



First Building Bradfield City Centre

Landscape Management Plan

Final Report

Prepared for Taylor Construction and Bradfield Development Authority

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Biosis acknowledges the Aboriginal and Torres Strait Islander peoples as Traditional Custodians of the land on which we live and work.

We pay our respects to the Traditional Custodians and Elders past and present and honour their connection to Country and ongoing contribution to society.

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Consistency with consent condition B22

Sub item	Reference in report
Be prepared in consultation with Western Sydney Airport Corporation and Council	Section 3.4 pp. 6
Detail the locations, species, pot sizes, tree canopy cover targets, planting densities of plantings to ensure no net-loss of trees, prioritising:	Appendix B pp. 37
The reuse of existing juvenile native plants on site in proposed landscaping areas.	Section 5.2.2
The collection and use of local native seed from site and reuse opportunities of these seeds in proposed landscaping areas.	Section 5.2.2
The reuse of any native trees to be removed (including tree hollows, tree trunks and root balls) on site for habitat enhancement (including those identified for retention or relocation in the Tree Retention Plan at condition B17 of the Development Consent.	Section 5.2.3
Incorporation of a diversity of local provenance native trees, shrubs and groundcover species taking into consideration those species listed in Appendix B of the draft Western Sydney Aerotropolis Development Control Plan 2021 (as may be finalised, updated or replaced).	Section 5.2.4
Avoidance of nursery hybrids of locally occurring native species.	Section 5.2.5
Species that minimise the potential for wildlife strikes on Western Sydney Airport.	Section 5.2.6
Detail the provision of nesting boxes if any hollow-bearing trees are removed.	Section 5.2.7
Describe the monitoring and maintenance measures to manage revegetation and landscaping works.	Section 6
Detail how the landscaping will align with recommendations of the Bushfire Protection Assessment (EcoLogical, dated 12 November 2021).	Section 9
Details of how the landscaping intends to integrate with the public domain works for the broader Bradfield City Centre.	Section 10
Be consistent with conditions B17, B18, and B20 and the Applicant's Management and Mitigation Measures at Appendix 2 of the SSDA consent conditions.	Section 11

Glossary

AMRF	Advanced Manufacturing Readiness Facility
APZ	Asset Protection Zone
BC Act	NSW <i>Biodiversity Conservation Act 2016</i>
BDA	Bradfield Development Authority
BMP	Biodiversity Management Plan
Biosecurity Act	NSW <i>Biosecurity Act 2015</i>
CBD	Central Business District
CEEC	Critically Endangered Ecological Community
CIV	Capital investment value
Cth DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water
DBH	Diameter at breast height
DCP	Development Control Plan
DNS	Derived Native Shrubland
DNG	Derived Native Grassland
DPE	NSW Department of Planning and Environment
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
EP&A Act	NSW <i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
GIS	Geographic Information System
IBRA	Interim Biogeographic Regionalisation of Australia
LEP	Local Environmental Plan
LGA	Local Government Area
LLS	Local Land Services
LMP	Landscape Management Plan
NPW Act	NSW <i>National Parks and Wildlife Act 1974</i>
NSW	New South Wales
NSW DCCEEW	NSW Department of Climate Change, Energy, the Environment and Water
PCT	Plant Community Type
Rehabilitation area	215 Badgerys Creek Road, Bringelly NSW
SSD	State Significant Development
TEC	Threatened Ecological Community
VEC	Vulnerable Ecological Community
WoNS	Weeds of National Significance
WSUD	Water Sensitive Urban Design

1. Introduction

1.1. Project background

Biosis Pty Ltd (Biosis) was commissioned by Western Parkland City Authority (WPCA) (now Bradfield Development Authority [BDA]), to prepare a Landscape Management Plan (LMP) in line with condition B22 of the State Significant Development (SSD) Development Consent (SSD – 25452459) for the Advanced Manufacturing Readiness Facility (AMRF) – Bradfield City Centre First Building located at 215 Badgerys Creek Road, Bringelly (the study area) in New South Wales (NSW).

In August 2021 BDA released a scoping report for the First Building of Sydney's new 'hi-tech' city at Bringelly in NSW, named Bradfield. The Bradfield City Centre is being built approximately 45 kilometres west of the Sydney Central Business District (CBD), on the doorstep of the Western Sydney International (Nancy-Bird Walton) Airport. Bradfield will be Australia's first 22nd Century City with vision of being a 24-hour global metropolis.

The First Building within the Bradfield City Centre will be the AMRF. This facility is the first offering of its kind in Australia and will connect Western Sydney and NSW manufacturers with world class technologies and opportunities, helping business to grow and supporting the creation of new high-skilled jobs. Stage one of the AMRF is scheduled to open in 2024 and includes the First Building which will deliver broad advanced manufacturing capabilities to support a range of applications and demonstrate enhanced productivity and quality in manufacturing systems. Stage two of the AMRF is scheduled to open in 2026 and includes the full-scale AMRF which will focus on advanced semiconductor and electronics manufacturing to address sovereign capability needs in defence and aerospace and catalyse growth of emerging industries (WPCA 2022).

The AMRF has been classified as a SSD under Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) because it involves construction and operation of a research and development facility that satisfies the criteria outlined in clause 11a of Schedule 1 of State Environmental Planning Policy (Planning Systems) 2021, namely being a laboratory, research or development facility with a capital investment value (CIV) of more than \$30 million. An Environmental Impact Statement (EIS) has been prepared for the project in accordance with the EP&A Act, and Development Consent (SSD- 25452459) has been issued for the project (Keylan 2021).

1.2. Location of study area

The study area is located at 215 Badgerys Creek Road, Bringelly and occupies part of Lot 101, DP 1282948. The site occurs within the larger Bradfield City Centre site which is bounded by Thompsons Creek to the south and east, Badgerys Creek Road to the west, the proposed Bradfield CBD to the north, and The Northern Road to the south.

On a landscape level, the study area occurs within the Bradfield City Centre, an area covering eight Local Government Areas (LGAs) including the Blue Mountains, Camden, Campbelltown, Fairfield, Hawkesbury, Liverpool, Penrith and Wollondilly. Specifically, the study area is located within the Aerotropolis Core and Wianamatta-South Creek Precincts of the Western Sydney Aerotropolis. The study area is irregularly shaped, comprising an area of approximately 3.9 hectares and is zoned as ENT Enterprise, ENZ Environment and Recreation, and MU Mixed Use under State Environmental Planning Policy (Precincts – Western Parkland City) 2021 (SEPP Western Parkland City). The study area is located inside the Parkland Priority Area, shown in the

extract from Figure 15 of the Western Sydney Aerotropolis Development Control Plan (DCP) Phase 2 (also duplicated in Appendix B of the DCP).

The study area is within the:

- Sydney Basin Interim Biogeographic Regionalisation of Australia (IBRA) Bioregion and the Cumberland Sub-region.
- Hawkesbury catchment.
- Greater Sydney Local Land Services (LLS) Management Area.
- Liverpool LGA.

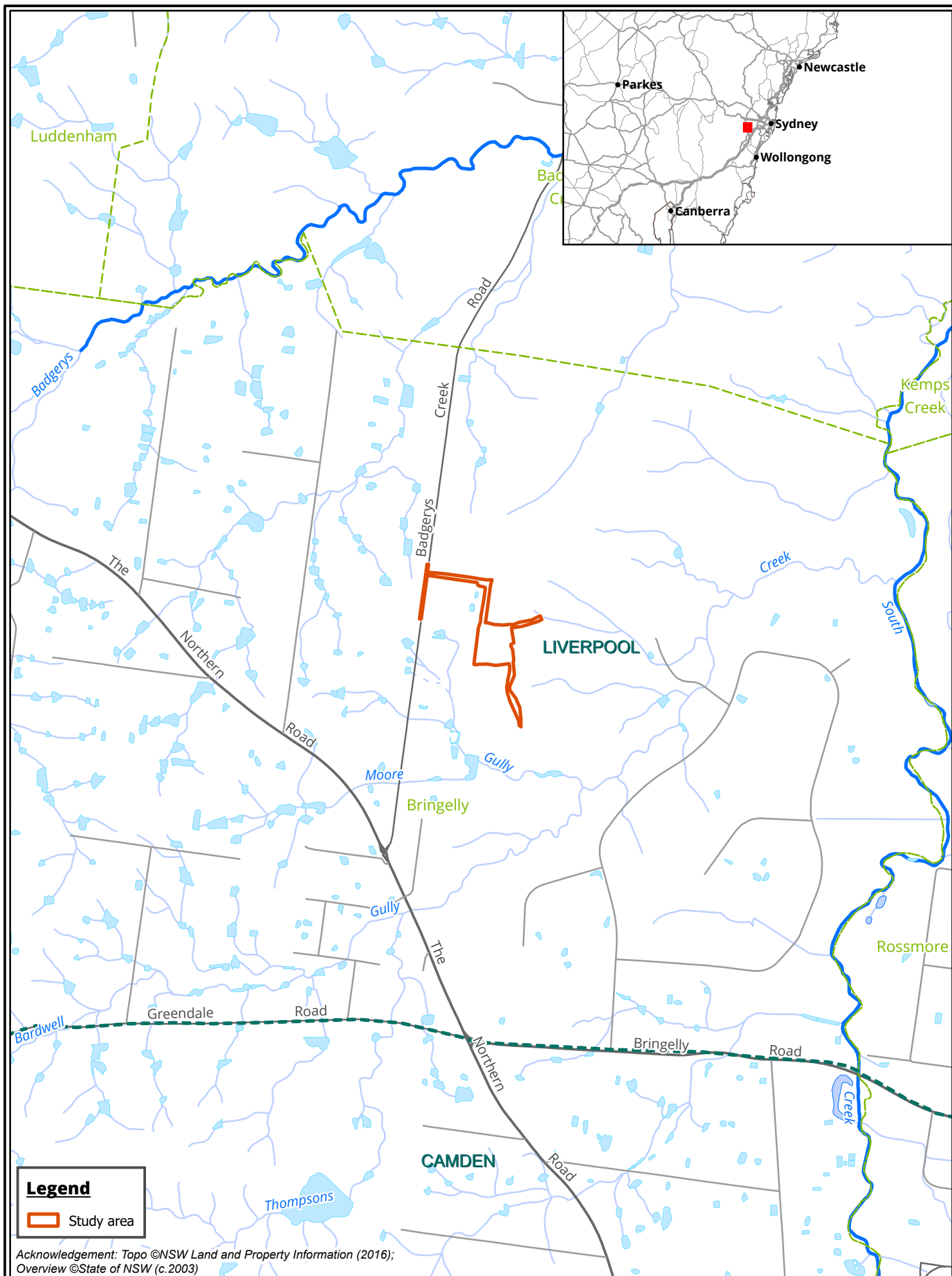
1.3. Purpose of the LMP

Biosis was commissioned by BDA to prepare a Landscape Management Plan (LMP) in line with condition B22 of the State Significant Development (SSD) Development Consent (SSD – 25452459) for the AMRF – Bradfield City Centre First Building in the study area.

The LMP report (version FIN02) was updated in March 2025 to address the *AMRF First Building: Tree Update Plan* (Hassell 2024), to include consideration of Ridge Park that occurs directly adjacent to the study area and to include the planting of additional trees and salvaged juvenile plants in the Ridge Park area.

The LMP report (version FIN03) was updated in April 2025 to reflect the addition of the translocation proposal for Native Pear *Marsdenia viridiflora* subsp. *viridiflora* and the indicative timings of next box installations and additional planting in the adjacent Ridge Park.

This LMP report (version 04) was updated in May 2025 to reflect the distinction between the study area and the Ridge Park area. Ridge Park has been considered and assessed in the Bradfield City Centre, however, is not considered part of the study area for this LMP.



2. LMP scope and objectives

2.1. Scope

The scope of this LMP is to develop a framework for the management of landscaping works associated with the development, to the satisfaction of the Planning Secretary consistent, in accordance with the requirements of condition B22 of the Development consent.

2.2. Objectives

The specific objectives for this LMP are that is must:

- a) Be prepared in consultation with Western Sydney Airport Corporation and Council.
- b) Detail the locations, species, pot sizes, tree canopy cover targets, planting densities of plantings to ensure no net-loss of trees, prioritising:
 - (i) The reuse of existing juvenile native plants on site in proposed landscaping areas.
 - (ii) The collection and use of local native seed from site and reuse opportunities of these seeds in proposed landscaping areas.
 - (iii) The reuse of any native trees to be removed (including tree hollows, tree trunks and root balls) on site for habitat enhancement (including those identified for retention or relocation in the Tree Retention Plan at condition B17 of the Development Consent.
 - (iv) Incorporation of a diversity of local provenance native trees, shrubs and groundcover species taking into consideration those species listed in Appendix B of the draft Western Sydney Aerotropolis Development Control Plan 2021 (as may be finalised, updated or replaced).
 - (v) Avoidance of nursery hybrids of locally occurring native species.
 - (vi) Species that minimise the potential for wildlife strikes on Western Sydney Airport.
- c) Detail the provision of nesting boxes if any hollow-bearing trees are removed.
- d) Describe the monitoring and maintenance measures to manage revegetation and landscaping works.
- e) Detail how the landscaping will align with recommendations of the Bushfire Protection Assessment (EcoLogical, dated 12 November 2021).
- f) Details of how the landscaping intends to integrate with the public domain works for the broader Bradfield City Centre.
- g) Be consistent with conditions B17, B18, and B20 and the Applicant's Management and Mitigation Measures at Appendix 2 of the SSDA consent conditions.

3. Methods

3.1. Desktop research

Biosis conducted a review of all available landscape design plans and reports relating to the study area and adjacent areas, as well as relevant legislation, recent vegetation mapping, and other documentation relevant to the current project, including:

- *Development Consent SSD 25452459 Part Lot 101 DP 1282948, 215 Badgerys Creek Road, Bringelly* (DPE 2022a).
- *AMRF – First Building Landscape and Biodiversity Prepared for WPCA- Risk Workshop* (Hassell 2021).
- *Bradfield City Centre Master Plan Application Report: Biodiversity Strategy and Impact Assessment* (Biosis 2023).
- *AMRF – First Building Preliminary Tender Documentation – Landscape* (Hassell 2022).
- *AMRF Plant Salvage and Seed Collection Progress Report* (Toolijooa 2022).
- *Western Sydney Aerotropolis Wildlife Management Assessment Report* (Avisure 2020).
- *AMRF – First Building Landscape – Stage 4A – Issued for Information* (Hassell 2023).
- Liverpool Local Environmental Plan 2008.
- Liverpool Development Control Plan 2008 (Liverpool DCP).
- *Western Sydney Aerotropolis Plan 2020*
- State Environmental Planning Policy (Precincts – Western Parkland City) 2021
- Western Sydney Aerotropolis Development Control Plan – Phase 2 2022 (Western Sydney Aerotropolis DCP – Phase 2)
- Western Sydney Aerotropolis Development Control Plan – Phase 2 2022 – Appendices (DPE 2022b).
- *Western Sydney Aerotropolis Wildlife Management Assessment Report* (Avisure 2020).
- DPE Vegetation Information System (VIS) mapping, including:
 - Remnant Vegetation of the western Cumberland subregion, 2013 Update. VIS_ID 4207 (DPE 2015).
 - Southeast NSW Native Vegetation Classification and Mapping – SCIVI. VIS_ID 2230 (DPE 2010).
- NSW Scientific Committee final determinations for threatened biodiversity.
- The Department of Climate Change, Energy, the Environment and Water (DCCEEW) Protected Matters Search Tool for matters protected by the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
- NSW Department of Planning and Environment (DPE) NSW BioNet, the database for the Atlas of NSW Wildlife, for matters protected under the NSW *Biodiversity Conservation Act 2016* (BC Act).

3.2. Site assessment

A general flora and fauna site survey of the study area and the adjacent Ridge Park was conducted on 26 October 2022, by Stephanie Cerrato and Zoe Marchant. The study area was surveyed using random meander methods. This involved the below activities:

- The identification of native and exotic plant species, according to the *Field Guide to the Native Plants of Sydney* (Robinson 2003) and *The Flora of NSW* (Harden 1992, Harden 1993, Harden 2000, Harden 2002) with reference to recent taxonomic changes.
- The identification and mapping of plant communities according to the structural definitions of *Remnant Vegetation of the western Cumberland subregion, 2013 Update. VIS_ID 4207* (DPE 2015).
- Targeted searches for plant species of conservation significance according to the random meander method (Cropper 1993).
- Identifying fauna habitats, assessing their condition and assessing their value to threatened fauna species.
- Observations of animal activity and searches for indirect evidence of fauna (such as scats, nests, burrows, hollows, tracks, scratches and diggings).
- An assessment of the natural resilience of the vegetation of the site.
- Identification of previous and current factors threatening the ecological function and survival of native vegetation within and adjacent to the study area.
- Determination of appropriate rehabilitation and bush regeneration techniques for the native vegetation of the site.

The conservation significance of plant species and plant communities was determined according to:

- BC Act for significance within NSW.
- EPBC Act for significance within Australia.

3.3. Limitations

Ecological surveys provide a sampling of flora and fauna at a particular time and season. There are several reasons why not all species will be detected at a site during survey, such as species dormancy, seasonal conditions, the ephemeral status of waterbodies, and migration and breeding behaviours of some fauna. In many cases these factors do not present a significant limitation to assessing the overall ecological values of a site.

3.4. Consultation with Western Sydney Airport and Liverpool Council

As per condition B22 (a) of the projects SSDA Instrument of consent (SSD- 25452459), this report has been prepared in consultation with Western Sydney Airport Corporation (WSAP) as per correspondence on 15 August and 2023 and Liverpool City Council as per correspondence on 18 September 2023. The draft LMP has been subject to review by both entities before finalisation and implementation.

4. Existing Environment

The following sections summarise the existing biodiversity values within and adjacent to the study area (including Ridge Park), including vegetation communities, flora and fauna, and habitat areas.

4.1. Vegetation communities

The vegetation of the study area and the adjacent Ridge Park revegetation area comprises two native Plant Community Types (PCTs). The structure, floristic composition and condition of these communities are described in Table 1 (PCT 725) and Table 2 (PCT 849). Where these vegetation communities matched the species assemblage and condition thresholds for TECs listed under either the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) or the NSW *Biodiversity Conservation Act 2016* (BC Act), the associated TECs have been detailed. Several vegetation plots, undertaken in accordance with the *Biodiversity Assessment Method* (DPIE 2020) to support the Bradfield City Centre Master Plan project have been included in this BMP for the purpose of providing background floristic data for the study area. The location of these plots are shown on Figure 2 and the data is included in Appendix A. Native vegetation communities within the study area and adjacent Ridge Park revegetation area are also shown on Figure 2.

