

25 August 2023

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EPBC Act Self-Assessment for 55 Coonara Avenue, West Pennant Hills NSW

Dear Emma,

The purpose of this letter is to provide written documentation that the requisite 'self-assessment', to determine whether a referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is required, has been conducted for specific areas within the 'Coonara' property located at 55 Coonara Avenue, West Pennant Hills, NSW (the 'Property').

The Property is the subject of multiple approved Development Applications (DAs) by Mirvac to The Hills Shire Council (Council). These comprise the Demolition DA (approved DA 585/2021/HC), Concept Masterplan DA (approved DA 860/2022/JP), Housing South DA (approved DA 859/2022/JP) and Apartments DA (approved DA 861/2022/JP). The Housing South DA and Apartments DA are fully contained within the Concept Masterplan DA footprint and ecological assessments for these DAs are covered by assessments for the overarching Concept Masterplan DA.

A referral, covering the Demolition DA and an initial draft of the Concept Masterplan DA was prepared by Keystone Ecological (Keystone) and submitted to the then Commonwealth Department of Agriculture, Water and Environment (DAWE) in 2021. A determination was made by DAWE on 16 September 2021 that the proposed action did not comprise a Controlled Action and no further Commonwealth approvals were required for works within the Property.

Since the DAWE determination in 2021, the boundary of the Concept Masterplan has been amended to address Council comments during the DA approval process with the updated footprint forming part of the approved DA plans. The amendments in response to Council comments have also resulted in changes in the vegetation mapping, including an increase in the extent of Blue Gum High Forest (as listed under the NSW *Biodiversity Conservation Act 2016* (BC Act)) within the northern parts of the Concept Masterplan DA footprint.

It is understood that an updated referral (or re-referral) for the Concept Masterplan DA is to be submitted to the current Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) (replacing DAWE). However, as works have commenced/progressed in certain areas based on the local Council approval and the prior 2021 DAWE assessment of no Controlled Action, Mirvac have proposed that these areas are excluded from the re-referral. This matter was discussed in a meeting between Mirvac and DCCEEW on 13 July 2023. It is understood that DCCEEW are open to allow for areas to be excluded from the updated Concept Masterplan DA referral as long as it can be determined that impacts to these proposed areas do not trigger the requirement for a referral.

The results of this self-assessment, conducted in accordance with the DCCEEW requirements, have determined that the proposed excluded areas within the Property do not comprise a significant impact on any MNES and excluding these areas will not alter the outcomes of the updated referral for the Concept Masterplan. Therefore, a referral to DCCEEW for the Excluded Areas is not warranted. The results of our self-assessment are detailed in **Appendix A** to this letter while the generated PMST report is provided in **Appendix B**. An assessment of the likelihood of occurrence of MNES in the Property is provided in **Appendix C**.

If you have any questions, please do not hesitate to contact me via email or at our Sydney office on (02) 9868 1933.

Yours sincerely,



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APPENDIX A :

EPBC Act Self Assessment

A.1. Background

A.1.1. Assessment History

This EPBC Act self-assessment has been prepared for works to be undertaken in specified areas of the land at 55 Coonara Avenue, West Pennant Hills NSW (the 'Property'). The Property is located in the Hills Local Government Area (LGA) and is identified as Lot 61 DP 737386. The Property is irregular in shape and is bound by Coonara Avenue to the north and north-west, residential development (the Glades residential development) to the west and bushland areas of Cumberland State Forest to the south and east (**Figure 1**).

The Property is the subject of multiple approved Development Applications (DAs) by Mirvac to The Hills Shire Council (Council) to develop selected parts, namely areas previously developed for the former business park, for residential living. These comprise the Demolition DA (approved DA 585/2021/HC), Concept Masterplan DA (approved DA 860/2022/JP), Housing South DA (approved DA 859/2022/JP) and Apartments DA (approved DA 861/2022/JP). The Housing South DA and Apartments DA are fully contained within the Concept Masterplan DA footprint and ecological assessments for these DAs are covered by assessments conducted for the Concept Masterplan DA.

A further proposal for the development of an Open Space area, including areas of bush regeneration (referred to as the Open Space DA) are currently in progress. The locations of the areas subject to the Demolition DA, Concept Masterplan DA and Open Space DA are shown in **Figure 1**.

Ecological impact assessments under the NSW *Biodiversity Conservation Act 2016* (BC Act) rely upon what is known as the "Biodiversity Assessment Method" (BAM) and require ecological assessments to be documented as a Biodiversity Development Assessment Report (BDAR). Keystone Ecological (Keystone) prepared BDARs for the Demolition DA (final dated June 2021) and Concept Masterplan DA (final dated June 2022).

The Demolition DA was approved by Council on 20 September 2021 (Ref: 585/2021/HC) and allows for the demolition of existing buildings and ancillary structures, associated vegetation clearing and other associated works. The Concept Masterplan DA was approved by the Sydney Central City Planning Panel on 3 November 2022 and allows for a mixed residential development consisting of the development of houses and apartments, open spaces, landscaped gardens, APZs and retained natural bushland.

A referral covering the Demolition DA and an initial draft of the Concept Masterplan DA was prepared by Keystone Ecological (Keystone) and submitted to the then Commonwealth Department of Agriculture, Water and Environment (DAWE) in 2021. A determination was made by DAWE on 16 September 2021 that the proposed action did not comprise a Controlled Action and no further Commonwealth approvals were required for works within the Property.

Since the DAWE determination in 2021, the boundary of the Concept Masterplan has been amended to address Council comments during the DA approval process with the updated footprint forming part of the approved DA plans. The amendments in response to Council comments have also resulted in changes in the vegetation mapping, including an increase in the extent of Blue Gum High Forest (as listed under the NSW *Biodiversity Conservation Act 2016* (BC Act)) within the northern parts of the Concept Masterplan DA footprint.

It is understood that an updated referral or 're-referral' for the Concept Masterplan DA is to be submitted to the current Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) (replacing DAWE). However, as works have commenced/progressed in certain areas based on the local Council approval and the prior 2021 DAWE assessment of no Controlled action, Mirvac have proposed that two select areas are excluded from the re-referral. These areas include:

- Excluded Area A
 - The central parts of the Demolition DA, which included the former building areas and the surrounding landscape and vegetation areas that have already been cleared as part of approved works for DA 585/2021/HC;
 - Parts of the Concept Masterplan footprint to the immediate north, south, east to north-east of the central Demolition DA area that formed part of the former building and carpark areas. These areas required clearing and consisted of landscaped garden beds and ongrade carparks areas. Clearing of these areas was required for civil and piling works to the development area. These civil and piling works will continue in this area for the next 6 months; and
- Excluded Area B
 - Area in the northern part of the Concept Masterplan Footprint that will house the Exhibition home/Sales suite (also referred to as the Discovery Centre) that formed part of the existing on-grade car park network. Works here required pulling up existing asphalt car park and undertaking civil works in preparation for a prefabricated modular building to be placed in this area in September 2023. This building will be fit out and external works including landscaping and re-sheeting of existing on-grade car park to be completed for opening in December 2023.

These areas are collectively referred to as the 'Excluded Areas' and cover an area of ~5.81 ha. The location of these areas within the wider Concept Masterplan footprint is shown in **Figure 2**.

This matter was discussed in a meeting between Mirvac and DCCEEW on 13 July 2023. It is understood that DCCEEW are open to allow for areas to be excluded from the updated Concept Masterplan DA referral as long as it can be determined that impacts to these proposed areas do not trigger the requirement for a referral. A 'self-assessment' is to be conducted to determine that impacts to these proposed areas do not trigger the requirement for a referral.

This document presents a 'self-assessment' to determine if a further referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for the Excluded Areas is warranted.

A.2. Methodology

A.2.1. Document Review

The following documents prepared by Keystone were reviewed:

- Biodiversity Development Assessment Report Demolition Stage Lot 61 DP 737386 55 Coonara Avenue West Pennant Hills (Keystone Ecological, 2021b);

- Biodiversity Development Assessment Report (V2.1), Concept Development Application, 55 Coonara Avenue, West Pennant Hills (Keystone Ecological, 2021a) and associated vegetation map (original 2021 mapping);
- Biodiversity Development Assessment Report (V2.2), Concept Development Application, 55 Coonara Avenue, West Pennant Hills (Keystone Ecological, 2022) and associated vegetation map (updated 2022 mapping); and
- Referral 2021/8995 Residential Development 55 Coonara Avenue West Pennant Hills NSW 2125.

A.2.2. Protected Matters Search Tool

A search of the Protected Matters Search Tool (PMST) was conducted on 28 July 2023 (DCCEEW, 2023). The report generated by the PMST for the 28 July 2023 search is provided in **Appendix B**. The lists of threatened communities, threatened species and migratory species generated by the PMST were assessed for their likelihood to occur within the Property. The likelihood of occurrence assessment is provided in **Appendix C**.

A.2.3. Field Surveys

Cumberland Ecology was commissioned by Mirvac to conduct substantial field surveys in and around the Property and prepare several reports for the various components of the proposed development. This includes the following reports:

- Fauna Management Plan for Demolition DA (Ref: 21108RP2) (Cumberland Ecology, 2022);
- Vegetation Management Plan for the Concept Masterplan DA (Ref: 21108RP1) (Cumberland Ecology, 2023b);
- Biodiversity Development Assessment Report for the proposed Open Space DA (21108RP4) (Cumberland Ecology, 2023a);
- Vegetation Management Plan for the proposed Open Space DA (21108RP5) (Cumberland Ecology, 2023c);
- Vegetation Management Plan for Forestry Dedication areas (21108RP6) (Cumberland Ecology, 2023e); and
- Fauna Management Plan for Concept Masterplan DA (21108RP7) (Cumberland Ecology, 2023d).

Field surveys conducted by Cumberland Ecology for the reports listed above included the following:

- Vegetation mapping, including recording boundaries with a hand-held Global Positioning System (GPS) and mark-up of aerial photographs;
- Plots in accordance with the NSW Biodiversity Assessment Method (BAM);
- Detailed habitat assessments;
- Assessment of creek lines and riparian areas, downstream of development areas;
- Targeted searches for threatened flora species using meander transects and plot surveys; and

- Diurnal and nocturnal searches for the Dural Land Snail (*Pommerhelix duralensis*).

In addition to the surveys identified above conducted by Cumberland Ecology, several targeted threatened fauna surveys were conducted by TreeHouse Ecology across the Property for the Demolition DA BDAR (Keystone Ecological, 2021b) and Concept Plan DA BDAR (Keystone Ecological, 2022). These included the following surveys.

- Diurnal surveys for the Gang-gang Cockatoo (*Callocephalon fimbriatum*) and Glossy Black Cockatoo (*Calyptorhynchus lathamii*);
- Nocturnal spotlighting and call recording surveys for the Barking Owl (*Ninox connivens*), Masked Owl (*Tyto novaehollandiae*) and Powerful Owl (*Ninox strenua*);
- Ultrasonic recordings for the microchiropteran bats; and
- Nocturnal spotlighting searches for the Green and Golden Bell Frog (*Litoria aurea*) and Red-crowned Toadlet (*Pseudophryne australis*)

The results of the surveys conducted by Cumberland Ecology, Keystone Ecological and Treehouse Ecology were utilised to determine the likelihood of occurrence of MNES (threatened species and communities) within the Property (**Appendix C**) and to prepare this self-assessment.

