Department of Planning and Environment

Streamlined Biodiversity Development Assessment Report, Proposed Preschool Development, Farrer Road, Boorooma

Prepared by Steve Hamilton, BAAS18106

Final Report 21 August 2024

Document control

Version	Date	Author	Details
1	7/6/24	Steve Hamilton	For client review
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4	21/8/24	Steve Hamilton	Final to be issued with development application

Summary

- The landholder of Farrer Road, Boorooma, is seeking to establish a preschool on the proposed development area, which has an area of 1.0 ha;
- The proposed development site has been cleared of native woody vegetation for at least 60 years, and in the 1970s was planted to vines originally as part of the Wagga Wagga Agricultural College. These vines were substantially removed around 2010, and the site revegetated - ground-truthing has revealed that the site was planted only with Hakea Wattle (*Acacia hakeoides*), and outside of patches of these planted trees, the site is predominantly derived native grassland;
- This BDAR has been developed because the Area Clearing Threshold for the site is 0.5 ha, and > 0.79 ha of native vegetation is proposed to be cleared, and according to the BMAT Report, entry into the BOS is required as a consequence of this trigger;
- The proposed development area of 1.0 ha maintains approximately 0.791 ha of native vegetation across one vegetation zone; 0.20 ha of the proposed development area was determined to be non-native (cleared) vegetation, which includes 0.138 ha of patches of planted/naturalised Hakea Wattle, and is best considered as PCT 0. The adjacent Farrer Road reserve retain no ground layer native vegetation;
- Hakea Wattle is not listed in Table 5.2.2 in the *Wagga Wagga Development Consent Plan 2010* as a native species of local conservation significance, and it is not listed in Table 5.2.3 as an undesirable plant species. According to Table 5.2.1, as none of the individuals exceed 8 m in height, not considered a native species of local conservation significance, and none listed in the Register of Significant or Heritage Trees, then these individuals can be removed with the completion and submission to Council of the appropriate form and fee;
- The native vegetation to be cleared across the freehold property is a derived native grassland which is a cleared and modified PCT 277 - *Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion*. PCT 277 is associated with a threatened ecological community (TEC) under the *Biodiversity Conservation Act 2016*, but the native vegetation on the Subject Land is not representative of the associated ecological community (EC) listed under the Commonwealth *Environment Protection Biodiversity Conservation Act 1999* (EPBC Act);
- While 23 Predicted Ecosystem Credit Species were retained for further assessment in BAM-C, only three Candidate Species Credit Species were populated by BAM-C, and all three of these species were excluded from further assessment through a combination of Geographic Limitations and Habitat Constraints;
- On the basis of the above, no targeted threatened species surveys were undertaken;
- One vegetation zone of a 0.791 ha – which includes no remnant trees – is the only direct impacts of the development;
- Given the nature of the design centred within the proposed development area, avoidance and minimisation of native vegetation is not possible without compromising the proposed layout and function of the preschool;
- There were no prescribed and serious and irreversible impacts (SAII) identified. Two residual indirect impacts were identified;
- Mitigation measures of the delineation of native vegetation to be retained on the construction site, and the establishment of vehicle and equipment hygiene practices for vehicles entering the site, were prescribed to obviate the identified residual indirect impacts;

- The final offset requirements are summarised in Tables E1 and E2.

Table E1 Impacts that require an offset – ecosystem credits

Vegetation zone	PCT	TEC/EC	Impact area (ha)	Number of ecosystem credits required
1	PCT 277 - *Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion*	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	0.791	11

Table E2 Impacts that require an offset – species credits

Common name	Scientific name	Loss of habitat (ha) or individuals	Number of species credits required
None			

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Shortened forms

APZ	asset protection zone
BAM	Biodiversity Assessment Method
BAM-C	Biodiversity Assessment Method Calculator
BC Act	*Biodiversity Conservation Act 2016* (NSW)
BC Regulation	Biodiversity Conservation Regulation 2017 (NSW)
BDAR	Biodiversity Development Assessment Report
BOAMS	Biodiversity Offsets and Agreement Management System
BOS	Biodiversity Offsets Scheme
CEEC	critically endangered ecological community
DBH	diameter at breast height over bark
EC	ecological community listed under the EPBC Act
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cwlth)
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
EEC	endangered ecological community
HTW	high threat weed
IBRA	Interim Biogeographic Regionalisation for Australia
LLS Act	*Local Land Services Act 2013* (NSW)
MNES	matters of national environmental significance
NPW Act	*National Parks and Wildlife Act 1974* (NSW)
NSW	New South Wales
PCT	plant community type
SAII	serious and irreversible impact
SEARs	Secretary's Environmental Assessment Requirements
TBDC	Threatened Biodiversity Data Collection
TEC	threatened ecological community
VEC	vulnerable ecological community
Vegetation SEPP	*State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017* (NSW)

Declarations

i. Certification under clause 6.15 *Biodiversity Conservation Act 2016*

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

Signature: 

Date: 21/8/24

BAM Assessor Accreditation no: BAAS18106

This BDAR has been prepared to meet the requirements of BAM 2020. Appendix A provides an assessment of compliance with the minimum information requirements outlined in BAM Appendix K.

ii. Details and experience of author/s and contributors

Author and contributor

Name	BAM Assessor Accreditation no. (if relevant)	Position/Role	Tasks performed	Relevant qualifications
Steve Hamilton	BAAS18105	Director/Principal Ecologist	- report preparation - document review - BAM-C data entry and analysis - figure preparation - BAM plot surveys	*AssocDipAppBiol, BAppSc(AppBiol), MAppSc (RMIT), PhD (University of Melbourne), BAM accredited Assessor (OEH/DPIE/DPE/DCCEEW NSW), Vegetation Quality Assessment Certified (DSE/DEPI/DELWP/DEECA Victoria),Bush Broker Assessor (DELWP/DEECA Victoria)*

iii. Conflict of interest

I declare that I have considered the circumstances and there is no actual, perceived or potential conflict of interest.

This declaration has been made in the interests of full disclosure to the decision-maker. Full disclosure has also been provided to the client.

Signature: 

Date: 21/8/24

BAM Assessor Accreditation no: BAAS18105

Stage 1: Biodiversity assessment

1. Introduction

1.1 Proposed development

1.1.1 Development overview

The landholder at Farrer Road, Boorooma - Anglican Diocese of Canberra and Goulburn (ADCG) - is seeking to establish St. Mary's Rainbow Preschool, with a proposed development footprint of 1.0 ha.

The proposed development requires consent under Part 4 of the EP&A Act.

The location of the proposed preschool is on land currently owned by Charles Sturt University, and this land will be partitioned to create a lease area (McMahon Earth Science 2024).

The proposed development area is immediately east of the Charles Sturt University Campus, and is immediately north of residential development and the Riverina Anglican College to the south, but does have similarly cleared agricultural land to the north and east.

The Charles Sturt University Campus retains large areas of planted and remnant native vegetation.

This BDAR has utilised the Streamlined assessment module – small area according to Appendix C in the BAM 2020 (Department of Planning, Industry and Environment [DPIE] 2020) because the area to be developed is under the area clearing limit for the minimum lot size.

The proposed development site has been cleared of native woody vegetation for at least 60 years, and in the 1970s was planted to vines originally as part of the Wagga Wagga Agricultural College (McMahon Earth Science 2024). These vines were substantially removed around 2010, and the site revegetated (McMahon Earth Science 2024); ground-truthing has revealed that the site was planted only with Hakea Wattle (*Acacia hakeoides*), and outside of patches of these planted trees, the site is predominantly derived native grassland.

1.1.2 Location

The proposed preschool development is to be located on the property at Farrer Road Boorooma, located on gently sloping terrain to the south, between Mambarra Drive (to the west), McKeown Drive (to the north), and Farrer Road (to the south, to which it has direct frontage)(see Figure 1 Site Map and Figure 2 Location Map), and is approximately 5.4 km north of the centre of the Wagga Wagga CBD.

The proposed development footprint is found within one lot of approximately 21 ha – Lot 153 DP751407 (see Figure 1 Site Map and Figure 2 Location Map,) within the Wagga Wagga City Council LGA under the *Wagga Wagga Local Environment Plan 2010*, has a Minimum Lot Size of 98,716 m^2, and is zoned as *SP2 – Educational Establishment*. While the site is currently within the larger lot, is understood that the development site in its entirety is a proposed subdivision.

1.1.3 Proposed development and the Subject Land

As indicated, the proposed development site of 1.0 ha has been cleared of native woody vegetation for at least 60 years, and in the 1970s was planted to vines originally as part of the Wagga Wagga Agricultural College, and ultimately as part of Charles Sturt University (McMahon Earth Science 2024). These vines were substantially removed around 2010, and the site revegetated at that time, with sheep grazing the major land use since (McMahon Earth Science 2024); ground-truthing has revealed that the site was planted only with Hakea Wattle, and outside of patches of these planted trees, the site is predominantly derived native grassland.

Plant Community Type (PCT) mapping (Department of Climate Change, Energy, the Environment and Water [DCCEEW] 2024h) suggests that there is no native vegetation found on the site, and that the site is PCT 0 – *Non-native*. However, based on mapped Plant Community Types (PCT) in the immediate locale and similar landscape position and after ground-truthing, the proposed development area was highly likely to be PCT 277 - *Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion* (PCT 277) (see Figure 8 Verified PCTs; DCCEEW 2024h), although the site is now a cleared and highly modified derived native grassland of this PCT.

Part of the site is mapped in the *Wagga Wagga Local Environment Plan 2010* as an area of Natural Resource Sensitivity – Biodiversity. The LEP specifies under Clause 7.3 specifies that the following applies to land in this category (excerpt below):

7.3 Biodiversity

(1) The objectives of this clause are to protect, maintain or improve the diversity of the native vegetation, including—

(a) protecting biological diversity of native flora and fauna, and

(b) protecting the ecological processes necessary for their continued existence, and

(c) encouraging the recovery of threatened species, communities or populations and their habitats.

(2) This clause applies to land identified as "Biodiversity" on the *Terrestrial Biodiversity Map*.

(3) Development consent must not be granted to development on land to which this clause applies unless the consent authority has considered the following matters—

(a) any potential adverse impact of the proposed development on any of the following—

(i) a native vegetation community,

(ii) the habitat of any threatened species, population or ecological community,

(iii) a regionally significant species of plant, animal or habitat,

(iv) a habitat corridor,

(v) a wetland,

(vi) the biodiversity values within a reserve, including a road reserve or a stock route,

(b) any proposed measures to be undertaken to ameliorate any such potential adverse impact.

(4) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that the development is consistent with the objectives of this clause and—

(a) the development is designed, sited and managed to avoid any potential adverse environmental impact, or

(b) if a potential adverse impact cannot be avoided, the development—

(i) is designed and sited so as to have minimum adverse impact, and

(ii) incorporates effective measures so as to have minimal adverse impact, and

(iii) mitigates any residual adverse impact through the restoration of any existing disturbed or modified area on the site.

This BDAR will satisfy the requirement for the provision for information in regard to Clauses 3 and 4 above.

The mounded vineyard rows are still evident within the proposed development area (and beyond to the north and east), and many stunted vines are still alive within these rows across the site and beyond. The Hakea Wattle has been clearly planted into these mounded rows; while it appears that this planting has occurred within rows over an area of at least 1.7 ha – including the proposed development site – it has been only a partially successful

planting in that successful establishment has only occurred substantially in the west and south of the site (see Figure 3 Development layout).

The ground layer under the 0.138 ha of patches of Hakea Wattle within the proposed development site is wholly introduced, containing species such as Soursob (*Oxalis pes-caprae*), Paspalum (*Paspalum dilitatum*), Kikuyu (*Cenchrus clandestinus*), Toowoomba Canary Grass (*Phalaris aquatica*), Red-flowered Mallow (*Modiola caroliniana*), Flax-leaf Fleabane (*Conyza bonariensis*), Common Heliotrope (*Heliotropium europeum*), Yorkshire Fog-grass (*Holcus lanatus*), Wild Sage (*Salvia verbenaca*) and Wild Oat (*Avena fatua*)(50 % projective foliage cover), with no indigenous understorey species evident.

Other than a narrow strip of land in the south of the proposed development site adjacent to the Farrer Road reserve that is dominated by introduced ground layer species, outside of the tree patches, the remainder of the property – 0.791 ha – despite the significant disturbance and modification to the site, is one derived native grassland patch, containing the indigenous graminoids Red-leg Grass (*Bothriochloa macra*), Hairy Panic (*Panicum effusum*), Yangabil (*Austrostipa bigeniculata*) and Blown Grass (*Lachnagrostis filiformis*), and the indigenous forb Purslane (*Portulaca oleraceus*)(35 % projective foliage cover), with a range of introduced ground layer species evident, such as Paspalum, Kikuyu, Soursob, Flax-leaf Fleabane, Common Heliotrope, Yorkshire Fog-grass, Red-flowered Mallow, Wild Sage, Wild Oat, Cat's Ear (*Hypochaeris radicata*), Caltrop (*Tribulus terrestris*), Paterson's Curse (*Echium plantigineum*), Saffron Thistle (*Carthamus lanatus*) and Grape Vine (*Vitus vinifera*)(35 % projective foliage cover)(see Figure 9 Location of vegetation zone).

This derived native grassland patch contains no remnant trees; indeed the entire proposed development area contains no remnant trees.

It is proposed that the 0.791 ha derived native grassland patch would be removed with the proposed development.

There is no current built structure on the proposed development site, although there is a north-south powerline that is runs along the eastern boundary of the current lot to the east of the proposed development site.

There were 203 Hakea Wattle located across the proposed development site (see Figure 10 Location of planted and naturalised Hakea Wattle). While the species had been clearly planted into mounded vine rows, as the species has a propensity to sucker, many juvenile plants have appeared around older individuals, and the species is now naturalised on the site. The largest individuals have a diameter at breast height (dbh) of 30-35 cm; however, over 180 of these individuals have a dbh < 20 cm.

No individuals exceed 8 m in height.

It is assumed that all of these individuals within the proposed development site will be removed.

Hakea Wattle is not listed in Table 5.2.2 in the *Wagga Wagga Development Consent Plan 2010* as a native species of local conservation significance, and it is not listed in Table 5.2.3 as an undesirable plant species. According to Table 5.2.1, as none of the individuals exceed 8 m in height, not considered a native species of local conservation significance, and none listed in the Register of Significant or Heritage Trees, then these individuals can be removed with the completion and submission to Council of the appropriate form and fee.

A moderate range of fauna were observed at the site over the extensive survey period from July to December 2023.

Introduced species observed/inferred were:

- Indian Mynah (*Acridotheres tristis*);

- Common Blackbird (*Turdus merula*);
- European Rabbit (*Oryctolagus cuniculus*);
- Red Fox (*Vulpes vulpes*).

Native species observed/inferred were:

- Eastern Grey Kangaroo (Macropus giganteus);
- Magpie-lark (*Grallina cyanoleuca*);
- Australian Raven (*Corvus coronoides*);
- Pied Currawong (*Strepera graculina*);
- Galah (*Eolophus roseicapilla*);
- Red-rumped Parrot (*Psephotus haematonotus*);
- Musk Lorikeet (*Glossopsitta concinna*);
- Australian Magpie (*Gymnorhina tibicen*);
- Silvereye (*Zosterops lateralis*).

No threatened fauna were observed or inferred.

The presence of the introduced species Indian Mynah, Common Blackbird, European Rabbit and Red Fox is not surprising given the nature of the site (paddock vegetation) combined with proximity to the Boorooma urban area. Indian Mynah and Common Blackbird were more common in the southern boundary of the site in proximity to the residential area across the road.

The dominant native bird on the site was Noisy Miner, and this aggressive and highly territorial native species was observed roosting/nesting in the patches of trees, and on some occasions, chasing away other native birds such Galahs and Red-rumped Parrots.

As indicated, proposed development area is immediately east of the Charles Sturt University Campus, and is immediately north of residential development and the Riverina Anglican College to the south, but does have similarly cleared agricultural land to the north and east.

The General Arrangement Plan for the proposed preschool can be seen in Figure 13 General Arrangement Plan for the proposed preschool; the proposed only road access is to Farrer Road in the south-western corner of the proposed development site.

The Farrer Road reserve and the narrow section of land along the southern boundary of the Subject Land maintains a wholly introduced ground layer composed of Toowoomba Canary Grass, Paspalum, Wild Oat, Great Brome (*Bromus diandrus*) and Saffron Thistle (100 % projective foliage cover counting cured annual plant material).

The proposed development will involve major ground disturbance – including excavation - with the use of heavy machinery within the area of the proposed development footprint, with the construction of buildings, car park, paving, road, kerb and channel, provision of services and drainage, and then landscaping across the site (see Figure 13 General Arrangement Plan for the proposed preschool). This will result in the loss of all native vegetation and the majority of the planted and naturalised Hakea Wattle within the proposed development area; five Hakea Wattle in the central southern section of the property will be retained (see Figure 13 General Arrangement Plan).

Access to the proposed development area for all vehicles and machinery associated with the development will likely be through the proposed road access point to Farrer Road (see Figure 13 General Arrangement Plan for the proposed preschool). Therefore, based on the

use of this proposed access point, there will not be any further direct or indirect impact on areas outside of the proposed development area (see Figure 3 Development layout).

As a consequence, the 0.791 ha derived native grassland patch, including 203 Hakea Wattle individuals (see Figure 9 Location of vegetation zone and Figure 10 Location of planted and naturalised Hakea Wattle), will be removed. There will not be any further direct impact on areas outside of the proposed development area (see Figure 11 Final impacts likely to occur on the Subject Land).

The Subject Land is located at within the *East Bomen* landscape at approximately 210 MASL, characterised by undulating rises and minor low hills. Slope gradients are mostly 3 - 10 %, and local relief is 15 - 40 m within an elevation range of 200 - 280 m. Landform elements include broad (up to 500 m) crests and ridges, long (> 400 m) waning slopes and shallow drainage lines. The soils of this landscape typically are Reddish to Reddish Brown Dermosols on crests and slopes, grading to Red and Brown Chromosols in lower elevations (Australian Soil Resource Information System 2024).

There are no features of geological significance within the Subject Land; there are no steep escarpments or slopes associated with the Subject Land.

The geology of the Subject Land consists of Silurian granites, mainly Wantabadgery Granodiorite and Collingullie Granite, with small parts of Burrandana Granite. Thick (> 2 m) clay sequences, with significant windblown (aeolian) clay additions (“parna”), deposited on most sideslopes and in drainage depressions (Australian Soil Resource Information System 2024).

The are no pertinent documents referenced in the completion of this BDAR.

1.2 Biodiversity Offsets Scheme entry

The proposed development site is not within an area of Biodiversity Value, and entry into the BOS is not required as a consequence of this trigger (see Figure 4 Biodiversity Values Map).

The Area Clearing Threshold for the site is 0.5 ha, and > 0.79 ha of native vegetation is likely to be cleared, and according to the BMAT Report, entry into the BOS is required as a consequence of this threshold being exceeded (see Appendix B Biodiversity Values Map and Threshold tool report).

1.3 Excluded impacts

The transitional Native Vegetation Regulatory Map (updated 7/12/23)(DCCEEW 2024f) indicates that all lots associated with the proposed development are land excluded from the *Local Land Services Act 2013*.

1.4 Matters of national environmental significance

The pertinent Matters of National Environmental Significance (MNES) Report for the proposed development area and a 10 km radius is shown in Appendix C.

There are no Wetlands of International Importance within or near the assessed area.

According to the MNES generated for a 10 km radius around the Subject Land (Commonwealth DCCEEW 2024; Appendix C), there are six ECs listed under the EPBC Act within the BioNet Vegetation Classification:

- Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia;

- Weeping Myall Woodlands;
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland.

Given the evidence provided through Section 4.2.2, the proposed development area was based on mapped PCTs in the immediate locale and similar landscape position and after ground-truthing, the proposed development area was highly likely to be PCT 277 - *Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion* (PCT 277)(see Figure 8 Verified PCTs; DCCEEW 2024h), although the site is now a cleared and highly modified derived native grassland of this PCT (DCCEEW 2024h); PCT 277 has clear associations with White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland EC.

