based on the proposed landscape plans (Jila 2024), landscape corridors may be re-established post-development.

9.3.5 Waterbodies, water quality and hydrological processes

Not Applicable.

9.3.6 Wind turbine strikes

Not applicable.

9.3.7 Vehicle strikes

The proposed development will result in residual prescribed impacts from vehicle strikes (**Table 16**).

Table 16. Residual prescribed impacts - vehicle strikes

Threatened fauna or protected fauna that are part of a TEC that are at risk of vehicle strike	SAIL entity	Likelihood	Estimated vehicle strike rates	Consequences
Mobile ecosystem credit fauna	No	Low	Nil	Motor vehicles are highly prevalent in the locality along the bordering roads. The proposed development will include low speed driveways with a small number of parking spaces. As the Subject Land is currently used as a high traffic carpark (Plate 2), vehicle usage is expected to be reduced post-development. As such, threatened species are unlikely to be impacted by vehicle traffic from the proposed development within the urbanised locality.

9.4 Mitigating residual impacts – management measures and implementation

The implementation of the recommended mitigation measures outlined in **Table 17** in accordance with the protocol outlined in **Table 18** will minimise the residual impacts of the proposed development.

Table 17. Summary of proposed mitigation and management measures for residual impacts (direct, indirect and prescribed)

Requirement	Mitigation measure
Assigning a Project Ecologist	Prior to construction, a qualified and experienced Ecologist (>3 years of experience) with a minimum tertiary degree in science, conservation, biology, ecology, natural resource management, environmental science or environmental management will be engaged. The Ecologist must be licensed with a current Department of Primary Industries Animal Research Authority permit and New South Wales Scientific License issued under the BC Act. The Ecologist must be a member of the NSW Ecological Consultants Association.
Tree Protection Zones	All trees to be retained must be protected in accordance with <i>Australian Standard - Protection of Trees on Development Sites (AS-4970-2009)</i>, which outlines that a Tree Protection Zone (TPZ) is the principal means of protecting trees on development sites. It is an area isolated from construction disturbance so that the tree remains viable. Works will be avoided within the TPZ of any trees located outside of the development site that require retention. This includes trees on neighbouring properties. TPZ will be protected as per instructions of the Tree Protection Plan (Tree Survey 2024). Tree protection fencing will be installed prior to site establishment and remain intact until the completion of works as per Tree Protection Plan (Tree Survey 2024).
Clearing of Vegetation and Fauna Habitat	Project Ecologist to undertake a pre-clearing survey of the Subject Land, identifying any threatened species and/or nests. All felling of native trees should be supervised by an Ecologist who will be available on site to capture, treat/relocate any displaced fauna. If any threatened species are identified, the Project Ecologist must be consulted to determine the best course of action, including potential translocations.
Erosion and Sedimentation	Appropriate erosion and sediment control will be erected and maintained during construction. At minimum such measures will comply with the relevant industry guidelines such as 'the Blue Book' (Landcom 2004).
Storage and Stockpiling	Locate the construction site compound as well as all construction storage, stockpile and laydown areas within the project disturbance area i.e. away from any native vegetation that is planned to be retained. Ensure any soil imported from outside the site, if required, is free of weeds.
Management of Light, Noise and Dust from Construction	Appropriate light, noise and dust suppression methods must be implemented to reduce their impact on surrounding flora and fauna. Construction works should be limited to daylight hours.
Threatened Fauna Reintroduction	Explore with the 'Saving our Species Program' (OEH 2024b) the feasibility / opportunity to reintroduce a population of the Green and Golden Bell Frog (<i>Litoria aurea</i>) into the proposed wetland habitat (Jila 2024) post development. Sydney Olympic Park in the locality contains a large population of this threatened species. Information on creating suitable habitat such as 'Raised ponds' can be found at 'Protecting and restoring green and golden bell frog habitat' (NSW DECC N/A).