A.3. Results

A.3.1. Vegetation Communities

A.3.1.1. Vegetation Communities of the Property

The vegetation on the Property has been impacted by a complex history of land use. Historical aerial imagery (NSW Government Spatial Services, 2023) from 1943 to 1982 shows clearing over large sections of the Property for agricultural and orchard uses. Based on aerial imagery, some historically cleared areas appear to have been allowed to naturally regenerate rather than be utilised for further agricultural purposes.

Currently, the Property is largely vegetated and comprises a mix of remnant/regrowth bushland and planted/landscaped areas within or adjacent to the former (now demolished) business park buildings and car park areas. Development for the former business park was largely contained within previously cleared areas with some additional clearing for ancillary infrastructure. It is understood that the extensive landscaping for the former business park development comprised a mix of locally endemic species as well as non-endemic natives and ornamental species for amenity purposes (Keystone Ecological, 2022).

Studies to date within the Property have determined that the majority of the remnant/old regrowth vegetation within the Property conforms to two threatened ecological communities (TEC), namely Blue Gum High Forest of the Sydney Basin Bioregion (BGHF) and Sydney Turpentine Ironbark Forest of the Sydney Basin Bioregion (STIF). Both BGHF and STIF are listed as Critically Endangered Ecological Communities (CEECs) under the NSW *Biodiversity Conservation Act 2016* (BC Act) and the EPBC Act. Other vegetation communities recorded within the Property include exotic grasslands from historic agricultural/orchard uses, landscaped plantings for the former business park and younger regrowth on modified soils from former land uses.

The vegetation communities occurring in the wider Property, as mapped by Keystone BDAR, are summarised in **Table 1** below.

Table 1 Vegetation Communities of the Property as per Keystone mapping

Keystone Vegetation Mapping Unit	Keystone Vegetation Type	BC Act/EPBC Act status (as per BDAR)	Description
1a	Cleared Land	n/a	Exotic grassland on natural substrate. Comprises regularly mown/slashed areas dominated by exotic groundcovers, part of historic orchards
1b	Cleared Land	n/a	Exotic grassland on natural substrate. Comprises regularly mown/slashed areas dominated by exotic groundcovers with scattered occurrences of planted trees, part of historic orchards
2a	Basins and Dams	n/a	Built structures that intermittently contain water. Some exotic vegetation established around edges
2b	Basins and Dams	n/a	Built structures that permanently contain water. Supports a mix of native and exotic vegetation around edges
3a	Highly Modified Edges	not a TEC	Mix of planted and regrowth vegetation on spoil mounds, batters and reshaped slopes around former IBM facility. Locally native tree species include species that generally dominate in BGHF such as <i>Eucalyptus saligna</i> (Blue Gum) or <i>Eucalyptus pilularis</i> (Blackbutt)
4a	Landscaped Gardens	n/a	Planted gardens around IBM compound carparks and buildings. Species largely native to NSW but not always locally endemic. Dominant species comprise a mix that do not naturally occur together in a defined vegetation unit and include <i>Corymbia maculata</i> (Spotted Gum), <i>Casuarina glauca</i> (Swamp Oak), <i>Eucalyptus tereticornis</i> (Forest Red Gum), <i>Pittosporum undulatum</i> (Sweet Pittosporum) and <i>Syncarpia glomulifera</i> (Turpentine)
5a	BGHF	CEEC	Regrowth forest on natural substrate. Considered to be in poor condition as it mainly comprises canopy trees over dense weed infestations. Dominant canopy trees include <i>Eucalyptus saligna</i> (Blue Gum) and <i>Eucalyptus pilularis</i> (Blackbutt)

Keystone Vegetation Mapping Unit	Keystone Vegetation Type	BC Act/EPBC Act status (as per BDAR)	Description
5b	BGHF	CEEC	Regrowth forest on natural substrate. Previously cleared for historical agricultural/orchards but appears to have regrown since the 1960s. Dominant canopy trees include <i>Eucalyptus saligna</i> (Blue Gum) and <i>Eucalyptus pilularis</i> (Blackbutt)
5c	BGHF	CEEC	Remnant/old Regrowth forest on natural substrate. No evidence of past clearing in available aerial imagery. Dominant canopy trees include <i>Eucalyptus saligna</i> (Blue Gum) and <i>Eucalyptus pilularis</i> (Blackbutt)
6a	STIF	CEEC	Regrowth forest on natural substrate. Comprises canopy trees over simplified understorey due to past and present bushfire hazard regime. Dominant canopy trees include <i>Syncarpia glomulifera</i> (Turpentine) and <i>Eucalyptus paniculata</i> (Grey Ironbark)
6b	STIF	CEEC	Remnant/old Regrowth forest on natural substrate. No evidence of past clearing in available aerial imagery. Dominant canopy trees include <i>Syncarpia glomulifera</i> (Turpentine) and <i>Eucalyptus paniculata</i> (Grey Ironbark)

A.3.1.2. Vegetation Communities within the Excluded Area

The vegetation within the Excluded Areas has been mapped as 'VZ4a – Landscaped Areas' by Keystone (**Figure 3**). A total of 2,79 ha of VZ4a – Landscaped areas has been mapped within the Excluded Areas. Examples of the vegetation of this map unit within the Excluded Areas prior to clearing are shown in **Photograph 1 - Photograph 3**.

Photograph 1 Planted trees (now cleared) adjacent to former (now demolished) business park buildings in the central parts of Exclusion Area A.



Photograph 2 Landscaped areas and Planted Trees (now cleared) within on-grade carparks adjacent to former (now demolished) business park buildings in central parts of Exclusion Area A



Photograph 3 Vegetation within Exhibition Centre (Exclusion Area B) prior to civil works commencing.



As outlined in the Keystone BDARs, the areas of the former business park, particularly areas surrounding the buildings were extensively landscaped. These areas were principally planted out with Australian native species, including locally endemic species. Although these gardens were regularly maintained by grounds staff, some areas now support high weed loads. However, the understorey is generally sparse in the landscaped gardens.

The Commonwealth Listing Advice on Blue Gum High Forest of the Sydney Basin Bioregion (Threatened Species Scientific Committee, 2005a) states that *"Single isolated trees or stands of trees, characteristic of the canopy of Blue Gum High Forest of the Sydney Basin Bioregion, without a native understorey are considered important as biodiversity reservoirs. However, due to having been severely modified, these areas fall outside the definition of this ecological community and therefore do not form part of this listing."* Due to the highly modified nature of the landscaped areas, they are not considered to conform to the listing of Blue Gum High Forest under the EPBC Act, despite presence of some characteristic canopy species (albeit planted).

The Commonwealth Listing Advice on Turpentine-Ironbark Forest of the Sydney Basin Bioregion (Threatened Species Scientific Committee, 2005b) states *"The ecological community excludes patches where either the native midstorey/understorey or native canopy trees are absent. Occurrences of isolated single trees or shrubs characteristic of the ecological community also are excluded from the ecological community. Although these degraded remnants may have some value as biodiversity reservoirs, the structure of these patches has been so severely modified, that they fall outside the definition of the ecological community."* Due to the highly modified nature of the landscaped areas, they are not considered to conform to the listing of Turpentine-Ironbark Forest under the EPBC Act, despite presence of some characteristic canopy species (albeit planted).

It is noted that although the vegetation within the Demolition DA footprint was mapped as Landscape Planting, the Council conditions of consent for the Demolition DA nonetheless required retirement of 57 credits of PCT 1237 to offset impacts to Blue Gum High Forest as listed under the NSW *Biodiversity Conservation Act 2016* (BC Act). The conditions of consent for the Concept Masterplan DA also required higher numbers of PCT 1237 credits than calculated in the BDAR, indicating that additional credits may have been required to offset for impacts to areas mapped as Landscape Planting within the Concept Masterplan footprint.

A.3.2. Threatened and Migratory Species

Two threatened fauna species listed under the EPBC Act have been recorded from the Property; the Dural Land Snail and the Grey-headed Flying-fox (*Pteropus poliocephalus*).

The Dural Land Snail is listed as Endangered under the EPBC Act. Multiple surveys for this species have been conducted across the Property by snail expert Dr Stephanie Clark. To date, a total of 18 live individuals of this species (comprising both adults and juveniles) were recorded from the Property during surveys conducted for the Concept DA BDAR in three areas:

- Along the eastern edge of the multi-storey car park;
- In an area of vegetation between the ring road and the southeastern corner of the (now demolished) main office building; and
- The southern half of the Property within bushland areas that are proposed to be dedicated the NSW Government and managed by Forestry NSW.

These results indicate that this species has potential to occur in both high quality remnant native vegetation and also in highly modified fragments of vegetation. Additional individuals recorded during pre-clearance surveys conducted under the approved Demolition DA Fauna Management Plan (FMP) were all located along the eastern edge of the multi-storey car park. No individuals (live or shells) of Dural Land Snail have been found

within the Excluded Areas. The Conditions of consent for the Demolition DA require the retirement of 17 credits for impacts to Dural Land Snail while the conditions of consent for the Concept Masterplan DA require the retirement of 10 credits for impacts to Dural Land Snail. No individuals of Dural Land Snail have been recorded within the Excluded Areas.

The Grey-headed Flying-fox has also been recorded from the Property although this has been limited to observations of individuals flying over the site, including over the Excluded Areas. This species is listed as Vulnerable under the EPBC Act and has potential foraging habitat in the Property, although no roosting camps are present. No credit retirement for impacts to Grey-headed Flying Fox is required for either the Demolition DA or Concept Masterplan DA.

One threatened flora species – *Syzygium paniculatum* (Magenta Lilly Pilly), listed as Vulnerable under the EPBC Act has been recorded from within the Property, in particular within parts of the Demolition DA footprint that form part of the Excluded Areas. However, all records were limited to landscaped garden beds and no individuals were recorded within the surrounding bushland areas. As *Syzygium paniculatum* is widely utilised as an ornamental planting for landscaped areas, the individuals recorded onsite are considered to comprise planted individuals. As this species does not occur naturally within the Property, it is not considered to comprise a threatened species for the purposes of this assessment. No credit retirement for impacts to *Syzygium paniculatum* is required for either the Demolition DA or Concept Masterplan DA

No migratory species have been recorded within the Property and none are considered likely to occur.

A.3.3. Mapping Amendments

The review of the 2021 referral by Keystone determined that the following areas were assessed as impacted:

- 3.89 ha of built form;
- 0.06 ha of basins and dams (Vegetation Zone 2a);
- 5.31 ha of planted native gardens (Vegetation Zone 4a);
- 0.36 ha of highly modified edges, dominated by weeds (Vegetation Zone 3a);
- 0.01 ha of even-aged Blue Gum High Forest (BGHF) regrowth (Vegetation Zone 5b); and
- 0.01 ha of fully structured BGHF (Vegetation Zone 5c).

A comparative review of the original 2021 mapping and updated 2022 mapping (**Appendix D**) by Keystone determined that the updated mapping in response to Council comments during the Concept Masterplan DA approval process resulted in remapping of areas of VZ3a to VZ5a in the northern parts of the subject site. However, these remapped areas are located within areas subject to the updated referral and do not form part of the Excluded Areas that are the subject of this self-assessment. Therefore, the updated 2022 mapping has not resulted in any changes in vegetation mapping within the Excluded Areas compared to the 2021 referral.