The property clearly contains not association with White Box-Yellow Box-Blakely's Red Gum grassy woodlands, Weeping Myall woodlands, natural grasslands, Buloke woodlands or seasonal herbaceous freshwater wetlands, and so these listed ECs are not pertinent to this proposal.

The critically endangered Grassy Box Gum Woodland (formally referred to as the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland) is characterised by a species-rich understorey of native tussock grasses, herbs and scattered shrubs, and the dominance, or prior dominance, of White Box, Yellow Box and/or Blakely's Red Gum trees (Department of Environment, Heritage, Water and the Arts [DEHWA] 2006).

Blakely's Red Gum does exist within the remnant vegetation to the west of the proposed development area, and in this remnant area there is some remnant indigenous understorey; however, the proposed development area contains no indigenous woody species, and a derived native grassland ground layer. According to DEHWA (2006), areas in which an overstorey exists without a substantially native understorey are degraded and are no longer a viable part of the ecological community. Similarly, in areas where some indigenous species may remain, in most of these areas the indigenous understorey is effectively irretrievable, and in order for an area to be included in the listed ecological community, a patch must have a predominantly indigenous understorey (DEHWA 2006).

Therefore, while the adjacent remnant vegetation would be considered to be part of the listed community, the assessed development site is not included within the listed critically endangered ecological community.

The proposed development is therefore deemed to not be a controlled action or needing referral to the Commonwealth DCCEEW under the EPBC Act.

1.5 Information sources

Key sources of information for this report included:

- BAM 2020 (Department of Planning, Industry and Environment [DPIE] 2020a);
- BioNet Atlas of NSW Wildlife (DCCEEW 2024a);
- BioNet Vegetation Classification (DCCEEW 2024h);
- State Vegetation Type Map (SVTM). Riverina Region version 1.2 – VIS_ID 4469 (DCCEEW 2024d);
- The VIS Plant Community Type Identification Tool Version 1.0. (Office of Environment and Heritage [OEH] 2013);
- Transitional Native Vegetation Regulatory Map (version 4)(DCCEEW 2024f);

- Biodiversity Values Map and Threshold tool report (DCCEEW 2024g);
- Matters of National Environmental Significance (MNES) Report (Commonwealth DCCEEW 2024);
- IBRA7 Regional and Subregional Map Viewer (SEED NSW);
- Mitchell Landscape v31 map layer;
- NSW Land Parcel Property map layer and Property Report;
- SIX Maps (Land and Property Information 2024).

2. Methods

2.1 Site context methods

2.1.1 Landscape features

In accordance with the BAM, a number of features were assessed within and surrounding the subject site. These features include the conformity of the assessed area and surrounds to the IBRA region and subregion and NSW landscape regions (Mitchell Landscapes), and the presence (or absence) of other features, such as rivers, streams, estuaries and wetlands, habitat connectivity, karst areas or areas of outstanding biodiversity value.

To assess for these features, a radius of 1.5 km within and around the Subject Land (as much as was practicable given permissions and access issues) was searched by vehicle and by foot over a period of 2 hours on the 20th April 2024.

2.1.2 Native vegetation cover

A layer of native vegetation cover is required for a 1,500 m buffer around the study area to determine the context of the site. The extent of native vegetation on the subject site and immediate surrounds was mapped using the Riverina VTM (DCCEEW 2024e), with edits made to the layer where obvious changes to native vegetation extent had occurred.

As indicated, a radius of 1.5 km within and around the Subject Land was searched to determine the native vegetation extent and PCT mapping. No access to the private land to the east and the north was available, and so native vegetation extent in these sections of the buffer area was inferred using aerial imagery.

The total area of the 1,500 m buffer around the study area is 707 ha, with the area of native vegetation mapped within the buffer being 120 ha (see Figure 2 Location Map). This was determined to be a native vegetation cover of 17 %; this value was entered into the BAM-C.

2.2 Native vegetation, threatened ecological communities and vegetation integrity methods

2.2.1 Existing information

The following existing sources of information were utilised to identify PCTs and TECs on the Subject Land:

- BioNet Atlas of NSW Wildlife (DCCEEW 2024a);
- BioNet Vegetation Classification (DCCEEW 2024h);

- State Vegetation Type Map (SVTM). Riverina Region version 1.2 – VIS_ID 4469 (DCCEEW 2024d);
- Threatened Ecological Community (TEC) listed in Schedule 2 of the *Biodiversity Conservation Act 2016*.

2.2.2 Mapping native vegetation extent

As indicated, a radius of 1.5 km within and around the Subject Land was searched to determine the native vegetation extent and PCT mapping by vehicle and by foot over a period of 2 hours on the 20th April 2024. No access to the private land to the east and the north was available, and so native vegetation extent in these sections of the buffer area was inferred using aerial imagery.

The extent of native vegetation and PCT on the subject site and immediate surrounds was mapped using the Riverina VTM (DCCEEW 2024e) as a basis, with edits made to the layer where obvious changes to native vegetation extent had occurred, and where PCT determination differed to the existing mapping (see Figure 8 – Verified PCTs).

2.2.3 Plot-based vegetation survey

PCTs within the Subject Land were mapped according to the survey outlined in Section 2.2.2.

Based on these results, significant change was made to the mapped PCTs present on the site and their extents within and adjacent to the Subject Land (see Figure 6 Field survey locations and Figure 8 Verified Plant Community Types).

PCT mapping (DCCEEW 2024h) suggests that there is no native vegetation found on the site, and that the site is PCT 0 – *Non-native*. However, based on mapped Plant Community Types (PCT) in the immediate locale and similar landscape position and after ground-truthing, the proposed development area was highly likely to be PCT 277 - *Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion* (PCT 277) (see Figure 8 Verified PCTs; DCCEEW 2024h), although the site is now a cleared and highly modified derived native grassland of this PCT.

Other than a narrow strip of land in the south of the proposed development site adjacent to the Farrer Road reserve that is dominated by introduced ground layer species, outside of the tree patches, the remainder of the property – 0.791 ha – despite the significant disturbance and modification to the site, is one derived native grassland patch (Vegetation Zone 1), containing the indigenous graminoids Red-leg Grass (*Bothriochloa macra*), Hairy Panic (*Panicum effusum*), Yangabil (*Austrostipa bigeniculata*) and Blown Grass (*Lachnagrostis filiformis*), and the indigenous forb Purslane (*Portulaca oleraceus*)(35 % projective foliage cover), with a range of introduced ground layer species evident, such as Paspalum, Kikuyu, Soursob, Flax-leaf Fleabane, Common Heliotrope, Yorkshire Fog-grass, Red-flowered Mallow, Wild Sage, Wild Oat, Cat's Ear (*Hypochaeris radicata*), Caltrop (*Tribulus terrestris*), Paterson's Curse (*Echium plantigineum*), Saffron Thistle (*Carthamus lanatus*) and Grape Vine (*Vitus vinifera*)(35 % projective foliage cover)(see Figure 9 Location of vegetation zone).

It is proposed that the 0.791 ha derived native grassland patch (all of Vegetation Zone 1) would be removed with the proposed development.

In accordance with Table 3 of the BAM (DPIE 2020) and the area of Zone 1 being between < 2 ha, and one BAM plot was established centrally in Zone 1 on the 20th April 2024 (see Figure 6 Field survey locations and Figure 8 Verified Plant Community Types).

The entire proposed development site and the surrounding areas were also extensively assessed on the 20th April 2024.

While this vegetation zone is contiguous with derived native grassland to the north and east (a patch of 1.5 ha), the patch is not connected to any other remnant vegetation.

The plot was the typical rectangular dimensions of a BAM plot (50 x 20 m) that was aligned to fit within the defined proposed development footprint, and the Vegetation Integrity Survey plot (20 x 20 m) was located in the southern portion of the plot (see Figure 6 Field survey locations and Figure 8 Verified Plant Community Types).

2.2.4 Vegetation integrity survey

One Vegetation Integrity Survey plot was established within the one delineated BAM plot, and was assessed using the methodology outlined in Section 4.3.4 of the BAM (DPIE 2020)(see Appendix D for the Vegetation integrity survey plot data).

The collected data from the plot was used to determine the Vegetation Integrity Score for the vegetation zone upon entry of the data into the BAM-C.

2.3 Threatened flora survey methods

2.3.1 Review of existing information

Based on BioNet records and confirmed Predicted Threatened Species generated on BAM-C, there are no threatened flora species that potentially may be found within the vegetation zone within the proposed development area..

2.3.2 Field surveys

There were no targeted surveys for flora conducted.

2.4 Threatened fauna survey methods

2.4.1 Review of existing information

Based on BioNet records and confirmed Predicted Threatened Species generated on BAM-C, there are twenty six threatened fauna species that potentially may utilise the vegetation zone within the proposed development area (see Table 7 Predicted ecosystem credit species).

- Spotted Harrier, Brown Treecreeper, Dusky Woodswallow, Turquoise Parrot, Little Eagle, Square-tail Kite, Little Lorikeet, Varied Sittella, Flame Robin, Regent Honeyeater, Scarlet Robin, Hooded Robin, Speckled Warbler, Diamond Firetail, Grey-crowned Babbler and Superb Parrot will utilise eucalypt open forests and woodlands – often of higher quality - dominated by box and ironbark eucalypts and all breed during the spring/summer;
- Superb Parrot, Brown Treecreeper, Turquoise Parrot and Little Lorikeet breed in hollows in live trees, and for some of the species, in standing dead trees;
- Spotted Harrier, Little Eagle, Square-tail Kite, Painted Honeyeater, Varied Sittella, Dusky Woodswallow, Flame Robin, Scarlet Robin, Hooded Robin, Speckled Warbler, Diamond Firetail and Grey-crowned Babbler build nests in tree or shrub canopies;

- Regent Honeyeater will follow the spatial and temporal changes flowering of eucalypts across south-eastern Australia, and tends to breed in areas dominated by River Sheoak;
- Gang-gang Cockatoo and Flame Robin migrate from upland to lowland areas in autumn/winter;
- White-throated Needletail are aerial birds that feed on flying insects, such as termites, ants, beetles and flies. They catch the insects in flight in their wide gaping beak. They do roost in trees periodically. They arrive in Australia from their breeding grounds in the northern hemisphere in about October each year and leave somewhere between May and August;
- Swift Parrot migrates to the Australian mainland from Tasmania between February and October, and while on the mainland favours winter-flowering species and lerp infested trees such as Western Grey Box. Breeds in Tasmania in late spring/summer. The Subject Land is not mapped as a Swift Parrot habitat of importance (DCCEEW 2024d);
- Painted Honeyeater inhabit Weeping Myall (*Acacia pendula*), Brigalow (*A. harpophylla*) and Box-Gum Woodlands and Box-Ironbark Forests. A specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus Amyema, while insects and nectar from mistletoe or eucalypts are occasionally eaten;
- Square-tail Kite and Black Falcon prefer tree-lined watercourses and in isolated woodlands, mainly in arid and semi-arid areas;
- White-bellied Sea-eagle, Square-tail Kite and Diamond Firetail prefer habitats within easy reach of water, with White-bellied Sea-eagle preferring the presence of open water including larger rivers, swamps, lakes, and the sea;
- White-bellied Sea-eagle, Square-tail Kite and Superb Parrot nest in taller trees, usually near water or a watercourse;
- White-bellied Sea-eagle and Black Falcon will utilise standing dead trees as lookout post for prey;
- Grey-headed Flying-fox occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy;
- Spotted-tail Quoll are mostly nocturnal, and use hollow-bearing trees, fallen logs, other animal burrows, small caves and rock outcrops as den sites. Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline;
- Yellow-bellied Sheathtail-bat and Large-eared Pied Bat roost variously in caves, rocky outcrops, mine shafts, tunnels, tree hollows and/or buildings.

Grey-headed Flying-fox has been recorded regularly in the Wagga Wagga LGA, with two records in relatively close proximity to the site: once in 2019 at a residence on Pugsley Avenue Estella to the south-west, and once in 2021 at a residence at Alma Crescent Estella to the south-west (DCCEEW 2024b).

There are numerous records – some as recent as 2017 – for Swift Parrot, all within the planted and remnant vegetation of the Charles Sturt University to the west (see Figure 14 Swift Parrot records and Important Habitat areas).

2.4.2 Habitat constraints assessment

Habitat constraints assessment of the site on the 20th April 2024 revealed that:

- The site lacks the caves, rocky outcrops, mine shafts, tunnels, tree hollows and/or buildings that are preferred by Yellow-bellied Sheathtail-bat and Large-eared Pied Bat for roosting;
- The Subject Land lacks the proximity to large areas of open water including larger rivers, swamps, lakes, and the sea, required for White-bellied Sea-eagle;
- The site lacks the potential den sites for Spotted-tail Quoll;
- The site lacks the preferred dense canopy cover for Grey-headed Flying-fox roosting;
- The site lacks a eucalypt tree canopy that would provide habitat for Regent Honeyeater and Swift Parrot. The site is just outside of areas mapped as Swift Parrot Important Habitat (DCCEEW 2024d);
- The site lacks a presence of mistletoe for Painted Honeyeater;
- The lacks the presence of hollow-bearing trees that would preclude breeding of Superb Parrot, Brown Treecreeper, Turquoise Parrot and Little Lorikeet;
- The Subject Land lacks the proximity to water or a watercourse that is required for nesting of Superb Parrot, White-bellied Sea-eagle, Black Falcon and Square-tail Kite;
- The Subject Land lacks the proximity to water that is preferred habitat for White-bellied Sea-eagle, Square-tail Kite and Diamond Firetail;
- The site lacks the vegetation structure that is preferred by Brown Treecreeper, Hooded Robin, Varied Sittella and Grey-crowned Babbler;
- There is potentially secondary habitat on the site for Little Eagle, Dusky Woodswallow, Little Lorikeet, Diamond Firetail, Flame Robin, Scarlet Robin, Diamond Firetail and Superb Parrot.

2.4.3 Field surveys

There were no targeted surveys for fauna conducted.

3. Site context

3.1 Assessment area

The assessment area, which includes the Subject Land and the area of land within the 1,500 metre buffer zone surrounding the Subject Land for site-based development, can be seen in Figure 2 (Location Map).

3.2 Landscape features

Landscape features identified within the Subject Land and assessment area are shown on Figure 1 Site Map and Figure 2 Location Map, respectively. A discussion of relevant landscape features is provided below.

3.2.1 IBRA bioregions and IBRA subregions

The assessment area is wholly within the *NSW South Western Slopes* IBRA Region and *Low Slopes* IBRA Subregion (see Figure 1 Site Map and Figure 2 Location Map).

3.2.2 Rivers, streams, estuaries and wetlands

There are two defined 1st order streams to the west and east of the Subject Land embedded in residential development that drain to Dukes Creek – a 2nd order stream – to the south, the alignment of which is just south of the Olympic Highway (see Figure 1 Site Map).

There are wetland areas and anabranches found from 2.5 km south of the site associated with the Murrumbidgee River corridor and floodplain - Wiradjuri Reserve and Wilks Park.

3.2.3 Habitat connectivity

While the vegetation zone on the Subject Land is contiguous with derived native grassland to the north and east (a patch of 1.5 ha), the patch is not continuously connected to any other remnant vegetation.

The planted and remnant vegetation of the Charles Sturt University campus to the immediate west provides moderate connectivity, but even this vegetation is not connected to any other remnant vegetation in reasonable proximity.

In this sense, while the Subject Land has moderate connectivity to the planted and remnant vegetation to the west, there is no connectivity to other areas of remnant vegetation (see Figure 2 Location Map, and Figure 7 Native vegetation extent).

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

There are no karst, caves, crevices, cliffs, rocks or other geological features of significance within the Subject Land and assessment area.

3.2.5 Areas of outstanding biodiversity value

There are no areas of outstanding biodiversity value, as identified under the BC Act, within proximity to the Subject Land and assessment area.

3.2.6 NSW (Mitchell) landscape

The proposed development area is wholly within the NSW (Mitchell) landscape *Junee Hills and Slopes* (see Figure 1 Site Map and Figure 2 Location Map).

3.3 Native vegetation cover

The majority of the native vegetation cover within the assessed area is associated with the planted and remnant vegetation of the Charles Sturt University campus and a large remnant blocks on private land to the east of the proposed development area; the remainder of the buffer area has been predominantly cleared for residential development or agriculture.

While the vegetation zone on the Subject Land is contiguous with derived native grassland to the north and east (a patch of 1.5 ha), the patch is not continuously connected to any other remnant vegetation.

The planted and remnant vegetation of the Charles Sturt University campus to the immediate west provides moderate connectivity, but even this vegetation is not connected to any other remnant vegetation in reasonable proximity.

In this sense, while the Subject Land has moderate connectivity to the planted and remnant vegetation to the west, there is no connectivity to other areas of remnant vegetation (see Figure 2 Location Map, and Figure 7 Native vegetation extent).

Table 1 summarises the extent of native vegetation cover within the assessment area.

Figure 2 Location Map shows native vegetation cover within the assessment area.

While the vegetation zone on the Subject Land is contiguous with derived native grassland to the north and east (a patch of 1.5 ha), the patch is not continuously connected to any other remnant vegetation.

The planted and remnant vegetation of the Charles Sturt University campus to the immediate west provides moderate connectivity, but even this vegetation is not connected to any other remnant vegetation in reasonable proximity.

In this sense, while the Subject Land has moderate connectivity to the planted and remnant vegetation to the west, there is no connectivity to other areas of remnant vegetation (see Figure 2 Location Map, and Figure 7 Native vegetation extent).

Table 1 Native vegetation cover in the assessment area

Assessment area (ha)	707
Total area of native vegetation cover (ha)	120
Percentage of native vegetation cover (%)	17
Class (0-10, >10-30, >30-70 or >70%)	>10-30

4. Native vegetation, threatened ecological communities and vegetation integrity

4.1 Native vegetation extent

The proposed development area of 1.0 ha maintains approximately 0.791 ha of native vegetation across one vegetation zone.

The extent of native vegetation and non-native (cleared) vegetation was determined by field assessment of the entire proposed development area on the 20th April 2024 (see Figure 7 Native vegetation extent).

4.1.1 Changes to the mapped native vegetation extent

PCT mapping (DCCEEW 2024h) suggests that there is no native vegetation found on the site, and that the site is PCT 0 – *Non-native*. However, based on mapped Plant Community Types (PCT) in the immediate locale and similar landscape position and after ground-truthing, the proposed development area was highly likely to be PCT 277 - *Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion* (PCT 277) (see Figure 8 Verified PCTs; DCCEEW 2024h), although the site is now a cleared and highly modified derived native grassland of this PCT (see Figure 9 Location of vegetation zones).

An area to the immediate west of the Subject Land on the Charles Sturt University campus that was mapped as PCT 0 – *Non-native* was ground-truthed, and determined to be a partly cleared and modified area of PCT 277 (see Figure 8 Verified PCTs).

4.1.2 Areas that are not native vegetation

As indicated, an area of 0.791 ha of native vegetation is found within the proposed development area.

As indicated, the proposed development site of 1.0 ha has been cleared of native woody vegetation for at least 60 years, and in the 1970s was planted to vines originally as part of the Wagga Wagga Agricultural College, and ultimately as part of Charles Sturt University (McMahon Earth Science 2024). These vines were substantially removed around 2010, and the site revegetated at that time, with sheep grazing the major land use since (McMahon Earth Science 2024); ground-truthing has revealed that the site was planted only with Hakea Wattle, and outside of patches of these planted trees, the site is predominantly derived native grassland.

The mounded vineyard rows are still evident within the proposed development area (and beyond to the north and east), and many stunted vines are still alive within these rows across the site and beyond. The Hakea Wattle has been clearly planted into these mounded rows; while it appears that this planting has occurred within rows over an area of at least 1.7 ha – including the proposed development site – it has been only a partially successful planting in that successful establishment has only occurred substantially in the west and south of the site (see Figure 3 Development layout).

The ground layer under the 0.138 ha of patches of Hakea Wattle within the proposed development site is wholly introduced, containing species such as Soursob (*Oxalis pes-caprae*), Paspalum (*Paspalum dilitatum*), Kikuyu (*Cenchrus clandestinus*), Toowoomba Canary Grass (*Phalaris aquatica*), Red-flowered Mallow (*Modiola caroliniana*), Flax-leaf Fleabane (*Conyza bonariensis*), Common Heliotrope (*Heliotropium europeum*), Yorkshire Fog-grass (*Holcus lanatus*), Wild Sage (*Salvia verbenaca*) and Wild Oat (*Avena fatua*)(50 % projective foliage cover), with no indigenous understorey species evident.

