

31 October 2022

Health Infrastructure
c/o Cameron McClement
Associate Director, Health and Higher Education
CBRE Project Management
Level 21, 363 George Street
Sydney, NSW 2000

Cumberland Ecology
PO Box 2474
Carlingford Court 2118
NSW Australia
Telephone (02) 9868 1933
ABN 14 106 144 647
Web: www.cumberlandecology.com.au

Westmead Integrated Mental Health Complex – State Significant Development Application (SSD-44034342) - Biodiversity Development Assessment Report Waiver Request

Dear Cameron,

The purpose of this letter is to assess the need for a biodiversity assessment utilising the Biodiversity Assessment Method, for the proposed State Significant Development (SSD) of the Westmead Integrated Mental Health Complex – State Significant Development Application (SSD-44034342) (hereafter referred to as the 'Project') within parts of Lot 1 DP 1194390 which forms part of the larger Westmead Health Precinct.

Industry Specific Secretary's Environmental Assessment Requirements (SEARs) were issued for the Project on 6 June 2022. In relation to biodiversity, the SEARs state that biodiversity impacts associated with the development are to be assessed in accordance with the *Biodiversity Conservation Act 2016* and the Biodiversity Assessment Method 2020, including the preparation of a Biodiversity Development Assessment Report (BDAR), unless a waiver is granted, or the development is on biodiversity certified land.

This letter has been prepared to provide information for the Planning Agency Head and the Environment Agency Head to assist them in determining whether the Project is likely to have any significant impact on biodiversity values and whether a BDAR is required for the Project or if a BDAR waiver can be granted for the Project.

This letter includes the following:

- **Appendix A:** BDAR Waiver Request;
- **Appendix B:** Flora Species List;
- **Appendix C:** Threatened Species BioNet Atlas Results; and
- **Figures.**

On the basis of our investigations, we believe that the preparation of a BDAR is not necessary, due to the low likelihood of impacts to biodiversity values and that the Project meets the criteria for a waiver to be granted.

If you have any queries regarding this assessment, please don't hesitate to contact me via email.

Yours sincerely,

A handwritten signature in blue ink, reading "Gitanjali Katrak". The signature is written in a cursive, flowing style.

Gitanjali Katrak
Senior Project Manager/Ecologist
gitanjali.katrak@cumberlandecology.com.au

APPENDIX A :

BDAR Waiver Request

A.1. Introduction

Health Infrastructure is preparing an application for the proposed State Significant Development (SSD) of the Westmead Integrated Mental Health Complex, (State Significant Development Application - SSD-44034342) (hereafter referred to as the 'Project'). The Project is located within Lot 1 DP 1194390 which forms part of the larger Westmead Health Precinct, Westmead NSW.

The Project is seeking approval under Part 4 Division 4.7 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). Industry Specific Secretary's Environmental Assessment Requirements (SEARs) were issued for the Project on 6 June 2022. In relation to biodiversity, the SEARs state that biodiversity impacts associated with the development are to be assessed in accordance with the *Biodiversity Conservation Act 2016* (BC Act) and the Biodiversity Assessment Method 2020 (BAM), including the preparation of a Biodiversity Development Assessment Report (BDAR), unless a waiver is granted, or the development is on biodiversity certified land.

Cumberland Ecology has been commissioned by Health Infrastructure (the 'Applicant') to prepare this BDAR waiver request for the Project. The purpose of this document is to provide the information requirements as set out in Table 1 and Table 2 of *How to apply for a biodiversity development assessment report waiver* (DPIE, 2019).

A.1.1. Definition of Subject Land and Development Footprint

It is to be noted that any BDAR waiver application is required to be submitted before the SSD application. Although a location has been determined for the project, there is potential for minor adjustments to layouts or locations for ancillary infrastructure (such as sewer outlets) for the SSD prior to submission of the SSD application. Therefore, this BDAR waiver request takes a precautionary approach and has assessed additional buffer areas beyond those of the current layout plans for the Project (collectively referred to as the 'subject land') (see BDAR waiver subject land in **Figure 1**). All proposed works for the SSD application will be contained within these assessed boundaries of the subject land.

As outlined in the scoping report for the request for SEARs, a range of separate but related infrastructure improvement works are occurring across the Westmead Hospital under separate applications via Part 5 of the EP&A Act and as Development Without Consent under State *Environmental Planning Policy (Transport and Infrastructure) 2021*. The infrastructure improvement works are required for efficient sequencing of works across the Westmead Health Precinct and to ensure the ongoing operation of the Hospital and include:

- Demolition of buildings;
- Installation and augmentation of services;
- Tree removal;
- Realignment of internal roads;
- Internal building refurbishment; and
- Landscaping.

These works are subject to separate planning pathways that are yet to be determined. As some of these works, such as building demolition and associated tree removal, are located within the area subject to the SSD application and separate approval pathways for implementation of these works are not yet formalised, this BDAR waiver request has provided a holistic assessment of all areas within the proposed footprint of the SSD application and associated buffer zones. The areas assessed for the purposes of a BDAR waiver are shown as the 'BDAR waiver subject land' in **Figure 1**.

The delivery of the project, as per the SSD application, will require an additional accessway to an existing carpark. This additional accessway is subject to a separate planning pathway (such as a Review of Environmental Factors or REF) and does not lie within the footprint of the SSD application (see 'Additional P14 accessway in **Figure 1**'). Nonetheless, as part of a holistic assessment approach, this additional accessway has been included within this BDAR waiver request for information purposes only. The location of this additional accessway, including a potential buffer for worksites and ancillary works is shown in all supporting figures to this letter report. As this area does not form part of the SSD application and therefore the extent of what the BDAR waiver, if granted, will apply to, it is indicated as a separate area within all supporting figures (referred to as 'Additional P14 accessway').

A.1.2. Assessment Requirements for State Significant Development

The project is classified as SSD under *State Environmental Planning Policy (SEPP) (Planning Systems) 2021*, as the proposal seeks consent for development with a capital investment value of more than \$30 million for health and medical services, pursuant to Schedule 1, Section 14 of the SEPP.

Section 7.9 of the BC Act requires all development applications for SSD to be accompanied by a BDAR, unless both the Planning Agency Head and the Environment Agency Head determine that the proposed development is not likely to have any significant impact on biodiversity values.

A.1.3. Waiver of Requirement to Prepare a Biodiversity Development Assessment Report

Section 7.9 of the BC Act indicates that there are some circumstances in which the Planning Agency Head and the Environment Agency Head may determine that a proposed development is not likely to have a significant impact on biodiversity values and as such, a BDAR is not required to be prepared. Biodiversity values are defined under the BC Act and the *Biodiversity Conservation Regulation 2017* (BC Regulation), and include:

- Vegetation integrity - being the degree to which the composition, structure and function of vegetation at a particular site and the surrounding landscape has been altered from a near natural state;
- Habitat suitability - being the degree to which the habitat needs of threatened species are present at a particular site;
- Threatened species abundance - being the occurrence and abundance of threatened species or threatened ecological communities, or their habitat, at a particular site;

- Vegetation abundance - being the occurrence and abundance of vegetation at a particular site;
- Habitat connectivity - being the degree to which a particular site connects different areas of habitat of threatened species to facilitate the movement of those species across their range;
- Threatened species movement - being the degree to which a particular site contributes to the movement of threatened species to maintain their lifecycle;
- Flight path integrity - being the degree to which the flight paths of protected animals over a particular site are free from interference; and
- Water sustainability - being the degree to which water quality, water bodies and hydrological processes sustain threatened species and threatened ecological communities at a particular site.

For a waiver to be applied for future development at a site, it needs to be demonstrated that the above listed biodiversity values will not be significantly impacted.

BDAR waiver request information requirements for the Project are provided in **Table 1** below, as per Table 1 of *How to apply for a biodiversity development assessment report waiver* (DPIE, 2019).