A.4. Impact Assessment

A.4.1. Direct Impacts

The primary direct impact to the Excluded Areas comprises removal of 2.79 ha of planted and landscaped vegetation and resultant loss of habitat for fauna.

All vegetation removal works within the Excluded Areas have been completed and were conducted under ecological and arborist supervision and in accordance with the Council approved Fauna Management Plans. Threatened flora species removed were limited to planted individuals of *Sygyzium paniculatum* (Magenta Lilly-Pilly) from a landscaped garden bed. No threatened fauna species were recorded within the Excluded Areas during clearing works. Fauna encountered during clearing works were limited to common amphibians, reptiles, birds and mammals such as:

- Striped Marsh Frog (*Limnodynastes peronii*);
- Delicate Skink (*Lampropholis delicata*);
- Eastern Water Skink (*Eulamprus quoyii*);
- Weasel Skink (*Saproscincus mustelinus*);
- Black Butcherbird (*Cracticus torquatus*);
- Laughing Kookaburras (*Dacelo novaeguineae*);
- Rainbow Lorikeets (*Trichoglossus moluccanus*);
- Brush-tailed Possum (*Trichosurus vulpecula*);
- Ringtail possum (*Pseudocheirus peregrinus*);
- Sugar Glider (*Petaurus breviceps*); and
- Black Rat (*Rattus rattus*).

A.4.2. Indirect Impacts

Potential indirect impacts from clearing of vegetation within the Excluded Areas include:

- Impacts from increased sedimentation and runoff;
- Reduced viability of adjacent habitats from noise, dust or light spill; and
- Transport of weeds to adjacent vegetation.

The Excluded Areas are subject to an overarching Construction Environment Management Plan, to mitigate any potential indirect impacts to surrounding bushland in the wider Property and adjacent Cumberland State Forest. This includes, but is not limited to, the following sub-plans:

- Stormwater Management Plan including Flood Control Modelling;

- Sediment and Erosion Control Plan;
- Waste Management Plan;
- Tree Protection Management Plan; and
- Fauna Management Plan.

Retained vegetation outside of the Excluded Areas are also subject to several Vegetation Management Plans that outline measures for:

- Weed Management;
- Enhancement of existing vegetation;
- Revegetation of denuded areas; and
- Monitoring.

Thus, potential indirect impacts from works in the Excluded Areas have been mitigated via a range of management measures, including:

- Installation of stormwater basins and controls in accordance with approved flood control models;
- Installation of sediment and erosion control measures;
- Dust Management control in accordance with Dust Management Plan;
- Adherence to noise, dust and light spill limitations as per conditions of consent and best practise methods;
- Weed management works undertaken by qualified bush regeneration contractors and landscape contractors;
- Installation of tree protection fencing and boundary markers for clearing limits;
- Pre-clearance surveys and clearing supervision for fauna rescue and relocation.

Surveys of areas downstream of the development site, conducted on 25 July 2023, do not show any indication of increased sedimentation, weed outbreaks or other indirect impacts from the implemented works which indicates that the implemented control measures have suitably mitigated any potential indirect impacts from the implemented works. Examples of the condition of downstream vegetation is shown in **Photographs 4 and 5**.

Photograph 4 Ephemeral drainage path through Blue Gum High Forest downstream of the development area



Photograph 5 Blue Gum High Forest with native dominant understorey downstream of development areas



A.4.3. Significant Impact Guidelines Assessment

The field surveys and desktop assessments determined that two MNES – namely the Dural Land Snail and the Grey-headed Flying-fox, are present within the Property and could potentially have been impacted by the clearing works within the Excluded Areas (see **Section A.1.2**).

Although these impacts within the Excluded Areas remain unchanged from those conducted for the 2021 referral (impacts determined to not comprise a controlled action), a precautionary approach has been taken and updated assessments against the Significant Impact Guidelines have been conducted for the Dural Land Snail and Grey-headed Flying Fox, with a particular focus on the Excluded Areas. An assessment against the Significant Impact Guidelines for Endangered species and Vulnerable species has been conducted for the Dural Land Snail and the Grey-headed Flying-fox and are presented in **Table 1** and **Table 2** respectively.

Table 2 Significant Impact Criteria for Endangered species – Dural Land Snail

Significant Impact Criteria	Response
Will the action lead to a long-term decrease in the size of a population of the species	The proposed action is not considered likely to result in a long-term decrease in the size of a population of the Dural

Significant Impact Criteria	Response
	<p>Land Snail. Although this species is known to occur in the Property, it has not been recorded within the Excluded Areas.</p> <p>Under the approved Fauna Management Plans, all individuals encountered during pre-clearing surveys and clearing works are to be relocated to suitable habitat as approved by snail expert Dr Stephanie Clark. No individuals have been encountered within the Excluded Areas</p> <p>Furthermore, the DAs include conduction of beneficial works such as weed management and revegetation to improve the quality of surrounding bushland in the long term. Accordingly, these works are likely to facilitate an increase in the size of the population of this species.</p>
<p>Will the action reduce the area of occupancy of the species</p>	<p>Although this species is known to occur in the Property, it has not been recorded within the Excluded Areas. Therefore, the proposed action within the Excluded Areas will not reduce the area of occupancy for this species.</p>
<p>Will the action fragment an existing population into two or more populations</p>	<p>While works in the Excluded Areas involved removal of vegetation, this is limited to areas that have been previously modified for the former business park. Connecting habitats within the Property, particularly those connecting the Property with Cumberland State Forest will be retained and enhanced under several vegetation management plans for the Property. Therefore, the proposed action is not expected to result in the removal of habitat for this species such that the population will become fragmented.</p>
<p>Will the action adversely affect habitat critical to the survival of a species</p>	<p>Habitat critical to the survival of a listed endangered species (Department of the Environment 2013) includes areas that are necessary for the long-term maintenance of the species; to maintain genetic diversity and long-term evolutionary development; for activities such as foraging, breeding, roosting or dispersal or for the recovery of the species.</p> <p>No critical habitat for this species has been formally declared.</p> <p>Although this species is known to occur in the Property, it has not been recorded within the Excluded Areas. Furthermore, while works in the Excluded Areas involved removal of vegetation, this is limited to areas that have been previously modified for the former business park and were not considered to be habitat critical to the survival of this species.</p>

Significant Impact Criteria	Response
	Therefore, the proposed action is not expected to adversely affect any habitat critical to the survival of this species.
Will the action disrupt the breeding cycle of a population	<p>Although this species has not been recorded within the Excluded Areas, the population within the Property is considered to be breeding as both adults and juveniles have been recorded.</p> <p>Under the approved Fauna Management Plans, all individuals encountered during pre-clearing surveys and clearing works are to be relocated to suitable habitat as approved by snail expert Dr Stephanie Clark and habitat features salvaged/relocated to enrich revegetation areas. No individuals were encountered within the Excluded Areas during clearing works.</p> <p>Furthermore, the DAs include conduction of beneficial works such as weed management and revegetation to improve the quality of surrounding bushland in the long term.</p> <p>These actions are considered adequate to ameliorate any potential impacts to breeding cycles. Therefore, the proposed action is not likely to disrupt the breeding cycle of this species.</p>
Will the action modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	<p>Although this species is known to occur in the Property, it has not been recorded within the Excluded Areas. Furthermore, while works in the Excluded Areas involved removal of vegetation, this is limited to areas that have been previously modified for the former business park and better quality habitat will be retained and managed within the Property.</p> <p>Accordingly, the proposed action will not impact the availability and quality of habitat of this species such that it is likely to decline.</p>
Will the action result in invasive species that are harmful to an endangered or critically endangered species becoming established in the endangered or critically endangered species' habitat	The proposal will not result in invasive species, beyond those already present from historic land uses, being established as the actions include implementation of several management plans including Vegetation Management Plans and Fauna Management Plans.
Will the action introduce disease that may cause the species to decline	The action is considered unlikely to introduce disease that may cause this species to decline as best management hygiene protocols are being and will continue to be implemented as part of management plans.
Will the action interfere with the recovery of the species	There is no approved recovery plan or threat abatement plan for this species.

Significant Impact Criteria	Response
	<p>Under the approved Fauna Management Plans, all individuals encountered during pre-clearing surveys and clearing works are to be relocated to suitable habitat as approved by snail expert Dr Stephanie Clark.</p> <p>Furthermore, the DAs include conduction of beneficial works such as weed management and revegetation to improve the quality of surrounding bushland in the long term. Accordingly, these works are likely to facilitate the recovery of this species.</p>

Table 3 Significant Impact Criteria for vulnerable species – Grey-headed Flying-fox

Significant Impact Criteria	Response
<p>Will the action lead to a long-term decrease in the size of an important population of a species</p>	<p>The species has only been recorded flying over the Property (including the Excluded Areas). Although potential foraging habitat was present within the Excluded Area, there are no roosting camps and the species does not breed or roost in the Excluded Areas or wider Property. The nearest known camp is at Parramatta Park which is managed and protected as a recognised nationally important camp.</p> <p>As the proposed action will not impact upon an important camp, the Property is not considered to support an important population of this species. Although the proposed action resulted in the removal of some potential foraging habitat, the proposed action is not considered to result in the long-term decrease in the size of an important population of this species.</p>
<p>Will the action reduce the area of occupancy of an important population</p>	<p>The occurrence of the Grey-headed Flying-fox within the Excluded Areas and wider Property is limited to observations of individuals flying overhead and potentially foraging in areas of remnant bushland.</p> <p>While the proposed action removed some potential foraging habitat for this species, this species has a large foraging range and would not have been dependent on the habitats present within the Excluded Area. Furthermore, the proposed management and revegetation works will improve quality of foraging habitat in the surrounds in the long term.</p> <p>As the Property does not support an important population of this species, the proposed action is not considered to reduce the area of occupancy of an important population of this species.</p>

Significant Impact Criteria	Response
Will the action fragment an existing important population into two or more populations	<p>The Property is not considered to contain an important population of the Grey-headed Flying-fox. Accordingly, the proposed action is not considered likely to result in the fragmentation of an important population of this species.</p> <p>Furthermore, this species is highly mobile and able to fly over disturbed land, and the proposed management and maintenance works will not fragment any population of this species.</p>
Will the action adversely affect habitat critical to the survival of a species	<p>While works in the Excluded Areas involved removal of vegetation, this is limited to areas that have been previously modified for the former business park and is not considered to comprise habitat critical to the survival of the Grey-headed Flying-fox.</p> <p>Better quality habitat will be retained and managed within the wider Property and will improve potential foraging resources for this species in the long term.</p> <p>Therefore, the proposed action is not expected to adversely affect any habitat critical to the survival of this species.</p>
Will the action disrupt the breeding cycle of an important population	<p>The Excluded Areas and the wider Property does not contain a Grey-headed Flying-fox camp and therefore does not constitute breeding habitat for this species. Accordingly, these works are not likely to disrupt the breeding cycle of this species.</p>
Will the action modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	<p>The occurrence of the Grey-headed Flying-fox within the Excluded Areas and wider Property is limited to observations of individuals flying overhead and potentially foraging in areas of remnant bushland.</p> <p>While the proposed action removed some potential foraging habitat for this species, this species has a large foraging range and would not have been dependent on the habitats present within the Excluded Area for foraging resources. Furthermore, the proposed management and revegetation works will improve quality of foraging habitat in the surrounds in the long term.</p> <p>Accordingly, the proposed action will not impact the availability and quality of habitat of this species such that it is likely to decline.</p>
Will the action result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	<p>The proposal will not result in invasive species, beyond those already present from historic land uses, being established as the actions include implementation of several management plans including Vegetation Management Plans and Fauna Management Plans.</p>

Significant Impact Criteria	Response
Will the action introduce disease that may cause the species to decline	The action is considered unlikely to introduce disease that may cause this species to decline as best management hygiene protocols are being and will continue to be implemented as part of management plans.
Will the action interfere substantially with the recovery of the species	The action is not considered likely to interfere with the recovery of this vulnerable species. While works in the Excluded Areas involved removal of vegetation, this is limited to foraging habitat as part of a wider foraging range and does not comprise critical habitat or breeding habitat for this species. Furthermore, the proposed management and revegetation works will improve quality of foraging habitat in the surrounds in the long term. Accordingly, these works are unlikely to substantially interfere with the recovery of this species.