The Farrer Road reserve and the narrow section of land along the southern boundary of the Subject Land maintains a wholly introduced ground layer composed of Toowoomba Canary Grass, Paspalum, Wild Oat, Great Brome (*Bromus diandrus*) and Saffron Thistle (100 % projective foliage cover counting cured annual plant material).

On this basis, 0.20 ha of the proposed development area was determined to be non-native (cleared) vegetation (see Figure 9 Vegetation Zones), and is best considered as PCT 0.

4.2 Plant community types

4.2.1 Overview

Vegetation within the Subject Land has been assessed as aligning with the BioNet Vegetation Classification PCTs identified within Table 2 and its extent is shown in Figure 8 Plant community types. Detailed descriptions of each PCT are provided in the following subsections.

Table 2 PCTs identified within the Subject Land

PCT ID	PCT name	Subject Land area (ha)
277	*Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion*	0.791
	Total area	**0.791**

4.2.2 PCT 277 – Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

4.2.2.1 PCT overview

Table 3 outlines the BioNet Vegetation Classification for PCT ID, name, vegetation formation, vegetation class and per cent cleared value, and other data obtained for the Subject Land.

Table 3 ***PCT 277 – Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion***

PCT ID	277
PCT name	*Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion*
Vegetation formation	Grassy Woodlands
Vegetation class	Western Slopes Grassy Woodland
Per cent cleared value (%)	94
Extent within Subject Land (ha)	0.791

Other than a narrow strip of land in the south of the proposed development site adjacent to the Farrer Road reserve and the road reserve itself, that are dominated by introduced ground layer species, and the planted tree patches, which are PCT 0 – *Non native*, the remainder of the property – 0.791 ha – despite the significant disturbance and modification to the site, is one low diversity derived native grassland patch (Vegetation Zone 1), containing the indigenous graminoids Red-leg Grass (*Bothriochloa macra*), Hairy Panic (*Panicum effusum*), Yangabil (*Austrostipa bigeniculata*) and Blown Grass (*Lachnagrostis filiformis*), and the indigenous forb Purslane (*Portulaca oleraceus*)(35 % projective foliage cover), with a range of introduced ground layer species evident, such as Paspalum, Kikuyu, Soursob, Flax-leaf Fleabane, Common Heliotrope, Yorkshire Fog-grass, Red-flowered Mallow, Wild Sage, Wild Oat, Cat's Ear (*Hypochaeris radicata*), Caltrop (*Tribulus terrestris*), Paterson's Curse (*Echium plantigineum*), Saffron Thistle (*Carthamus lanatus*) and Grape Vine (*Vitus vinifera*)(35 % projective foliage cover)(see Figure 9 Location of vegetation zone).

Plate 1 **Modified *PCT 277 - Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion* in the centre of the Subject Land (Image taken by author 20/4/24).**

In summary, PCT 277 within the proposed development area is one Vegetation Zone of 0.791 ha of low diversity derived native grassland, that also sustains an abundant seasonal exotic cover; this zone is a poor habitat quality representation of the PCT. Planted tree patches, a strip of land along the southern boundary of the property and the adjacent road reserve are PCT 0 – *Non native*.

4.2.3 Condition states

There is one condition states of the native vegetation found across the one vegetation zone within the proposed development area – and that is of cleared and modified woodland, that is represented as a derived native grassland.

4.2.4 Justification of PCT selection

PCT 277 is mapped 50 m west of the proposed development site in the same landscape position as the site (DCCEEW 2024h), and given the canopy of Blakely's Red Gum and the understorey species assemblage relative to the PCT benchmark, the selection of this PCT for the derived native grassland area on the site was both logical and appropriate.

4.2.5 Alignment with TECs

PCT 277 is associated with the TEC *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (DCCEEW 2024d).

Plate 2 **Views of the Subject Land: looking north-east from the south-western corner on Farrer Road (top left), the Farrer Road reserve frontage (top right), looking south through the centre of the site from the northern boundary (middle left), looking through the centre of the site (middle right), looking north along the western boundary from the south-western corner on Farrer Road (bottom left), and looking south along the eastern boundary (bottom right). Images taken by author 20/4/24.**

4.2.6 Alignment with EPBC Act listed ECs

According to the MNES generated for a 10 km radius around the Subject Land (DCCEEW 2024; Appendix C), there are three ECs listed under the EPBC Act within the BioNet Vegetation Classification:

- Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia;
- Weeping Myall Woodlands;
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland.

Given the evidence provided through Section 4.2.2, the PCT within the Subject Land (PCT 277) has clear associations with White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland EC.

4.3 Threatened ecological communities

As indicated in Section 4.2.6, there is one PCT with associations to a TEC present within the Subject Land.

4.4 Vegetation zones

As indicated, the only native vegetation across the proposed development area has been designated as PCT 277 - *Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion* (see Figure 6 Field survey locations).

It was determined that a total of 0.791 ha of native vegetation is found as one vegetation zone of modified TECs within the development footprint – this area is wholly derived native grassland and contains no remnant trees – and all of this Vegetation Zone is a proposed loss (see Table 6 and Figure 9 Vegetation zones).

Table 4 Vegetation zones and patch sizes

Vegetation zone ID	PCT ID number and name	Condition / other defining feature	Area (ha)	Patch size class	No. vegetation integrity plots required	No. vegetation integrity plots completed	No. vegetation integrity plots used in assessment	Plot IDs of vegetation integrity plots used in assessment
1	PCT 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Modified	0.791	< 5 ha	1	1	1	Modified_1

4.5 Vegetation integrity (vegetation condition)

4.5.1 Vegetation integrity survey plots

In accordance with Table 3 of the BAM (DPIE 2020) and the area of Zone 1 being between < 2 ha, and one BAM plot was established centrally in Zone 1 on the 20th April 2024 (see Figure 6 Field survey locations and Figure 8 Verified Plant Community Types).

The BAM plot was located to ensure representative assessment of the vegetation zone, and to make sure all attributes relevant to the vegetation zone were captured, in accordance with the BAM (Sec. 4.3.4; DPIE 2020).

The entire proposed development site and the surrounding areas were also extensively assessed on the 20th April 2024.

While this vegetation zone is contiguous with derived native grassland to the north and east (a patch of 1.5 ha), the patch is not connected to any other remnant vegetation.

The plot was the typical rectangular dimensions of a BAM plot (50 x 20 m) that was aligned to fit within the defined proposed development footprint, and the Vegetation Integrity Survey plot (20 x 20 m) was located in the southern portion of the plot (see Figure 6 Field survey locations and Figure 8 Verified Plant Community Types).

4.5.2 Scores

The condition scores and Vegetation Integrity Score for the one vegetation zone within the Subject Land is shown in Table 7.

Table 5 Vegetation integrity scores

Vegetation zone ID	Composition condition score	Structure condition score	Function condition score	Vegetation integrity score	Hollow bearing trees present?
1	18.8	55.2	10.1	21.9	No

4.5.3 Use of benchmark data

The benchmark data for PCT 277 within the BioNet Vegetation Classification (DCCEEW 2024h) was used to assess vegetation integrity attributes for the one vegetation zone.

5. Habitat suitability for threatened species

5.1 Identification of threatened species for assessment

5.1.1 Ecosystem credit species

Table 8 shows the twenty four Ecosystem credit species likely to occur on or use the one vegetation zone within the Subject Land as automatically populated in BAM-C.

Twenty three threatened species have been retained for further assessment; White-bellied Sea-eagle was not confirmed as a Candidate Threatened Species in the BAM-C, because the Subject Land does not contain any suitable wetland habitat for the species, and the site is > 1 km from the closest waterway (Murray River), and this is a geographical constraint for the species.

Table 6 Predicted ecosystem credit species

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID	Sensitivity to gain class
		BC Act	EPBC Act						
Dusky Woodswallow	*Artamus cyanopterus cyanopterus*	V	Not listed	No	BAM-C	Yes	N/A	Zone 1 PCT 277	Moderate
Regent Honeyeater	*Anthochaera phrygia*	CE	CE	Yes	BAM-C	Yes	N/A	Zone 1 PCT 277	High
Black Falcon	*Falco subniger*	V	Not listed	No	BAM-C	Yes	N/A	Zone 1 PCT 277	Moderate

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID	Sensitivity to gain class
		BC Act	EPBC Act						
Varied Sittella	*Daphoenositta chrysoptera*	V	Not listed	No	BAM-C	Yes	N/A	Zone 1 PCT 277	Moderate
Gang-gang Cockatoo	*Callocephalon fimbriatum*	V	E	No	BAM-C	Yes	N/A	Zone 1 PCT 277	Moderate
Spotted Harrier	*Circus assimilis*	V	Not listed	No	BAM-C	Yes	N/A	Zone 1 PCT 277	Moderate
Brown Treecreeper (eastern subspecies)	*Climacteris picumnus victoriae*	V	Not listed	No	BAM-C	Yes	N/A	Zone 1 PCT 277	High
Little Eagle	*Hieraaetus morphnoides*	V	Not listed	No	BAM-C	Yes	N/A	Zone 1 PCT 277	Moderate
Speckled Warbler	*Chthonicola sagittata*	V	Not listed	No	BAM-C	Yes	N/A	Zone 1 PCT 277	Moderate

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID	Sensitivity to gain class
		BC Act	EPBC Act						
Painted Honeyeater	*Grantiella picta*	V	V	No	BAM-C	Yes	N/A	Zone 1 PCT 277	Moderate
Little Lorikeet	*Glossopsitta pusilla*	V	Not listed	No	BAM-C	Yes	N/A	Zone 1 PCT 277	High
Square-tailed Kite	*Lophoictinia isura*	V	Not listed	No	BAM-C	Yes	N/A	Zone 1 PCT 277	Moderate
White-bellied Sea-eagle	*Haliaeetus leucogaster*	V	Not listed	No	BAM-C	No	Habitat constraints – not within proximity to a waterbody – not within 1 km of a river, lake, large dam or creek, wetland or coastline		High
Swift Parrot	*Lathamus discolor*	E	CE	Yes	BAM-C, Bionet records	Yes	N/A	Zone 1 PCT 277	Moderate
Hooded Robin (south-eastern form)	*Melanodryas cucullata*	V	Not listed	No	BAM-C	Yes	N/A	Zone 1 PCT 277	Moderate

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID	Sensitivity to gain class
		BC Act	EPBC Act						
Scarlet Robin	*Petroica phoenicea*	V	Not listed	No	BAM-C	Yes	N/A	Zone 1 PCT 277	Moderate
Superb Parrot	*Polytelis swainsonii*	V	V	No	BAM-C, Bionet records	Yes	N/A	Zone 1 PCT 277	Moderate
Turquoise Parrot	*Neophema pulchella*	V	Not listed	No	BAM-C	Yes	N/A	Zone 1 PCT 277	High
Flame Robin	*Petroica phoenicea*	V	Not listed	No	BAM-C	Yes	N/A	Zone 1 PCT 277	Moderate
Grey-crowned Babbler (eastern subspecies)	*Pomatostomus temporalis temporalis*	V	Not listed	No	BAM-C	Yes	N/A	Zone 1 PCT 277	Moderate
Diamond Firetail	*Stagonogleura guttata*	V	Not listed	No	BAM-C	Yes	N/A	Zone 1 PCT 277	Moderate

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID	Sensitivity to gain class
		BC Act	EPBC Act						
White-throated Needletail	*Hirundapus caudacutus*	Not listed	V	No	BAM-C	Yes	N/A	Zone 1 PCT 277	High
Yellow-bellied Sheathtail Bat	*Saccolaimus flaviventris*	V	Not listed	No	BAM-C	Yes	N/A	Zone 1 PCT 277	High
Grey-headed Flying-fox	*Pteropus poliocephalus*	V	V	No	BAM-C, Bionet records	Yes	N/A	Zone 1 PCT 277	Moderate

5.1.2 Species credit species

Table 7 (flora) or Table 8 (fauna) lists all predicted species credit species automatically populated by the BAM-C.

There were no listed predicted flora species credit species.

Table 7 Predicted flora species credit species

Common name	Scientific name	Listing status		Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act				
None							

There are three listed predicted fauna species credit species.

All three listed threatened fauna species in Table 10 have been discarded for the reasons described.

Table 8 Predicted fauna species credit species

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act					
Regent Honeyeater (breeding)	*Anthochaera phrygia*	CE	CE	Yes	BAM-C	No	Geographic limitation & Habitat constraint – species has retracted its distribution dramatically as a consequence of the loss of connectivity. Site does not retain any eucalypt individuals. Site is not mapped as of Habitat Importance.	
Swift Parrot	*Lathamus discolor*	E	CE	Yes	BAM-C	No	Geographic limitation & Habitat constraint – species has retracted its distribution dramatically as a consequence of the loss of connectivity. Site does not retain any eucalypt individuals. Site is not mapped as of Habitat Importance.	

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act					
Large-eared Pied Bat	*Chalinolobus dwyer*	V	E	No	BAM-C	No	Habitat constraint - Site is not within 2 km of rocky areas containing caves, escarpments, overhangs, outcrops or crevices, or within 2 km of old mines or tunnels.	

5.2 Presence of candidate species credit species

Table 9 (flora) or Table 10 (fauna) identify the candidate threatened species assumed to be present within the Subject Land; no threatened species have been assumed to be present at the site.

Table 9 Determining the presence of candidate flora species credit species on the Subject Land

Common name	Scientific name	Listing status		Method used to determine presence	Present?	Further assessment required? (BAM Subsections 5.2.5 and 5.2.6)
		BC Act	EPBC Act			
None						

Table 10 Determining the presence of candidate fauna species credit species on the Subject Land

Common name	Scientific name	Listing status		Method used to determine presence	Present ?	Further assessment required?
		BC Act	EPBC Act			
None						

5.3 Threatened species surveys

There were no targeted threatened species surveys conducted.

5.4 Expert reports

No expert reports have been produced.

5.5 Area or count, and location of suitable habitat for a species credit species (a species polygon)

As there no Species Credit Species present or assumed present in regard to the Subject Land, no area or count or species polygons have been prepared.

6. Identifying prescribed impacts

Table 13 outlines the potential prescribed impacts as a consequence of the proposed development, and the justification for the identification of them as an impact or not present.

No prescribed impacts have been identified as being present with the proposed development (Table 13).

Table 13 Prescribed impacts identified.

Feature	Present	Description of feature characteristics and location	Threatened entities that use, are likely to use, or are part of the habitat feature. Where relevant, threatened species or fauna that are part of a TEC or EC, that are at risk of vehicle strike
Karst, caves, crevices, cliffs, rocks or other geological features of significance	☒ No	N/A – None were identified within the assessed area after survey.	N/A
Human-made structures	☒ No	N/A - There are no human-made structures within the Subject Land.	N/A.
Non-native vegetation	☒ No	The proposed development area maintains approximately 0.20 ha of non-native vegetation within the Subject Land and on the adjacent road reserve; 0.149 ha of this is opportunistic pasture wholly composed of herbaceous exotic ground layer species. An area of 0.138 ha is planted/ or naturalised rows and patches of the non-indigenous native species Hakea Wattle with a wholly exotic ground layer	No threatened species have been observed on-site, and based on the poor landscape connectedness of the site, low habitat quality and unsuitability of the habitat provided by the Subject Land for many potential threatened species, it is highly unlikely to utilise the non-indigenous native planted woody trees and shrubs or ground layer vegetation to any significant extent, and it is inferred that these species will not be impacted by the loss of this non-native vegetation.
Habitat connectivity	☒ No	N/A – the proposed development does not result in any direct or indirect impact on any area that has been described as a habitat connector or movement corridor within the study area (See Figure 1).	N/A
Waterbodies, water quality and hydrological processes	☒ No	N/A – The closest significant waterbody or watercourse is 1.2 km (Dukes Creek corridor) from the Subject Land.	N/A

Feature	Present	Description of feature characteristics and location	Threatened entities that use, are likely to use, or are part of the habitat feature. Where relevant, threatened species or fauna that are part of a TEC or EC, that are at risk of vehicle strike
Vehicle strikes	☒ No	Subject Land has frontage to a public road.	Based on observed scat, there are some Eastern Grey Kangaroos that currently utilise the Subject land. The location of the proposed development- with frontage to Farrer Road – is actually likely to substantially block the species from utilising Farrer Road using the Subject Land directly, and indeed the development may reduce the frequency of animals on Farrer Road. of ground-dwelling native fauna that was observed. The proposed development is not establishing any further road network – excluding an access road and car park – that will increase the areas of road in proximity to habitat to potentially increase the chances of vehicle strike. Given the on-going residential development on the block to the south, and the proposed development on the Subject Land, rather than this population remaining resident, the urban expansion is highly likely to force this group to alternate habitat, probably to the north and north-west. In this sense, this group are highly unlikely to remain on-site and constitute a vehicle strike hazard in the future. No other native species that may be afflicted by an increased risk of vehicle strike as a consequence of the proposed development were observed on-site.

Stage 2: Impact assessment (biodiversity values and prescribed impacts)

7. Avoid and minimise impacts

7.1 Avoid and minimise direct and indirect impacts

7.1.1 Project location

The proposed preschool development is to be located on the property at Farrer Road Boorooma, located on gently sloping terrain to the south, between Mambarra Drive (to the west), McKeown Drive (to the north), and Farrer Road (to the south, to which it has direct frontage)(see Figure 1 Site Map and Figure 2 Location Map), and is approximately 5.4 km north of the centre of the Wagga Wagga CBD.

The proposed development footprint is found within one lot of approximately 21 ha – Lot 153 DP751407 (see Figure 1 Site Map and Figure 2 Location Map,) within the Wagga Wagga City Council LGA under the Wagga Wagga Local Environment Plan 2010, has a Minimum Lot Size of 98,716 m2, and is zoned as SP2 – Educational Establishment. While the site is currently within the larger lot, is understood that the development site in its entirety is a proposed subdivision.

The General Arrangement Plan for the proposed preschool can be seen in Figure 13 General Arrangement Plan for the proposed preschool; the only proposed road access is to Farrer Road in the south-western corner of the proposed development site.

The only native vegetation on the site is a 0.791 ha derived native grassland patch.

There were 203 Hakea Wattle located across the proposed development site (see Figure 10 Location of planted and naturalised Hakea Wattle).

The proposed development will involve major ground disturbance – including excavation - with the use of heavy machinery within the area of the proposed development footprint, with the construction of buildings, car park, paving, road, kerb and channel, provision of services and drainage, and then landscaping across the site (see Figure 13 General Arrangement Plan for the proposed preschool). This will result in the loss of all native vegetation and the majority of the planted and naturalised Hakea Wattle within the proposed development area; five Hakea Wattle in the central southern section of the property will be retained (see Figure 13 General Arrangement Plan).

Access to the proposed development area for all vehicles and machinery associated with the development will likely be through the proposed road access point to Farrer Road (see Figure 13 General Arrangement Plan for the proposed preschool). Therefore, based on the use of this proposed access point, there will not be any further direct or indirect impact on areas outside of the proposed development area (see Figure 3 Development layout).

As a consequence, the 0.791 ha derived native grassland patch, including 203 Hakea Wattle individuals (see Figure 9 Location of vegetation zone and Figure 10 Location of planted and naturalised Hakea Wattle), will be removed. There will not be any further direct impact on areas outside of the proposed development area (see Figure 11 Final impacts likely to occur on the Subject Land).

7.1.2 Project design

The General Arrangement Plan for the proposed preschool can be seen in Figure 13 General Arrangement Plan for the proposed preschool.

Given the nature of the design centred within the proposed development area, avoidance and minimisation of native vegetation is not possible without compromising the proposed layout and function of the preschool.

7.2 Summary of measures to avoid and minimise impacts

Table 14 documents the measures to avoid and minimise direct impacts.

Table 14 Avoidance and minimisation measures for direct impacts

Action	Outcome	Timing	Responsibility
None			

8. Impact assessment

8.1 Direct impacts

8.1.1 Residual direct impacts

Table 15 documents impacts likely to occur on the Subject Land after steps taken to avoid and minimise impacts (refer to Figure 11).