Table 18. Implementation of the mitigation and management measures

Measure/action	Monitoring and evaluation strategy (Data, frequency, timing and reporting)	Performance criteria (linked to monitoring and evaluation strategy)	Adaptive management threshold (trigger for adaptive management plan/actions)	Adaptive management response (when triggered)
Assigning a Project Ecologist	Project Ecologist to be engaged by proponent prior to construction. Ecologist to conduct a pre-clearing survey for any sensitive fauna, breeding fauna, or threatened species in the Subject Land. No less than 48 hours prior to clearing commencing. Project Ecologist to supervise all vegetation clearing.	Assigned Project Ecologist to prepare an 'Ecologist Pre-clearing Report' to detail findings of the pre-clearing survey and results of clearing supervision.	If tree hollows, or nesting, sensitive, or threatened fauna or flora is found, the Ecologist will prepare a strategy to maximise likelihood of safe relocation.	Relocate sensitive fauna or threatened entity. If any tree hollow is found in a tree proposed for removal, instruct an Arborist to carefully remove the hollow sections of the tree and prepare excised hollows for re-install within the Subject Land or Subject Property.
Tree Protection	Project Arborist (Qualified Consulting Arborist) to be engaged by proponent prior to construction. Tree Protection Zone (TPZ) fencing to be installed around any trees on adjacent landholdings which may be impacted by the proposed excavation or construction.	Project Arborist to supervise the installation of TPZ fencing. Arborist to provide letter with photographic evidence to confirm appropriate controls have been installed.	If any excavation works that occur within the 'drip zones' or structural root zones of trees that are to be retained on a neighbour's property.	Stop works immediately. Qualified Consulting Arborist must be present to supervise any excavation works and provide advice to ensure such works do not harm trees on adjacent properties.
Clearing of Vegetation and Fauna Habitat	Project Ecologist to supervise all vegetation clearing.	Assigned Project Ecologist to prepare an 'Ecologist Post-clearing Report' to detail findings of the clearing works.	N/A	N/A
Erosion and Sedimentation	Appropriate Erosion and Sedimentation Controls informed by the Blue Book (Landcom 2004) to be included in a Construction Environmental Management Plan (CEMP) commissioned by the proponent prior to construction.	Minimum industry standards enforced prior to and during earthworks, clearing and construction.	If controls are not properly installed or fail.	Engage Earthworks Contractor, Civil or Environmental Engineer to install appropriate controls within 24 hours of the breach.
Storage and Stockpiling	All storage and stockpiling of construction resources must be in appropriate laydown areas away from the dripline of trees that will be retained.	No inadvertent impacts to habitat or vegetation.	Inadvertent impacts occur to adjacent vegetation as a result of improper management of construction materials.	Review controls and implement new measures. Remediate the vegetation impacted by the inadvertent impact under the guidance of the Project Ecologist.
Management of Light, Noise and Dust from Construction	Restrict construction to daylight hours. Manage dust, erosion and runoff in accordance with the provisions of 'The Blue Book' (Landcom 2004). Limit the unnecessary use of flood lighting.	Control measures implemented.	Control measures ineffective, resulting in disturbance to protected flora or fauna, or disturbance to nearby landholders.	Review controls and implement new measures under guidance of Construction Contractor to adequately mitigate impacts.
Threatened Fauna Reintroduction	Explore with the 'Saving our Species Program' (OEH 2024b) the feasibility / opportunity to reintroduce a population of the Green and Golden Bell Frog (<i>Litoria aurea</i>) into the proposed wetland habitat	N/A	N/A	N/A

Measure/action	Monitoring and evaluation strategy (Data, frequency, timing and reporting)	Performance criteria (linked to monitoring and evaluation strategy)	Adaptive management threshold (trigger for adaptive management plan/actions)	Adaptive management response (when triggered)
	(Jila 2024) post development. Sydney Olympic Park in the locality contains a large population of this threatened species. Information on creating suitable habitat such as 'Raised ponds' can be found 'Protecting and restoring green and golden bell frog habitat' (NSW DECC N/A).			