A.5. Conclusion

The proposed action within the Excluded Areas entailed removal of planted vegetation in landscaped gardens and carparks that comprised potential habitat for the Grey-headed Flying-fox and Dural Land Snail. No further vegetation is to be cleared from the Excluded Areas.

While vegetation/habitat has been cleared from within the Excluded Areas, these areas are not considered to comprise any threatened ecological communities and do not comprise important or critical habitat for any threatened species, as listed under the EPBC Act. Management and control measures implemented during have clearing works have mitigated any potential indirect impacts to adjacent vegetation as surveys of these areas confirmed that these areas show no indication of increased sedimentation, weed outbreaks or other indirect impacts. Better quality vegetation and habitats will be retained in the wider Property and will be maintained and enhanced to improve quality of habitats in the long term.

Accordingly, the 'self-assessment' conducted against the Significant Impact Guidelines has determined that the impacts of the clearing works within the Excluded Areas are not significant and no referral to the Commonwealth is therefore required for works within these areas.

A.6. References

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- Threatened Species Scientific Committee. (2005a, 2005). Commonwealth Listing Advice on Blue Gum High Forest of the Sydney Basin Bioregion. Retrieved from <https://www.dcceew.gov.au/environment/biodiversity/threatened/conservation-advice/blue-gum-high-forest-sydney-region>
- Threatened Species Scientific Committee. (2005b, 2005). Commonwealth Listing Advice on Turpentine-Ironbark Forest of the Sydney Basin Bioregion. Retrieved from <https://www.dcceew.gov.au/environment/biodiversity/threatened/conservation-advice/turpentine-ironbark-forest-sydney-basin-bioregion>

APPENDIX B :

PMST Search Results



Australian Government

Department of Climate Change, Energy,
the Environment and Water

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: 28-Jul-2023

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

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)	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	10
Listed Threatened Species:	70
Listed Migratory Species:	16

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:	59
Commonwealth Heritage Places:	None
Listed Marine Species:	24
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:	4
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	26
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

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
Blue Gum High Forest of the Sydney Basin Bioregion	Critically Endangered	Community likely to occur within area	In feature area
Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion	Endangered	Community may occur within area	In feature area
Coastal Swamp Oak (<i>Casuarina glauca</i>) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may occur within area	In buffer area only
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	Community may occur within area	In feature area
Coastal Upland Swamps in the Sydney Basin Bioregion	Endangered	Community likely to occur within area	In feature area
Cooks River/Castlereagh Ironbark Forest of the Sydney Basin Bioregion	Critically Endangered	Community may occur within area	In feature area
River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria	Critically Endangered	Community likely to occur within area	In feature area
Shale Sandstone Transition Forest of the Sydney Basin Bioregion	Critically Endangered	Community likely to occur within area	In feature area
Turpentine-Ironbark Forest of the Sydney Basin Bioregion	Critically Endangered	Community likely to occur within area	In feature area
Western Sydney Dry Rainforest and Moist Woodland on Shale	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
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Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	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 ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat known to occur within area	In feature area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat may occur within area	In feature area
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat may occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to 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 known 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
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat likely to occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pycnoptilus floccosus Pilotbird [525]	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 likely to occur within area	In feature area
FISH			
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area	In feature area
Prototroctes maraena Australian Grayling [26179]	Vulnerable	Species or species habitat may occur within area	In feature area
FROG			
Heleioporus australiacus Giant Burrowing Frog [1973]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Litoria aurea Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat known to occur within area	In feature area
Mixophyes balbus Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat may occur within area	In feature area
MAMMAL			
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat known to occur within area	In feature area
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 feature area
Isoodon obesulus obesulus Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern) [68050]	Endangered	Species or species habitat likely to occur within area	In feature area
Notamacropus parma Parma Wallaby [89289]	Vulnerable	Species or species habitat may occur within area	In feature area
Petauroides volans Greater Glider (southern and central) [254]	Endangered	Species or species habitat known to occur within area	In feature area
Petaurus australis australis Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may occur within area	In buffer area only
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 known to occur within area	In feature area
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
PLANT			
Acacia bynoeana Bynoe's Wattle, Tiny Wattle [8575]	Vulnerable	Species or species habitat known to occur within area	In feature area
Acacia pubescens Downy Wattle, Hairy Stemmed Wattle [18800]	Vulnerable	Species or species habitat known to occur within area	In feature area
Acacia terminalis subsp. Eastern Sydney (G.P.Phillips 126) listed as Acacia terminalis subsp. terminalis MS			
Sunshine Wattle (Sydney region) [91564]	Endangered	Species or species habitat may occur within area	In buffer area only
Allocasuarina glareicola [21932]	Endangered	Species or species habitat may occur within area	In feature area
Asterolasia elegans [56780]	Endangered	Species or species habitat may occur within area	In buffer area only
Caladenia tessellata Thick-lipped Spider-orchid, Daddy Long-legs [2119]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Cynanchum elegans White-flowered Wax Plant [12533]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Darwinia biflora [14619]	Vulnerable	Species or species habitat known to occur within area	In feature area
Eucalyptus camfieldii Camfield's Stringybark [15460]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Eucalyptus sp. Cattai (Gregson s.n., 28 Aug 1954) [89499]	Critically Endangered	Species or species habitat likely to occur within area	In buffer area only
Genoplesium baueri Yellow Gnat-orchid, Bauer's Midge Orchid, Brittle Midge Orchid [7528]	Endangered	Species or species habitat known to occur within area	In feature area
Haloragodendron lucasii Hal [6480]	Endangered	Species or species habitat may occur within area	In buffer area only
Kunzea rupestris [8798]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Lasiopetalum joyceae [20311]	Vulnerable	Species or species habitat known to occur within area	In feature area
Leptospermum deanei Deane's Tea-tree [21777]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Leucopogon exolasius Woronora Beard-heath [14251]	Vulnerable	Species or species habitat may occur within area	In feature area
Melaleuca biconvexa Biconvex Paperbark [5583]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Melaleuca deanei Deane's Melaleuca [5818]	Vulnerable	Species or species habitat known to occur within area	In feature area
Micromyrtus blakelyi [6870]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Persicaria elatior Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Persoonia hirsuta Hairy Geebung, Hairy Persoonia [19006]	Endangered	Species or species habitat known to occur within area	In feature area
Persoonia mollis subsp. maxima [56075]	Endangered	Species or species habitat known to occur within area	In buffer area only
Pimelea curviflora var. curviflora [4182]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pimelea spicata Spiked Rice-flower [20834]	Endangered	Species or species habitat likely to occur within area	In feature area
Pomaderris brunnea Rufous Pomaderris, Brown Pomaderris [16845]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pterostylis saxicola Sydney Plains Greenhood [64537]	Endangered	Species or species habitat may occur within area	In buffer area only
Rhizanthella slateri Eastern Underground Orchid [11768]	Endangered	Species or species habitat may occur within area	In feature area
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Rhodomyrtus psidioides Native Guava [19162]	Critically Endangered	Species or species habitat may occur within area	In feature area
Syzygium paniculatum Magenta Lilly Pilly, Magenta Cherry, Daguba, Scrub Cherry, Creek Lilly Pilly, Brush Cherry [20307]	Vulnerable	Species or species habitat known to occur within area	In feature area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Zieria involucrata [3087]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only

REPTILE

Delma impar Striped Legless Lizard, Striped Snake-lizard [1649]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Hoplocephalus bungaroides Broad-headed Snake [1182]	Vulnerable	Species or species habitat may occur within area	In feature area

SNAIL

Pommerhelix duralensis Dural Land Snail [85268]	Endangered	Species or species habitat known to occur within area	In feature area
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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

Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		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]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to 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 [13959]	NSW	In buffer area only
Communications, Information Technology and the Arts - Australian Postal Corporation		
Commonwealth Land - Australian Postal Commission [13022]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [16363]	NSW	In buffer area only
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian Telecommunications Commission [13965]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [13951]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [15700]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [13962]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [15669]	NSW	In buffer area only
Defence		
Defence - TIMOR BARRACKS - DUNDAS [11097]	NSW	In buffer area only
Defence - TIMOR BARRACKS - DUNDAS [11096]	NSW	In buffer area only
Defence - Defence Housing Authority		
Commonwealth Land - Defence Housing Authority [13963]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13964]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13942]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13943]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13940]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13941]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13944]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13020]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13945]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Defence Housing Authority [13021]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13023]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13025]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13024]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16362]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13026]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13029]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13028]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13009]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13008]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13928]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14272]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12994]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13929]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13960]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16082]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13961]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13032]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15739]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13027]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15892]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13030]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13956]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13007]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13930]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13931]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15602]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Defence Housing Authority [13935]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13932]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13933]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13006]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13939]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15893]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13957]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13936]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13938]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13937]	NSW	In buffer area only

Unknown

Commonwealth Land - [13034]	NSW	In buffer area only
Commonwealth Land - [13031]	NSW	In buffer area only
Commonwealth Land - [13934]	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
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may 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 buffer area only
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known 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
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area overfly marine area	In feature area
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 may occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pterodroma cervicalis White-necked Petrel [59642]		Species or species habitat may occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known 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
Sterna striata White-fronted Tern [799]		Migration route may occur within area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat known to occur within area overfly marine area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

State and Territory Reserves [\[Resource Information \]](#)

Protected Area Name	Reserve Type	State	Buffer Status
Berowra Valley	Regional Park	NSW	In buffer area only
Berowra Valley	National Park	NSW	In buffer area only
Dural	Nature Reserve	NSW	In buffer area only
Lane Cove	National Park	NSW	In buffer area only

EPBC Act Referrals [\[Resource Information \]](#)

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
North West Rail Link	2012/6360	Controlled Action	Post-Approval	In feature area
Residential Development of Lot 7 DP 270109 Eldon Green, West Pennant Hills	2010/5610	Controlled Action	Post-Approval	In feature area
residential subdivision 5 residential allotments DP 270109	2005/2340	Controlled Action	Completed	In feature area
Not controlled action				
Conrad Road Residential Subdivision	2001/320	Not Controlled Action	Completed	In buffer area only
Construction and Operation of the Parramatta Rail Link - between Parramatta and	2002/673	Not Controlled Action	Completed	In buffer area only
Development of a Retirement Village	2009/4746	Not Controlled Action	Completed	In buffer area only
Fuel Reduction Proposal Redfield Road, East Killara	2003/1238	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

