

Native Vegetation Clearance

Australia Plains Solar Project – Green Gold Energy

Clearance under the *Native Vegetation Regulations 2017*

24 June 2024

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Cover photograph: Short-beaked Echidna (*Tachyglossus aculeatus*) in Mallee within the Project Area.

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Glossary and abbreviations

BAM	Bushland Assessment Method
BDBSA	Biological Database of South Australia (maintained by DEW)
DAWE	Department of Agriculture, Water and the Environment (Commonwealth) (now DCCEEW)
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Commonwealth)
DEH	Department of Environment and Heritage
DEW	Department for Environment and Water (South Australia)
EBS	Environment and Biodiversity Services Pty Ltd (trading as EBS Ecology)
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999</i>
ha	Hectare(s)
IBRA	Interim Biogeographical Regionalisation of Australia
INTG	Iron-grass Natural Temperate Grassland of SA
km	Kilometre(s)
MBC	Mallee Bird Community
MDD	Murray-Darling Depression
NatureMaps	Initiative of DEW that provides a common access point to maps and geographic information about South Australia's natural resources in an interactive online mapping format.
NPW Act	<i>National Parks and Wildlife Act 1972</i>
NV Act	<i>Native Vegetation Act 1991</i>
NVC	Native Vegetation Council
PMBW	Plains Mallee Box Woodlands
PBGW	Peppermint Box (<i>Eucalyptus odorata</i>) Grassy Woodland of SA
PMST	Protected Matters Search Tool (under the EPBC Act; maintained by DAWE)
PV	Photovoltaic
the Project	Australia Plains Solar
the Project Area	Lot 315 Bower Road, Australia Plains (Parcel ID: H120800 S315)
the Proponent	Green Gold Energy Pty Ltd
the Search Area	5 km buffer of the Project Area considered in the desktop assessment database searches.
SA	South Australia(n)
SEB	Significant Environmental Benefit
sp.	Species
spp.	Species (plural)
TEC	Threatened Ecological Community
VA	Vegetation Association
var.	Variety (a taxonomic rank below that of species and subspecies, but above that of form)

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Attachments

- Attachment 1 – Spatial data (electronic ESRI shapefile).
- Attachment 2 – Significant Environmental Benefit Scoresheets (electronic excel files).

1. APPLICATION SUMMARY

Details of the native vegetation clearance applicant are summarised in Table 1 with a summary of the proposed clearance provided in Table 2.

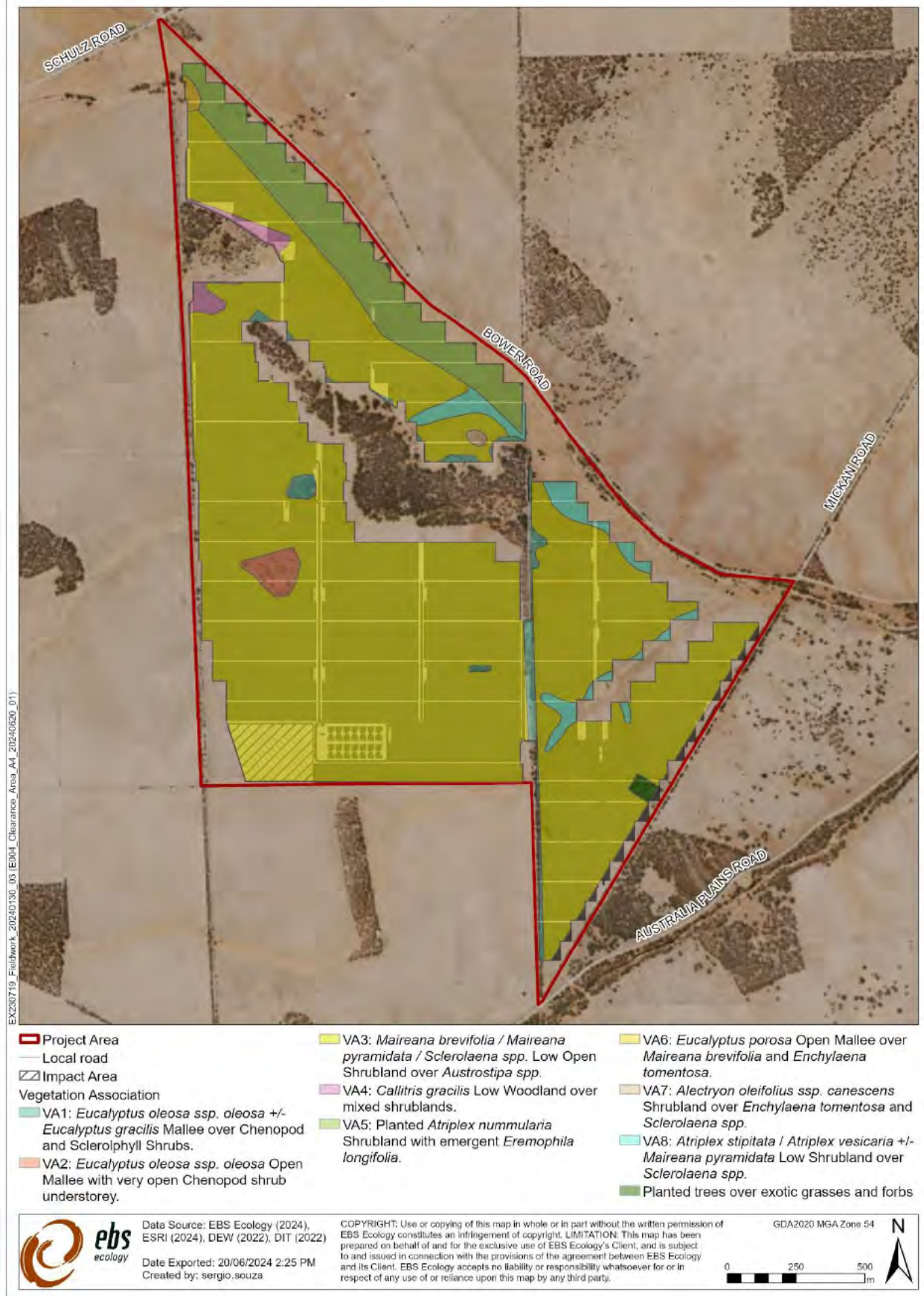
Table 1. Application details.

Applicant:	Australia Plains Solar Project Pty Ltd.		
Key contact:			
Landowner:	Australia Plains Solar Project Pty Ltd.		
Site Address:	Lot 315 Bower Road, Australia Plains, SA, 5374		
Local Government Area:	The Regional Council of Goyder	Hundred:	English
Title ID:	CT/5972/348	Parcel ID	H120800 S315

Table 2. Summary of the proposed clearance.

Purpose of clearance	Clearance required for the construction of a solar farm, Battery Energy Storage System (BESS) and associated infrastructure.
Native Vegetation Regulation	Regulation 12, Schedule 1; clause 34, Infrastructure.
Description of the vegetation under application	<p>Six Vegetation Associations:</p> <p>VA1: <i>Eucalyptus oleosa</i> ssp. <i>oleosa</i> (Red Mallee) Mallee over <i>Maireana brevifolia</i> (Short-leaf Bluebush).</p> <p>VA2: <i>Eucalyptus oleosa</i> ssp. <i>oleosa</i> (Red Mallee) Open Mallee with very open understorey.</p> <p>VA3: <i>Maireana brevifolia</i> (Short-leaf Bluebush)/<i>Salsola australis</i> (Buckbush) +/- <i>Sclerolaena obliquicuspis</i> (Oblique-spined Bindyi) Low Open Shrubland.</p> <p>VA4: <i>Callitris gracilis</i> (Southern Cypress Pine) Low Woodland over mixed shrublands.</p> <p>VA5: Planted <i>Atriplex nummularia</i> (Oldman Saltbush) Shrubland with emergent <i>Eremophila longifolia</i> (Weeping Embush).</p> <p>VA6: <i>Eucalyptus porosa</i> (Mallee Box) Open Mallee over <i>Maireana brevifolia</i> (Short-leaf Bluebush) / <i>Enchylaena tomentosa</i> (Ruby Saltbush).</p> <p>VA7: <i>Alectryon oleifolius</i> ssp. <i>canescens</i> (Bullock Bush) shrubland over <i>Maireana scleroptera</i> (Hard-wing Bluebush) +/- <i>Enchylaena tomentosa</i> var. (Ruby Saltbush).</p>

	VA8: <i>Atriplex vesicaria</i> (Bladder Saltbush) low shrubland over <i>Maireana spp.</i> (Bluebush) and <i>Carrichtera annua</i> (Wards Weed).
Total proposed clearance (ha)	<p>The total proposed area of clearance is 257.97 hectares (ha) of native vegetation, including eight vegetation associations:</p> <ul style="list-style-type: none"> • A1 – 4.65 ha • A2 – 2.37 ha • A3 – 218.37 ha • A4 – 2.34 ha • A5 – 22.70 ha • A6 – 0.52 ha • A7 – 0.32 ha • A8 – 6.70 ha
Level of clearance	Level 4
Overlay (Planning and Design Code)	Native Vegetation Overlay

Map of
proposed
clearance
area

Mitigation Hierarchy	<p><i>Avoidance</i></p> <p>Large areas of suitable habitat for EPBC Act listed threatened species habitat has been avoided by the project design. This includes areas of Mallee and woodland.</p> <p><i>Minimization</i></p> <p>Most of the impact footprint of the Project has been micro-sited to clear vegetation in poorer condition that are heavily impacted by historical land clearing, grazing, and weed infestation. Only smaller patches of vegetation in good to excellent condition, including Mallee and woodland areas. are impacted.</p> <p>Construction contractors will develop and implement a Construction Environmental Management Plan. This plan will include management strategies for minimising the impacts caused by vegetation clearance.</p> <p><i>Rehabilitation or restoration</i></p> <p>Clearance is permanent. No rehabilitation is proposed.</p>
SEB Offset proposal	<p>Total SEB offset required for the clearance of 257.97 ha of native vegetation is 9827.69 SEB points or payment of \$3,437,031.01 into the NV Fund, which includes an administration fee of \$179,181.71.</p>

2. PURPOSE OF THE CLEARANCE

2.1. Description

Green Gold Energy Pty Ltd (GGE) is proposing to construct the Australia Plains Solar Farm (the Project) on land they own at Lot 315 Bower Road, Australia Plains (CT/5972/348). The Project is located approximately 12.5 kilometres (km) southeast of the township of Robertstown, and 14.5 km northeast of Eudunda, in the Northern and Yorke region of South Australia (SA).