Table 1 BDAR waiver request information requirements

Requirements	Responses
Admin	
Proponent name and contact details	Claire Muir Senior Planning Advisor (Development and Commercial) Health Infrastructure Mobile: 0403 754 736 Email: claire.muir@health.nsw.gov.au Address: 1 Reserve Road, St Leonards, NSW 2065 Locked Bag 2030, St Leonards NSW 1590
Project ID (Information to identify which SSD or SSI project the request relates to and where the project is up to in the assessment process)	Westmead Integrated Mental Health Complex, (SSD-44034342)
Name and ecological qualifications of person completing TABLE 2	Gitanjali Katrak • Bachelor of Science (Honours) in Biological Sciences. La Trobe University, 2002 • Doctor of Philosophy, Intertidal Wetland Ecology. Flinders University, 2011 • BAM Accredited Assessor Training. Muddy Boots, 2017 (BAAS17064) • BAM Assessor Reaccreditation Training. GreenCap 2021 (BAAS17064)

Requirements	Responses
Site details	
Street address, Lot and DP, local government area	218 Redbank Road, Westmead NSW Lot 1 DP 1194390 City of Parramatta LGA
Description of existing development site, i.e. the area of land that is subject to the proposed development application. If any part of the land is considered 'Category 1- exempt land' information must be provided to demonstrate how the land meets the criteria ³ that applies to Category 1 – Exempt Land.	The subject land is an urban property comprised of a number of existing hospital buildings and associated carparks that are currently in use with surrounding landscaped gardens. As the subject land comprises urban land it is not considered 'Category 1 - exempt land' under the <i>Local Land Services Act 2013</i>. Further details are provided in Section A.2.1.
Location map showing the development site in the context of surrounding areas and landscape features. Satellite image of site in context of adjoining sites.	See Figure 1 and Figure 2 It is to be noted that as the BDAR waiver application is required to be submitted before the SSD application this BDAR waiver request takes a precautionary approach and has assessed additional buffer areas beyond those of the current layout plans for the Project to allow for potential minor modifications and adjustments to the SSD application. The project layout and additional buffer areas assessed for this waiver application are referred to as the BDAR waiver subject land in the figures. The figures also show an indicative location of an additional accessway and associated work zone buffers to an existing carpark. This accessway does not form part of the SSD application but is subject to a separate planning pathway. Nonetheless, an assessment of this area has been included as part of a holistic assessment approach for the Project, especially as some works within the SSD application footprint, such as vegetation removal in specific areas or building demolition may be included and implemented as part of this separate planning pathway.
Site Map (to scale, ideally as a spatial shapefile)	See Figure 1

Requirements	Responses
<i>Proposed development</i> Project description providing enough information to enable an understanding of the nature and scale of the proposed development and any associated activities (including construction etc.)	The proposed development involves the construction and operation of a new Integrated Mental Health Complex (IMHC) comprising a multi-level hospital facility. This will involve construction of the facility, a link bridge to connect it with existing buildings, alterations to existing roads, bulk earthworks including cut and fill and tree removal, building foundation works, signage installation, and landscaping. Demolition of the existing buildings and specific areas of vegetation in the subject land will also be undertaken via a separate town planning pathway. Further description is provided in Section A.2.2.
<i>Proposed Site Plan</i>	See Figure 3. It is to be noted that as the BDAR waiver application is required to be submitted before the SSD application this BDAR waiver request takes a precautionary approach and has assessed additional buffer areas beyond those of the current layout plans for the Project to allow for potential minor modifications and adjustments to the SSD application. All proposed works for the SSD application will be contained within these assessed boundaries (referred to as the BDAR waiver subject land in Figures 1-2 & 4 – 6). As the additional accessway does not form part of the SSD application, this is not indicated in the plans shown in Figure 3.
<i>Impacts on biodiversity values</i> <i>Complete TABLE 2 below on Biodiversity Values</i> For each biodiversity value, the proponent must either: • explain why the value is not relevant to the proposed development; or, • where a biodiversity value may be relevant, provide an explanation of how impacts have been avoided and identify the likelihood and extent of any remaining impacts of the proposed development, including	See Table 3

Requirements	Responses
impacts prescribed under clause 6.1 of the BC Regulation.	
A biodiversity value is not relevant to a proposed development if the value is not present on the development site AND there is no potential for direct or indirect impacts on the biodiversity value if it occurs off-site.	See Table 3
Where one or more biodiversity values may be relevant to the proposed development, TABLE 2 is to be completed by a suitably qualified person with tertiary qualifications in natural sciences including subjects that relate to the observation and description of terrestrial biodiversity and landforms, and at least three years of work experience in environmental assessment including field identification of plant and animal species and habitats The person does not need to be an accredited person under the BC Act.	See Table 3
Attach any additional information required where biodiversity values are relevant to the site. E.g. Vegetation Map (indicating plant community types), Ecology Reports, Water Quality data, BioNet Atlas, Directory of Important Wetlands (DIWA), migratory bird flyway information.	See Figures 1-6 and Appendix C

A.2. Background

A.2.1. Description of Site

The subject land consists of parts of Lot 1 DP 1194390, located at 218 Redbank Road, Westmead NSW, within the site of the existing Brain Injury Unit (BIU) and Casuarina Lodge accommodation building, and adjacent carparks, as seen in **Figure 1**. The subject land is generally bounded by Redbank Road to the east and south-east, Dragonfly Drive to the southwest and existing carparks to the north and west. Toongabbie Creek, which is part of the Parramatta River catchment, occurs to the further north-west of the subject land as shown in **Figure 2**. The existing hospital grounds include extensive built areas, with a number of multi storey buildings, carparks, gardens and other facilities.

A.2.2. Proposed Development

In May 2022, the NSW Government announced the investment of \$460 million into the development of a new Integrated Mental Health Complex at Westmead, that will transform the delivery of mental health services across Western Sydney and deliver improved care for patients in line with state and national mental health reforms. The Integrated Mental Health Complex will replace the existing mental health facilities at Cumberland Hospital.

The Integrated Mental Health Complex at Westmead is located within the Westmead Health Precinct, approximately 1.5km north-west of the Parramatta Central Business District (CBD), the primary metropolitan centre of Western Sydney. The Westmead Health Precinct is contained across land legally described as Lot 1

DP1194390 and Lot 4 DP 1077852. The current proposed development of the Integrated Mental Health Complex is fully contained within Lot 1 DP1194390.

The Westmead Health Precinct is one of the largest health, education, research and training precincts in Australia. Spanning approximately 75 hectares, the precinct comprises over 400,000sqm of health-related developments including four major hospitals, four world-leading medical research institutes, two university campuses and the largest research-intensive pathology service in NSW. Westmead Health Precinct sits within the broader Westmead Health and Innovation District, a cornerstone for investment, economic growth and job creation in Western Sydney, servicing one of the fastest growing populations in Australia.

Approval is being sought for the construction and operation of a new multi-storey Integrated Mental Health Complex at the Westmead Health Precinct comprising:

- New multi-level hospital facility to a height of approximately 10 storeys;
- New link bridge connecting to the existing central acute services building;
- Minor alterations to the existing road network within the hospital campus;
- Site preparation including bulk earth works, tree removal, cut and fill;
- Inground building services works and utility adjustments, including service diversions;
- Building foundation works;
- Wayfinding and signage; and
- Landscape works.

The proposed development will involve the demolition of the existing buildings - Brain Injury Unit (BIU), and Casuarina Lodge (via a separate town planning application) - and associated carparks and landscaped gardens to enable construction of the new facilities and proposed new landscaping. The current proposed layout for the Project is shown in **Figure 3**.

A.3. Methods

A.3.1. Database Analysis

Database searches were conducted to identify threatened species, populations, that occur within the locality using the NSW Environment and Heritage Group (EHG) BioNet Atlas database (EHG, 2022a). The BioNet Atlas search facility was used to generate records of threatened flora and fauna species and populations listed under the BC Act within the locality. The locality is defined as the area within a 5 km radius of the subject land. The number, age, and location of such records were considered to provide an indication of the species that could have the potential to occur on or around the subject land.

A.3.2. GIS Mapping

A desktop analysis was undertaken to identify the vegetation communities that were present on or nearby the subject land. This included broad scale mapping prepared for the Sydney Metropolitan area (OEH, 2016) for the subject land and surrounds. A review of historical imagery from 1943 obtained from SixMap (NSW Government Spatial Services, 2022) was undertaken to ascertain historical land uses and vegetation extent and identify changes over time (**Figure 4**). A vegetation map of the subject land was then produced based upon observations of vegetation during the field surveys.