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
M2 Motorway Upgrade	2010/5329	Not Controlled Action	Completed	In buffer area only
Northwest Transitways Project	2002/796	Not Controlled Action	Completed	In buffer area only
Parramatta Light Rail (Stage 1) - Westmead to Carlingford, via Parramatta CBD	2017/7966	Not Controlled Action	Completed	In buffer area only
Proposed third rail track and associated infrastructure	2013/6760	Not Controlled Action	Completed	In buffer area only
Removal of Weeds & Native Vegetation Hannah Avenue	2006/2621	Not Controlled Action	Completed	In buffer area only
Residential Development - 55 Coonara Avenue, West Pennant Hills NSW 2125	2021/8995	Not Controlled Action	Completed	In feature area
Residential development within 2.08ha, Fyfe Road	2005/1966	Not Controlled Action	Completed	In buffer area only
Residential Land Subdivision	2011/5963	Not Controlled Action	Completed	In buffer area only
Residential Subdivision	2001/304	Not Controlled Action	Completed	In buffer area only
Residential subdivision, cnr Doris Hirst Place and Highs Road	2005/2392	Not Controlled Action	Completed	In feature area
Residential subdivision Lot 1005 Conrad Road	2003/1054	Not Controlled Action	Completed	In buffer area only
Residential subdivision works, Spurway St, Ermington	2003/1130	Not Controlled Action	Completed	In buffer area only
Second Ponds Creek urban development	2004/1905	Not Controlled Action	Completed	In buffer area only
Second Ponds Creek Urban Development of Precinct 1b	2005/1991	Not Controlled Action	Completed	In buffer area only
subdivision and development on the Rhodes Peninsula for residential and commerci	2003/1249	Not Controlled Action	Completed	In buffer area only
Subdivision and sale of Commonwealth land in Pymble to Kuring-gai City Council	2004/1368	Not Controlled Action	Completed	In buffer area only
Tree Removal Under 10/50 Vegetation Clearance, 10B Dalkeith Rd, Cherrybrook, NSW	2014/7337	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action (particular manner)				
Replacement of flows with recycled water	2006/3050	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only

Bioregional Assessments

SubRegion	BioRegion	Website	Buffer Status
Sydney	Sydney Basin	BA website	In feature area

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 C :

Likelihood of Occurrence

Table 4 Likelihood of Occurrence Assessment – Threatened Ecological Communities

Community Name	EPBC Act Conservation Status	Likelihood of Occurrence
Blue Gum High Forest of the Sydney Basin Bioregion	Critically Endangered	Absent – While the community has been mapped within the Property, it does not occur within the Excluded Areas
Coastal Upland Swamps in the Sydney Basin Bioregion	Endangered	Absent - community has not been mapped within the Property
River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria	Critically Endangered	Absent - community has not been mapped within the Property
Coastal Swamp Oak (<i>Casuarina glauca</i>) Forest of New South Wales and South East Queensland ecological community	Endangered	Absent - community has not been mapped within the Property
Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion	Endangered	Absent - community has not been mapped within the Property
Turpentine-Ironbark Forest of the Sydney Basin Bioregion	Critically Endangered	Absent – While the community has been mapped within the Property, it does not occur within the Excluded Areas
Shale Sandstone Transition Forest of the Sydney Basin Bioregion	Critically Endangered	Absent - community has not been mapped within the Property
Cooks River/Castlereagh Ironbark Forest of the Sydney Basin Bioregion	Critically Endangered	Absent - community has not been mapped within the Property
Western Sydney Dry Rainforest and Moist Woodland on Shale	Critically Endangered	Absent - community has not been mapped within the Property
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	Absent - community has not been mapped within the Property

Table 5 Likelihood of Occurrence Assessment – Threatened Flora

Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
<i>Acacia bynoeana</i>	Bynoe's Wattle, Tiny Wattle	Vulnerable	Found in heath and woodland on sandy soils. Prefer open, sometimes slightly disturbed sites such as trail margins, edges of roadside spoil mounds and in recently burnt patches. Associated overstorey species include <i>Corymbia maculata</i> (Red Bloodwood), <i>Eucalyptus haemastoma</i> (Scribbly Gum), <i>Eucalyptus parramattensis</i> (Parramatta Red Gum), <i>Banksia serrata</i> (Saw Banksia) and <i>Angophora bakeri</i> (Narrow-leaved Apple).	Unlikely. No suitable habitat is present in the Property
<i>Acacia pubescens</i>	Downy Wattle, Hairy Stemmed Wattle	Vulnerable	Occurs on alluviums, shales and at the intergrade between shales and sandstones. Occur in open woodland and forest, including Cooks River/Castlereagh Ironbark Forest, Shale/Gravel Transition Forest and Cumberland Plain Woodland.	Unlikely. No suitable habitat is present in the Property
<i>Acacia terminalis</i> subsp. <i>terminalis</i> MS	Sunshine Wattle (Sydney region)	Endangered	Coastal scrub and dry sclerophyll woodland on sandy soils.	Unlikely. No suitable habitat is present in the Property

Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
<i>Allocasuarina glareicola</i>		Endangered	Grows in Castlereagh woodland on lateritic soil with <i>Eucalyptus parramattensis</i> , <i>Eucalyptus fibrosa</i> , <i>Angophora bakeri</i> , <i>Eucalyptus sclerophylla</i> and <i>Melaleuca decora</i> . Primarily restricted to the Richmond (NW Cumberland Plain) district, but with an outlier population found at Voyager Point, Liverpool.	Unlikely. Castlereagh woodland does not occur in the Property.
<i>Asterolasia elegans</i>		Endangered	Occurs on Hawkesbury sandstone growing between sandstone boulders and rocky outcrops found in sheltered forests on mid- to lower slopes and valleys, e.g. in or adjacent to gullies which support sheltered forest. It is currently only known from 7 populations occurring in the hills north of Maroota within a 22 km ² extent of occurrence.	Unlikely. The Property is located south of Maroota and is outside of this species' known distribution.
<i>Caladenia tessellata</i>	Thick-lipped Spider-orchid, Daddy Long-legs	Vulnerable	Generally found in grassy sclerophyll woodland on clay loam or sandy soils, though the population near Braidwood is in low woodland with stony soil.	Unlikely. No suitable habitat is present in the Property

Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
<i>Cryptostylis hunteriana</i>	Leafless Tongue-orchid	Vulnerable	Occur in a wide variety of habitats including heathlands, heathy woodlands, sedgelands, Xanthorrhoea spp. plains, dry sclerophyll forests (shrub/grass sub-formation and shrubby sub-formation), forested wetlands, freshwater wetlands, grasslands, grassy woodlands, rainforests and wet sclerophyll forests. Soils are generally considered to be moist and sandy, however, this species is also known to grow in dry or peaty soils. Is associated with the community Bloodwood / Scribbly Gum / Silver-top Ash Forest on the South Coast. Species is known to have occurrence associated with other <i>Cryptostylis</i> species. Flowering occurs generally from November to February.	Unlikely. Potential habitat is present in areas of retained native vegetation in the Property. However, numerous detailed surveys have been undertaken across the Property which have not recorded this species.
<i>Cynanchum elegans</i>	White-flowered Wax Plant	Endangered	Usually associated with dry rainforest vegetation and in coastal communities. Can occur in clay influenced woodland associated with <i>Eucalyptus tereticornis</i> and <i>Corymbia maculata</i> .	Unlikely. Dry rainforest, woodland and coastal communities are not present in the Property.
<i>Darwinia biflora</i>		Vulnerable	Occurs on the edges of weathered shale-capped ridges, where these integrate with Hawkesbury Sandstone.	Unlikely. No suitable habitat is present in the Property

Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
<i>Eucalyptus camfieldii</i>	Camfield's Stringybark	Vulnerable	Found in exposed areas on sandstone ridges, slopes and plateaus near tall coastal heath or low open woodland.	Unlikely. No suitable habitat is present in the Property
<i>Eucalyptus Cattai</i> sp.		Critically Endangered	Occurs in The Hills Local Government Area, with known populations occurring within the area bounded by Kellyville - Maraylya - Glenorie. Occurs as a rare emergent tree in scrub, heath and low woodland on sandy soils, usually as isolated individuals or occasionally in small clustered groups. The sites at which it occurs are generally flat and on ridge tops.	Unlikely. Potential habitat is present in areas of retained native vegetation in the Property. However, numerous detailed surveys have been undertaken across the Property which have not recorded this species.
<i>Genoplesium baueri</i>	Yellow Gnat-orchid, Bauer's Midge Orchid, Brittle Midge Orchid	Endangered	Grows in dry sclerophyll forest and moss gardens over sandstone.	Unlikely. No suitable habitat is present in the Property

Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
<i>Haloragodendron lucasii</i>		Endangered	Occurs on Hawkesbury Sandstone in moist sandy loam soils, preferring sheltered aspects, generally inhabiting gentle slopes below cliff lines near creeks in association with high soil moisture and phosphorous levels. It is found in association with species including <i>Eucalyptus piperita</i> , <i>Corymbia gummifera</i> , and <i>Callicoma serratifolia</i> . The species was assumed to be extinct until 1986 and is only known currently from nine sites across a 10 km range in the Hornsby-Gordon area of the northern suburbs of Sydney.	Unlikely. The Property is located outside of this species' known distribution.
<i>Kunzea rupestris</i>		Vulnerable	Occurs within the Hawkesbury–Nepean (NSW) Natural Resource Management Region. It has a restricted geographic range occurring in the Maroota, Sackville and Glenorie areas of NSW as well as in Ku-ring-gai Chase National Park. It grows in shallow, sandy, low nutrient soil in depressions on sandstone rock platforms. It is typically found in short to tall shrubland or heathland at altitudes of 50–300 m	Unlikely. No suitable habitat is present in the Property which is outside of the species' known distribution
<i>Lasiopetalum joyceae</i>		Vulnerable	Found in heath on sandstone.	Unlikely. No suitable habitat is present in the Property
<i>Leptospermum deanei</i>	Deane's Tea-tree	Vulnerable	Occurs in woodland on sandy alluvial soil or sand over sandstone.	Unlikely. No suitable habitat is present in the Property