EBS Ecology (EBS) was engaged by GGE to undertake a native vegetation clearance assessment and prepare a native vegetation clearance report for the construction of the proposed solar farm, BESS, substation, and associated infrastructure required for this its operation within the 180.23 ha area (Figure 1) (the Project Area).

Objectives

The native vegetation assessment, in accordance with the *Native Vegetation Act 1991* (NV Act) and *Native Vegetation Regulations 2017*, had the primary objectives to:

- Undertake a desktop assessment of the likelihood of occurrence and status of threatened flora and fauna protected under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and State *National Parks and Wildlife Act 1972* (NPW Act);
- Assess native vegetation within the Project Area for clearance using the Native Vegetation Council (NVC) endorsed Bushland Assessment Method (BAM) in accordance with the NV Act;
- Identification of any “Declared” plants under the *Landscape South Australia Act 2019* that may be significant in relation to the Project requirements; and
- Calculate the Significant Environmental Benefit (SEB) offset requirements for the Project based on the client supplied impact footprint.

2.2. Background

The Project has been proposed to be constructed on agricultural land in the Regional Council of Goyder within the Northern and Yorke landscape management region and the Hundred of English (DEW 2023a).

Most of the Project Area has been cleared historically of trees and mallee and used for agriculture and livestock grazing. Currently however, there are no grazing activities occurring on the site, with regrowth of native vegetation throughout the site. The Project Area receives approximately 310-325 millimetres (mm) of mean rainfall annually.

No protected areas under the NPW Act are found near the Project Area. There is one Heritage Agreement protected under the NV Act within 5 km of the Project Area (HA886), however it is not impacted by the Project. There are no existing SEB areas protected under the NV Act or any road/rail sites of significance within or surrounding the Project Area (DEW 2023a; DCCEE 2023a).

Bioregions

Interim Biogeographical Regionalisation of Australia (IBRA) is a landscape-based approach to classifying the land surface across a range of environmental attributes, which is used to assess and plan for the protection of biodiversity. The Project Area is within the Murray Darling Depression IBRA bioregion, Murray Mallee IBRA subregion, and Sutherlands Environmental Association. Approximately 21% (444,401 ha) of the Murray Mallee IBRA Subregion and approximately 47% (32,682 ha) of the Sutherlands Environmental Association is mapped as remnant native vegetation. Of this, 17% (76,180 ha) and 0% (159 ha) is formerly conserved and protected, respectively.

2.3. General location map

The Project Area is shown on the map in Figure 1.



Figure 1. General location of the Project Area.

2.4. Details of the proposal

GGE (the proponent) intends to construct a solar farm, Battery Energy Storage System (BESS) and a substation covering approximately 257.97 ha of native vegetation. The solar farm will be made up of the following infrastructure components:

- Installation of approximately 435,450 solar photovoltaic (PV) panels with a total export capacity of 200 MW. Panels will be attached to trackers in a 2P (or vertical two-panel) arrangement with approximately 4032 rows of trackers, each containing around 108 PV panels, distributed across the site Figure 2.
- Installation of underground cabling connecting the PV panels to Inverters and inverters to the on-site substation.
- Development of an on-site substation located in the south-western corner of the site, near the existing 275 kilovolt transmission lines which traverse the at that location.
- Installation of an overhead transmission line connecting the on-site substation to the transmission network.
- Development of buildings and structures to support the operation of the solar farm, including:
 - Site offices (containers); and
 - storage containers housing equipment, general items, and staff amenities.
- Installation of rainwater tanks for fire-fighting purposes (with the precise number and location to be determined in liaison with the SA Country Fire Service).
- Development of two site access points on the northern boundary of the site as follows:
 - at the intersection of Bower and Junction Roads; and
 - off Bower Road approximately 340 metres north-west of the intersection of Bower and Junction Roads.
- Development of internal access roads / tracks within the subject site.
- Installation of closed-circuit TV devices.
- Development of cyclone mesh security fencing around the perimeter of the site.

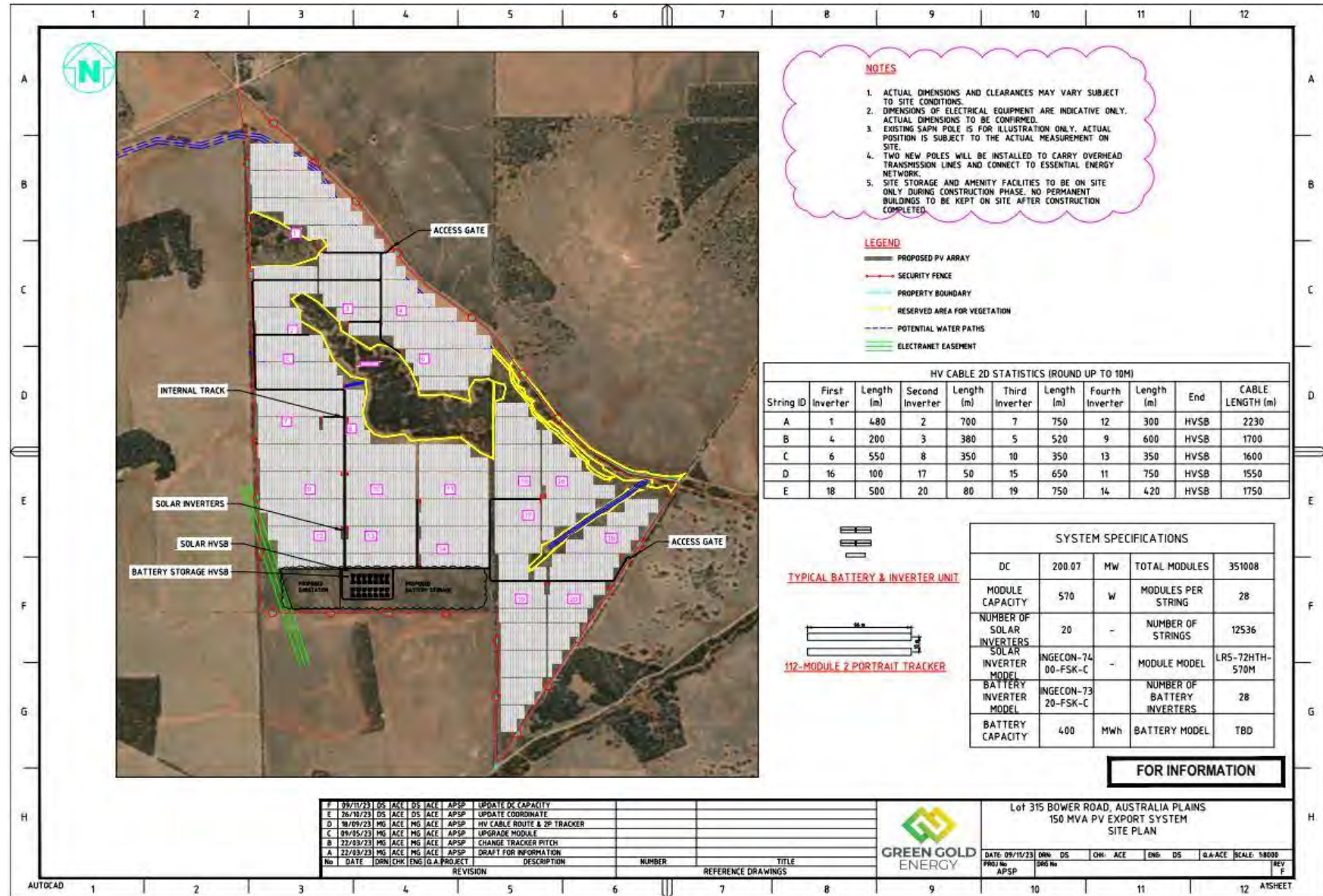


Figure 2. Site Plan provided by GGE (supplied to EBS on 15/01/2024).

2.5. Approvals required or obtained.

- **Native Vegetation Act 1991** – The Project Area is within the area covered by the native Vegetation Overlay. Clearance of native vegetation will require approval under the *Native Vegetation Act 1991* (NV Act).
- **Planning, Development and Infrastructure Act 2016** – approval is required under the *Planning, Development and Infrastructure Act 2016* (PDI Act). A Development Application (DA) is currently in preparation.
- **Environment Protection and Biodiversity Conservation Act 1999** – Matters of National Significance (MNES) are protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Although several MNES (threatened species) have been identified as potentially occurring in or near the Project Area, potential habitat for these species has been avoided by the Project. It is therefore unlikely that any MNES will be significantly impacted by the Project, although a formal significant impact assessment has not been undertaken.
- **National Parks and Wildlife Act 1972** – EBS Ecology holds the required scientific permit for the collection of native flora and fauna under the *National Parks and Wildlife Act 1972* (NPW Act): Scientific Research Licence K25613-23.
- **Landscapes South Australia Act 2019** – During construction, a permit may be required to transport plants Declared under the *Landscapes South Australia Act 2019* (LSA Act) on a public road.
- **Aboriginal Heritage Act 1988** – approval will be required if any sites, objects or remains are uncovered during the works. A 'Stop Work' procedure should be implemented if any items of this nature are located.

2.6. Native Vegetation Regulation

The proposal will be assessed under Regulation 12, Schedule 1; clause 34 (Infrastructure) of the *Native Vegetation Regulations 2017*.

2.7. Development Application information

DA information that is relevant to this native vegetation clearance application is listed in Table 3.

Table 3. Development Application information

Local Government Area	The Regional Council of Goyder
Hundred	English
Parcel	H120800 S315
Title	CT/5972/348
Zone	Rural
Overlays	Native Vegetation, Hazards (Bushfire – Regional), Hazards (Flooding – Evidence required), Murray Darling Basin, water resources
DA number	In preparation.

3. METHOD

3.1. Flora assessment

The flora assessment was undertaken by NVC Accredited Consultant J. Carpenter and Graduate Ecologist C.J. Panozzo on the 28/09/2023 in accordance with the Bushland Assessment Method (BAM) (NVC 2020a). An assessment was also undertaken by EBS Ecology in May 2021.