A.3.3. Surveys

A botanist and ecologist surveyed the subject land and adjacent landscaped areas on 2 November 2021. The subject land was inspected by traversing all vegetated areas to verify existing vegetation mapping, with reference to Plant Community Types (PCTs) and potential threatened ecological communities (TECs) known to occur within the locality. An additional survey was undertaken on 2 August 2022, due to additional areas being added to the proposed Project boundaries. This survey had the same scope as described for the November 2021 survey and was also undertaken by a botanist and an ecologist.

The locations of the surveys are shown in **Figure 5**.

A.3.3.1. Random Meander Surveys

Due to the limited extent of landscaped/vegetated areas, plot based floristic surveys in accordance with the BAM were not feasible. Therefore, flora surveys involved detailed random meander surveys within the subject land, where occurring flora species were recorded. The random meander surveys also included targeted threatened species surveys for threatened flora species previously recorded within 5 km of the subject land (the 'locality'). Notes and photographs were taken documenting vegetation and habitat features throughout the subject land. All flora species for the subject land encountered during the surveys are included in **Appendix B**.

A.3.3.2. Fauna Habitat Assessment

Fauna habitat assessments were conducted within the subject land, during both surveys, which included consideration of important indicators of habitat condition and complexity, including the occurrence of microhabitats such as tree hollows, human-made structures and the nature and extent of the understorey, ground stratum and canopy of vegetation. Photographs obtained during the surveys are provided in subsequent sections.

A.3.3.3. Microchiropteran Bat Survey

A nocturnal threatened microchiropteran bat (microbat) survey was undertaken by two ecologists on 11 October and 13 October 2022 encompassing the buildings, particularly the Brain Injury Unit (BIU) and Casuarina Lodge which are proposed to be demolished. The surveys involved active monitoring of the frontage of the buildings which was continuously traversed during the survey period. The active monitoring was supported by visual inspection using a handheld torch to illuminate holes, crevices and cracks in which microbats may be roosting. Where present, other indicative signs, such as bat guano or other materials were also noted both

within and in the vicinity of buildings. Note that due to access restrictions, some sections of the BIU building were inspected from outside the surrounding fencing.

Active monitoring involved walking along the frontage of the building with an Anabat Walkabout and an Anabat Swift during the dusk and early evening period until one hour into darkness. A Walkabout records microbat calls in real time on a sonograph and will prompt activity via a speaker. Where microbat activity was recorded, the individual(s) were spotlighted. Any activity sourced, or potentially sourced from an emergence point within the building was recorded. The Anabat Swift was utilised as a backup to record additional calls for analysis. All recorded bat calls were analysed by Heidi Kolkert of Impact Ecology.

A.3.4. Desktop Assessments

The additional accessway that is subject to a separate planning pathway was not subject to ground-truthing surveys by Cumberland Ecology. However, data on trees (species, condition, maturity) present within this area, as provided by the arboricultural consultant Tree Management Strategies, was reviewed in conjunction with aerial imagery, broad-scale vegetation mapping and the use of Google Street view to provide information on the biodiversity values and map the vegetation present within this area.

A.4. Key Findings

A.4.1. Vegetation of the Subject Land

The vegetation within the subject land has been significantly modified since the original vegetation was cleared prior to 1943 (NSW Government Spatial Services, 2022). Review of the historic aerial photograph shows that the entire subject land was devoid of native vegetation and appears to have been farmland prior to 1943 (**Figure 4**). The majority of the currently occurring vegetation occurs in garden beds and are part of a landscaped compound. The vegetation is all planted and occurs mainly as planted native trees or exotic/ornamental trees over an exotic understorey. Areas of exotic dominated grassland are maintained as lawn areas around buildings and carparks. Generally, the composition, structure and function of vegetation within the subject land and the surrounding landscape have been altered significantly. This is also the case with the additional accessway to the existing carpark (subject to a separate planning pathway).

Although the woody vegetation within both the subject land and additional accessway predominately forms a single mapping unit consistent with OEH (2016) map unit of 'Urban Exotic/Native vegetation', due to the presence of clusters of locally endemic natives, non-endemic natives and exotic vegetation, the vegetation has been divided into two broad vegetation communities; Planted Vegetation and Exotic Vegetation, as described below and shown in **Figure 5**.

A.4.1.1. Planted Vegetation

Planted native vegetation occurs throughout the garden beds present within the subject land, as shown in **Photograph 1** and **Photograph 2**, and has a total area of ~0.53 ha. The native canopy species present includes *Casuarina cunninghamiana* (River Oak), *Casuarina glauca* (Swamp Oak), *Corymbia maculata* (Spotted Gum), *Eucalyptus moluccana* (Grey Box), *Eucalyptus saligna* (Sydney Blue Gum), *Eucalyptus saligna* x *botryoides*, *Eucalyptus paniculata* subsp. *paniculata* (Grey Ironbark), *Eucalyptus acmenoides* (White Mahogany) and *Brachychiton acerifolius* (Illawarra Flame Tree). The exotic canopy species present include *Jacaranda mimosifolia*

(Jacaranda), *Corymbia citriodora* (Lemon-scented Gum) and *Platanus acerifolius* (London Plane Tree). Understorey species include *Lomandra longifolia* 'tanika', *Agapanthus praecox* (Agapanthus), *Pandorea Jasminoides*, *Acanthus mollis* (Bear's Breeches), *Camelia* sp. (camelia), *Acacia floribunda* (White sally wattle), *Sonchus asper* (Prickly Sowthistle) and *Sonchus oleraceus* (Common Sowthistle).

Canopy species within the additional accessway include *Casuarina cunninghamiana* (River Oak), *Corymbia maculata* (Spotted Gum), *Eucalyptus punctata* (Grey Gum) and *Corymbia eximia* (Yellow Bloodwood). The extent of Planted Natives within the additional accessway covers an area of ~0.08 ha

The mix of planted native vegetation within the subject land and additional accessway does not align with any naturally occurring Plant Community Type (PCT). The recorded native species also do not occur within an area that contains a mosaic of planted and remnant native vegetation which can be reasonably assigned to a PCT. As the native vegetation has been planted for functional and aesthetic purposes, comprising landscaping in carparks and gardens, rather than being planted for environmental rehabilitation or restoration purposes, the vegetation is considered comprise planted vegetation in accordance with the decision-making key in Appendix D of the BAM and has not been assigned to a PCT.

Some areas, largely in the additional buffer zones of the subject land comprise areas of planted exotic trees only (0.10ha).

Photograph 1 Planted Native Vegetation within the subject land



Photograph 2 Planted vegetation within the subject land – comprising a mix of native and exotic trees



A.4.1.2. Exotic Vegetation

Exotic vegetation occurs largely as areas maintained as lawns throughout the subject land, as shown in **Photograph 3** and **Photograph 4**, and has a total area of ~0.36 ha. Similar mown/managed areas are present within the additional accessway, covering an area of ~ 0.06 ha

The exotic species present include *Stenotaphrum secundatum* (Buffalo Grass), *Taraxacum officinale* (Dandelion), *Hypochaeris radicata* (Cat ear), *Lactuca serriola* (Prickly Lettuce), *Bides pilosa* (Black-jack) and *Capsella bursa-pastoris* (Shepherd's Purse). The native species present include *Cynodon dactylon* (Couch) and *Portulaca oleracea* (Common Purslane).

Photograph 3 Exotic Dominated Grassland within the subject land



Photograph 4 Exotic Vegetation adjacent to existing site offices within the subject land



A.4.1.3. Cleared Land

The remainder of the subject land is comprised of existing buildings and other hardstand areas such as roads and carparks covering a total area of 1.24 ha. An additional 0.06 ha of cleared land, comprising of an existing carpark, is present within the additional accessway.