Scientific Name	Common Name	EPBC Category	Act	Habitat requirements	Likelihood of Occurrence
<i>Leucopogon exolasius</i>	Woronora Beard-Heath	Vulnerable		Endemic to the Sydney region and central coast of NSW occurring within the Sydney Metro and Hawkesbury–Nepean Natural Resource Management Regions. The species occurs along the upper Georges River and in Heathcote National Park (NP) and Royal NP and is also known from the Blue Mountains along the Grose River. This species inhabits woodland on sandstone (DECC, 2005) and prefers rocky hillsides along creek banks (NSW NPWS, 1997) up to 100 m altitude (Powell, 2007). Associated species include <i>Eucalyptus piperita</i> and <i>E. sieberi</i> and the shrubs <i>Pultenaea flexilis</i> , <i>Leptospermum trinervium</i> and <i>Dillwynia retorta</i> (Powell, 2007)	Unlikely. No suitable habitat is present in the Property. Associated species are also absent from the Property.
<i>Melaleuca biconvexa</i>	Biconvex Paperbark	Vulnerable		Found in damp places, often near streams or low-lying areas on alluvial soils of low slopes or sheltered aspects.	Unlikely. No suitable habitat is present in the Property
<i>Melaleuca deanei</i>	Deane's Melaleuca	Vulnerable		Found in marshy heath on coastal sandstone plateaus. Restricted to sandstones of Sydney and south coast.	Unlikely. No suitable habitat is present in the Property
<i>Micromyrtus blakelyi</i>		Vulnerable		Restricted to areas near the Hawkesbury River, NSW, from Maroota to Cowan. It inhabits heathland where it may be locally dominant; growing in shallow, sandy, low-nutrient soils in depressions of sandstone rock platforms along ridges.	Unlikely. No suitable habitat is present in the Property which is outside of the species' known distribution

Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
<i>Persicaria elatior</i>	Knotweed, Tall Knotweed	Vulnerable	Species in known to occur in Raymond Terrace and Grafton areas. Grows in damp places, preferring areas near streams and lakes and occasionally found in swamp forest.	Unlikely. The Property is located outside of this species' known distribution and no suitable habitat is present.
<i>Persoonia hirsuta</i>	Hairy Geebung, Hairy Persoonia	Endangered	Occurs in dry sclerophyll forest and woodland with a shrubby understorey.	Unlikely. The vegetation in the Property is characterised by wet sclerophyll forest.
<i>Persoonia mollis</i> <i>subsp. maxima</i>		Endangered	Occurs in sheltered aspects of deep gullies or on the steep upper hillsides of narrow gullies on Hawkesbury Sandstone.	Unlikely. Potential habitat is present in areas of retained native vegetation in the Property. However, numerous detailed surveys have been undertaken across the Property which have not recorded this species.
<i>Pimelea curviflora</i> <i>var. curviflora</i>		Vulnerable	Confined to the coastal area of Sydney between northern Sydney in the south and Maroota in the north-west. Occurs on shaley/lateritic soils over sandstone and shale/sandstone transition soils on ridgetops and upper slopes amongst woodlands.	Unlikely. The Property is located outside of this species' known distribution.

Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
<i>Pimelea spicata</i>	Spiked Rice-flower	Endangered	On the Cumberland Plain sites it is associated with Grey Box communities (particularly Cumberland Plain Woodland variants and Moist Shale Woodland) and in areas of ironbark. In the coastal Illawarra it occurs commonly in Coast Banksia open woodland with a better developed shrub and grass understorey. Coastal headlands and hilltops are the favoured sites.	Unlikely. No suitable habitat is present in the Property
<i>Pomaderris brunnea</i>	Rufous Pomaderris, Brown Pomaderris	Vulnerable	In the region, the species is only found in a very limited area around the Colo, Nepean and Hawkesbury Rivers, including the Bargo area and near Camden. It grows in moist woodland or forest on clay and alluvial soils of flood plains and creek lines.	Unlikely. The Property is located outside of this species' known distribution and no suitable habitat is present.

Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
<i>Pterostylis saxicola</i>	Sydney Plains Greenhood	Endangered	The species occurs in small pockets of shallow soil in flat areas on top of sandstone rock shelves above cliff lines, or on mossy rocks in gullies. Sclerophyll forest/woodland often occurs growing above where the species occurs, on shale or shale/sandstone transition soils. Flowering time is from October to December. It is currently only known to occur at five locations within western Sydney: Georges River National Park, close to Yeramba Lagoon, Peter Meadows Creek, and St Marys Towers.	Unlikely. The Property is located outside of this species' known distribution.
<i>Rhizanthella slateri</i>	Eastern Underground Orchid	Endangered	Habitat requirements are poorly understood and no particular vegetation type has been associated with the species, although it is known to occur in sclerophyll forest. The species is highly cryptic given that it grows almost completely below the soil surface, with flowers being the only part of the plant that can occur above ground. Flowers September to November.	Unlikely. Although sclerophyll forest is present in the Property, it has not been recorded despite detailed flora surveys.

Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
<i>Rhodamnia rubescens</i>	Scrub Turpentine, Brown Malletwood	Critically Endangered	Found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest usually on volcanic and sedimentary soils. The species is distributed in coastal districts north from Batemans Bay in New South Wales to areas inland of Bundaberg in Queensland. Populations of <i>R. rubescens</i> typically occur in coastal regions and occasionally extend inland onto escarpments up to 600 m a.s.l. in areas with rainfall of 1,000-1,600 mm.	Unlikely. It has not been recorded from the Property and it is outside of the known distribution of this species.
<i>Rhodomyrtus psidioides</i>	Native Guava	Critically Endangered	Known to occur from Broken Bay, approximately 30 km north of Sydney, to the Queensland (Qld) border. Populations of the species extend north to Gympie, Qld. NSW populations are typically restricted to coastal and sub-coastal areas of low elevation however the species does occur up to c. 120 km inland in the Hunter and Clarence River catchments and along the Border Ranges.	Unlikely. It has not been recorded from the Property and it is outside of the known distribution of this species.

Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
<i>Syzygium paniculatum</i>	Magenta Lilly Pilly, Magenta Cherry, Daguba, Scrub Cherry, Creek Lilly Pilly, Brush Cherry	Vulnerable	On south coast of NSW occurs on grey soils over sandstone, restricted mainly to remnant stands of littoral (coastal) rainforest. On the central coast occurs on gravels, sands, silts and clays in riverside gallery rainforests and remnant littoral rainforest communities.	Present - however all recorded individuals comprise planted ornamentals and the species does not occur naturally within the site
<i>Thesium australe</i>	Austral Toadflax, Toadflax	Vulnerable	Found in very small populations scattered across eastern NSW. Occurs in grassland on coastal headlands or grassland and grassy woodland away from the coast. Often found in association with Kangaroo Grass (<i>Themeda australis</i>).	Unlikely. No suitable habitat is present in the Property
<i>Zieria involucreta</i>		Vulnerable	Fond in sheltered forests on mid to lower slopes and valleys on Hawkesbury sandstone. Canopy species usually include Turpentine, Smooth-barked Apple, Blue-leaved Stringybark and Forest Oak.	Unlikely. Potential habitat is present in areas of retained native vegetation in the Property. However, numerous detailed surveys have been undertaken across the Property which have not recorded this species.

Table 6 Likelihood of Occurrence – Threatened Fauna

Class	Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
Amphibia	<i>Heleioporus australiacus</i>	Giant Burrowing Frog	Vulnerable	Occurs in heath, woodland and open dry sclerophyll forest on a variety of soil types. Breeding habitat for this species usually contains soaks or pools within first of second order streams.	Unlikely. No suitable habitat is present in the Property.
Amphibia	<i>Litoria aurea</i>	Green and Golden Bell Frog	Vulnerable	The species is found in a wide range of water bodies except fast moving streams. It commonly inhabits disturbed sites such abandoned quarries and mines, though generally breeds in habitats that include still, shallow, unpolluted water bodies, that are unshaded, contain aquatic plants are are free of Mosquito fish and other predators, with a range of diurnal shelter sites (emergent aquatic vegetation).	Unlikely. No suitable habitat is present in the Property.

Class	Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
Amphibia	<i>Mixophyes balbus</i>	Stuttering Frog, Southern Barred Frog (in Victoria)	Vulnerable	Typically found in association with permanent streams through temperate and sub-tropical rainforest, and wet sclerophyll forest. It is rarely found in dry, open, tableland, riparian vegetation, and moist gullies in dry forest.	Unlikely. No suitable habitat is present in the Property.
Aves	<i>Anthochaera phrygia</i>	Regent Honeyeater	Critically Endangered	Inhabits dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River Sheoak. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes. The Regent Honeyeater is a generalist forager, which mainly feeds on the nectar from a wide range of eucalypts and mistletoes.	Unlikely. No suitable habitat is present in the Property.

Class	Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
Aves	<i>Botaurus poiciloptilus</i>	Australasian Bittern	Endangered	Occurs in freshwater wetlands, and more rarely, estuarine wetlands. It favours wetlands with tall, dense vegetation, and forages in shallow water up to a depth of 0.3m. It nests in deep vegetative cover over shallow pools.	Unlikely. No suitable habitat is present in the Property.
Aves	<i>Calidris ferruginea</i>	Curlew Sandpiper	Critically Endangered	The Curlew Sandpiper is found in coastal areas with intertidal mudflats, including estuaries, inlets and lagoons, and ponds in saltworks. The species have also occasionally been recorded inland around lakes, dams and waterholes with mud or sand present. Main requirements for feeding habitats are the presence of mudflats or shallow water up to 60mm. The Curlew Sandpiper may also forage in saltmarsh environments and flooded paddocks.	Unlikely. No suitable habitat is present in the Property.

Class	Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
Aves	<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	Endangered	In summer, generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. In winter, may occur at lower altitudes in drier more open eucalypt forests and woodlands, and often found in urban areas. In NSW, the Gang-gang Cockatoo is distributed from the south-east coast to the Hunter region, and inland to the Central Tablelands and south-west slopes.	Unlikely. Potential foraging habitat is present in areas of retained native vegetation in the Property, outside of the Excluded Area. However, numerous detailed surveys have been undertaken across the Property, including targeted surveys for this species which have not recorded this species.
Aves	<i>Calyptorhynchus lathami lathami</i>	South-eastern Glossy Black-Cockatoo	Vulnerable	Inhabits open forest and woodlands of the coast and the Great Dividing Range up to 1000 m in which stands of she-oak species, particularly Black She-oak (<i>Allocasuarina littoralis</i>), Forest She-oak (<i>A. torulosa</i>) or Drooping She-oak (<i>A. verticillata</i>) occur.	Unlikely. Limited stands of she-oak are present in the Property but are absent from the Excluded Area. Numerous detailed surveys have been undertaken across the Property, including targeted surveys for this species which have not recorded this species.
Aves	<i>Charadrius leschenaultii</i>	Greater Sand Plover, Large Sand Plover	Vulnerable	Found in coastal areas.	Unlikely. No suitable habitat is present in the Property.

Class	Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
Aves	<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (south-eastern)	Vulnerable	Found in eucalypt woodlands and dry open forest of the inland slopes and plains inland of the Great Dividing Range. The species favours woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species. Fallen timber is an important habitat component for foraging.	Unlikely. No suitable habitat is present in the Property. The Property is not inland of the Great Dividing Range.
Aves	<i>Dasyornis brachypterus</i>	Eastern Bristlebird	Endangered	Habitat for central and southern populations is characterised by dense, low vegetation including heath and open woodland with a heathy understorey. In northern NSW the habitat occurs in open forest with dense tussocky grass understorey and sparse mid-storey near rainforest ecotone; all of these vegetation types are fire prone.	Unlikely. No suitable habitat is present in the Property.