Table 15 Summary of residual direct impacts

Direct impact	BC Act status	EPBC Act status	SAII entity	Project phase/timing of impact	Extent (ha)
Clearance of 0.791 ha of PCT 277 that is derived native grassland and that retains no remnant trees	PCT 277 has associated an TEC	Not listed	No	This loss will occur during construction	0.791

8.1.2 Change in vegetation integrity score

Table 16 documents the change in vegetation integrity for residual direct impacts on native vegetation that were identified on the Subject Land.

Table 16 Impacts to vegetation integrity

Vegetation zone	PCT ID	Management zone	Area (ha)	Before development			After development			Change		
				Composition	Structure	Function	VI score	Composition	Structure	Function	VI score	Change in VI score
1	277		0.791	18.8	55.2	10.1	21.9	0	0	0	0	-21.9

-

8.2 Indirect impacts

Table 17 documents residual indirect impacts that may occur on native vegetation beyond the development footprint; it is considered that it is highly unlikely that there will be any residual indirect impacts as a consequence of this proposed development (Refer to Figure 11 Final impacts likely to occur on the Subject Land if indirect impacts are mapped).

Table 17 Summary of residual indirect impacts

Indirect impact	Impacted entities	Extent	Frequency	Duration	Project phase/ timing of impact	Likelihood and consequences
Loss of unintended native vegetation as a consequence of development	PCT 277	Adjacent and contiguous native vegetation	Infrequent	Short-term	Construction	Highly unlikely if appropriate site delineation measures implemented
Transport of weeds and pathogens to site that may impact adjacent native vegetation	PCT 277	Adjacent and contiguous native vegetation	Infrequent	Short-term	Construction	Highly unlikely if appropriate vehicle and equipment hygiene methods implemented during construction

8.3 Prescribed impacts

There were no prescribed impacts identified.

Justifications for their identified absence is found below.

8.3.1 Human-made structures

There are no human-made structures within the Subject Land.

8.3.2 Non-native vegetation

The proposed development area maintains approximately 0.20 ha of non-native vegetation within the Subject Land and on the adjacent road reserve; 0.149 ha of this is opportunistic pasture wholly composed of herbaceous exotic ground layer species. An area of 0.138 ha is planted/ or naturalised rows and patches of the non-indigenous native species Hakea Wattle with a wholly exotic ground layer.

No threatened species have been observed on-site, and based on the poor landscape connectedness of the site, low habitat quality and unsuitability of the habitat provided by the Subject Land for many potential threatened species, it is highly unlikely to utilise the non-indigenous native planted woody trees and shrubs or ground layer vegetation to any significant extent, and it is inferred that these species will not be impacted by the loss of this non-native vegetation.

8.3.3 Habitat connectivity

The proposed development does not result in any direct or indirect impact on any area that has been described as a habitat connector or movement corridor within the study area (see Figure 2 Location Map, and Figure 7 Native vegetation extent).

On this basis, the proposed development site is not a connecting landscape corridor within the district, and the removal of the native vegetation at the site will have negligible impact on habitat connectivity.

8.3.4 Waterbodies, water quality and hydrological processes

There are two defined 1st order streams to the west and east of the Subject Land embedded in residential development that drain to Dukes Creek – a 2nd order stream – to the south, the alignment of which is just south of the Olympic Highway (see Figure 1 Site Map).

There are wetland areas and anabranches found from 2.5 km south of the site associated with the Murrumbidgee River corridor and floodplain - Wiradjuri Reserve and Wilks Park.

The closest significant waterbody or watercourse is 1.2 km (Dukes Creek corridor) from the Subject Land, and there will be no impact on such habitats as a consequence of this proposed development.

8.3.5 Vehicle strikes

Based on observed scat, there are some Eastern Grey Kangaroos that currently utilise the Subject land. The location of the proposed development- with frontage to Farrer Road – is actually likely to substantially block the species from utilising Farrer Road using the Subject Land directly, and indeed the development may reduce the frequency of animals on Farrer Road. of ground-dwelling native fauna that was observed.

The proposed development is not establishing any further road network – excluding an access road and car park – that will increase the areas of road in proximity to habitat to potentially increase the chances of vehicle strike. Given the on-going residential

development on the block to the south, and the proposed development on the Subject Land, rather than this population remaining resident, the urban expansion is highly likely to force this group to alternate habitat, probably to the north and north-west. In this sense, this group are highly unlikely to remain on-site and constitute a vehicle strike hazard in the future.

No other native species that may be afflicted by an increased risk of vehicle strike as a consequence of the proposed development were observed on-site..

8.4 Mitigating residual impacts – management measures and implementation

Table 18 details proposed mitigation and management measures for defined indirect residual impacts.

Table 18 Summary of proposed mitigation and management measures for residual indirect impacts

Mitigation measure	Method/technique	Timing	Frequency	Responsibility	Likely efficacy	MNES
Site delineation	Prior to clearance, all native vegetation to be retained in proximity to the development site must be clearly identified by marker tape to ensure that there is no confusion as to the approved clearance retained native vegetation	Before construction	Once	Site supervisor	Highly likely to succeed	N/A
Vehicle and equipment hygiene	All vehicles and equipment that will enter the site must have been cleaned for potential weed seed carry-over	Before and during construction	Every new vehicle entry	Site supervisor	Highly likely to succeed	N/A

Table 19 provides further details on implementation of proposed mitigation and management measures for defined residual impacts identified in Table 18.

Table 19 Measures for mitigation and management measures for residual indirect impacts implementation

Measure/action	Monitoring and evaluation strategy	Performance criteria	Adaptive management threshold	Adaptive management response
Site delineation	Daily monitoring to ensure that unintended loss of native vegetation is not occurring	No loss of any unintended native vegetation during construction	Loss of any unintended native vegetation during construction	Immediate re-check of site delineation measures and re-implementation if required
Vehicle and equipment hygiene	Checks and established processes to ensure vehicles entering the site are appropriate cleared prior to entry of the site	No new weed introductions	New weed introduced to site	Immediate check of the integrity of the established processes to ensure vehicles entering the site are appropriate cleared prior to entry of the site. Eradication of the introduced weed.

8.5 Adaptive management strategy for uncertain impacts (where relevant)

No adaptive management strategy has been developed as there are no uncertain impacts anticipated.

9. Serious and irreversible impacts

9.1 Assessment for serious and irreversible impacts on biodiversity values

There are no potential entities at risk for Serious and Irreversible Impacts of biodiversity values as a consequence of the proposed development, according to the BAM-C (See Appendix E).

10. Impact summary

10.1 Determine an offset requirement for impacts

10.1.1 Impacts on native vegetation and TECs or ECs (ecosystem credits)

Table 20 identifies impacts on native vegetation that do not require an offset (as per BAM Subsection 9.2.1(3.)).

Table 21 identifies impacts that require an offset (as per BAM Subsection 9.2.1(1.))(Refer to Figure 12 Thresholds for assessment and offsetting impacts).

Table 20 Areas on the Subject Land that do not require offset – ecosystem credits

Vegetation zone	PCT name	TEC	Non-impact area (ha)	TEC association	Entity at risk of an SAII?	Current VI score
None						

Table 21 Impacts that require an offset – ecosystem credits

Vegetation zone	PCT name	TEC	Impact area (ha)	Current VI score	Future VI score	Change in VI score	Biodiversity risk weighting	Number of ecosystem credits required
1	PCT 277 - *Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion*	Yes	0.791	21.9	0	-21.9	2.5	11
							Total credits	11

10.1.2 Impacts on threatened species and their habitat (species credits)

Table 22 identifies impacts on threatened species (species credits) that require an offset (as per BAM Subsection 9.2.2(2.)).

BAM-C has not calculated any threatened species (species credits) that require an offset.

Table 22 Impacts that require an offset – species credits

Common name	Scientific name	BC Act status	EPBC Act status	Loss of habitat (ha)	Biodiversity risk weighting	Number of species credits required
None						
					Total credits	

10.1.3 Indirect and prescribed impacts

There are no assessed indirect and prescribed impacts that remain after measures to avoid, minimise and mitigate have been applied - that would require offset using additional biodiversity credits.

10.2 Impacts that do not need further assessment

There are no further assessments for ecosystem credits required (as per BAM Section 9.3(1–2.).

11. Biodiversity credit report

Information on the ecosystem and species credits and matching credit profiles are found in Tables 23 and 24 below (Refer to Appendix E Credit reports).

11.1 Ecosystem credits

Table 23 Ecosystem credit class and matching credit profile

Ecosystem credit	Attributes shared with matching credits						
	PCT name	**PCT vegetation class**	**PCT vegetation formation**	**Associated TEC or EC**	**Offset trading group** (BAM Section 10.2, Tables 4 & 5)	**Hollow bearing trees present?**	**IBRA subregion** (in which proposal is located)
11	PCT 277 - *Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion*	Western Slopes Grassy Woodland	Grassy Woodlands	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Lower Slopes , Bogan-Macquarie, Inland Slopes, Lachlan Plains, Murray Fans, Murrumbidgee and Nymagee. or Any IBRA subregion that is within 100 km of the outer edge of the impacted site.	No	Lower Slopes

11.2 Species credits

Table 11 Species credit class and matching credit profile

Species credit	Attributes shared with matching credits				
	Name of threatened species	**Kingdom**	**BC Act status**	**EPBC Act status**	**IBRA region**
None					

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13. Figures

Figure 1 **Site Map (Image for ESRI Australia 2024). Mitchell Landscape categories are shown with purple lettering, and IBRA categories are shown with black letters. Parcel numbers are also shown. Proposed development area is in red.**

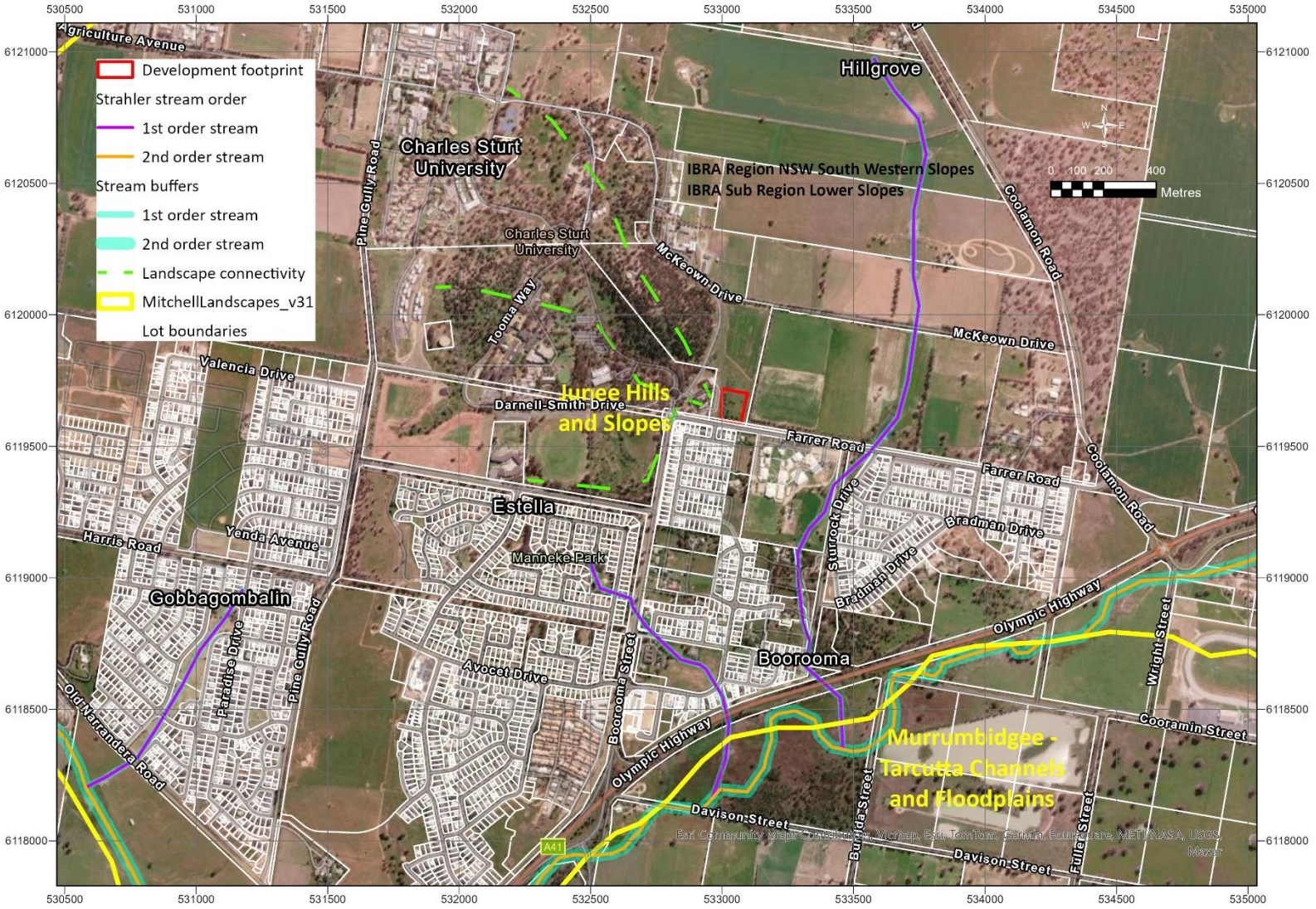


Figure 2 **Location Map, showing the 1,500 m buffer around the property/proposed development area (Image for ESRI Australia 2024). Mitchell Landscape categories are shown with purple lettering, and IBRA categories are shown with white letters.**

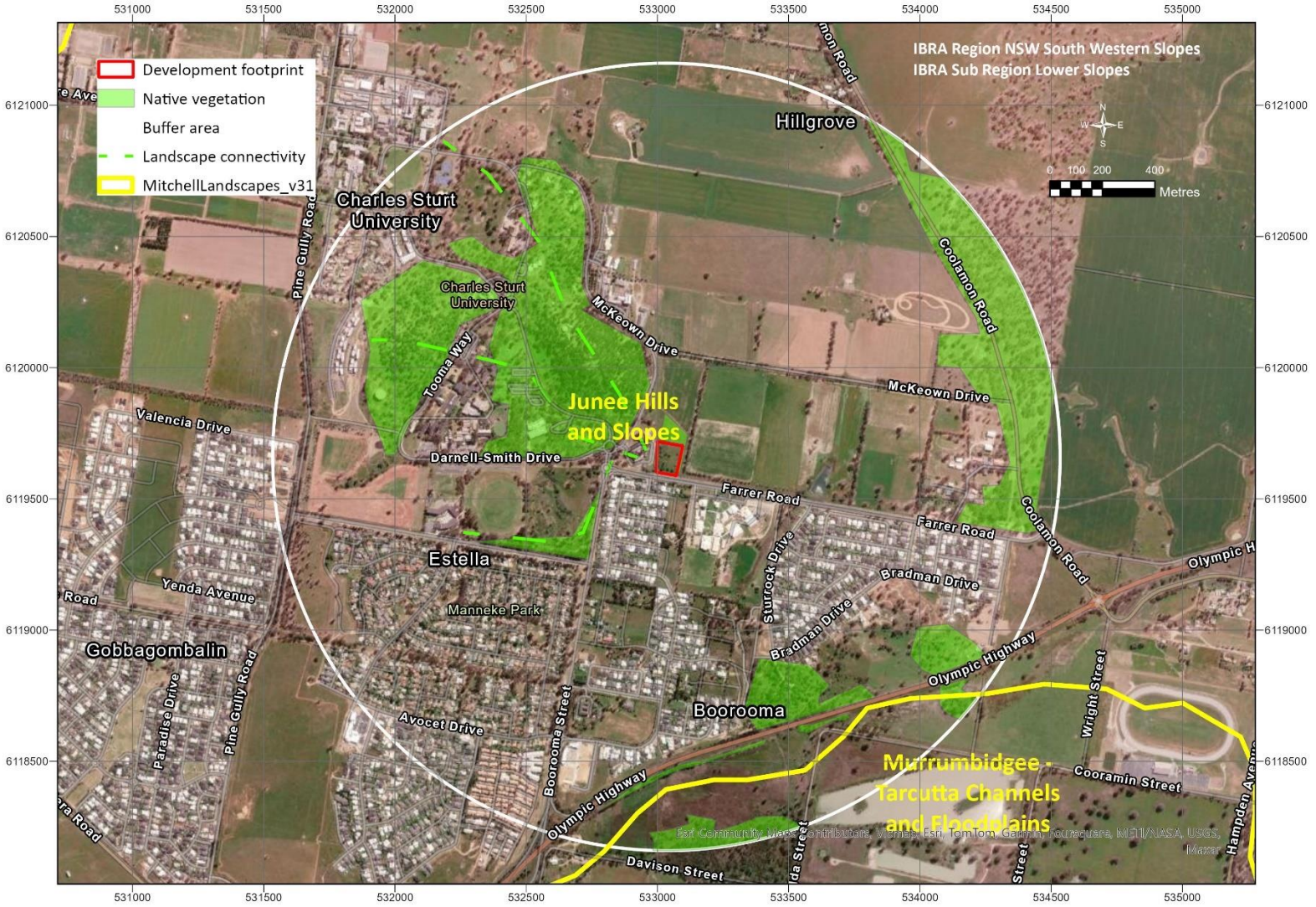


Figure 3 Proposed development footprint extent relative to lot boundaries (Image for ESRI Australia 2024).

Figure 4 Biodiversity Values Map (v16 from DCCEEW 2024g; Image for ESRI Australia 2024).