9.5 Adaptive management strategy for uncertain impacts

If during the construction of the proposed development, the Project Ecologist finds that a species listed under the EPBC Act or a species at risk of an SAIL has the potential to be significantly impacted, works must cease until the Project Ecologist advises on a suitable approach. This may require a referral to the Commonwealth to determine whether the proposed development will need formal assessment and approval under the EPBC Act.

10. Serious and Irreversible Impacts

10.1 Assessment for serious and irreversible impacts on biodiversity values

No entities are considered to have a significant risk of SAIL from the proposed development in accordance with the 'Guidance to assist a decision-maker to determine a serious and irreversible impact' (NSW DPIE 2019) (**Table 19**).

Table 19. Entities at risk of SAIL

Common name	Scientific name	Reason for inclusion in assessment
N/A	N/A	N/A

11. Impact Summary

11.1 Determine an offset requirement for impacts

11.1.1 Impacts on Native Vegetation and Threatened Ecological Communities

Impacts to native vegetation as a result of the proposed development that do not require offsetting are detailed in **Table 20**.

Table 20. Impacts that do not require offset - ecosystem credits

Vegetation zone	PCT name	TEC	Impact area (ha)	Entity at risk of an SAI?	Current VI score
N/A	N/A	N/A	N/A	N/A	N/A

Impacts to native vegetation as a result of the proposed development that do require offsetting are detailed in **Table 21**.

Table 21. Impacts that require an offset - ecosystem credits

Vegetation zone	PCT name	TEC	Impact area (ha)	Current VI score	Future VI score	Change in VI score	Biodiversity risk weighting	Number of ecosystem credits required
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total credits								N/A

11.1.2 Impacts on Threatened Species and their Habitat (Species Credits)

Impacts to threatened species as a result of the proposed development that require offsetting are detailed in **Table 22**.

Table 22. Impacts that require an offset - species credits

Common name	Scientific name	BC Act status	EPBC Act status	Loss of habitat (ha) or individuals	Biodiversity risk weighting	Number of species credits required
N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total credits						N/A

11.2 Indirect and prescribed impacts

Proposed offsets for the residual indirect and prescribed impacts as a result of the proposed development are summarised in **Table 23**. The proposed development will not result in residual indirect or prescribed impacts requiring offsetting.

Table 23. Summary of proposed offsets for residual indirect and prescribed impacts

Residual indirect or prescribed impact (identified after mitigation)	Proposed offset (additional biodiversity credit requirement and/or other conservation measures)
N/A	N/A

11.3 Impacts that do not need further assessment

Impacts that do not need further assessment for ecosystem credits are detailed in **Table 24**.

Table 24. Impacts that do not need further assessment for ecosystem credits

Impact	Location within Subject Land	Justification why no further assessment is required
Removal of 0.2 ha of Planted Native Canopy Trees	The vegetation within the 'Planted Native Canopy- proposed for removal' zone within the Subject Land shown in Figure 6	This vegetation was determined to be planted native vegetation which pursuant of Appendix D of the BAM, does not require ecosystem credits to be offset.
Removal of 0.28 ha of Exotic Dominant (Understorey vegetation and Exotic Trees).	The Exotic Dominant Understorey vegetation and Exotic trees canopy vegetation within the 'Exotic Dominant Vegetation' zone within the Subject Land shown in Figure 6	This vegetation was determined to be exotic dominant vegetation which does not require ecosystem credits to be offset.

12. Biodiversity Credit Report

12.1 Ecosystem credits

In accordance with section 9.2.1 of the BAM (DPIE 2020a) the assessor must determine an offset for all impacts of proposals on PCTs that are associated with a vegetation zone that has a vegetation integrity score of:

- a. ≥ 15 , where the PCT is representative of an EEC or a CEEC
- b. ≥ 17 , where the PCT is associated with threatened species habitat (as represented by ecosystem credits) or represents a vulnerable ecological community
- c. ≥ 20 , where the PCT does not represent a TEC and is not associated with threatened species habitat.