A significant patch of vegetation occurs in what is known as “Ridge Park”, which is associated with the ENZ (Environment and Recreation) zoning adjacent to the study area and occurs directly north of the AMRF First Building. Ridge Park is included in the Bradfield City Centre Master Plan (BDA 2024) and is intended to be a native parkland. This area will not be impacted by the proposed project, however it’s biodiversity value will be enhanced through revegetation efforts as part of the First Building project. The Ridge Park Revegetation Area is shown in Figure 2.

Table 1 PCT 725 within the study area and Ridge Park revegetation areas

PCT 725 Broad-leaved Ironbark – <i>Melaleuca decora</i> shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion	
Extent within study area and Ridge Park revegetation area	Approximately 0.19 ha of PCT 725 occurs along the eastern edge of the northern access road in the study area. Approximately 0.59 ha of PCT 725 occurs in the adjacent Ridge Park revegetation area.
Description including fauna habitat	PCT 725 had been historically disturbed through land clearing resulting in weed invasion and a reduction in native floristic diversity. The middle stratum was floristically poor but was still dominated by large stands of <i>Melaleuca decora</i> supported by occasional specimens of Blackthorn <i>Bursaria spinosa</i> subsp. <i>spinosa</i> and Prickly-leaved Paperbark <i>Melaleuca nodosa</i>. Exotic species encountered with the stratum included stands of Large-leaved Privet <i>Ligustrum lucidum</i>, Lantana <i>Lantana camara</i>, Cassia <i>Senna pendula</i> var. <i>glabrata</i> and African Olive <i>Olea europaea</i> subsp. <i>cuspidata</i>. The ground stratum was highly disturbed with only limited number of residual native grasses and forbs being encountered with native flora species such as Weeping Grass <i>Microlaena stipoides</i> var. <i>stipoides</i>, Native Wandering Jew <i>Commelina cyanea</i>, Bordered Panic <i>Entolasia marginata</i> and Kidney Weed <i>Dichondra repens</i> being most common. Dominant exotic flora within the stratum included Paddy’s Lucerne <i>Sida rhombifolia</i>, Winter Grass <i>Poa annua</i>, Lamb’s Tongue <i>Plantago lanceolata</i>, Madeira Winter Cherry <i>Solanum pseudocapsicum</i> and Purpletop <i>Verbena bonariensis</i>. Patches of this PCT were also present to the west of the study area along the main access road into the proposed AMRF First Building site. Whilst outside of the study area these

PCT 725 Broad-leaved Ironbark – <i>Melaleuca decora</i> shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion	
	vegetation patches included the canopy species Red Ironbark <i>Eucalyptus fibrosa</i> with occasional representations of Forest Red Gum <i>Eucalyptus tereticornis</i> and Narrow-leaved ironbark <i>Eucalyptus crebra</i> in ecotonal areas, therefore further confirming the PCT and associated listed TECs.
Condition	The community was present in a moderate condition state.
Associated soils, rainfall and landscape position	The community occurs on clay-rich soils derived from predominantly Tertiary alluvium and on Wianamatta Shale derived soils found next to Tertiary alluvium or shale in the Castlereagh-Holsworthy area (NSW NPWS 2002, Tozer 2003, NSW Scientific Committee 2011, NSW DCCEEW 2024).
Threatened ecological community	Commonwealth EPBC Act: <i>Cooks River/Castlereagh Ironbark Forest in the Sydney Basin Bioregion</i> (Critically Endangered Ecological Community [CEEC]). NSW BC Act: <i>Cooks River/Castlereagh Ironbark Forest in the Sydney Basin Bioregion</i> (Endangered Ecological Community [EEC]). Justification: Species and assemblage are consistent with both the <i>Cooks River/Castlereagh ironbark forest in the Sydney Basin Bioregion - endangered ecological community listing final determination</i> (NSW Scientific Committee 2011) and the <i>Approved Conservation Advice (including listing advice) for Cooks River/Castlereagh Ironbark Forest of the Sydney Basin Bioregion</i> (Department of the Environment 2015). Additional condition threshold criteria satisfied included: • A patch size > 0.5 ha. • > 50 % of the perennial understorey vegetation cover made up of native species.
Picture	 Photo 1 PCT 725 within the adjacent Ridge Park area

Table 2 PCT 849 within the study area and Ridge Park revegetation areas

PCT 849 Grey Box – Forest Red Gum grassy woodland on flats of the Cumberland Plain	
Extent within study area and Ridge Park revegetation area	Approximately 3.70 ha of PCT 849 occurs within the main footprint of the AMRF First Building. Approximately 0.65 ha occurs within the adjacent Ridge Park revegetation areas.
Description including fauna habitat	High condition PCT 849 is primarily located in the northern section of the main study area (excluding access roads) and was observed to be structurally and floristically diverse within all strata. The canopy was dominated by Grey Box <i>Eucalyptus moluccana</i>. The mid storey stratum was observed to be a diverse mix of shrub species which included Blackthorn and Silky Oak <i>Grevillea robusta</i> and <i>Dillwynia sieberi</i>. The ground layer stratum was observed to be floristically diverse with a wide range of grasses and forbs recorded. Native species within the stratum included <i>Paspalidium distans</i>, Weeping Grass, Kangaroo Grass <i>Themeda triandra</i> and Kidney Weed. Exotic flora was observed in low numbers and densities (species discussed below). This vegetation also included high quality derived native shrublands (DNS) and derived native grasslands (DNG) which were directly linked to the high-quality vegetation type. Moderately conditioned PCT 849 occurred predominantly in the southern portion of the study area, as well as in areas directly adjacent to patches of PCT 725. As a result of historical clearing, the vegetation type was represented as either a native canopy with a limited native mid storey and ground layer or isolated patches of DNS or DNG with no linkages to high quality PCT 849 areas. Native species within the condition type included Forest Red Gum and Blackthorn with a well-represented ground layer dominated by Weeping and Kangaroo grasses. Weed densities within the vegetation type were observed at moderate densities. Low condition PCT 849 occurred on the main entrance to the site off Badgerys Creek Road. The community was heavily modified, present only as scattered trees with no continuous canopy. The middle stratum was largely absent (represented by occasional occurrence of Blackthorn) and the ground layer was dominated by exotic species. Native grasses such as Kangaroo Grass were still present in moderate to low densities. Exotic species recorded within the three conditional types included African Olive <i>Olea europaea</i> subsp. <i>cuspidata</i>, Fireweed <i>Senecio madagascariensis</i>, <i>Briza subaristata</i>, Catsear <i>Hypochaeris radicata</i>, Lamb's Tongue, Moth Vine <i>Araujia sericifera</i> and Cobbler's Pegs <i>Bidens pilosa</i>.
Condition	The community was present in moderate and high condition states.
Associated soils, rainfall and landscape position	The community occurs on clay/loam soils derived from Wianamatta Shales on the Cumberland Plain at low altitudes (mainly below 150 m) with an average rainfall between 750 and 950 mm per annum (NSW DCCEEW 2024).
Threatened ecological community	Commonwealth EPBC Act: <i>Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest</i> (CEEC). NSW BC Act: <i>Cumberland Plain Woodland in the Sydney Basin Bioregion</i> (CEEC). Justification: The 1.75ha in high condition satisfies the listing criteria of both the EPBC Act and BC Act listing as it satisfies the following criteria: - Native tree species present with a minimum projected foliage cover of at least 10 %. - The size of the vegetation patch exceeds 0.5 ha. - The perennial understorey vegetative cover present is made up of at least 50 % native species. These criteria are outlined under the <i>Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest EPBC Act policy statement</i> (Commonwealth of Australia 2010).

PCT 849 Grey Box – Forest Red Gum grassy woodland on flats of the Cumberland Plain

The 1.37 ha of moderate condition and 0.58 ha of low condition satisfy the listing criteria of the BC Act listing only. Species and assemblage are consistent with the *Cumberland Plain Woodland in the Sydney Basin Bioregion - critically endangered ecological community listing final determination* (NSW Scientific Committee 2009).

Picture



Photo 2 PCT 849 within the study area

4.2. Flora and fauna

The dry sclerophyll forest and woodland vegetation communities of the study area provide foraging habitat for a range of common woodland bird species such as Australian Magpie *Cracticus tibicen*, Noisy Miner *Manorina melanocephala*, Eastern Rosella *Platycercus eximius*, and Superb Fairy-wren *Malurus cyaneus*. The grassy areas adjoining these forests and woodlands support common raptors such as Nankeen Kestrel *Falco cenchroides* and Black-shouldered Kite *Elanus axillaris*, which were observed hunting during baseline investigations, as well Eastern Grey Kangaroos *Macropus giganteus* which have been observed foraging during various field investigations across the study area and broader Bradfield City Centre locality (conducted in September 2020, May 2021, October 2022 and March 2025). Further fauna species identified on site.

A variety of fauna micro-habitats are present within the study area including stag trees with decorticated bark, fallen logs, tree stumps and leaf litter. These features may provide potential habitat for common native microbat, frog, reptile and invertebrate species. The native canopy trees of the study area (i.e., Grey Box and *Melaleuca* spp.) would also provide foraging resources for a variety of nectivorous bird species and potentially mammal species, such as Grey-headed Flying-fox *Pteropus poliocephalus* and native gliders and possums, when in flower. No hollow-bearing trees were identified so breeding habitat for native hollow-dependent fauna is not present within the study area.

Floristically the setting of viable native tree and shrub seeds within the study area was poor, with the volumes required to support broadscale propagation being largely absent. Tree seedlings were also largely absent from the study area. The study area did support seedlings from various native shrub species (such as Native Blackthorn) as well as large volumes of native grasses, rushes, sedges, forbs and other groundcover species.

One threatened flora species, *Marsdenia viridiflora* subsp. *Viridiflora* (Endangered population, BC Act) has been previously recorded along the western boundary of the study area. Four individuals were previously found growing in a cluster on the western fence line. The locations of these individuals are provided in Figure 2.

There are no watercourses or water bodies occurring directly within the study area. As such aquatic habitats are absent.

The ecological values in the adjacent Ridge Park revegetation areas provide similar habitat for flora and fauna species as the vegetation and values in the study area.

4.3. Priority weeds in the study area

Two priority weeds for the Greater Sydney LLS region, which includes the Liverpool LGA, have been recorded in the study area, and are listed in Table 3, along with their associated Biosecurity Duty in accordance with the NSW *Biosecurity Act 2015* (Biosecurity Act).

The Biosecurity Act provides for the identification, classification and control of priority weeds with the purpose of determining if a biosecurity risk is likely to occur. A priority weed is any weed identified in a local strategic plan, for a region that includes that land or area, as a weed that is or should be prevented, managed, controlled or eradicated in the region.

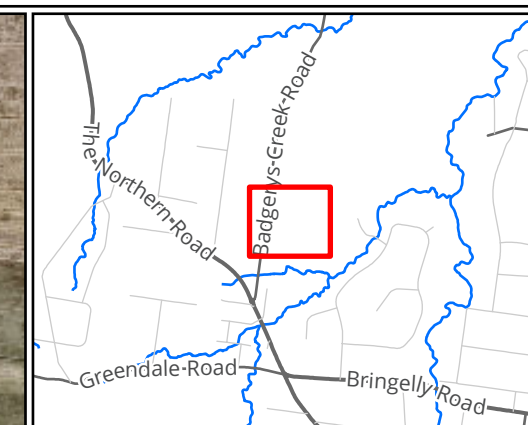
The General Biosecurity Duty as outlined in the Biosecurity Act states:

All plants are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable.

Table 3 Priority weeds within the study area

Scientific name	Common name	Relevant biosecurity duty
<i>Olea europaea</i> subsp. <i>cuspidata</i>	African Olive	Regional Recommended Measure An exclusion zone is established for all lands in Blue Mountains City Council local government area and in Penrith local government area west of the Nepean River. The remainder of the region is classified as the core infestation area. Whole region: The plant or parts of the plant are not traded, carried, grown or released into the environment. Exclusion zone: The plant is eradicated from the land and the land kept free of the plant. Core infestation area: Land managers prevent spread from their land where feasible. Land managers reduce impacts from the plant on priority assets.
<i>Senecio madagascariensis</i>	Fireweed	General biosecurity duty

To prevent biosecurity impacts from occurring as a result of the presence of the above listed priority weeds within the study area, all practical steps should be taken to control and eradicate the weeds from the study area as per the relevant biosecurity duties outlined above, or prior to or during any future vegetation removal.



Legend

- Study area
- Ridge Park revegetation area
- Nest trees
- Marsdenia viridiflora* subsp. *viridiflora* (4 individuals)
- BAM Plot

Plant Community Types

- 725 - Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion, Moderate condition
- 849 - Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion, High condition
- 849 - Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion, Moderate condition
- 849 - Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion, Low condition

Figure 2 Ecological values of the study area

0 25 50 75 100
Metres
Scale: 1:3,200 @ A3
Coordinate System: GDA2020 MGA Zone 56



Matter: 42084, Date: 22 May 2025,
Prepared for: JC, Prepared by: OW, Last edited by: owilliams
Layout: 42084_LMP_F2_EcoFeatures
Project: P:\42000s\42084\Mapping\42084_Bradfield_LMP_Monitoring.aprx

5. Landscape management

The project will landscape with a plant palette composed entirely of native flora species, including those indigenous to the Cumberland Plain and representative of the existing native plant communities, as consistent with mitigation measures at Appendix 2 of the Instrument of Consent (SSD- 25452459). In addition, culturally significant and edible species developed in consultation with Jiwah – an Indigenous company specialising in cultural landscape and design will also be used. Species selection has also been guided by species detailed in Appendix B (Western Sydney Aerotropolis Landscape Species List) of the Western Sydney Aerotropolis DCP – Phase 2 (DPE 2022b) where possible. Many of the selected species have been pre-approved under the DCP to avoid wildlife attraction and reduce the likelihood of wildlife strikes within 3 kilometres of the Western Sydney airport.

Nine planting areas (including the project's green roof) have been designated across the study area, which are each characterised by a unique soil composition. Each of these areas will be landscaped with appropriate planting mixes which include; native seeding mixes; low flowering; grassy; bulky native; basin; and Asset Protection Zone (APZ) mixes.

Landscaping will also be supported by the seed collection and juvenile plant salvage works that were undertaken on site in November 2022 (Toolijooa 2022). Toolijooa have since provided an updated collection and salvage report for the AMRF site from February 2025 (Toolijooa 2025). Inclusion of these flora species collected and salvaged from the site will ensure that the floristic genetics of the site are preserved and re-established following the completion of construction.

While the project will not involve the removal of hollow-bearing trees or known nesting trees, over 100 large tree species including Red Gum *Eucalyptus tereticornis* and Grey Box *Eucalyptus moluccana* which represent canopy species currently occurring within the site will be included throughout the study area with the potential to provide nesting habitat for native and threatened fauna. In addition, salvaged habitat values including hollow stumps and fallen logs will be replaced throughout the study area. The specific landscape management measures to be undertaken on site in accordance with B22 (b) and (c) of the Instrument of Consent (SSD- 25452459) are outlined below.

5.1. Satisfaction of condition B22 (SSD-25452459)

In order to satisfy consent condition B22 of the project's instrument of consent (SSD-25452459), this LMP was initially developed to detail the landscaping requirements for the site. As previously mentioned, this document is supported by the AMRF – *First Building Landscape – Stage 4A – Issued for information* (Hassell 2023). Together, these documents detail how the landscaping targets were to be achieved. Section 5.1.7 of this LMP states that a total of 184 trees (of the existing 193 trees on site) are to be removed, with compensatory planting of 134 trees to be implemented. This left a shortfall of 50 trees which were required to be planted elsewhere within the broader Bradfield City Centre in order to ensure that there was no-net loss of trees (as required by consent condition B22).

Due to site constraints within the AMRF First Building study area, Hassell (the project's landscape architect) and the BDA have developed a proposed approach to mitigate the 50-tree shortfall. This approach is outlined in the AMRF *First Building: Tree Update Plan* (Hassell 2024), which has the approval of the NSW Department of Planning, Housing and Infrastructure (DPHI). This plan (available in Appendix E of the BMP report) details how the 50-tree shortfall will be offset through the planting of additional canopy trees, and salvaged juvenile plants into Ridge Park (adjacent to the study area).

Toolijooa Environmental Restoration (Toolijooa) has been contracted to undertake the additional planting within Ridge Park. This will include installation of 50 *Eucalyptus moluccana* trees and 50 *Eucalyptus fibrosa* trees grown from seed salvaged from the AMRF First Building and Bradfield City Centre site. A further approximately 425 salvaged native plants will also be replanted into Ridge Park, along with the installation of 8-10 salvaged logs/stumps within the Ridge Park revegetation area (adjacent to the study area). Biosis has been contracted to provide a planting plan to cover this material (provided in Appendix E of this report) and will be undertaking the required monitoring and reporting over a 24 month period. Additional plantings in Ridge Park are to commence in late April 2025.

Further details on the collection and salvage of native flora species are provided in the following sections.

5.2. Planting schedules and plans

Planting areas and associated planting mix schedules have been delineated by Hassell within the *AMRF – First Building Landscape – Stage 4A – Issued for Information* (Hassell 2023), as well as part of the projects civil design prepared by AECOM. A total of 16 planting mixes have been included within the study area and are summarised in Appendix B.

The detailed planting schedules which include the species, pot sizes and planting densities for each planting mix, as well as the landscape plans which include the locations of planting mixes are included in Appendix B (Hassell 2023). The temporary seeding mixes (SE-01 and SE-02) to be used within the verges and carpark are to be planted at a density rate of 3 grams / metre pending finalisation. Planting within the Basin will be at a rate of 10 plants / metre squared.

Tree canopy cover has been estimated at 40 % within the study area. This is consistent with the Western Sydney Aerotropolis DCP, which states a minimum 25 % cover for large format industrial and light industrial lots (DPE 2022b).

