Native Vegetation Clearance

Tungkillo Substation Augmentation Works

Data Report

Clearance under the *Native Vegetation Regulations 2017*

15/8/2024

Prepared by Ecosphere Ecological Solutions

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1 Application Information

Table 1. Application Details

Applicant:	Electranet		
Key contact:	Blue Power Partners Melbourne 3000		
Landowner:	TBC		
Site Address:	55 Electronet road, Tungkillo SA 5236 and Lot 72 Brinkworth Range Road Tungkillo, SA 5236		
Local Government Area:	Mid Murray Council	**Hundred:**	Tungkillo
Title ID:	CT/6081/943 / CT/5433/294	**Parcel ID:**	F157552 A17 / H171000SE242

Table 2. Summary of proposed clearance

Purpose of clearance	Clearance of *Eucalyptus camaldulensis* scattered trees and ground cover at tower locations consisting of Aristide behriana grassland required for the installation of two transmission towers and approximately 800 m of new transmission line to the Tungkillo Substation. Clearance is primarily limited to the pruning of trees with more than 25% but less than 50 % removal and temporary clearance of grass swards at tower locations which will be releveled post construction.
Native Vegetation Regulation	Regulation 12(34) – Infrastructure
Description of the vegetation under application	Scattered *Eucalyptus camaldulensis* trees over an understorey of exotic pasture grasses and forbs and an area of indigenous grass sward.
Total proposed clearance - area (ha) and number of trees	Clearance limited to removal of three emergent trees for stringing, pruning of up to 30 emergent *Eucalyptus camaldulensis* requiring topping to slightly reduce existing height and maintain for operational buffers and up to 320m^2 of poor condition *Aristida behriana* grass sward.
Level of clearance	Level 4
Overlay (Planning and Design Code)	Native Vegetation overlay

Mitigation hierarchy	Tree clearance will be limited to the safety clearance buffers as specified in Electranet guidelines.
SEB Offset proposal	The SEB will be met through a payment into the NV fund of $17,608.36

2 Purpose of Clearance

2.1 Description

Ecosphere Ecological Solutions was engaged by AECOM on behalf of Blue Power Partners to undertake a native vegetation assessment in connection with the proposed connection installation of the Summerfield BESS to the grid, a new 275kV transmission circuit is required to run between the Summerfield BESS site and the existing Tungkillo Substation. The new transmission line will run in a northwest - southeast alignment, will be approximately 17km in length and will be predominantly located within an existing electrical infrastructure easement.

The transmission line works involve stringing a new 275kV transmission circuit on the vacant/spare side of the previously approved existing transmission towers and the construction of two new transmission towers positioned a short distance to the east of the Tungkillo Substation to enable connection into the substation.

Importantly, all works associated with stringing the new circuit on existing transmission towers and connections works within the Tungkillo Substation are not 'development' for the purposes of the PDI Act. This clearance under regulation application applies only to the clearance associated with the two new towers and the installation of ~800m of electrical conductor and optical ground wire (constituting part of a new electrical 'circuit') between the existing towers and the Tungkillo Substation (via the new towers) (Figure 1).

The section of the transmission line containing the two new transmission towers and the new conductor is approximately 800m in length and is herein referred to as the Project Site.

The clearance for the remainder of the stringing of the new circuit on the existing towers is predominantly for statutory bushfire clearance, was considered during the original EIS and is detailed in a separate report to be submitted to Native Vegetation Council. ate the overhang of the new transmission line.

2.2 Background

2.2.1 Interim Biogeographic Regionalisation for Australia (IBRA)

The Interim Biogeographical Regionalisation of Australia (IBRA) identifies geographically distinct bioregions based on common climate, geology, landform, native vegetation and species information. The bioregions are further refined into subregions and environmental associations.

The Project area lies within the Kanmantoo IBRA Bioregion, the Fleurieu IBRA Subregion, and the Eden Valley IBRA Environmental Association. The Fleurieu IBRA Subregion and the Eden Valley IBRA Environmental Association have 12 % and 6 % of their area composed of remnant native vegetation, respectively. And of this, 24 % and 3 % of remaining native vegetation is formally protected within the Fleurieu IBRA Subregion and the Eden Valley IBRA Environmental Association, respectively.

2.2.2 Native Vegetation Information System (NVIS)

The NVIS represents the State Government's key extant native floristic vegetation mapping layer for South Australia. It provides floristic and structural information, and / or presence of native vegetation in South Australia. No native vegetation was mapped as occurring within the area of the proposed native vegetation clearance. The nearest area of mapped native vegetation (approximately 100 m away) was classified as *Eucalyptus camaldulensis* var. *camaldulensis*, +/- *Eucalyptus leucoxylon* ssp. low open woodland over *Linum trigynum, Briza maxima*, *Anagallis arvensis*, *Avena barbata* forbs.

2.2.3 Roadside Significant Site Database (RSSD)

No roadside significant sites were identified within close proximity of the Project area.

2.2.4 Climate

The Fleurieu IBRA Subregion has a mostly Mediterranean climate, with cool wet winters and hot dry summers. Mean annual rainfall from 1976 – 2005, as accessed via NatureMaps (2024), is 544 mm at the Project area.

Figure 1. Location of Tungkillo Augmentation Project area

Figure 2 Location of the Project area showing proposed tower locations and Electranet easement.

2.3 Details of the proposal

The Summerfield BESS is a battery under development in Tepko, South Australia with construction due to commence in Q4 2024. The Summerfield BESS will be connected to the National Electricity Market (NEM) via the Tepko to Tungkillo Transmission Line Stringing Project.

The Tepko substation will be located approximately 17 kilometres (km) southeast of the existing Electranet Tungkillo substation on the Tungkillo to Tailem Bend 275kV dual circuit. The purpose of establishing the Tepko substation and associated circuit to Tungkillo substation is to enable the connection of the Summerfield Battery into the NEM.

The key components of the overall project are:

- Works within the Tungkillo substation;
- Two entry towers into the Tungkillo substation, and;
- Vegetation clearance to ensure compliance with bushfire regulations and allow for stringing lift.

This report relates to the augmentation and connection for the substation requiring a new conductor and up to two new tower locations.

2.4 Approvals required or obtained.

This section provides details of the following approvals or applications under the following legislation, as relevant:

- *Native Vegetation Regulations 2017* (Clearance under the Regulations is the subject of the current proposal)
- *Planning, Development and Infrastructure Act 2016* (Approval or exemption required for the Project)
- *Environment Protection and Biodiversity Conservation Act 1999* (Desktop assessment and field survey undertaken to determine if Matters of National Environmental Significance (MNES) occur within the Project area, detailed in section 4.4.1 below)
- *National Parks and Wildlife Act 1972* (Desktop assessment and field survey undertaken to determine if state level threatened flora and fauna occur within the Project area, detailed in section ## below)
- *Landscape South Australia Act 2019* (Desktop assessment and field survey undertaken to determine if weeds of concern occur within the Project area, detailed in section ## below)

2.5 Native Vegetation Regulations

The pathway under which the required clearance is proposed to be assessed is Regulation 12(34) – Infrastructure, which allows for clearance of vegetation incidental to the construction or expansion of a building or infrastructure (and associated services) where the Minister has declared that the clearance is in the public interest.

Proponent must comply with the following additional requirements:

- Clearance incidental to the construction or expansion of a building or infrastructure where it is deemed the clearance is in the public interest; and/or
- Clearance is required in connection with the provision of infrastructure or services to a building or place provided that consent under the *Development Act 1993* (now superseded by the *Planning, Development and Infrastructure Act 2016*) has been obtained; and/or
- Clearance is undertaken in accordance with an NVC approved Standard Operating Procedure.

The Proponent intends to seek either approval under s130 of the PDI Act or a planning exemption in accordance with Schedule 13, clause 2(1)(b)(vi) of the PDI Regulations.

2.5.1 Development Application Information

Under the *Planning, Development and Infrastructure Act 2016*, 55 Electronet Road, Tungkillo is zoned as Rural and falls within the following overlays:

- Dwelling Excision
- Hazards (Bushfire - Medium Risk)
- Heritage Adjacency
- Hazards (Flooding - Evidence Required)
- Limited Land Division
- Murray-Darling Basin
- Native Vegetation
- Prescribed Water Resources Area
- River Murray Tributaries Protection Area
- Water Resources

Under the *Planning, Development and Infrastructure Act 2016* LOT 72 Brinkworth Range Road Tungkillo is zoned as Rural and falls within the following overlays:

- Dwelling Excision
- Hazards (Bushfire - Medium Risk)
- Hazards (Flooding - Evidence Required)
- Limited Land Division
- Murray-Darling Basin
- Native Vegetation
- Prescribed Water Resources Area
- River Murray Tributaries Protection Area
- Water Resources

3 Methods

3.1 Desktop assessment

A desktop assessment was used to search for records of threatened communities, threatened flora, and threatened and / or migratory fauna that are known to, or possibly occur, within 5 km of the Project area.