The ecosystem credits requiring retirement for the proposed development are summarised in **Table 25**.

Table 25. Ecosystem credits class and matching credit profile

Credits to Retire	Attributes shared with matching credits						
	PCT name	PCT vegetation class	PCT vegetation formation	Associated TEC or EC	Offset trading group (BAM Section 10.2, Tables 4 & 5)	Hollow bearing trees present?	IBRA subregion (in which proposal is located)
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

12.2 Species credits

In accordance with section 9.2.2 of the BAM (DPIE 2020a):

1. The assessor must determine an offset for the impacts of proposals on the habitat of threatened species assessed for ecosystem credits and associated with a PCT in a vegetation zone with a vegetation integrity score of ≥ 17 .
2. The assessor must determine an offset for the impacts of proposals on threatened species that require species credits, identified in accordance with Chapter 5 of the BAM (DPIE 2020a).
3. The method for determining offset requirements for impacts on threatened species and threatened species habitat is described in Chapter 10 of the BAM (DPIE 2020a).
4. An offset requirement can be proposed for a prescribed impact in accordance with Section 8.6 of the BAM (DPIE 2020a).

As the vegetation in the zone PCT 3320 'Understorey Only' is less than 17, no offset for species credit species is required (**Table 26**).

Table 26. Species credit class and matching credit profile

Credits to Retire	Attributes shared with matching credits				
	Name of threatened species	Kingdom	BC Act status	EPBC Act status	IBRA region
N/A	N/A	N/A	N/A	N/A	N/A

13. Other Relevant Legislation, Plans & Policies Requiring Address

13.1 Parramatta Local Environmental Plan 2023

This section details Environmental Controls relevant to the terrestrial biodiversity associated with the Subject Land and surrounds (**Table 27**).

Table 27. Environmental controls relevant to the terrestrial biodiversity associated with the Subject Land and surrounds.

Local Environmental Plan Reference	Application	Suitable Action
Part 2.1 Land use zones	The Subject Land is zoned 'SP2 – Infrastructure'.	The proposed development is permitted with consent from City of Parramatta Council.
Part 3.3 Environmentally sensitive areas excluded	The Subject Land is not situated in an environmentally sensitive area as defined by the clause.	The proposed development is permitted with consent from City of Parramatta Council.
Part 6.2 Earthworks	The proposed development will require earthworks.	The proposed development will be managed to mitigate potential detrimental effects on existing drainage patterns and soil stability of the locality. This includes appropriate management of runoff and erosion in accordance with the provisions of 'The Blue Book' (Landcom 2004).
Part 6.3 Biodiversity	There is no land mapped 'Biodiversity' within the Subject Land. (NSW DCCEW 2024a). "Biodiversity" has been mapped adjacent to the Subject Land, along Vineyard Creek.	While the Subject Land is not mapped as containing 'Biodiversity', measures to avoid, minimise or mitigate adverse biodiversity impacts will still be implemented (Tree Survey 2024) (Jila 2024). Seven trees within the Subject Land will be retained, including one mature <i>Melaleuca decora</i> which is considered of 'high importance for retention' (Tree Survey 2024). Landscaping will utilise 100% native species of local provenance (Jila 2024). Impacts to mapped 'Biodiversity' adjacent to the Subject Land are no likely to occur with the implementation of control measure discussed in Section 9.4. As such no impacts to Land mapped as 'Biodiversity' are expected to occur as a result of the proposed development.

13.2 Parramatta Development Control Plan 2023

This section details Development Controls relevant to the terrestrial biodiversity within the Subject Land and surrounds (**Table 28**).