The projects landscaping will also include a green roof which will improve the microclimate of the project site and help reduce the impact of urban heat island effect, including harvesting water for reuse within the site in line with the mitigation measures provided at Appendix 2 of the Instrument of Consent (SSD- 25452459). The green roof will be landscaped with native species which will contribute to the overall biodiversity enhancements realised by the site (Flux 2021). The green roof will include two plant mixes (RF-01 and RF-02). RF-01 for use in areas of full sun and RF-02 for use under the photovoltaic panels that will be installed to improve the building's energy efficiency. The RF-02 mix will not exceed 400 millimetres in height under the photovoltaic panels. These species will be installed at a rate of 75-150mm sizes as per the planting schedules provided in Appendix B.

5.2.1. Native Pear Translocation Plan into Ridge Park

Biosis has been contracted to prepare and implement a translocation plan for two sub-populations of Native Pear *Marsdenia viridiflora* subsp. *viridiflora* (Endangered population listed under the BC Act). These sub-populations are currently located adjacent to the AMRF First Building. The northern population comprises a single individual which is showing signs of senescence, approaching death to several previously recorded stems, whilst future development works as part of the Bradfield City Centre may impact on the southern sub-populations. As such, Biosis has been engaged to salvage and translocate these plants into the adjacent Ridge Park revegetation area to ensure their continued survival. This translocation proposal involves salvage of plant material (to be undertaken by Biosis), housing and propagation of the salvaged individuals (BDA have engaged Toolijooa to undertake these works), and subsequent translocation of the salvaged plant material

into Ridge Park revegetation areas adjacent to the study area. The salvage works are scheduled to commence in April and May 2025.

5.2.2. Collection and use of local native seed and juvenile plants

Collection of native seed and salvage of juvenile native plants has occurred within the study area in accordance with consent condition B21 and B22 from the project's Instrument of Consent (SSD- 25452459). Seed collection and plant salvage was undertaken by bush regeneration company Toolijooa on 3 November 2022 (seed collection), and the 8 and 9 November 2022 (juvenile plants salvage), informed by a salvage plan developed by experienced restoration ecologists at Biosis. The locations designated for reuse of salvaged seed and juvenile plants within the landscape design are shown in Appendix C.

As of February 2025, the collected material has been propagated at Toolijooa nursery in Western Sydney, where it has been kept under irrigation, kept free from weeds and monitored for signs of stress until the project landscaping commences. The latest salvage plan and result of the seed collection and juvenile plant salvage works are included in the Plant Salvage and Seed Collection Report produced by Toolijooa (Toolijooa 2025) in Appendix D. A planting plan for the installation of these species in the AMRF site and in Ridge Park (Biosis 2025) has been developed, as requested by BDA and is provided in Appendix E.

5.2.3. Habitat salvage and reuse

As consistent with the projects tree retention plan (Active Green Services 2022a) and condition B17, ten (10) trees identified as having high retention value will be initially retained and included within the projects landscaping. It is noted that non-destructive root exploration may be needed to accurately determine tree viability and subsequent retention.

In addition to retained trees, and seed collection and juvenile plant salvage (Toolijooa 2025), several fauna habitat items were identified as part of the salvage plan developed by Biosis for the site in accordance with condition B17 and B22. Habitat to be salvaged includes hollow stumps, fallen logs with loose bark, root balls, as well as the trunks of several older trees that will be felled as part of the proposed works. Retention of these habitat items and subsequent reuse in the project's landscaping will ensure habitat is available for small fauna (such as reptile, frogs and invertebrates), allowing for quick recolonisation of the site following completion of construction. Four trees removed as part of the project will be installed within PL-01 surrounding the dry creek bed as shown in Appendix F, in order to provide perching and roosting habitat for birds, flying mammals and shelter for reptiles and invertebrates.

5.2.4. Incorporation of local provenance plants

The projects landscaping will be partially comprised (approximately 3 %) of seed and juvenile plants salvaged directly from existing vegetation within the site (Toolijooa 2025). The majority of species within the remainder of the planting schedules are comprised of species indigenous to the Cumberland Plain and more specifically to the communities that currently exist within the site (Broad-leaved Ironbark – *Melaleuca decora* shrubby open forest and Grey Box – Forest Red Gum grassy woodland).

5.2.5. Avoidance of nursery hybrids of locally occurring native species

Planting schedules have been developed by Hassell to actively exclude hybrid cultivars that are generally commercially available. The use of salvaged seed and juvenile plants collected directly from the site (Toolijooa 2025), will also assist in minimising the use of nursery hybrids and increase genetic diversity.

5.2.6. Minimisation of wildlife strikes

Appendix B (Western Sydney Aerotropolis Landscape Species List) of the Western Sydney Aerotropolis DCP – Phase 2 outlines a landscape species list that applies to land inside the Western Sydney Parking Commitment Areas and beyond the 3 kilometre wildlife buffer. The DCP states that:

Any alternative landscaping species and/or groupings and spacing (as specified in the DCP) outside the Western Parkland Vision Government Commitment Areas and within the 3km wildlife buffer will require an ecologist report submitted with the landscape plan. The report will need to discuss wildlife attraction in proximity to the airport and will be subject to a merit-based assessment. The proponent will need to demonstrate suitability in relation to wildlife management and/or encroachments into operational airspace.

Within Table 1 below where an additional requirement is provided against a species that states “Only within 3km wildlife buffer, where supported by ecologist report, confirming landscape design minimises wildlife attraction”, this only applies to the use of those species within the 3km buffer that are outside of the government commitment areas.

The study area occurs within the Western Sydney Parkland Commitment Area. Therefore, while the study area occurs within the 3-kilometre wildlife buffer, it is within a government commitment area, and deviation from the DCP species list does not require a separate ecologist report to confirm the landscape design minimises wildlife attraction.

The Wildlife Management Assessment Report generated for the Western Sydney Aerotropolis (Avisure 2020) recognises that several planting and landscape principles designed to safeguard Western Sydney Airport against wildlife strikes contradict the objectives and principles of the Western Sydney Aerotropolis, such as natural area revitalisation and biodiversity enhancement, particularly within the Western Parkland City Commitment Area.

Several tree species common within the Cumberland Plain and included within the LMP planting schedules are categorised as both bird and flying fox attractants (Avisure 2020), including Spotted Gum *Corymbia maculata*, Forest Red Gum *Eucalyptus tereticornis*, and Grey Box *Eucalyptus moluccana* amongst others. The project will also include a temporary retention basin for the treatment of stormwater which has the potential to attract wildlife, however mitigation measures including the installation of permanent 1.8-metre-high palisade fencing surrounding the perimeter of the basin will be implemented to minimise the likelihood of wildlife attraction and strikes.

5.2.7. Provision of nesting boxes

As no hollow bearing trees occur within the study area, installation of replacement nest boxes is not required. However, BDA have installed a total of 42 nest boxes in the AMRF First Building study area and a further 14 have been installed as of May 2025 by the contractor (Nature Conservation) in the Ridge Park revegetation area and within the study area. These nest boxes will be monitored until Building 2 is built in the Bradfield City Centre.

Nature Conservation have completed the nest box installation works as of May 2025 and have provided BDA with a detailed report of the installation works, as provided in Appendix G of this LMP.

5.2.8. Tree removal, retention and compensatory replanting

A total of 184 trees of the 193 existing trees on site will be removed as a result of the project. In order to ensure no net canopy loss of trees, nine existing trees will be retained, and compensatory replanting of an additional 134 will also occur within the soft landscape areas to offset the loss of impacted trees. An additional 50 trees will be replanted adjacent to the study area, in the Ridge Park revegetation area shown in Figure 2. Tree retention and replanting will meet the following constraints to allow for Asset Protection Zones standards and bushfire best practices:

- No more than 15% canopy cover within the Asset Protection Zone.
- No trees to be planted within nominated services easements (e.g. HV substation easement).
- A minimum gap of 2-3 m between clusters of trees is recommended for bushfire best practice.
- No canopy overhanging the loading zone area.

Trees designated for removal, retention and replanting are displayed in the project's demolition and tree retention plan in Appendix H.

6. Specific monitoring and maintenance measures

The following monitoring and maintenance measures will be implemented to ensure the success of landscaping within the study area, including the ongoing suppression of weeds in accordance with B22 (d) of the Instrument of Consent (SSD- 25452459). A detailed summary of these measures including timing and responsibility is outlined within Table 7.

6.1. Exclusion fencing

The extent of ecologically sensitive areas adjacent to the works areas, including retained vegetation and threatened individuals of *Marsdenia viridiflora* subsp. *viridiflora*, will be shown on relevant sensitive site maps in association with the project Construction Environmental Management Plan (CEMP), and physically delineated on site using protective fencing including tree protection fencing and signposting. Prior to the commencement of earthworks, and as consistent with condition B17, Arboriculture assessment (Active Green Services 2022b) and mitigation measures provided at Appendix 2 of the Instrument of Consent (SSD- 25452459), tree protection fencing is to be installed surrounding trees to be retained, including ten high retention value trees, and exclusion fencing applied surrounding records of threatened flora species *Marsdenia viridiflora* subsp. *viridiflora* along the western boundary of the study area. The alignment of this fencing is to be in accordance with the Australian Standard *Protection of Trees on Development Sites* (AS4970-2009) and the recommendations within the Arboricultural report (Active Green Services 2022b), incorporating the relevant tree protection zones for trees to be retained, consistent with condition B17 and B18.

The fencing should be constructed of, as a minimum, capped star pickets and high visibility para webbing and have signage stating that it is an environmentally sensitive area to inform and educate construction personnel. Exclusion zones are to be clearly marked and labelled on design drawings issued for construction and should be displayed in prominent places and provided in site inductions. A register of sensitive area maps will be maintained.

No storage of materials or machinery is to be undertaken within exclusion zones or retained vegetation, no preparation of chemicals or concrete to be mixed in these areas, or adjacent, and care to avoid the compaction of soils to be observed.

6.2. Weed management

The proposed works could introduce and promote weeds and pathogens in the development footprint and in the surrounding area. Environmental weeds are exotic species considered that have either a high risk of dispersing and becoming established in adjacent native vegetation; or the potential to cause significant ecological harm. Two priority weed species (African Olive and Fireweed), and several environmental weeds including Moth Vine *Araujia sericifera*, Cobbler's Pegs *Bidens pilosa*, Panic Veldt Grass *Ehrharta erecta*, African Lovegrass *Eragrostis curvula*, Lamb's Tongues *Plantago lanceolata*, and Paddy's Lucerne *Sida rhombifolia* are present within the study area.

Ongoing maintenance of landscaped areas will ensure the continued suppression (if not complete eradication) of priority and environmental weeds from the study area. Recommended methods for control of priority and environmental weeds recorded on site, are outlined in Appendix I.

6.3. Fertilising

Trees are to be fertilised once every two years and shrubs once annually, fertilising all growth forms in September or March. At the time of planting, fertiliser is to be applied to each plant in the form of a native slow-release product with an N: P: K ratio similar to that of 10:4:6. Water crystals may also be used to reduce the incidence of death amongst establishing plants. Such an additive will also reduce initial water costs during the establishment phase of the LMP implementation.

Table 4 Fertilising program

Growth Form	Frequency	Timing
Trees	Once every two years	September or March
Shrubs	Once a year	September or March

6.4. Watering

Watering of the salvaged seed and juvenile plantings as well as general planting mixes will be undertaken to ensure that an adequate survival and establishment rate is achieved. Watering is to abide by any local authority water restrictions or guidelines.

During the establishment period, the frequency of watering to achieve plant establishment will depend on the prevailing climatic conditions at the time of planting and thereafter. Watering will generally be carried out in the cooler hours of the day (morning or afternoon) and will be frequent enough to prevent wilting of plants. Tubestock is to be watered prior to planting as well as immediately after planting installation. Water is to be administered through a drip irrigation system to be installed in accordance with the specifications provided by the irrigation consultant.

During the establishment phase the following watering program is recommended (dependent on weather) (Table 5).

Table 5 Watering program

Weeks 1–4	Months 2–4	Months 5–6
Once a day	Once a fortnight	Once a month

The necessity for watering during the above program will be dependent upon rainfall. The frequency of watering will be gradually reduced as the plantings mature and it is anticipated that after period of 6 months the planting will be sufficiently established such that supplementary watering will no longer be required.

Planting areas are to be monitored during the extended maintenance period to ensure that climatic conditions are not affecting the newly planted tube stock. If climate or environmental conditions are affecting the tube stock a watering program may be reinstated pending the approval by the project ecologist.

6.5. Pest control

Predation by native macropods, introduced herbivores (rabbits and hares), insect pests and infection caused by plant diseases/pathogens can have an adverse effect on the establishment of plantings by defoliating, damaging, removing or killing young plants. To minimise the loss of plants through predation and/or disease, all new plantings will be protected by:

- Use of tree guards, which would be reused on new plantings once the initial planted specimens mature.
- Temporary exclusion fencing of larger areas or where initial trials indicate that the efficacy of using individual tree guards is low.

6.6. Erosion and sediment controls

Earthworks are not to commence until sediment and erosion controls have been installed as per an approved CEMP which is to include an Erosion and Sediment Control Plan as per condition C2 and B10 of the projects Instrument of Consent (SSD- 25452459). Erosion and sediment control is to be observed and monitored for the entire construction phase of the development. All objectives and measures outlined within Landcom's *Managing Urban Stormwater: Soils and Construction* (2004), this LMP and any Sediment and Erosion Control Plan prepared for the development are to be enforced.

6.7. Maintenance

Maintenance works will commence following the implementation of weed control and revegetation activities and will continue for a period of 12 months following the establishment period. It is anticipated that the maintenance activities will occur quarterly during cooler months and bi-monthly in the warmer months. Required works and indicative effort are outlined in Table 6.

Table 6 Indicative maintenance works summary

Maintenance activity	Minimum effort	Frequency	Responsibility
Spot spraying of annual and perennial weeds	Two person days	Monthly in cooler months, fortnightly in warmer months	Landscape contractor
Checking and repairing tree guards	As required	As required	Landscape contractor
Watering	As required	Only during excessively hot periods of summer	Landscape contractor
Replacement planting of tube stock	As required	Annual checks and planting	Landscape contractor

6.8. Landscape Management Actions

Landscape management actions, monitoring framework, performance criteria, timing and responsibility are outlined within Table 7 and Table 8 below.

Table 7 Landscape management actions and performance criteria

Management action	Management area	Responsibility	Task / performance criteria	Timing
Define property boundary and install vegetation exclusion fencing	All areas	Construction contractor / project ecologist	Vegetation exclusion fencing is to be installed surrounding native vegetation to be retained including ten high retention value trees, and individuals of threatened flora species <i>Marsdenia viridiflora</i> subsp. <i>viridiflora</i> , as per the specifications above (Section 6.1) and in line with consent conditions B17 and B18.	Prior to vegetation removal and earthworks.
Primary and secondary weed control	All areas	Landscape contractor	Primary and secondary weed control works are to include the following actions: • All priority, environmental, vine and woody weeds within the APZ are to undergo primary treatment within 4 weeks of the commencement of the landscape management program. • Exotic species to be treated include African Olive, Fireweed, Cobbler's Pegs, Panic Veldt Grass, African Lovegrass, Lamb's Tongues, and Paddy's Lucerne. • Secondary treatments are to be ongoing as required over the next 8 weeks following completion of primary treatment works. • All mature priority weeds are to be successfully treated prior to commencement of maintenance period. • Seedlings of priority species are to be continually suppressed to a level of <5 % percent foliage cover (PFC) where they occur in the seed bank below mature specimens, and <1 % PFC across remainder of the study area.	As specified adjacent. From the outset of landscape management program.

Management action	Management area	Responsibility	Task / performance criteria	Timing
			- Less than 5 % exotic species PFC to be achieved over the entire study area after 12 months of maintenance works. - Continual suppression at <5 % for the remaining 2 years of the LMP program (3 years total).	
Study area erosion control	PL-08	Landscape contractor	Following primary and secondary weed control, installation of erosion controls including jute matt should be installed at the bottom of access ramps and around all surcharge pits during plant establishment, as consistent with the project's civil design.	As required immediately following secondary weed control.
Landscaping	All areas	Landscape contractor	Following primary and secondary weed control, landscaping is to be undertaken to ensure sufficient vegetation cover exists to prevent soil erosion: Planting is to be consistent with the planting schedules including planting densities provided by Hassell in Appendix B, including juvenile plants and salvaged seed propagated and held at the Toolijoa nursery for the project as per Appendix D.	Immediately following successful completion of secondary weed control, and installation of erosion controls.
Planting maintenance	All areas	Landscape contractor	Installed plantings are to be maintained with key elements of water, prevention of predation and suppression of smothering weeds. There will be a maximum loss of 20 % of the original planting numbers for an individual species. A minimum of 80 % survivorship for each species is to be maintained. Replacement planting is to be carried out throughout the maintenance period to sustain the 80 % survival rate at the completion of the maintenance period.	Commences immediately following final installation of all plants. Minimum weekly watering over 8 weeks in summer, or 3 weeks in winter, immediately following installation. Watering visits to continue as required to plant establishment. Weed removal as required to the completion of the maintenance period.

Management action	Management area	Responsibility	Task / performance criteria	Timing
			Losses of greater than 20 % of originally installed plantings may have the maintenance period extended until survival rates have been achieved. Replace failed, dead and/or damaged plants at maximum 3 week intervals as necessary throughout the full plant establishment period.	
Tree maintenance schedule	PL-01, all areas designated for tree retention	Landscape contractor	As per consent condition B20, all ten high retention value trees to be retained and all salvaged juvenile trees should be monitored and maintained for the entirety of the 3-year LMP program. This involves: - Monitoring monthly for the first 12 months and every 6 months for the remainder of the 24-month program. - Any trees that do not survive should be replaced with the same species where possible or similar species from the approved schedules detailed in Appendix B. All mature priority weeds are to be successfully treated prior to commencement of maintenance period. Seedlings of priority species are to be continually suppressed to a level of <5 % PFC where they occur in the seed bank below mature specimens, and <1 % PFC across remainder of the study area. Less than 5 % exotic species PFC to be achieved over the entire study area after 12 months of maintenance works. Continual suppression at <5 % for the remaining 2 years of the LMP program (3 years total).	The maintenance period will run for a 12 month term following successful secondary weed control and/or installation of final plantings (whichever is later). The commencement of this maintenance period may be adjusted if there are delays beyond the contractor's control. Commencement and completion dates of the maintenance period will be determined by the Rehabilitation management consultant, following consultation with Council, the contractor and Principal.