3.1.1. *Bushland Assessment Method*

The BAM is derived from the Nature Conservation Society of SA's Bushland Condition Monitoring methodology (Croft *et al.* 2007, 2008a, 2008b, 2009; Milne and Croft 2012; Milne and McCallum 2012). The BAM is used to assess areas of native vegetation requiring clearance and calculate the SEB requirements.

Details of site selection/stratification and assessment protocols, and the biodiversity value components assessed and the factors that influence these components are outlined in the *Bushland Assessment Manual* (NVC 2020a).

The Conservation Significance Scores were calculated from direct observations of flora and direct and historical observations of fauna species of conservation significance. All fauna identified as known or likely to occur in the Protected Matters Search Tool (PMST), and fauna with Biological Database of South Australia (BDBSA) records since 1995 and with a spatial reliability of less than 1 km, within 5 km of the Project Area, were included in the BAM scoresheets. Species determined as unlikely to occur within the Project Area will be removed by the Native Vegetation Branch if the finding is supported. Marine and/or wetland species were omitted from the scoresheets given the Project Area is terrestrial.

3.1.2. *Provisional List of Threatened Ecosystems*

The *Provisional List of Threatened Ecosystems* (DEH 2005) was reviewed to determine whether any vegetation associations impacted meet the criteria for listing as a threatened ecosystem at the state level.

3.2. Fauna assessment

A desktop assessment was undertaken to determine the potential for any threatened fauna species and threatened ecological communities (TEC) to occur within the Project Area. This included species listed under both the EPBC Act and the NPW Act.

The search was undertaken by applying a 5 km buffer around the Project Area, referred to as the Search Area. The following databases were searched to obtain records of threatened species:

- Protected Matters Search Tool (PMST) - Report generated by the Department of Climate Change, Energy, Environment and Water (DCCEE) to identify any MNES that may or are known to occur in the search Area.
- Biological Database of South Australia (BDBSA) - Data extract obtained from the Department for Environment and Water (DEW) that identifies the location of historical records of flora and fauna in the Search Area.

3.2.1. Protected Matters Search Tool report

A PMST report was generated on 14 November 2023 to identify flora, fauna, and TEC listed under the EPBC Act as threatened or migratory (DCCEEW 2023a). Only species and TEC identified in the PMST report as known to occur within the Search Area were assessed for their likelihood of occurrence within the Project Area.

Species identified as known to occur were entered into the scoresheets for the purposes of calculating the threatened fauna score, conservation significance score and SEB obligations of the clearance. Species assessed as unlikely to occur in the Project Area may be removed by NVC during the approvals process.

3.2.2. Biological Database of South Australia data extract

A data extract from the BDBSA was obtained from NatureMaps to identify flora and fauna species that have been recorded within 5 km of the Project Area (data extracted 12/09/2023; DEW 2023b; Recordset number DEWNRBDBSA30912-4).

The BDBSA is comprised of an integrated collection of species records from the SA Museum, conservation organisations, private consultancies, Birds SA, Birdlife Australia, and the Australasian Wader Study Group, which meet the DEW's standards for data quality, integrity, and maintenance. Only species with records since 1995 and a spatial reliability of less than 1 km were assessed for their likelihood of occurrence.

All threatened fauna identified by the BDBSA extract were entered into the scoresheets for the purposes of calculating the threatened fauna score, conservation significance score and SEB obligations of the clearance. Species assessed as unlikely to occur in the Project Area may be removed by NVC during the approvals process.

3.2.3. Literature Review

Existing information and literature relevant to the Project Area was reviewed, including:

- Aerial imagery;
- Spatial datasets, e.g., DEW biological survey sites, IBRA, vegetation cover, protected areas, vegetation floristic mapping, surface and ground water and roadside significant sites from NatureMaps (DEW 2023a); and
- Reports, plans and web-based information, including:
 - SA Planning and Design Code, Part 10;
 - SA Planning and Property Atlas; and
 - EPBC Act species profiles, conservation advice and recovery plans.

The above resources were used to assess:

- Vegetation cover within the Project Area and immediate surrounds;
- Potential Vegetation Associations present (including TECs); and
- Flora and fauna species of conservation significance known or likely to occur within the Project Area.

3.2.4. Field survey

Fauna surveys were conducted in conjunction with the vegetation assessment. Weather conditions during the survey were favourable, with recent rain and mild daytime temperatures.

All native and exotic fauna species opportunistically encountered (directly observed, or tracks, scats, burrows, nests, and other signs of presence) during the native vegetation clearance assessment were recorded. Potential fauna refuge sites, such as hollows, were noted as an indication of availability of suitable habitat. Particular attention was paid to identifying habitat for threatened species identified in the desktop assessment. For each opportunistic fauna observation, the species, number of individuals, GPS location, detection methodology (sight, sound, or sign) and habitat were recorded.

In addition to opportunistic records, 2 dedicated 20-minute, ~2-hectare (ha) bird surveys (Birdlife Australia 2023) were undertaken during the field survey in each broad vegetation association. At each survey site, the observer walked through similar vegetation recording all birds seen and heard during a timed 20-minute period. For each sighting the species and number of individuals were recorded.

3.2.5. Likelihood of occurrence

Threatened species and TECs that were identified by the desktop assessment were assessed for their likelihood of occurrence in the Project Area. All species with historical records since 1995 with a spatial reliability of <1 km and species listed as 'known to occur' by the PMST report were assessed.

The assessment was based on recency or records, habitat preferences and the results of the field survey, with criteria for the likelihood of occurrence described in Table 4. All marine, wetland and aquatic species were not assessed (besides migratory species), as the search area contained or associated any of these habitats.

Table 4. Criteria for the likelihood of occurrence of threatened species within the Project Area.

Likelihood	Criteria
Highly Likely/Known	Recorded in the last 10 years, the species does not have highly specific niche requirements, the habitat is present and falls within the known range of the species distribution or; The species was recorded as part of field surveys.
Likely	Recorded within the previous 20 years, the area falls within the known distribution of the species and the area provides habitat or feeding resources for the species.
Possible	Recorded within the previous 20 years, the area falls inside the known distribution of the species, but the area provides limited habitat or feeding resources for the species. Recorded within 20 - 40 years, survey effort is considered adequate, habitat and feeding resources present, and species of similar habitat needs have been recorded in the area.
Unlikely	Recorded within the previous 20 years, but the area provides no habitat or feeding resources for the species, including perching, roosting or nesting opportunities, corridor for movement or shelter. Recorded within 20 - 40 years; however, suitable habitat does not occur, and species of similar habitat requirements have not been recorded in the area. No records despite adequate survey effort.

3.3. Limitations

The desktop assessment was based on existing datasets and references from a range of sources. EBS Ecology has not attempted to verify the accuracy of any such information. The findings and conclusions expressed by EBS Ecology are based solely upon information in existence at the time of the assessment.

Flora and fauna records were retrieved from the PMST and BDBSA extract. The BDBSA only includes verified flora and fauna records submitted to DEW or partner organisations. It is recognised that information is imperfectly captured, and it is possible that significant species may occur in the Project Area that are not reflected by database records. Although much of the BDBSA data has been through a variety of validation processes, the lists may contain errors and should be used with caution. DEW gives no warranty that the data is accurate or fit for any particular purpose of the user or any person to whom the user discloses the information.

No species-specific targeted flora or fauna surveys were undertaken.

3.3.1. Spatial data limitations

All spatial data has been captured or converted to the following coordinate reference system.

Datum: Geocentric Datum of Australia 2020 (GDA2020).

Projection: Map Grid of Australia 2020 (MGA2020), Zone 54.

All location coordinates listed in this report are expressed using this system. Spatial data converted from other coordinate reference systems may have accuracy limitations.

4. ASSESSMENT OUTCOMES

4.1. Vegetation assessment

4.1.1. General description of the vegetation, the site and matters of significance.

Most of the Project Area has been historically cleared of woodland and mallee vegetation. There is evidence of previous cropping activity, although this has not occurred for some years, with cleared areas vegetated by regenerating low shrub communities. Most recently, land use has been predominantly grazing of native pasture. A small area in the north has been planted with *Atriplex nummularia* for stock fodder.

Vegetation condition reflects the historical land use. Vegetation is generally in poor to moderate condition, with weed cover high at some locations and evidence of past heavy grazing pressure. Remaining mallee vegetation has only sparse understorey cover with few grass and shrub species, possibly due to past grazing activities.

Most of the Project Area consists of Chenopod shrublands which is dominated by *Maireana* spp., *Sclerolaena* spp. and *Atriplex* spp. There are small patches of Mallee, mostly at the boundaries of the Project Area, although a large patch of mallee occurs through the central Project Area which is planned on being avoided. An *Atriplex nummularia* plantation is located at the southern boundary.

Eight vegetation associations were identified in the Project Area, listed below:

- **A1:** *Eucalyptus oleosa* ssp. *oleosa* +/- *Eucalyptus gracilis* Mallee over Chenopod and Sclerophyll Shrubs.
- **A2:** *Eucalyptus oleosa* ssp. *oleosa* (Red Mallee) Open Mallee with very open understorey.
- **A3:** *Maireana brevifolia* / *Maireana pyramidata* / *Sclerolaena* spp. Low Open Shrubland over *Austrostipa* spp.
- **A4:** *Callitris gracilis* Low Woodland over mixed shrublands.
- **A5:** Planted *Atriplex nummularia* Shrubland with emergent *Eremophila longifolia*.
- **A6:** *Eucalyptus porosa* Open Mallee over *Maireana brevifolia* and *Enchylaena tomentosa*.
- **A7:** *Alectryon oleifolius* ssp. *canescens* (Bullock Bush) shrubland over *Enchylaena tomentosa* and *Sclerolaena* spp.
- **A8:** *Atriplex stipitata* / *Atriplex vesicaria* +/- *Maireana pyramidata* Low Shrubland over *Sclerolaena* spp.

These vegetation associations are described in Section 4.1.2 and mapped in Section 4.1.4. A small extent of the eastern Project Area consists of planted trees over an understorey of introduced grasses and forbs.

Throughout the Project Area 60 flora species were recorded, listed in Appendix 1. This includes 14 introduced plants, or weeds. Only one weed species that is Declared under the LSA Act was found, being African Box-thorn (*Lycium ferocissimum*).