Table 28. Development controls relevant to the terrestrial biodiversity within the Subject Land and surrounds

Development Control Plan Reference	Application	Suitable Action
Part 2.7 Open Space and Landscape	The proposed development will require landscaping.	The seven (7) native trees to be retained have been incorporated into the design of the proposed development and will be protected during construction (Tree Survey 2024). Landscaping will utilise 100% native species of local provenance (Jila 2024). The fifty-two (52) historically planted (non-indigenous native and exotic) trees will be replaced with native species as per Jila (2024) landscape plan. These trees will be planted at the front and rear of the property as per clause 2.7 Landscaping has been designed to integrate new development with the existing nearby landscapes (Jila 2024). Inspiration for the planting schedule has been taken from recent surveys of Vineyard Creek's vegetation and on 'original' ecological communities found across the Parramatta River catchment (Jila 2024).
Part 4.5 Educational Establishments	The proposed development will require landscaping.	<i>'Site planning must be sensitive to the streetscape character and views'.</i> <i>'Educational establishments are to be designed and landscaped in a manner that enhances the quality and visual amenity of the streetscape'.</i> Six (6) trees have been retained along the street frontage of Victoria Road to maintain a screening function (JCB Architects 2024). Landscaping (Jila 2024) has been designed to incorporate locally occurring flora species and be representative of locally occurring vegetative communities. <i>'Edges of the site will be densely planted in some areas - for screening infrastructure or road noise, and more open where views are important. There is opportunity to develop a specific seed mix with local specialists and seed suppliers that can establish as an understorey layer' (Jila 2024).</i>
Part 5.2.1 Control of Soil Erosion and Sedimentation	The proposed development will require earthworks.	The proposed development has been designed in order to minimise site disturbance, including impacts on the soil landscape. This includes appropriate management of runoff and erosion in accordance with the provisions of 'The Blue Book' (Landcom 2004).
Part 5.3.1 Biodiversity	The proposed development requires the removal of native trees and vegetation.	In total the development proposes to remove/ impact upon 0.48 ha of vegetation. This includes the removal of fifty-two (52) trees within the Subject Land. These trees are non-indigenous native planted trees. The development will also require the removal of exotic dominate understorey vegetation. The removal of trees and vegetation will be conducted in accordance with Part 5.3.4 of this DCP. Seven (7) trees will be retained post-development. This includes one locally indigenous native tree, <i>Melaleuca decora</i>. All retained trees will be protected during construction (Tree Survey 2024). Landscaping will utilise 100% native species of local provenance (Jila 2024). Landscaping has been designed to integrate the proposed development with existing nearby landscapes (Jila 2024). Inspiration for the planting schedule has been taken from recent surveys of

Development Reference	Control Plan Application	Suitable Action
		Vineyard Creek's vegetation and on 'original' ecological communities found across the Parramatta River catchment (Jila 2024).
Part 5.3.2 Waterways and Riparian Zone	No watercourses or Riparian zones occur within the Subject Land.	While the proposed development does not encroach upon any waterways, best practice stormwater management will be implemented during construction. <i>'Opportunities for fauna habitat are to be considered in the design of any waterway protection measures. Watercourses should be linked with other areas of indigenous vegetation, wildlife corridors and/or natural or visually important site features'.</i> The development proposes to create a wetland habitat within the Subject Land. Landscaping has been designed to integrate the proposed development with existing nearby landscapes (Jila 2024). Inspiration for the planting schedule has been taken from recent surveys of Vineyard Creek's vegetation and on 'original' ecological communities found across the Parramatta River catchment (Jila 2024).
Part 5.3.4 Tree and Vegetation Protection	The proposed development requires the removal of prescribed trees as described in Parramatta LEP (2023)	In total the development proposes to remove/ impact upon 0.48 ha of vegetation. This includes the removal of fifty-two (52) trees within the Subject Land. These trees are non-locally indigenous planted trees. It also proposes the removal of exotic dominate understorey vegetation. The seven (7) trees that are proposed for retained have been incorporated into the design of the proposed development and will be protected during construction. This includes a locally indigenous native, <i>Melaleuca decora</i> situated near the centre of the Subject Land. Protection measures include using fencing around the trees, using a suitably qualified Arborist to supervise tree removal, and restricting any activity within TPZs (Tree Survey 2024). <i>'Where a tree is approved to be removed, Council will seek the replanting of a suitable canopy replacement tree or trees in a suitable location on the site. Any replacement trees will need to be grown to maturity and replaced if the planting fails to survive and thrive'.</i> The fifty-two (52) historically planted (non-indigenous native and exotic) trees will be replaced with native species as per Jila (2024) landscape plan.