3.1.1 Protected Matters Search Tool (PMST)

A PMST report was generated on 26th July 2024 to identify MNES under the EPBC Act relevant to the Project area (DCCEEW 2024a). The PMST is maintained by the Department of Climate Change, Energy the Environment and Water (DCCEEW) and was used to identify flora and fauna species or ecological communities of national environmental significance that may occur or are likely to have suitable habitat within 5 km of the Project area. The results returned by the PMST are based on a modelled distribution of each community and each flora and fauna species and thus require additional information to clarify their possible presence in the Project area.

3.1.2 Biological Database of South Australia (BDBSA)

Records for threatened flora and fauna and migratory fauna listed under the EPBC Act and / or NPW Act were assessed using the BDBSA Supertable (DEW 2024a), accessed via the general query tool on NatureMaps (NatureMaps 2024). The BDBSA is comprised of an integrated collection of corporate databases which meet the Department for Environment and Wildlife (DEW) standards for data quality, integrity, and maintenance. In addition to DEW biological data the BDBSA also includes data from partner organisations (Birds Australia, Birds SA, Australasian Wader Study Group, SA Museum, and other State Government Agencies). This data is included under agreement with the partner organisation for ease of distribution, but they remain owners of the data and should be contacted directly for further information. The dataset was obtained on 25th July 2024 and was used to identify records of conservation significant flora and fauna (i.e., threatened and / or migratory) that have been recorded within 5 km of the Project area, have a spatial reliability of < 1 km, and were recorded during or after 1995, as per the Bushland Assessment Method (BAM) (NVC 2020a). In addition, denatured records (i.e., records that have had their coordinates denatured by 1 decimal (approximately 10 km) due to sensitivity concerns) of conservation significant flora and fauna were also considered where appropriate.

3.2 Assessment of the likelihood of occurrence

A likelihood of occurrence assessment for conservation significant flora and fauna highlighted by the PMST report and the BDBSA search as occurring within 5 km of the Project area was conducted. This assessment was used to filter the outputs of the PMST report and BDBSA search results to derive a subset of conservation significant flora and fauna with potential to occur in the Project area for consideration during the field survey. The assessment was updated with habitat suitability information obtained during the field survey.

A likelihood of occurrence rating (Highly Likely, Likely, Possible, and Unlikely) was assigned to each of the conservation significant flora and fauna identified in the desktop PMST report and BDBSA search based on the combination of records existing within 5 km of the Project area and knowledge of suitable habitat occurring in the Project area (Table 3). Conservation significant flora and fauna observed during the field survey(s) were given a rating of Known.

Information on the habitat preferences and other relevant ecological attributes of the flora and fauna identified via the desktop assessment were sourced from their respective profile pages listed by the DCCEEW (2024b, c), Electronic Flora of South Australia (DEW 2024b), and other relevant resources where required.

It should be noted that the likelihood of a conservation significant species or subspecies occurring within the Project area does not necessarily equate to the Project area being of importance to the conservation of the species or subspecies.

Table 3. Criteria for the likelihood of occurrence of conservation significant flora and fauna within the Project area based on BDBSA records[1] and the field survey(s).

Likelihood	Criteria
Known	Recorded in or adjacent to the Project area as part of the field survey(s).
Highly Likely	Recorded in the last 10 years, the species or subspecies does not have highly specific niche requirements, the habitat is largely intact and falls within the known range of the species or subspecies distribution.
Likely	Recorded within the previous 20 years, the area falls within the known distribution of the species or subspecies and the area provides habitat which is largely intact.
Possible	Recorded within the previous 20 years, the area falls inside the known distribution of the species or subspecies, but the area does not provide habitat which is largely intact. Recorded within 20-40[2] years, survey effort is considered adequate, habitat is present and intact, and flora or fauna of similar habitat needs have been recorded in the area.
Unlikely	Recorded within 20-40 years; however, suitable habitat does not occur, and flora or fauna of similar habitat requirements have not been recorded in the area. No records within the previous 40 years despite suitable habitat being known to occur in the area. No records despite adequate survey effort.

[1] The final likelihood of occurrence of species within the Project area was modified based on local knowledge and information obtained during the field survey(s).
[2] Note that in some cases records prior to 1995 were considered.

3.3 Field Survey

A field survey was undertaken by Andrew Sinel from Ecosphere Ecological Solutions on 23rd July 2024. The vegetation survey was performed in accordance with the Scattered Tree Assessment Method (STAM) (NVC 2020b).

The NVC STAM is suitable for assessing scattered trees in the following instances:

- Individual scattered trees (i.e., canopy does not overlap). Spatial distribution of trees may vary from approach what would be considered their original distribution (pre-European) through to single isolated trees in the middle of a paddock or;
- Dead trees (when a dead tree is considered native vegetation) or;
- Clumps of trees (contiguous overlapping canopies) if the clump is small (~<0.1 ha) and;
- For both scattered trees and clumps;
    - the ground layer comprising wholly or largely of introduced species.
    - some scattered colonising native species may be present but represents < 5 % of the ground cover.
    - the area around the trees consists of introduced pasture or crops.

Impacts were quantified by ETS infrastructure management who specialise in determining buffers around high voltage power lines and which conduct the actual clearing on ground.

3.4 Desktop Study Limitations

The content of the desktop study was derived from existing datasets and references from a range of sources. Flora and fauna records were sourced from the PMST report and the BDBSA search via NatureMaps. The BDBSA only includes verified flora and fauna records submitted to DEW or partner organisations. It is recognised that drawing conclusions can be unreliable within areas that have been underrepresented in terms of biological studies. It is possible, therefore, that conservation significant flora and fauna occur within the Project area that

were not reflected by database records. As such, conservation significant flora and fauna highlighted by the PMST report but without BDBSA records within the 5 km buffer of the Project area may still be classified as Possible, Likely, or Highly Likely to occur within the Project area based on suitable habitat alone.

4 Assessment Outcomes

4.1 Vegetation Assessment

The vegetation assessment was undertaken as a site visit to determine the likelihood of potential pruning or removal required as part of stringing the new towers and as part of ongoing maintenance as part of the operations phase. The line crosses a steep gully which may negates the requirement for full clearance of electrical clearance buffers.

Trees in this zone were largely River Red Gum (*Eucalyptus camaldulensis*) associated with the riparian zone and hills sides. Understorey was completely modified and exotic in origin with no under storey indigenous species other than very sparsely present grass species *Aristida behriana* (Brush Wire-grass) or *Cyperus gymnocaulos* (Flat Sedge).

The Project area is located approximately 6.75 km south of the rural town of Tungkillo, and approximately 42.5 km east of Adelaide, South Australia. This area lies within the Eden Valley IBRA Environmental Association which has 6 % of its area composed of remnant native vegetation. Broadly the soil within the Project area consists of acidic sandy loam over brown or grey clay on rock, or shallow soil on rock (NatureMaps 2024).

The Project area is located within an area of existing infrastructure, consisting of the Tungkillo Substation transmission line. No National Parks and Wildlife South Australia (NPWSA) reserves or heritage agreements occur within 5 km of the Project area.

4.2 Scattered Trees

Six individual scattered trees of *Eucalyptus camaldulensis* and a patch of 25 emerging *Eucalyptus camaldulensis* were assessed during the field survey (Table 4). Clearance of the scattered trees is likely to be limited to pruning with more than 25% but less than 50 % removal as a worst-case scenario and may be very minimal in order to meet Electranet operational clearance guidelines and stringing of the easement. See Table 5 for clearance descriptions based on ETS Infrastructure (ETS) modelling and Figure 3 for locations of trees. ETS are the current contractor for electrical vegetation clearance on all Electranet owned assets and have significant experience in defining impacts for maintenance buffers.

Table 4. Scattered trees requiring clearance within Augmentation project area.

Tree	Species	Number of trees in a clump	Height (m)	Diameter (cm)	Dieback (%)	Number of Hollows			Suitability for fauna threatened species				Remnancy IBRA	Loss Factor	Fauna habitat Score	Threatened flora score	Biodiversity score (Max 15)
						Small	Medim	Large	Uncommon	NP&W Act - Rare	NP&W Act - Endangered or Vulnerable	EPBC Listed spp.					
1	*Eucalyptus camaldulensis var camaldulensis*	1	22.0	350	5	0	3	1	7	4	0	2	6	0.6	1.8	0	15.00
2	*Eucalyptus camaldulensis var camaldulensis*	1	11.0	58	5	0	0	0	7	4	0	2	6	0.6	1.8	0	2.06
3	*Eucalyptus camaldulensis var camaldulensis*	1	12.0	18	5	0	0	0	7	4	0	2	6	1.0	1.8	0	0.55
4	*Eucalyptus camaldulensis var camaldulensis*	1	8.0	17	5	0	0	0	7	4	0	2	6	1.0	1.8	0	0.42
5	*Eucalyptus camaldulensis var camaldulensis*	1	9.5	21	20	0	0	0	7	4	0	2	6	1.0	1.8	0	0.44
6	*Eucalyptus camaldulensis var camaldulensis*	1	17.0	125	5	0	0	0	7	4	0	2	6	0.4	1.8	0	5.89
7	*Eucalyptus camaldulensis var camaldulensis* (Emergent clump)	25	8.0	20	5	0	0	0	7	4	0	2	6	0.4	1.8	0	0.46

Table 5. Augmentation project clearance requirement summary

Span	Span Length	¼ Span	Loss factor	Comment
1093 to STR 1094	623	156	0.6	Tree 1 is already partially trimmed, will require remainder of the tree to be managed under the new conductor. The impact to the tree with be 25-50% trimmed. Tree 2 will require management under the operational clearance and construction clearance. Trimming will be 25-50% with the green box indicating the streinging requirement and the red box the regrowth maintenance zone.    Tree 1 looking east

Span	Span Length	¼ Span	Loss factor	Comment
			1	Three emergent trees 3, 4, and 5 in this stand will require removal at the northwestern end of the stand to enable rope lift. 
			0.4	Tree 6 is on the border of the stand trimming. 