4.1.2. Benchmark Communities

Although now dominated by chenopod shrublands, the Project Area was most likely vegetated with open mallee and woodland prior to clearing for agriculture. This is evidenced by the presence of emergent trees, long dead trees and dead timber and stumps within shrubland communities. Remnant vegetation inside road reserves and on fence lines also consists of mallee or woodland.





For this reason, the following benchmark community has been selected for assessing the condition of the A3 vegetation association:

- MDBSA 2.1: Open Mallee / Low Open Woodland with Chenopod Shrub Understorey.

4.1.3. Details of the vegetation associates proposed to be impacted.

All vegetation associations will be impacted by the clearance. These associations are described in further detail in Table 5 to Table 12.

Table 5. Summary of A1.

Vegetation Association	A1; <i>Eucalyptus oleosa</i> ssp. <i>oleosa</i> +/- <i>Eucalyptus gracilis</i> Mallee over Chenopod and Sclerophyll Shrubs.		
Benchmark Community	MDBSA 3.2: Mallee with Open Sclerophyll / Chenopod Shrub Understorey.		
			
BAM Site A1a, looking south.			
			
BAM Site A1b, looking south.			
			
BAM Site A1c, looking south.			
			
BAM Site A1d, looking south.			
General description	Dense <i>Eucalyptus oleosa</i> spp. dominant Mallee over relatively diverse chenopod shrubland with limited native grass species. Understorey dominated by non-native species.		
	Over storey	Mid storey	Under storey
	<i>Eucalyptus oleosa</i> spp.	<i>Maireana brevifolia</i> <i>Enchylaena tomentosa</i> var. <i>Atriplex stipitata</i> <i>Roepera aurantiaca</i> ssp.	<i>Rytidosperma</i> sp. <i>Austrostipa nitida</i> <i>Carrichtera annua</i> <i>Hordeum</i> sp.
Threatened species or community	This vegetation association meet the requirements of a threatened community, being; <ul style="list-style-type: none">Mallee Birds Community of the Murray Darling Depression Bioregion. One threatened fauna species was recorded in this vegetation association: <ul style="list-style-type: none">White-winged Chough (<i>Corcorax melanorhamphos</i>): NPW Act – Rare.		

	<p>Although no recorded during the survey, the vegetation may provide some limited habitat for the following threatened fauna species:</p> <ul style="list-style-type: none"> Southern Whiteface (<i>Aphelocephala leucopsis leucopsis</i>): EPBC Act – Vulnerable; Jacky Winter (<i>Microeca fascinans fascinans</i>): NPW Act -Rare; South-eastern Hooded Robin (<i>Melanodryas cucullata cucullata</i>): EPBC Act – Endangered & NPW Act – Rare; and Painted Honeyeater (<i>Grantiella picta</i>): EPBC Act - Vulnerable & NPW Act – Rare. 				
Landscape context score	1.15	Vegetation Condition Score	Range: 36.04 – 57.75 Mean: 41.99	Conservation significance score	1.5
Unit biodiversity Score	Range: 62.18 – 99.62 Mean: 72.44	Area (ha)	4.65	Total biodiversity Score	Range: 289.12 – 463.23 Mean: 336.83

Table 6. Summary of A2.


Vegetation Association	A2; <i>Eucalyptus oleosa</i> ssp. <i>oleosa</i> Open Mallee with very open Chenopod shrub understorey.				
Benchmark Community	MDBSA 3.2: Mallee with Open Sclerophyll / Chenopod Shrub Understorey.				
					
	BAM Site A2, looking south.				
General description	Open <i>Eucalyptus oleosa</i> spp. Mallee over chenopod shrublands with low grass cover understorey. The association differs from VA1 due to being more open.				
	Over storey	Mid storey		Under storey	
	<i>Eucalyptus oleosa</i> spp.	<i>Maireana brevifolia</i> <i>Sclerolaena obliquicuspis</i> <i>Enchylaena tomentosa</i> var. <i>Roepera aurantiaca</i> ssp.		<i>Austrostipa nitida</i> <i>Hordeum</i> sp.	
Threatened species or community	<p>This vegetation association did not meet the requirements of a threatened community. Although no recorded during the survey, the vegetation may provide some limited habitat for the following threatened fauna species:</p> <ul style="list-style-type: none">Southern Whiteface (<i>Aphelocephala leucopsis leucopsis</i>): EPBC Act – Vulnerable;Jacky Winter (<i>Microeca fascinans fascinans</i>): NPW Act -Rare;South-eastern Hooded Robin (<i>Melanodryas cucullata cucullata</i>): EPBC Act - Endangered & NPW Act – Rare;Painted Honeyeater (<i>Grantiella picta</i>): EPBC Act - Vulnerable & NPW Act – Rare; andWhite-winged Chough (<i>Corcorax melanorhamphos</i>): NPW Act – Rare.				
Landscape context score	1.15	Vegetation Condition Score	25.12	Conservation significance score	1.1
Unit biodiversity Score	31.77	Area (ha)	2.37	Total biodiversity Score	75.30

Table 7. Summary of A3.

Vegetation Association	A3; <i>Maireana brevifolia</i> / <i>Maireana pyramidata</i> / <i>Sclerolaena</i> spp. Low Open Shrubland over <i>Austrostipa</i> spp.	
Benchmark Community	MDBSA 2.1: Open Mallee / Low Open Woodland with Chenopod Shrub Understorey.	
		
BAM Site A3a, looking south.		BAM Site A3b, looking south.
		
BAM Site A3c, looking south.		BAM Site A3d, looking west.
		
BAM Site A3e, looking west.		BAM Site A3f, looking south.

General description	Low open chenopod shrubland dominated by <i>Maireana brevifolia</i> , <i>Salsola australis</i> , and <i>Sclerolaena obliquicuspis</i> over <i>Austrostipa</i> spp.				
	Over storey		Mid storey		Under storey
	Absent		<i>Maireana brevifolia</i> <i>Salsola australis</i> <i>Sclerolaena obliquicuspis</i>		<i>Austrostipa nitida</i> <i>Austrostipa acrociliata</i> <i>Hordeum</i> sp.
Threatened species or community	<p>This vegetation association did not meet the requirements of a threatened community.</p> <p>Although no recorded during the survey, the vegetation may provide some limited habitat for the following threatened fauna species:</p> <ul style="list-style-type: none">Jacky Winter (<i>Microeca fascinans fascinans</i>): NPW Act -Rare; andBlue-winged Parrot (<i>Neophema chrysostoma</i>): EPBC Act - Vulnerable & NPW Act – Vulnerable.				
Landscape context score	1.12	Vegetation Condition Score	Range: 20.03 – 36.61 Mean: 25.98	Conservation significance score	1.1
Unit biodiversity Score	Range: 25.33 – 46.31 Mean: 32.86	Area (ha)	218.37	Total biodiversity Score	Range: 5,531.67 – 10,113.77 Mean: 7,530.58

Table 8. Summary of A4.



Vegetation Association	A4; <i>Callitris gracilis</i> Low Woodland over mixed shrublands.				
Benchmark Community	MDBSA 1.1: Open Woodland with Open Arid adapted Shrub Understorey on Limestone Plains.				
					
BAM A4a, looking south.		BAM A4b, looking south.			
General description	Low woodland dominated by <i>Callitris gracilis</i> over mixed shrublands consisting of <i>Maireana</i> spp., <i>acacia</i> spp., <i>Enchylaena tomentosa</i> , and <i>Roepera aurantiaca</i> with a <i>Austrostipa</i> and <i>Rytidosperma</i> under storey.				
	Over storey	Mid storey		Under storey	
	<i>Callitris gracilis</i> <i>Senna artemisioides</i> ssp. <i>filifolia</i>	<i>Maireana brevifolia</i> <i>Maireana georgei</i> <i>Roepera aurantiaca</i> ssp. <i>Enchylaena tomentosa</i> var. <i>Eremophila longifolia</i> <i>Acacia oswaldii</i> <i>Acacia myrtifolia</i>		<i>Austrostipa nitida</i> <i>Rytidosperma</i> sp.	
Threatened species or community	<p>This vegetation association did not meet the requirements of a threatened community. Although no recorded during the survey, the vegetation may provide some limited habitat for the following threatened fauna species:</p> <ul style="list-style-type: none">Southern Whiteface (<i>Aphelocephala leucopsis leucopsis</i>): EPBC Act – Vulnerable;Jacky Winter (<i>Microeca fascinans fascinans</i>): NPW Act -Rare;South-eastern Hooded Robin (<i>Melanodryas cucullata cucullata</i>): EPBC Act - Endangered & NPW Act – Rare;Painted Honeyeater (<i>Grantiella picta</i>): EPBC Act - Vulnerable & NPW Act – Rare; andWhite-winged Chough (<i>Corcorax melanorhamphos</i>): NPW Act – Rare.				
Landscape context score	1.15	Vegetation Condition Score	Range: 47.15 – 49.78 Mean: 48.47	Conservation significance score	1.1
Unit biodiversity Score	Range: 59.64 – 62.97 Mean: 61.31	Area (ha)	2.34	Total biodiversity Score	Range: 139.56 – 147.36 Mean: 743.46

Table 9. Summary of A5.


Vegetation Association	A5; Planted <i>Atriplex nummularia</i> Shrubland with emergent <i>Eremophila longifolia</i> .				
Benchmark Community	MDBSA 2.1: Open Mallee / Low Open Woodland with Chenopod Shrub Understorey.				
					
BAM A5a, looking south.					
General description	Planted <i>Atriplex nummularia</i> shrubland with emergent <i>Eremophila longifolia</i> and <i>Sclerolaena obliquicuspis</i> , over <i>Austrostipa acrociliata</i> and <i>Rytidosperma</i> sp.				
	Over storey	Mid storey		Under storey	
	Absent	<i>Atriplex nummularia</i> <i>Eremophila longifolia</i> <i>Sclerolaena obliquicuspis</i>		<i>Austrostipa acrociliata</i> <i>Rytidosperma</i> sp.	
Threatened species or community	<p>This vegetation association did not meet the requirements of a threatened community.</p> <p>Although no recorded during the survey, the vegetation may provide some limited habitat for the following threatened fauna species:</p> <ul style="list-style-type: none">Blue-winged Parrot (<i>Neophema chrysostoma</i>): EPBC Act - Vulnerable & NPW Act – Vulnerable; andJacky Winter (<i>Microeca fascinans fascinans</i>): NPW Act -Rare;				
Landscape context score	1.15	Vegetation Condition Score	45.15	Conservation significance score	1.1
Unit biodiversity Score	57.11	Area (ha)	22.7	Total biodiversity Score	1296.50

Table 10. Summary of A6.