Table 8 Landscape management actions — monitoring

Management action	Specification / Requirement
Ecological Monitoring Framework	Ecological monitoring works are to be undertaken by the Project Ecologist. Monitoring surveys will assess the success of weed removal, plant growth and natural regeneration, and will be undertaken as outlined below. • Prior to commencement of works to gather baseline data. • Survey every six months to gather ecological monitoring data on the progress of the project, commencing at the start of the maintenance period with a final survey and report at the completion of the 24 month program. Each 6 month survey should be accompanied by brief correspondence with the landscape contractor and the project manager regarding the progress of the vegetation management works, and highlight any areas of concern or merit. • Vegetation monitoring reports are to be prepared at the commencement of maintenance works, at the 12 month stage, and a final report at the end of the 24 month period. • Achievement of performance criteria will be updated in each preceding report as milestones are achieved. • These reports are to be submitted to WPCA. The landscaping zones will be monitored in terms of vegetation condition and the achievement of performance criteria. Monitoring activities are to include: • Establishing a minimum of two photo-points in representative locations. • Compile initial and on-going weed density maps. • Assessment of weed control works including priority and woody weed control, and weed density surrounding plantings, via monitoring techniques such as weed density mapping, and quadrat / transect surveys. • Identification and assessment of any natural regeneration of native plant species. • Certification of local provenance plantings prior to installation. • Assessment of the success rate of plantings and assessment of plant replacement requirements, and convey any need to landscaper contractor. • Assessment of the site for evidence of herbivory and erosion. Monitoring works will also provide the following certifications to the proponent/project manager, and then on to Council: • Certification that the planting stock (including initial and replacement plantings) is of local provenance as evidenced by the supplying nursery or bush regeneration contractor, and at the required densities. • Final certification that the targets of the vegetation management works have been achieved.

7. Schedule of works

The LMP will be undertaken in general accordance with the schedule of works provided below and the relevant specifications provided. The responsibility for completing the actions within the schedule of works will be attributed to the principal landscape contractor that is engaged to complete the work.

Table 9 Three-year action plan for vegetation management

Actions	Timeframe			
	Pre-construction	Year 1 (establishment)	Year 2	Year 3
Engage licensed seed collectors to collect seed from the study area				
Organise nursery to propagate salvaged plants from collected seed				
Install exclusion fencing along vegetation clearance boundary, surrounding retained vegetation and threatened species				
Installation of erosion controls				
Primary weed removal				
Maintenance weeding				
Pile removed/treated woody weeds onsite				
Stockpile salvaged habitat for use in landscaping				
Install salvaged habitat from cleared native vegetation				
Planting				
Replacement planting				
Watering				
Rubbish removal				
Photo point monitoring and reporting				

8. Adaptive management

An adaptive management approach is to be employed for the works forming part of this LMP. This approach involves an integrated process of monitoring, reviewing, and then responding to the health and condition of the plantings as well as the status of the weed species to identify any alterations to the design and maintenance of works that may be required to ensure the objectives of the LMP are achieved.

For example, the application rates for fertiliser and the watering schedule should be flexible, responding to the health and vigour of the plantings and changing climatic conditions. Monitoring plantings will also allow for a review of the selected species to enable changes in the species composition of the supplementary planting if it is determined that a particular species or stock sourced from a certain location is not performing adequately.

The supplementary planting species, planting densities and planting patterns nominated within this LMP may be subject to change and review if certain species are unavailable or are performing inadequately. The weed control works are also to be reviewed and appropriate changes implemented accordingly, if required. By example, if the nominated weed suppression schedule is not achieving the Performance Indicators specified, the frequency of weed suppression activities should be increased accordingly.

It is important to note that any changes should comply with the aims of this LMP and any licensing or approval conditions issued before implementation. An Adaptive Management Statement (or similar) will be prepared and signed by both parties prior to implementation of any adaptive management actions.

9. Bushfire protection assessment

The landscape and planting design complies with the recommendations of the Bushfire Hazard Assessment prepared by Eco Logical Pty Ltd dated November 2022 and is in line with the project's mitigation measures provided at Appendix 2 of the Instrument of Consent (SSD- 25452459). This assessment includes a 12 metre APZ offset from the AMRF First Building as shown on landscape plans at Appendix B. Within this APZ, planting is limited to low ground cover planting and clear stemmed trees, with shrub cover of <10 %. Tree canopy cover is 31 %, with breaks of 2-3 metres between groups of trees. In addition, there is a clear zone of concrete pavement directly adjacent the building, typically 3 metres in width. The landscape within the APZ will be irrigated and maintained regularly to remove build-up of leaf litter.

10. Integration with the Bradfield City Centre

The landscaping for the Bradfield First Building has been developed in accordance with the same key state-level policies and objectives as the landscaping for the broader Bradfield City Centre including:

- Western Sydney Aerotropolis Plan 2020.
- State Environmental Planning Policy (Precincts – Western Parkland City) 2021
- Western Sydney Aerotropolis DCP – Phase 2 2022

In line with the Precincts-Western Parkland City SEPP and the broader Bradfield City Centre landscaping, the AMRF landscaping protects, maintains and enhances biodiversity by utilising a diverse suite of species that are native to the Cumberland Plain and more specifically, vegetation communities that currently occur within the study area. This will allow integration with the surrounding natural landscape. In addition, the landscaping incorporates salvaged seed and juvenile plants as well as habitat values which will promote genetic diversity and use by native fauna.

The landscaping reinforces a landscape-led approach as consistent with the Western Sydney Aerotropolis Plan 2020 by planting with purpose to provide a functional landscape that not only supports biodiversity and the movement of genetic material between the study area and surrounding natural landscape, but also incorporates water sensitive design (WSUD) principles, promotes urban cooling, and improves wellbeing. This includes maximising water permeability and porosity by reducing the extent of impermeable surfaces such as hardscape finishes and maximising the total planting area. The landscaping seamlessly supports connection with country through consultation with Indigenous landscape specialists to integrate culturally significant species, including those that are edible.

In accordance with the DCP, the landscape planting schedules have been developed with reference to Appendix B (Western Sydney Aerotropolis Landscape Species List) of the Western Sydney Aerotropolis DCP – Phase 2, to utilise where possible, species that reduce the risk of wildlife strikes within proximity to the airport. As consistent with the masterplan, the AMRF landscaping achieves tree canopy targets relevant to the building type (25 %) outlined within the DCP.

11. Consistency with other consent conditions

This LMP has been prepared in accordance with consent conditions B17, B18 and B20, as well as Mitigation Measures outlined within Appendix 2 of the Instrument of Consent (SSD- 25452459). Reference to each condition within the report is summarised in below.

Table 10 Summary of reference to each consent condition within LMP

Consent Condition	Reference in report
Condition B17	Section 6.1 pp. 18, Section 6.8 pp. 20, Section 5.2.3 pp. 15
Condition B18	Section 6.1 pp. 18, Section 6.8 pp. 20
Condition B20	Section 6.8 pp. 20
Appendix 2 Applicants Mitigation Measures	Section 5 pp. 13, Section 5.1, pp. 13, Section 6.2 pp. 18, Section 9 pp. 27

References

Active Green Services 2022a. *Arboricultural Memorandum: 215 Badgerys Creek Road, Bringelly*, Report prepared for Taylor Construction Group Pty Ltd. Authors: Dunsmuir. I, Active Green Services, Sydney, NSW.

Active Green Services 2022b. *Arboricultural Impact Assessment Report: AMRF First Building, Bringelly*, Authors: Meekins. O, Active Green Services, Sydney, NSW.

Avisure 2020. 'Western Sydney Aerotropolis: Wildlife Management Assessment Report - Final Report Revision 3', <https://www.infrastructure.gov.au/sites/default/files/migrated/departments/ips/files/log/foi-21-073-docs-redacted.pdf>.

Biosis 2023. *Bradfield City Centre Master Plan Application: Biodiversity Strategy and Impact Assessment*, Report prepared for Western Parkland City Authority. Authors: Hyde. M, Biosis Pty Ltd, Sydney, NSW. Project no. 31717.

Biosis 2025. *Planting Plan: AMRF First Building and Ridge Park*,.

Commonwealth of Australia 2010. 'Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest: A guide to identifying and protecting the nationally threatened ecological community, Environment Protection and Biodiversity Conservation Act 1999, Policy Statement 3.31', Australian Government Department of the Environment Water, Heritage and the Arts.

Cropper S 1993. *Management of Endangered Plants*, CSIRO Publications Victoria, Melbourne, Victoria.

DEC 2005. *Recovering bushland on the Cumberland Plain: Best practice guidelines for the management and restoration of bushland*, Burton R (ed.), New South Wales Government Department of Environment and Conservation (NSW), Sydney, NSW.

Department of the Environment 2015. 'Approved Conservation Advice (including listing advice) for Cooks River/Castlereagh Ironbark Forest of the Sydney Basin Bioregion', Department of the Environment, Canberra, ACT. <http://www.environment.gov.au/biodiversity/threatened/communities/pubs/129-conservation-advice.pdf>.

DPE 2010. 'Southeast NSW Native Vegetation Classification and Mapping - SCIVI. VIS_ID 2230', <https://data.gov.au/dataset/ds-dga-c45cdd09-8aa9-45ae-ae45-f1e304ea6cd0/distribution/dist-dga-8022bb13-926c-4765-b1ba-4fbb9f1bce14/?q=>.

DPE 2015. 'Remnant vegetation of the western Cumberland subregion, 2013 Update. VIS_ID 4207',.

DPE 2022a. 'Development Consent SSD 25452459',.

DPE 2022b. 'Western Sydney Aerotropolis Development Control Plan 2022',.

DPI 2018. *New South Wales Weed Control Handbook. A Guide to Weed Control in Non-Crop, Aquatic and Bushland Situations*, 7th edn, Dept. of Primary Industries, Orange, NSW, https://www.dpi.nsw.gov.au/_data/assets/pdf_file/0017/123317/weed-control-handbook.pdf.

Flux 2021. 'AMRF - First Building Bradfield: Environmental Sustainability Design Report',.

Harden GJ (ed.) 1992. *Flora of New South Wales*, NSW University Press, Kensington, NSW.

- Harden GJ 1993. *Flora of New South Wales*, NSW University Press, Kensington, NSW.
- Harden GJ 2000. *Flora of New South Wales*, Revised Edition, NSW University Press, Kensington, NSW.
- Harden GJ 2002. *Flora of New South Wales*, NSW University Press, Kensington, NSW.
- Hassell 2021. 'AMRF - First Building Landscape and Biodiversity (SSDA) Prepared for WPCA -Risk Workshop',.
- Hassell 2022. 'AMRF - First Building Preliminary Tender Documentation - Landscape',.
- Hassell 2023. 'AMRF – First Building Landscape – Stage 4A – Issued for Information',.
- Hassell 2024. 'AMRF - First Building Tree Planting Update',.
- Keylan 2021. 'Environmental Impact Statement (SSD 25452459): First Building - Bradfield City Centre Advanced Manufacturing Readiness Facility',.
- Landcom 2004. *Managing Urban Stormwater: Soils and Construction*, 4th edn, New South Wales Government.
- NSW DCCEEW 2024. *NSW BioNet Vegetation Classification database, BioNet, New South Wales Department of Climate Change, Energy, the Environment and Water*, accessed 4 March 2024, <https://vegetation.bionet.nsw.gov.au/>.
- NSW NPWS 2002. 'Endangered Ecological Community Information: Cooks River/Castlereagh Ironbark Forest',.
- NSW Scientific Committee 2009. *Cumberland Plain Woodland in the Sydney Basin Bioregion - critically endangered ecological community listing*, <https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/nsw-threatened-species-scientific-committee/determinations/final-determinations/2008-2010/cumberland-plain-woodland-critically-endangered-ecological-community-listing>.
- NSW Scientific Committee 2011. *Cooks River/Castlereagh ironbark forest in the Sydney Basin Bioregion - endangered ecological community listing - final determination.*, accessed 25 September 2020, <https://www.environment.nsw.gov.au/determinations/CooksRiverCastlereaghIronbarkForestSydneyEndComListing.htm>.
- Robinson L 2003. *Field Guide to the Native Plants of Sydney*, 3rd edn, Simon & Schuster Australia, Sydney, NSW.
- Toolijooa 2022. *AMRF Plant Salvage and Seed Collection: Progress Report November 2022*, Toolijooa Nursery, West Hoxton, Australia.
- Toolijooa 2025. *AMRF Plant Salvage and Seed Collection: Progress Report 3 February 2025*,.
- Tozer M 2003. 'The native vegetation of the Cumberland Plain, western Sydney: systematic classification and field identification of communities', *Cunninghamia*, 8, 1: 1–75.
- WPCA 2022. 'Advanced Manufacturing Readiness Facility: Connecting Western Sydney and NSW manufacturers with world class technologies and opportunities',.

Appendices

Appendix A. Flora and fauna list

Table 10 Flora species recorded by Biosis, 26.10.2022

Family	Scientific name	Common name
Native species		
Acanthaceae	<i>Brunoniella australis</i>	Blue Trumpet
Anthericaceae	<i>Tricoryne simplex</i>	None
Anthericaceae	<i>Tricoryne elatior</i>	Yellow Autumn-lily
Asteraceae	<i>Vernonia cinerea</i>	None
Asteraceae	<i>Euchiton involucratus</i>	Star Cudweed
Campanulaceae	<i>Wahlenbergia communis</i>	Tufted Bluebell
Campanulaceae	<i>Lobelia purpurascens</i>	Whiteroot
Chenopodiaceae	<i>Einadia nutans</i>	Climbing Saltbush
Clusiaceae	<i>Hypericum gramineum</i>	Small St John's Wort
Commelinaceae	<i>Commelina cyanea</i>	Native Wandering Jew
Convolvulaceae	<i>Dichondra repens</i>	Kidney Weed
Cyperaceae	<i>Fimbristylis dichotoma</i>	Common Fringe-sedge
Cyperaceae	<i>Schoenus apogon</i>	Fluke Bogrush
Cyperaceae	<i>Carex inversa</i>	Knob Sedge
Fabaceae (Faboideae)	<i>Desmodium rhytidophyllum</i>	None
Fabaceae (Faboideae)	<i>Dillwynia sieberi</i>	None
Fabaceae (Faboideae)	<i>Desmodium varians</i>	Slender Tick-trefoil
Fabaceae (Faboideae)	<i>Glycine microphylla</i>	Small-leaf Glycine
Fabaceae (Faboideae)	<i>Glycine clandestina</i>	Twining glycine
Fabaceae (Faboideae)	<i>Glycine tabacina</i>	Variable Glycine
Juncaceae	<i>Juncus usitatus</i>	None
Lamiaceae	<i>Mentha diemenica</i>	Slender Mint
Lomandraceae	<i>Lomandra filiformis</i>	Wattle Matt-rush
Loranthaceae	<i>Amyema miquelii</i>	Box Mistletoe
Myrtaceae	<i>Eucalyptus moluccana</i>	Grey Box
Myrtaceae	<i>Melaleuca decora</i>	None
Oxalidaceae	<i>Oxalis perennans</i>	None
Phormiaceae	<i>Dianella revoluta</i>	Blueberry Lily
Phyllanthaceae	<i>Phyllanthus virgatus</i>	Wiry Spurge

Family	Scientific name	Common name
Pittosporaceae	<i>Bursaria spinosa</i> subsp. <i>spinosa</i>	Native Blackthorn
Plantaginaceae	<i>Plantago debilis</i>	Shade Plantain
Poaceae	<i>Cymbopogon refractus</i>	Barbed Wire Grass
Poaceae	<i>Entolasia marginata</i>	Bordered Panic
Poaceae	<i>Cynodon dactylon</i>	Common Couch
Poaceae	<i>Paspalidium distans</i>	None
Poaceae	<i>Themeda triandra</i>	None
Poaceae	<i>Aristida ramosa</i>	Purple Wiregrass
Poaceae	<i>Dichelachne micrantha</i>	Shorthair Plumegrass
Poaceae	<i>Sporobolus creber</i>	Slender Rat's Tail Grass
Poaceae	<i>Sporobolus elongatus</i>	Slender Rat's Tail Grass
Poaceae	<i>Poa labillardierei</i> var. <i>labillardierei</i>	Tussock
Poaceae	<i>Microlaena stipoides</i> var. <i>stipoides</i>	Weeping Grass
Proteaceae	<i>Grevillea robusta</i>	Silky Oak
Pteridaceae	<i>Cheilanthes sieberi</i>	Rock Fern
Rubiaceae	<i>Asperula conferta</i>	Common Woodruff
Rubiaceae	<i>Opercularia diphylla</i>	Stinkweed
Solanaceae	<i>Solanum prinophyllum</i>	Forest Nightshade
Solanaceae	<i>Solanum americanum</i>	Glossy Nightshade
Violaceae	<i>Viola hederacea</i>	Ivy-leaved Violet
Introduced species		
Apocynaceae	<i>Araujia sericifera</i>	Moth Vine
Asteraceae	<i>Argyranthemum frutescens</i>	None
Poaceae	<i>Axonopus fissifolius</i>	Narrow-leaved Carpet Grass
Asteraceae	<i>Bidens pilosa</i>	Cobbler's Pegs
Poaceae	<i>Briza minor</i>	Shivery Grass
Poaceae	<i>Briza subaristata</i>	None
Gentianaceae	<i>Centaurium erythraea</i>	Common Centaury
Asteraceae	<i>Cirsium vulgare</i>	Spear Thistle
Asteraceae	<i>Conyza bonariensis</i>	Flaxleaf Fleabane
Apiaceae	<i>Cyclospermum leptophyllum</i>	Slender Celery
Cyperaceae	<i>Cyperus brevifolius</i>	None
Poaceae	<i>Ehrharta erecta</i>	Panic Veldtgrass
Poaceae	<i>Eragrostis curvula</i>	African Lovegrass