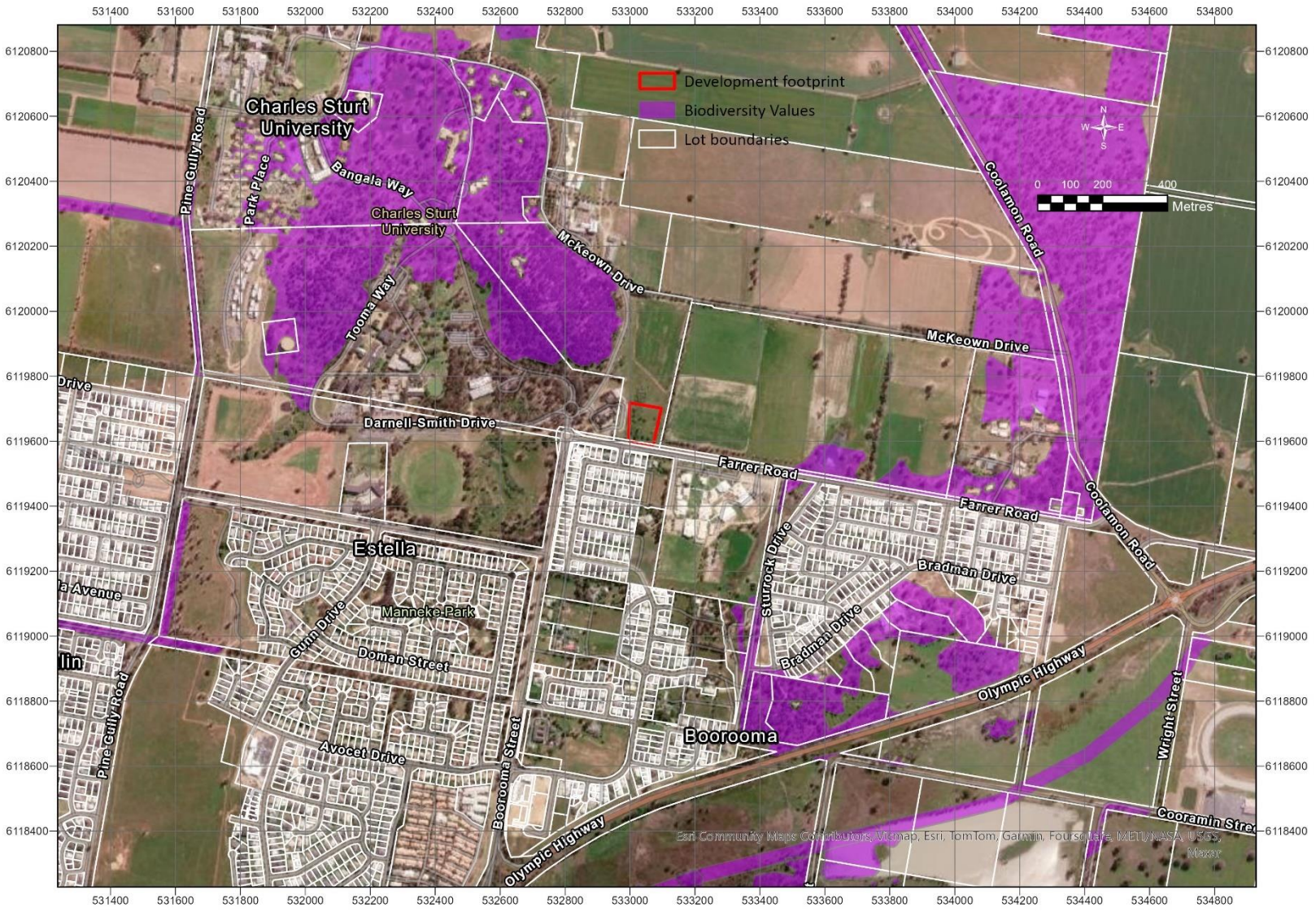


Figure 5 **Excluded impacts mapping. The proposed development area is outlined in red. Land Excluded from the LLS Act is shaded in grey, and Vulnerable Regulated Land is shaded in orange (Image from DCCEEW 2024f).**

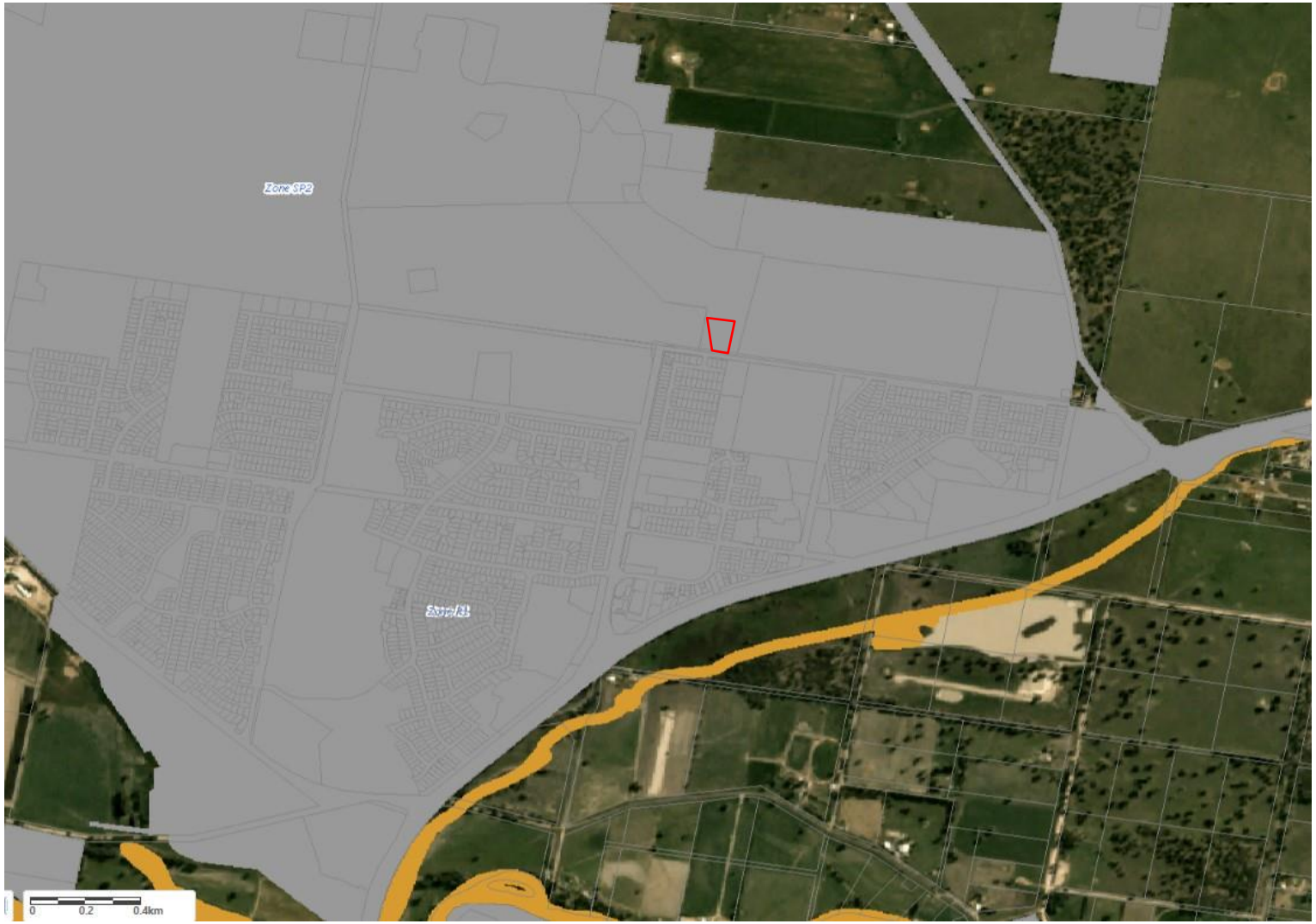


Figure 6 **Field survey locations. Mapped PCTs (from DCCEEW 2024d) relative to established BAM plot is shown (Image for ESRI Australia 2024).**

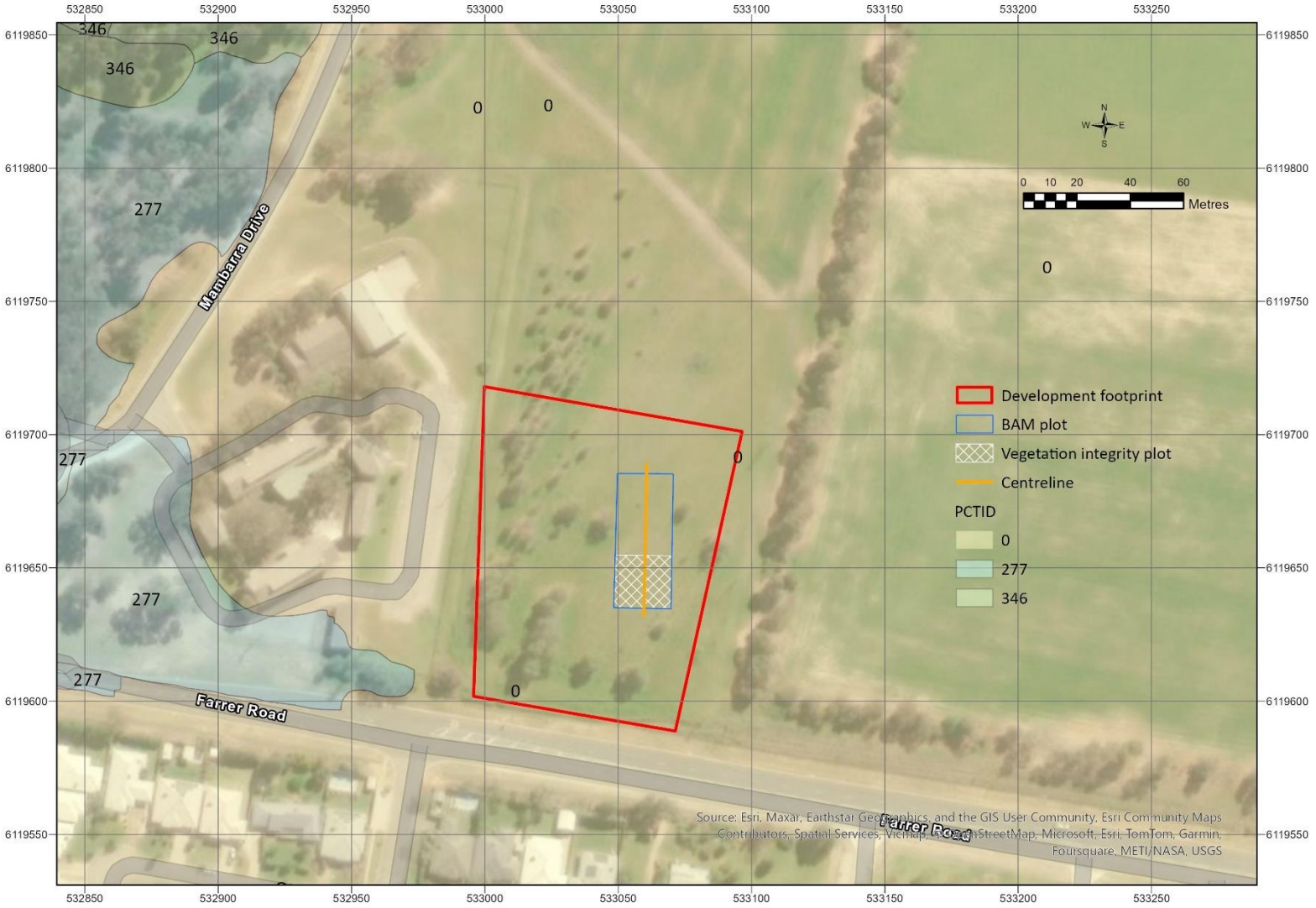


Figure 7 Native vegetation extent. Non-native vegetation is not shaded (Image for ESRI Australia 2024).

Figure 8 **Verified Plant community types on-site from ground truthing, relative to the established BAM plot (after DCCEEW 2024d; Image from ESRI Australia 2024).**

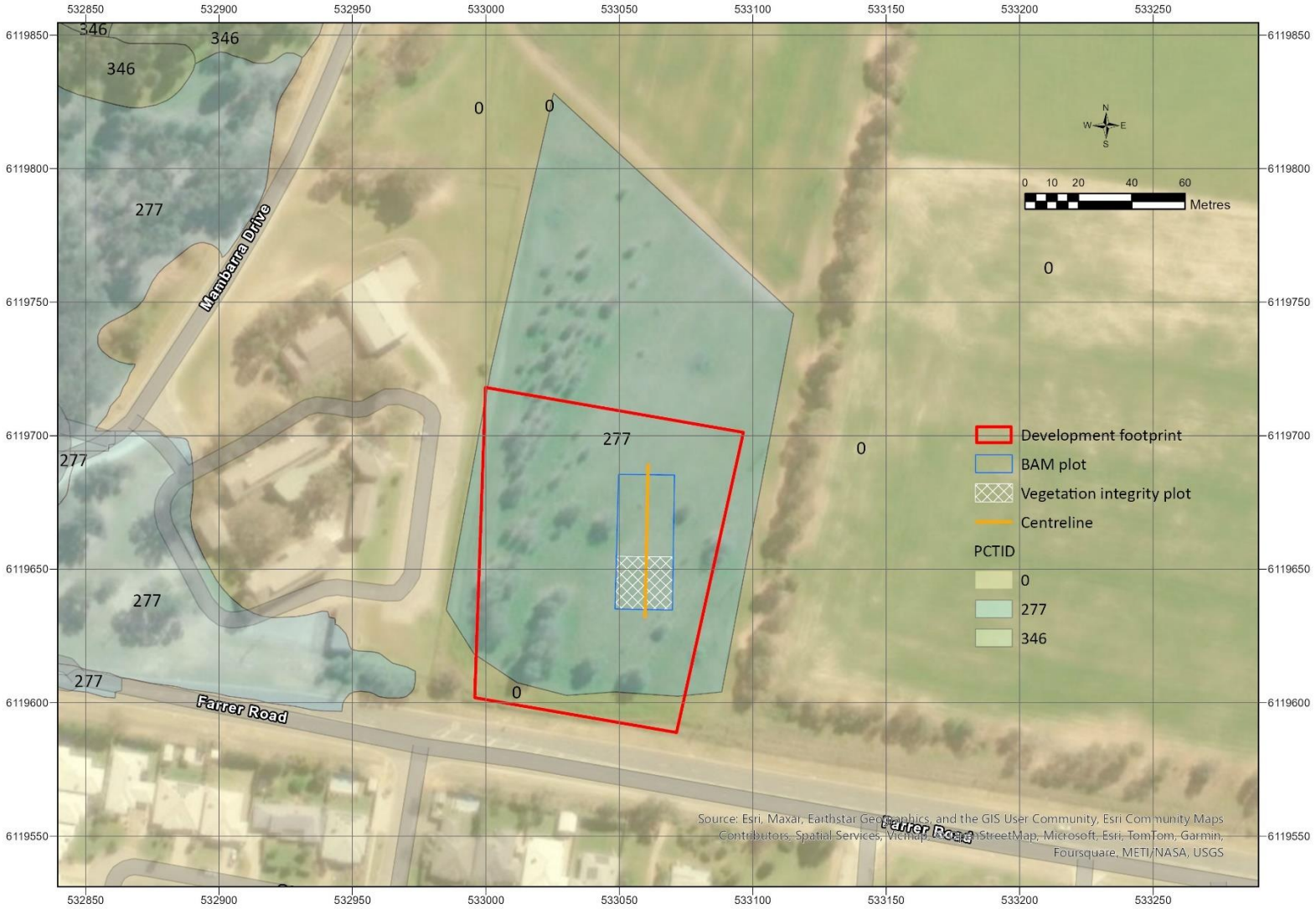


Figure 9 Location and extent of the Vegetation zone on the Subject Land (Image for ESRI Australia 2024).

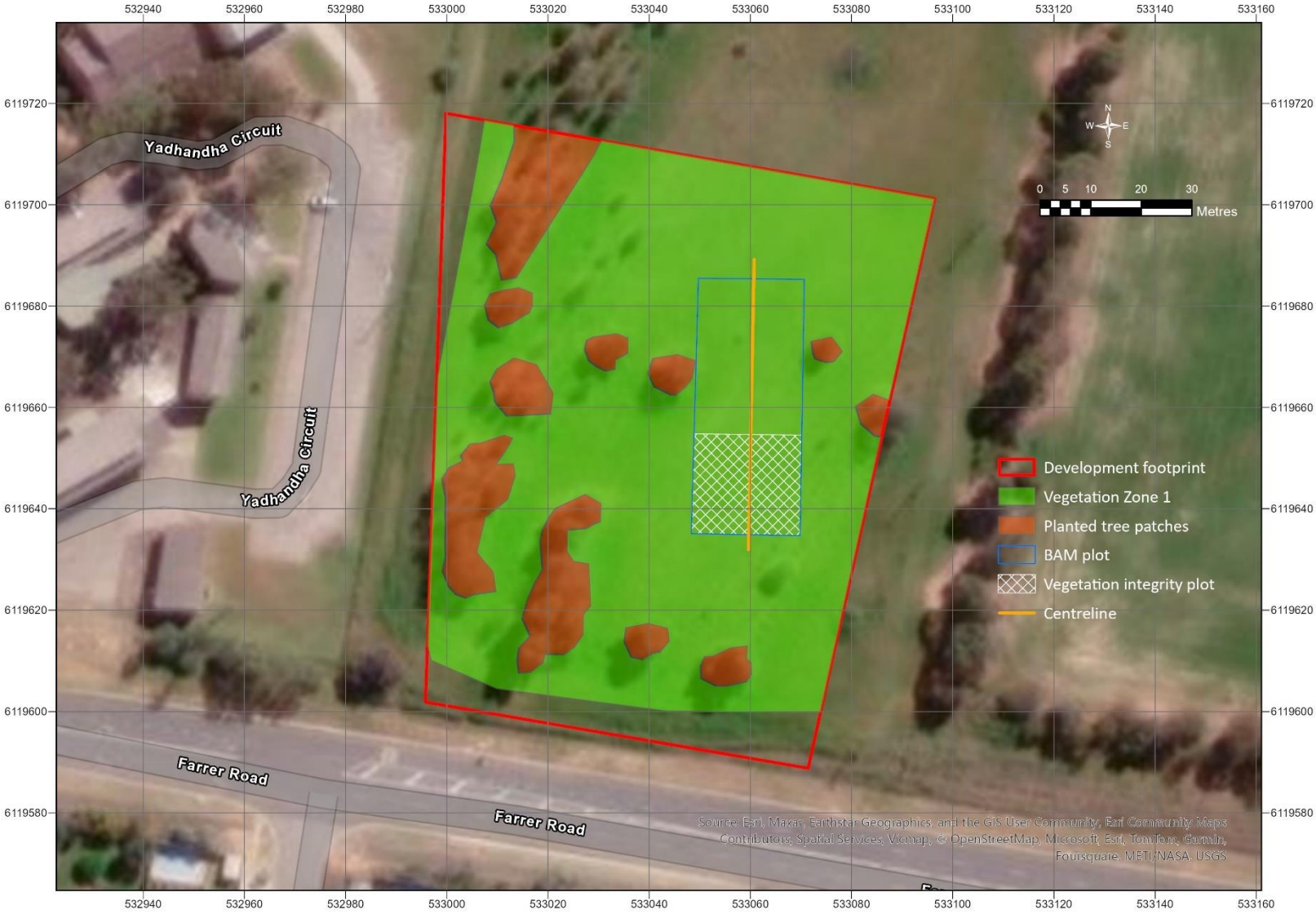


Figure 10 Location of planted and naturalised Hakea Wattle individuals on the proposed development site (Image from ESRI Australia 2024).

Figure 11 Final impacts likely to occur on the Subject Land (Image from ESRI Australia 2024).

Figure 12 Thresholds for assessing and offsetting impacts. There are no SAII entities to be impacted (Image from ESRI Australia 2024).

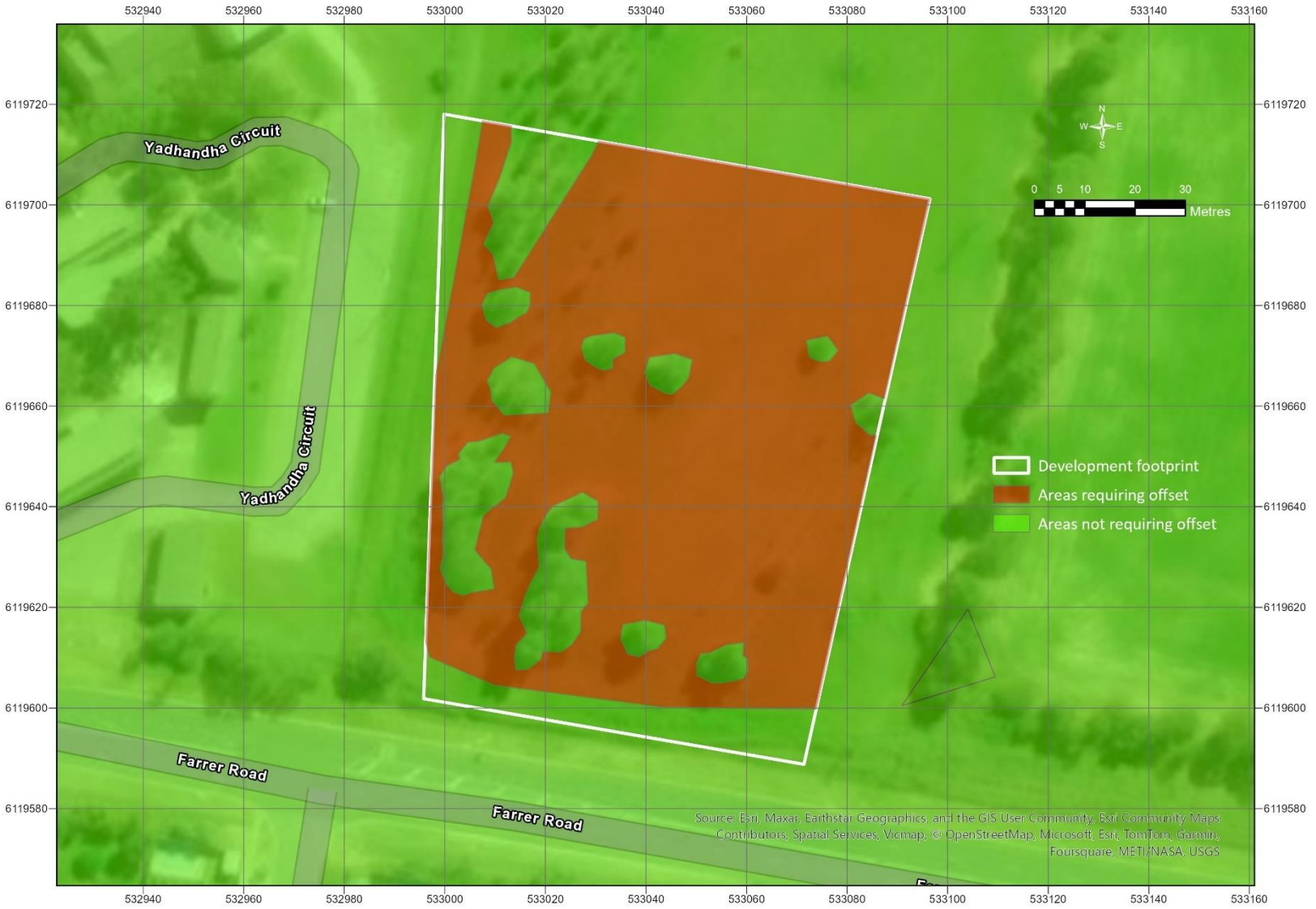


Figure 13 Site Plan for the proposed preschool at Farrer Road, Boorooma (from Gary Puksand, Revision 9, dated 26/7/24).