Vegetation Association	A6; <i>Eucalyptus porosa</i> Open Mallee over <i>Maireana brevifolia</i> and <i>Enchylaena tomentosa</i> .				
Benchmark Community	MDBSA: Open Mallee / Low Open Woodland with Chenopod Shrub Understorey.				
<div></div> <p>BAM VA6, looking south.</p>					
General description	<i>Eucalyptus porosa</i> open mallee over chenopod dominated shrublands with a <i>Rytidosperma</i> sp. and <i>Austrostipa nitida</i> under story.				
	Over storey	Mid storey		Under storey	
	<i>Eucalyptus porosa</i>	<i>Maireana brevifolia</i> <i>Enchylaena tomentosa</i> var. <i>Atriplex stipitate</i> <i>Rhagodia parabolica</i> <i>Roepera aurantiaca</i> ssp.		<i>Rytidosperma</i> sp. <i>Austrostipa nitida</i> <i>Hordeum</i> sp.	
Threatened species or community	<p>This vegetation association meet the requirements of a threatened community, being;</p> <ul style="list-style-type: none">Plains mallee box woodlands (PMBW) of the Murray Darling Depression, Riverina, and Naracoorte Coastal Plain Bioregions: EPBC Act - Critically Endangered). <p>Although no recorded during the survey, the vegetation may provide some limited habitat for the following threatened fauna species:</p> <ul style="list-style-type: none">Blue-winged Parrot (<i>Neophema chrysostoma</i>): EPBC Act - Vulnerable & NPW Act – Vulnerable;Southern Whiteface (<i>Aphelocephala leucopsis leucopsis</i>): EPBC Act – Vulnerable;Jacky Winter (<i>Microeca fascinans fascinans</i>): NPW Act -Rare;South-eastern Hooded Robin (<i>Melanodryas cucullata cucullata</i>): EPBC Act - Endangered & NPW Act – Rare;Painted Honeyeater (<i>Grantiella picta</i>): EPBC Act - Vulnerable & NPW Act – Rare; andWhite-winged Chough (<i>Corcorax melanorhamphos</i>): NPW Act – Rare.				
Landscape context score	1.15	Vegetation Condition Score	43.75	Conservation significance score	1.5
Unit biodiversity Score	75.47	Area (ha)	0.52	Total biodiversity Score	39.24

Table 11. Summary of A7.




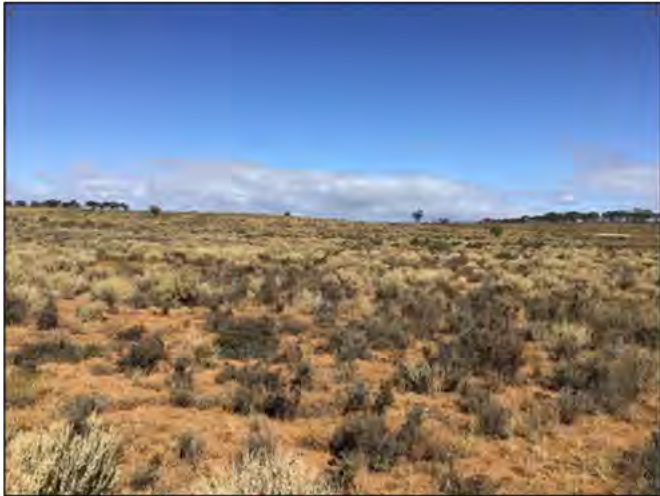
Vegetation Association	A7; Alectryon oleifolius ssp. canescens shrubland over Enchylaena tomentosa and Sclerolaena spp.				
Benchmark Community	MDBSA 1.2: Tall Shrubland with Open Arid adapted Understorey on Limestone Plains.				
					
BAM A7, looking east.					
General description	Alectryon oleifolius ssp. canescens shrubland over Enchylaena tomentosa and Sclerolaena spp. with an under storey of Austrostipa acrociliata.				
	Over storey	Mid storey		Under storey	
	Alectryon oleifolius spp. canescens	Maireana scleroptera Enchylaena tomentosa var. Roepera apiculata Sclerolaena obliquicuspis		Austrostipa acrociliata	
Threatened species or community	<p>This vegetation association did not meet the requirements of a threatened community.</p> <p>Although no recorded during the survey, the vegetation may provide some limited habitat for the following threatened fauna species:</p> <ul style="list-style-type: none">Southern Whiteface (Aphelocephala leucopsis leucopsis): EPBC Act – Vulnerable;Blue-winged Parrot (Neophema chrysostoma): EPBC Act - Vulnerable & NPW Act – Vulnerable; andJacky Winter (Microeca fascinans fascinans): NPW Act -Rare.				
Landscape context score	1.15	Vegetation Condition Score	37.21	Conservation significance score	1.1
Unit biodiversity Score	47.07	Area (ha)	0.32	Total biodiversity Score	15.06

Table 12. Summary of A8.

Vegetation Association	A8; <i>Atriplex stipitata</i> / <i>Atriplex vesicaria</i> +/- <i>Maireana pyramidata</i> Low Shrubland over <i>Sclerolaena</i> sp.		
Benchmark Community	MDBSA 2.1: Open Mallee / Low Open Woodland with Chenopod Shrub Understorey.		
			
BAM A8a, looking south.		BAM A8b, looking south.	
			
BAM A8c, looking south.			
General description	<i>Atriplex vesicaria</i> low shrubland over <i>Maireana</i> spp. with an under storey of <i>wards weed</i> .		
	Over storey	Mid storey	Under storey
	Absent	<i>Atriplex vesicaria</i> <i>Maireana brevifolia</i> <i>Maireana trichoptera</i> <i>Sclerolaena obliquicuspis</i>	<i>Hordeum</i> sp. <i>Austrostipa acrociliata</i> <i>Carrichtera annua</i>
Threatened species or community	This vegetation association did not meet the requirements of a threatened community. Although no recorded during the survey, the vegetation may provide some limited habitat for the following threatened fauna species: <ul style="list-style-type: none">Jacky Winter (<i>Microeca fascinans fascinans</i>): NPW Act -Rare; and		

	<ul style="list-style-type: none"> Blue-winged Parrot (<i>Neophema chrysostoma</i>): EPBC Act - Vulnerable & NPW Act – Vulnerable. 				
Landscape context score	1.15	Vegetation Condition Score	Range: 17.00 – 50.44 Mean: 33.61	Conservation significance score	1.1
Unit biodiversity Score	Range: 21.51 – 63.81 Mean: 42.51	Area (ha)	6.70	Total biodiversity Score	Range: 282.90 – 427.50 Mean: 284.83

4.1.4. Site map showing areas of proposed impact.

Native vegetation under application and the proposed impact of the Proposal/Project are shown on the map in Figure 3.

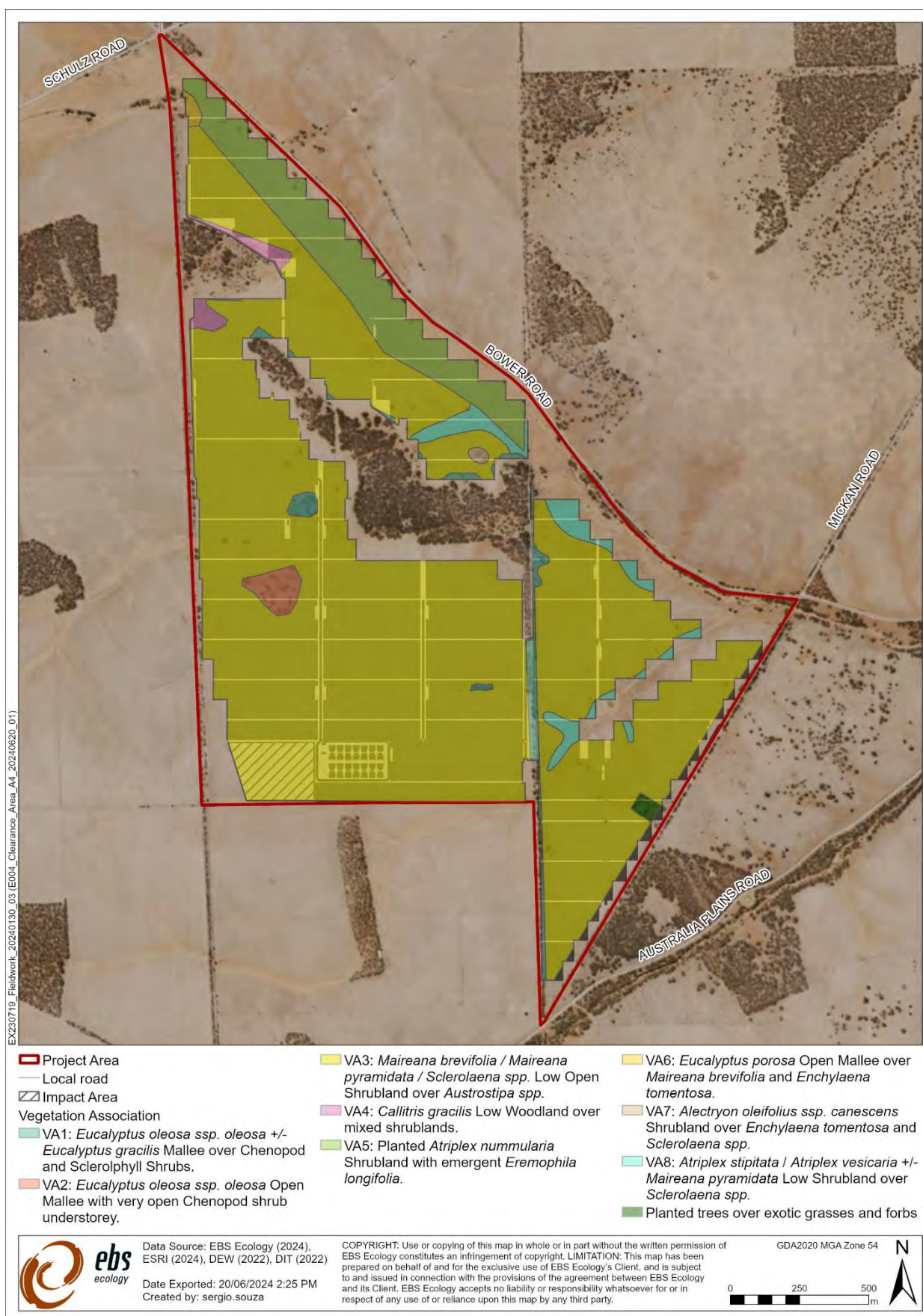


Figure 3. Proposed impact areas and vegetation associations mapped during the 2023 field assessment.

