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Imogen Featherstone
Project Planning Manager
Ginninderry
1 McClymont Way, Strathnairn ACT 2615
M: 0428 246 341
E: imogen@ginninderry.com

Ecological Values and Constraints Assessment for Lot 2 Wallaroo Rd, Wallaroo, NSW.

Capital Ecology project no. 3049

Dear Ms. Featherstone

This report provides an Ecological Values and Constraints Assessment (EVCA) for Lot 2 Wallaroo Road (Lot 2, DP1144979), Wallaroo, NSW (the 'subject land', total area = 86.7 ha).

We understand that Ginninderry is investigating the suitability of the subject land for and requires this EVCA to determine the ecological values of the land that may be impacted by, as well as the associated constraints posed by current Commonwealth and NSW legislation.

The subject land is currently zoned[1] 'RU1 - Primary Production' and 'E4 – Environmental Living', with a minimum lot size[2] of 40 ha.

If development proposed within the subject land would be a State Significant Development (SSD) as defined in Schedules 1 and 2 of the NSW *State Environmental Planning Policy (State and Regional Development) 2011*, it would trigger the application of the NSW Biodiversity Offset Scheme (BOS) regardless of the biodiversity values impacted. The impacts of the proposed development would therefore need to be assessed by applying the Biodiversity Assessment Method (BAM) with the findings documented in a Biodiversity Development Assessment Report (BDAR). We note that the work completed for this EVCA is essentially the first component of a BDAR and it identifies the targeted

[1] Yass Valley Local Environmental Plan 2013 – *Land Zoning Map - Sheet LSZ_005*.
[2] Yass Valley Local Environmental Plan 2013 – *Lot Size Map - Sheet LSZ_005.*

surveys that may be required to inform a future BAM assessment. Accordingly, this EVCA provides preliminary identification and assessment of the values of recognised biodiversity conservation significance occurring within the subject land, specifically those currently listed pursuant to the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and/or the NSW *Biodiversity Conservation Act 2016* (BC Act).

This EVCA has been prepared based on:

- the results of database searches for the subject land, including the Commonwealth EPBC Act Protected Matters Search Tool (PMST), ACTMapi, Canberra Nature Map, Atlas of Living Australia, and NSW Wildlife Atlas (BioNet);
- a review of relevant studies and other background information, including the surveys and sources referenced herein; and
- the knowledge of the authors regarding the biota of the locality, specifically the threatened ecological communities, flora, and fauna (and associated habitat) with the potential to occur in the lowland grassland and woodland ecosystems of the South Eastern Highlands bioregion of NSW.

This EVCA is divided into the following sections.

1. Methods
2. Results
3. Assessment of Potential for Impacts and Development Constraints
4. Reducing Environmental Impact and Biodiversity Offset Obligation
5. Conclusions and Recommendations

1. Methods

1.1 Database Search

To inform the review, Capital Ecology completed a desktop review involving the following.

- A list of threatened species (flora and fauna), threatened populations, and threatened ecological communities (TECs) listed pursuant to the EPBC Act with the potential to occur in the subject land was obtained using the Commonwealth Government Department of Agriculture, Water and the Environment's (DAWE) online EPBC Act Protected Matters Search Tool (PMST) on 28 June 2021
- A review of the NSW Wildlife Atlas (BioNet), ACTMapi, Canberra Nature Map, and Atlas of Living Australia point data for the significant ecological values of the locality (i.e. within a 5 km radius of the subject land). These values include species listed as threatened pursuant to the EPBC Act and/or the BC Act.
- A review of the NSW Biodiversity Values Map.

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1.2 Literature Review

Capital Ecology completed a review of previous and current studies undertaken by Capital Ecology and others in the locality, including the following.

- Robert Jessop PTY LTD (2014). *Lots 1 and 2 Wallaroo Road Golden Sun Moth Survey 2013.* Prepared for Kellogg, Brown & Root PTY LTD.
- Kellogg Brown & Root PTY LTD (2014). *Lots 1 and 2 Wallaroo Road Vegetation Management Plan.* Prepared for the Commonwealth Department of Finance.
- Kellogg Brown & Root PTY LTD (2014). *Lots 1 and 2 Wallaroo Road Vegetation Condition Assessment Report.* Prepared for the Commonwealth Department of Finance.
- Alison Rowell (2015). *Riverview Project: Ginninderra Drive Extension Golden Sun Moth and Ecological Surveys.* Prepared for Umwelt (Australia) PTY LTD.
- Umwelt (2017). *West Belconnen Project Strategic Assessment, Strategic Assessment Report.*
- ACT Government (2018). *Gooromon Grasslands Offset Management Plan 2018-23.* ACT Parks and Conservation Service.
- SMEC (2018). *Yass Yalley Lot 2 Offset Golden Sun Moth Population Monitoring and Habitat Assessment 2017.* Prepared for ACT Government Department of Environment and Planning
- Capital Ecology (2018). *2017 Grassland Quality and Extent Mapping*. Prepared for ACT Government, Environmental Offsets, ACT Parks and Conservation Service.

1.3 Likelihood of Occurrence Assessment

The Likelihood of Occurrence Assessment for threatened flora and fauna species is a categorisation used to determine the likelihood that the subject species occurs within a subject land. The results are based on the findings of completed desktop studies and a field survey, expert opinion, and consideration of the species' currently recognised distribution and preferred habitat.

Threatened species and populations identified in the Likelihood of Occurrence Assessment include all of those identified during the database and literature review as potentially occurring in the locality. More specifically, threatened species included are those identified on the EPBC Act PMST, those identified on BioNet or other databases as previously recorded in the locality, and those not previously identified but considered by Capital Ecology to have some potential to occur in the subject land.

The likelihood of a species occurring in the subject land is categorised as either negligible, low, moderate, or high. A species that has been identified in the subject land during the survey for this EVCA or by other confirmed records is expressed as confirmed.

The completed Likelihood of Occurrence Assessment is provided as Appendix C. Species assigned a moderate or higher likelihood of occurrence in the subject land, other than if this is limited to transient visitation, are considered in more detail in Section 2.5 (threatened flora and fauna).

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2. Results

2.1 Subject Land Description

The subject land is located on Wallaroo Road, just north of the ACT border, and is surrounded by a mosaic composed of patches of relatively intact remnant woodland and grassland, existing urban development, and predominantly cleared agricultural land. As shown on Figure 1, the subject land is bordered by:

- the ACT border and the suburbs of Canberra to the south and east;
- Dunlop Grassland Reserve to the east;
- rural residential land in Wallaroo to the north; and
- mixed native grassland and cleared agricultural land to the west.

Gooromon Ponds creek flows along the boundary of the subject land from the south-west the north-east. The entirety of the creek is identified on the NSW Biodiversity Values Map (BVM), along with a large portion in the south-west of the subject land.

2.2 Vegetation

In 2017, Capital Ecology Pty Ltd (Capital Ecology 2018) was commissioned by the ACT Government Parks and Conservation Service (PCS) to assess and map the quality and extent of the grassland in seven ACT offset reserves. The vegetation in the subject land was assessed as part of this project. As described in Capital Ecology (2018), the entirety of the subject land would historically have been natural temperate grassland (NTG, PCT 1289). The central parts of the subject land have largely been cleared and pasture improved, but several small patches of high quality NTG remain (PCT1289/ACT01 Zone 1), as well as larger patches of low diversity native pasture (PCT1289/ACT01 Zone 3[3]). The floristically diverse areas of NTG-SEH (3.51 ha) are dominated by Spear Grass, Wallaby Grass or Kangaroo Grass, and are generally found on the sloped sections of the site which border Gooromon Ponds creek. The remainder of the subject land is exotic pasture, dominated by sown Phalaris, Paspalum and Yorkshire Fog (PCT1289/ACT01 Zone 4).

Table 1 provides a description of the PCTs identified in the subject land. Table 2 summarises the PCTs and vegetation zones identified, assessed, and mapped during the field survey in spring 2017, which are described in detail in Capital Ecology (2018, Tables 3.7-a, b and c). The mapped vegetation zones are shown in Figure 2.

[3] Zone 2, described as moderate-high diversity NTG-SEH, was not present in the subject land, but was present at other sites in this study (Capital Ecology 2018).

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Table 1. PCTs recorded in the subject land.

PCT	PCT name	PCT description	Occurrence in subject land	TEC status Commonwealth / NSW	PCT % cleared
1289 (ACT01)	Wallaby Grass - Red-grass - Tall Speargrass - Kangaroo Grass dry tussock grassland of the North-western and Eastern Southern Tablelands in the South Eastern Highlands Bioregion	This community is characterised by mid-dense tall tussock grassland. It occurs in dry locations, though not in the dry rain shadow of the Monaro. It is widespread in the Southern Tablelands (Canberra, Yass, Boorowa, Crookwell, Goulburn, Braidwood, and Bungendore districts) and occurs mainly on well-drained footslopes and midslopes on all lithologies.	This PCT was recorded across the entirety of the subject land.	Critically endangered (EPBC) when occurring in a condition consistent with the listing criteria of the TEC. Not listed (NSW)	57%

Table 2. Summary of Vegetation Zones (Capital Ecology 2018).

	PCT 1289/ACT01		
	Zone 1	Zone 3	Zone 4
Description	NTG-SEH. Native-dominated (*Themeda/ Austrostipa/Rytidosperma* association), supporting a high to very high diversity of native grass and forb species.	Native grassland. Native-dominated (*Austrostipa/ Microlaena* association), with some forbs present. This zone has lower diversity than Zone 1 and does not meet the EPBC Act criteria for NTG-SEH.	This zone is dominated by exotic vegetation, namely Phalaris, Yorkshire Fog *Holcus lanatus*, broadleaf weeds and exotic annuals.
Area	3.51 ha	34.27 ha	48.92 ha
Native Species Richness	14-20 total native species 7-9 native non-grass species 4-8 indicator species.	6-9 total native species 1-2 native non-grass species 0 indicator species	0-5 total native species 0-1 native non-grass species 0 indicator species
Exotic Species Richness	8-14 species.	8-9 species.	5-9 species.
Weed Value Score	Average of 6.60 (range of 3.30 to 11.40).	Average of 5.68 (range of 4.03 to 8.70).	Average of 7.84 (range of 6.59 to 9.59).
Floristic Value Score	Average of 18.79 (range of 13.10 to 23.49).	Average of 1.87 (range of 1.40 to 2.25).	Average of 0.43(range of 0 to 1.10).

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2.3 Threatened Ecological Communities

2.3.1 Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)

The following two EPBC Act critically endangered listed ecological communities have the potential to occur in the locality:

- Natural Temperate Grassland of the South Eastern Highlands (Natural Temperate Grassland); and
- White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland).

Natural Temperate Grassland of the South Eastern Highlands – listed as critically endangered pursuant to the EPBC Act

Description – As detailed in Commonwealth of Australia (2016[4]), the NTG-SEH TEC is characterised by grassy vegetation dominated by moderately tall (25–50cm) to tall (50–100cm), dense to open tussock grasses in the genera *Rytidosperma*, *Austrostipa*, *Bothriochloa*, *Poa* and *Themeda*. Up to 70% of all plant species may be forbs. The community may be treeless or contain up to 10% cover of trees, shrubs or sedges. Natural Temperate Grassland occurs within the biogeographical region of the South Eastern Highlands in valleys influenced by cold air drainage and in broad plains.

Presence in the subject land – Confirmed – the entirety of the subject land currently supports or would have historically supported NTG-SEH (PCT 1289). However, only Zone 1 (3.51 ha) meets the criteria for the listed TEC under the EPBC Act. The remaining areas (Zones 3 and 4, 83.19 ha) have been degraded to the point that they no longer support this TEC.

White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland – listed as critically endangered pursuant to the EPBC Act

Description – The White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland TEC is characterised by a species-rich understorey of native tussock grasses, herbs and scattered shrubs (where shrub cover comprises less than 30% cover), and a dominance or prior dominance of White Box and/or Yellow Box and/or Blakely's Red Gum trees[5]. This TEC occurs along the western slopes and tablelands of the Great Dividing Range from southern Queensland through New South Wales and the Australian Capital Territory to Victoria.