Span	Span Length	¼ Span	Loss factor	Comment
			0.4	Trees on left of the photo (tree patch) within emergent clump require ~2m trimming for operational clearance. Other emergent trees ~25 within clump require trimming in the future 10 year period as a cumulative impact and treated as a 0.4 loss factr being less than 25% trimming occuring every 3 years once pruning buffer is reached. 

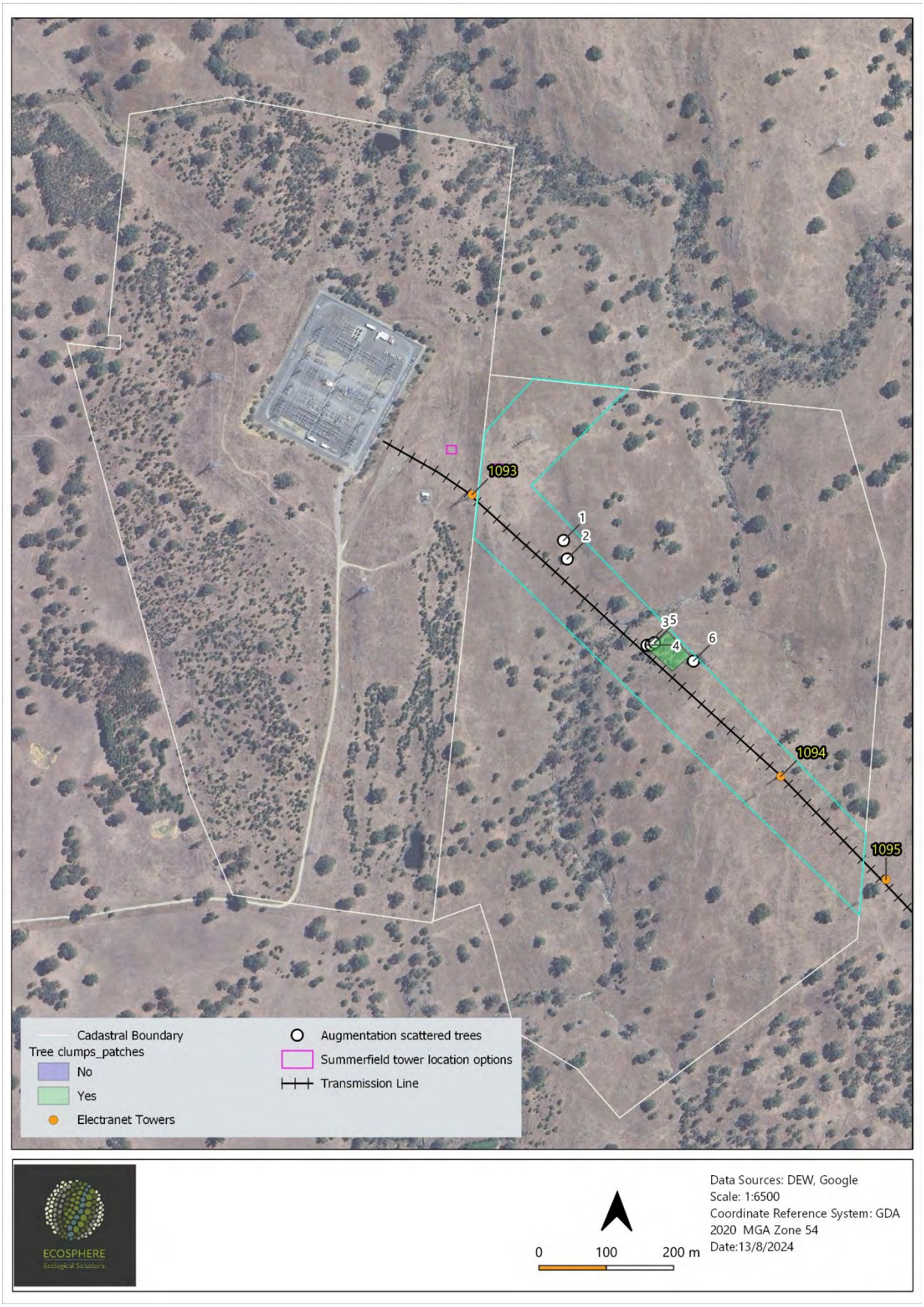

Figure 3. Scattered trees/ patches within augmentation project area

4.3 Tower locations

No recommendations are made with regard to the two tower locations (Figure 6) as preferential from an ecological perspective. The area area being grazed and the under storey was largely exotic in origin with the exception of scattered tussocks of *Aristida behriana* (Brush Wiregrass)) and *Enneapogon nigricans* (Bottlewashers) at the western most location (Figure 4) with the eastern site having very sparse tussocks of *Cyperus gymnocaulos* (Spiny Flat sedge) with dense stands of the declared weed *Cynara cardunculus* (Artichoke Thistle) (Figure 5). All these species are disturbance resistant and commonly occur in disturbed areas such as roadsides and gravel pits. See attached bushland assessment sheets for the tower study areas.

Figure 4. *Aristida behriana* tussocks at western tower location

Figure 5. Exotic grass forb cover with Artichoke Thistle at eastern tower location.

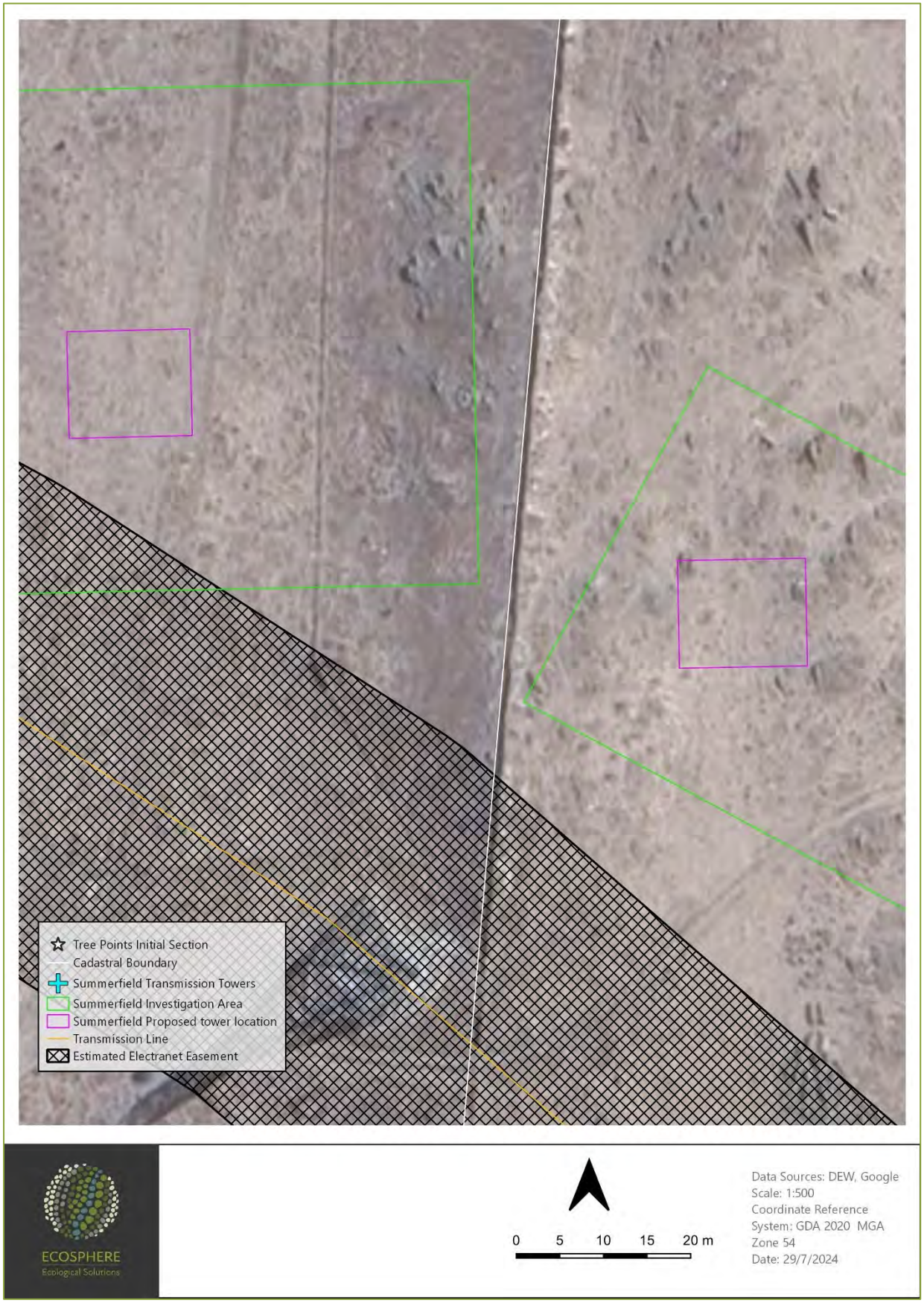

Figure 6. Tower locations assessed using the bushland assessment method.