A.4.2. Fauna Habitat

The primary habitat for native fauna within the subject land and additional accessway is the native and exotic vegetation. This vegetation may fall within the foraging range of a range of native fauna species, including threatened species. The foraging resources of the subject land would be expected to be utilised occasionally and opportunistically by birds, bats and arboreal mammals.

Nectivorous and frugivorous species may utilise the native and exotic vegetation within the subject land and additional accessway to feed on blooms and fruit, whilst insectivorous species such as microbats may forage for insects throughout the canopy layer. No hollow-bearing trees were observed within the subject land during the November 2021 inspection. However, a single hollow bearing tree (HBT), containing one large hollow was observed during the August 2022 inspection. While this HBT provides potential breeding habitat for hollow nesting and roosting species, no indications of nesting or roosting were observed during the inspection. This HBT is located in the precautionary 'buffer zone' assessed in this BDAR waiver request and will be retained. Nonetheless, it is recommended that appropriate tree protection measures are installed for all trees to be retained when works are being conducted. The location of the HBT is seen in **Figure 6**.

Although a site inspection of the additional accessway was not conducted by Cumberland Ecology, based on the data on tree size and maturity as well as photographs provided by the arboricultural consultant, the trees within this area are considered unlikely to be of a size/age to form hollows.

The existing BIU and Casuarina lodge comprise buildings with a sloping, tiled roofs and defined ceiling cavities that can potentially provide some roosting habitat for microbats. These species could potentially roost in the small crevices in some parts of the roofs of the buildings. However, as the buildings are currently in active use and are well maintained, they are unlikely to support a significant roosting colony. The lack of roosting colonies within the buildings was confirmed during targeted microbat surveys as detailed in the following section.

Photograph 5 Existing Casuarina Lodge Building with tiled roof



Photograph 6 Existing BIU building



A.4.3. Microchiropteran Bat Survey

Inspections of the buildings observed occasional small holes around the eaves of the BIU building and Casuarina Lodge which may form suitable entry points into roof cavities for microbats. However, detailed spotlighting inspections did not show any signs of activity or indications of fauna usage around these areas. Furthermore, the majority of these holes were observed along the Redbank Road frontage of the BIU building which also has several motion sensor lights which would reduce suitability for microbats.

Microbat activity on the Walkabout was dominated by multiple calls of Gould's Wattled Bat (*Chalinolobus gouldii*), mainly around treed vegetation to the north of Casuarina Lodge. Spotlighting surveys observed a single individual foraging over the vegetation on multiple occasions, potentially the same individual conducting multiple laps over a foraging path. Other calls recorded across the Walkabout and the Swift included occasional calls of the White-Striped Freetail Bat (*Austronomus australis*), Eastern Coastal Free-Tailed Bat (*Micronomus norfolkensis*), Eastern Bentwing Bat (*Miniopterus orianae oceanensis*), Yellow-Bellied Sheath-tail Bat (*Saccolaimus flaviventris*) and Large Forest Bat (*Vespadelus darlingtoni*). However, no microbats were observed emerging from the buildings and activity of recorded microbats did not indicate the potential presence of a nearby roost on any night. Therefore, no roosting colonies are considered likely to occur within these buildings and the recordings are considered to comprise calls of foraging microbats that either utilise or fly through the area as part of a wider foraging range.

A.4.4. Threatened Communities and Species

A.4.4.1. Threatened Ecological Communities

As the vegetation identified as Urban Exotic/Native within the subject land and additional accessway is comprised of a combination of exotic and native species of planted origin situated within a highly artificial context, it is not considered to conform to any TECs listed under either the BC Act or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) known from the locality.

A.4.4.2. Threatened Flora

The database analysis determined that no existing records of threatened flora species are present within the subject land and additional accessway. No threatened flora species were recorded during the survey of the subject land.

Although threatened flora species are known to occur within the locality (see **Appendix C**), due to the highly developed and artificial nature of the subject land and additional accessway as well as the lack of threatened species found during surveys, it is considered unlikely that any threatened flora species would occur naturally within the subject land and additional accessway.

A.4.4.3. Threatened Fauna

A limited number of threatened fauna species are known to occur within the locality of the subject land (see **Appendix C**), although none have been recorded within the subject land or additional accessway. Threatened fauna that would be expected to utilise the foraging resources within the subject land and immediate surrounds (including the additional accessway) include highly mobile, aerial species such as the Grey-headed Flying-fox (*Pteropus poliocephalus*), the Powerful Owl (*Ninox strenua*) and microbats.

Although the Grey-headed Flying-fox may use the subject land or additional accessway occasionally, especially when eucalypts are in flower (EHG, 2022e), the extent of foraging resources on site is low. Similarly the lack of roosting/sheltering habitat for native fauna provides for limited foraging opportunities for predatory birds such as the Powerful Owl (EHG, 2022h).

Microbats are highly mobile species that access resources from a large area and are known to fly over disturbed areas while foraging. While these species may pass through the subject land or additional accessway as part of a larger foraging range, they are unlikely to be dependent on the habitat present in the subject land or additional accessway.

Microbats are also known to forage for insects in urban areas and would be expected to occasionally and opportunistically access the foraging resources within the subject land or additional accessway. Species known or anticipated to frequent the subject land or additional accessway include, but are not limited to, the following:

- Little Bent-winged Bat (*Miniopterus australis*);
- Large Bent-winged Bat (*Miniopterus orianae oceanensis*);
- Eastern Coastal Free-tailed Bat (*Micronomus norfolkensis*);
- Eastern False Pipistrelle (*Falsistrellus tasmaniensis*);
- Greater Broad-nosed (*Scoteanax rueppellii*); and
- Yellow-Bellied Sheath-tail Bat (*Saccolaimus flaviventris*).

The subject land and additional accessway contain very limited suitable breeding or refuge habitat for these species as it lacks hollow-bearing trees considered suitable for roosting (EHG, 2022b, 2022c, 2022d). Although artificial structures with roof cavities for potential roosts are present, the buildings are well maintained and largely lack appropriate entry points/crevasses to access the roof cavities. Based on the results of targeted surveys of the buildings and limited extent of vegetation, the subject land is considered to have limited (vegetation) to no (buildings) potential to support roosting habitat for threatened microbat species (EHG, 2022b, 2022c, 2022d, 2022f, 2022g).

A.5. Impact Assessment

A.5.1. Impacts to Vegetation and Habitat

The subject land of this BDAR waiver request includes buffers beyond the existing planned footprint for the SSD application and therefore the extent of vegetation cleared will be reduced compared to that assessed. Nonetheless, as a precautionary measure to allow for relocation of ancillary infrastructure and work sites, for the purposes of this assessment the entire subject land is assumed to be impacted by the SSD application and, conservatively all vegetation within the subject land is assumed to be removed, as is shown in **Table 2** below and on **Figure 5**. However, the project also includes provisions for new landscaped areas which include retention of existing trees where feasible (including the recorded HBT) as well as re-planting of similar or improved garden beds and therefore will provide similar habitat values to those removed. The proposed building design also includes 'green courtyards' which will further supplement the proposed landscaped areas.

It should be noted that some works within the SSD application footprint such as demolition of existing buildings and removal of specific vegetation to enable demolition may be included and implemented under the separate planning pathways. However, as these separate planning pathways are yet to be determined and therefore currently have no formal status, these areas have been included in the assessments for this BDAR waiver request.

Although the additional accessway does not form part of the SSD application (i.e it is subject to a separate planning pathway) and does not lie within the proposed SSD footprint, information on this area has nonetheless been provided as part of a holistic approach and does not materially affect the areas impacted within the subject land.

Table 2 Vegetation and potential habitat to be removed within the subject land and additional accessway

Vegetation Community	Subject land (ha)	Additional accessway (ha)
Planted Native Vegetation	~0.53	~0.08
Planted Exotics	~0.10	0.00
Exotic grassland	~0.36	~0.05
Cleared areas	~1.24	~0.06
Total	~2.22	~0.19

A total of ~0.53 ha of planted native vegetation and ~0.46 ha of exotic vegetation will be removed/impacted as a result of the proposed development of the subject land. A further 0.08 ha of planted natives and 0.05 ha of exotic grassland is present within the additional accessway. None of the vegetation is considered to conform to any TEC's listed under the BC Act or EPBC Act.