Class	Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
Aves	<i>Erythrotriorchis radiatus</i>	Red Goshawk	Endangered	<p>This unique Australian endemic raptor is very rare in NSW, extending south to about 30°S, with most records north of this, in the Clarence River Catchment, and a few around the lower Richmond and Tweed Rivers. Formerly, it was at least occasionally reported as far south as Port Stephens. It inhabit open woodland and forest, preferring a mosaic of vegetation types, a large population of birds as a source of food, and permanent water, and are often found in riparian habitats along or near watercourses or wetlands. In NSW, preferred habitats include mixed subtropical rainforest, Melaleuca swamp forest and riparian Eucalyptus forest of coastal rivers. In winter in eastern Australia, the birds appear to move from nesting sites in the ranges to coastal plains, where they are associated with permanent wetlands.</p>	Unlikely. The Property is outside of the known distribution of this species.

Class	Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
Aves	<i>Falco hypoleucos</i>	Grey Falcon	Vulnerable	Usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast.	Unlikely. No suitable habitat is present in the Property.
Aves	<i>Grantiella picta</i>	Painted Honeyeater	Vulnerable	Occurs in Boree, Brigalow and Box-Gum Woodlands and Box-Ironbarks. Feeds primarily on mistletoe fruit and insects.	Unlikely. No suitable habitat is present in the Property.
Aves	<i>Hirundapus caudacutus</i>	White-throated Needletail	Vulnerable	Almost exclusively aerial, from heights of less than 1 m up to more than 1000 m above the ground. Occur over most types of habitat, particularly above wooded areas including open forest and rainforest, between trees or in clearings and below the canopy.	Unlikely. Potential habitat is present in areas of retained native vegetation in the Property. However, numerous detailed surveys have been undertaken across the Property which have not recorded this species.

Class	Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
Aves	<i>Lathamus discolor</i>	Swift Parrot	Critically Endangered	In NSW mostly occurs on the coast and south west slopes. On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. Favoured feed trees include winter flowering species such as <i>Eucalyptus robusta</i> , <i>Corymbia maculata</i> , <i>C. gummifera</i> , <i>E. sideroxylon</i> , and <i>E. albens</i> . Breeds in Tasmania in spring and summer.	Unlikely. The Property is located outside the main areas of habitat for this species. Potential marginal habitat is present in areas of retained native vegetation in the Property. However, numerous detailed surveys have been undertaken across the Property which have not recorded this species.
Aves	<i>Melanodryas cucullata cucullata</i>	South-eastern Hooded Robin, Hooded Robin (south-eastern)	Endangered	Hooded Robins are found in lightly timbered woodland, mainly dominated by acacia and/or eucalypts.	Unlikely. No suitable habitat is present in the Property.

Class	Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
Aves	<i>Neophema chrysostoma</i>	Blue-winged Parrot	Vulnerable	Inhabit a range of habitats from coastal, sub-coastal and inland areas, through to semi-arid zones. They tend to favour grasslands and grassy woodlands and are often found near wetlands both near the coast and in semi-arid zones. The species can also be seen in altered environments such as airfields, golf-courses and paddocks	Unlikely. No suitable habitat is present in the Property.
Aves	<i>Numenius madagascariensis</i>	Eastern Curlew, Far Eastern Curlew	Critically Endangered	Prefers sheltered coasts, especially estuaries, bays, harbours, inlets and lagoons. Also known to occur in sewage farms, wetlands and mangroves. Species roosts on sandy spits and in low Saltmarsh or mangroves.	Unlikely. No suitable habitat is present in the Property.
Aves	<i>Pycnoptilus floccosus</i>	Pilotbird	Vulnerable	Pilotbirds are strictly terrestrial, living on the ground in dense forests with heavy undergrowth.	Unlikely. Potential habitat is present in areas of retained native vegetation in the Property. However, numerous detailed surveys have been undertaken across the Property which have not recorded this species.

Class	Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
Aves	<i>Rostratula australis</i>	Australian Painted Snipe	Endangered	Inhabits fringes of shallow inland wetlands, swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber.	Unlikely. No suitable habitat is present in the Property.
Aves	<i>Stagonopleura guttata</i>	Diamond Firetail	Vulnerable	Occurs in grassy eucalypt woodland, open forest and riparian areas.	Unlikely. No suitable habitat is present in the Property.
Gastropoda	<i>Pommerhelix duralensis</i>	Dural Land Snail	Endangered	Species occurs under rocks or inside curled-up bark within communities in the interface region between sandstone-derived and shale-derived soils.	Present. This species has been recorded from the Property and potential habitat is present in areas of native vegetation.
Mammalia	<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat, Large Pied Bat	Vulnerable	The species is associated with areas dominated by sandstone escarpments; sandstone cliffs and fertile woodland valley habitat occurring in close proximity to each other is important for the species. It roosts in cliff/escarpment areas and forages in fertile forest. Roosting is predominately in arch caves with dome roofs, but has been observed in disused	Unlikely. Potential foraging habitat is present in areas of retained native vegetation in the Property. However, numerous detailed surveys have been undertaken across the Property which have not recorded this species. No cliff/escarpment habitat is present and no roosting or breeding habitat is present.

Class	Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
Mammalia	<i>Dasyurus maculatus maculatus</i> (SE mainland population)	Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population)	Endangered	mines shafts, overhangs, and disused Fairy Martin nests. 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. Individual animals use hollow-bearing trees, fallen logs, small caves, rock outcrops and rocky-cliff faces as den sites.	Unlikely. Potential habitat is present in areas of retained native vegetation in the Property. However, numerous detailed surveys have been undertaken across the Property which have not recorded this species.

Class	Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
Mammalia	<i>Isoodon obesulus obesulus</i>	Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern)	Endangered	Within NSW, the species is rare and almost exclusively restricted to the coastal fringe of the state, from the southern side of the Hawkesbury River in the north to the Victorian border in the south. More specifically, the subspecies is considered to occur primarily in two areas: Kuring-gai Chase and Garigal National Parks; and in the far south-east corner of the state. Occurs within their distribution in a variety of habitats including heathland, shrubland, sedgeland, heathy open forest and woodland.	Unlikely. The Property is outside of the primary area of distribution of this species and the habitats present are not optimal for this species.
Mammalia	<i>Notamacropus parma</i>	Parma Wallaby	Vulnerable	The optimum habitat for the Parma wallaby is wet sclerophyll forest with a thick, shrubby understorey and nearby grassy patches. The species also occurs in dry sclerophyll forest with a dense understorey and occasionally in rainforest	Unlikely. Potential habitat is present in areas of retained native vegetation in the Property. However, numerous detailed surveys have been undertaken across the Property which have not recorded this species.

Class	Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
Mammalia	<i>Petauroides volans</i>	Greater Glider (southern and central)	Endangered	Occurs in eucalypt forests and woodlands from north-eastern Queensland to the Central Highlands of Victoria. The species has a relatively small home range which consists of numerous tree hollows.	Unlikely. Potential habitat is present in areas of retained native vegetation in the Property. However, numerous detailed surveys have been undertaken across the Property which have not recorded this species.
Mammalia	<i>Petaurus australis australis</i>	Yellow-bellied Glider (south-eastern)	Vulnerable	Occurs in tall, mature, eucalypt forest generally in areas with high rainfall and nutrient rich soils. It feeds primarily on plant and insect exudate, with insects providing protein. It extracts sap from trees by biting into the trunk and branches leaving distinctive 'V' shaped scars. It dens in large hollows within trees, in groups of two to six individuals.	Unlikely. Potential habitat is present in areas of retained native vegetation in the Property. However, numerous detailed surveys have been undertaken across the Property which have not recorded this species.

Class	Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
Mammalia	<i>Petrogale penicillata</i>	Brush-tailed Rock-wallaby	Vulnerable	Prefers rocky habitats, including loose boulder-piles, rocky outcrops, steep rocky slopes, cliffs, gorges, and isolated rock stacks. Vegetation types associated with the species include dense forest, wet sclerophyll forest, vine thicket, dry sclerophyll forest, and open forest.	Unlikely. No preferred rocky habitat is present in the Property.
Mammalia	<i>Phascolarctos cinereus</i> (combined populations of Qld, NSW and the ACT)	Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory)	Endangered	Inhabit eucalypt woodlands and forests. Feed on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred feed species. Home range size varies with quality of habitat, ranging from less than two ha to several hundred hectares in size.	Unlikely. Potential koala use trees are present in areas of retained native vegetation in the Property. However, numerous detailed surveys have been undertaken across the Property which have not recorded this species.
Mammalia	<i>Pseudomys novaehollandiae</i>	New Holland Mouse, Pookila	Vulnerable	Occurs in open habitats (heathland, woodland and forest) with a heath understorey and vegetated sand dunes. The species prefers deep soft top soils in order to burrow.	Unlikely. No suitable habitat is present in the Property.

Class	Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
Mammalia	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	Vulnerable	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.	Present. This species has been recorded flying over the Property and potential foraging habitat is present. No roosting camps are present and no breeding habitat is present on the Property.
Osteichthyes	<i>Macquaria australasica</i>	Macquarie Perch	Endangered	The species is a riverine, schooling species that prefers clear water, and deep rocky holes with lots of cover. It naturally occurs in the murray-darling basin and associated water courses, Shoalhaven River, and the Hawkesbury Nepean System	Unlikely. No suitable habitat is present in the Property.

Class	Scientific Name	Common Name	EPBC Act Category	Habitat requirements	Likelihood of Occurrence
Osteichthyes	<i>Prototroctes maraena</i>	Australian Grayling	Vulnerable	Species spends part of its lifecycle in freshwater and part of the larval and/or juvenile stages in coastal seas. Adults inhabit cool, clear, freshwater streams with gravel substrate and areas alternating between pools and riffle zones	Unlikely. No suitable habitat is present in the Property.
Reptilia	<i>Delma impar</i>	Striped Legless Lizard, Striped Snake-lizard	Vulnerable	The striped legless lizard is a grassland specialist, found only in areas of native grassland and nearby grassy woodland and exotic pasture	Unlikely. No suitable habitat is present in the Property.
Reptilia	<i>Hoplocephalus bungaroides</i>	Broad-headed Snake	Vulnerable	Shelters in rock crevices and under flat sandstone rocks on exposed cliff edges during autumn, winter and spring. Moves from the sandstone rocks to shelters in crevices or hollows in large trees within 500m of escarpments in summer.	Unlikely. No suitable sandstone habitat is present in the Property.