Presence in the subject land – Absent – No part of the subject land supports, or is estimated to have historically supported, woodland with White Box, Yellow Box or Blakely's Red Gum as one of the most common species. As such, the subject land does not support this TEC.

Conclusion

In light of the above, the subject land supports approximately 3.51 ha of NTG-SEH in moderate to high condition. The subject land does not support any of the other EPBC Act listed threatened ecological communities with the potential to occur in the locality.

[4] Commonwealth of Australia (2016). *Approved conservation advice for the Natural Temperate Grassland of the South Eastern Highlands (NTG–SEH) ecological community*.

[5] Commonwealth of Australia (2006). *Policy Statement 3.5: White Box – Yellow Box – Blakely's Red Gum grassy woodlands and derived native grasslands*.

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2.3.2 Biodiversity Conservation Act 2016 (NSW)

Two BC Act listed ecological communities have the potential to occur in the subject land: *White Box – Yellow Box – Blakely's Red Gum Woodland* (BC Act Box-Gum Woodland) and *Monaro Tableland Cool Temperate Grassy Woodland in the South East Highlands Bioregion*.

BC Act Box-Gum Woodland

This community, listed as critically endangered in NSW, is described below, together with an assessment of its presence and condition in the subject land.

The below description is extracted from the NSW *Final Determination: White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (NSW Threatened Species Scientific Committee 2020, gazetted 17 July 2020[6]).

> *4.2. White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland is characterised by widely-spaced trees with canopies not touching and projected foliage cover generally less than 30% (Prober et al. 2017) ...Understorey shrubs are typically sparse or absent (Prober et al. 2017). The groundcover is dominated by perennial tussock grasses interspersed with a diverse range of forb species with the families Asteraceae and Fabaceae, and the orders Liliales and Asparagales well represented (Prober et al. 2017).*
>
> *4.3. White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland is characteristically dominated by one or more of the species Eucalyptus albens (White Box), E. melliodora (Yellow Box) and E. blakelyi (Blakely's Red Gum) …A number of understorey species are typically found throughout almost the entire range of the community, with the exception of the extreme north of its distribution and areas where they have been excluded by grazing.*
>
> *4.10. The distribution of White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland spans a range in elevation from approximately 170 m ASL on the western slopes of the Great Dividing Range to approximately 1200 m on the Northern Tablelands of NSW (Beadle 1981), although occurrences on the ranges are typically at lower elevations (Prober et al. 2017). The topography on which the community occurs ranges from flat in the west of its range to hilly and undulating in the east (Prober and Thiele 2004).*
>
> *4.12. …For the purpose of establishing the risk of ecosystem/community collapse due to ongoing decline in distribution, it is not possible on the basis of available data, to specify thresholds in either tree cover or species diversity which are indicative of loss of function because: i) no single threshold is appropriate for the range of circumstances and pathways leading to different states of degradation (and hence the potential for recovery); ii) the point at which an ecological community has ceased to function in its original form is inherently uncertain, and the scientific basis upon which symptoms such as loss of tree cover and diversity can be related to ecological function is not established in this case; and iii) recovery may be dependent on active remediation, therefore thresholds can not be determined in absolute terms because they depend on social (collective will) and economic (cost of remediation) factors.*
>
> *3.1.4. The condition of remnants ranges from relatively good to highly degraded, such as paddock remnants with weedy understories and only a few hardy natives left. Some remnants of the*

[6] NSW Threatened Species Scientific Committee (2020). *Final Determination: White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland*. Gazetted 17 July 2020.

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community may consist of only an intact overstorey or an intact understorey but may still have high conservation value due to the flora and fauna they support.

The final determination does not provide specific listing criteria against which to assess a patch of vegetation. However, as described in the final determination, the definition for the BC Act Box-Gum Woodland TEC is extremely broad. In effect, any land for which the climax community is Box-Gum Woodland that has not been cultivated, become a stock camp, or otherwise been entirely modified, is likely to meet the minimum definition of the BC Act listed TEC.

Presence in the subject land – Absent – No part of the subject land supports, or is estimated to have historically supported, woodland with White Box, Yellow Box or Blakely's Red Gum as one of the most common species. As such, the subject land does not support this TEC.

BC Act Monaro Tableland Cool Temperate Grassy Woodland in the South East Highlands Bioregion

The Monaro Tableland Cool Temperate Grassy Woodland (CTGW) in the South East Highlands Bioregion community, listed as critically endangered in NSW, is described below, together with an assessment of its presence and condition within the subject land.

The below description is extracted from the NSW *Final Determination for the TSC Act critically endangered listed ecological community Monaro Tableland Cool Temperate Grassy Woodland in the South East Highlands Bioregion* (NSW Threatened Species Scientific Committee 2019[7]).

Monaro Tableland Cool Temperate Grassy Woodland ranges in structure from woodland to low open woodland. It is characterised by a sparse to very sparse tree stratum dominated by Eucalyptus pauciflora either in monospecific stands or with any of Acacia melanoxylon, E. rubida subsp. rubida, E. stellulata or E. viminalis as codominants. A number of other tree species have been recorded within the community, although very infrequently and always as canopy subdominants. These include E. bridgesiana, E.dives, E. blakelyi and E. melliodora. Tree height and cover vary as a function of moisture availability, drainage and past land management. The tree stratum becomes shorter and sparser with declining moisture availability or increasing levels of soil waterlogging… Trees may be absent as a consequence of tree removal under pastoral management and grazing by domestic stock. A continuous herbaceous ground stratum is usually present, although this is highly variable in composition and cover as a function of grazing pressure from wild herbivores (native and exotic) and domestic stock. Ground cover species include Themeda triandra, Poa sieberiana, Elymus scaber, Hydrocotyle laxiflora, Scleranthus biflorus, Oxalis perennans, Plantago varia, Euchiton japonicus, Poa labillardieri, Hypericum gramineum, Desmodium varians, Geranium solanderi, Acaena echinata, Gonocarpus tetragynus, Microlaena stipoides, Dichondra repens, Solenogyne gunnii, Asperula conferta, Asperula scoparia, Rumex brownii, Rytidosperma laeve, Rytidosperma pilosum, Chrysocephalum apiculatum and Chrysocephalum semipapposum. The Community may develop a shrub or bracken layer as a consequence of the opening up of the ground stratum following excessive grazing by rabbits and sheep. This may include species such as Pimelea pauciflora, Acacia dealbata, Acacia melanoxylon, Acacia rubida subsp. rubida, Cassinia longifolia and Pteridium esculentum (Costin 1954).

As stated in Part 4 of the Final Determination, the occurrence or historical occurrence of Snow Gum *Eucalyptus pauciflora* is the primary characteristic for determining the presence of the community. The

[7] NSW Threatened Species Scientific Committee (2019). *Final Determination: Monaro Tableland Cool Temperate Grassy Woodland in the South Eastern Highlands Bioregion.* Department of Planning, Industry and Environment, Sydney. Gazetted 28 June 2019.

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final determination provides a Monaro & Werriwa CTGW Assessment Spreadsheet Tool to be used in conjunction with an Advisory Layer indicating potential extent. Presence of Snow Gum, characteristic species, non-characteristic species, stumps, and the proximity to nearest Snow Gum, are entered into the assessment tool to determine the likelihood of occurrence of the community. Part 1 of the Final Determination provides a list of an assemblage of species characteristic of the Monaro Tableland CTGW.

Presence in the subject land – Absent – No part of the subject land supports, or is estimated to have historically supported, woodland with Snow Gum as one of the most common species. As such, the subject land does not support this TEC.

Conclusion

The subject land does not support either of the BC Act listed ecological communities which have the potential to occur in the locality.

2.4 Native Vegetation Extent

As per the BC Act, native vegetation is defined according to Part 5A of the *Local Land Services Act 2013* (LLS Act), which states:

> *"(1) For the purposes of this Part, native vegetation means any of the following types of plants native to New South Wales:*
>
> *(a) trees (including any sapling or shrub or any scrub),*
>
> *(b) understorey plants,*
>
> *(c) groundcover (being any type of herbaceous vegetation),*
>
> *(d) plants occurring in a wetland.*
>
> *(2) A plant is native to New South Wales if it was established in New South Wales before European settlement. The regulations may authorise conclusive presumptions to be made of the species of plants native to New South Wales by adopting any relevant classification in an official database of plants that is publicly accessible."*

As per this definition, planted vegetation which comprises plant species native to NSW, regardless of whether or not the species are indigenous to the specific region and/or PCT of the subject land, is classified as native vegetation.

The Commonwealth Government[8,9], ACT Government[10], and previous NSW Government[11] assessment guidelines for the temperate grassland and woodland PCTs of the NSW/ACT Southern Tablelands region each declare vegetation as native dominant if 50% or more of the perennial groundlayer is comprised of native species. However, no such threshold is defined by the Biodiversity Assessment Method (BAM),

[8] Commonwealth of Australia (2006). *Policy Statement 3.5: White Box – Yellow Box – Blakely's Red Gum grassy woodlands and derived native grasslands*. Commonwealth Department of Environment and Heritage.
[9] Commonwealth of Australia (2016). Approved conservation advice for the Natural Temperate Grassland of the South Eastern Highlands (NTG–SEH) ecological community.
[10] ACT Government (2012). *Survey guidelines for determining lowland vegetation classification and condition in the ACT,* Conservation, Planning and Research, ACT Government.
[11] NSW Government (2014). *BioBanking Assessment Methodology 2014*. NSW Government Office of Environment and Heritage.

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and the Department of Planning, Industry and Environment – Biodiversity Conservation Division (DPIE-BCD) have advised that the criteria for use in determining native vs. exotic dominance must be more stringent than the previously applied 50/50 rule. It is understood that this is due to the potential for seasonal variation and/or assessor disparity to substantially alter the BAM mapping result. For example, a patch of vegetation that is classified as 55% native in one season may be classified as 45% native in another.

With regard to the above, for the purposes of this EVCA:

1. 'Native vegetation' is defined as any plant, naturally occurring or planted, which is native to NSW.
2. Exotic vegetation is defined as any plant which is not native to NSW.
3. A polygon of vegetation is 'native vegetation' if:
    a. 35% (i.e. approximately one-third) or more of the perennial groundlayer comprises species native to NSW; and/or
    b. species native to NSW are present in one or more of the other strata.

In accordance with the above and as shown on Figure 2, the following zones constitute BC Act native vegetation: PCT 1289 Zones 1 and 3, totalling approx. 83.19 ha.

2.5 Flora and Fauna Habitat and Threatened Species Occurrence

2.5.1 Native flora and fauna recorded

For the purposes of this EVCA, no targeted field surveys have been undertaken for any flora or fauna species. Database searches were carried out for all threatened species on the Atlas of Living Australia (ALA), BioNet, Canberra Nature Map, and ACTMapi within a 5 km radius of the subject land. The results of these searches are shown in Table 3.

Three threatened species have previously been recorded in the subject land, Golden Sun Moth *Synemon plana* (EPBC Act Critically Endangered, BC Act and NC Act Endangered), Spotted Harrier *Circus assimilis* (BC Act Vulnerable), and Perunga Grasshopper *Perunga ochracea* (NC Act Vulnerable).

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Table 3. Results of database searches including Atlas of Living Australia (ALA), NSW BioNet, Canberra Nature Map (CNM), ACTMapi. Yellow = present within 5 km of the subject land, Green = present in the subject land.