This area of vegetation may comprise potential and marginal foraging habitat within the broad habitat ranges of highly mobile native fauna including threatened species such as the Grey-headed Flying-fox, microbats and the Powerful Owl. No breeding habitat for threatened species is expected to be removed, due to a lack of these habitat features. The single HBT recorded within the subject land is not considered suitable breeding habitat for the Powerful Owl due to the high degree of exposure, being a scattered tree within a landscaped garden.

Some threatened microbats are known to forage in urban areas, including, but not limited to, Bentwing-bats (*Miniopterus australis* and *Miniopterus schreibersii oceanensis*). These two species of bats are insectivorous cave roosting bats that often frequent buildings and infrastructure, sheltering in roofs, pipes and culverts, etc (EHG, 2022f, 2022g). While it is conceivable that these species could occupy nooks and crannies in the BIU or Casuarina Lodge buildings within the subject land, field surveys determined that no bats, including threatened species, are roosting within the buildings. However, these species and other threatened microbats may occasionally and opportunistically forage within the vegetation present.

Foraging habitat removed will be replaced via the proposed landscaping and green courtyards. The proposed landscaping will include planting of additional trees, comprising a mix of locally endemic species and garden ornamentals consistent with the existing gardens on the subject land.

Accordingly, the removal of vegetation and potential roosting habitat on the subject land is not considered likely to have a significant impact on threatened fauna species listed under the BC Act.

A.5.2. Biodiversity Values Assessment

The BC Act and the BC Regulation list a suite of biodiversity values that are relevant to assessments that must take place under the BC Act, as outlined in Table 2 of *How to apply for a biodiversity development assessment report waiver* (DPIE, 2019). To demonstrate that the project will not impact upon biodiversity, **Table 3** systematically comments upon the relevance of each value.

As the additional accessway does not form part of the SSD application (i.e it is subject to a separate planning pathway) and does not lie within the SSD application area (i.e it has been identified in this waiver as part of a holistic information approach only), this area has not been included in the BDAR waiver Biodiversity values assessment outlined in **Table 3** below.

Table 3 Biodiversity values assessment

Biodiversity Value	Assessment for the Project
<i>BC Act – Part 1 Section 1.5 (2)</i>	
(a) vegetation integrity – being the degree to which the composition, structure and function of vegetation at a particular site and the surrounding landscape has been altered from a near natural state.	Based on a review of historical aerial imagery from 1943 (NSW Government Spatial Services, 2022), trees were almost entirely absent from the subject land at that time. The vegetation across the subject land has been significantly altered from its original state and trees within the subject land are either exotic, non-endemic natives or planted local endemics within garden beds and in rows. No remnant trees occur, and all are considered to have been planted as part of landscaping, due to their presence in defined garden beds, or in a parkland/paved setting. With consideration of the above, the composition, structure and function of vegetation within the subject land and the surrounding landscape are considered to have been altered significantly from a natural state.
(b) habitat suitability – being the degree to which habitat needs of threatened species are present at a particular site.	The subject land has little potential to provide habitat for threatened species other than highly mobile, aerial species. Threatened species with the highest likelihood to utilise the subject land include the Grey-headed Flying-fox, the Powerful Owl and microbats. These highly mobile species may occasionally and opportunistically utilise the limited foraging resources of the subject land as part of a larger foraging range. While there is potential for microbats to roost within roof cavities of the BIU and Casuarina lodge buildings given structure of these roofs, given the maintenance of the buildings, they are unlikely to support any established colonies. Field surveys confirmed that no

Biodiversity Value	Assessment for the Project
	microbats are currently roosting within the roof cavities of either building.
(c) biodiversity values, or biodiversity-related values, prescribed by the regulations.	See below.
<i>BC Regulation - Part 1 Clause 1.4</i>	
(a) threatened species abundance - being the occurrence and abundance of threatened species or threatened ecological communities, or their habitat, at a particular site.	No TECs or threatened flora species were observed during the surveys. Records of threatened species were limited to occasional fly-through recordings of foraging microbats, including the Eastern Coastal Free-Tailed Bat (<i>Micronomus norfolkensis</i>), Eastern Bentwing Bat (<i>Miniopterus orianae oceanensis</i>) and Yellow-Bellied Sheathtail Bat (<i>Saccolaimus flaviventris</i>). Other potentially occurring threatened fauna species would be limited to highly mobile, aerial threatened species, such as other microbats, the Grey-headed Flying Fox or Powerful Owl, that would be expected to utilise the foraging resources of the subject land occasionally and opportunistically. While the structure of the roof cavities of the BIU building and Casuarina lodge have the potential to provide roosting habitats for microbats, including some threatened species, they are considered unlikely to support any roosting colonies given the regular use and maintenance of the buildings. Field surveys confirmed the absence of any roosting microbats within the roof cavities of these buildings.
(b) vegetation abundance - being the occurrence and abundance of vegetation at a particular site.	The subject land has been entirely cleared of its original vegetation and the currently occurring vegetation is comprised of plantings of exotic, non-endemic natives and planted local endemics. All trees to be removed comprise planted individuals. Furthermore, the subject land is located in a highly modified/urbanised area. It is anticipated that the project will result in the removal of approximately 0.99 ha of vegetation comprising 0.53 ha of planted native vegetation and 0.46 ha of exotic vegetation.

Biodiversity Value	Assessment for the Project
(c) habitat connectivity - being the degree to which a particular site connects different areas of habitat of threatened species to facilitate the movement of those species across their range.	The existing vegetation within the subject land may marginally contribute to habitat connectivity throughout the largely cleared and artificial landscape that dominates the locality. Trees within the subject land and its immediate surroundings may function as stepping stone habitat for highly mobile fauna, providing a degree of habitat connectivity between parks such as Toongabbie Creek riparian corridor, Parramatta Park and the Parramatta River riparian corridor. However, the future landscaping will result in replacement planting for the trees to be removed with existing trees being retained where feasible. Therefore, the connectivity value of the subject land will remain consistent with current conditions.
(d) threatened species movement - being the degree to which a particular site contributes to the movement of threatened species to maintain their lifecycle.	As considered above, the subject land does not contribute to the movement of threatened species other than highly mobile, aerial species that are capable of flying over developed areas to access widely separated areas of habitat. Impacts associated with the project would not be expected to have any impact on the lifecycle of such species.
(e) flight path integrity - being the degree to which the flight paths of protected animals over a particular site are free from interference.	The project will increase the building heights to some extent as proposed buildings comprise 10 levels, although existing buildings in immediate proximity already comprise multi-storey structures. Subsequently the project is not expected to impact upon free-flying animals (threatened or otherwise) by interfering with flight paths.
(f) water sustainability - being the degree to which water quality, water bodies and hydrological processes sustain threatened species and threatened ecological communities at a particular site.	No natural or artificial watercourse exists within the subject land. Toongabbie Creek occurs approximately 150 m to the north to north-west of the subject land. The proposed development is not located within the riparian corridor of Toongabbie Creek, and is not expected to impact on the ecological function of the watercourse, provided that adequate mitigation measures are implemented. Aside from the canopy trees which may use ground water, the majority of the vegetation within the subject land would rely on rain or artificial watering as part of the landscaped garden beds. The project is consequently not expected to have any impacts on water sustainability.

A.6. Conclusion and Recommendations

The Project is considered highly unlikely to have significant impacts upon defined biodiversity values as impacts are limited to highly modified areas. The Project is anticipated to impact approximately 0.53 ha of planted native vegetation that shows limited, if any, structural/compositional features of a naturally occurring PCT, and approximately 0.46 ha of exotic vegetation within the subject land, although these areas of impact will be reduced given that additional buffer areas have been included as a conservative measure.

This area of vegetation may comprise potential and marginal foraging habitat within the broad habitat ranges of highly mobile native fauna including threatened species such as the Grey-headed Flying-fox, microbats and the Powerful Owl.

While the structure of the roof cavities of the BIU building and Casuarina lodge have the potential to provide roosting habitats for microbats, including some threatened species, they are considered unlikely to support any established colonies given the regular use and maintenance of the building. A lack of roosting microbats within the buildings was confirmed during targeted surveys for microbats which only detected foraging activity, primarily around patches of treed vegetation.