4.2. Threatened species assessment.

This section presents the results of the desktop assessment, including a summary of both the PMST and BDBSA search results, as well as an assessment of the likelihood of identified threatened species and ecological communities occurring in the Project Area.

4.2.1. Threatened Ecological Communities

The PMST search identified five TECs as potentially located within the Project Area. Of these two were identified as occurring in the Project Area and will be impacted:

- Plains mallee box woodlands (PMBW) of the Murray Darling Depression, Riverina, and Naracoorte Coastal Plain Bioregions (EPBC Act: Critically Endangered).
- Mallee Bird Community (MBC) of the Murray Darling Depression Bioregion (EPBC Act: Endangered).

Justification for the above assessment is provided in Table 13 (PMBW) and Table 14 (MBC). These tables assess candidate vegetation associations against the identifying criteria of the relevant TEC.

Table 13. Determining criteria of the Plains Mallee Box Woodlands TEC based on habitat presence, location, and flora species within (DAWE 2021a).

Criteria	Criteria Description (DAWE 2021a)	A6 - <i>Eucalyptus porosa</i> Open Mallee over <i>Maireana brevifolia</i> and <i>Enchylaena tomentosa</i>
1	Occurs in the Murray darling Depression, Riverina, or Naracoorte Coastal Plains	Yes – Murray Darling Depression Bioregion.
2	Occurs on near-level plains or occasionally on gently sloping terrain surrounding and within run-on landscape depressions where soil textures are typically clay loams but may occasionally be sandy clay loams or light clays.	Yes.
3	Primary diagnostic species particular to PMBW are the dominance of box-barked eucalypt species like <i>Eucalyptus porosa</i> or <i>E. behriana</i> , however other species may dominate (including <i>E. calycogona</i> or <i>E. Dumosa</i>).	Yes - <i>Eucalyptus porosa</i> is the dominant species
4	Mature tree canopy is usually 5-10m tall, but can occasionally occur around 15m, with a tree canopy cover typically 10-15%	Yes.
5	A small tree and/or large shrub layer may be present, but is typically very sparse with < 5% cover and a height range of 3-5 m. A medium shrub layer 1-3 m tall may also be present with typically very sparse cover < 10%. A distinctive low to decumbent chenopod sub-shrub layer can be a key feature in many occurrences. <i>Triodia</i> spp. (spinifex) are typically absent from the ground layer and never dominant	Yes.
Assessment – Vegetation association A6 is the PMBW TEC.		

Table 14. Determining criteria of the Mallee Bird Community TEC based on habitat presence, location, and flora species within (DAWE 2021b).

Criteria	Criteria Description (DAWE 2021b)	A1 - <i>Eucalyptus oleosa</i> ssp. <i>oleosa</i> +/- <i>Eucalyptus gracilis</i> Mallee over Chenopod and Sclerophyll Shrubs	A2 - <i>Eucalyptus oleosa</i> spp. <i>oleosa</i> Open Mallee with very open understorey
1	Is the Project Area in any of the following IBRA bioregions or subregions? • Murray Darling Depression • Riverina • Darling Riverine Plains	Yes.	Yes.
2	Is a patch of native vegetation >10 ha present in the Project Area.	Yes.	Yes.
3	Does the patch of native vegetation contain an area of at least 5 ha dominated by mallee?	Yes. Patch size >30 ha.	No. Patch size 2.4 ha.
4	Have at least 3 MBC bird species been recorded within 20 km of the Project Area (including observed during field survey or represented by historical records <10 years old)?	Yes. • Jacky Winter (historical). • Regent Parrot (historical). • Spotted Pardalote (historical). • White-eared Honeyeater (historical). • White-fronted Honeyeater (historical). • Yellow-plumed Honeyeater (historical).	Yes. • Jacky Winter (historical). • Regent Parrot (historical). • Spotted Pardalote (historical). • White-eared Honeyeater (historical). • White-fronted Honeyeater (historical). • Yellow-plumed Honeyeater (historical).
Assessment – Vegetation association A1 is the MBC TEC. Vegetation Association A2 is not regarded as the TEC due to patch size <5 ha.			

4.2.2. Threatened flora.

A total of ten threatened flora species were identified via the desktop assessment as potentially occurring within the Project Area. The PMST identified three species that are likely or known to occur in the project Area with the BDBSA search identifying an additional species. Both *Dodonaea subglandulifera* (Peep Hill Hop-bush) and *Phlegmatospermum eremaeum* (Spreading Cress) were identified by the BSBSA to have record since 1995 and has a spatial reliability of > 1 km and are listed in Table 15 and the location within the Search Area is displayed on Figure 4. Only *Phlegmatospermum eremaeum* (Spreading Cress) specie were assessed as possibly occurring within the Project Area as there was suitable habitat, however no recent records of the species within the Search Area. The full likelihood of occurrence assessment for all species is provided in Appendix 3.

No listed flora species were recorded during field assessment.

Table 15. Likelihood of occurrence of threatened species identified in the desktop assessment. The data source and threat levels are described in the table footer.

Scientific Name	Common Name	Conservation status		Source	Last Sighting (year)	Likelihood of Occurrence in Project Area
		EPBC Act	NPW Act			
<i>Phlegmatospermum eremaeum</i>	Spreading Cress		R	2	2010	Possible

Conservation status

EPBC Act: (*Environment Protection and Biodiversity Conservation Act 1999*). NPW Act (*National Parks and Wildlife Act 1972*).

Conservation Codes: CE: Critically Endangered. EN/E: Endangered. VU/V: Vulnerable. R: Rare. ssp.: the conservation status applies at the sub-species level.

Source of Information

1. EPBC Act Protected Matters Report (DCCEEW 2023a) – 5 km buffer applied to Project Area.
2. BDBSA data extract (DEW 2023b) - 5 km buffer applied to Project Area.



Figure 4. NPW Act and EPBC Act listed threatened flora records within 5 km of the Project Area since 1995 (< 1 km reliability) (DEW 2023b).

4.2.3. Threatened fauna.

Twenty-six (26) fauna species (24 birds and two mammals) were recorded during the field assessment. They are listed in Appendix 2. No introduced fauna species were recorded during the field assessment. The field survey recorded 1 threatened fauna species, listed as Rare under the NPW Act; White-winged Chough (*Corcorax coronoides coronoides*). Five individuals were found in the patch of mallee located in the north-eastern side of the Project Area; however, this patch of mallee is not planned on being impacted.

The desktop assessment identified three threatened fauna species have been recorded in the BDBSA within 5 km of the Project Area since 1995 with a < 1 km reliability (Table 16 and Figure 5). An additional eight threatened fauna species listed under the EPBC Act were identified by the PMST as 'known to occur' or 'likely to occur'.

The likelihood of occurrence assessment found the of these 11 species, five species are possible, likely or highly likely to occur in the Project Area and these are listed in Table 16. The full result of the database search, including species identified by the PMST as may occur and migratory species, is provided in Appendix 3 also provides the full likelihood of occurrence assessments.

Table 16. Likelihood of occurrence of threatened species identified in the desktop assessment. The data source and threat levels are described in the table footer.

Scientific Name	Common Name	Conservation status		Data Source	Date of last record / PMST	Likelihood of Occurrence in Project Area
		EPBC Act	NPW Act			
AVES						
<i>Aphelocephala leucopsis leucopsis</i>	Southern Whiteface	VU		1	Known	Highly likely
<i>Corcorax melanorhamphos</i>	White-winged Chough		R	2, 3	2020	Known
<i>Melanodryas cucullata cucullata</i>	South-eastern Hooded Robin	EN	R	1,2	Known, 2010	Likely
<i>Microeca fascians fascians</i>	Jacky Winter		R	2	2010	Likely
<i>Neophema chrysostoma</i>	Blue-winged Parrot	VU	V	1	Likely	Possible

Conservation status

EPBC Act: (*Environment Protection and Biodiversity Conservation Act 1999*). NPW Act (*National Parks and Wildlife Act 1972*). Conservation Codes: CE: Critically Endangered. EN/E: Endangered. VU/V: Vulnerable. R: Rare. ssp.: the conservation status applies at the sub-species level. Mi: listed as migratory under the EPBC Act. Ma: listed as marine under the EPBC Act.

Source of Information

1. EPBC Act Protected Matters Report (DCCEE 2023a) – 5 km buffer applied to Project Area.
2. BDBSA data extract (DEW 2023b) - 5 km buffer applied to Project Area.
3. Recorded during the field survey.