Species Name	Common Name	ALA	BioNet	CNM	ACTMapi
Birds					
Anthochaera phrygia	Regent Honeyeater				
Artamus cyanopterus	Dusky Woodswallow				
Callocephalon fimbriatum	Gang-gang cockatoo				
Calyptorhynchus lathami	Glossy Black-cockatoo				
Circus assimilis	Spotted Harrier				
Climacteris picumnus	Brown Treecreeper				
Daphoenositta chrysoptera	Varied Sittella				
Epthianura albiforns	White-fronted Chat				
Falco subniger	Black Falcon				
Haliaeetus leucogaster	White-bellied Sea-Eagle				
Hieraaetus morphnoides	Little Eagle				
Lalage sueurii	White-winged Triller				
Lathamus discolor	Swift Parrot				
Melanodryas cucullata	Hooded Robin				
Petroica boodang	Scarlet Robin				
Petroica phoenicea	Flame Robin				
Polytelis swainsonii	Superb Parrot				
Pyrrholaemus sagittatus	Speckled Warbler				
Rostratula australis	Australian Painted Snipe				
Stagonopleura guttata	Diamond Firetail				
Stictonetta naevosa	Freckled Duck				
Insects					
Cooroboorama canberrae	Canberra Raspy Cricket				
Keyacris scurra	Key's Matchstick Grasshopper				
Perunga ochracea	Perunga Grasshopper				
Synemon plana	Golden Sun Moth				
Mammals					
Dasyurus maculatus	Spotted-tailed Quoll				
Miniopterus orianae oceanensis	Large Bent-winged Bat				
Miniopterus schreibersii oceanensis	Eastern Bent-winged Bat				
Pteropus poliocephalus	Grey-headed Flying Fox				
Reptiles					
Aprasia parapulchella	Pink-tailed Worm Lizard				
Varanus rosenbergii	Rosenberg's Goanna				
Plants					
Lepidium ginninderrense	Ginninderra Peppercress				
Leucochrysum albicans	Hoary Sunray				
Prasophyllum petilum	Tarengo Leek-orchid				

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Golden Sun Moth *Synemon plana*

Targeted surveys for the Golden Sun Moth (GSM) have previously been undertaken in the subject land in 2013 (RJPL 2014), 2014 (Rowell 2015) and 2017 (SMEC 2018). The results of these surveys are summarised in Table 4.

Table 4. Summary of results of Golden Sun Moth surveys 2013-2017

Study Year (reference)	Number of surveys	Method	Total GSM	GSM/min
2013 (RJPL 2014)	4	Random meander	57	0.59
2014 (Rowell 2015)	4	Random meander	41	0.08
2017 (SMEC 2018)	3	Walked transects	79	0.2

The results of the GSM surveys were fairly consistent across the three studies, recording low GSM activity in all years. GSM activity was concentrated in patches of NTG in the northern part of the subject land along the banks of the creek, and in the narrow strip between the creek and the ACT border with Dunlop Grassland in the north-east. A few GSM have also been recorded in a patch of NTG in the south-west of the subject land, which is likely to be isolated from the rest of the population. A large area of degraded native pasture (PCT1289 Zone 3) in the centre of the subject land does not support GSM habitat; there have been no GSM records in this area and the habitat was assessed as unsuitable for the species due to a lack of bare ground.

As assessed in SMEC (2018), the subject land contains a total of 11 ha of GSM habitat, divided into the following condition classes based on the method developed by Alison Rowell.

- High quality = 0.2 ha
- Medium quality = 3.6 ha
- Low quality = 7 ha
- Chilean needle grass = 0.2

In addition to the 11 ha of currently occupied GSM habitat, the Gooromon Grasslands Offset Management Plan (ACT Government 2018) includes a commitment to restore 22.1 ha of (currently unoccupied) GSM habitat. These are areas of exotic grassland (Zone 4) located between patches of identified GSM habitat (see Figure 18, ACT Government 2018).

Spotted Harrier

The Spotted Harrier has been previously recorded in the subject land (Canberra Nature Map). The species may occasionally visit the subject land to forage, however the remnant grassland habitat in the subject land does not provide suitable breeding habitat to the species.

Perunga Grasshopper *Perunga ochracea*

The Perunga Grasshopper was recorded in the subject land during surveys by Capital Ecology in spring 2017. This species is listed as a vulnerable species in the ACT, but is not listed under the EPBC Act or the BC Act. The habitat for this species is likely to be limited to the areas of NTG-SEH in good condition (i.e. PCT1289 Zone 1).

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2.5.2 Threatened flora and fauna habitat

As detailed in the Likelihood of Occurrence Assessment (Appendix A), several EPBC Act, BC Act and/or BC Act listed fauna species have the potential to occur within the subject land. As shown in Table 3, 21 threatened bird species, 4 mammal species, 2 reptile species, 4 invertebrate species, and 3 plant species have been recorded within 5 km of the subject land, and an additional 24 species were listed in the Protected Matters Search Tool (PMST) as having the potential to occur. Of these, 13 species were assessed as having a moderate or higher likelihood of occurring within the subject land (Appendix A). Assessment of the occurrence and potential impacts to these listed species would be required via a BAM assessment and BDAR.

We understand that development proposed in the subject land would likely be confined to the areas of exotic grassland (Zone 4) in the central part of the subject land. In this case, the development would be unlikely to have an impact on most of the species with the potential to occur in the subject land. One species, Striped Legless Lizard *Delma impar* (see below), has the potential to occur in the areas of exotic grassland and, if present, would be impacted by development. Targeted surveys would be required to determine the presence of this species.

Striped Legless Lizard *Delma impar*

While there are no records of this species in the subject land or surrounding area (within 5 km), this may be due to a lack of survey effort in the area. The closest known habitat for this species is approximately 7 km away, in Percival Hill Nature Reserve (ACTMapi). Before the development of Canberra, the subject land would have been connected to large areas of known habitat in Belconnen and Gungahlin by large swathes of natural temperate grassland. The Striped Legless Lizard can persist in grassland dominated by exotic grasses such as Phalaris, as long as there is sufficient tussock structure[12], therefore the subject land supports suitable habitat for the species, including the areas of exotic grassland (Zone 4).

As recorded during the previous studies, the subject land supports the fauna habitat features described in Table 5.

Table 5. Fauna habitat features.

Habitat Feature	Description	Relevant Native Fauna Species/Assemblages
Native vegetation (i.e. native shrubs, grasses, and forbs)	PCT1289 Zone 1 and 3 support a native groundlayer, with a diverse range of grasses and forbs.	The native grasses and forbs are likely to provide a foraging resource for a variety of native birds, reptiles, and herbivorous mammals, including threatened species. Open areas are likely to provide a hunting resource for raptors and other predatory birds.
Exotic vegetation	PCT1289 Zone 4 supports a highly modified pasture groundstorey dominated by exotic grasses and forbs (i.e. Phalaris)	The exotic dominant pasture would provide a limited grazing resources for common birds, reptiles, and herbivorous mammals. These areas also have sufficient tussock structure to potentially support a population of Striped Legless Lizard. Open areas are likely to provide a hunting resource for raptors and other predatory birds.

[12] Threatened Species Scientific Committee (2016) *Conservation Advice, Delma impar Striped Legless Lizard. http://www.environment.gov.au/biodiversity/threatened/species/pubs/1649-conservation-advice-16122016.pdf*

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Habitat Feature	Description	Relevant Native Fauna Species/Assemblages
Rocky outcrops and embedded rock	The subject land supports small areas of embedded surface rocks and rocky outcrops.	The rocky outcrops and embedded surface rock are likely to provide refugia and foraging habitat for a variety of herpetofauna and invertebrates, potentially including threatened species.
Creeks, streams, dams, lakes	Gooromon Ponds creek flows along the north-western border of the subject land, and eventually flows into Ginninderra Creek and the Murrumbidgee River. This creek is fringed by a mix of common aquatic native and exotic vegetation. A large man-made wetland (West Belconnen Pond) is immediately adjacent to the south of the subject land.	The creek is likely to provide suitable habitat to a variety of common aquatic flora or fauna such as frogs, turtles, birds, and aquatic macroinvertebrates. West Belconnen Pond provides foraging habitat for a range of wetland birds, including listed migratory species such as the Australian Painted Snipe. This species may also visit the aquatic habitat in the subject land.

2.7 Pest Animals

For the purposes of this EVCA, no field surveys have been undertaken for pest animals. However, it can be assumed that the exotic pest species Common Starling *Sturnus vulgaris,* European Rabbit *Oryctolagus cuniculus*, European Brown Hare *Lepus europaeus,* Feral Pig *Sus scrofa*, Deer *Cervidae* spp. and Red Fox *Vulpes vulpes* will be present in or visit the subject land.

2.8 Pest Plants

For the purposes of this EVCA, no field surveys have been undertaken for pest plants.

Table 6 lists the high threat weeds recorded in the subject land in a previous survey by Capital Ecology (2018).

Table 6. High threat weeds.

Species Name	Common Name	Status
Shrub		
Rosa rubiginosa	Briar Rose	LM
Forb		
Carthamus lanatus	Saffron Thistle	-
Cirsium vulgare	Spear Thistle	-
Echium plantagineum	Paterson's Curse	LM
Hypericum perforatum	St John's Wort	LM
Verbascum Thapsus	Great Mullein	-
Grass		
Festuca arundinacea	Tall Fescue	-
Nasella neesiana	Chilean Needle Grass	WoNS
Nasella trichotoma	Serrated Tussock	WoNS
Paspalum dilatatum	Paspalum	-

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Species Name	Common Name	Status
Phalaris aquatica	Phalaris	-

Table key. Commonwealth Weed of National Significance = **WoNS**. Regional Priority Weed in the South East Local Land Services region under the NSW *Biosecurity Act 2015*: **P** = Prevention; **E** = Eradication; **C** = Containment; **AP** = Asset Protection; **LM** = Species subject to Local Management programs

3. Assessment of Potential for Impacts and Development Constraints

Figure 3 shows the levels of constraint to the proposed development, taking into account the results of the previous field surveys and likely impacts on any EPBC Act and/or BC Act listed entities.

- Very high constraint (Red) – NTG-SEH in high condition (PCT 1289 Zone 1, BC Act Native Vegetation), which is listed as a critically endangered ecological community under the EPBC Act. These areas support high quality habitat for Golden Sun Moth, and have the potential to support a range of threatened flora and fauna.

- High constraint (Orange) – Low diversity native pasture (PCT 1289 Zone 3, BC Act Native Vegetation). While this zone is still native dominant, it has been degraded to the point where it only supports a low diversity of disturbance tolerant species. Parts of this zone may still be able to support Golden Sun Moth (GSM), or have been earmarked for restoration of GSM habitat (ACT Government 2018).

- Low constraint (Green) – Exotic pasture (PCT 1289 Zone 4). This zone is dominated by exotic pasture species, but may still be able to support a population of Striped Legless Lizard (SLL), and parts have been earmarked for restoration of GSM habitat (ACT Government 2018). If the presence of SLL is ruled out with targeted surveys, development within these areas would have little to no impact on any EPBC Act or BC Act listed entities or BC Act native vegetation.

The potential for impacts under the EPBC Act and the BC Act are detailed in the following sections.

3.1 Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)

The EPBC Act is the key Commonwealth Government legislation for the protection and conservation of Australia's environment and biodiversity. The EPBC Act provides the legislative framework for the assessment and approval mechanism requiring that proposed 'actions' to be assessed in terms of their potential to impact upon 'Matters of National Environmental Significance' (MNES). MNES currently listed under the EPBC Act of relevance to the subject land are:

- threatened species and ecological communities; and

- migratory species (protected under international agreements).

Where a potential impact on a MNES may occur as a result of a proposed action, the significance of that impact must be assessed. Should it be determined that a proposed action may have a significant impact on one or more listed matters, referral of the action to the Commonwealth Minister for Agriculture, Water and the Environment is required for consideration, and potentially assessment and approval, under the EPBC Act. If impacts to MNES cannot be avoided or substantially minimised/mitigated, the Minister is likely to declare the action a 'controlled action'. In such a case a formal offset would likely be

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required to offset the residual significant impact/s, the specifics of which would be determined in accordance with the EPBC Act Environmental Offsets Policy (Commonwealth of Australia 2012[13]).

3.1.1 Matters of National Environmental Significance

As detailed in the EPBC Act Significant Impact Guidelines (Commonwealth of Australia 2013[14]), whilst there are several criteria against which to assess the likelihood that a proposed action will significantly impact an EPBC Act listed ecological threatened species or community, it is important to note that the first states that –

> *"An action will require approval if the action has, will have, or is likely to have a significant impact on a species listed in any of the following categories:*
>
> - *extinct in the wild*
> - *critically endangered*
> - *endangered, or*
> - *vulnerable."*

With regard to the above, the subject land supports approx. 3.51 ha of NTG-SEH in moderate to high condition, which is listed as a critically endangered ecological community (CEEC) under the EPBC Act (PCT 1289 Zone 1). Development impacting these areas (either directly or indirectly) would require referral to the Commonwealth and would likely be determined a 'controlled action' and generate a substantial offset liability if approval is achieved.