4.4 Threatened species assessment

4.4.1 EPBC PMST search summary

A total of 39 listed threatened species and 12 migratory species were identified by the EPBC Act PMST report as potentially occurring or having suitable habitat potentially occurring within 5 km of the Project area (Table 6). The ecological MNES protected under the EPBC Act relevant to this report are discussed in detail below.

Table 6. PMST report ecological MNES results summary.

Search area (5km buffer)	Matters of National Environmental Significance	Identified within search area
	World Heritage Properties	0
	National Heritage Places	0
	Wetlands of International Importance (RAMSAR)	1
	Great Barrier Reef Marine Park	0
	Commonwealth Marine Area	0
	Listed Threatened Ecological Communities	2
	Listed Threatened Species	39
	Listed Migratory Species	12
	Other Matters Protected by the EPBC Act	
	Commonwealth Lands	0
	Commonwealth Heritage Places	0
	Listed Marine Species	18
	Whales and Other Cetaceans	0
	Critical Habitats	0
	Commonwealth Reserves Terrestrial	0
	Australian Marine Parks	0
	Habitat Critical to the Survival of Marine Turtles	0
	Extra Information	
	State and Territory Reserves	0
	Regional Forest Agreements	0
	Nationally Important Wetlands	0
	EPBC Act Referrals	5
	Key Ecological Features	0
	Biologically Important Areas	0
	Bioregional Assessments	0
	Geological and Bioregional Assessments	0

4.4.2 Threatened Ecological Communities.

Two Threatened Ecological Communities (TECs) were identified in the PMST report as potentially occurring within 5 km of the Project area.

- Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia (EPBC: CR)
- Iron-grass Natural Temperate Grassland of South Australia (EPBC: CR)

No TECs were detected during the field survey of the Project area.

4.4.3 Threatened Flora

Fifteen flora species or subspecies listed as threatened under the EPBC Act were identified in the PMST report as potentially occurring or having suitable habitat within 5 km of the Project area (Table 7). None of these had records of occurrence within 5 km of the Project area, as returned via the NatureMaps BDBSA search.

Two flora species of state conservation significance but not national significance had historical records within 5 km of the Project area from the NatureMaps BDBSA search (Table 7 and Figure 7). Of these, *Eucalyptus fasciculosa* (Pink Gum, NPW: R) was considered Likely to occur within the Project area. However, no Pink Gum was observed within the Project area during the field survey.

Table 7. Threatened flora listed under the EPBC Act and NPW Act identified within 5 km of the Project area via the PMST (Source 1), BDBSA (Source 2), or observed during the field survey.

Scientific name	Common name	EPBC Act	NP&W Act	Data source	Date of last record	Species known habitat preferences	Likelihood of occurrence
Acacia menzelii	Menzel's Wattle	VU	V	1		Endemic to South Australia. The species occurs as scattered populations from the northern Flinders Ranges to the Southern Lofty region, growing on gentle slopes and undulating plains of calcareous loamy soil with annual rainfall between 350 – 400 mm.	Unlikely
Acacia rhetinocarpa	Neat Wattle, Resin Wattle (SA)	VU	V	1		Patchily distribution throughout south-eastern South Australia. The species occurs in the Arno Bay area, Eyre Peninsula, the Curramulka area, Yorke Peninsula, and between Gilberts and Monarto South. Nine populations are known from the Lower Murray and Mount Lofty Ranges region. Typically inhabits open scrub growing on calcareous sand or sandy / calcareous loam soils.	Unlikely
Caladenia argocalla	White-beauty Spider-orchid	VU	E	1		Endemic to the Mount Lofty Ranges Region. Occurs in open forest and woodland of *Eucalyptus*, *Eucalyptus* / *Callitris*, and *Allocasuarina verticillata*, with a grassy and / or herb understorey.	Unlikely
Caladenia concolor	Crimson Spider-orchid, Maroon Spider-orchid	VU		1		Complex taxonomic history, *Caladenia concolor* has been a name applied to several forms of *Caladenia patersonii*. Unclear of the status of *Caladenia concolor* sensu stricto within South Australia. Occurs within a variety of woodland and open forest habitats, typically amid low shrubs, growing on sand and clay loams that are often gravelly or stony and well drained.	Unlikely
Caladenia tensa	Green-comb Spider-orchid, Rigid Spider-orchid	EN		1		Within South Australia the species is widespread, ranging from the west coast, throughout Eyre Peninsula and adjacent pastoral zone, the Flinders Ranges, being rare in the Mt Lofty Ranges, including absent from the Adelaide Hills, and more common in the Murray and upper south-east. The species may occur within various habitats, including dry Cypress-pine (family Cupressaceae)/Yellow Gum Woodland, Pine/Box woodland, mallee-heath sites, heathy woodland, and mallee woodland, which generally contain rock outcrops.	Unlikely
Dodonaea procumbens	Trailing Hop-bush	VU	V	1		A widespread but patchily distributed prostrate shrub. In South Australia the species occurs near Port Lincoln, Clare, Burra, in the Mount Lofty Ranges and Kangaroo Island. Grows in low-lying typically winter-wet areas within woodland, low open forests, heathland, and grasslands. Has most likely declined with the substantial loss of temperate grassy woodlands in south-eastern Australia.	Unlikely

Scientific name	Common name	EPBC Act	NP&W Act	Data source	Date of last record	Species known habitat preferences	Likelihood of occurrence
Dodonaea subglandulifera	Peep Hill Hop-bush	EN	E	1		Endemic to South Australia. Inhabits open woodland, open shrubland and mallee woodland growing on low hills with loamy soils and rocky outcrops.	Unlikely
Eucalyptus fasciculosa	Pink Gum		R	2	04/04/2022	Typically grows on well-drained sandy soils as part of *Eucalyptus* woodland.	Likely
Euphrasia collina subsp. *osbornii*	Osborn's Eyebright	EN	E	1		A subspecies endemic to South Australia where it has a scattered distribution across Kangaroo Island, Eyre Peninsula, Yorke Peninsula, the Northern and Southern Lofty regions, and the Flinders Ranges. The subspecies is a short-lived perennial semi-parasitic herb. Populations are transient with germination profuse after disturbances which create open environments (e.g., fire). Observed growing in mallee scrubland, sclerophyll forest and woodland, coastal cliffs, and swampland. Seedbanks likely last decades. Dormant seeds may possibly occur in the Project area but conditions for germination and seedling establishment are not suitable.	Unlikely
Glycine latrobeana	Clover Glycine, Purple Clover	VU	V	1		Small perennial herbaceous legume. Widespread across southeastern Australia where it occurs as scattered populations within native grasslands, dry sclerophyll forests, woodlands and low open woodlands with a grassy understorey. Population sizes likely fluctuate with fire events. Detectability is difficult unless plants are in flower or with fruits.	Unlikely
Hypericum japonicum	Matted St John's Wort		R	2	22/02/2017	Mat-forming perennial herb of cool, moist, typically shaded sites in swampy heathland.	Unlikely
Olearia pannosa subsp. *pannosa*	Silver Daisy-bush, Silver-leaved Daisy, Velvet Daisy-bush	VU	V	1		A subspecies endemic to South Australia where it grows as a shrub in the understorey of mallee and woodland occurring on hilly, rocky areas or sandy, flat areas. Scattered populations occur throughout the Eyre Peninsula, Yorke Peninsula, Flinders Ranges, Mount Lofty Ranges, the Murray region and Southeastern South Australia. A single collection has been made from Kangaroo Island.	Unlikely
Prasophyllum pallidum	Pale Leek-orchid	VU	R	1		Endemic to the Flinders and Mount Lofty Region. Occurs within open woodland and forest with a grassy understorey.	Unlikely
Senecio macrocarpus	Large-fruit Fireweed, Large-fruit Groundsel	VU	V	1		Small perennial shrub to subshrub. Historical records exist from the Yorke Peninsula, the Flinders and Mount Lofty Ranges, and the southeast of South Australia. Currently known from 14 locations across South Australia and Victoria with 4 occurring in South Australia. Grows in a variety of sparsely vegetated habitats, within	Unlikely

Scientific name	Common name	EPBC Act	NP&W Act	Data source	Date of last record	Species known habitat preferences	Likelihood of occurrence
						grasslands, sedgelands, shrublands and woodlands, often in depressions that are waterlogged in winter.	
Thelymitra epipactoides	Metallic Sun-orchid	EN	E	1		Scattered populations of this orchid occur from the Eyre Peninsula to East Gippsland in Victoria. Occurs in open sites of mesic coastal heathlands, open forests, and woodlands growing on sandy soils. Seedling recruitment responds well to disturbance by fire.	Unlikely
Thelymitra matthewsii	Spiral Sun-orchid	VU	E	1		Occurs in Victoria and South Australia where it grows in heathy open forest and woodlands on well-draining sandy or gravelly soils with an open ground layer. Mainly occurs after disturbance events.	Unlikely
Veronica derwentiana subsp. *homalodonta*	Mount Lofty Speedwell	CR	E	1		Endemic subspecies to South Australia where it occurs in the southern Mount Lofty Ranges and Kangaroo Island. Found in the higher, wetter regions of the Mount Lofty Ranges, the subspecies occupies moist gullies and areas near creek lines, where it grows between the waterline and tree canopy or where rocky outcrops allow a high level of light to penetrate to the ground.	Unlikely

NP&W Act; E = Endangered, V = Vulnerable, R = Rare.
EPBC Act; Ex = Extinct, CR = Critically Endangered, EN = Endangered; VU = Vulnerable.