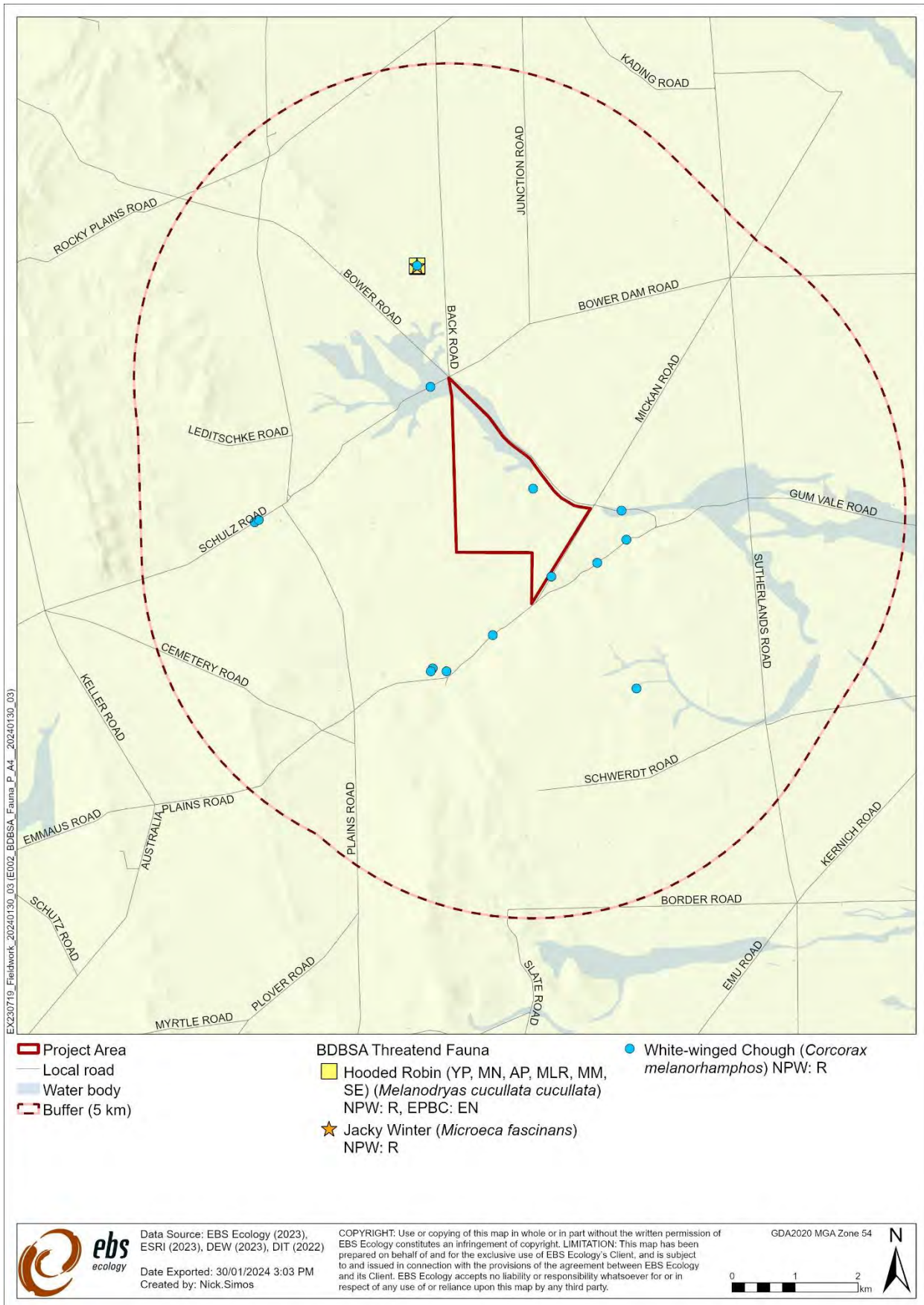


Figure 5. NPW Act and EPBC Act listed threatened fauna records within 5 km of the Project Area since 1995 (< 1 km reliability) (DEW 2023b).

4.2.4. EPBC Act listed species habitat.

Although not detected during field surveys, two EPBC Act listed fauna species are highly likely to occur in or near the Project Area:

- Hooded Robin (*Melanodryas cucullata cucullata*).
- Southern Whiteface (*Aphelocephala leucopsis leucopsis*).

Both species are likely to occur where taller shrubs, low trees and standing dead timber is present. This habitat includes mallee and open woodland areas including the following vegetation associations:

- **VA1:** *Eucalyptus oleosa* ssp. *oleosa* (Red Mallee) Mallee over *Maireana brevifolia* (Short-leaf Bluebush).
- **VA2:** *Eucalyptus oleosa* ssp. *oleosa* (Red Mallee) Open Mallee with very open understorey.
- **VA4:** *Callitris gracilis* (Southern Cypress Pine) Low Woodland over mixed shrublands.
- **VA6:** *Eucalyptus porosa* (Mallee Box) Open Mallee over *Maireana brevifolia* (Short-leaf Bluebush) / *Enchylaena tomentosa* (Ruby Saltbush).

The Project has been designed to avoid clearance of large patches of woodland and mallee. Impact to suitable habitat for the above species has been minimized and is limited to small, isolated patches. It is unlikely that, if present, these species would be significantly impacted, since impacted patches of habitat are too small to contribute to the long-term survival of either species.

4.3. Cumulative impacts

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.

Direct clearance of native vegetation associated with the Project includes:

- Clearance directly required for the substation;
- Clearance for the solar panel arrays;
- Clearance required for construction access; and
- Clearance for cable trenching.
- Gaps between solar PV array that may be impacted and/or cleared during construction or by infrequent vehicular access during operation for maintenance activities.
- Clearance associated with unformed tracks which may be made within the Project Area during construction for access to installation sites.

Indirect impacts to native vegetation and fauna may include:

- Potential increase in dust deposition from clearance associated with solar panel installation (at least until understory vegetation regenerates).
- Impacts to retained vegetation from effects of altered hydrology, sunlight, and heat radiation from infrastructure.
- Disturbance to nesting fauna species, particularly during construction.
- Reduction in or deterrent of access to ephemeral water resources for local birds following rainfall events (including dams).

4.4. Addressing 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 NPW Act.

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

Concept Footprint – During the initial Concept Footprint (provided in 2020) ecologists were engaged to determine the vegetations associations across the Project Area. Large areas identified as woodland and mallee were then avoided by subsequent project design phases (EBS 2021).

The Project design also avoids large patches of suitable habitat for EPBC listed species Hooded Robin and Southern Whiteface.

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).

Wherever possible, clearance areas have been placed in areas of more disturbed vegetation, or vegetation in poorest condition, with the proposed solar panel array micro-sited to avoid these ecological constraints. The vegetation association most impacted is A3, which contains more open chenopod shrubland which has been subjected to higher grazing pressures.

The construction contractor is responsible for ensuring that the construction process meets Australia Plain Solar's standards in relation to minimising environmental harm, protecting areas of cultural heritage significance, and obtaining all required approvals or licences. This includes the development and implementation of a Construction Environmental Management Plan (CEMP) that defines management strategies designed to minimise impact to flora and fauna. This CEMP may include actions such as those listed in Table 17.

Table 17. Management actions that may be defined in the CEMP.

Management Plan	Management Strategy	Responsibility
Construction Environmental Management Plan	All construction personnel will be inducted to be made aware of the Vegetation Management Plan and its content.	Construction contractor
	Vegetation clearance areas will be clearly defined and marked.	
	No clearing, parking, laydown, stockpiles, or other disturbance of native vegetation outside of the defined clearance area.	
	Trigger points and stop work procedures will be developed and implemented in the event of unplanned and unauthorised vegetation clearance.	
	Vegetation clearance procedures will be clearly defined and approved by the proponent.	
	Clearance and construction activities to occur during daylight hours only.	
	Limit entry/exit points to the construction footprint to the minimum number possible.	
	All fill materials required for construction (e.g., sand, soil, gravel) will be sourced from certified weed and phytrophthora free sites.	
	Restrict all vehicle and machinery traffic to designated roads and access tracks that are approved by the proponent.	
	Restrict the movement of weed material to the vegetation clearance area, including by developing and implementing machinery wash-down protocols.	

- 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.**

Rehabilitation and restoration of vegetation will be permitted in the solar array following the initial construction impact, including regeneration of low grasses and shrubs under the installed solar panels and in alternate 'gap' corridors initially used for access. Rehabilitation of native vegetation is preferable for solar farm projects to reduce dust accumulation on panels and associated maintenance.

- 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.**

Any adverse impact on native vegetation or ecosystems that cannot be avoided or minimised will be offset by implementing an SEB that outweighs that impact. The applicant will mitigate in the form of a payment to the Native Vegetation 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.

The clearance is assessed against the Principles of Clearance as set out in Table 18.

Table 18. Assessment against the Principles of Clearance.

Principle of clearance	Considerations
Principle 1(a) – it comprises a high level of diversity of plant species	<p><u>Relevant information</u> The Project Area was comprised of 60 flora species consisting of 44 native species and 14 weed species, with some areas being highly degraded through agriculture, grazing and planation (VA3 and VA5). Patches; Bushland Plant Diversity Scores – A1: 15.4 A2: 12 A3: 21.14 A4: 26 A5: 20 A6: 26 A7: 12 A8: 19.3</p> <p><u>Assessment against the principles</u> At Variance: A1, A2, A3, A4, A5, A6, A7, A8 (Plant Diversity Score = 10-20). Seriously at Variance: No vegetation associations.</p> <p><u>Moderating factors that may be considered by the NVC.</u> The Project Area is surrounded by native vegetation, with the NatureMaps SA Native Vegetation layer showing 13% native vegetation coverage within 5 km of the site (DEW 2023a). 180.23 ha of clearance represents 17.65% of an approximate 1,021.02 ha of vegetation within a 5 km radius and therefore this moderating factor may apply.</p>
Principle 1(b) – significance as a habitat for wildlife	<p><u>Relevant information</u> One State threatened species was detected during the field survey:</p> <ul style="list-style-type: none"> White-winged Chough (<i>Corcorax melanorhamphos</i>) - NPW Act: Rare. <p>Based on proximity of and time since the most recent record and the type of habitats available within the Project Area, other threatened species which may utilise the Project Area include:</p> <p><u>Highly likely</u></p> <ul style="list-style-type: none"> Hooded Robin (<i>Melanodryas cucullata cucullata</i>) - EPBC Act: Endangered and NPW Act: Rare. <p><u>Likely</u></p> <ul style="list-style-type: none"> Jacky Winter (<i>Microeca fascians spp.</i>) - NPW Act: Rare. Southern Whiteface (<i>Aphelocephala leucopsis leucopsis</i>) – EPBC Act: Vulnerable. <p><u>Possible</u></p> <ul style="list-style-type: none"> Blue-winged Parrot (<i>Neophema chrysostoma</i>): EPBC Act: Vulnerable and NPW Act: Vulnerable; <p>The Southern Whiteface (EPBC rating – Vulnerable) has not been recorded in the Project Area as of 1995, however is considered highly likely to occur in the Project Area. One nationally listed species, being the Hooded Robin, has been recorded within the Search Area and is considered highly likely to occur. The Jacky Winter, which is a State listed rare species, has also been recorded within the Search Area and assessed as highly likely to occur in the Project Area. Two other species are considered to possibly occurring in the Project Area. All nationally listed species known or considered likely to occur are discussed in Section 4.2.4, however, briefly:</p> <p><u>Southern Whiteface</u> The Southern Whiteface are widespread across the southern half of mainland Australia, where they occupy open woodlands and shrublands with grassy understorey. The species forages in the understorey of low tree density habitats, and use low bushes, small hollows, or crevices to nest. Southern Whiteface have recently been listed as nationally Vulnerable under the EPBC Act due to a substantial decline in their population (30-50%) over the last 10 years. No records of Southern Whiteface occur within 5 km of the Project Area since 1995, however the PMST identified the species to be known to occur in the area and the suitable habitat is present within the Project Area. An EPBC self-assessment is likely to be required to determine the significance of impact for this species.</p>