There is the potential for several EPBC Act threatened flora and fauna species to occur in the subject land. Targeted surveys would be required to define the extent of occurrence of these species and thereby allow an informed assessment of the likely impact to be developed.

With regard to other MNES, whilst several EPBC Act listed threatened bird species are likely to visit the subject land, impacts from the proposed development are unlikely to be significant for any such species. There is the potential for EPBC Act listed migratory species to periodically forage in the subject land, however the subject land is unlikely to provide important habitat for any migratory species.

3.2 Biodiversity Conservation Act 2016

Under the BC Act, the Biodiversity Offsets Scheme (BOS) is triggered (and a Biodiversity Development Assessment Report (BDAR) prepared applying the NSW Biodiversity Assessment Method (BAM) by an accredited BAM Assessor must accompany a development application (DA) for a proposed development which:

1. *will involve clearance of native vegetation (including trees, understorey plants, groundcover plants, and wetland plants) or a prescribed impact (as set out in clause 6.1 of the Biodiversity*

[13] Commonwealth of Australia (2012). *EPBC Act Environmental Offsets Policy*. Australian Government Department of Sustainability, Environment, Water, Population and Communities.
[14] Commonwealth of Australia (2013). *Matters of National Environmental Significance - Significant Impact Guidelines 1.1. Environment Protection and Biodiversity Conservation Act 1999*. Commonwealth Department of the Environment.

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Conservation Regulation 2017 [BC Regulation]) on land identified on the Biodiversity Values Map; and/or

2. *will exceed the native vegetation clearance threshold for the smallest minimum lot size associated with the zoning of the subject land; and/or*

3. *may significantly impact one or more BC Act listed entities (i.e. threatened species or ecological communities).*

Biodiversity Values Map

Parts of the subject land are identified on the Biodiversity Values Map (BVM), including the creek corridor and a large portion in the south of the subject land.

https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BOSETMap

Accordingly, if the proposed development would clear any native vegetation or have a prescribed impact on land identified on the BVM, this would trigger the BOS.

Native vegetation clearance

The minimum lot size for the subject land is 'AB5 - 40 ha'. In this regard, as stated in Part 7, Clause 7.2 of the *Biodiversity Conservation Regulation 2017* (BC Regulation), if the total area of native vegetation clearance for the proposed development was to exceed 1 ha then this would trigger the BOS. PCT1289 Zones 1 and 2 meet the definition of native vegetation under the BC Act.

Potential to impact one or more BC Act listed entities

The subject land does not support any BC Act listed threatened ecological communities. However, as described in Section 2.5 and the Likelihood of Occurrence Assessment (Appendix A), the subject land contains potential habitat for several EPBC Act and BC Act listed flora and fauna species. Impacts on threatened species from the proposed development would require assessment via a BAM Assessment and BDAR and would require targeted surveys to assess the presence of EPBC Act and BC Act listed species that have the potential to occur within the subject land.

3.3 Koala Habitat Protection SEPP

State Environmental Planning Policies (SEPPs) outline policy objectives relevant to state-wide issues. The *State Environmental Planning Policy (Koala Habitat Protection) 2021* ('Koala Habitat Protection SEPP 2021') replaced the *State Environmental Planning Policy (Koala Habitat Protection) 2020* on 17 March 2021. The associated Frequently Asked Questions[15] aim to guide consent authorities, professionals, and the community to understand and implement the requirements of the Koala Habitat Protection SEPP 2021. As an interim measure, the existing *State Environmental Planning Policy (Koala Habitat Protection) 2020*[16] (the 'Koala Habitat Protection SEPP 2020') will continue to apply in NSW core rural zones RU1, RU2 and RU3, in most NSW LGAs except in the Blue Mountains, Campbelltown, Central

[15] Available at https://www.planning.nsw.gov.au/-/media/Files/DPE/Factsheets-and-faqs/Policy-and-legislation/Frequently-Asked-Question--State-Environmental-Planning-Policy-Koala-Habitat-Protection-2021.pdf?la=en

[16] NSW Government (2020c) State Environmental Planning Policy (Koala Habitat Protection) 2020. Available at https://legacy.legislation.nsw.gov.au/EPIs/2020-698.pdf

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Coast, Hawkesbury, Hornsby, Ku-Ring-Gai, Liverpool, Northern Beaches, and Wollondilly where Koala SEPP 2021 will apply across all zones.

As the subject land is currently zoned 'RU1 Primary Production' the Koala Habitat Protection SEPP 2020 applies in this case.

The Koala Habitat Protection SEPP 2020 –

> *Aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline:*
>
> *(a) by requiring the preparation of plans of management before development consent can be granted in relation to areas of core koala habitat, and*
>
> *(b) by encouraging the identification of areas of core koala habitat, and*
>
> *(c) by encouraging the inclusion of areas of core koala habitat in environment protection zones.*

With regard to the current application of the Koala Habitat Protection SEPP for the subject land, the following points are noted.

1. The subject land is located within the Yass Valley Local Government Area (LGA), which is an LGA to which The Koala Habitat Protection SEPP applies as listed in Schedule 1.
2. *Potential koala habitat means areas of native vegetation where the trees of the types listed in Schedule 2 constitute at least 15% of the total number of trees in the upper or lower strata of the tree component.*

   The subject land does not contain any Koala feed trees or potential Koala habitat.
3. Koalas have not been recorded within 10 km of the subject land in the last 18 years.

As such, the subject land does not support habitat for the Koala and is unlikely to constitute important or occupied Koala habitat now or in the future.

4. Reducing Environmental Impact and Biodiversity Offset Obligation

The below key points are provided for consideration during the design and planning processes.

As shown in Figures 2 and 3, the subject land supports approx. 3.51 ha of NTG-SEH in high to very high condition, which is listed as a critically endangered ecological community (CEEC) under the EPBC Act (PCT 1289 Zone 1, Figure 2). If the proposed development requires the clearance of any of these areas, then achieving EPBC Act approval would be difficult, or if approval could be achieved, the impacts would generate a considerable offset obligation.

The subject land also contains 34.27 ha (PCT1289 Zone 3) of low diversity native pasture. While these areas do not meet the definition of the EPBC Act listed TEC NTG-SEH, they are considered to be native vegetation under the BC Act. In addition, parts of this zone support habitat for Golden Sun Moth or are earmarked for restoration of GSM habitat under the Gooromon Grasslands Offset Management Plan (ACT Government 2018), and a large portion has been identified on the Biodiversity Values Map. If

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greater than 1 ha of Zone 3 would be cleared for the proposed development, this would trigger the BOS and would likely generate a considerable offset obligation.

Approximately 48.92 ha (PCT1289 Zone 4) of the subject land contains no MNES or BC Act listed entities, and these areas likely pose low or no ecology/biodiversity constraints to development. There are two caveats to this, firstly that targeted surveys would be required in these areas to rule out the presence of the Striped Legless Lizard, and secondly that parts of Zone 4 have been earmarked for restoration of GSM habitat under the Gooromon Grasslands Offset Management Plan (ACT Government 2018). We therefore recommend the following in order to significantly increase the likelihood of achieving approval and reduce any associated offset liability.

1. Limit development to the area of Zone 4 in the central part of the subject land.
2. Undertaken a program of targeted (roof tile) surveys during spring to determine the presence/absence of the Striped Legless Lizard.
3. Avoid, or at least minimise to the greatest extent practicable, impacts (both direct and indirect) to PCT 1289 Zones 1 and 3.

5. Conclusions and Recommendations

The following are the key conclusions or this EVCA.

1. Approx. 3.51 ha of the subject land supports vegetation consistent with the definition of the EPBC Act listed critically endangered ecological community, Natural Temperate Grassland of the South Eastern Highlands. Any development occurring in these areas would be highly constrained and would generate a considerable offset obligation if approval could be obtained.
2. The areas of the subject land mapped as PCT1289 Zones 1 and 3 are consistent with the definition of native vegetation under the BC Act.
3. Several EPBC Act and BC Act threatened species have been confirmed to be present in the subject land, and there is the potential for several other threatened flora and fauna species to occur. Assessment of the occurrence and potential impacts to these listed species would be required via a BAM assessment and BDAR.
4. Parts of the subject land are identified on the NSW Biodiversity Values Map.
5. With regard to the Koala Habitat Protection SEPP, the subject land does not support habitat for the Koala and is unlikely to constitute important or occupied Koala habitat now or in the future.

Overall, with consideration of the subject land's ecological/biodiversity values, it is our view that development in the subject land is a reasonable proposition, on the condition that the development impact is restricted to the exotic vegetation (PCT1289 Zone 4) in the central part of the subject land. Development within this area would have little to no impact on any EPBC Act or BC Act listed entities, BC Act native vegetation, or areas that have been identified on the NSW Biodiversity Values Map or earmarked for restoration of Golden Sun Moth habitat.

It is important to note that, as outlined at the start of this EVCA, if the development would be a State Significant Development (SSD), it would trigger the application of the NSW Biodiversity Offset Scheme (BOS) regardless of the biodiversity values of the land. The impacts of the proposed development would therefore need to be assessed by applying the Biodiversity Assessment Method (BAM) with the findings

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documented in a Biodiversity Development Assessment Report (BDAR). If the development is not an SSD, a BDAR may not be required if it could be demonstrated in an Ecological Impact Assessment (EIA) that the development will not trigger the BOS (i.e. clearance of native vegetation not exceeding the 1 ha threshold, no impact on any EPBC Act or BC Act threatened species or communities, no impact on any areas identified on the Biodiversity Values Map).

We trust that this EVCA provides the information and advice required. If, however, you should have any questions relating to this report, please do not hesitate to contact us.

Yours sincerely,

Robert Speirs

Director / Principal Ecologist

Accredited BAM Assessor No: BAAS17089

Dr Catherine Ross

Consultant Ecologist

Attachments:

Figure 1. Locality Plan
Figure 2. Vegetation Mapping
Figure 3. Development Constraints
Appendix A. Likelihood of Occurrence Assessment

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Yass Valley Local Environmental Plan 2013 – Land Zoning Map - Sheet LSZ_005.

Yass Valley Local Environmental Plan 2013 – Lot Size Map – Sheet LSZ_005.

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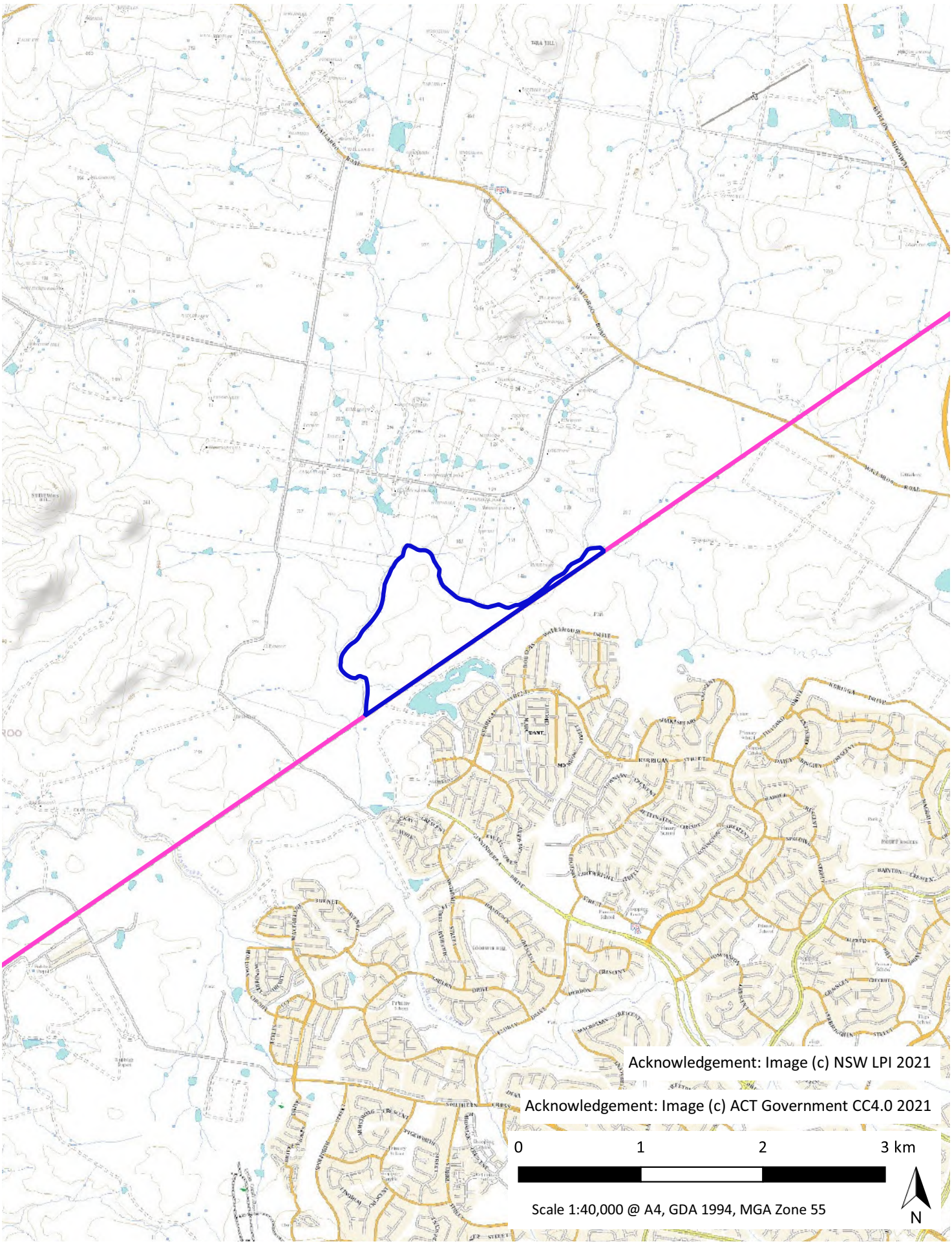