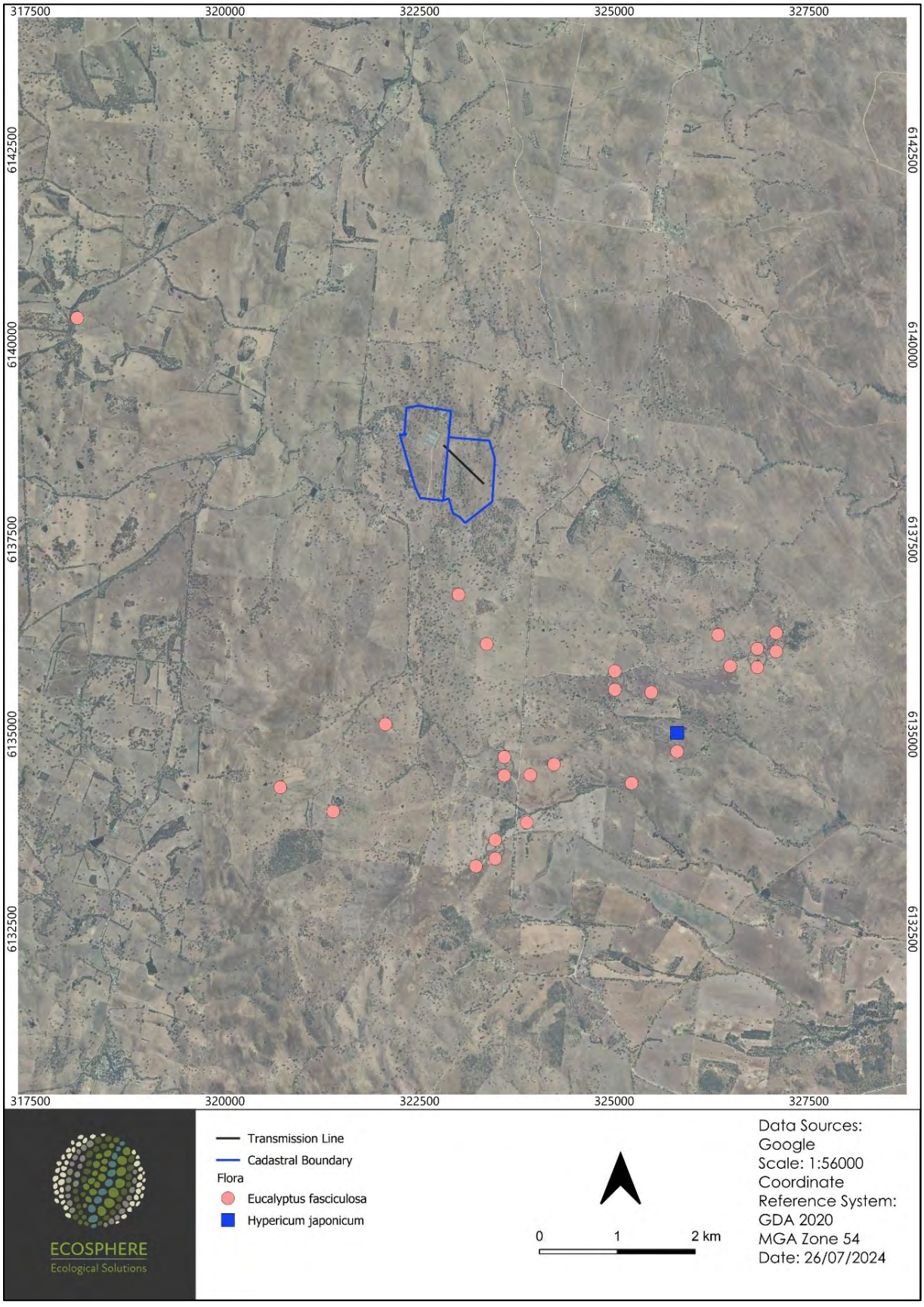

Figure 7 Conservation significant flora records within 5 km of the Project area.

4.4.4 Threatened Fauna

Twenty-four fauna species or subspecies listed as threatened under the EPBC Act were identified by the PMST report as having suitable habitat potentially occurring within 5 km of the Project area (Table 8Table 8). This included 16 bird, 2 mammal, 2 reptile, 1 frog, and 3 fish species or subspecies. Four fauna species threatened under the EPBC Act and identified in the PMST report also had records of occurrence within 5 km of the Project area, as returned via the NatureMaps BDBSA search (Table 8 and Figure 8). These included:

- *Aphelocephala leucopsis* (Southern Whiteface, EPBC: VU)
- *Stagonopleura guttata* (Diamond Firetail, EPBC: VU, NPW: V)
- *Pteropus poliocephalus* (Grey-headed Flying-fox, EPBC: VU, NPW: R)
- *Craterocephalus fluviatilis* (Murray Hardyhead, EPBC: EN)

Aphelocephala leucopsis (Southern Whiteface, EPBC: VU) was considered Likely to occur within the Project Area. This species was added to the threated fauna list under the EPBC Act on the 31st of March 2023 due to continued population decline. Two subspecies are recognized, with *Aphelocephala leucopsis leucopsis* occurring in South Australia. The species occurs across most of mainland Australia south of the tropics in a wide range of open woodlands and shrublands where there is an understorey of grasses and / or shrubs. The species prefers habitat with low tree densities and herbaceous understorey litter cover which provides essential foraging habitat and requires hollows / crevices in trees for roosting / nesting. Key threats for the species are broad landscape based and relate to pastoralism and the loss of shrubs and grasses. The PMST report suggested the presence of Southern Whiteface within the Project area and 1 occurrence record was within 5 km of the Project area. However, vegetation within the Project area is unlikely to be regularly utilised by the species given the lack of trees with hollows / crevices required for breeding and roosting, the lack of *Acacia* / Eucalypt dominated woodland / shrubland (preferred habitat), and the low amount of herbaceous understorey litter cover. Southern Whiteface was also not observed during the field survey. Vegetation clearance within the Project area, limited to the major pruning of trees with more than 25% but less than 50 % removal, is highly unlikely to negatively impact any important population(s) of the species as per the Significant impact criteria for a Vulnerable species listed in the Significant Impact Guidelines 1.1 Matters of National Environmental Significance (2013) (SIG 1.1).

Stagonopleura guttata (Diamond Firetail, EPBC: VU, NPW: V) was considered Likely to occur within the Project Area. This species was added to the threated fauna list under the EPBC Act on the 31st of March 2023 due to continued population decline. This decline is attributed to the clearance of native vegetation for large scale agriculture which has reduced the size and quality of important nesting and breeding habitats. Diamond Firetail occur in eucalypt, *Acacia* or *Casuarina* woodlands, open forests and other lightly timbered habitats, including farmland and grassland with scattered trees. They feed predominantly on grass and herb seeds, green leaves and insects. Habitat critical to the survival of the Diamond Firetail includes areas of low tree density, few large logs, and little litter cover but high grass cover for foraging, roosting and breeding. The PMST report suggested the presence of Diamond Firetail within the Project area and 4 occurrence records were within 5 km of the Project area. However, habitat within the Project area is unlikely to be critical to the survival of the species given the degraded nature of the area and the proximity of the habitat to current infrastructure. Diamond Firetail was also not observed during the field survey. Vegetation clearance within the Project area, limited to the major pruning of trees with more than 25% but less than 50 % removal, is highly unlikely to negatively impact any important population(s) of the species as per the Significant impact criteria for a Vulnerable species listed in the Significant Impact Guidelines 1.1 Matters of National Environmental Significance (2013) (SIG 1.1).

In addition, four species of state conservation significance but not national significance had historical records from the NatureMaps BDBSA search within 5 km of the Project area. Of these, one was considered Likely to occur within the Project area, and three were considered Possible (Table 8 and Figure 8).

4.4.5 Migratory species

Twelve EPBC Act listed migratory species or subspecies were identified by the PMST report as having suitable habitat potentially occurring within 5 km of the Project area (Table 8). The migratory birds identified are all unlikely to directly utilise the Project area. These migratory birds are largely associated with waterbodies used for feeding and or refuge areas which are not present within the Project area. They may occur above the Project area as a brief flyover.

Table 8. Threatened fauna listed under the EPBC Act and NPW Act and EPBC listed migratory fauna identified within 5 km of the Project area via the PMST (Source 1), BDBSA (Source 2), or observed during the field survey.