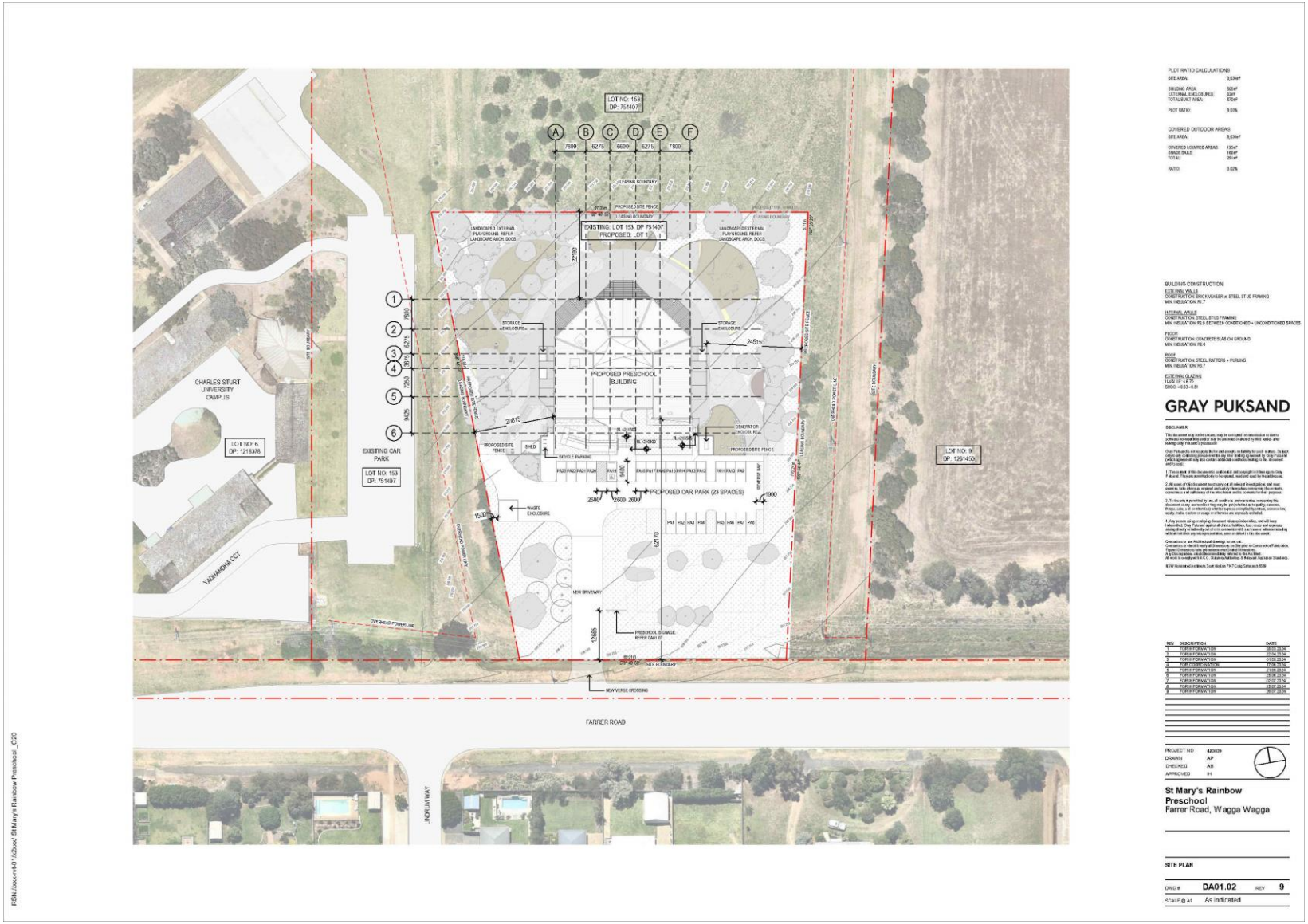


Figure 14 **Location of the Subject Land relative to records for Swift Parrot (DCCEEW 2024b) and Swift Parrot Important Habitat area mapping (DCCEEW 2024d)(Image from ESRI Australia 2024).**

Appendix A: BDAR requirements compliance

Table 12 specifies where each component of the BDAR minimum information requirements has been addressed in accordance with BAM Appendix K.

Table 12 Assessment of compliance with BDAR minimum information requirements

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
Introduction	Chapters 2 and 3	**Information**	
		Introduction to the biodiversity assessment including:	–
		X brief description of the proposal	<1.1.1>
		X identification of Subject Land boundary, including: X operational footprint N/A construction footprint indicating clearing associated with temporary/ancillary construction facilities and infrastructure	<1.1.3> <Figure 13>
		X general description of the Subject Land	<1.1.3> <Figures 13 and 14>
		X sources of information used in the assessment, including reports and spatial data	<0>
		X identification and justification for entering the BOS	<1.2>
		Maps and tables	
		X Map of the Subject Land boundary showing the final proposal footprint, including the construction footprint for any clearing associated with temporary/ancillary construction facilities and infrastructure	<Figure 1>

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
Landscape	Sections 3.1 and 3.2, Appendix E	**Information**	
		Identification of site context components and landscape features, including:	–
		X general description of Subject Land topographic and hydrological setting, geology and soils	<1.1.3>
		X per cent native vegetation cover in the assessment area (as described in BAM Section 3.2)	
		X IBRA bioregions and subregions (as described in BAM Subsection 3.1.3(2.))	<3.2.1>
		X rivers and streams classified according to stream order (as described in BAM Subsection 3.1.3(3.) and Appendix E)	<3.2.2>
		X wetlands within, adjacent to and downstream of the site (as described in BAM Subsection 3.1.3(3.))	<3.2.2>
		X connectivity of different areas of habitat (as described in BAM Subsection 3.1.3(5–6.))	<3.2.3>
		X karst, caves, crevices, cliffs, rocks and other geological features of significance and for vegetation clearing proposals, soil hazard features (as described in BAM Subsections 3.1.3(7.) and 3.1.3(12.))	<3.2.4>
		X areas of outstanding biodiversity value occurring on the Subject Land and assessment area (as described in BAM Subsection 3.1.3(8–9.))	<3.2.5>
		N/A any additional landscape features identified in any SEARs for the proposal	
		X NSW (Mitchell) landscape on which the Subject Land occurs	<3.2.6>
		X details of field reconnaissance undertaken to confirm the extent and condition of landscape features and native vegetation cover (as described in Operational Manual Stage 1 Section 2.4)	<2.1>
		Maps and tables	
		X Site Map X Property boundary X Boundary of Subject Land X Cadastre of Subject Land (including labelling of Lot and DP or section plan if relevant) X Landscape features identified in BAM Subsection 3.1.3	<Figure 1>
		X Location Map Not achievable with scale of site Digital aerial photography at 1:1,000 scale or finer X Boundary of Subject Land X Assessment area (i.e. the Subject Land and either 1500 m buffer area or 500 m buffer for linear development) X Landscape features identified in BAM Subsection 3.1.3	<Figure 2>

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		N/A Additional detail (e.g. local government area boundaries) relevant at this scale	
		Landscape features identified in BAM Subsection 3.1.3 and to be shown on the Site Map and/or Location Map include:	–
		X IBRA bioregions and subregions	<Figure 1 & Figure 2>
		X rivers, streams and estuaries	
		X wetlands and important wetlands	
		X connectivity of different areas of habitat	
		X karst, caves, crevices, cliffs, rocks and other geological features of significance and if required, soil hazard features	
		X areas of outstanding biodiversity value occurring on the Subject Land and assessment area	
		X any additional landscape features identified in any SEARs for the proposal	
		X NSW (Mitchell) landscape on which the Subject Land occurs	
		Data	
		X All report maps as separate jpeg files	–
		Individual digital shape files of:	–
		X Subject Land boundary	–
		X assessment area (i.e. Subject Land and 1500 m buffer area) boundary	–
		X cadastral boundary of Subject Land	–
		X areas of native vegetation cover	–
		X landscape features	–

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
Native vegetation	Chapter 4, Appendix A and Appendix H	**Information**	
		X Identify native vegetation extent within the Subject Land, including cleared areas and evidence to support differences between mapped vegetation extent and aerial imagery (as described in BAM Section 4.1(1–3.) and Subsection 4.1.1)	<4.1 >
		X Provide justification for all parts of the Subject Land that do not contain native vegetation (as described in BAM Subsection 4.1.2)	<0>
		X Review of existing information on native vegetation including references to previous vegetation maps of the Subject Land and assessment area (described in BAM Section 4.1(3.) and Subsection 4.1.1)	<2.2.2>
		X Describe the systematic field-based floristic vegetation survey undertaken in accordance with BAM Section 4.2	<2.2.3>
		N/A Where relevant, describe the use of more appropriate local data, provide reasons that support the use of more appropriate local data and include the written confirmation from the decision-maker that they support the use of more appropriate local data (as described in BAM Subsection 1.4.2 and Appendix A)	<Insert relevant reference & Appendix G>
		For each PCT within the Subject Land, describe:	–
		X PCT name and ID	<4.1 >
		X vegetation class	<0>
		X extent (ha) within Subject Land	<2.2.2>
		X evidence used to identify a PCT including any analyses undertaken, references/sources, existing vegetation maps (BAM Section 4.2(1–3.))	<2.2.3>
		X plant species relied upon for identification of the PCT and relative abundance of each species	<Insert relevant reference and Appendix G>
		X if relevant, TEC status including evidence used to determine vegetation is the TEC (BAM Subsection 4.2.2(1–2.))	<4.1 >
		X estimate of per cent cleared value of PCT (BAM Subsection 4.2.1(5.))	<0>
		Describe the vegetation integrity assessment of the Subject Land, including:	–
		X identification and mapping of vegetation zones (as described in BAM Subsection 4.3.1)	<4.4 & Figure >
		X description of vegetation zones within the Subject Land (as described in Operational Manual Stage 1 Table 2 and Subsection 3.3.2)	<4.4 & Figure >

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		X area (ha) of each vegetation zone	<4.4>
		X assessment of patch size (as described in BAM Subsection 4.3.2)	<4.4>
		X survey effort (i.e. number of vegetation integrity survey plots) as described in BAM Subsection 4.3.4(1–2.)	<4.5.1>
		X use of relevant benchmark data from BioNet Vegetation Classification (as described in BAM Subsection 4.3.3(5.))	<4.5.3>
		Where use of more appropriate local benchmark data is proposed (as described in BAM Subsection 1.4.2, BAM Subsection 4.3.3(5.) and BAM Appendix A):	–
		N/A identify the PCT or vegetation class for which local benchmark data will be applied N/A identify published sources of local benchmark data (if benchmarks obtained from published sources) N/A describe methods of local benchmark data collection (if reference plots used to determine local benchmark data)	<4.5.3>
		N/A provide justification for use of local data rather than BioNet Vegetation Classification benchmark values	<4.5.3>
		N/A provide written confirmation from the decision-maker that they support the use of local benchmark data	<Appendix G>
		Maps and tables	
		X Map of native vegetation extent within the Subject Land at scale not greater than 1:10,000 including identification of all areas of native vegetation including areas that are ground cover only, cleared areas (as described in BAM Section 4.1(1–3.)) and all parts of the Subject Land that do not contain native vegetation (BAM Subsection 4.1.2)	<Figure 9>
		X Map of PCTs within the Subject Land (as described in BAM Section 4.2(1.))	<Figure 8>
		X Map of vegetation zones within the Subject Land (as described in BAM Subsection 4.3.1)	<Figure >
		X Map the location of floristic vegetation survey plots and vegetation integrity survey plots relative to PCT boundaries	<Figure 6>
		N/A Map of TEC distribution on the Subject Land and table of TEC listing, status and area (ha)	
		X Map of patch size locations for each native vegetation zone and table of patch size areas (as described in BAM Subsection 4.3.2)	<Figure & Table 4>
		Table of current vegetation integrity scores for each vegetation zone within the site and including:	–
		X composition condition score X structure condition score	<Table 5>

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		X function condition score	
		X presence of hollow bearing trees	
		Data	
		X All report maps as separate jpeg files	–
		X Plot field data (MS Excel format)	
		X Plot field datasheets	<Appendix F>
		Digital shape files of:	–
		X PCT boundaries within Subject Land	–
		N/A TEC boundaries within Subject Land	–
		X vegetation zone boundaries within Subject Land	–
		X floristic vegetation survey and vegetation integrity plot locations	–
Threatened species	Chapter 5	**Information**	
		Identify ecosystem credit species likely to occur on the Subject Land, including:	–
		X list of ecosystem credit species derived from the BAM-C (as described in BAM Subsection 5.1.1 and Section 5.2(1.))	< >
		X justification and supporting evidence for exclusion of any ecosystem credit species based on geographic limitations, habitat constraints or vagrancy (as described in BAM Subsections 5.2.1 and 5.2.2)	<5.1.1>
		N/A justification for addition of any ecosystem credit species to the list	<5.1.1>
		Identify species credit species likely to occur on the Subject Land, including:	–
		x list of species credit species derived from the BAM-C (as described in BAM Subsection 5.1.1)	<Table 7 & Table 8>
		X justification and supporting evidence for exclusions based on geographic limitations, habitat constraints or vagrancy (as described in BAM Subsections 5.2.1 and 5.2.2)	<5.1.2>
		X justification and supporting evidence for exclusions based on degraded habitat constraints and/or microhabitats on which the species depends (as described in BAM Subsection 5.2.2)	<5.1.2>
		N/A justification for addition of any species credit species to the list	<5.1.2>
		From the list of candidate species credit species, identify:	–
		N/A species assumed present within the Subject Land (if relevant) (as described in BAM Subsection 5.2.4(2.a.))	<Table 9 & Table 10>

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		X species present within the Subject Land on the basis of being identified on an important habitat map for a species (as described in BAM Subsection 5.2.4(2.d.)) X species for which targeted surveys are to be completed to determine species presence (BAM Subsection 5.2.4(2.b.)) N/A species for which an expert report is to be used to determine species presence (BAM Subsection 5.2.4(2.c.))	
		Present the outcomes of species credit species assessments from:	–
		N/A threatened species survey (as described in BAM Section 5.2.4)	<**Error! Reference source not found.**>
		N/A expert reports (if relevant) including justification for presence of the species and information used to make this determination (as described in BAM Subsection 5.2.4, Section 5.3, Box 3)	<5.4>
		Where survey has been undertaken include detailed information on:	–
		N/A survey method and effort (as described in BAM Section 5.3)	<**Error! Reference source not found.** >
		N/A justification of survey method and effort (e.g. citation of peer-reviewed literature) if approach differs from the department's taxa-specific survey guides or where no relevant guideline has been published	<5.3>
		N/A timing of survey in relation to requirements in the TBDC or the department's taxa-specific survey guides. Where survey was undertaken outside these guides include justification for the timing of surveys	<**Error! Reference source not found.** & & 5.3>
		N/A survey personnel and relevant experience	<Declarations ii>
		N/A describe any limitations to surveys and how these were addressed/overcome	<5.3>
		Where an expert report has been used in place of survey (as described in BAM Section 5.3, Box 3), include:	–
		N/A justification of the use of an expert report N/A identify the expert, provide evidence of their expert credentials and departmental approval of expert status N/A all requirements of Box 3 have been addressed in the expert report	<5.4>
		Where use of local data is proposed (BAM Subsection 1.4.2):	–

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		N/A identify relevant species N/A identify data to be amended N/A identify source of information for local data, e.g. published literature, additional survey data, etc. N/A justify use of local data in preference to VIS Classification or TBDC data	
		N/A provide written confirmation from the decision-maker that they support the use of local data	<Appendix G>
		Species polygon completed for species credit species present within the Subject Land (assumed present or determined on the basis of survey, expert report or important habitat map) ensuring that:	–
		N/A the unit of measure for each species is documented	< >
		for species assessed by area:	–
		N/A the polygon includes the extent of suitable habitat for the target species within the Subject Land (as described in BAM Subsection 5.2.5)	<Figure 10>
		N/A a description of, and evidence-based justification for, the habitat constraints, features or microhabitats used to map the species polygon including reference to information in the TBDC for that species and any buffers applied	<5.5>
		for species assessed by counts of individuals:	–
		N/A the number of individual plants present on the Subject Land (as described in BAM Subsection 5.2.5(3.))	<5.5>
		N/A the method used to derive this number (i.e. threatened species survey or expert report) and evidence-based justification for the approach taken	<5.5>
		N/A the polygon includes all individuals located on the Subject Land with a buffer of 30 m around the individuals or groups of individuals on the Subject Land	
		X Identify the biodiversity risk weighting for each species credit species identified as present within the Subject Land (as described in BAM Section 5.4)	
		Maps and tables	
		X Table showing ecosystem credit species in accordance with BAM Subsection 5.1.1, and identifying:	
		X the ecosystem credit species removed from the list	<Table 6>
		X the sensitivity to gain class of each species	<Table 6>
		X Table detailing species credit species in accordance with BAM Section 5.2 and identifying:	<Table 7 & Table 8>
		X the species credit species removed from the list of species because the species is considered vagrant, out of geographic range or the habitat or microhabitat features are not present	<Table 7 & Table 8>

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		X the candidate species credit species not recorded on the Subject Land as determined by targeted survey, expert report or important habitat map	<Table 9 & Table 10>
		X Table detailing species credit species recorded or assumed as present within the Subject Land, habitat constraints or microhabitats associated with the species, counts of individuals (flora)/extent of suitable habitat (flora and fauna) (as described in BAM Subsection 5.2.6) and biodiversity risk weighting (BAM Section 5.4)	<5.5 >
		N/A Map indicating the GPS coordinates of all individuals of each species recorded within the Subject Land and the species polygon for each species (as described in BAM Subsection 5.2.5)	<**Error! Not a v alid result for table.**>
		Data	
		X Digital shape files of suitable habitat identified for survey for each candidate species credit species	–
		N/A Survey locations including GPS coordinates of any plots, transects, grids	
		X Digital shape files of each species polygon including GPS coordinates of located individuals	–
		X Species polygon map in jpeg format	–
		N/A Expert reports and any supporting data used to support conclusions of the expert report	
		N/A Field datasheets detailing survey information including prevailing conditions, date, time, equipment used, etc.	