Figure 1. Locality Plan

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Date: 19 July 2021

Legend

- Subject Land
- Australian Capital Territory Border

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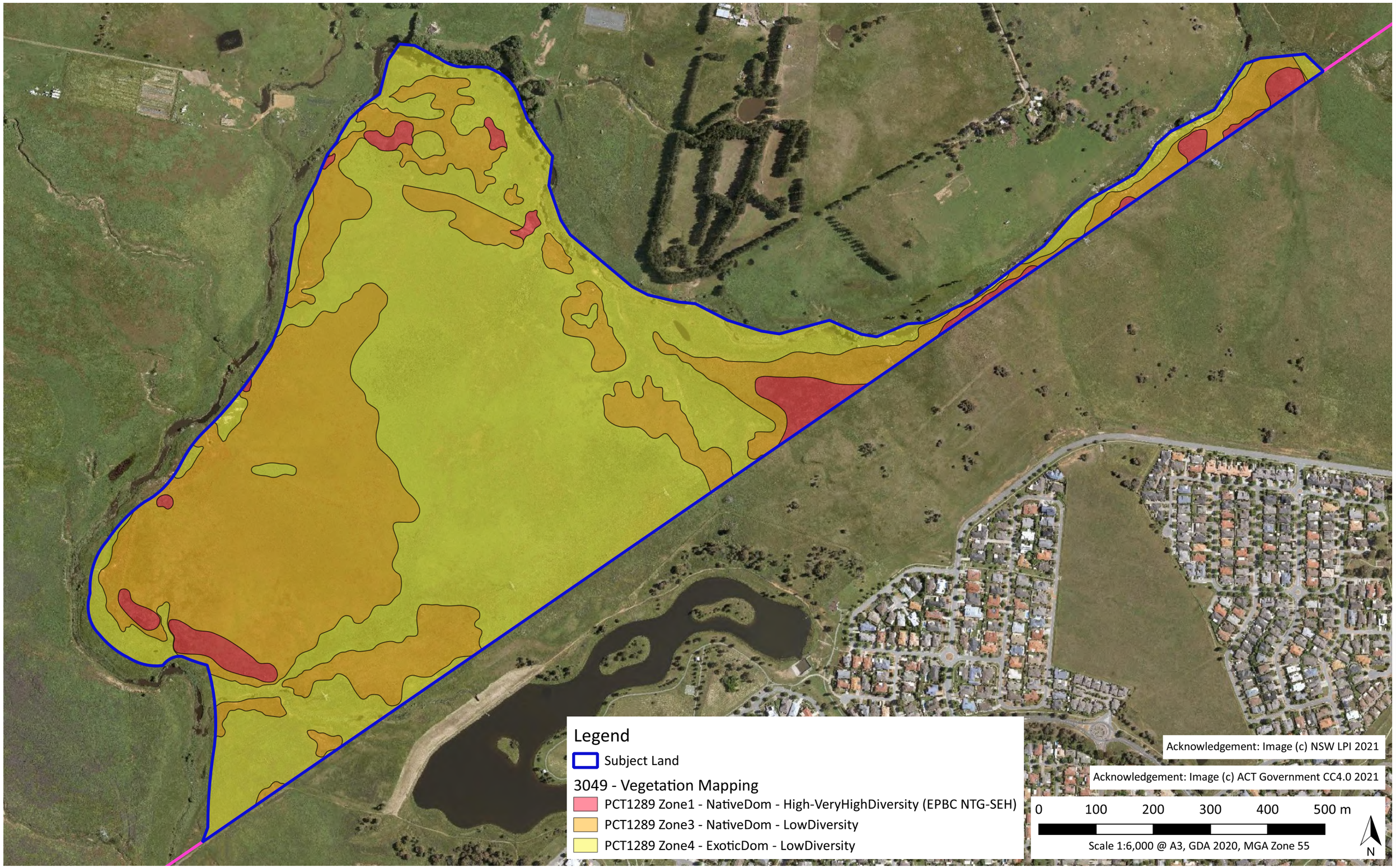

Figure 2. Vegetation Assessment

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Date: 19 July 2021

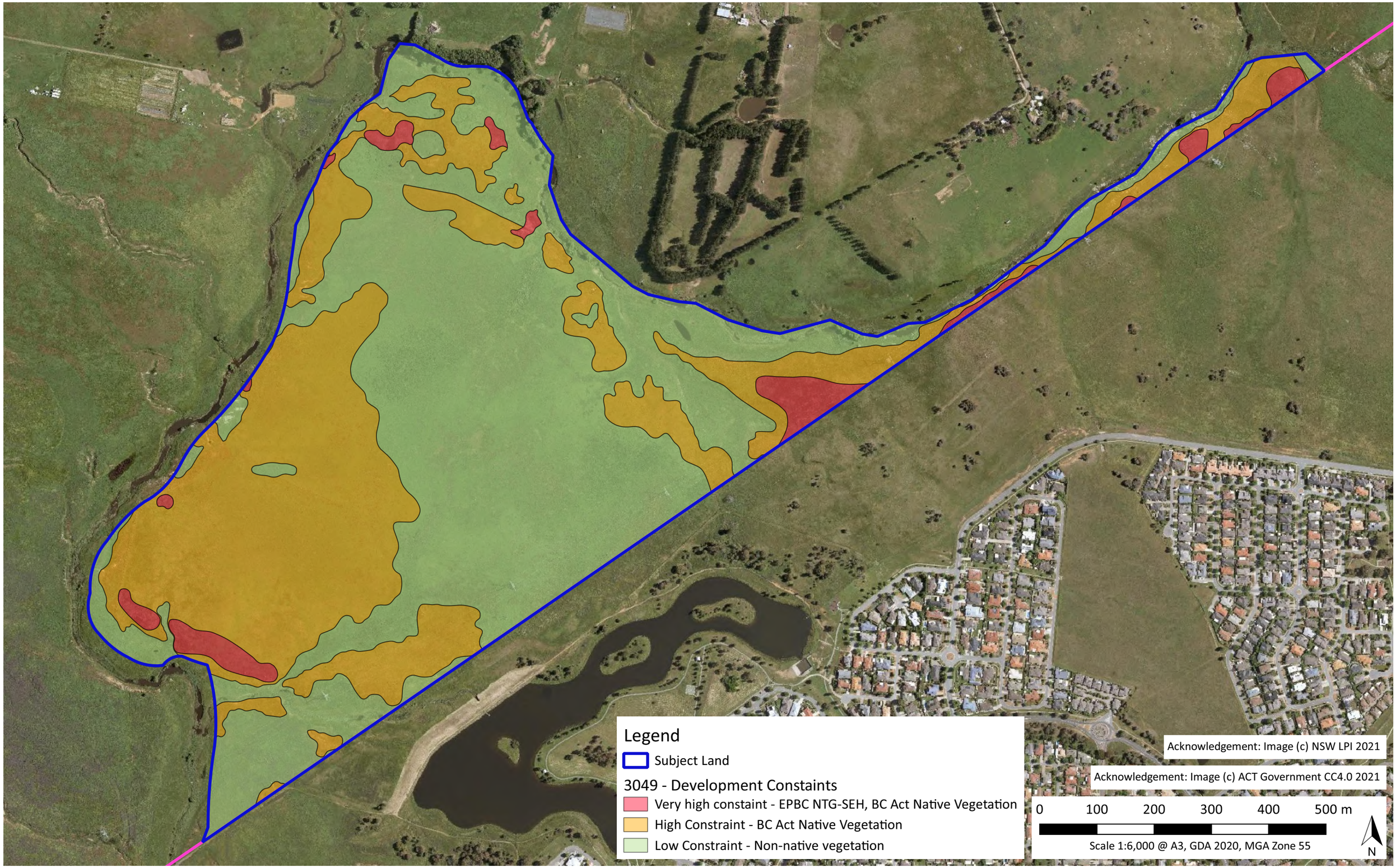

Figure 3. Development Contraints

Capital Ecology Project No: 3049
Drawn by: C. Ross
Date: 19 July 2021

Appendix A. Likelihood of Occurrence Assessment

Key for below table

EPBC Act:
CE - critically endangered
E - endangered
V - vulnerable
CD - conservation dependent

BC Act:
CE1 - critically endangered species (Schedule 1, Part 1)
E1 - endangered species (Schedule 1, Part 2)
E2 - endangered population (Schedule 1, Part 2, Division 4)
E4 - presumed extinct (Schedule 3, Part 1)
V1 - vulnerable species (Schedule 2, Part 3)

NC Act:
CE – critically endangered
E - endangered
V - vulnerable
RCD – regionally conservation dependent

Note: The brief species distribution and habitat descriptions provided in the below table are sourced / appropriated from the threatened species online profiles, listing determinations and/or recovery plans prepared for the species by the Commonwealth Government and NSW Government. These resources and associated references are provided on the relevant government websites.

Species Name	EPBC Act Status	BC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence
Birds					
Anthochaera phrygia Regent Honeyeater	CE	CE1	CE	A semi-nomadic species occurring in temperate eucalypt woodlands and open forests. Most records are from box-ironbark eucalypt forest associations and wet lowland coastal forests. Key eucalypt species include Mugga Ironbark, Yellow Box, Blakely's Red Gum, White Box and Swamp Mahogany. Also utilises a number of other eucalypt species. Nectar and fruit from the mistletoes *Amyema miquelii*, *A. pendula*, and *A. cambagei* are also eaten during the breeding season. Regent Honeyeaters usually nest in horizontal branches or forks in tall mature eucalypts and sheoaks as well as within mistletoe haustoria (section of the root which connects with the host tree). An open cup-shaped nest is constructed by the female of bark, grass, twigs and wool.	Low The species has been recorded within 5 km of the subject land. It is possible that the species may visit the subject land to forage, however the subject land does not contain nesting resources or foraging resources of potential significance to the species.