Scientific Name	Common Name	EPBC Act	NP&W Act	Data Source	Date of last record	Species known habitat preferences	Likelihood of occurrence
BIRD							
Aphelocephala leucopsis	Southern Whiteface	VU		1,2	23/10/2016	The Southern Whiteface is distributed across the majority of mainland Australia south of the tropics. Two subspecies are recognized, with *Aphelocephala leucopsis* ssp. *leucopsis* occurring in South Australia. Inhabits a wide range of open woodlands and shrublands with an understorey of grasses and / or shrubs. Favours habitat with an herbaceous understorey litter cover for foraging and requires hollows / crevices in trees for roosting / nesting.	Likely
Actitis hypoleucos	Common Sandpiper	Mi	R	1		Migratory shorebird. Found in coastal or inland wetlands, both saline and fresh, and mainly on muddy edges or rocky shores. Prefers freshwater lakes and shallow rivers during the breeding season in the northern hemisphere. Mostly found in northern and western Australia.	Unlikely
Apus pacificus	Fork-tailed Swift	Mi		1		Migratory species of Asian origin. Species is aerial and highly mobile during its stay in Australia where it follows low pressure systems across the country predating on airborne insects.	Unlikely
Botaurus poiciloptilus	Australasian Bittern	EN	E	1		Well vegetated freshwater and brackish wetlands.	Unlikely
Calidris acuminata	Sharp-tailed Sandpiper	VU, Mi		1		Prefers the grassy edges of shallow inland freshwater wetlands. It is also found around sewage farms, flooded fields, mudflats, mangroves, rocky shores, and beaches. Its breeding habitat in Siberia is the peat-hummock and lichen tundra of the high Arctic.	Unlikely
Calidris ferruginea	Curlew Sandpiper	CR, Mi	E	1		Curlew Sandpipers in Australia are present within coastal and subcoastal habitats. The habitats within which they occur range from fresh to hypersaline, and include intertidal mudflats, saltworks, sewage farms, wetlands, lakes, swamps, and lagoons.	Unlikely
Calidris melanotos	Pectoral Sandpiper	Mi	R	1		Pectoral Sandpiper prefers shallow fresh to saline wetlands. The species is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains, and artificial wetlands.	Unlikely

Scientific Name	Common Name	EPBC Act	NP&W Act	Data Source	Date of last record	Species known habitat preferences	Likelihood of occurrence
Corcorax melanorhamphos	White-winged Chough		R	2	3/02/2018	Predominantly ground-feeding bird that inhabits open forests and woodlands. Prefers wetter areas with high leaf-litter levels for foraging and mud for nest building.	Observed
Falco hypoleucos	Grey Falcon	VU	R	1		The species occurs in arid and semi-arid Australia, including the Murray-Darling Basin, Eyre Basin, central Australia, and Western Australia. The species is mainly found where annual rainfall is less than 500 mm, except when wet years are followed by drought, when the species might become marginally more widespread. Occurs at low densities, often in areas of *Acacia* shrubland interspersed by tree-lined watercourses, tussock grassland, and open woodlands. Nests in tall trees along watercourses, particularly River Red Gum. Predominantly predates on other birds.	Unlikely
Falcunculus frontatus frontatus	Eastern Shriketit		R	2	3/02/2018	Mostly occurs in *Eucalyptus* woodlands and forests. Prefers *Eucalyptus* species with decorticating bark, used as a preferred foraging substrate, but otherwise occupies a range of woodland and forest communities, including Stringybark.	Possible
Gallinago hardwickii	Latham's Snipe, Japanese Snipe	VU, Mi	R	1		Coastal shorebird that prefers vegetated wetlands; however, it may utilise water points and dam areas as a stopover point.	Unlikely
Grantiella picta	Painted Honeyeater	VU	R	1		Dry open forests and woodlands. Associated with the fruiting of mistletoe and follows the availability of this seasonal food resource throughout the year. More common in wider blocks of remnant woodland than in narrower strips.	Unlikely
Hirundapus caudacutus	White-throated Needletail	VU, Mi	V	1		Migratory species, non-breeding grounds in Australia. Widespread distribution across eastern and south-eastern Australia. Species is mostly aerial during its stay in Australia, where it forages from heights of less than 1 m up to more than 1000 m above the ground. The species often forages along the edges of low-pressure systems which lift their food sources and assist with flight. May follow low pressure systems across the country. Three records within 5 km of the Project area.	Unlikely

Scientific Name	Common Name	EPBC Act	NP&W Act	Data Source	Date of last record	Species known habitat preferences	Likelihood of occurrence
Leipoa ocellata	Malleefowl	VU	V	1		The Murray Mallee is the stronghold for the Malleefowl, but it has severely declined throughout its range. It is now found in scattered locations through semi-arid rangelands and dry-land cropping zones in the south-east of South Australia and the Eyre Peninsula. Principally found in mallee eucalypt woodland and scrub as well as dry forest dominated by other eucalypts, Mulga and other *Acacia* spp. They feed on seeds and herbage and build nest mounds in sandy substrates with leaf litter. If suitable connectivity exists along with intact Mallee possible occurrences may occur. Unlikely in habitat without other records nearby	Unlikely
Melanodryas cucullata cucullata	South-eastern Hooded Robin, Hooded Robin (south-eastern)	EN	R	1		Open dry woodland or shrubland of *Acacia* and/or *Eucalyptus* with a complex ground layer for foraging.	Unlikely
Motacilla cinerea	Grey Wagtail	Mi		1		Vagrant. A migratory species found within Europe, Asia, and North America, has been recorded in Australia infrequently. Most of these records are from northern Australia.	Unlikely
Motacilla flava	Yellow Wagtail	Mi		1		Vagrant. Breeds in Europe and Alaska before migrating south into Asia and Africa. Regular summer visitor to northern Australia, however, has been recorded in all states. Prefers grasslands and swamps as well as saltmarshes or prepared lands (e.g., sports fields, airfields etc.).	Unlikely
Myiagra cyanoleuca	Satin Flycatcher	Mi	E	1		Eucalypt forests, often near wetlands or watercourses. Occurs at high elevations during the breeding season but has wider habitat preferences during its migration.	Unlikely
Myiagra inquieta	Restless Flycatcher		R	2	21/05/1998	Inhabits open forests and woodlands and frequently seen in farmland.	Possible
Neophema chrysostoma	Blue-winged Parrot	VU	V	1,2		Partial migrant, with some birds breeding in Tasmania. Woodlands, coastal heaths, and grasslands. Favours grasslands and grassy woodlands, often near wetlands.	Unlikely
Neophema elegans elegans	Elegant Parrot		R	2	27/04/2023	A nomadic, ground foraging, seed feeding parrot of grasses and herbaceous plants. Typically construct their nests high up (i.e., > 15 m) in the hollows of eucalypts.	Likely

Scientific Name	Common Name	EPBC Act	NP&W Act	Data Source	Date of last record	Species known habitat preferences	Likelihood of occurrence
Polytelis anthopeplus monarchoides	Regent Parrot (eastern)	VU	V	1		Forages across large areas of mallee woodland and typically nests in *Eucalyptus camaldulensis* woodland during breeding season.	Unlikely
Rhipidura rufifrons	Rufous Fantail	Mi		1		Migratory, predominantly within Australia. Moist, dense habitats, including mangroves, rainforest, riparian forests and thickets, and wet eucalypt forests with a dense understorey.	Unlikely
Rostratula australis	Australian Painted Snipe	EN	E	1		Shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans.	Unlikely
Stagonopleura guttata	Diamond Firetail	VU	V	1,2	19/10/2022	Open grassy woodland, heath, and farmland or grassland with scattered trees. Preference for areas with tall grass cover. Roost within dense shrubs and feed at ground level on seeds and insects. Somewhat transient populations.	Likely
Tringa nebularia	Common Greenshank, Greenshank	EN, Mi		1		Migratory species, non-breeding grounds in Australia. Widespread in coastal regions of Australia where it forages within wetlands, mudflats, and shallows around the edge of waterbodies. Nests are constructed in association with waterbodies both coastal (e.g., estuaries and mudflats) and inland (e.g., swamps and flooded crops).	Unlikely
Zoothera lunulata halmaturina	South Australian Bassian Thrush, Western Bassian Thrush	EN	R	1		Endemic subspecies found on Kangaroo Island, the Fleurieu Peninsula, Mount Lofty Ranges, and southern Flinders Ranges. Approximately 300 to 500 birds remain throughout the Fleurieu Peninsula and Mount Lofty Ranges. Mostly inhabits damp eucalypt forest or woodland, usually with a dense canopy and dense understorey of small trees, tall shrubs, and leaf-litter.	Unlikely
MAMMAL							
Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern)	EN	V	1		Found across a variety of habitats including heathland, shrubland, sedgeland, heathy open forest and woodland. Prefers areas of dense ground cover. Exotic vegetation, such as Blackberry (*Rubus* spp.), can provide important habitat in areas where suitable native vegetation is limited.	Unlikely