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
Prescribed impacts	Chapter 6	**Information**	
		Identify potential prescribed biodiversity impacts on threatened entities, including:	–
		X karst, caves, crevices, cliffs, rocks and other geological features of significance (as described in BAM Subsection 6.1.1) X occurrences of human-made structures and non-native vegetation (as described in BAM Subsection 6.1.2) X corridors or other areas of connectivity linking habitat for threatened entities (as described in BAM Subsection 6.1.3) X waterbodies or any hydrological processes that sustain threatened entities (as described in BAM Subsection 6.1.4)	<Table >
		N/A protected animals that may use the proposed wind farm development site as a flyway or migration route (as described in BAM Subsection 6.1.5)	< >
		X where the proposed development may result in vehicle strike on threatened fauna or on animals that are part of a threatened ecological community (as described in BAM Subsection 6.1.6)	<Table >
		N/A Identify a list of threatened entities that may be dependent upon or may use habitat features associated with any of the prescribed impacts	
		N/A Describe the importance of habitat features to the species including, where relevant, impacts on life cycle or movement patterns (e.g. Subsection 6.1.3)	<6>
		Where the proposed development is for a wind farm:	–
		N/A identify a candidate list of protected animals that may use the development site as a flyway or migration route, including: resident threatened aerial species, resident raptor species and nomadic and migratory species that are likely to fly over the proposal area (as described in BAM Subsection 6.1.5)	< >
		N/A provide details of targeted survey for candidate species of wind farm developments undertaken in accordance with BAM Subsection 6.1.5(2–3.)	< >
		N/A predict the habitual flight paths for nomadic and migratory species likely to fly over the Subject Land and map the likely habitat for resident threatened aerial and raptor species (BAM Subsection 6.1.5(4.))	<Figure 1 & Figure 2>

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		Where the proposal may result in vehicle strike:	–
		N/A identify a list of threatened fauna or protected fauna species that are part of a TEC and at risk of vehicle strike due to the proposal	<Table >
		Maps and tables	
		N/A Map showing location of any prescribed impact features (i.e. karst, caves, crevices, cliffs, rocks, human-made structures, etc.)	<Figure 1 & Figure 2>
		N/A Map showing location of potential vehicle strike locations	<Figure 1>
		N/A Maps of habitual flight paths for nomadic and migratory species likely to fly over the site and maps of likely habitat for threatened aerial species resident on the site (for wind farm developments only)	<Figure 1 & Figure 2>
		Data	
		N/A Digital shape files of prescribed impact feature locations	–
		N/A Prescribed impact features map in jpeg format	–
Avoid and minimise impacts	Chapter 7	**Information**	
		Demonstration of efforts to avoid and minimise impacts on biodiversity values (including prescribed impacts) associated with the proposal location in accordance with Chapter 7, including an analysis of alternative:	–
		N/A modes or technologies that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed mode or technology	<0 & **Error! R eference source not found.**>
		N/A routes that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed route	<7.1.1 & **Error! R eference source not found.**>
		N/A alternative locations that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed location	<7.1.1 & **Error! R eference source not found.**>
		N/A alternative sites within a property on which the proposal is located that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed site	<7.1.1 & **Error! R eference source not found.**>
		X Describe efforts to avoid and minimise impacts (including prescribed impacts) to biodiversity values through proposal design (as described in BAM Sections 7.1 and 7.2)	<0 & **Error! R eference source not found.**>

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		X Identification of any other site constraints that the proponent has considered in determining the location and design of the proposal (as described in BAM Subsection 7.2.1(3.))	<7>
		N/A Detail measures or options considered but not implemented because they are not feasible and/or practical (e.g. due to site constraints)	< >
		Maps and tables	
		X Table of measures to be implemented to avoid and minimise the impacts of the proposal, including action, outcome, timing and responsibility	<Table >
		N/A Map of alternative footprints considered to avoid or minimise impacts on biodiversity values; and of the final proposal footprint, including construction and operation	<Figure 13 >
		N/A Maps demonstrating indirect impact zones where applicable	
		Data	
		Digital shape files of:	–
		N/A alternative and final proposal footprint	–
		X direct and indirect impact zones	–
		X Maps in jpeg format	–
Assessment of impacts	Chapter 8, Sections 8.1 and 8.2	**Information**	
		X Determine the impacts on native vegetation and threatened species habitat, including a description of direct impacts of clearing of native vegetation, threatened ecological communities and threatened species habitat (as described in BAM Section 8.1)	<Table >
		Assessment of indirect impacts on vegetation and threatened species and their habitat including (as described in BAM Section 8.2):	–
		N/A description of the nature, extent, frequency, duration and timing of indirect impacts of the proposal	<Tabl>
		N/A documenting the consequences to vegetation and threatened species and their habitat including evidence-based justifications	<8.2>
		N/A reporting any limitations or assumptions, etc. made during the assessment	<8.2>
		N/A identification of the threatened entities and their habitat likely to be affected	<Tabl>
		Assessment of prescribed biodiversity impacts (as described in BAM Section 8.3) including:	–
		assessment of the nature, extent frequency, duration and timing of impacts on the habitat of threatened species or ecological communities associated with:	–

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		N/A karst, caves, crevices, cliffs, rocks and other features of geological significance	< >
		N/A human-made structures	<8.3.1>
		X non-native vegetation	<8.3.2>
		N/A connectivity of different areas of habitat of threatened species that facilitates the movement of those species across their range	<8.3.3>
		N/A movement of threatened species that maintains their life cycle	<8.3.3>
		N/A water quality, waterbodies and hydrological processes that sustain threatened species and threatened ecological communities	<8.3.4>
		N/A assessment of the impacts of wind turbine strikes on protected animals	<1.1.1>
		X assessment of the impacts of vehicle strikes on threatened species of animals or on animals that are part of a TEC	< >
		N/A evaluate the consequences of prescribed impacts	<1.1>
		N/A describe impacts that are uncertain	<8.2 & 1.1>
		N/A document limitations to data, assumptions and predictions	<8.2 & 1.1>
		Maps and tables	
		X Table showing change in vegetation integrity score for each vegetation zone as a result of identified impacts	<Table >
		Data	
		N/A	–
Mitigation and management of impacts	Chapter 8, Sections 8.4 and 8.5	**Information**	
		Identification of measures to mitigate or manage impacts in accordance with the recommendations in BAM Sections 8.4 and 8.5 including:	–
		X techniques, timing, frequency and responsibility X identify measures for which there is risk of failure X evaluate the risk and consequence of any residual impacts	<Table >
		X document any adaptive management strategy proposed	<1.1>
		Identification of measures for mitigating impacts related to:	–
		X displacement of resident fauna (as described in BAM Subsection 8.4.1(2.)) X indirect impacts on native vegetation and habitat (as described in BAM Subsection 8.4.1(3.))	<8.4>

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		X mitigating prescribed biodiversity impacts (as described in BAM Subsection 8.4.2)	
		N/A Details of the adaptive management strategy proposed to monitor and respond to impacts on biodiversity values that are uncertain (BAM Section 8.5)	<1.1>
		Maps and tables	
		X Table of measures to be implemented before, during and after construction to mitigate and manage impacts of the proposal, including action, outcome, timing and responsibility	<Table >
		Data	
		N/A	–
Impact summary	Chapter 9	**Information**	
		Identification and assessment of impacts on TECs and threatened species that are at risk of a serious and irreversible impacts (SAII, in accordance with BAM Section 9.1) including:	–
		N/A addressing all criteria in Subsection 9.1.1 for each TEC listed as at risk of an SAII present on the Subject Land	
		N/A for each TEC, report the extent of the TEC in NSW	
		N/A addressing all criteria in Subsection 9.1.2 for each threatened species at risk of an SAII present on the Subject Land	
		N/A for each threatened species, report the population size in NSW	
		N/A documenting assumptions made and/or limitations to information N/A documenting all sources of data, information, references used or consulted N/A clearly justifying why any criteria could not be addressed	
		X Identification of impacts requiring offset in accordance with BAM Section 9.2	<Table & Table >
		X Identification of impacts not requiring offset in accordance with BAM Subsection 9.2.1(3.)	<Table >
		X Identification of areas not requiring assessment in accordance with BAM Section 9.3	< >
		Maps and tables	
		N/A Map showing the extent of TECs at risk of an SAII within the Subject Land	
		N/A Map showing location of threatened species at risk of an SAII within the Subject Land	
		Map showing location of:	–
		X impacts requiring offset	<Figure >
		X impacts not requiring offset	<Figure >
		X areas not requiring assessment	<Figure >

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		Data	
		Digital shape files of:	–
		N/A extent of TECs at risk of an SAII within the Subject Land	–
		N/A location of threatened species at risk of an SAII within the Subject Land	–
		X boundary of impacts requiring offset	–
		X boundary of impacts not requiring offset	–
		X boundary of areas not requiring assessment	–
		X Maps in jpeg format	–
Impact summary	Chapter 10	**Information**	
		Ecosystem credits and species credits that measure the impact of the development on biodiversity values, including:	–
		X future vegetation integrity score for each vegetation zone within the Subject Land (Equation 25 and Equation 26 in BAM Appendix H) X change in vegetation integrity score (BAM Subsection 8.1.1) X number of required ecosystem credits for the direct impacts of the proposal on each vegetation zone within the Subject Land (BAM Subsection 10.1.2)	<Table >
		X biodiversity risk weighting for each	<Table & Table >
		X number of required species credits for each candidate threatened species that is directly impacted on by the proposal (BAM Subsection 10.1.3)	<Table >
		Maps and tables	
		X Table of PCTs requiring offset and the number of ecosystem credits required	<Table >
		X Table of threatened species requiring offset and the number of species credits required	<Table >
		Data	
		X Submitted proposal in the BAM Calculator	–
Biodiversity credit report	Chapter 10	**Information**	
		X Description of credit classes for ecosystem credits and species credits at the development or clearing site or land to be biodiversity certified (BAM Section 10.2)	<Table & Table 11>
		X BAM credit report in pdf format	<Appendix H>
		Maps and tables	

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		X Table of credit class and matching credit profile	<Table 11>
		Data	
		X BAM credit report in pdf format	<Appendix H>

Appendix B: Biodiversity Values Map and Threshold tool report

Department of Planning and Environment

Biodiversity Values Map and Threshold Report

This report is generated using the Biodiversity Values Map and Threshold (BMAT) tool. The BMAT tool is used by proponents to supply evidence to your local council to determine whether or not a Biodiversity Development Assessment Report (BDAR) is required under the Biodiversity Conservation Regulation 2017 (Cl. 7.2 & 7.3).

The report provides results for the proposed development footprint area identified by the user and displayed within the blue boundary on the map.

There are two pathways for determining whether a BDAR is required for the proposed development:

1. Is there Biodiversity Values Mapping?
2. Is the 'clearing of native vegetation area threshold' exceeded?

Biodiversity Values Map and Threshold Report

Date of Report Generation		21/08/2024 1:04 PM
1. Biodiversity Values (BV) Map - Results Summary (Biodiversity Conservation Regulation Section 7.3)		
1.1	**Does the development Footprint intersect with BV mapping?**	no
1.2	**Was ALL BV Mapping within the development footprinted added in the last 90 days?** (dark purple mapping only, no light purple mapping present)	no
1.3	**Date of expiry of dark purple 90 day mapping**	N/A
1.4	**Is the Biodiversity Values Map threshold exceeded?**	no
2. Area Clearing Threshold - Results Summary (Biodiversity Conservation Regulation Section 7.2)		
2.1	**Size of the development or clearing footprint**	7,912.3 sqm
2.2	**Native Vegetation Area Clearing Estimate (NVACE)** (within development/clearing footprint)	384.3 sqm
2.3	**Method for determining Minimum Lot Size**	Lot size
2.4	**Minimum Lot Size** (10,000sqm = 1ha)	210,801 sqm
2.5	**Area Clearing Threshold** (10,000sqm = 1ha)	5,000 sqm
2.6	**Does the estimate exceed the Area Clearing Threshold?** (NVACE results are an estimate and can be reviewed using the Guidance)	no

REPORT RESULT: Is the Biodiversity Offset Scheme (BOS) Threshold exceeded for the proposed development footprint area? (Your local council will determine if a BDAR is required)	**no**

What do I do with this report?

• If the result above indicates the BOS Threshold has been exceeded, your local council **may require** a Biodiversity Development Assessment Report with your development application. Seek further advice from Council. An accredited assessor can apply the Biodiversity Assessment Method and prepare a BDAR for you. For a list of accredited assessors go to: https://customer.lmbc.nsw.gov.au/assessment/AccreditedAssessor.

• If the result above indicates the BOS Threshold has not been exceeded, you may not require a Biodiversity Development Assessment Report. This BMAT report can be provided to Council to support your development application. Council can advise how the area clearing threshold results should be considered. Council will review these results and make a determination if a BDAR is required. Council may ask you to review the area clearing threshold results. You may also be required to assess whether the development is '"likely to significantly affect threatened species" as determined under the test in Section 7.3 of the *Biodiversity Conservation Act 2016*.

• If a BDAR is not required by Council, you may still require a permit to clear vegetation from your local council.

• If **all** Biodiversity Values mapping within your development footprint was less than 90 days old, i.e. areas are displayed as dark purple on the BV map, a BDAR may not be required if your Development Application is submitted within that 90 day period. Any BV mapping less than 90 days old on this report will expire on the date provided in Line item 1.3 above.

For more detailed advice about actions required, refer to the **Interpreting the evaluation report** section of the Biodiversity Values Map Threshold Tool User Guide .

Review Options:

• If you believe the Biodiversity Values mapping is incorrect please refer to our BV Map Review webpage for further information.

• If you or Council disagree with the area clearing threshold estimate results from the NVACE in Line Item 2.6 above (i.e. area of Native Vegetation within the Development footprint proposed to be cleared), review the results using the Guide for reviewing area clearing threshold results from the BMAT Tool.

Acknowledgement

I, as the applicant for this development, submit that I have correctly depicted the area that will be impacted or likely to be impacted as a result of the proposed development.

Signature: _____ Date: _____

(Typing your name in the signature field will be considered as your signature for the purposes of this form)

21/08/2024 01:04 PM

Biodiversity Values Map and Threshold Tool

The Biodiversity Values (BV) Map and Threshold Tool identifies land with high biodiversity value, particularly sensitive to impacts from development and clearing.

The BV map forms part of the Biodiversity Offsets Scheme threshold, which is one of the factors for determining whether the Scheme applies to a clearing or development proposal. You have used the Threshold Tool in the map viewer to generate this BV Threshold Report for your nominated area. This report calculates results for your proposed development footprint and indicates whether Council may require you to engage an accredited assessor to prepare a Biodiversity Development Assessment Report (BDAR) for your development.

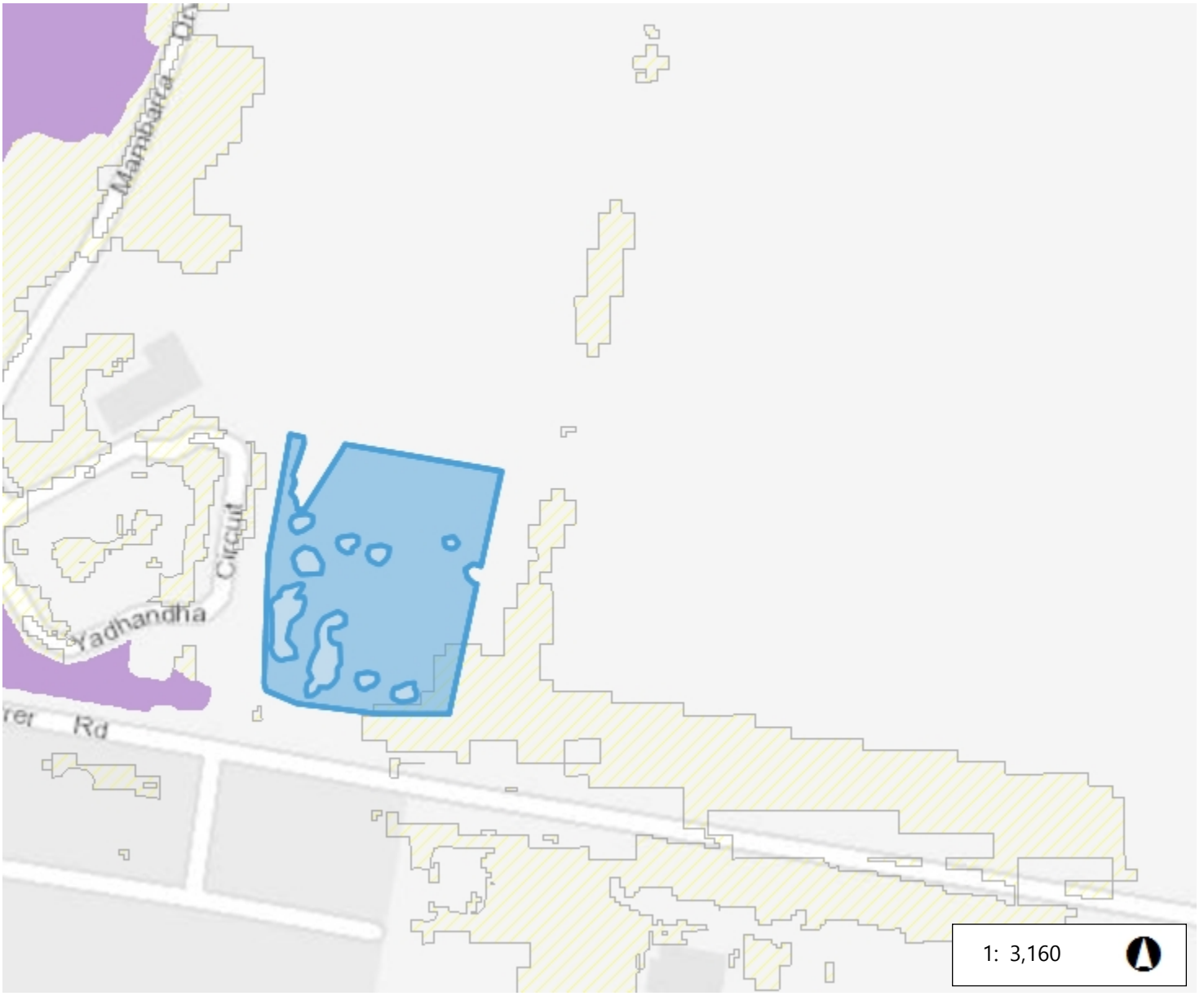
This report may be used as evidence for development applications submitted to councils. You may also use this report when considering native vegetation clearing under the State Environmental Planning Policy (Biodiversity and Conservation) 2021 - Chapter 2 vegetation in non-rural areas.

What's new? For more information about the latest updates to the Biodiversity Values Map and Threshold Tool go to the updates section on the Biodiversity Values Map webpage.

Map Review: Landholders can request a review of the BV Map where they consider there is an error in the mapping on their property. For more information about the map review process and an application form for a review go to the Biodiversity Values Map Review webpage.

If you need help using this map tool see our Biodiversity Values Map and Threshold Tool User Guide or contact the Map Review Team at map.review@environment.nsw.gov.au or on 1800 001 490.

Biodiversity Values Map



160.5 0 80.27 160.5 Metres

WGS_1984_Web_Mercator_Auxiliary_Sphere

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

Legend

- Biodiversity Values that have been mapped for more than 90 days
- Biodiversity Values added within last 90 days
- Native Vegetation Area Clearing Estimate (NVACE)
- Development area selected by proponent

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The results provided in this tool are generated using the best available mapping and knowledge of species habitat requirements.

This map is valid as at the date the report was generated. Checking the Biodiversity Values Map viewer for mapping updates is recommended.