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Species Name	EPBC Act Status	BC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence
Artamus cyanopterus cyanopterus Dusky Woodswallow	-	V1	-	The Dusky Woodswallow has two separate populations. The eastern population is found from Atherton Tableland, Queensland south to Tasmania and west to Eyre Peninsula, South Australia. The other population is found in south-west Western Australia. The Dusky Woodswallow is found in open forests and woodlands and may be seen along roadsides and on golf courses. The south-eastern population migrates north in autumn.	**Moderate** The species has been recorded several times within 5 km of the subject land. The species may visit the subject land to forage, however the remnant habitat in the subject land is unlikely to provide suitable breeding habitat to the species.
Botaurus poiciloptilus Australasian Bittern	E	E1	E	Australasian Bitterns are widespread but uncommon over south-eastern Australia. In NSW they may be found over most of the state except for the far north-west. Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes *Typha* spp. and spikerushes *Eleocharis* spp.. Hides during the day amongst dense reeds or rushes and feed mainly at night on frogs, fish, yabbies, spiders, insects and snails.	Negligible There is no potential habitat for this species in the subject land and there are no records in the locality.
Calidris ferruginea Curlew Sandpiper	CE	E1	-	The Curlew Sandpiper is distributed around most of the Australian coastline. Inland records are probably mainly of birds pausing for a few days during migration. The Curlew Sandpiper breeds in Siberia and migrates to Australia (as well as Africa and Asia) for the non-breeding period, arriving in Australia between August and November, and departing between March and mid-April. It generally occupies littoral and estuarine habitats, and in New South Wales is mainly found in intertidal mudflats of sheltered coasts. It also occurs in non-tidal swamps, lakes and lagoons on the coast and sometimes inland.	Negligible There is no potential habitat for this species in the subject land and there are no records in the locality.
Callocephalon fimbriatum Gang-gang Cockatoo	-	V1	-	In summer the Gang-gang Cockatoo occupies tall montane forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. Also occur in subalpine Snow Gum woodland and occasionally in temperate or regenerating forest. In winter, the species occurs at lower altitudes in drier, more open eucalypt forests and woodlands, particularly in box-ironbark assemblages, or in dry forest in coastal areas. The Gang-gang Cockatoo usually breeds in tall forests in the Southern Tablelands region, however they have been observed on occasion to breed in Box-Gum Woodland and other similar lowland habitat around Canberra (R. Speirs pers. obs., M. Mulvaney pers. comm.).	Low The species has been recorded several times within 5 km of the subject land. The species is unlikely to visit the subject land as it does not support the species' preferred habitat types.

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Species Name	EPBC Act Status	BC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence
Calyptorhynchus lathami Glossy Black-cockatoo	-	V1	V	The Glossy Black-cockatoo has a patchy distribution, having once been widespread across most of the south-east of Australia. The species is now distributed throughout an area which extends from the coast near Eungella in eastern Queensland to Mallacoota in Victoria. Glossy black-cockatoos feed on casuarina seeds, however they occasionally consume seeds from eucalypts, angophoras, acacias and hakeas, as well as insect larvae. In the ACT region the species feeds almost exclusively on Drooping Sheoak *Allocasuarina verticillata*. Pairs mate for life and nest in the hollows of large, old living or dead eucalypt trees. Breeding takes place between March and August.	Low The species has been recorded within 5 km of the subject land. However the subject land does not contain potential breeding habitat or substantial foraging habitat for this species (note the species feeds almost exclusively on Drooping Sheoak).
Chthonicola sagittata Speckled Warbler	-	V1	-	The Speckled Warbler has a patchy distribution throughout south-eastern Queensland, the eastern half of NSW and into Victoria, as far west as the Grampians. The species is most frequently reported from the hills and tablelands of the Great Dividing Range, and rarely from the coast. There has been a decline in population density throughout its range, with the decline exceeding 40% where no vegetation remnants larger than 100ha survive. The Speckled Warbler lives in a wide range of *Eucalyptus* dominated communities that have a grassy understorey, often on rocky ridges or in gullies. Typical habitat would include scattered native tussock grasses, a sparse shrub layer, some eucalypt regrowth and an open canopy. Large, relatively undisturbed remnants are required for the species to persist in an area.	Low The species has been recorded several times within 5 km of the subject land. The species is unlikely to visit the subject land as it does not support the species' preferred habitat types.
Circus assimilis Spotted Harrier	-	V1	-	The Spotted Harrier occurs throughout the Australian mainland, except in densely forested or wooded habitats of the coast, escarpment and ranges, and rarely in Tasmania. Individuals disperse widely in NSW and comprise a single population. Occurs in grassy open woodland including *Acacia* and mallee remnants, inland riparian woodland, grassland and shrub steppe. It is found most commonly in native grassland, but also occurs in agricultural land, foraging over open habitats including edges of inland wetlands.	**Confirmed** The species has been recorded once in the subject land. The species may visit the subject land to forage, however the remnant grassland habitat in the subject land does not provide suitable breeding habitat for the species.

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Species Name	EPBC Act Status	BC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence
Climacteris picumnus victoriae Brown Treecreeper (eastern subspecies)	-	V1	V	In the region, Brown Treecreepers occur in dry woodlands and open forest below 1,000 metres. Brown Treecreepers also frequent paddocks and grasslands where there are sufficient logs, stumps and dead trees nearby. The species prefers relatively undisturbed woodland and dry open forest where the native understorey, especially grasses, has been preserved. The species usually prefers predominantly rough-barked trees such as Stringybarks and rough barked Boxes.	Low The species has been recorded within 5 km of the subject land. The species is unlikely to visit the subject land as it does not support the species' preferred habitat types.
Daphoenositta chrysoptera Varied Sittella	-	V1	V	The Varied Sittella occurs in a wide variety of woodland and forest habitats, particularly in lowland areas. The species prefers areas with a dominance of rough barked trees, notably Red Stringybark at relatively high density. The species is rarely recorded in sparsely treed areas.	Low The species has been recorded within 5 km of the subject land. The species is unlikely to visit the subject land as it does not support the species' preferred habitat types.
Epthianura albifrons White-fronted Chat	-	V1	-	The White-fronted Chat is found across the southern half of Australia, from southernmost Queensland to southern Tasmania, and across to Western Australia as far north as Carnarvon. Found mostly in temperate to arid climates and very rarely sub-tropical areas, it occupies foothills and lowlands up to 1000 m above sea level. In NSW, it occurs mostly in the southern half of the state, in damp open habitats along the coast, and near waterways in the western part of the state. Along the coastline, it is found predominantly in saltmarsh vegetation but also in open grasslands and sometimes in low shrubs bordering wetland areas.	**Moderate** The species has been recorded within 5 km of the subject land. The species is likely to visit the subject land to forage and potentially to nest.
Falco hypoleucos Grey Falcon	V	-	-	The Grey Falcon is sparsely distributed in NSW, chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range. The breeding range has contracted since the 1950s with most breeding now confined to arid parts of the range. There are possibly less than 5000 individuals left. Population trends are unclear, though it is believed to be extinct in areas with more than 500mm rainfall in NSW. The species is 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. Also occurs near wetlands where surface water attracts prey.	Negligible The species has not been recorded in the locality. The subject land does not contain any foraging or breeding habitat for this species.

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Species Name	EPBC Act Status	BC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence
Falco subniger Black Falcon	-	V1	-	The Black Falcon is widely, but sparsely, distributed in New South Wales, mostly occurring in inland regions. Some reports of 'Black Falcons' on the tablelands and coast of New South Wales are likely to be referable to the Brown Falcon. In New South Wales there is assumed to be a single population that is continuous with a broader continental population, given that falcons are highly mobile, commonly travelling hundreds of kilometres (Marchant & Higgins 1993). The Black Falcon occurs as solitary individuals, in pairs, or in family groups of parents and offspring.	Low The species has been recorded within 5 km of the subject land. The species may visit the subject land to forage, however the remnant habitat in the subject land does not provide suitable breeding habitat to the species.
Grantiella picta Painted Honeyeater	V	V1	V	The Painted Honeyeater is found in Queensland and New South Wales west of the Great Dividing Range, through to northern Victoria. The species displays some migratory movement and is occasionally found in the Northern Territory and is a vagrant to South Australia and the ACT. The species frequents eucalypt forests and woodlands, particularly those that are infested heavily with mistletoes.	Low The species has not been recorded in the locality. The species may visit the subject land to forage, however the remnant habitat in the subject land is unlikely to provide suitable breeding habitat or potentially important foraging habitat to the species.

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Species Name	EPBC Act Status	BC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence
Haliaeetus leucogaster White-bellied Sea Eagle	-	V1	-	The White-bellied Sea-eagle is distributed around the Australian coastline, including Tasmania, and well inland along rivers and wetlands of the Murray Darling Basin. In New South Wales it is widespread along the east coast, and along all major inland rivers and waterways. Habitats are characterised by the presence of large areas of open water including larger rivers, swamps, lakes, and the sea. Occurs at sites near the sea or sea-shore, such as around bays and inlets, beaches, reefs, lagoons, estuaries and mangroves; and at, or in the vicinity of freshwater swamps, lakes, reservoirs, billabongs and saltmarsh. Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, and forest (including rainforest). Breeding habitat consists of mature tall open forest, open forest, tall woodland, and swamp sclerophyll forest close to foraging habitat. Nest trees are typically large emergent eucalypts and often have emergent dead branches or large dead trees nearby which are used as 'guard roosts'. Nests are large structures built from sticks and lined with leaves or grass.	Low The species has been recorded within 5 km of the subject land. The species may visit the subject land to forage, however the remnant habitat in the subject land does not provide suitable breeding habitat or potentially important foraging habitat to the species.
Hieraaetus morphnoides Little Eagle	-	V1	V	The Little Eagle is distributed throughout the Australian mainland excepting the most densely forested parts of the Dividing Range escarpment, and occupies habitats rich in prey within open eucalypt forest, woodland or open woodland. The species is sensitive to human disturbance.	**Moderate** This species has been recorded in the subject land and in the broader locality. The subject land is likely to be part of the large hunting range of a pair of Little Eagles, however the remnant habitat in the subject land does not provide suitable breeding habitat for the species, or potentially important foraging habitat to the species.

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Species Name	EPBC Act Status	BC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence
Hirundapus caudacutus White-throated Needletail	V	-	V	The White-throated Needletail is a trans-equatorial migratory bird species which has been recorded in all coastal regions of Queensland and New South Wales and is widespread throughout Victoria. Breeding sites have been primarily located in Asia. In Australia, this species is often recorded above open forest and rainforest, and coastal areas. Feeds on a wide variety of insects during non-breeding season then returns north. Roosts amongst dense tree foliage and in tree hollows.	Low The species has not been recorded in the locality. The species may periodically visit the subject land to forage. The subject land does not contain nesting resources or potentially significant foraging resources for the species.
Lathamus discolor Swift Parrot	CE	E1	CE	The Swift Parrot occurs in woodlands and forests of NSW from May to August, where it feeds on eucalypt nectar, pollen and associated insects. The Swift Parrot is dependent on flowering resources across a wide range of habitats in its wintering grounds in NSW. This species is migratory, breeding in Tasmania and also nomadic, moving about in response to changing food availability.	Low The species has been recorded within 5 km of the subject land. It is possible that the species may visit the subject land to forage. The subject land does not contain nesting resources or foraging resources of potential significance to the species.
Melanodryas cucullata cucullate Hooded Robin (south-eastern form)	-	V1	V	The Hooded Robin is widespread, found across Australia, except for the driest deserts and the wetter coastal areas - northern and eastern coastal Queensland and Tasmania. However, it is common in few places, and rarely found on the coast. It is considered a sedentary species, but local seasonal movements are possible. The south-eastern form (subspecies *cucullata*) is found from Brisbane to Adelaide and throughout much of inland NSW, with the exception of the extreme north-west, where it is replaced by subspecies *picata*. Two other subspecies occur outside NSW. Prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas. Requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses. Often perches on low dead stumps and fallen timber or on low-hanging branches, using a perch-and-pounce method of hunting insect prey.	Low The species has been recorded several times within 5 km of the subject land. The species may visit the subject land to forage, however the remnant habitat in the subject land does not provide suitable breeding habitat to the species.