Scientific Name	Common Name	EPBC Act	NP&W Act	Data Source	Date of last record	Species known habitat preferences	Likelihood of occurrence
Pteropus poliocephalus	Grey-headed Flying-fox	VU	R	1,2	12/01/2020	Habitats that contain flowering and fruiting trees including closed and open forests, woodlands, and vegetation within urban areas.	Unlikely
REPTILE							
Aprasia pseudopulchella	Flinders Ranges Worm-lizard	VU		1		Recorded in areas of stony rises and fallen timber where this species finds refuge. Usually associated with grassy areas.	Possible
Tiliqua adelaidensis	Pygmy Blue-tongue Lizard, Adelaide Blue-tongue Lizard	EN		1		Fragmented distribution extending from Peterborough in the north, to Kapunda in the south and to South Hummocks in the west. Found in a variety of moderate to sparsely vegetated habitats, including highly degraded grasslands dominated by exotic grasses. Greater abundance occurs on the lower slopes of hillsides. Utilises spider burrows for refuges, basking sites, and hunting ambush sites.	Unlikely
FROG							
Litoria raniformis	Southern Bell Frog, Growling Grass Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog	VU	V	1		Endemic to south-eastern Australia. Variety of still or slow-flowing natural and artificial wetlands, riverine floodplains, farm dams, quarries, and irrigation channels. Reliant on permanent freshwater lagoons for breeding.	Unlikely
FISH							
Craterocephalus fluviatilis	Murray Hardyhead	EN		1,2	18/05/2016	No habitat available within the Project area.	Unlikely
Galaxias rostratus	Flathead Galaxias, Beaked Minnow, Flat-headed Galaxias, Flat-headed Jollytail, Flat-headed Minnow	CR		1		No habitat available within the Project area.	Unlikely
Nannoperca australis	Southern Pygmy Perch	VU		1		No habitat available within the Project area.	Unlikely

NP&W Act; E = Endangered, V = Vulnerable, R = Rare.

EPBC Act; Ex = Extinct, CR = Critically Endangered, EN = Endangered; VU = Vulnerable; CD = Conservation Dependent; Mi = Migratory.

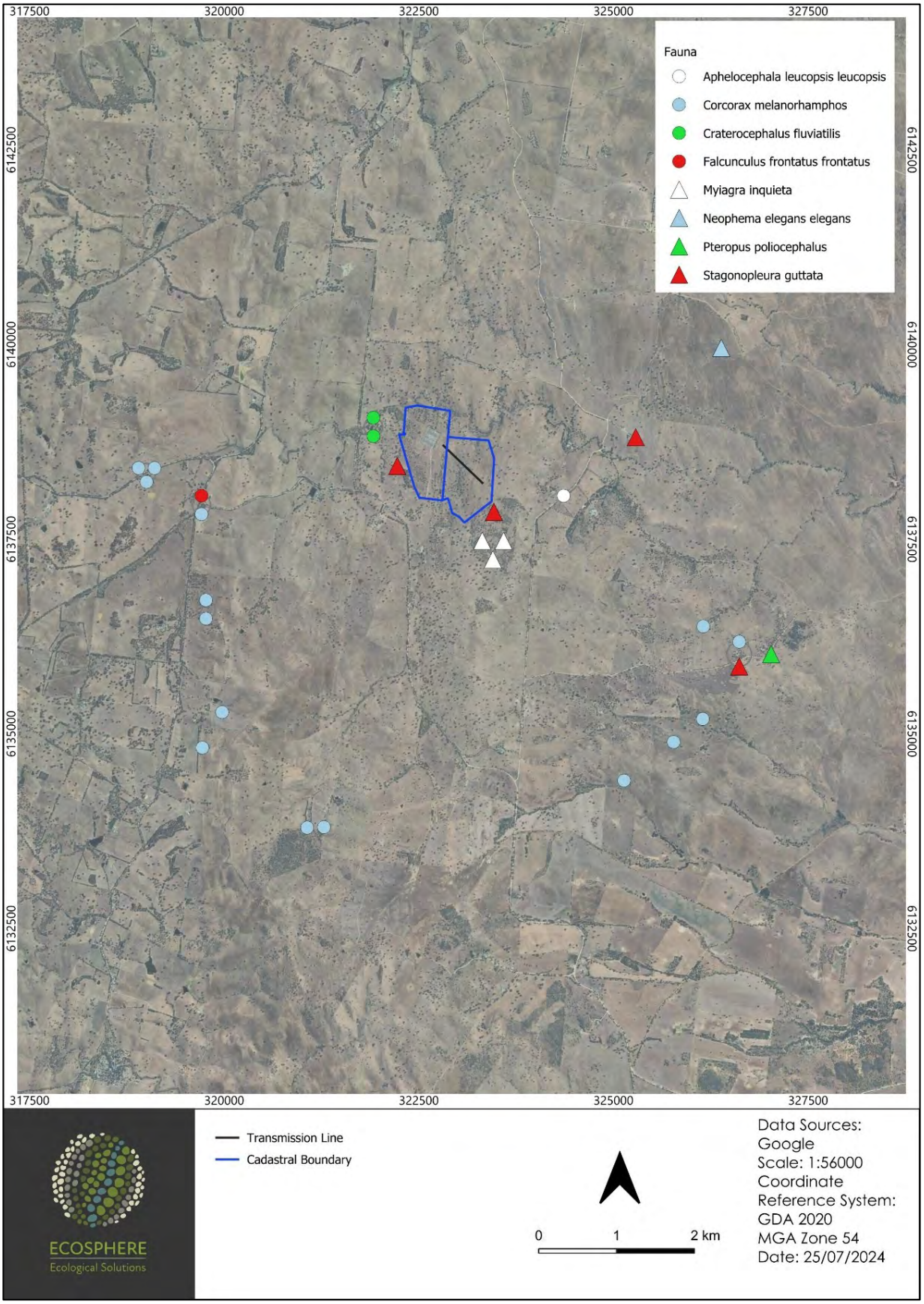

Figure 8. Conservation significant fauna records within 5 km of the Project area.

4.5 Cumulative Impact

When exercising a power or making a decision under Division 5 of the Native Vegetation Regulations 2017, the NVC must consider the potential cumulative impact, both direct and indirect, that is reasonably likely to result from a proposed clearance activity.

There are no additional areas expected to be impacted as part of the development development application to which this assessment is associated. The broader Project (parts not requiring development approval) incorporates stringing of a vacant circuit on the existing Tungkillo to Tailem Bend transmission line which will be subject to additional an additional native vegetation clearance application to be submitted separately to the Native Vegetation Council. This additional clearance was contemplated and endorsed in the original development approval for that transmission line. No further clearance is expected beyond the scope of these applications.

4.6 Adress the mitigation hierarchy

When exercising a power or making a decision under Division 5 of the Native Vegetation Regulations 2017, the NVC must have regard to the mitigation hierarchy. The NVC will also consider, with the aim to minimize, impacts on biological diversity, soil, water and other natural resources, threatened species or ecological communities under the EPBC Act or listed species under the NP&W Act.

a) Avoidance – outline measures taken to avoid clearance of native vegetation.

The proposed vegetation clearance cannot be avoided due to safety requirements associated with the height of trees close to power transmission lines. Tree height is already managed by pruning along the existing Tungkillo Substation transmission line. The key components of the project are:

- Works within the Tungkillo substation;
- Additional earthing works at select towers near to the Tepko Substation;
- Stringing the spare side of the existing 275kV towers between Tungkillo and the BESS site (Tepko substation);
- Two entry towers into the Tungkillo substation, and;
- Vegetation clearance to ensure compliance with bushfire regulations.

The potential construction impacts of each of these components have been assessed and detailed below.

Construction Method	Description	Native vegetation impact risk	Cultural heritage impact risk	Health and Safety risk
Heavy Vehicle Construction (traditional)	- 5m clearance corridor underneath easement - Dragging heavy draw wires in contact with ground - EWPs required at tension towers - Requires winching stations	High	High	Low
Helicopter installation	- Minimal to no ground disturbance - Requires de-energization of existing conductor* - EWPs at select towers - Requires winching stations	Low	Low	Extreme
Light Vehicle and manual guidance	- Minimal ground disturbance and high level of control - Increased workforce	Low	Low	Moderate

Construction Method	Description	Native vegetation impact risk	Cultural heritage impact risk	Health and Safety risk
	- Requires winching stations - EWPs required at tension towers - Progressively increasing draw rope / wire through towers			
Notes:	* The de-energization of the existing conductor is a requirement for the 'helicopter installation' construction method. The de-energization is operationally impossible for the duration of the works. Without de-energization, the health and safety risks are extreme.			

Due to the extreme health and safety risks of the helicopter installation method, this method is not considered feasible. The project then assessed via site inspection with the construction team the remaining two construction methods and a comparison of their relative impacts is shown below.