Family	Scientific name	Common name
Asteraceae	<i>Gamochaeta purpurea</i>	Purple Cudweed
Clusiaceae	<i>Hypericum perforatum</i>	St. Johns Wort
Asteraceae	<i>Hypochaeris radicata</i>	Catsear
Poaceae	<i>Lolium rigidum</i>	Wimmera Ryegrass
Fabaceae (Faboideae)	<i>Lotus angustissimus</i>	Slender Birds-foot Trefoil
Primulaceae	<i>Lysimachia arvensis</i>	Scarlet Pimpernel
Malvaceae	<i>Modiola caroliniana</i>	Red-flowered Mallow
Oleaceae	<i>Olea europaea</i> subsp. <i>cuspidata</i>	African Olive*
Poaceae	<i>Panicum capillare</i>	Witchgrass
Poaceae	<i>Paspalum dilatatum</i>	Paspalum
Phytolaccaceae	<i>Phytolacca octandra</i>	Inkweed
Plantaginaceae	<i>Plantago lanceolata</i>	Lamb's Tongues
Poaceae	<i>Poa annua</i>	Winter Grass
Lamiaceae	<i>Salvia reflexa</i>	Mintweed
Asteraceae	<i>Senecio madagascariensis</i>	Fireweed*
Poaceae	<i>Setaria pumila</i>	Pale Pigeon Grass
Malvaceae	<i>Sida rhombifolia</i>	Paddy's Lucerne
Solanaceae	<i>Solanum pseudocapsicum</i>	Madeira Winter Cherry
Solanaceae	<i>Solanum seaforthianum</i>	Climbing Nightshade
Asteraceae	<i>Sonchus oleraceus</i>	Common Sowthistle
Verbenaceae	<i>Verbena bonariensis</i>	Purpletop

Note: * indicates priority weed species

Table 11 Vertebrate fauna recorded from the study area

Scientific name	Common name	Commonwealth status	NSW status
Birds			
<i>Anthochaera carunculata</i>	Red Wattlebird		
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike		
<i>Corvus coronoides</i>	Australian Raven		
<i>Cracticus tibicen</i>	Australian Magpie		
<i>Dacelo novaeguineae</i>	Kookaburra		
<i>Elanus axillaris</i>	Black-shouldered Kite		
<i>Eolophus roseicapillus</i>	Galah		

Scientific name	Common name	Commonwealth status	NSW status
<i>Falco cenchroides</i>	Nankeen Kestrel		
<i>Grallina cyanoleuca</i>	Magpie-lark		
<i>Malurus cyaneus</i>	Superb Fairy-wren		
<i>Manorina melanocephala</i>	Noisy Miner*		
<i>Ocyphaps lophotes</i>	Crested Pigeon		
<i>Oriolus sagittatus</i>	Olive-backed Oriole		
<i>Platycercus eximius</i>	Eastern Rosella		
<i>Psephotus haematonotus</i>	Red-rumped Parrot		
<i>Rhipidura leucophrys</i>	Willie Wagtail		
<i>Sturnus tristis</i>	Common Myna		
<i>Sturnus vulgaris</i>	Common Starling		
<i>Turdus merula</i>	Eurasian Blackbird		
<i>Vanellus miles</i>	Masked Lapwing		
Mammals			
<i>Macropus giganteus</i>	Eastern Grey Kangaroo		
<i>Oryctolagus cuniculus</i>	Rabbit*		
Frogs			
<i>Crinia signifera</i>	Common Eastern Froglet		
<i>Litoria fallax</i>	Eastern Dwarf Tree Frog		

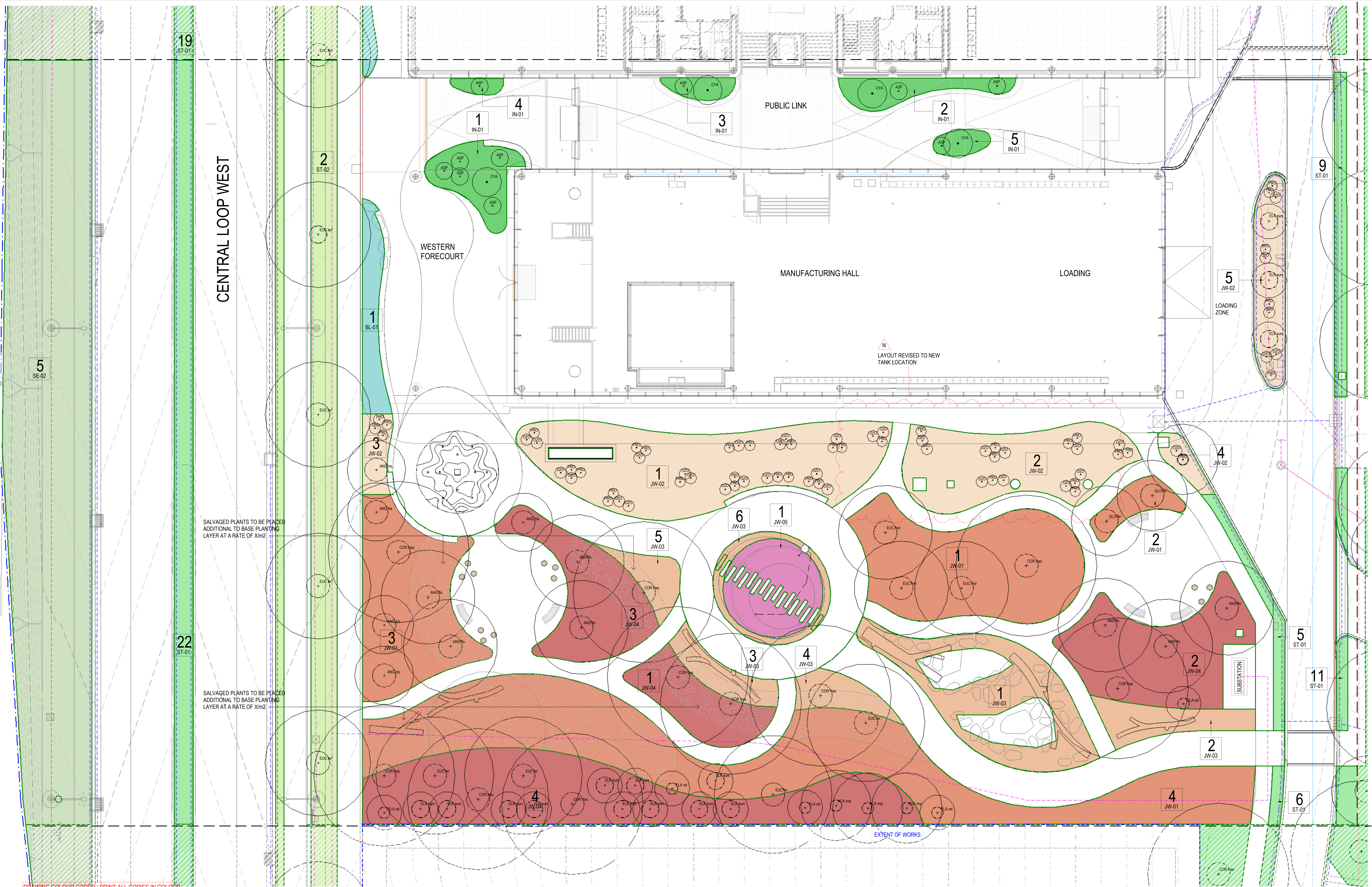
Note: * indicates exotic species

Appendix B. Planting schedule and landscape plans

*Updated Green Roof planting mixes 03/07/2023

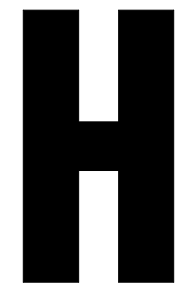
Green Roof General Mix (RF-01)	Green Roof Photovoltaics (RF-02)
<i>Dianella revoluta</i>	<i>Mesembryanthemum cordifolium</i>
<i>Poa labillardieri</i>	<i>Goodenia hederacea</i>
<i>Themeda australis</i>	<i>Doodia aspera</i>
<i>Echinopogon ovatus</i>	<i>Dianella admixta</i>
<i>Echinopogon ovatus</i>	<i>Viola hederacea</i>
<i>Dianella admixta</i>	<i>Ajuga australis</i>
<i>Lomandra longifolia</i>	
<i>Dichelachne micrantha</i>	
<i>Hibbertia vestita</i>	
<i>Carpobrotus glaucescens</i>	

Appendix C. Locations of salvaged juvenile plants and seed



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CONSULTANT



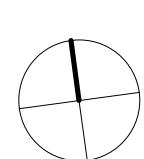
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Tory Crest 5300
Green Scott 0542
Ross de la Motte 7398

EUC ter

REFERENCE

NORTH



0m 1m 2m 3m 4m

NOTES

- This drawing must be read in conjunction with all relevant contracts, specifications and drawings.
- Information relating to signage and wayfinding, electrical, civil, structural and other works as represented on Hassell drawings is for reference and Hassell coordination purpose only. All documentation of these and other works outside Hassell scope should be referred to the relevant consultants drawings and specification for details.
- Do not scale drawings. Written dimensions govern.
- All levels shown are in metres Australian height datum and dimensions in millimetres unless otherwise specified.
- All dimensions shall be verified on site before proceeding with the work. Hassell shall be notified of any discrepancies.
- Documentation of all paving finishes, street signage, trees and levels outside site boundary by others
- All trafficable pavements to civil engineers certification, detail and specification.
- All levels, excluding planting zones, to civil engineers detail and documentation. Levels shown on Hassell drawing for coordination only.
- This drawing is an uncontrolled copy. Unless noted otherwise

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REV DESCRIPTION

- | | |
|---|--------------------------------|
| 1 | SSDA Submission |
| F | Tender Addendum - Planting |
| G | SSDA Submission - For Approval |
| H | For Coordination |
| K | Stage 4A - For Information |
| L | For Information |
| M | For Information |
| N | For Information |

DATE

- | |
|------------|
| 15/11/2021 |
| 03/09/2022 |
| 02/09/2022 |
| 13/10/2022 |
| 08/05/2023 |
| 17/10/2023 |
| 29/11/2023 |
| 12/01/2024 |

CLIENT

WPCA

PROJECT
AMRF - FIRST BUILDING

NO. 215 BADGERYS CREEK ROAD,
BRINGELLY

STATUS
FOR INFORMATION

DRAWING TITLE
PLANTING PLAN 9

REVIEWED
AE

APPROVED
JH

DRAWING NO.
LA_2009

SCALE @ A0
1 : 100

PROJECT NO.
015842

REV NO.
N

Appendix D. Plant salvage and seed collection report 03



AMRF Plant Salvage and Seed Collection

Progress Report

November 2022



Toolijooa Nursery

- Contract propagation
- Provenance specialists
- Seed collection services

Toolijooa Nursery

Lot 7 Twenty Fifth Ave, West Hoxton 2171

P: 02 9986 1858 M: 0404 007 499

Toolijooa nursery was engaged to both collect seed from and to salvage native plants from 215 Badgerys creek road in November 2022.

Below are lists of the seed collected along with the plant species salvaged, and currently being maintained at the Toolijooa Nursery West Hoxton.

All plant material salvaged and potted will be kept under irrigation, kept free from weeds and monitored for signs of struggle. Updates on the condition and any changes to plant numbers will be available.

Seed collected from 215 Badgery's creek rd			
Genus species	date	GPS eastings	northings
Carex appressa	3.11.22	-33.9268949	150.7350582
Dichelachne micanthra	3.11.22	-33.9203039	150.733874
Eucalyptus fibrosa	3.11.22	-33.9203039	150.733874
Eucalyptus moluccana	3.11.22	-33.9247461	150.7335119
Melaleuca nodosa	3.11.22	-33.9203039	150.733874

- The above seed is drying and awaiting processing.

There are currently 17 lots of soil from site that came to Toolijooa nursery surrounding native plants. This soil has been placed in 17 individual seed flats for the purpose of waiting for the seed bank in the site soil to germinate. Photo below.



Plant salvage from Badgery's creek rd					
Genus species	date	GPS eastings	northings	Current pot size	Current number
Aristida vagans	9.11.22	-33.9203036	150.7334076	50mm tube	24
Arthropodium milleflorum	8.11.22	-33.9209126	150.7336426	50mm tube	25
Arthropodium milleflorum	9.11.22	-33.9203036	150.7334076	6 inch	13
Austrostipa ramossissima	9.11.22	-33.9203036	150.7334076	6 inch	10
Brunoniella australis	8.11.22	-33.9209126	150.7336426	50mm tube	180
Brunoniella australis, plantago, solanum prinophyllum, Dillwynia, lomandra mix.	9.11.22	-33.9203036	150.7334076	6 inch mixed	40
Centella asiatica	9.11.22	-33.9203036	150.7334076	6 inch	46
Davesia ulicifolia	8.11.22	-33.9209126	150.7336426	8 inch	6
Davesia ulicifolia	8.11.22	-33.9209126	150.7336426	6 inch	25
Davesia ulicifolia	8.11.22	-33.9209126	150.7336426	50mm tube	15
Dianella longifolia	8.11.22	-33.9209126	150.7336426	8 inch	12
Dianella longifolia	9.11.22	-33.9203036	150.7334076	6 inch	12
Dianella sp.	9.11.22	-33.9203036	150.7334076	50mm tube	1
Dichondra repens	9.11.22	-33.9203036	150.7334076	6 inch	45
Dillwynia sieberi	8.11.22	-33.9209126	150.7336426	8 inch	21
Dillwynia sieberi	8.11.22	-33.9209126	150.7336426	6 inch	23

Dillwynia sieberi	8.11.22	-33.9209126	150.7336426	50mm tube	12
Entolasia marginata	8.11.22	-33.9209126	150.7336426	50mm tube	25
Goodenia hederacea	9.11.22	-33.9203036	150.7334076	50mm tube	90
Goodenia hederacea	9.11.22	-33.9203036	150.7334076	6 inch	24
Juncus usitatus	9.11.22	-33.9203036	150.7334076	50mm tube	50
Juncus usitatus	9.11.22	-33.9203036	150.7334076	6 inch	29
Lomandra filiformis	8.11.22	-33.9209126	150.7336426	6 inch	61
Lomandra filiformis	9.11.22	-33.9203036	150.7334076	50mm tube	162
Lomandra filiformis	9.11.22	-33.9203036	150.7334076	8 inch	1
Microlaena stipoides	9.11.22	-33.9203036	150.7334076	50mm tubes	15
Paspalidium distans	9.11.22	-33.9203036	150.7334076	6 inch	4
Plectranthus parviflorus	9.11.22	-33.9203036	150.7334076	50mm tubes	20
Plectranthus parviflorus	9.11.22	-33.9203036	150.7334076	6 inch	12
Poa labillardierei	9.11.22	-33.9203036	150.7334076	6 inch	10
Rydiodesperma sp.	9.11.22	-33.9203036	150.7334076	6 inch	12
Themeda triandra	9.11.22	-33.9203036	150.7334076	6 inch	66
Themeda triandra	9.11.22	-33.9203036	150.7334076	8 inch	37
Themeda triandra	9.11.22	-33.9203036	150.7334076	50mm tube	150
Veronica plebeia	8.11.22	-33.9209126	150.7336426	50mm tube	100

Some of the salvaged plants in 50mm tube size below:





Above: Some of the *Goodenia hederacea* and *Iomandra filiformis* and *Centella asiatica* in 6-inch pots.

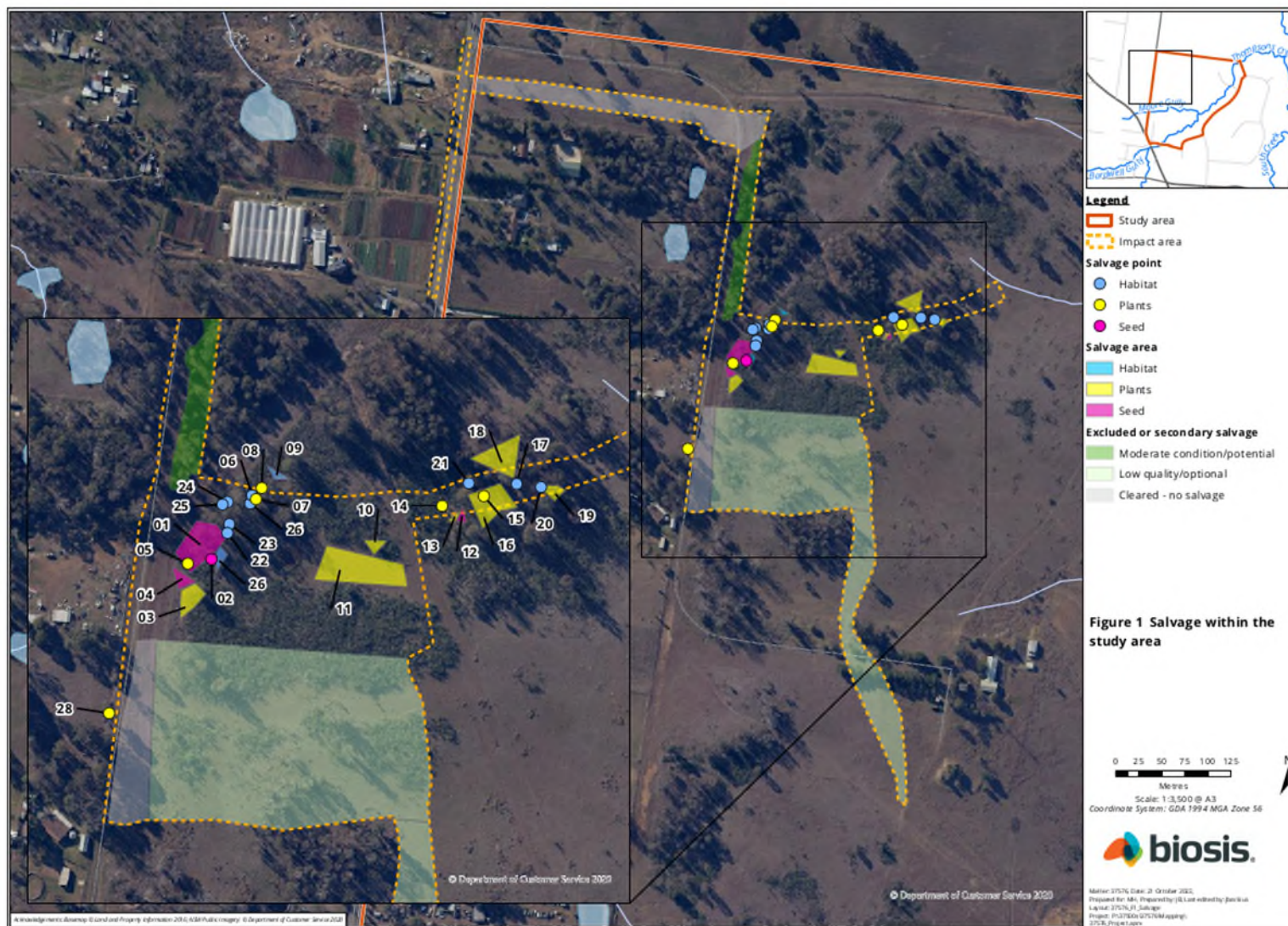


Above: salvaged natives in 6-inch pots in outside nursery bay.