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Species Name	EPBC Act Status	BC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence
Numenius madagascariensis Eastern Curlew	CE	-	-	The eastern curlew is Australia's largest shorebird and a long-haul flyer. The eastern curlew takes an annual migratory flight to Russia and north-eastern China to breed, arriving back home to Australia in August to feed on crabs and molluscs in intertidal mudflats. It is extremely shy and will take flight at the first sign of danger.	Negligible The subject land does not contain potential habitat for the species.
Petroica boodang Scarlet Robin	-	V1	V	The Scarlet Robin is found in south-eastern Australia (extreme south-east Queensland to Tasmania, western Victoria and south-east South Australia) and south-west Western Australia. In NSW it occupies open forests and woodlands from the coast to the inland slopes, breeding in drier eucalypt forests and temperate woodlands.	Low The species has been recorded several times within 5 km of the subject land. The species may visit the subject land to forage, however the remnant habitat in the subject land is unlikely to provide suitable breeding habitat to the species.
Petroica phoenica Flame Robin	-	V1	-	The Flame Robin is found in south-eastern Australia, from the Queensland border to Tasmania, western Victoria and south-east South Australia. In NSW it breeds in upland moist eucalypt forests and woodlands, often on ridges and slopes, in areas of open understorey. The species migrates in winter to more open lowland habitats such as grassland with scattered trees and open woodland on the inland slopes and plains.	Low This species has been recorded several times in the locality. The species may visit the subject land to forage, however the remnant habitat in the subject land does notprovide suitable breeding habitat to the species.
Polytelis swainsonii Superb Parrot	V	V1	V	Found mainly in open, tall riparian River Red Gum forest or woodland. Often found in farmland including grazing land with patches of remnant vegetation. Breeds in hollow branches of tall eucalypt trees within nine kilometres of feeding areas.	Low The species has been recorded several times within 5 km of the subject land. The species may visit the subject land to forage, however the remnant grassland habitat in the subject land does not provide suitable breeding habitat to the species.

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Species Name	EPBC Act Status	BC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence
Rostratula australis Australian Painted Snipe	V	E1	E	Usually found in shallow inland wetlands including farm dams, lakes, rice crops, swamps and waterlogged grassland. The species prefers freshwater wetlands, ephemeral or permanent, although it has been recorded in brackish waters.	Low The species has been recorded in West Belconnen Pond, adjacent to the subject land. The species may visit the subject land to forage, but the species is a rare non-breeding visitor in the locality.
Stagonopleura guttata Diamond Firetail	-	V1	-	The Diamond Firetail is found in eastern Australia, from Eyre Peninsula, South Australia, to south-eastern Queensland. There has been a decline in density throughout the range, and many remaining populations may now be isolated. The species inhabits a wide range of eucalypt-dominated vegetation communities that have a grassy understorey, including woodland and mallee.	Low This species has been recorded several times in the locality. The species may visit the subject land to forage, however the remnant habitat in the subject land is unlikely to provide suitable breeding habitat to the species.
Stictonetta naevosa Freckled Duck	-	V1	-	The Freckled Duck is found primarily in south-eastern and south-western Australia, occurring as a vagrant elsewhere. It breeds in large temporary swamps created by floods in the Bulloo and Lake Eyre basins and the Murray-Darling system, particularly along the Paroo and Lachlan Rivers, and other rivers within the Riverina. The duck is forced to disperse during extensive inland droughts when wetlands in the Murray River basin provide important habitat. The species may also occur as far as coastal NSW and Victoria during such times. The species prefers permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. During drier times they move from ephemeral breeding swamps to more permanent waters such as lakes, reservoirs, farm dams and sewage ponds. Nests are usually located in dense vegetation at or near water level.	**Moderate** The species has been recorded in West Belconnen Pond, adjacent to the subject land. The species may visit the subject land to forage, but the species is an uncommon non-breeding visitor in the locality.
Fish and Crustacea					

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Species Name	EPBC Act Status	BC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence
Macquaria australasica Macquarie Perch	E	E1	E	Macquarie Perch are found in the Murray-Darling Basin (particularly upstream reaches) of the Lachlan, Murrumbidgee and Murray rivers, and parts of south-eastern coastal NSW, including the Hawkesbury/Nepean and Shoalhaven catchments. The species has also been stocked or translocated into a number of reservoirs including Talbingo, Cataract and Khancoban reservoirs and translocated into streams including the Mongarlowe River. Macquarie Perch are found in both river and lake habitats; especially the upper reaches of rivers and their tributaries.	Negligible There is no suitable habitat in the subject land.
Frogs					
Litoria aurea Green and Golden Bell Frog	V	E1	V Locally Extinct	The Green and Golden Bell Frog occurs mainly along coastal lowland areas of eastern NSW and Victoria. The furthest inland record of the species is at a recently discovered population near Hoskinstown in the Southern Tablelands (referred to as the Molongolo population). The species was previously known from elsewhere in the Southern Tablelands, but is now considered to have disappeared from the ACT and central slopes around Bathurst. In NSW, the species commonly occupies disturbed habitats, and breeds largely in ephemeral ponds. However, in Victoria, the Green and Golden Bell Frog occupies habitats with little human disturbance and commonly breeds in permanent ponds, as well as ephemeral ponds.	Negligible There is no potential habitat in the subject land for the species.
Litoria booroolongensis Booroolong Frog	E	-	-	The Booroolong Frog is restricted to tablelands and slopes in NSW and north-east Victoria at 200–1300 m above sea level. The species is predominantly found along the western-flowing streams and their headwaters of the Great Dividing Range, and a small number of eastern-flowing streams in the north end of its range. The Booroolong Frog occurs along permanent streams with some fringing vegetation cover such as ferns, sedges or grasses. Adults occur on or near cobble banks and other rock structures within stream margins, or near slow-flowing connected or isolated pools that contain suitable rock habitats. Streams range from small slow-flowing creeks to large rivers in dissected mountainous country, tablelands, foothills and lowland plains. Primary habitat requirements for the Booroolong Frog are extensive rock bank structures along permanent rivers. The species can occur in cleared grazing land and pasture.	Negligible There is no potential habitat in the subject land for the species.
Insects					

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Species Name	EPBC Act Status	BC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence
Cooroboorama canberrae Canberra Raspy Cricket	-	-	E*	The distribution of *C. canberrae* sightings span from Kambah (ACT) in the south-west, Hoskinstown (NSW) in the south-east, Bungendore (NSW) in the north-east, Gungahlin (ACT) in the north, and Macgregor (ACT) in the north-west (Figure 1). Recent sightings are restricted to areas of natural temperate grassland or native pasture. All records (i.e. current and historic) occur in areas which are estimated to have been natural temperate grassland before European settlement (pre-1750). Of the 918 records, 750 (82%) come from grassland surveys for other fauna species such as the Grassland Earless Dragon *Tympanocryptis pinguicolla* and Striped Legless Lizard Delma impar. The artificial burrows used for *T. pinguicolla* surveys have been particularly effective at recording *C. canberrae* as the species readily occupies the burrows for substantial periods of time. *Canberra Raspy Cricket has been recommended for listing as Endangered in the ACT[17].	**High** The species has been recorded within 1 km of the subject land, in Dunlop Grasslands. The subject land contains areas of suitable habitat for the species. Suitable habitat is likely to be restricted to the patches of high quality NTG (Zone 1).
Keyacris scurra Key's Matchstick Grasshopper	-	E1	-	Key's Matchstick grasshopper was originally distributed from Victoria (Vic.) to Orange (NSW) across the wheat/sheep belt. This species is typically recorded in native grasslands in the following land-uses: cemeteries, along railway easements, travelling stock routes and more recently conservation reserves in the ACT. Disturbance appears to be an important determinant of site occupancy and it appears to be absent from sites that are disturbed during inappropriate times of the year (and interrupt the short non-overlapping lifecycle) or have been subjected to erratic management (e.g. periods of over and under grazing)[18].	**High** The species has been recorded within 5 km of the subject land, at Hall Cemetery. The subject land contains areas of suitable habitat for the species. Suitable habitat is likely to be restricted to the patches of high quality NTG (Zone 1).

[17] Capital Ecology (2018). *Canberra Raspy Cricket Cooraboorama canberrae threatened species nomination*. Capital Ecology project no. 2795.
[18] NSW Threatened Species Scientific Committee (2019). *Conservation Assessment of Keyacris scurra (Rehn 1952) Key's Matchstick Grasshopper (Morabidae).* https://www.environment.nsw.gov.au/resources/threatenedspecies/determinations/CAMKeysMatchstickGrasshopperESPD.pdf

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Species Name	EPBC Act Status	BC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence
Perunga ochracea Perunga Grasshopper	-	-	V	The Perunga Grasshopper is usually recorded opportunistically by ecologists undertaking vegetation surveys or targeted surveys for other species. The species is generally a natural grassland specialist, and although some records occur in Box-Gum Woodland, such sites are usually nearby the historical ecotone between the two ecological communities.	**Confirmed** The species has been recorded in the subject land, as discussed in Section 2.5.1.
Synemon plana Golden Sun Moth	CE	E1	E	The Golden Sun Moth's NSW populations are found in the area between Queanbeyan, Gunning, Young and Tumut. The species' historical distribution extended from Bathurst (central NSW) through the NSW Southern Tablelands, through to central and western Victoria, to Bordertown in eastern South Australia. Occurs in Natural Temperate Grasslands and grassy Box-Gum Woodlands in which groundlayer is dominated by wallaby grasses *Rytidosperma spp*. Grasslands dominated by wallaby grasses are typically low and open - the bare ground between the tussocks is thought to be an important microhabitat feature for the Golden Sun Moth, as it is typically these areas on which the females are observed displaying to attract males. Habitat may contain several wallaby grass species, which are typically associated with other grasses particularly spear-grasses *Austrostipa spp*. or Kangaroo Grass *Themeda australis.*	**Confirmed** The species has been recorded during targeted surveys in the subject land, as discussed in Section 2.5.1.
Mammals					
Chalinolobus dwyeri Large-eared Pied Bat	V	V1	-	The Large-eared Pied Bat appears to exist in a number of small populations throughout its range. Very few maternity sites are known. The species requires a combination of sandstone cliff/escarpment to provide roosting habitat that is adjacent to higher fertility sites, particularly box gum woodlands or river/rainforest corridors which are used for foraging.	Negligible There is no potential habitat for this species in the subject land.

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Species Name	EPBC Act Status	BC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence
Dasyurus maculatus maculatus Spot-tailed Quoll (SE mainland population)	E	V1	V	The Spot-tailed Quoll occurs along the east coast of Australia and the Great Dividing Range. The species uses a range of habitats including sclerophyll forests and woodlands, coastal heathlands and rainforests. Occasional sightings have been made in open country, grazing lands, rocky outcrops and other treeless areas. Habitat requirements include suitable den sites, including hollow logs, rock crevices and caves, an abundance of food and an area of intact vegetation in which to forage. Seventy per cent of the diet is medium-sized mammals, and also feeds on invertebrates, reptiles and birds. Individuals require large areas of relatively intact vegetation through which to forage. The home range of a female is between 180 and 1000ha, while males have larger home ranges of between 2000 and 5000ha. Breeding occurs from May to August.	Low It is possible that the species may pass through the subject land during movements through the broader locality, however the subject land does not contain habitat of potential significance to the species.
Miniopterus orianae oceanensis Large Bent-winged Bat	-	V1	-	The Eastern Bent-wing Bat is a subspecies of the Common Bent-wing Bat, with a range thought to be from central Victoria to Cape York Peninsula, Queensland. It is a fast flyer, able to travel many kilometres in a night. Caves are the primary roosting habitat for this species however similar man-made structures are also used (culverts, eaves etc.). The species forages above the forest canopy.	Low The species has been recorded within 5 km of the subject land. The species may fly over the subject land to forage, but the subject land does not contain potential breeding habitat for the species.
Miniopterus schreibersii oceanensis Eastern Bent-wing Bat	-	V1	-	The Eastern Bent-wing Bat is a subspecies of the Common Bent-wing Bat, with a range thought to be from central Victoria to Cape York Peninsula, Queensland. It is a fast flyer, able to travel many kilometres in a night. Caves are the primary roosting habitat for this species however similar man-made structures are also used (culverts, eaves etc.). The species forages above the forest canopy.	Low This species has been recorded within 5 km of the subject land. It is possible that the species may visit the subject land to forage, however the subject land does not contain potential nesting resources or foraging resources of potential significance to the species.