Nonetheless, it is recommended that appropriate management measures are taken during building demolition (which is to be conducted under a separate planning pathway) to reduce risk of harm to any potentially roosting bats, if present. Dismantling the buildings gradually, including removal of roof tiles to expose the roof cavity to render them undesirable as roosting habitat for microbats, thereby encouraging them to re-locate, is considered a suitable option for the Project.

When assessing impacts to potentially occurring threatened species from the project, there is limited justification for considering impacts to threatened species with the detail required by a BDAR under the BAM. The project may result in a small reduction of marginal foraging habitat for highly mobile, aerial threatened species, however it is considered unlikely that a significant impact to threatened species would occur as a result of the proposed development.

As the BDAR waiver application is required to be submitted before the SSD application and due to the potential for further minor adjustments to layout/ancillary infrastructure for the SSD, this BDAR waiver request takes a precautionary approach and has assessed additional buffer areas beyond those of the provided layout plans. All proposed works for the SSD will be contained within the assessed boundaries referred to as the BDAR waiver subject land. On the basis of our investigations, we believe that the preparation of a BDAR is not necessary, due to the low likelihood of impacts to biodiversity values.

No significant impacts to threatened species or communities are considered likely from the proposed works within the additional accessway which is subject to a separate planning pathway.

A.7. References

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		https://www.environment.nsw.gov.au/AtlasApp/UI_Modules/TSM_ProfileEdit.aspx?pld=10697&pType=SpeciesCode&a=1							
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		https://www.environment.nsw.gov.au/AtlasApp/UI_Modules/TSM_ProfileEdit.aspx?pld=10534&pType=SpeciesCode&a=1							
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		https://www.environment.nsw.gov.au/AtlasApp/UI_Modules/TSM_ProfileEdit.aspx?pld=10533&pType=SpeciesCode&a=1							
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APPENDIX B :

Flora Species List



Table 4 Flora Species List

Family	Scientific Name	Common Name	Status
Acanthaceae	<i>Acanthus mollis</i>	Bear's Breeches	Exotic
Agavaceae	<i>Agave americana</i>	Century Plant	Exotic
Agavaceae	<i>Yucca aloifolia</i>	Spanish Bayonet	Exotic
Aizoaceae	<i>Carpobrotus glaucescens</i>	Pigface	Native (Planted)
Alliaceae	<i>Agapanthus praecox subsp. orientalis</i>		Exotic
Amaranthaceae	<i>Amaranthus spp.</i>	Amaranth	Native (Planted)
Amaranthaceae	<i>Gomphrena celosioides</i>	Gomphrena Weed	Exotic
Amaryllidaceae	<i>Clivia miniata</i>		Exotic
Anacardiaceae	<i>Harpephyllum caffrum</i>		Exotic
Anthericaceae	<i>Chlorophytum comosum</i>	Spider Plant	Exotic
Apiaceae	<i>Cyclospermum leptophyllum</i>	Slender Celery	Exotic
Araceae	<i>Colocasia esculenta</i>	Taro	Exotic
Araceae	<i>Thaumatococcus danianus</i>		Exotic
Arecaceae	<i>Washingtonia filifera</i>		Exotic
Asphodelaceae	<i>Aloe vera</i>		Exotic
Asteliaceae	<i>Cordyline australis</i>	Cabbage Tree	Exotic
Asteraceae	<i>Arctotheca calendula</i>	Capeweed	Exotic
Asteraceae	<i>Bidens pilosa</i>	Cobbler's Pegs	Exotic
Asteraceae	<i>Cirsium vulgare</i>	Spear Thistle	Exotic
Asteraceae	<i>Conyza bonariensis</i>	Flaxleaf Fleabane	Exotic
Asteraceae	<i>Conyza sumatrensis</i>	Tall fleabane	Exotic
Asteraceae	<i>Cotula australis</i>	Common Cotula	Native (Planted)
Asteraceae	<i>Crassocephalum crepidioides</i>	Thickhead	Exotic
Asteraceae	<i>Erigeron karvinskianus</i>	Bony-tip Fleabane	Exotic
Asteraceae	<i>Gamochaeta americana</i>	Purple Cudweed	Exotic
Asteraceae	<i>Gamochaeta pensylvanica</i>	Cudweed	Exotic
Asteraceae	<i>Hypochaeris albiflora</i>	White Flatweed	Exotic
Asteraceae	<i>Hypochaeris radicata</i>	Catsear	Exotic
Asteraceae	<i>Lactuca serriola</i>	Prickly Lettuce	Exotic
Asteraceae	<i>Senecio madagascariensis</i>	Fireweed	Exotic
Asteraceae	<i>Solidago canadensis</i>	Bindyi	Exotic

Family	Scientific Name	Common Name	Status
Asteraceae	<i>Sonchus asper</i>	Prickly Sowthistle	Exotic
Asteraceae	<i>Sonchus oleraceus</i>	Common Sowthistle	Exotic
Asteraceae	<i>Taraxacum officinale</i>	Dandelion	Exotic
Basellaceae	<i>Anredera cordifolia</i>	Madeira Vine	Exotic
Bignoniaceae	<i>Jacaranda mimosifolia</i>	Jacaranda	Exotic
Bignoniaceae	<i>Pandorea jasminoides</i>	Bower Vine	Native (Planted)
Brassicaceae	<i>Camelina spp.</i>		Exotic
Brassicaceae	<i>Capsella bursa-pastoris</i>	Shepherd's Purse	Exotic
Brassicaceae	<i>Cardamine hirsuta</i>	Common Bittercress	Exotic
Brassicaceae	<i>Lepidium africanum</i>	Common Peppergrass	Exotic
Brassicaceae	<i>Lepidium didymum</i>	Lesser Swinegrass	Exotic
Buxaceae	<i>Buxus microphylla</i>		Exotic
Cannaceae	<i>Canna indica</i>	Tous-les-mois Arrowroot	Exotic
Caryophyllaceae	<i>Cerastium glomeratum</i>	Mouse-ear Chickweed	Exotic
Caryophyllaceae	<i>Paronychia brasiliensis</i>	Chilean Whitlow Wort, Brazilian Whitlow	Exotic
Caryophyllaceae	<i>Polycarpon tetraphyllum</i>	Four-leaved Allseed	Exotic
Caryophyllaceae	<i>Stellaria media</i>	Common Chickweed	Exotic
Casuarinaceae	<i>Casuarina cunninghamiana</i>	River Oak	Native (Planted)
Casuarinaceae	<i>Casuarina glauca</i>	Swamp Oak	Native (Planted)
Commelinaceae	<i>Commelina cyanea</i>	Native Wandering Jew	Native (Planted)
Convolvulaceae	<i>Dichondra repens</i>	Kidney Weed	Native (Planted)
Crassulaceae	<i>Crassula multicava</i>		Exotic
Crassulaceae	<i>Crassula ovata</i>	Jade Plant	Exotic
Cyatheaceae	<i>Cyathea cooperi</i>	Straw Treefern	Native (Planted)
Cyperaceae	<i>Ficinia nodosa</i>	Knobby Club-rush	Native (Planted)
Doryanthaceae	<i>Doryanthes excelsa</i>	Gymea Lily	Native (Planted)
Elaeocarpaceae	<i>Elaeocarpus reticulatus</i>	Blueberry Ash	Native (Planted)
Ericaceae	<i>Rhododendron sp</i>	Rhododendron	Exotic
Euphorbiaceae	<i>Euphorbia chaacias</i>	Mediterranean spurge	Exotic
Euphorbiaceae	<i>Euphorbia peplus</i>	Petty Spurge	Exotic
Fabaceae (Faboideae)	<i>Hardenbergia violacea</i>	False Sarsaparilla	Native (Planted)
Fabaceae (Faboideae)	<i>Lotus uliginosus</i>	Birds-foot Trefoil	Exotic