13.3 Commonwealth Environment Protection and Biodiversity Conservation Act 1999

No matters of National Environmental Significance were found to occur within the Subject Land.

Commonwealth listed threatened species that are MNES have potential to occur in the Subject Land on occasion. Impact to habitat is limited to the clearing of approximately 0.48 ha of degraded vegetation in an urban matrix. MNES that have the potential to occur within the Subject Land include nomadic fauna such as Grey-headed Flying-fox, Swift Parrot and Large-eared Pied Bat that may forage or fly over the Subject Land in search of food on occasion. These species are highly unlikely to regularly utilise or rely heavily on the Subject Land owing to its small area and its position within a hostile urban matrix. As such, no further assessment under the EPBC Act is deemed necessary.

13.4 State Environmental Planning Policy (Biodiversity and Conservation) 2021

13.4.1 Chapter 4: Koala Habitat Protection

The Subject Land is located within a Local Government Area that is not listed in Schedule 2 of Chapter 4: Koala Habitat Protection. No documented feed tree species are present within the Subject Land (OEH 2018c). A review of NSW Wildlife Atlas data (BioNet) (NSW DCCEEW 2024c) revealed two koala records within the 10 km locality. No koala was recorded during site visitation and no koalas have been recorded as being present in the previous 18 years within the Subject Property or within 5km radius of the Subject Land. The Subject Land is therefore not considered Core Koala Habitat.

13.5 State Environmental Planning Policy (Coastal Management) 2018

The State Environmental Planning Policy (Coastal Management) 2018 applies to land within the 'Coastal Environment Area' and aims to promote an integrated and co-ordinated approach to land use planning in the coastal zone in a manner consistent with the objectives of the *Coastal Management Act 2016*.

The Subject land is located within the mapped 'Coastal Environment Area' and within the mapped 'Coastal Use Area'. The development will therefore need to comply with the provisions of the SEPP (SEPP Coastal Management 2018).

The Subject Land is not located within any mapped Littoral Rainforest, Coastal Wetlands. Coastal Wetlands are mapped occurring approximately 270m from the Subject Land, however, no impacts to this habitat are expected to occur as a consequence of the proposed development.

13.6 Fisheries Management Act 1994

The Subject Land is not within or in close proximity to mapped 'Key Fish Habitat' (KFH). The proposed development is not an activity requiring a permit under the Fisheries Management Act 1994.

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15. Appendices

Appendix 1. Vertebrate Fauna recorded in Subject Land by Land Eco Consulting

Appendix 2. BAM VIS Field Survey Forms (copied from electronic data sheet)

Appendix 1. Vertebrate Fauna recorded in Subject Land by Land Eco Consulting

Class	Scientific Name	Common Name	NSW Biodiversity Conservation Act 2016 Status
Aves	<i>Acridotheres tristis</i>	Common Myna	-
Aves	<i>Cacatua galerita</i>	Sulphur-crested Cockatoo	Protected
Aves	<i>Columba livia domestica</i>	Feral Pigeon	-
Aves	<i>Eolophus roseicapilla</i>	Galah	Protected
Aves	<i>Glossopsitta concinna</i>	Musk Lorikeet	Protected
Aves	<i>Hirundo neoxena</i>	Welcome Swallow	Protected
Aves	<i>Platycercus eximius</i>	Eastern Rosella	Protected
Aves	<i>Threskiornis moluccus</i>	Australian White Ibis	Protected
Aves	<i>Trichoglossus moluccanus</i>	Rainbow Lorikeet	Protected
Aves	<i>Vanellus miles</i>	Masked Lapwing	Protected