Table 7 Likelihood of Occurrence – Migratory species (non-threatened)

Class	Scientific Name	Common Name	Migratory Category	Habitat requirements	Likelihood of Occurrence
Aves	<i>Actitis hypoleucos</i>	Common Sandpiper	Migratory Wetlands Species	Species occurs near coastlines utilising coastal and inland wetlands, streams, mudflats, lakes, claypans and reservoirs. Forages in shallow water and roosts on rocks or in roots or branches of vegetation.	Unlikely. No suitable habitat is present in the Property
Aves	<i>Apus pacificus</i>	Fork-tailed Swift	Migratory Marine Birds	Species has been recorded throughout NSW, but mostly east of the Great Divide. The species is almost exclusively aerial in Australia and breeds overseas. It forages from a metre above the ground, up to hundreds of metres in altitude, and mostly occur over inland plains, though sometimes over foothills, and coastal areas.	Unlikely. Potential habitat is present in areas of retained native vegetation in the Property. However, numerous detailed surveys have been undertaken across the Property which have not recorded this species.
Aves	<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	Migratory Wetlands Species	Species prefers muddy edges of shallow fresh or brackish wetlands with inundated or low vegetation. Known to occur lagoons, swamps, lakes, dams, and other waterbodies. Roosts at the edges of wetlands.	Unlikely. No suitable habitat is present in the Property

Class	Scientific Name	Common Name	Migratory Category	Habitat requirements	Likelihood of Occurrence
Aves	<i>Calidris ferruginea</i>	Curlew Sandpiper	Migratory Wetlands Species	The Curlew Sandpiper is found in coastal areas with intertidal mudflats, including estuaries, inlets and lagoons, and ponds in saltworks. The species have also occasionally been recorded inland around lakes , dams and waterholes with mud or sand present. Main requirements for feeding habitats are the presence of mudflats or shallow water up to 60mm. The Curlew Sandpiper may also forage in saltmarsh environments and flooded paddocks.	Unlikely. No suitable habitat is present in the Property
Aves	<i>Calidris melanotos</i>	Pectoral Sandpiper	Migratory Wetlands Species	Species prefers shallow fresh to saline wetlands and is known to utilise lagoons, estuaries, bays, swamps, lakes, inundated grasslands and other waterbodies. Species does not breed in Australia.	Unlikely. No suitable habitat is present in the Property
Aves	<i>Charadrius leschenaultii</i>	Greater Sand Plover, Large Sand Plover	Migratory Wetlands Species	Found in coastal areas.	Unlikely. No suitable habitat is present in the Property
Aves	<i>Cuculus optatus</i>	Oriental Cuckoo, Horsfield's Cuckoo	Migratory Terrestrial Species	Non-breeding visitor to Australia who is a brood parasite. Usually inhabits forested areas and can be found at all levels of the canopy and at a range of elevations.	Unlikely. Potential habitat is present in areas of retained native vegetation in the Property. However, numerous detailed surveys have been undertaken across the Property which have not recorded this species.

Class	Scientific Name	Common Name	Migratory Category	Habitat requirements	Likelihood of Occurrence
Aves	<i>Gallinago hardwickii</i>	Latham's Snipe, Japanese Snipe	Migratory Wetlands Species	Seen in small groups or singly in freshwater wetlands on or near the coast, generally among dense cover. They are found in any vegetation around wetlands, in sedges, grasses, lignum, reeds and rushes and also in saltmarsh and creek edges on migration. They also use crops and pasture.	Unlikely. No suitable habitat is present in the Property
Aves	<i>Hirundapus caudacutus</i>	White-throated Needletail	Migratory Terrestrial Species	Almost exclusively aerial, from heights of less than 1 m up to more than 1000 m above the ground. Occur over most types of habitat, particularly above wooded areas including open forest and rainforest, between trees or in clearings and below the canopy.	Unlikely. Potential habitat is present in areas of retained native vegetation in the Property. However, numerous detailed surveys have been undertaken across the Property which have not recorded this species.
Aves	<i>Monarcha melanopsis</i>	Black-faced Monarch	Migratory Terrestrial Species	Found along the coast of eastern Australia, becoming less common further south. The Black-faced Monarch is found in rainforests, eucalypt woodlands, coastal scrub and damp gullies. It may be found in more open woodland when migrating.	Unlikely. Potential habitat is present in areas of retained native vegetation in the Property. However, numerous detailed surveys have been undertaken across the Property which have not recorded this species.
Aves	<i>Motacilla flava</i>	Yellow Wagtail	Migratory Terrestrial Species	Species is believed to be a regular summer visitor to NSW, preferring open grassy flats near water.	Unlikely. No suitable habitat is present in the Property

Class	Scientific Name	Common Name	Migratory Category	Habitat requirements	Likelihood of Occurrence
Aves	<i>Myiagra cyanoleuca</i>	Satin Flycatcher	Migratory Terrestrial Species	Inhabit heavily vegetated gullies in eucalypt-dominated forests and taller woodlands, and on migration, occur in coastal forests, woodlands, mangroves and drier woodlands and open forests.	Unlikely. Potential habitat is present in areas of retained native vegetation in the Property. However, numerous detailed surveys have been undertaken across the Property which have not recorded this species.
Aves	<i>Numenius madagascariensis</i>	Eastern Curlew, Far Eastern Curlew	Migratory Wetlands Species	Prefers sheltered coasts, especially estuaries, bays, harbours, inlets and lagoons. Also known to occur in sewage farms, wetlands and mangroves. Species roosts on sandy spits and in low Saltmarsh or mangroves.	Unlikely. No suitable habitat is present in the Property
Aves	<i>Rhipidura rufifrons</i>	Rufous Fantail	Migratory Terrestrial Species	Found in rainforest, dense wet forests, swamp woodlands and mangroves, preferring deep shade, and is often seen close to the ground.	Unlikely. Potential habitat is present in areas of retained native vegetation in the Property. However, numerous detailed surveys have been undertaken across the Property which have not recorded this species.
Aves	<i>Symposiachrus trivirgatus</i>	Spectacled Monarch	Migratory Terrestrial Species	The Spectacled Monarch prefers thick understorey in rainforests, wet gullies and waterside vegetation, as well as mangroves. The Spectacled Monarch is found in coastal north-eastern and eastern Australia, including coastal islands, from Cape York, Queensland to Port Stephens, New South Wales. It is much less	Unlikely. Potential marginal habitat is present in areas of retained native vegetation in the Property. However, numerous detailed surveys have been undertaken across the Property which have not recorded this species.

Class	Scientific Name	Common Name	Migratory Category	Habitat requirements	Likelihood of Occurrence
				common in the south. It is also found in Papua New Guinea, the Moluccas and Timor.	
Aves	<i>Tringa nebularia</i>	Common Greenshank, Greenshank	Migratory Wetlands Species	Occurs in a wide variety of inland wetlands and sheltered coastal areas. Species does not breed in Australia.	Unlikely. No suitable habitat is present in the Property

APPENDIX D :

BDAR extracts - Keystone Vegetation Mapping

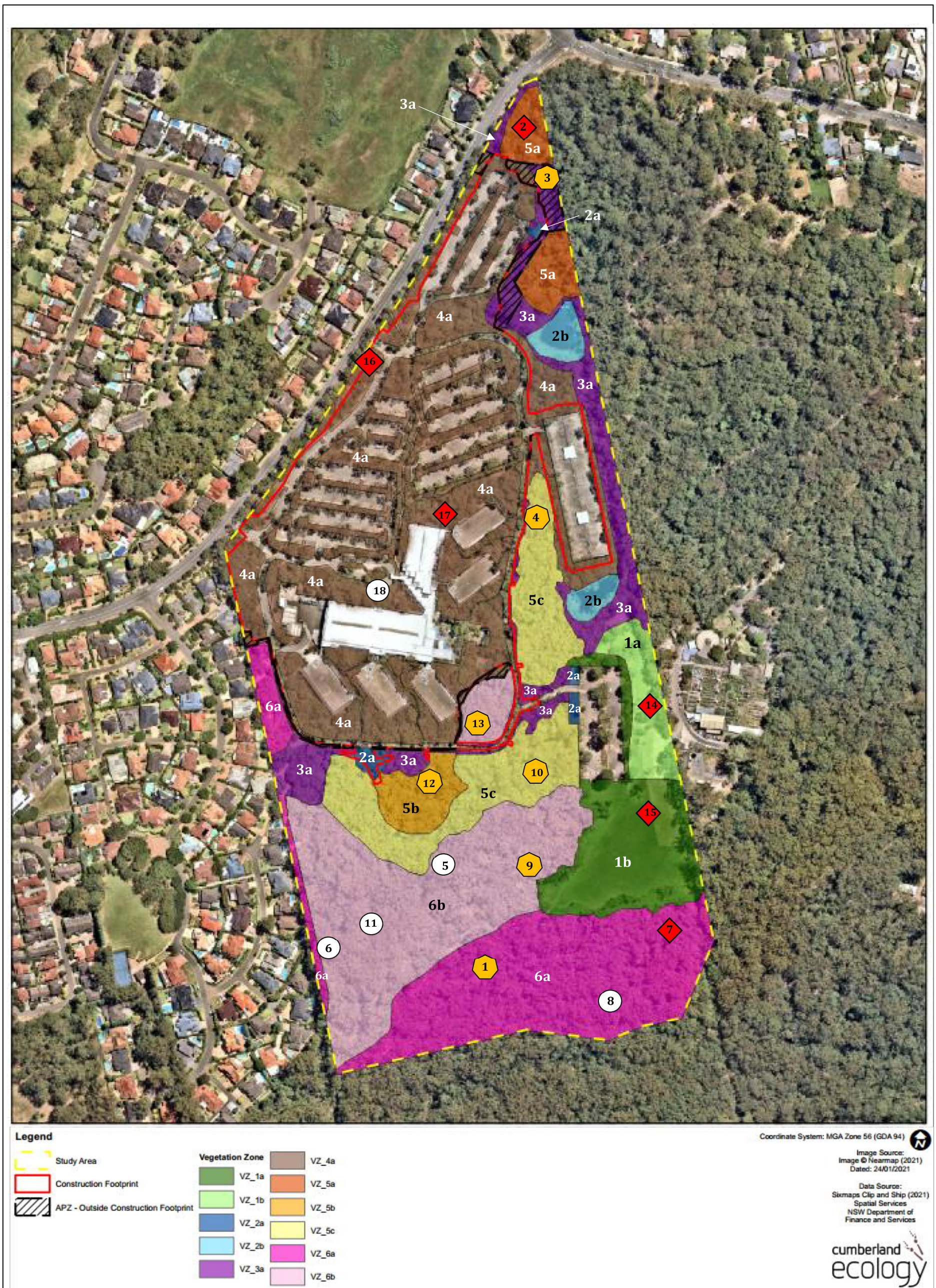


Figure 8: Vegetation Zones and vegetation plots in relation to the footprint.



Figure 8: Vegetation Zones and vegetation plots in relation to the footprint.

FIGURES





- Legend**
- The Property
 - Approved Concept Masterplan DA footprint
 - Approved Demolition DA footprint
 - Proposed Open Space DA

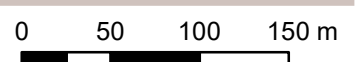
Coordinate System: MGA Zone 56 (GDA 94)

Image Source:
Image © Nearmap (2023)
Dated: 18/01/2023

Data Source:
Sixmaps Clip and Ship (2022)
Spatial Services
NSW Department of
Finance and Services



Figure 1. Location of Development Applications within the Property





Legend

- The Property
- Approved Concept Masterplan DA footprint
- Excluded Area

Coordinate System: MGA Zone 56 (GDA 94)



Image Source:
Image © Nearmap (2023)
Dated: 18/01/2023

Data Source:
Sixmaps Clip and Ship (2022)
Spatial Services
NSW Department of
Finance and Services



Figure 2. Location of Proposed Excluded Areas within the Concept Masterplan Footprint

0 50 100 m





Legend

- The Property
 - Approved Concept Masterplan DA footprint
 - Proposed Excluded Area
- Vegetation Community (Keystone Ecological)**
- VZ4a- Landscaped Gardens

Coordinate System: MGA Zone 56 (GDA 94)



Image Source:
Image © Nearmap (2023)
Dated: 18/01/2023

Data Source:
Sixmaps Clip and Ship (2022)
Spatial Services
NSW Department of
Finance and Services



Figure 3. Vegetation Mapping of the Excluded Areas and Concept Masterplan