Appendix C: Matters of national environmental significance Report

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 06-Jun-2024

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	4
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	44
Listed Migratory Species:	9

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	221
Commonwealth Heritage Places:	None
Listed Marine Species:	16
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	8
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Banrock station wetland complex	600 - 700km upstream from Ramsar site	In feature area
Hattah-kulkyne lakes	400 - 500km upstream from Ramsar site	In feature area
Riverland	500 - 600km upstream from Ramsar site	In feature area
The coorong, and lakes alexandrina and albert wetland	600 - 700km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities			[Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community likely to occur within area	In feature area
Weeping Myall Woodlands	Endangered	Community may occur within area	In feature area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species			[Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour may occur within area	In feature area
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat known to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat may occur within area	In buffer area only
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat known to occur within area	In feature area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat known to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Lophochroa leadbeateri leadbeateri Major Mitchell's Cockatoo (eastern), Eastern Major Mitchell's Cockatoo, Pink Cockatoo (eastern) [82926]	Endangered	Species or species habitat may occur within area	In feature area
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat known to occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat may occur within area	In feature area
Polytelis swainsonii Superb Parrot [738]	Vulnerable	Species or species habitat known to occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat known to occur within area	In feature area
FISH			
Bidyanus bidyanus Silver Perch, Bidyan [76155]	Critically Endangered	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Galaxias rostratus](#) Flathead Galaxias, Beaked Minnow, Flat-headed Galaxias, Flat-headed Jollytail, Flat-headed Minnow [84745]	Critically Endangered	Species or species habitat may occur within area	In feature area
[Maccullochella macquariensis](#) Trout Cod [26171]	Endangered	Species or species habitat known to occur within area	In buffer area only
[Maccullochella peelii](#) Murray Cod [66633]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
[Macquaria australasica](#) Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area	In feature area
[Nannoperca australis Murray-Darling Basin lineage](#) Southern Pygmy Perch (Murray-Darling Basin lineage) [91711]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
FROG			
[Crinia sloanei](#) Sloane's Froglet [59151]	Endangered	Species or species habitat may occur within area	In feature area
[Litoria raniformis](#) Southern Bell Frog,, Growling Grass Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog [1828]	Vulnerable	Species or species habitat may occur within area	In feature area
INSECT			
[Keyacris scurra](#) Key's Matchstick Grasshopper [89739]	Endangered	Species or species habitat may occur within area	In buffer area only
MAMMAL			
[Dasyurus maculatus maculatus (SE mainland population)](#) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area	In buffer area only
[Nyctophilus corbeni](#) Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat likely to occur within area	In feature area
Pteropus poliocephalus			
Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area	In feature area
PLANT			
Austrostipa wakoolica			
[66623]	Endangered	Species or species habitat may occur within area	In buffer area only
Brachyscome muelleroides			
Mueller Daisy [15572]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Caladenia arenaria			
Sand-hill Spider-orchid [9275]	Endangered	Species or species habitat may occur within area	In feature area
Caladenia concolor			
Crimson Spider-orchid, Maroon Spider-orchid [5505]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Lepidium aschersonii			
Spiny Peppercress [10976]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Lepidium monoplocoides			
Winged Pepper-cress [9190]	Endangered	Species or species habitat may occur within area	In feature area
Prasophyllum petilum			
Tarengo Leek Orchid [55144]	Endangered	Species or species habitat may occur within area	In buffer area only
Swainsona murrayana			
Slender Darling-pea, Slender Swainson, Murray Swainson-pea [6765]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Swainsona recta			
Small Purple-pea, Mountain Swainson-pea, Small Purple Pea [7580]	Endangered	Species or species habitat may occur within area	In buffer area only
REPTILE			

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Aprasia parapulchella](#)			
Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
[Apus pacificus](#)			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
[Hirundapus caudacutus](#)			
White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Motacilla flava](#)			
Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
[Myiagra cyanoleuca](#)			
Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
[Actitis hypoleucos](#)			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
[Calidris acuminata](#)			
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Calidris ferruginea](#)			
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
[Calidris melanotos](#)			
Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
[Gallinago hardwickii](#)			
Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Commonwealth Bank of Australia		
Commonwealth Land - Commonwealth Bank of Australia [14932]	NSW	In buffer area only
Commonwealth Land - Commonwealth Bank of Australia [14772]	NSW	In buffer area only
Commonwealth Land - Commonwealth Bank of Australia [14775]	NSW	In buffer area only
Commonwealth Land - Commonwealth Bank of Australia [14796]	NSW	In buffer area only
Communications, Information Technology and the Arts - Australian Broadcasting Corporation		
Commonwealth Land - Australian Broadcasting Corporation [14954]	NSW	In buffer area only
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian Telecommunications Commission [15055]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [14959]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [14953]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [14955]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [14753]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [14946]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [14911]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [14945]	NSW	In buffer area only
Defence		
Commonwealth Land - Defence Service Homes Corporation [14949]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [14920]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [14910]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [14921]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [14947]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Defence Service Homes Corporation [14915]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [14919]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [14916]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [14917]	NSW	In buffer area only
Defence - BLAMEY BARRACKS - KAPOOKA [11193]	NSW	In buffer area only
Defence - BLAMEY BARRACKS - KAPOOKA [11182]	NSW	In buffer area only
Defence - BLAMEY BARRACKS - KAPOOKA [11186]	NSW	In buffer area only
Defence - WAGGA ARES DEPOT ; BLAMEY BKS -WAGGA WAGGA TRG DEP [11208]	NSW	In buffer area only
Defence - WAGGA ARES DEPOT ; BLAMEY BKS -WAGGA WAGGA TRG DEP [11206]	NSW	In buffer area only
Defence - WAGGA ARES DEPOT ; BLAMEY BKS -WAGGA WAGGA TRG DEP [11207]	NSW	In buffer area only
Defence - Defence Housing Authority		
Commonwealth Land - Defence Housing Authority [14835]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14834]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14933]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14930]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14931]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14937]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14936]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14935]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14934]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16248]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14958]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15720]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14828]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16249]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14878]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Defence Housing Authority [14818]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14838]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14819]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14833]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16131]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14812]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14839]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14837]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14830]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14831]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14832]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14836]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14810]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14811]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14813]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14814]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14815]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14816]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14817]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14771]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14773]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16130]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14778]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16251]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14779]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16250]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14952]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Defence Housing Authority [14951]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14950]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14957]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14956]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14846]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14824]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14825]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14823]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14770]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14777]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14776]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14774]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14827]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14826]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14821]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14862]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14863]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14928]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14903]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14929]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14906]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14868]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14763]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14923]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14867]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14866]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14861]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Defence Housing Authority [15719]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14799]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14798]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14865]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14864]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14841]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14840]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14843]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14858]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14842]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14926]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14927]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14924]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14925]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14845]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14905]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14869]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14781]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14900]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14901]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14902]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14848]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14860]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16129]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14849]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14768]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14769]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Defence Housing Authority [14908]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14909]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14847]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14844]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14764]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14765]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14766]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14767]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14939]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14938]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14762]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14761]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14887]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14883]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14880]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14881]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14888]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14882]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14889]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14873]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14875]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14874]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14877]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14876]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14907]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16350]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16128]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Defence Housing Authority [14885]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14948]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14851]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14853]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14852]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14855]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14854]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14857]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14856]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14859]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14912]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14913]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14797]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14941]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14894]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14891]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14850]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14806]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14942]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14944]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16126]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14822]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14940]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14820]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14829]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14802]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14803]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Defence Housing Authority [14800]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14801]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16343]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16349]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16348]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14960]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14755]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14804]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14757]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14754]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14759]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14756]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14808]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14809]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14805]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14904]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14898]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14899]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14722]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14895]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14872]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14871]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14870]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14879]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16127]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14780]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16344]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Defence Housing Authority [16345]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16346]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14896]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14886]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14897]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14892]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16347]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14890]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14893]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [14922]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [14782]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [14914]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [14918]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [14943]	NSW	In buffer area only
Unknown		
Commonwealth Land - [14884]	NSW	In buffer area only
Commonwealth Land - [14807]	NSW	In buffer area only

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Myiagra cyanoleuca			
Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
Neophema chrysostoma			
Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato)			
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

EPBC Act Referrals			[Resource Information]	
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Blamey Barracks Kapooka Redevelopment Project	2023/09649		Referral Decision	In buffer area only
Controlled action				
Olympic Highway Realignment & Construct Road-Over-Rail Bridge, Wagga Wagga NSW	2013/6956	Controlled Action	Post-Approval	In buffer area only
Not controlled action				
Access road to Gumly Gumly Quarry	2007/3813	Not Controlled Action	Completed	In buffer area only
Albury to Illabo Section of Inland Rail	2020/8670	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area
Red Hill Road extension	2005/2311	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action (particular manner)				

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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Appendix D: Vegetation survey data

Table 13 Vegetation survey data and locations

plot	pct	area	patchsize	condition class	zone	easting	northing	bearing	compTree	compShrub	compGrass	compForbs	compFerns	compOther	strucTree	strucShrub	strucGrass	strucForbs	strucFerns	strucOther	funLargeTrees	funHollowtrees	funLitterCover	funLenFallenLogs	funTreeStem5to9	funTreeStem10to19	funTreeStem20to29	funTreeStem30to49	funTreeStem50to79	funTreeRegen	funHighThreatExotic	Plot-based vegetation survey2	Vegetation integrity survey2
1	277	0.90	1	Modified_1	55	533041	6119663	0	0	0	4	1	0	0	0.0	0.0	35.0	0.1	0.0	0.0	0	0	30.0	0.0	0	0	0	0	0	0	25.0	Yes	Yes

BAM Plot – Field Survey Form

Site Sheet no: 1 of 2

Survey Name	Plot Identifier	Recorders
Farrer Road Boorooma	Plot 1	Steve Hamilton BAAS18106

Date	20/4/24	**IBRA region**	South West Slopes	**Photo #**	P1830629	**Zone ID**	1
Zone 55	Datum GDA 94						
Easting 533060	Northing 6119660	**Plot Dimensions**	20 x 20 in 20 x 50	**Orientation of midline from the 0 m point.**	0 degrees Magnetic		

Likely Vegetation Class	NSW South Western Slopes	Confidence: H
Plant Community Type	PCT 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	**TEC:** Yes — Confidence: H

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	0
	Shrubs	0
	Grasses etc.	4
	Forbs	1
	Ferns	0
	Other	0
Sum of **Cover** of native vascular plants by growth form group	**Trees**	0
	Shrubs	0
	Grasses etc.	35.1
	Forbs	0.1
	Ferns	0
	Other	0
High Threat Weed cover %		25

This table may be completed after entering data into available tools. It is not required while in the field.

BAM Attribute (20 x 50 m plot)	Stem Classes and Hollows		
dbh	Euc*	Non Euc	Hollow trees†
80 + cm	0		1
50 – 79 cm	0		
30 – 49 cm	0		
20 – 29 cm	0		
10 – 19 cm	0	tick	No Raptor Nests
5 – 9 cm	0	tick	
< 5 cm		tick	
Length of logs (m) (≥10 cm diameter, >50 cm in length)	0		Total 0

Record **living** eucalypt* (Euc*) and **living native** non-eucalypt (Non Euc) stems separately

Data needed is presence only (tick) unless a 'large tree' for that veg class.

* includes all species of *Eucalyptus*, *Corymbia*, *Angophora*, *Lophostemon* and *Syncarpia*

† For **hollows** count only the presence of a stem containing hollows, not the count of hollows in that stem. Only count as 1 stem per tree where tree is multi-stemmed. The hollow-bearing stem may be a dead stem.

Each size class is noted as present by the **living tree stems** only. Depending on the Vegetation Class, DBH values and counts may be needed for a size class. For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate if it is required by the large tree category for that vegetation class.

Hollows at least 20cm across are recorded for the purposes of habitat of some threatened species.

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	25	25	15	20	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Average of the 5 subplots	20					0					0					0				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots located on alternate sides and 5 m from the plot midline at the locations 5, 15, 25, 35, and 45 m along the midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Within these 1 m x 1 m plots assessors may also record the cover of rock, bare ground and cryptogam soil crusts. Collection of these data is optional - the data do not currently contribute to assessment scores, they hold potential value for future vegetation integrity assessment attributes and benchmarks, and for enhancing PCT description

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Disturbance	Severity	Age
Clearing (inc. logging)		
Cultivation (inc. pasture)		
Soil erosion		
Firewood / CWD removal		
Grazing (id. native/stock)		
Fire damage		
Storm damage		
Weediness		
Other		

Free Text Section for brief site description

Previously cleared for grazing. Regrowth unmanaged since 1950's. Bush regeneration efforts present. At least a decade since a fire. Feral goats and rabbits.

Emergents heights (m)			Upper Stratum Heights (m)			Middle Stratum Heights (m)			Lower Stratum Heights (m)		
Top	Mode	Bottom	Top	Mode	Bottom	Top	Mode	Bottom	Top	Mode	Bottom

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 2		Survey Name	Plot Identifier	Recorders
Date	20/4/24	Farrer Road Boorooma	Plot 1	Steve Hamilton BAAS18106

GF Code	*Full species name mandatory, or a unique means of identifying separate taxa within a survey. Data from here will be used to assign growth form counts and covers.*	N, E or HTE	Cover	Abund	stratum	voucher
g	*Bothriochloa macra*	N	25	250		
g	*Panicum effusum*	N	0.1	5		
g	*Austrostipa bigeniculata*	N	5	50		
g	*Lachnagrostis filiformis*	N	5	50		
f	*Portulaca oleracea*	N	0.1	10		
	Paspalum dilitatum	E	5	25		
	Hypochaeris radicata	E	0.1	100		
	Cenchrus clandestinus	HTE	1	5		
	Eragrostis cilianensis	E	1	20		
	Oxalis pes-caprae	HTE	2	200		
	Modiola caroliniana	E	0.1	20		
	Tribulus terrestris	HTE	15	500		
	Carthamus lanatus	HTE	5	100		
	Conyza bonariensis	E	1	100		
	Avena fatua	E	1	100		
	Phalaris aquatica	E	5	40		
	Salvia verbenaca	E	1	100		
	Holcus lanatus	E	1	50		
	Echium plantigineum	HTE	2	100		
	Heliotropium europeum	E	1	20		
	Vitus vinifera	E	1	100		

GF Code: see Growth Form definitions in BAM Appendix 1. Identify top 3 dominants in the veg zone. **N:** native, **E:** exotic, **HTE:** high threat exotic.

Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*

Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

Print more copies of this sheet to allow for higher species counts at a plot. All species at a plot need to be recorded.

Appendix E: Credit reports

BAM Vegetation Zones Report

Proposal Details

Assessment Id	Assessment name	BAM data last updated *
00047963/BAAS18106/24/00047964	Childcare Centre development Farrer Street Boorooma	14/03/2024
Assessor Name	**Report Created**	**BAM Data version ***
Steve Hamilton	21/08/2024	67
Assessor Number	**Assessment Type**	**BAM Case Status**
BAAS18106	Part 4 Developments (Small Area)	Open
Assessment Revision	**Date Finalised**	**BOS entry trigger**
1	To be finalised	BOS Threshold: Area clearing threshold

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Vegetation Zones

#	Name	PCT	Condition	Area	Minimum number of plots	Management zones

1	277_Modified_1	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Modified_1	0.79	1	

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00047963/BAAS18106/24/00047964	Childcare Centre development Farrer Street Boorooma	14/03/2024
Assessor Name	Report Created	BAM Data version *
Steve Hamilton	21/08/2024	67
Assessor Number	Assessment Type	BAM Case Status
BAAS18106	Part 4 Developments (Small Area)	Open
Assessment Revision	BOS entry trigger	Date Finalised
1	BOS Threshold: Area clearing threshold	To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name	Vegetation Types(s)
Black Falcon	Falco subniger	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Diamond Firetail	Stagonopleura guttata	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Dusky Woodswallow	Artamus cyanopterus cyanopterus	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Flame Robin	Petroica phoenicea	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Gang-gang Cockatoo	Callocephalon fimbriatum	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Grey-headed Flying-fox	Pteropus poliocephalus	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

Little Eagle	Hieraaetus morphnoides	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Little Lorikeet	Glossopsitta pusilla	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Painted Honeyeater	Grantiella picta	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Regent Honeyeater	Anthochaera phrygia	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Scarlet Robin	Petroica boodang	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
South-eastern Hooded Robin	Melanodryas cucullata cucullata	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Speckled Warbler	Chthonicola sagittata	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Spotted Harrier	Circus assimilis	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Spotted-tailed Quoll	Dasyurus maculatus	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Square-tailed Kite	Lophoictinia isura	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Superb Parrot	Polytelis swainsonii	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Swift Parrot	Lathamus discolor	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Turquoise Parrot	Neophema pulchella	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Varied Sittella	Daphoenositta chrysoptera	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
White-throated Needletail	Hirundapus caudacutus	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

Threatened species Manually Added

None added

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

BAM Predicted Species Report

Common Name	Scientific Name	Plant Community Type(s)
White-bellied Sea-Eagle	Haliaeetus leucogaster	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C
White-bellied Sea-Eagle	Haliaeetus leucogaster	Habitat constraints

BAM Candidate Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00047963/BAAS18106/24/00047964	Childcare Centre development Farrer Street Boorooma	14/03/2024
Assessor Name	**Report Created**	**BAM Data version ***
Steve Hamilton	21/08/2024	67
Assessor Number	**Assessment Type**	**BAM Case Status**
BAAS18106	Part 4 Developments (Small Area)	Open
Assessment Revision	**Date Finalised**	**BOS entry trigger**
1	To be finalised	BOS Threshold: Area clearing threshold

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

List of Species Requiring Survey

Name	Presence	Survey Months

Threatened species Manually Added

None added

Threatened species assessed as not on site

Refer to BAR for detailed justification

Common name	Scientific name	Justification in the BAM-C
Large-eared Pied Bat	Chalinolobus dwyeri	Habitat constraints
Regent Honeyeater	Anthochaera phrygia	Habitat degraded Habitat constraints
Swift Parrot	Lathamus discolor	Habitat degraded Habitat constraints

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00047963/BAAS18106/24/00047964

Proposal Name
Childcare Centre development Farrer Street Boorooma

BAM data last updated *
14/03/2024

Assessor Name
Steve Hamilton

Assessor Number
BAAS18106

BAM Data version *
67

Proponent Names

Report Created
21/08/2024

BAM Case Status
Open

Assessment Revision
1

Assessment Type
Part 4 Developments (Small Area)

Date Finalised
To be finalised

BOS entry trigger
BOS Threshold: Area clearing threshold

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
Nil		

Species
Nil

Additional Information for Approval

BAM Biodiversity Credit Report (Like for like)

PCT Outside Ibra Added

None added

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
Haliaeetus leucogaster / White-bellied Sea-Eagle

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	0.8	0	11	11

277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	**Like-for-like credit retirement options**					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	White Box-Yellow Box-Blakely's Red Gum	-	277_Modified_1	No	11	Lower Slopes, Bogan-Macquarie, Inland Slopes, Lachlan Plains, Murray

	Grassy Woodland and Derived Native Grassland This includes PCT's: 74, 75, 83, 101, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 516, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415,					Fans, Murrumbidgee and Nymagee. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	3533, 4147, 4149, 4150					

Species Credit Summary

No Species Credit Data

Credit Retirement Options

Like-for-like credit retirement options

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id
00047963/BAAS18106/24/00047964

Proposal Name
Childcare Centre development Farrer Street Boorooma

BAM data last updated *
14/03/2024

Assessor Name
Steve Hamilton

Assessor Number
BAAS18106

BAM Data version *
67

Proponent Name(s)

Report Created
21/08/2024

BAM Case Status
Open

Assessment Revision
1

Assessment Type
Part 4 Developments (Small Area)

Date Finalised
To be finalised

BOS entry trigger
BOS Threshold: Area clearing threshold

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Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
Nil		

Species
Nil

Additional Information for Approval

PCT Outside Ibra Added

None added

PCTs With Customized Benchmarks

BAM Biodiversity Credit Report (Variations)

PCT
No Changes

Predicted Threatened Species Not On Site

Name
Haliaeetus leucogaster / White-bellied Sea-Eagle

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	0.8	0	11	11.00

277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region

White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland This includes PCT's: 74, 75, 83, 101, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 516, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150	-	277_Modified_1	No	11	Lower Slopes,Bogan-Macquarie, Inland Slopes, Lachlan Plains, Murray Fans, Murrumbidgee and Nymagee. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Variation options

Formation	Trading group	Zone	HBT	Credits	IBRA region

	Grassy Woodlands	Tier 1	277_Modified_1	No	11	IBRA Region: NSW South Western Slopes, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Species Credit Summary

No Species Credit Data

Credit Retirement Options

Like-for-like options

BAM Credit Summary Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00047963/BAAS18106/24/00047964	Childcare Centre development Farrer Street Boorooma	14/03/2024
Assessor Name	Report Created	BAM Data version *
Steve Hamilton	21/08/2024	67
Assessor Number	BAM Case Status	Date Finalised
BAAS18106	Open	To be finalised
Assessment Revision	Assessment Type	BOS entry trigger
1	Part 4 Developments (Small Area)	BOS Threshold: Area clearing threshold

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

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	Sensitivity to loss (Justification)	Species sensitivity to gain class	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAII	Ecosystem credits

Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion												
1	277_Modified_1	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	21.9	21.9	0.79	Environment Protection and Conservation Act listing status	High Sensitivity to Gain	Not Listed	Critically Endangered	2.50		11
											Subtotal	**11**
											Total	**11**

Species credits for threatened species

Vegetation zone name	Habitat condition (Vegetation Integrity)	Change in habitat condition	Area (ha)/Count (no. individuals)	Sensitivity to loss (Justification)	Sensitivity to gain (Justification)	BC Act Listing status	EPBC Act listing status	Potential SAII	Species credits