Above: more salvaged natives in 6 and 8-inch pots.

Map



Appendix E. Planting Plan Ridge Park (Biosis)

21 March 2025

Jodie Vo
Project Manager
Bradfield Development Authority
50 Belmore Street
Penrith NSW 2750

c-/ Greg Carmody
Senior Project Manager at Turner & Townsend Pty Ltd.

Dear Jodie,

First Building Bradfield City Centre: Ridge Park revegetation options letter of advice

Project no. 42084

Biosis Pty Ltd (Biosis) was commissioned by Bradfield Development Authority (BDA) to provide preliminary advice in relation to revegetation location options associated with the following planned programs:

- Canopy compensatory planting: The installation of 50 native trees in response to the replacement planting deficit to compensate for the removal of 184 trees as part of the Bradfield City Centre Advanced Manufacturing Readiness Facility (AMRF) development. The trees are required to be planted within the broader Bradfield City Centre in order to ensure no-net loss of trees (as required by consent condition B22 (DPE 2022)).
- Plant propagation and salvage : Installation within the proposed Ridge Park area of 100 native tree species (50 Red Ironbark *Eucalyptus fibrosa* and 50 Grey Box *Eucalyptus moluccana*, 50 of these are to satisfy the canopy compensatory planting above and a further 50 are additional) that have grown from site collected seed and installation of a further 425 salvaged plants (Toolijooa 2025) Appendix 3. The planting is to be undertaken by Toolijooa to satisfy the approved Tree Update Plan (Hassell 2024), with planting and maintenance to be undertaken in accordance with the *First Building Bradfield City Centre Landscape Management Plan* (Biosis 2024). This program of works will exceed the requirements outlined by Department of Planning, Housing and Infrastructure (DPHI) to satisfy the condition of no-net loss of trees (as required by consent condition B22 (DPE 2022)).

Field investigation

In order to confirm suitable revegetation locations within the proposed boundaries of Ridge Park, a field investigation was undertaken on 6 March 2025 by Paul Price (Principal Botanist). The investigation focussed on providing a number of suitable options for the implementation of both afore mentioned programs with scope to inform any proposed landscape designs whilst considering the land zoned ENZ - Environment and Recreation.

Biosis Pty Ltd

Sydney

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Results – Canopy compensatory planting

Two options are proposed for the canopy compensatory planting (Figure 1, Appendix 1).

Option 1 is located in the northeastern corner of the proposed Ridge Park boundary (Photo 1, Appendix 2). The area is currently mapped as both Plant Community Type (PCT) 849 - *Cumberland shale plains woodland* and Urban Native Exotic and forms a part of the land zoned as ENZ - Environment and Recreation. The area is approximately 0.15 hectares in size.

Option 2 forms a part of the current fire trail that dissects Ridge Park (Photo 2, Appendix 2). This area is currently mapped as Urban Native Exotic. The area is approximately 0.14 hectares in size.

Both options provide space for the 100 propagated Eucalyptus tree species currently held by Toolijooa nursery.

Results – Plant salvage and propagation

The best option for the revegetation of the salvaged plant species is within the ENZ area (Figure 1, Appendix 1) (Photo 3 and Photo 4, Appendix 2). It is suggested that only the grass and shrub species are to be installed in this area. The listed species Appendix 3 are suitable for installation within the plant community type (PCT) 725 - *Castlereagh Ironbark forest* and will increase both the structural and floristic diversity of the Threatened Ecological Community (TEC). It is also noted that, where accessible, the retained habitat features (8-10 pieces of large woody debris previously salvaged from site) being housed by Toolijooa nursery may also be installed with the ENZ area.

I trust that this advice is of assistance to you however please contact me if you would like to discuss any elements of this ecological advice further.

Yours sincerely,



Jessica Chapman

Botanist

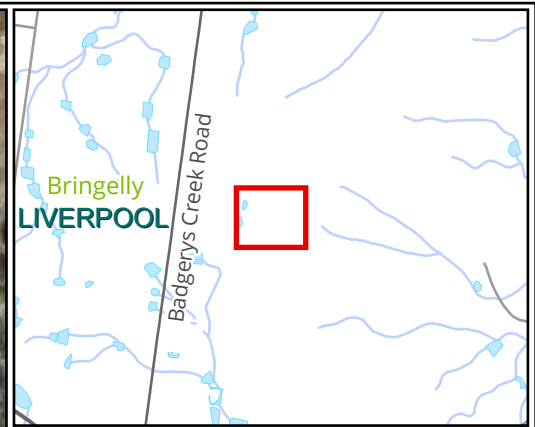
References

Biosis 2024. *First Building Bradfield City Centre: Landscape Management Plan*, Report for Taylor Construction Group Pty Ltd. Author: King. K, Biosis Pty Ltd, Alexandria, NSW. Project no. 37576.

DPE 2022. 'AMRF First Building Instrument of Consent (SSD-25452459)', Department of Planning and Environment.

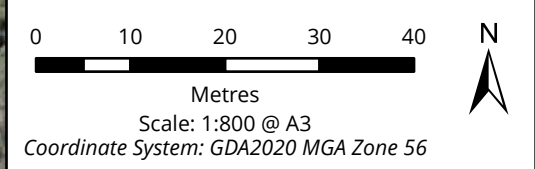
Toolijooa 2025. *AMRF Plant Salvage and Seed Collection: Progress Report 3 February 2025*, Toolijooa Nursery, West Hoxton, Australia.

Appendix 1 Figures



- Legend**
- Study area
- Land Zoning Map**
- ENZ - Environment and Recreation
- Planting options**
- Compensatory canopy planting - Option 1
 - Compensatory canopy planting - Option 2
 - Plant salvage (grass and shrubs only)
- Plant Community Type**
- Urban Native/Exotic
 - PCT 725 - Castlereagh Ironbark forest
 - PCT 849 - Cumberland shale plains woodland

Figure 1 Revegetation location options Ridge Park



Appendix 2 Photos



Photo 1 **Option 1 location for compensatory canopy planting**



Photo 2 **Option 2 location for compensatory canopy planting**



Photo 3 **ENZ location for compensatory canopy planting**



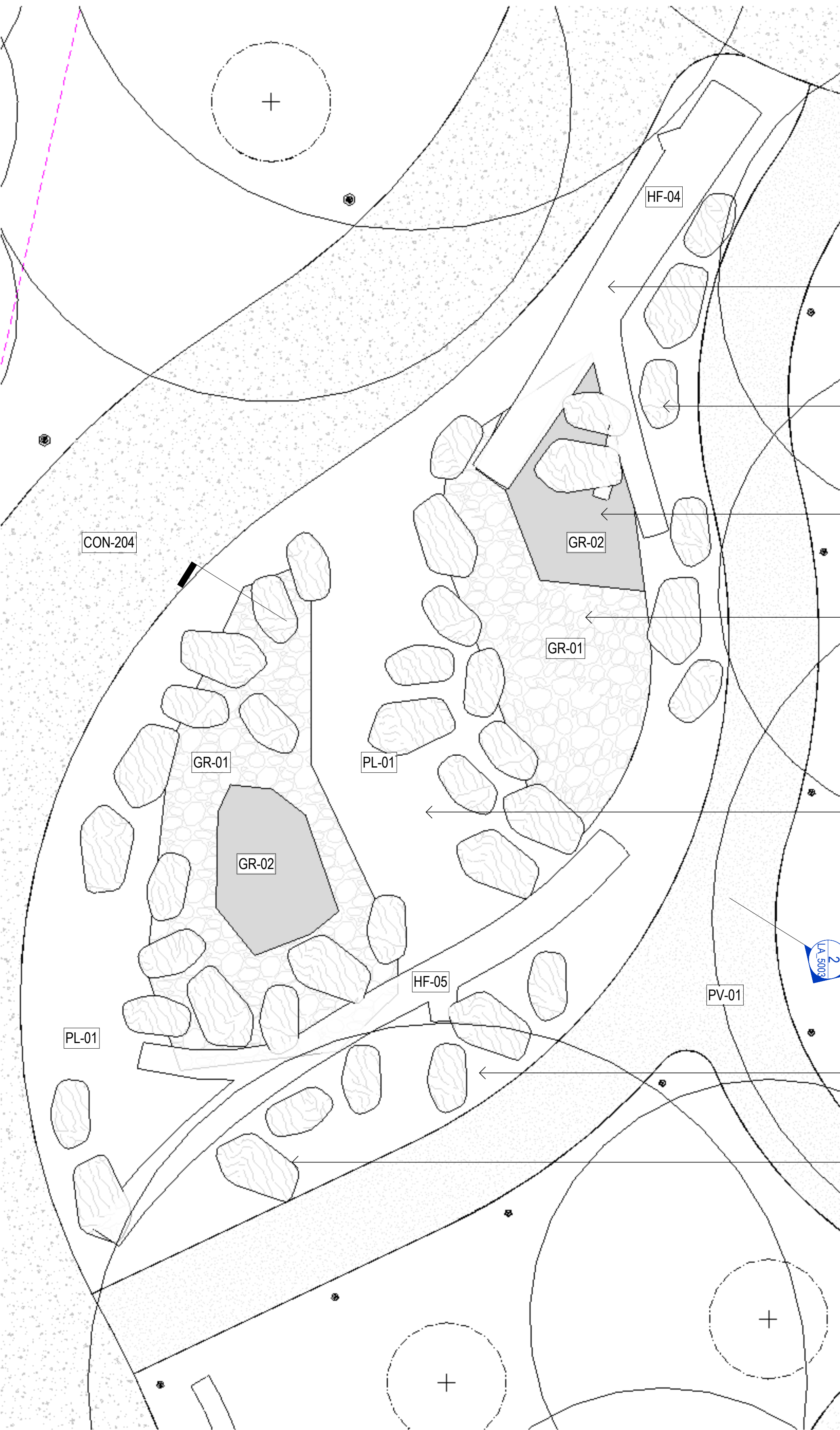
Photo 4 **ENZ location for compensatory canopy planting**

Appendix 3 Plant salvage list

Common name	Species name	Growth form	Current pot size	Current number
Threeawn Speargrass	<i>Aristida vagans</i>	Grass or grasslike	50mm tube	8
Pale Vanilla-lily	<i>Arthropodium milleflorum</i>	Forb	6 inch	11
Stout Bamboo Grass	<i>Austrostipa ramosissima</i>	Grass or grasslike	6 inch	7
Blue Trumpet	<i>Brunoniella australis</i>	Forb	50mm tube	30
Various	<i>Brunoniella australis</i> , <i>Plantago</i> spp., <i>Solanum prinophyllum</i> , <i>Dillwynia</i> spp. <i>Lomandra</i> spp. mix.	Forb	6 inch	30
Indian Pennywort	<i>Centella asiatica</i>	Forb	6 inch	11
Gorse Bitter Pea	<i>Daviesia ulicifolia</i>	Shrub	6 inch	11
Gorse Bitter Pea	<i>Daviesia ulicifolia</i>	Shrub	50mm tube	8
Blue Flax-Lily	<i>Dianella longifolia</i>	Grass or grasslike	6 inch	13
Flax-Lily	<i>Dianella</i> spp.	Grass or grasslike	50mm tube	1
Kidney Weed	<i>Dichondra repens</i>	Forb	6 inch	15
Sieber's parrot-pea	<i>Dillwynia sieberi</i>	Shrub	8 inch	8
Sieber's parrot-pea	<i>Dillwynia sieberi</i>	Shrub	6 inch	8
Sieber's parrot-pea	<i>Dillwynia sieberi</i>	Shrub	50mm tube	6
Bordered Panic	<i>Entolasia marginata</i>	Grass or grasslike	50mm tube	20
Ivy Goodenia	<i>Goodenia hederacea</i>	Forb	50mm tube	30
Ivy Goodenia	<i>Goodenia hederacea</i>	Forb	6 inch	8
Common Rush	<i>Juncus usitatus</i>	Grass or grasslike	50mm tube	20
Wattle Mat-rush	<i>Lomandra filiformis</i>	Grass or grasslike	6 inch	16
Wattle Mat-rush	<i>Lomandra filiformis</i>	Grass or grasslike	50mm tube	30

Common name	Species name	Growth form	Current pot size	Current number
Weeping grass	<i>Microlaena stipoides</i>	Grass or grasslike	50mm tubes	12
Cockspur flower	<i>Plectranthus parviflorus</i>	Forb	50mm tubes	8
Cockspur flower	<i>Plectranthus parviflorus</i>	Forb	6 inch	5
Tussock	<i>Poa labillardierei</i>	Grass or grasslike	6 inch	6
Wallaby Grass	<i>Rytidosperma</i> sp.	Grass or grasslike	6 inch	6
Kangaroo Grass	<i>Themeda triandra</i>	Grass or grasslike	6 inch	20
Kangaroo Grass	<i>Themeda triandra</i>	Grass or grasslike	8 inch	18
Kangaroo Grass	<i>Themeda triandra</i>	Grass or grasslike	50mm tubes	35
Trailing Speedwell	<i>Veronica plebeia</i>	Forb	50mm tubes	24
Total				425

Appendix F. Locations of salvaged habitat values



HF-01 HABITAT FEATURE LOG
PLACED FROM SALVAGED
MATERIAL ON SITE

ST-02 PLACED SANDSTONE
BOULDER. 800-1200mm DIAMETER

GR-02 RIVER PEBBLE 40-80mm
150mm DEPTH.