Appendix 2. BAM VIS Field Survey Forms (copied from electronic data sheet)

BAM Site - Field Survey Form						
Date:	06/06/24	Plot ID:	1	Photo #:		
Zone:	H	Plot Dimensions:	20x50	Easting:	317304	
Datum:	GDA94	Middle Bearing (o) at 0m:	79	Northing:	6257231	
PCT:		Condition Class		Ecologists:	Theo, Chantelle	
Counts apply when the number of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For a multi-stemmed tree, only the largest living stem is included in the count/estimate. Tree stems must be living.						

Growth Form	Scientific Name	Cover	Abundance	DBH	# Tree Stems Count	Number of Hollow-bearing Trees
Tree (TG)	<i>Eucalyptus microcorys</i> - planted	15	N/A	80+cm	0	0
Tree (TG)	<i>Auranticarpa rhombifolia</i> - planted	20	N/A	50-79cm	1	0
Non-Native	<i>Rhaphiolepis indica</i>	50	N/A	30-49cm	3	0
Non-Native	<i>Viburnum tinus</i>	5	6	20-29cm	4	0
Non-Native	<i>Trachelospermum asiaticum</i>	30	N/A	10-19cm	9	0
HTE	<i>Ochna serrulata</i>	0.1	2	5-9cm	2	0
Non-Native	<i>Celtis sinensis</i>	0.1	3	<5cm	1	0
Non-Native	<i>Sida rhombifolia</i>	0.2	20			
Forb (FG)	<i>Commelina cyanea</i>	0.1	2	Length of Logs (m)	0	
Non-Native	<i>Solanum nigrum</i>	0.1	6	(≥10 cm diameter, >50 cm in length)		
Grass & grasslike (GG)	<i>Cyperus gracilis</i>	0.1	2			
HTE	<i>Passiflora suberosa</i>	0.1	1	BAM Attribute (1 x 1 m plots)	Litter Cover (%)	
Non-Native	<i>Jacaranda mimosifolia</i>	0.1	1	1	100	
HTE	<i>Lantana camara</i>	0.1	2	2	100	
HTE	<i>Cestrum parqui</i>	0.2	2	3	100	
Non-Native	<i>Medicago polymorpha</i>	0.1	15	4	100	
Non-Native	<i>Soliva sessilis</i>	0.1	10	5	100	
Non-Native	<i>Prunus</i> sp.	85	N/A	Average (#no./5)	100	
Grass & grasslike (GG)	<i>Cynodon dactylon</i>	0.1	3	Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.		
Non-Native	<i>Nothoscordum x borbonicum</i>	0.1	10			

HTE	<i>Ehrharta erecta</i>	0.1	10			
HTE	<i>Bidens pilosa</i>	0.1	1			
Non-Native	<i>Sonchus oleraceus</i>	0.2	20			
Non-Native	<i>Oxalis corniculata</i>	0.1	20			
Non-Native	<i>Euphorbia maculata</i>	0.1	3			
Non-Native	<i>Euphorbia peplus</i>	0.1	3	Growth Form	Composition Data	Structure Data
				Tree	3	35.1
HTE	<i>Stenotaphrum secundatum</i>	0.2	30	Shrub	0	0
Non-Native	<i>Taraxicum officinale</i>	0.1	1	Grass	2	0.2
HTE	<i>Araujia sericifera</i>	0.1	2	Forb	1	0.1
				Fern	0	0
				Other	0	0
				H.T.E	8	1
				Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m		
				Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...		



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