Family	Scientific Name	Common Name	Status
Fabaceae (Faboideae)	<i>Medicago polymorpha</i>	Burr Medic	Exotic
Fabaceae (Faboideae)	<i>Trifolium repens</i>	White Clover	Exotic
Fabaceae (Mimosoideae)	<i>Acacia binervata</i>	Two-veined Hickory	Native (Planted)
Fabaceae (Mimosoideae)	<i>Acacia falciformis</i>	Broad-leaved Hickory	Native (Planted)
Fabaceae (Mimosoideae)	<i>Acacia floribunda</i>	White Sally	Native (Planted)
Fabaceae (Mimosoideae)	<i>Acacia longifolia</i> var. <i>longifolia</i>	Sydney Golden Wattle	Native (Planted)
Geraniaceae	<i>Pelargonium domesticum</i>	Pelargonium	Exotic
Iridaceae	<i>Dietes grandiflora</i>		Exotic
Juncaceae	<i>Juncus usitatus</i>		Native (Planted)
Lamiaceae	<i>Salvia</i> spp.		Native (Planted)
Lamiaceae	<i>Stachys arvensis</i>	Stagger Weed	Exotic
Lamiaceae	<i>Westringia fruticosa</i>	Coastal Rosemary	Native (Planted)
Lomandraceae	<i>Lomandra hystrix</i>		Native (Planted)
Lomandraceae	<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	Native (Planted)
Lomandraceae	<i>Lomandra longifolia</i> var. <i>longifolia</i>	Spiny-headed Mat-rush	Native (Planted)
Lythraceae	<i>Lagerstroemia indica</i>		Exotic
Malaceae	<i>Photinia serratifolia</i>	Chinese Photinia	Exotic
Malaceae	<i>Raphiolepis indica</i>	Indian Hawthorn	Exotic
Malvaceae	<i>Brachychiton acerifolius</i>	Illawarra Flame Tree	Native (Planted)
Malvaceae	<i>Malva parviflora</i>	Small-flowered Mallow	Exotic
Malvaceae	<i>Modiola caroliniana</i>	Red-flowered Mallow	Exotic
Meliaceae	<i>Melia azedarach</i>	White Cedar	Native (Planted)
Myrtaceae	<i>Angophora costata</i>	Sydney Red Gum	Native (Planted)
Myrtaceae	<i>Callistemon citrinus</i>	Crimson Bottlebrush	Native (Planted)
Myrtaceae	<i>Callistemon viminalis</i>	Weeping Bottlebrush	Native (Planted)
Myrtaceae	<i>Corymbia citriodora</i>	Lemon-scented Gum	Exotic
Myrtaceae	<i>Corymbia maculata</i>	Spotted Gum	Native (Planted)
Myrtaceae	<i>Eucalyptus botryoides</i> <--> <i>saligna</i>		Native (Planted)
Myrtaceae	<i>Eucalyptus camaldulensis</i>	River Red Gum	Native (Planted)

Family	Scientific Name	Common Name	Status
Myrtaceae	<i>Eucalyptus grandis</i>	Flooded Gum	Native (Planted)
Myrtaceae	<i>Eucalyptus moluccana</i>	Grey Box	Native (Planted)
Myrtaceae	<i>Eucalyptus nicholii</i>	Narrow-leaved Black Peppermint	Native (Planted)
Myrtaceae	<i>Eucalyptus paniculata</i>	Grey Ironbark	Native (Planted)
Myrtaceae	<i>Eucalyptus resinifera</i>	Red Mahogany	Native (Planted)
Myrtaceae	<i>Eucalyptus saligna</i>	Sydney Blue Gum	Native (Planted)
Myrtaceae	<i>Eucalyptus tereticornis</i>	Forest Red Gum	Native (Planted)
Myrtaceae	<i>Eucalyptus tereticornis</i>	Forest Red Gum	Native (Planted)
Myrtaceae	<i>Melaleuca styphelioides</i>	Prickly-leaved Tea Tree	Native (Planted)
Myrtaceae	<i>Myrtus communis</i>	Common Myrtle	Exotic
Myrtaceae	<i>Syzygium australe</i>	Brush Cherry	Native (Planted)
Myrtaceae	<i>Waterhousea floribunda</i>	Weeping Lilly Pilly	Native (Planted)
Nandinaceae	<i>Nandina domestica</i>	Japanese Sacred Bamboo	Exotic
Oleaceae	<i>Fraxinus angustifolia</i>	Desert Ash	Exotic
Orchidaceae	<i>Epidendrum radicans</i>	Crucifix Orchid	Exotic
Oxalidaceae	<i>Oxalis corniculata</i>	Creeping Oxalis	Exotic
Phormiaceae	<i>Dianella caerulea</i>	Blue Flax-lily	Native (Planted)
Phormiaceae	<i>Dianella longifolia</i>	Blueberry Lily	Native (Planted)
Plantaginaceae	<i>Plantago lanceolata</i>	Lamb's Tongues	Exotic
Plantaginaceae	<i>Veronica arvensis</i>	Wall Speedwell	Exotic
Plumbaginaceae	<i>Plumbago auriculata</i>	Cape leadwot	Exotic
Poaceae	<i>Bromus catharticus</i>	Praire Grass	Exotic
Poaceae	<i>Cenchrus clandestinus</i>	Kikuyu Grass	Exotic
Poaceae	<i>Cynodon dactylon</i>	Common Couch	Native (Planted)
Poaceae	<i>Ehrharta erecta</i>	Panic Veldtgrass	Exotic
Poaceae	<i>Eragrostis curvula</i>	African Lovegrass	Exotic
Poaceae	<i>Lolium perenne</i>	Perennial Ryegrass	Exotic
Poaceae	<i>Paspalum dilatatum</i>	Paspalum	Exotic
Poaceae	<i>Poa annua</i>	Winter Grass	Exotic
Poaceae	<i>Stenotaphrum secundatum</i>	Buffalo Grass	Exotic
Poaceae	<i>Themeda triandra</i>		Native (Planted)
Portulacaceae	<i>Portulaca oleracea</i>	Pigweed	Native (Planted)
Primulaceae	<i>Lysimachia arvensis</i>	Scarlet Pimpernel	Exotic
Rutaceae	<i>Murraya paniculata</i>		Exotic

Family	Scientific Name	Common Name	Status
Solanaceae	<i>Datura stramonium</i>	Common Thornapple	Exotic
Solanaceae	<i>Solanum lycopersicum</i>	Tomato	Exotic
Solanaceae	<i>Solanum nigrum</i>	Black-berry Nightshade	Exotic
Strelitziaceae	<i>Strelitzia reginae</i>		Exotic
Violaceae	<i>Viola banksii</i>		Native (Planted)
Zingiberaceae	<i>Hedychium gardnerianum</i>	Ginger Lily	Exotic

APPENDIX C :

Threatened Species BioNet Atlas Results



Table 5 BioNet Atlas Search Results for the Locality of the Subject Land

Family	Scientific Name	Common Name	Locality Count
Fauna			
Accipitridae	<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	2
Accipitridae	<i>Hieraaetus morphnoides</i>	Little Eagle	1
Apodidae	<i>Apus pacificus</i>	Fork-tailed Swift	1
Apodidae	<i>Hirundapus caudacutus</i>	White-throated Needletail	6
Ardeidae	<i>Botaurus poiciloptilus</i>	Australasian Bittern	1
Artamidae	<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	1
Burhinidae	<i>Burhinus grallarius</i>	Bush Stone-curlew	1
Cacatuidae	<i>Calyptorhynchus lathami</i>	Glossy Black-Cockatoo	2
Camaenidae	<i>Meridolum corneovirens</i>	Cumberland Plain Land Snail	1
Camaenidae	<i>Pommerhelix duralensis</i>	Dural Land Snail	25
Charadriidae	<i>Pluvialis squatarola</i>	Grey Plover	1
Climacteridae	<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (eastern subspecies)	1
Dasyuridae	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	1
Emballonuridae	<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	7
Hylidae	<i>Litoria aurea</i>	Green and Golden Bell Frog	3
Miniopteridae	<i>Miniopterus australis</i>	Little Bent-winged Bat	1
Miniopteridae	<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	18
Molossidae	<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat	8
Myobatrachidae	<i>Pseudophryne australis</i>	Red-crowned Toadlet	1
Neosittidae	<i>Daphoenositta chrysoptera</i>	Varied Sittella	4
Petroicidae	<i>Petroica boodang</i>	Scarlet Robin	1
Phascolarctidae	<i>Phascolarctos cinereus</i>	Koala	2
Pseudocheiridae	<i>Petauroides volans</i>	Greater Glider	1
Psittacidae	<i>Glossopsitta pusilla</i>	Little Lorikeet	9
Psittacidae	<i>Lathamus discolor</i>	Swift Parrot	6
Psittacidae	<i>Polytelis swainsonii</i>	Superb Parrot	1
Pteropodidae	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	583
Strigidae	<i>Ninox connivens</i>	Barking Owl	5
Strigidae	<i>Ninox strenua</i>	Powerful Owl	200
Tytonidae	<i>Tyto novaehollandiae</i>	Masked Owl	3
Tytonidae	<i>Tyto tenebricosa</i>	Sooty Owl	1