GR-01 CRUSHED SANDSTONE ROCK
80-150mm DIAMETER

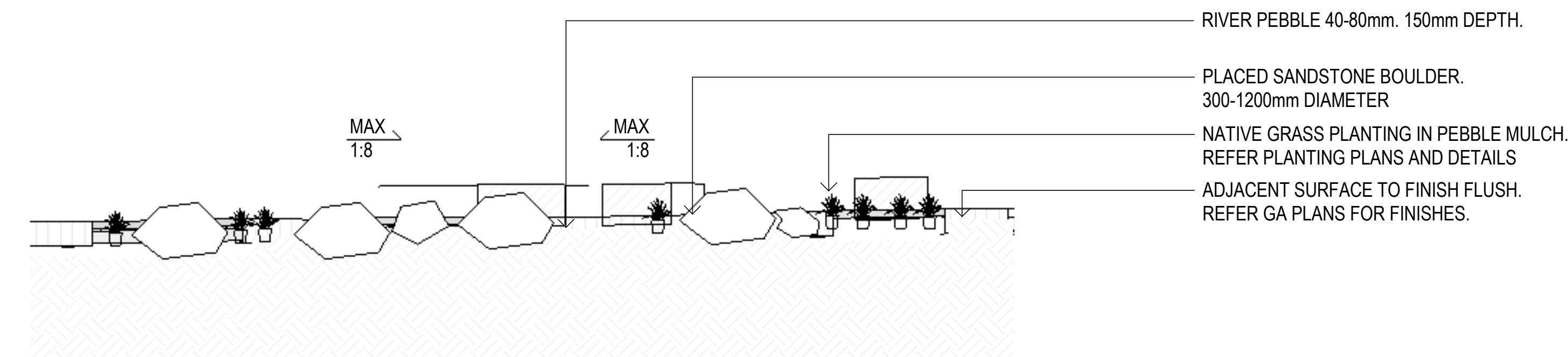
PL-01 NATIVE GRASS PLANTING
IN PEBBLE MULCH. REFER
PLANTING PLANS AND DETAILS

PL-01 NATIVE GRASS PLANTING
IN PEBBLE MULCH. REFER
PLANTING PLANS AND DETAILS

ST-02 PLACED SANDSTONE
BOULDER. 800-1200mm DIAMETER

1 DRY CREEK BED - DETAIL PLAN

LA_1009 1:50

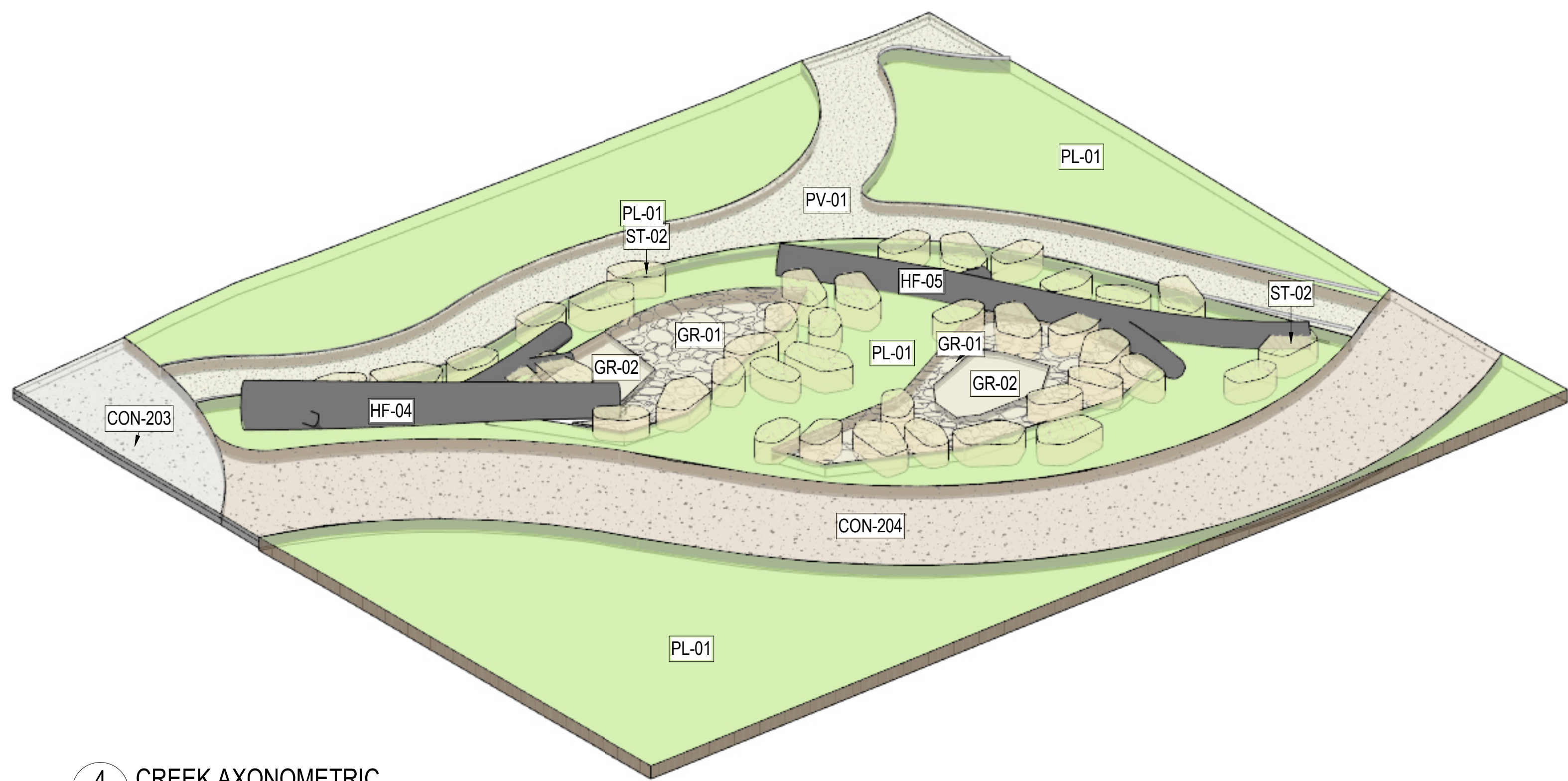


2 DRY CREEK BED - SECTION

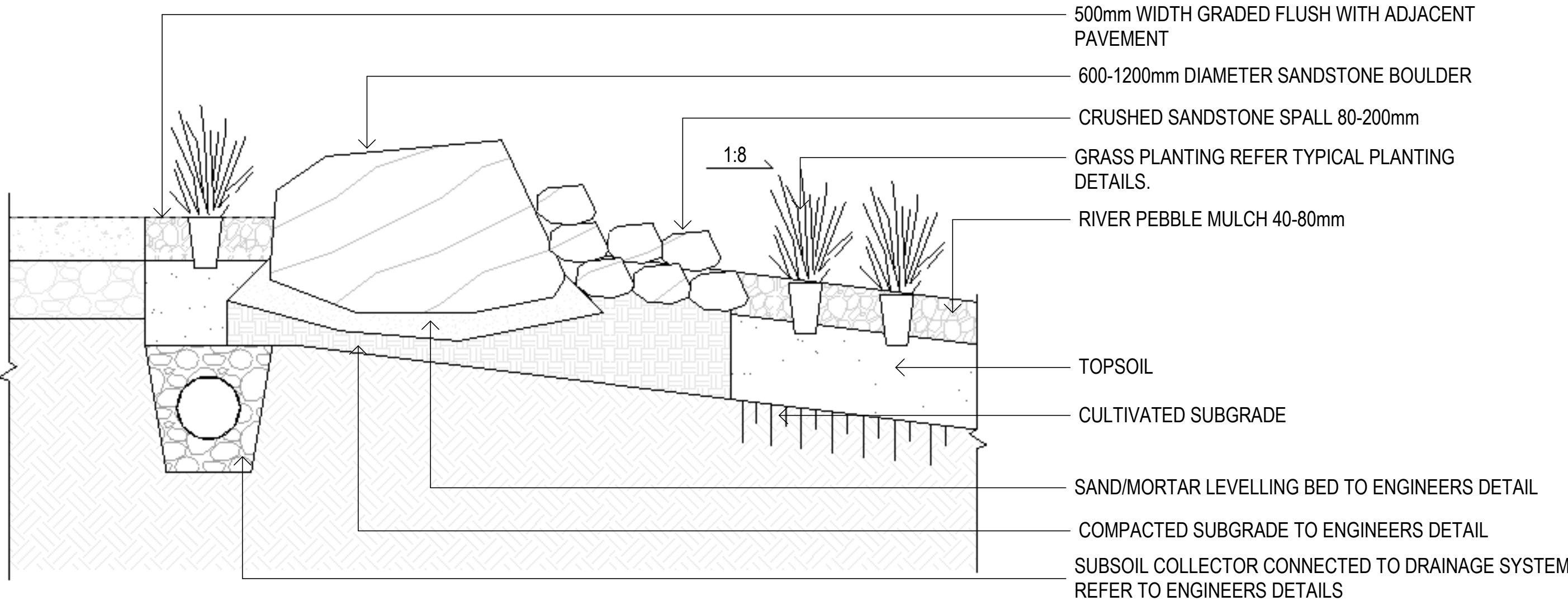
LA_5003 1:50



ARTISTS IMPRESSION - DRY CREEK BED



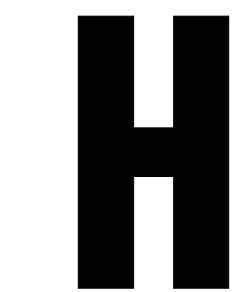
4 CREEK AXONOMETRIC



3 DRY CREEK BED - TYPICAL

1:10

DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR



CONSULTANT

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Ross de la Motte 7398

REFERENCE

NORTH

NOTES

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- All dimensions shall be verified on site before proceeding with the work. Hassell shall be notified of any discrepancies.
- Documentation of all paving finishes, street signage, trees and levels outside site boundary by others
- All trafficable pavements to civil engineers certification, detail and specification.
- All levels, excluding planting zones, to civil engineers detail and documentation. Levels shown on Hassell drawing for coordination only.
- This drawing is an uncontrolled copy. Unless noted otherwise

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REV DESCRIPTION

- | | |
|---|--------------------------------------|
| 1 | SSDA Submission |
| D | DD - Draft Issue |
| E | Stage 2 - DD - 70% Tender Submission |
| G | SSDA Submission - For Approval |
| H | For Coordination |
| K | Stage 4A - For Information |
| L | For Information |
| M | For Information |
| N | For Information |

DATE

- | | |
|---|------------|
| 1 | 15/11/2021 |
| D | 05/04/2022 |
| E | 27/04/2022 |
| G | 02/09/2022 |
| H | 13/10/2022 |
| K | 08/05/2023 |
| L | 17/10/2023 |
| M | 29/11/2023 |
| N | 12/01/2024 |

CLIENT

WPCA

PROJECT
AMRF - FIRST BUILDING

NO. 215 BADGERYS CREEK ROAD,
BRINGELLY

STATUS
FOR INFORMATION

DRAWING TITLE
LANDSCAPE DETAILS - DRY CREEK

REVIEWED
AE

APPROVED
JH

DRAWING NO.
LA_5003

SCALE @ A0
As Indicated

PROJECT NO.
015842

REV NO.
N

Appendix G. Nest Box Installation Report

Nest Box Installation Report (May 2025): Ridge Park of the Bradfield City Centre



MAY 2025
Ref: 06.2025-RP1

Authored by: Dr. Daniel Santana
ABN: 72310724798



Nest Box Installation Report (May 2025): Ridge Park of the Bradfield City Centre

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1	<i>Introduction</i>	<i>3</i>
2	<i>Methodology</i>	<i>3</i>
3	<i>Results</i>	<i>4</i>
4	<i>Conclusions and recommendations.....</i>	<i>5</i>
	<i>Appendix A: Photographs.....</i>	<i>7</i>
	<i>Appendix B: Nest Boxes Locations</i>	<i>14</i>

1 Introduction

Nature Conservation was engaged by the Bradfield Development Authority to provide ecological services in relation to the installation of nest boxes at Existing Native Vegetation (ENV), located within the Ridge Park of Bradfield City Centre. This report documents the installation process and outcomes of 14 nest boxes, which were strategically placed on 15 and 16 May 2025 to enhance local habitat values and support fauna conservation initiatives in the area.

2 Methodology

The installation was undertaken in accordance with site assessments conducted on 6 May 2025, which identified suitable locations for the placement of each nest box. The installation was completed by Dr Daniel Santana of Nature Conservation, who ensured adherence to best-practice ecological guidelines. Each nest box was affixed to a native tree at a height of approximately 4.5 to 5.5 metres above ground level, and only trees with a minimum diameter at breast height (DBH) of 30 cm were utilised to ensure structural stability and ecological compatibility.

To secure the nest boxes to the trees, the Habisure system was used as the fixing mechanism. This system allows for a stable and secure attachment while accommodating the natural growth of the tree over time, thereby minimising long-term damage to the host tree. The Habisure method ensures the nest boxes remain firmly in place without impeding the tree's development, making it a sustainable solution for long-term ecological installations (Figure 1).

Each nest box was assigned a unique identification code, and its exact location was recorded using a handheld GPS device. Photographic documentation of each installed box is presented in Appendix A, while a detailed location map can be found in Appendix B.



Figure 1. Installation of nest boxes using the Habisure system. (a) Overview of a nest box mounted on a native tree within Ridge Park. (b) Close-up view of the Habisure fixing mechanism, illustrating how the system allows for secure attachment while accommodating tree growth.

3 Results

A total of 14 nest boxes were successfully installed across the Ridge Park site. These included four microbat boxes, four greater glider boxes (with insulation), four small parrot boxes, and two large parrot boxes (Figure 2).



Figure 2. Nest boxes at Bradfield City Centre. (a) Overview of nest boxes types. (b) Close-up view of the great glider nest box with insulation.

Details for each nest box, including type, ID code, tree characteristics, and GPS coordinates, are provided in Table 1. Spatial distribution of the boxes within Ridge Park is illustrated in Appendix B.

Table 1 Installation results of 14 Nest Boxes within Ridge Park of Bradfield City Centre.

Date	Nest Box ID	Box Type	Location LAT	Location LONG	Hollow Size (cm)	Height in Tree (m)	DBH (cm)	Photo
15/5/2025	RP - 1	Large Parrot	290484	6244367	10	4.8	38.5	1
15/5/2025	RP - 2	Small Parrot	290477	6244369	5	4.9	43.5	2
15/5/2025	RP - 3	Micro Bat	290466	6244378	3.5	5	41.5	3
15/5/2025	RP - 4	Large Parrot	290469	6244369	10	4	53	4
15/5/2025	RP - 5	Small Parrot	290464	6244379	5	5.5	30	5
15/5/2025	RP - 6	Micro Bat	290466	6244413	3.5	5	45	6
16/5/2025	RP - 7	Great Glider	290474	6244386	14	5	37.5	7
16/5/2025	RP - 8	Great Glider	290480	6244408	14	5.5	54.5	8
16/5/2025	RP - 9	Great Glider	290506	6244396	14	4.5	72	9
16/5/2025	RP - 10	Micro Bat	290512	6244433	3.5	4.7	68	10
16/5/2025	RP - 11	Great Glider	290493	6244452	14	4.5	41.5	11
16/5/2025	RP - 12	Small Parrot	290492	6244426	5	5	43	12
16/5/2025	RP - 13	Micro Bat	290497	6244405	3.5	5.5	43	13
16/5/2025	RP - 14	Small Parrot	290524	6244413	5	4.7	53.5	14

4 Conclusions and recommendations

This report certifies that the ecological criteria for nest box installation, as stipulated by the Bradfield Development Authority, have been fully met. The installation process was carried out in accordance with ecological best practice, ensuring appropriate placement, safety, and species-specific design features. The diversity of nest box types installed reflects an effort to support a range of arboreal fauna likely to utilise the Ridge Park area.

It is recommended that the initial monitoring phase be conducted during the spring months (September to November 2025) to coincide with peak breeding and activity periods for the target

fauna. This will allow for the early assessment of nest box utilisation, identification of any maintenance needs, and gathering of baseline data for long-term ecological monitoring.

In summary, the installation of the 14 nest boxes contributes to the broader habitat enhancement strategy for the Bradfield City Centre. It supports local biodiversity objectives by providing supplementary nesting opportunities for key species within existing native vegetation. Continued monitoring and adaptive management will be essential to ensure the long-term success of this ecological intervention.

Appendix A: Photographs

Photograph 1 - Nest box 1 (Large Parrot) installed in Ridge Park, within the ENV zone



Photograph 2 - Nest box 2 (Small Parrot) installed in Ridge Park, within the ENV zone



Photograph 3 - Nest box 3 (Micro Bat) installed in Ridge Park, within the ENV zone



Photograph 4 - Nest box 4 (Large Parrot) installed in Ridge Park, within the ENV zone



Photograph 5 - Nest box 5 (Small Parrot) installed in Ridge Park, within the ENV zone



Photograph 6 - Nest box 6 (Small Parrot) installed in Ridge Park, within the ENV zone



Photograph 7 - Nest box 7 (Great Glider) installed in Ridge Park, within the ENV zone



Photograph 8 - Nest box 8 (Great Glider) installed in Ridge Park, within the ENV zone



Photograph 9 - Nest box 9 (Great Glider) installed in Ridge Park, within the ENV zone



Photograph 10 - Nest box 10 (Macro Bat) installed in Ridge Park, within the ENV zone



Photograph 11 - Nest box 11 (Great Glider) installed in Ridge Park, within the ENV zone



Photograph 12 - Nest box 12 (Small Parrot) installed in Ridge Park, within the ENV zone



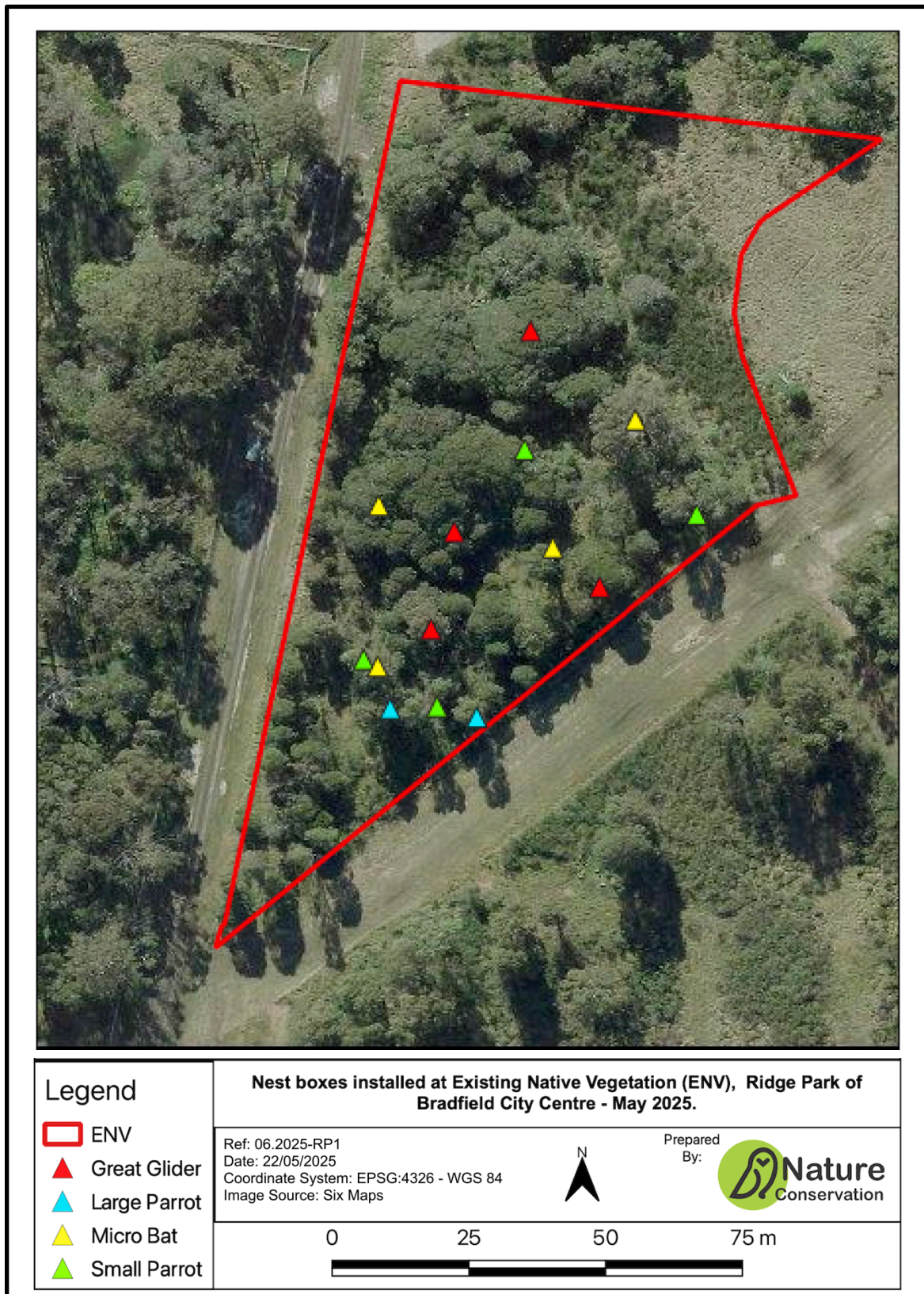
Photograph 13 - Nest box 13 (Macro Bat) installed in Ridge Park, within the ENV zone



Photograph 14 - Nest box 14 (Small Parrot) installed in Ridge Park, within the ENV zone



Appendix B: Nest Boxes Locations





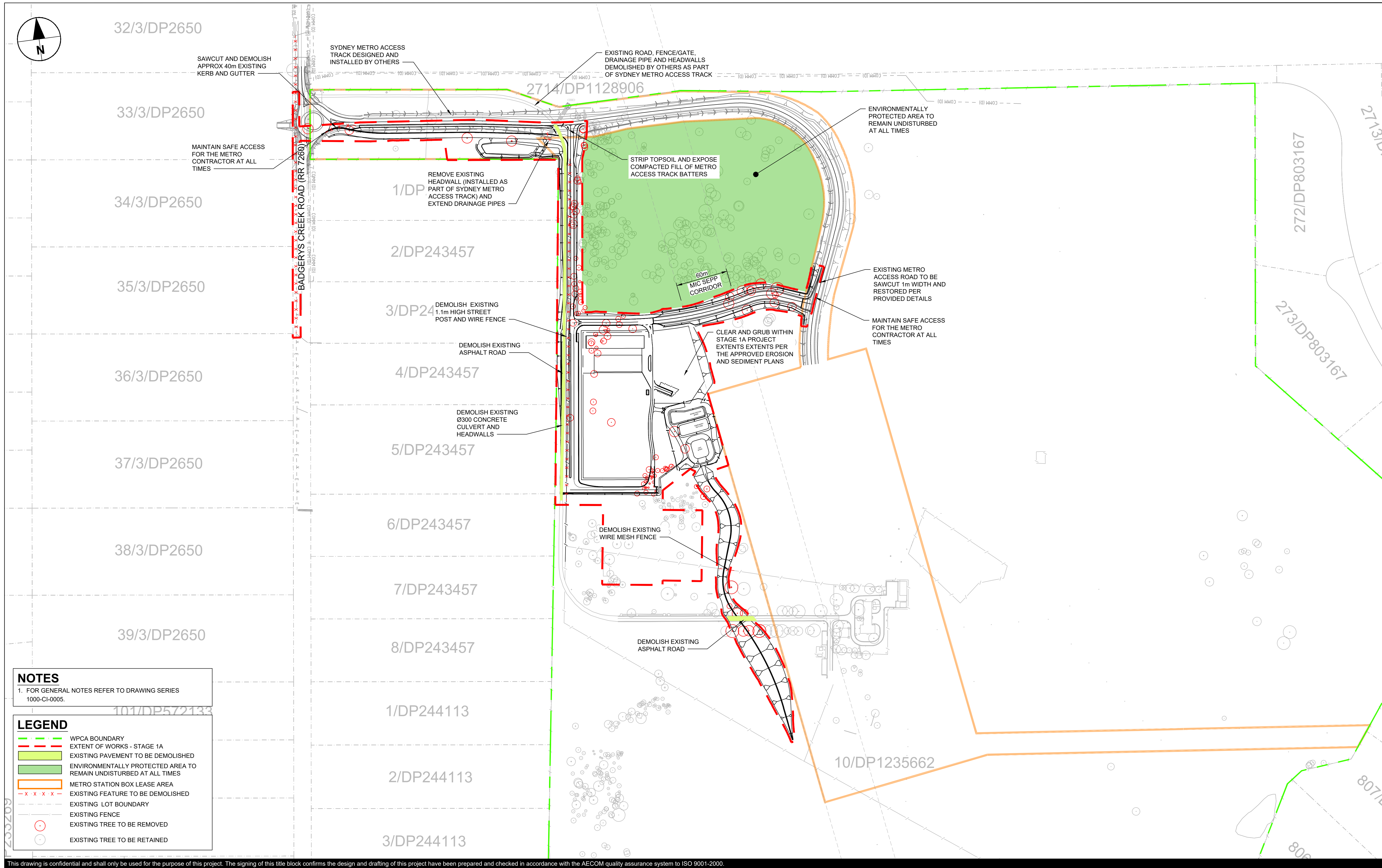
www.natureconservation.com.au

Email: contact@natureconservation.com.au

Phone: 0410 123785

Marsfield, Sydney NSW 2122

Appendix H. Demolition and tree retention plan



NOTES
1. FOR GENERAL NOTES REFER TO DRAWING SERIES 1000-CI-0005.