Construction Impact Categories	Heavy Vehicle (Traditional)	Light Vehicle and Manual Guidance
Ground disturbance (draw wire pulling)	- Dragging of 3x21mm draw wire results in gauging of bare earth (up to 500mm) - Compaction of soil from heavy vehicles (e.g. tractor) - Damage to all vegetation in the path of the wire (5m corridor)	- Dragging of 12mm rope will not cause ground disturbance. - Ground protection will be laid to protect the Lomandra native grasslands (an EPBC listed community), and the rope will be walked (no vehicles) - Where cultural heritage sites are identified the rope will be walked (no vehicles where practicable)
Ground disturbance (lifting and winching)	- Earth cut and crushed rock for EWP pads as required at select towers - Cleared earth for winching pad and winch to be installed at select spans	- EWP stabilization method using matting and temporary pads at select towers - Matting and temporary pads for winching installed at select towers with ability to microsite to avoid impacts
Native vegetation Clearance and Trimming	- Complete removal for a 5m access track along entire easement - Lopping of limbs within vertical path of the 5m track	- Floating of rope will require minor trimming of limbs within vertical path of the rope. - Removal of <10 trees is required to enable a clear path for the rope to be walked between spans - Manipulation of the rope through tagging significantly reduces the need for complete removal or trimming of trees

To meet the project's obligations under the *Native Vegetation Act 1991* and the *Aboriginal Heritage Act 1988* and the Commonwealth *Environmental Protection and Biodiversity Conservation (EPBC) Act 1999* the project has chosen the Light Vehicle and Manual Guidance method to string the conductor.

b) Minimization – if clearance cannot be avoided, outline measures taken to minimize the extent, duration and intensity of impacts of the clearance on biodiversity to the fullest possible extent (whether the impact is direct, indirect or cumulative).

Rope stringing will pull the new transmission line into place avoiding most removal of scattered trees and limiting clearance to the major pruning of trees with more than 25% but less than 50 % removal. The project works are heavily constrained in their design and implementation given the existing ElectraNet Transmission

assets and therefore the ability of the project to avoid environmental impacts by modifying the location of works is severely limited. It is highly likely that putting the new circuit on a separate, new transmission line would have significantly greater impacts due to new towers and associated clearing and disturbance.

Nevertheless, the project has undertaken a detailed assessment of the existing native vegetation and cultural heritage features within the transmission line easement and has assessed all reasonable construction methods with an aim to reduce the risk of impacts on native vegetation and cultural heritage.

The project is committed to continually reassess the impacts on the environment as new information comes to light via its Construction Environment Management Plan, as is practicable.

The choice of a tailored construction methodology for key aspects of the project will result in reduced overall impact of the project on the environment compared to the standard construction approach.

c) Rehabilitation or restoration – outline measures taken to rehabilitate ecosystems that have been degraded, and to restore ecosystems that have been degraded, or destroyed by the impact of clearance that cannot be avoided or further minimized, such as allowing for the re-establishment of the vegetation.

No rehabilitation or restoration works with respect to vegetation management is planned.

d) Offset – any adverse impact on native vegetation that cannot be avoided or further minimized should be offset by the achievement of a significant environmental benefit that outweighs that impact.

The SEB will be met through a payment into the NV fund.

4.5 Principles of Clearance (Schedule 1, *Native Vegetation Act 1991*)

The Native Vegetation Council will consider Principles 1(b), 1(c) and 1(d) when assigning a level of Risk under Regulation 16 of the Native Vegetation Regulations. The Native Vegetation Council will consider all the Principles of clearance of the Act as relevant, when considering an application referred under the *Planning, Development and Infrastructure Act 2016*.

Principle of clearance	Considerations
Principle 1a - it comprises a high level of diversity of plant species	Relevant information The number of plant species recorded (native and introduced) for each vegetation association was exceptionally low with only three species recorded within the two tower locations and one scattered tree species. Bushland Plant Diversity Score - 2
	Assessment against the principles Not at Variance
	Moderating factors that may be considered by the NVC. N/A
Principle 1b - significance as a habitat for wildlife	Relevant information All patches and trees were seriously at variance with this principle. Patches. Threatened Fauna Score – 0.8 Unit biodiversity Score – 2.66 Trees. Fauna Habitat Score – 1.8 Biodiversity Score – 24.82
	Assessment against the principles Seriously at Variance

	Moderating factors that may be considered by the NVC. None of the trees as part of pruning associated with clearance buffers is likely to lead to: • a long-term decrease in the size of a population, or • reduce the area of occupancy of the species, or • fragment an existing population into two or more populations, or • adversely affect habitat critical to the survival of a species, or • modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline, or • result in invasive species that are harmful to a threatened species becoming established in the threatened species habitat, or • interfere with the recovery of the species.
Principle 1c - plants of a rare, vulnerable or endangered species	Relevant information No threatened flora species recorded. Highly degraded.
	Assessment against the principles Not at Variance
	Moderating factors that may be considered by the NVC. N/A
***Principle 1d - the vegetation comprises the whole or part of a plant community that is Rare, Vulnerable or endangered*:**	Relevant information No threatened communities under the EPBC Act or threatened ecosystems under the DEW Provisional list of threatened ecosystems were present.
	Assessment against the principles Not at Variance
	Moderating factors that may be considered by the NVC. N/A
Principle 1e - it is significant as a remnant of vegetation in an area which has been extensively cleared.	Relevant information Remnancy figures for the IBRA Association were 6% and the IBRA Subregion is 12% Remnants are sparsely present. Total Biodiversity Score – 24.91
	Assessment against the principles At Variance
	Moderating factors that may be considered by the NVC. The pruning is not likely to impact on a tree species or vegetation community that has been selectively removed within the IBRA Association or IBRA Subregion
Principle 1f - it is growing in, or in association with, a wetland environment.	Relevant information None of the vegetation is associated with a wetland
	Assessment against the principles Not At Variance –
	Moderating factors that may be considered by the NVC
Principle 1g - it contributes significantly to the amenity of	Relevant information The trees are generally old and very little regeneration has occurred in the past 100 years. The possible effect on landscape character is not however expected to change significantly being a narrow linear alignment.
	N/A

the area in which it is growing or is situated.	Moderating factors that may be considered by the NVC. N/A

4.7 Risk Assessment

Determine the level of risk associated with the application.

Total clearance	No. of trees	31
	Area (ha)	320m^2
	Total biodiversity Score	24.91
Seriously at variance with principle 1(b), 1(c) or 1 (d)		1(b)
Risk assessment outcome		Level 4

4.8 NVC Guidelines

Provide any other information that demonstrates that the clearance complies with any relevant NVC guidelines related to the activity.

N/A

5 Clearance summary

5.1 Clearance Area(s) Summary table

Block	Site	Species diversity score	Threatened Ecological community Score	Threatened plant score	Threatened fauna score	UBS	Area (ha)	Total Biodiversity score	Loss factor	Loadings	Reductions	SEB Points required	SEB payment	Admin Fee
1	1	2	1	0	0.08	2.66	0.016	0.04	1		0.5	0.02	$18.14	$1.00
1	2	2	1	0	0.08	2.66	0.016	0.04	1		0.5	0.02	$18.14	$1.00
						Total	0.032	0.08512				0.04	**$38.15**	**$2.10**

5.2 Scattered trees Summary table

Tree or Cluster ID	Number of trees	Fauna Habitat score	Threatened flora score	Biodiversity score	Loss factor	SEB Points required	SEB Payment	Admin Fee
1	1	1.8	0	15	0.6	9.45	$7,672.64	$422.00
2	1	1.8	0	2.061424207	0.6	1.30	$1,054.44	$57.99
3	1	1.8	0	0.550011551	1	0.58	$468.89	$25.79
4	1	1.8	0	0.422288891	1	0.44	$360.01	$19.80
5	1	1.8	0	0.443904903	1	0.47	$378.44	$20.81
6	1	1.8	0	5.886426072	0.4	2.47	$2,007.31	$110.40
7	25	1.8	0	0.456925589	0.4	4.80	$3,895.36	$214.25
Total	**31**			**24.82**		19.51	$16,652.24	$915.87

5.3 Totals summary table

	Total Biodiversity score	Total SEB points required	SEB Payment	Admin Fee	Total Payment
Application	24.91	19.55	$16,690.39	$917.97	$17,608.36

Economies of Scale Factor	0.5
Rainfall (mm)	571

6 Significant Environmental Benefit

A Significant Environmental Benefit (SEB) is required for approval to clear under Division 5 of the *Native Vegetation Regulations 2017*. The NVC must be satisfied that as a result of the loss of vegetation from the clearance that an SEB will result in a positive impact on the environment that is over and above the negative impact of the clearance.

ACHIEVING AN SEB

Indicate how the SEB will be achieved by ticking the appropriate box and providing the associated information:

☐ Establish a new SEB Area on land owned by the proponent.

☐ Use SEB Credit that the proponent has established. Provide the SEB Credit Ref. No. _____

☐ Apply to have SEB Credit assigned from another person or body. The application form needs to be submitted with this Data Report.

☐ Apply to have an SEB to be delivered by a Third Party. The application form needs to be submitted with this Data Report.

☒ Pay into the Native Vegetation Fund.

PAYMENT SEB

If a proponent proposes to achieve the SEB by paying into the Native Vegetation Fund, summary information must be provided on the amount required to be paid and the manner of payment:

The payment to satisfy the SEB obligation is $16,690.39 plus an admin fee of $917.97 totalling $17,608.36

7 References

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NatureMaps (2024) EnviroData SA. Government of South Australia, Department of Environment and Water (DEW). Available at: http://spatialwebapps.environment.sa.gov.au/naturemaps/?locale=en-us&viewer=naturemaps

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Native Vegetation Council (NVCb) (2020b) Scattered Tree Assessment Manual. Native Vegetation Management Unit, July 2020.