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Species Name	EPBC Act Status	BC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence
Petauroides volans Greater Glider	V	-	V	The greater glider is restricted to eastern Australia, occurring from the Windsor Tableland in north Queensland through to central Victoria, with an elevational range from sea level to 1200 m above sea level. The greater glider is an arboreal nocturnal marsupial, largely restricted to eucalypt forests and woodlands. It is primarily folivorous, and is typically found in highest abundance in taller, montane, moist eucalypt forests with relatively old trees and abundant hollows. The greater glider favours forests with a diversity of eucalypt species, due to seasonal variation in its preferred tree species	Negligible The species has not been recorded within 5 km of the subject land, and there is no potential habitat in the subject land for the species.
Phascolarctos cinereus Koala (combined populations of Qld, NSW and the ACT)	V	V1	V	In NSW, the Koala mainly occurs on the central and north coasts with some populations in the western region. Koalas feed almost exclusively on eucalypt foliage, and their preferences vary regionally. They are solitary with varying home ranges. In high quality habitat home ranges may be 1-2 hectare and overlap, while in semi-arid country they are usually discrete and around 100 ha.	Negligible The species has not been recorded within 5 km of the subject land, and there is no potential habitat in the subject land for the species.
Pteropus poliocephalus Grey-headed Flying Fox	V	-	V	The Grey-headed Flying Fox occurs in the coastal belt from Rockhampton in central Queensland to Melbourne in Victoria. Whilst Brisbane, Newcastle, Sydney and Melbourne are occupied continuously, the species is widespread throughout their range during summer. In autumn the species occupies coastal lowlands and is uncommon inland. In winter the species congregates in coastal lowlands north of the Hunter Valley and is occasionally found on the south coast of NSW and on the northwest slopes (associated with flowering eucalypts of these areas). The Grey-headed Flying-fox requires foraging resources and roosting sites. It is a canopy-feeding frugivore and nectarivore, which utilises vegetation communities including rainforests, open forests, closed and open woodlands, Melaleuca swamps and Banksia woodlands. The Grey-headed Flying-fox roosts in aggregations of various sizes on exposed branches. Roost sites are typically located near water, such as lakes, rivers or the coast.	Low It is possible that the species may visit the subject land to forage, however the subject land does not contain potential roosting resources or foraging resources of potential significance to the species.
Reptiles					

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Species Name	EPBC Act Status	BC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence
Aprasia parapulchella Pink-tailed Worm-lizard	V	V1	V	The Pink-tailed Worm-lizard is a fossorial species which lives beneath surface rocks and occupies ant burrows. It feed on ants, particularly their eggs and larvae. The species is thought to lay eggs within the ant nests and to use the rocks for thermoregulation. Key habitat features are: a cover of native grasses (particularly Kangaroo Grass), sparse or no tree cover, little or no leaf litter, and scattered small rocks, partially embedded in the soil surface.	**Moderate** The species has been recorded within 5 km of the subject land. Suitable habitat is likely to be restricted to the patches of rocky habitat within areas of high quality NTG (Zone 1). A targeted survey would be required to determine presence/absence.
Delma impar Striped Legless Lizard	V	V1	V	The Striped Legless Lizard is patchily distributed in grasslands of south-eastern NSW, the ACT, north-eastern, central and south-western Victoria, and south-eastern South Australia. Most areas where the species persists are thought to have had low to moderate levels of agricultural disturbance in the past and it has been suggested that ploughing in particular may be incompatible with the survival of the species. Until recently, the species was thought to inhabit only native grasslands dominated by species such as Tall Speargrass and Kangaroo Grass. In recent years, surveys have revealed the Striped Legless Lizard in many sites dominated by exotic grasses such as Phalaris, Serrated Tussock and Flatweed. They have also been found in several secondary grassland sites, generally within two kilometres of primary grassland.	**Moderate** The species has not been recorded within 5 km, but the subject land is historically connected to known habitat and the subject land supports extensive areas of native and exotic tussock grassland which is characteristically suitable for the species. A targeted survey would be required to determine presence/absence.
Suta flagellum Little Whip Snake	-	V1	-	The Little Whip Snake is found within an area bounded by Crookwell in the north, Bombala in the south, Tumbarumba to the west and Braidwood to the east. Occurs in Natural Temperate Grasslands and grassy woodlands, including those dominated by Snow Gum *Eucalyptus pauciflora* or Yellow Box *E. melliodora*. Also occurs in secondary grasslands derived from clearing of woodlands. Found on well drained hillsides, mostly associated with scattered loose rocks. Most specimens have been found under rocks or logs lying on, or partially embedded in the soil.	Low The species has not been recorded in the locality.

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Species Name	EPBC Act Status	BC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence
Tympanocryptis pinguicolla Grassland Earless Dragon	E	E1	E	Historically, the Grassland Earless Dragon ranged from Bathurst to Cooma, including the ACT region. The only populations now known are in the ACT and adjacent NSW at Queanbeyan, and on the Monaro Basalt Plains between Cooma and south-west of Nimmitabel. Formerly known from Victoria, though no recent records.	Low The species has not been recorded in the locality.
Varanus rosenbergi Rosenberg's Goanna	-	V1	-	Rosenberg's Goanna occurs on the Sydney Sandstone in Wollemi National Park to the north-west of Sydney, in the Goulburn and ACT regions and near Cooma in the south. There are records from the South West Slopes near Khancoban and Tooma River. Also occurs in South Australia and Western Australia. Found in heath, open forest and woodland. Associated with termites, the mounds of which this species nests in; termite mounds are a critical habitat component.	Low The species has been recorded within 5 km of the subject land, however the subject land does not contain suitable habitat for the species.
Plants					
Ammobium craspedioides Yass Daisy	V	-	-	The Yass Daisy is a perennial herb that bears large yellow flowerheads, with each flowerhead supported by a 30-60 cm stem. It is found from Crookwell (north of Goulburn) to near Wagga Wagga, with most populations occurring in the Yass District. The Yass Daisy occurs in dry forest, Box-Gum Woodland and secondary derived grassland of these communities. It tolerates light grazing and areas that are irregularly mown or slashed. Flowering occurs from October to November.	Low The species is not known to occur near the subject land.
Amphibromus fluitans River Swamp Wallaby-grass	V	-	-	River Swamp Wallaby-grass has been recorded along the Lachlan River at sites at Laggan near Crookwell and the headwaters of the Wollondilly River. The species grows mostly in permanent swamps, as well as lagoons, billabongs, dams and roadside ditches. The species requires moderately fertile soils with some bare ground, such conditions being caused by seasonally-fluctuating water levels.	Negligible There is no potential habitat in the subject land for the species.
Eucalyptus aggregata Black Gum	V	V1	V	Black Gum occurs on the central and southern tablelands of NSW, and in a small disjunct population in Victoria. In NSW, it occurs predominantly in the South Eastern Highlands Bioregion. The species is a small to medium-sized woodland tree which grows in grassy woodlands on alluvial soils in moist sites along creeks on broad, cold and poorly-drained flats and hollows. It commonly occurs with Candlebark *Eucalyptus rubida*, Ribbon Gum *E. viminalis*, and Snow Gum *E. pauciflora*, with a grassy understorey of River Tussock *Poa labillardieri*. Most populations are located on private land or road verges and travelling stock routes.	Negligible This species is not present in the subject land.

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Species Name	EPBC Act Status	BC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence
Lepidium ginninderrense Ginninderra Peppercress	V	E1	E	The species is known from two natural sites in northern ACT, both within Natural Temperate Grassland.	Low The species was translocated into Dunlop Grasslands, adjacent to the subject land in 2013. Follow up surveys in 2014 and 2015 failed to locate any plants.
Lepidium hyssopifolium Basalt Peppercress	E	-	-	This species is known from a few populations in NSW, Victoria and Tasmania. The Basalt Pepper-cress is known to establish on open, bare ground with limited competition from other plants. It was previously recorded from eucalypt woodland with a grassy ground cover, low open Casuarina woodland with a grassy ground cover and tussock grassland, however recently recorded localities have predominantly been in weed-infested areas of heavy modification, high degradation and high soil disturbance such as road and rail verges, on the fringes of developed agricultural land or in small reserves in agricultural land. Many populations are now generally found amongst exotic pasture grasses and beneath exotic trees.	Negligible The species was not recorded in the subject land during the completed surveys and is not known to occur in the locality.
Leucochrysum albicans var. *tricolor* Hoary Sunray	E	-	-	The Hoary Sunray occurs from Queensland to Victoria and in Tasmania. In the ACT the species can be seen in spring in abundance on the roadside along Fairbairn Avenue and into Mt Ainslie Nature Reserve, on the western slopes of Mt Majura and adjacent to the Federal Highway road easement. In NSW it is distributed on the inland slopes and plains including grasslands and woodlands on the Monaro and is quite a common species along in less modified areas. The species is usually found in ungrazed and lightly grazed areas, along roadsides in particular. It appears to be very sensitive to grazing, but responds to disturbance as a coloniser and appears to tolerate mowing. Flowers spring to summer.	**Moderate** The species has been recorded within 5 km of the subject land in similar habitat. Suitable habitat is likely to be restricted to the patches of high quality NTG (Zone 1).

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Pomaderris pallida Pale Pomaderris	V	V1	V	Pale Pomaderris has been recorded from near Kydra Trig, north-west of Nimmitabel, Tinderry Nature Reserve, and the Queanbeyan River. A record from Byadbo in Kosciuszko National Park has not been relocated. The main distribution is along the Murrumbidgee in the ACT. It was recorded recently in eastern Victoria. This species usually grows in shrub communities surrounded by Brittle Gum *Eucalyptus mannifera* and Red Stringybark *E. macrorhynca* or Black Cypress *Callitris endlicheri* woodland.	Low The species has not been recorded within 5 km of the subject land. The species is quite conspicuous when present and has not been recorded during previous surveys.
Prasophyllum petilum Tarengo Leek Orchid	E	E1	E	When first described in 1991, the Tarengo Leek Orchid was known only from the Hall Cemetery in the ACT. It has since been found at four sites in New South Wales: Captains Flat Cemetery, Ilford Cemetery, Steves Travelling Stock Route (TSR) at Delegate and the Tarengo TSR near Boorowa. The Tarengo Leek Orchid occurs on relatively fertile soils in grassy woodland or natural grassland. The three cemetery sites originally contained grassy woodland, dominated by Snow Gum *Eucalyptus pauciflora* and Black Gum *E. aggregata* at Captains Flat, and Blakely's Red Gum *E. blakelyi* and Yellow Box *E. melliodora* at Hall and Ilford. Both Tarengo TSR and Steves TSR are natural grasslands. The species is intolerant of grazing and this is considered to be the key reason it has been found only within cemeteries and TSRs, land from which grazing has been restricted.	**Moderate** The species has been recorded within 5 km of the subject land in similar habitat. Suitable habitat is likely to be restricted to the patches of high quality NTG (Zone 1).
Rutidosis leptorrhynchoides Button Wrinklewort	E	E1	E	In the ACT and NSW, Button Wrinklewort occurs in box-gum woodland, secondary grassland derived from box-gum woodland or in natural temperate grassland. It prefers open spaces where it does not have to compete for light. It is known from several sites in the ACT, NSW and Victoria, where it is threatened by habitat loss, grazing and weed encroachment.	Low The species has not been recorded within 5 km of the subject land. The species is quite conspicuous when present and has not been recorded during previous surveys.

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Species Name	EPBC Act Status	BC Act Status	NC Act Status	Description (Distribution and Habitat)	Likelihood of Occurrence
Senecio macrocarpus Large-fruit Groundsel	V	-	-	The Large-fruit Groundsel is a small perennial plant endemic to south-eastern Australia. While most known populations occur within Victoria and South Australia, the species has been recorded within the NSW southern tablelands. This species occurs in a variety of habitats, including grasslands, shrublands and woodlands. The species is known to grow in association with Teatree and Kangaroo Grass populations, as well as Yellow Box woodlands. The species appears to be intolerant of grazing and agricultural pressures. Main loss of habitat is thought to be due to sheep grazing and pasture improvement of relevant habitat.	Negligible The species is not known to occur in the locality. The subject land is unlikely to provide potential habitat to the species due to land use history.
Thesium australe Austral Toadflax	V	V1	V	Found in very small to large populations scattered across eastern NSW, along the coast, and from the Northern to Southern Tablelands. Austral Toadflax is a root parasite that takes water and some nutrients from other plants, especially Kangaroo Grass. It is often found in damp sites in association with Kangaroo Grass but it is also found on other grass species at inland sites. Occurs on clay soils in grassy woodlands or coastal headlands.	Low The species has not been recorded within 5 km of the subject land. The subject land does not contain habitat characteristic of this species.

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