Family	Scientific Name	Common Name	Locality Count
Vespertilionidae	<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	1
Vespertilionidae	<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	6
Vespertilionidae	<i>Myotis macropus</i>	Southern Myotis	10
Vespertilionidae	<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	5
Flora			
Fabaceae (Mimosoideae)	<i>Acacia pubescens</i>	Downy Wattle	4
Ericaceae	<i>Epacris purpurascens</i> var. <i>purpurascens</i>		55
Dilleniaceae	<i>Hibbertia superans</i>		43
Campanulaceae	<i>Isotoma fluviatilis</i> subsp. <i>fluviatilis</i>		1
Proteaceae	<i>Macadamia integrifolia</i>	Macadamia Nut	2
Thymelaeaceae	<i>Pimelea curviflora</i> var. <i>curviflora</i>		6
Rhamnaceae	<i>Pomaderris prunifolia</i>	P. prunifolia in the Parramatta, Auburn, Strathfield and Bankstown Local Government Areas	3
Orchidaceae	<i>Pterostylis saxicola</i>	Sydney Plains Greenhood	2
Myrtaceae	<i>Rhodamnia rubescens</i>	Scrub Turpentine	1
Myrtaceae	<i>Syzygium paniculatum</i>	Magenta Lilly Pilly	6

FIGURES



Legend

- BDAR Waiver Subject Land
- Additional P14 Accessway
(subject to separate planning
pathway)
- Lot Boundary

Image Source:
Image © NearMap 2022
Dated: 19/5/2022

Coordinate System: MGA Zone 56 (GDA 94)

cumberland
ecology

0 50 m

Figure 1. Site map



Legend

- BDAR Waiver Subject Land
- Additional P14 Accessway
(subject to separate planning pathway)
- Lot Boundary

Image Source:
Image © NearMap 2021
Dated: 17/10/2021

Coordinate System: MGA Zone 56 (GDA 94)



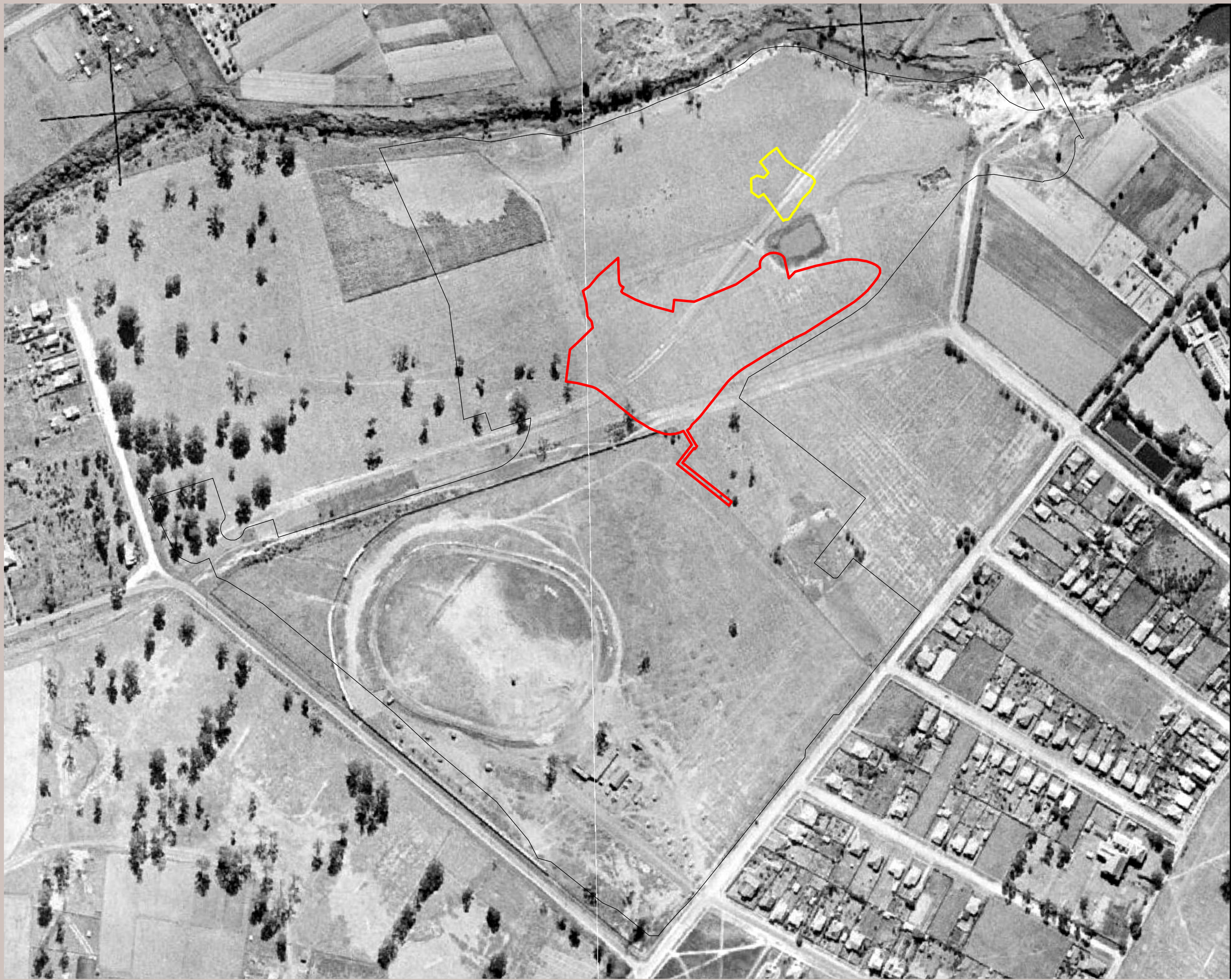
0 50 100 150 200 m

Figure 2. Location of the subject land



Figure 3. Site plan

Image Source: CBRE Jacobs 2022



Legend

- BDAR Waiver Subject Land
- Additional P14 Accessway
(subject to separate planning pathway)
- Lot Boundary

Image Source:
Image © SixMaps 2021
Dated: 1943



Coordinate System: MGA Zone 56 (GDA 94)



0 50 100 m

Figure 4. Historic aerial imagery from 1943 showing the subject land



Legend

- BDAR Waiver Subject Land
- Additional P14 Accessway (subject to separate planning pathway)
- Desktop Assessment Only
- Lot Boundary
- Nov 2021 Surveys
- Aug 2022 Surveys
- Microbat Survey Tracks

Image Source:
Image © NearMap 2022
Dated: 19/5/2022

Coordinate System: MGA Zone 56 (GDA 94)

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ecology

0 50 m

Figure 5. Survey locations



Legend

- BDAR Waiver Subject Land
- Additional P14 Accessway (subject to separate planning pathway)
- Lot Boundary
- Hollow Bearing Tree

Vegetation Community

- Planted Natives
- Planted Exotics
- Exotic Grassland
- Cleared Land

Image Source:
Image © NearMap 2022
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Coordinate System: MGA Zone 56 (GDA 94)

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0 50 m

Figure 6. Vegetation and fauna habitat of the subject land and study area