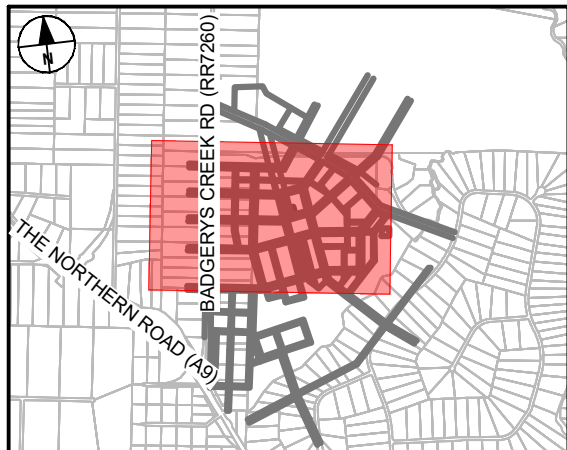
LEGEND
- - - WPCA BOUNDARY
- - - EXTENT OF WORKS - STAGE 1A
- - - EXISTING PAVEMENT TO BE DEMOLISHED
- - - ENVIRONMENTALLY PROTECTED AREA TO REMAIN UNDISTURBED AT ALL TIMES
- - - METRO STATION BOX LEASE AREA
- - - EXISTING FEATURE TO BE DEMOLISHED
- - - EXISTING LOT BOUNDARY
- - - EXISTING FENCE
- - - EXISTING TREE TO BE REMOVED
- - - EXISTING TREE TO BE RETAINED

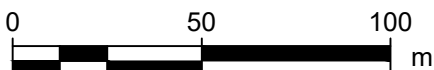
This drawing is confidential and shall only be used for the purpose of this project. The signing of this title block confirms the design and drafting of this project have been prepared and checked in accordance with the AECOM quality assurance system to ISO 9001-2000.

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PROJECT
**AEROTROPOLIS
CORE PRECINCT
BRINGELLY**

CLIENT


KEY PLAN


SCALE BAR

1:2000

SAFETY IN DESIGN INFORMATION
ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?
☐ NO
☐ YES

PROJECT MANAGEMENT INITIALS

JD	CR	GAR
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM	AHD	SURVEY	GDA94/MGA56
-------	-----	--------	-------------

ISSUE/REVISION		
8	22.05.23	ISSUED FOR CONSTRUCTION
7	14.04.23	ISSUED FOR CONSTRUCTION
6	23.01.23	ISSUED FOR DRAFT IFC
5	02.09.22	ISSUED FOR APPROVAL
4	29.04.22	ISSUED FOR TENDER
3	22.04.22	DRAFT TENDER COORDINATION
I/R	DATE	DESCRIPTION

PROJECT NUMBER
60646285
SHEET TITLE
DEMOLITION PLAN
SHEET NUMBER
60646285-SHT-00-1000-CI-0051

FOR CONSTRUCTION

Appendix I. Weed management measures

General weed management measures that should be undertaken prior to and during revegetation works are listed below.

- Use a range of weed management methods such as slashing or mowing (physical and mechanical control) as well as a range of herbicides (to avoid herbicide resistance).
- Mow or slash areas infested with weeds before they seed (avoiding native vegetation).
- Employ appropriate vehicle and equipment hygiene practices such as:
 - Clean machinery, vehicles and footwear before moving to a new location.
 - Securely cover loads of weed-contaminated material.
 - Dispose of weed contaminated soil at an appropriate waste management facility.
 - Remove weeds immediately and dispose of without stockpiling.
 - Separate weeds from native vegetation to be mulched — do not use weeds for mulch.
 - Minimise soil disturbance in weed infested areas.

Weed control methods adopted in the implementation of this LMP are based on a combination of the current site management, bush regeneration industry standards and botanical knowledge of the weeds. Techniques and methods recommended in following sections such as hand weeding are described in detail in various publications such as *Recovering Bushland on the Cumberland Plain: Best practice guidelines for the management and restoration of bushland* (DEC 2005). The publication *New South Wales Weed Control Handbook: A guide to weed control in non-crop, aquatic and bushland situations*, 7th Edition (DPI 2018) provides descriptions of general and standard weed control methods.

Whether and what kind of herbicides are used during weed control works will depend on the species being targeted and the growing situation. For example, the selection of a herbicide and the application method for a particular species or class of plant will be determined by factors such as the degree of infestation of target species, limiting damage to off target native flora and preventing herbicides entering waterways. The DPI (2018) document cited above should be referred to as guide for specific herbicides, record keeping and herbicide application techniques.

Use of herbicides must be according to the NSW *Pesticides Act 1999*, Material Safety Data Sheets and labelling instructions for specific trade name herbicides and off-label use permits registered with the APVMA. The use of herbicide as part of this LMP will be limited to direct application to cut stumps and spot spraying. Any contractors using herbicides on the site must be trained and appropriately qualified to do so (ChemCert Level 2 or equivalent for subordinates and ChemCert Level 3 or equivalent for supervisors).

Slashing can be used to prevent weeds from flowering and setting seed. This method can be undertaken with a tractor and slashing implement or by using a handheld brush cutter (DPI 2018). In addition, DEC (2005) has highlighted that slashing or mowing can also be used in bushland areas (with grassy native understorey) as an initial or holding treatment to reduce weed mass. This allows for more efficient follow up as fast-growing resprouting weeds can be spot sprayed with herbicide among areas of native grasses and herbs. DEC (2005) also suggests that to effectively control exotic annual herbs and grasses, mowing or slashing must be done at least monthly in summer (possibly more frequently if conditions are warm and wet and weed growth is accelerated). For perennial weeds that mature in mid- to late summer, mowing or slashing may be reduced to two to three times each season, with the final treatment being applied late in the season, ideally before fruit ripens and seed becomes viable. Further simple techniques for reducing the potential for assisting the dispersal of weed species because of slashing are to:

- Slash from areas dominated by native species to more degraded areas dominated by introduced species.
- Shake or wash down slashing implements in disturbed and managed areas prior to use in more intact areas.

In summary, it is recommended that a combination of reducing the height and number of times slashing happens, and appropriate weed hygiene protocols be implemented.

Species specific control for priority and environmental weeds recorded within the study area are provided in Table 12.

Table 12 Priority and environmental weed management measures

Botanical name	Common name	Initial treatment	Follow up control
<i>Ageratina adenophora</i>	Crofton Weed	Cut and paint stems with “neat” 360 g/L glyphosate based herbicide to reduce collateral damage to natives and riparian areas or chemically treat (spray) deseeded mature specimens with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water (1:100)	Hand remove seedlings or spot spray with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water prior to flowering. A DPI approved biocontrol (rust) may be applied to assist in control of large and remote locations.
<i>Anredera cordifolia</i>	Mederia Vine	Hand removal all aerial and underground tubers. Biomass to be removed from site. Chemically treat (spray) using a Fluroxypyr 200 g/L based product at a dilution rate of 300 mL to 500 mL per 100 L water or with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water.	Hand remove seedlings or spot spray with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water
<i>Araujia sericifera</i>	Moth Plant	Hand remove or chemically treat (spray) deseeded mature specimens with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water (1:100). May require the use of a penetrant for effective kill rate. Fruits to be disposed off-site	Hand remove seedlings or spot spray with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water
<i>Asparagus aethiopicus</i>	Ground Asparagus Fern	Hand remove in area of high regeneration potential ensure that all fruiting bodies and central rhizome has been removed and disposed of offsite. Aerial tubers do not require removal and can act as a preventative measure against soil erosion. Large infestions to be chemically treated (spray) with a Metsulfuron-methyl 600g/kg based herbicide at a diluted rate of 1–2 g per 10 L of water plus a non-ionic surfactant. As per APVMA approved off-label permit PER9907.	Hand remove seedlings or spot spray with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water. All seeds and biomass are to be disposed offsite.
<i>Asparagus asparagoides</i>	Bridal Creeper	Hand remove in area of high regeneration potential ensure that all fruiting bodies and central rhizomes has been removed and disposed off-site or chemically treat during peak growing season (August to September) using either a Metsulfuron-methyl	Hand remove seedlings or spot spray with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water. All seeds and biomass are to be disposed off-site.

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		600 g/kg based herbicide at a diluted rate 10 g metsulfuron-methyl to 100 L water, or a 360 g/L glyphosate based herbicide at a diluted rate of 1 part glyphosate to 50 parts water. As per APVMA approved Off label permit PER9907. Introduction of a bio-control (rust) will assist in areas of heavy infestation.	
<i>Bidens pilosa</i>	Cobblers Pegs	Hand remove or chemically treat (spray) deseeded mature specimens with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water (1:100)	Hand remove seedlings or spot spray with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water.
<i>Bryophyllum spp.</i>	Mother of Millions	Hand remove in area of high regeneration potential ensuring that all propagules and fruiting bodies been removed and disposed offsite Or chemically while flowering using either a Fluroxypyr 200 g/L based herbicide at a diluted rate 600 mL per 100 L of water, or a Triclopyr 300 g/L + Picloram 100 g/L based herbicide e.g. Grazon® DS, at a diluted rate of 500 mL per 100 L of water. Both chemical applications will require the addition of a surfactant.	Hand remove seedlings or spot spray with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water. All biomass is to be disposed offsite.
<i>Cirsium vulgare</i>	Spear Thistle	Flowering and fruiting bodies to be removed to reduce seed dispersal. Hand remove or chemically treat (spray) deseeded mature specimens with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water (1:100)	Germination is promoted via disturbance e.g. soil movement, fire. Monitor for seedlings. Treat prior to flower and seed set
<i>Chloris gayana</i>	Rhodes Grass	Hand remove Or chemically treat (spray) deseeded mature specimens with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water (1:100). May require brushcutting or slashing to promote new growth prior to application.	Hand remove seedlings or spot spray with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water
<i>Conyza bonariensis</i>	Fleabane	Hand remove in area of high regeneration potential. Flowers and seeds to be removed and disposed of site. Remaining biomass can be composted on site on. Larger infestations can be chemically treated using a 360 g/L glyphosate based herbicide at a	Hand remove seedlings or spot spray with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water.

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		diluted rate of 10 mL/L of water. Treatment prior to flowering to reduce seed set is recommended.	
<i>Cotoneaster species</i>	Broad-leaved Cotoneaster	Cut and paint/frill and drill stems with “neat” 360 g /L glyphosate based herbicide.	Hand remove seedlings or spot spray with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water.
<i>Eragrostis curvula</i>	African Lovegrass	Hand remove or chemically treat (spray) deseeded mature specimens with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water (1:100). May require brushcutting or slashing to promote new growth prior to application.	Hand remove seedlings or spot spray with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water
<i>Juncus acutus</i>	Spiny Rush	Carefully hand remove small infestations where applicable. Biomass to be removed off site to reduce further proliferation. Large infestations to be brush cut and then followed with a Chemically treat (spray) with a 360 g/L glyphosate based herbicide at a diluted rate of 15 mL/L of water (1:75). As per APVMA approved Off label permit PER9907	Hand remove seedlings or spot spray with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water
<i>Lantana camara</i>	Lantana	Small or isolated infestations: Hand remove or Cut and paint stems with “neat” 360 g/L glyphosate based herbicide in areas of high regeneration potential. Large infestations: can be cleared/treated in a mosaic pattern to reduce impacts to wildlife and the incidence of mass germination of secondary weed species. Can be chemically treated (foliage spray) via the use of a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water or a broadleaf selective herbicide such as a Metsulfuron-methyl 600 g/kg based herbicide.	Hand remove seedlings/shooting nodes or spot spray with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water.
<i>Ligustrum lucidum</i>	Broad-leaved Privet	Cut/paint, Fill/drill and apply “neat” 360 g/L glyphosate based herbicide during growing season.	Hand remove seedlings/shooting nodes or spot spray with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water.

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<i>Ligustrum sinense</i>	Small Leaf privet	Cut/paint, Fill/drill and apply “neat” 360 g/L glyphosate based herbicide during growing season. Larger specimens may produce vegetative suckers in response treatments.	Hand remove seedlings/shooting nodes or spot spray with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water.
<i>Lycium ferocissimum</i>	African Boxthorn	Cut/paint, scrape/paint and apply “neat” 360 g/L glyphosate based herbicide to actively growing stems in areas of in areas of high regeneration potential (off-label permit: PER9907). Larger infestations can be chemically treated by the use of a using a Triclopyr 300 g/L + Picloram 100 g/L e.g. Grazon® DS based product at a dilution rate of 500 mL per 100 L of water.	Hand remove seedlings/shooting nodes or spot spray with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water.
<i>Nephrolepis cordifolia</i>	Fishbone Fern	Hand remove where applicable ensuring bulk of the root system and the associated water tubers are removed. Can be chemically treated via the application of a mixture of a glyphosate 360 g/L and Metsulfuron-methyl 600 g/kg based herbicides at a dilution rate of 200 mL glyphosate plus 1.5 g metsulfuron methyl per 10 L of water	Hand remove seedlings/shooting nodes or spot spray with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water.
<i>Ochna serrulata</i>	Ochna, Mickey Mouse Bush	Small specimens may be manually removed. Established specimens can be either scaped/ painted using a “neat” glyphosate 360 g/L based product or foliage spray using of a glyphosate 360 g/L and Metsulfuron-methyl 600 g/kg based herbicides at a dilution rate of 200 mL glyphosate plus 1.5 g metsulfuron methyl per 10 L of water (off-label permit: PER9907).	Hand remove seedlings or spot spray with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water.
<i>Olea europaea subsp. Cuspidata</i>	African Olive	Seedlings can be manually removed. Cut/paint, scrape/paint and apply “neat” 360 g/L glyphosate based herbicide to actively growing stems in areas of in areas of high regeneration potential (off-label permit: PER9907).	Hand remove seedlings or spot spray with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water. Monitor for secondary weed incursions post removal of large monoculture infestations.

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<i>Onopordum spp.</i>	Scotch Thistle	Flowering and fruiting bodies to be removed to reduce seed dispersal. Hand remove or Chemically treat (spray) deseeded mature specimens with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water (1:100)	Germination is promoted via disturbance e.g. soil movement, fire. Monitor for seedlings. Treat prior to flower and seed set
<i>Opuntia spp.</i>	Prickly Pears	Foliar spray using Triclopyr 600 g/L based product at a dilution rate of 3.0 L in 100 L of water. The introduction of biological controls Cochineal and Cactoblastis are suggested for large infestations.	Spot spray seedlings and or propagules.
<i>Rubus fruticosus aggregate</i>	Blackberry	Dig out single plants (biomass to remain on site) or scape and paint using a "neat" 360 g/L glyphosate based herbicide (off-label permit: PER9907). Chemically treat larger infestations using either a 360 g/L glyphosate based herbicide at a diluted rate of 10–13 mL per 1 L of water or a APVMA approved broad leaf selective herbicide applied at the registered rate. Slashing may be required to gain access and stimulate new growth.	Hand remove seedlings or spot spray with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water.
<i>Senecio madagascariensis</i>	Fireweed	Hand remove isolated infestation in areas of high regeneration potential. Spot spray using 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water.	Hand remove seedlings or spot spray with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water.
<i>Senna pendula</i>		Cut/paint, scrape/paint and apply "neat" 360 g/L glyphosate based herbicide to actively growing stems in areas of in areas of high regeneration potential (off-label permit: PER9907).	Hand remove seedlings or spot spray with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water.
<i>Sida rhombifolia</i>	Paddy's Lucerne, Common Sida	Cut/paint, scrape/paint and apply "neat" 360 g/L glyphosate based herbicide to actively growing stems in areas of in areas of high regeneration potential (off-label permit: PER9907). Spot spray with a with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water.	Hand remove seedlings or spot spray with a 360 g/L glyphosate based herbicide at a diluted rate of 10 mL/L of water.