Principle of clearance	Considerations																														
	<p><u>South-eastern Hooded Robin</u></p> <p>The subspecies of Hooded Robins occurs in the south-eastern area of Australia, where there are estimated to be 100 subpopulations. They utilise dry eucalypt and acacia woodland and shrublands with an open understorey of grasses and herbs. The species has recently been listed as nationally Endangered under the EPBC Act (effective 31st March 2023) due to a significant (>50%) population decline over the last 10 years. Critical habitat for the species includes areas which contain their known preferred habitat. There are multiple records of Hooded Robin within 5 km of the Project Area. An EPBC self-assessment may be required to determine the significance of impact for this species.</p> <p>NPW Act listed species assessed as likely or known in the Project Area are discussed below.</p> <p><u>White-winged Chough</u></p> <p>The White-winged Chough occurs southern areas of SA and throughout most of eastern and south-eastern Australia. They are most a sedentary and colonial species that inhabits woodlands and taller mallee, where it feeds on the ground amongst the leaf-litter. Tend to prefer wetter areas with leaf-litter, for feeding, and available mud for nest building. The species has been thought to be declining, as the occupancy of the species has become very restricted (SA museum 2005). An EPBC self-assessment may be required to determine the significance of impact for this species as the species were observed.</p> <p><u>Jacky Winter</u></p> <p>The Jacky Winter prefer open woodland (Eucalypt and mallee) with an open shrub layer and bare ground, but also often seen in farmland and parks. The has a wide distribution across Australia but the subspecies that occurs in the area has been listed as Rare under the NPW Act due to the species occupancy being restricted (DEH 2014). The Project Area is located on the boarder where the NPW listed subspecies and a non NPW listed subspecies occur. As there are multiple recent records of the Jacky Winter within 5 km of the Project Area, an EPBC self-assessment may be required to determine the significance of impact for this species.</p> <p>More generally, vegetation within the site contains suitable habitat for a wide range of species and contains habitat features which support sheltering (trees, shrubs, woody debris), nesting (structurally diverse vegetation), and foraging (seeds, fruits, seasonal nectar). It is likely to support a range of common and less common species.</p> <p>A total of 26 native fauna species were recorded within the Project Area during the field survey which occurred over one day.</p> <p>There are still patches of vegetation in the Project Area which has not been largely cleared which some are connected to other patches in the surrounding area by native corridors, however other patches of native vegetation have formed islands as a majority of the Project Area was once cleared for cropping. Damp drainage depressions, a man-made dam and drainage lines are unlikely to hold water during times of drought, and therefore do not contribute significantly as a refuge for fauna.</p> <table><tr><th colspan="3">Threatened</th></tr><tr><th>VA</th><th>Fauna Score</th><th>UBS</th></tr><tr><td>A1</td><td>0.1</td><td>72.44</td></tr><tr><td>A2</td><td>0.1</td><td>31.77</td></tr><tr><td>A3</td><td>0.1</td><td>32.86</td></tr><tr><td>A4</td><td>0.1</td><td>61.31</td></tr><tr><td>A5</td><td>0.1</td><td>57.11</td></tr><tr><td>A6</td><td>0.1</td><td>75.47</td></tr><tr><td>A7</td><td>0.1</td><td>47.07</td></tr><tr><td>A8</td><td>0.1</td><td>42.51</td></tr></table>	Threatened			VA	Fauna Score	UBS	A1	0.1	72.44	A2	0.1	31.77	A3	0.1	32.86	A4	0.1	61.31	A5	0.1	57.11	A6	0.1	75.47	A7	0.1	47.07	A8	0.1	42.51
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A8	0.1	42.51																													

Principle of clearance	Considerations												
	<p><u>Assessment against the principles</u> Seriously at Variance – All VA's</p> <p><u>Moderating factors that may be considered by the NVC.</u> <i>Impact Significance</i> Given the largest patch of suitable habitat in the Project Area for the White-winged Chough is going to be avoided, clearance may be considered to be not significant, given that it is unlikely to:</p> <ul style="list-style-type: none">• lead to a long-term decrease in the size of a population;• reduce the area of occupancy of a species;• fragment an existing population into two or more populations;• decrease availability of habitat such that the extent of a species is likely to decline;• result in invasive species becoming established in the threatened species habitat;• interfere with the recovery of a species. <p>Additionally, given the patches of mallee that are planned on being impacted are small, these patches may not be considered preferred habitat for the threatened species like the White-winged Chough. It is unlikely such small patches are critical habitat. However, a significant impact self-assessment is required to determine the level of impact this Project may have on several MNES, as it may be considered habitat critical to the survival of some species. A significant impact self-assessment is planned for this Project.</p> <p><i>Common species</i> For common species occurring within the Project Area, higher quality areas of vegetation, including those areas where structural diversity is higher, are being avoided for clearance. The habitat under application is unlikely to be essential habitat for local populations of common species.</p>												
Principle 1(c) – plants of a rare, vulnerable or endangered species	<p><u>Relevant information</u> No listed threatened plant species were recorded at the site. Only <i>Phlegmatospermum eremaeum</i> (Spreading Cress) which is a State threatened rare species was identified as possibly occurring in the Project Area. Threatened Flora Score(s) – 0 (all sites)</p> <p><u>Assessment against the principles</u> The clearance is not at variance or seriously at variance with Principle 1(c).</p> <p><u>Moderating factors that may be considered by the NVC.</u> Not applicable.</p>												
Principle 1(d) – the vegetation comprises the whole or part of a plant community that is Rare, Vulnerable or endangered	<p><u>Relevant information</u> The PMBW TEC (listed under the EPBC Act) was identified within the Project Area. Half of the TEC in the Project Area is planned on being impacted (VA6).</p> <table><tr><th>Threatened Ecological Community</th><th>Conservation Status</th><th>Vegetation Association</th><th>TEC Score</th></tr><tr><td>Plains mallee box woodlands (PMBW) of the Murray Darling Depression, Riverina, and Naracoorte Coastal Plain Bioregions</td><td>Critically Endangered</td><td>A6 – <i>Eucalyptus porosa</i> Open Mallee over <i>Maireana brevifolia</i> and <i>Enchylaena tomentosa</i>.</td><td>1.4</td></tr><tr><td>Mallee Bird Community of the Murray Darling Depression Bioregion</td><td>Endangered</td><td>A1 – <i>Eucalyptus oleosa</i> ssp. <i>oleosa</i> +/- <i>Eucalyptus gracilis</i> Mallee over Chenopod and Sclerophyll Shrubs.</td><td>1.4</td></tr></table> <p><u>Assessment against the principles</u> Seriously at Variance: VA1, VA6</p>	Threatened Ecological Community	Conservation Status	Vegetation Association	TEC Score	Plains mallee box woodlands (PMBW) of the Murray Darling Depression, Riverina, and Naracoorte Coastal Plain Bioregions	Critically Endangered	A6 – <i>Eucalyptus porosa</i> Open Mallee over <i>Maireana brevifolia</i> and <i>Enchylaena tomentosa</i> .	1.4	Mallee Bird Community of the Murray Darling Depression Bioregion	Endangered	A1 – <i>Eucalyptus oleosa</i> ssp. <i>oleosa</i> +/- <i>Eucalyptus gracilis</i> Mallee over Chenopod and Sclerophyll Shrubs.	1.4
Threatened Ecological Community	Conservation Status	Vegetation Association	TEC Score										
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Mallee Bird Community of the Murray Darling Depression Bioregion	Endangered	A1 – <i>Eucalyptus oleosa</i> ssp. <i>oleosa</i> +/- <i>Eucalyptus gracilis</i> Mallee over Chenopod and Sclerophyll Shrubs.	1.4										

Principle of clearance	Considerations								
	<p><u>Moderating factors that may be considered by the NVC.</u></p> <p><u>Impact Significance</u> If the NVC considers that the impact is not significant, the clearance may be reduced to At Variance.</p> <p><u>Area of Impact</u> If less than 1% of the area of that vegetation community within the immediate vicinity (within a 1 km radius) of proposed clearance is to be affect, the proposed clearance may be tempered to 'At variance'.</p> <p><u>Condition of the vegetation</u> If the vegetation is in a highly degraded state and is unlikely to return to a functional state without significant human intervention, the proposed clearance may be tempered to 'At variance'.</p>								
Principle 1(e) – it is significant as a remnant of vegetation in an area which has been extensively cleared	<p><u>Relevant information</u> The Project Area contains one IBRA Subregion (and association): Murray Mallee (Sutherlands). The Murray Mallee subregion (Sutherlands land system name) is largely cleared as it is often utilised for agriculture, with the remanent vegetation mostly consisting of mallee, woodlands, and grasslands. The clearance of the Project Area may be considered insignificant as majority of the Project Area has previously been cleared for agriculture and the largest patch of remnant vegetation planned in being avoided.</p> <table><tr><th>Subregion</th><th>Remnancy</th><th>Association</th><th>Remnancy</th></tr><tr><td>Murray Mallee</td><td>21%</td><td>Sutherlands</td><td>47%</td></tr></table> <p>Total Biodiversity Score – 9,366.87</p> <p><u>Assessment against the principles</u> Seriously at Variance</p> <p><u>Moderating factors that may be considered by the NVC.</u> Most of the Project Area that will be impacted by construction has historically been utilized for agriculture. Native vegetation has regenerated in these areas but is limited to grasses and shrubs. It is in poor or degraded condition. These vegetation associations include:</p> <ul style="list-style-type: none">• A3 (218.37 ha) – Historically cleared for cropping and livestock.• A5 (22.7 ha) – Historically cleared and used as a <i>Atriplex nummularia</i> plantation.• A8 (6.70 ha) – Historically cleared for cropping and livestock. <p>The remaining area consists of small patches of remnant vegetation and clearance of these patches may be considered as minimal impact upon the remnant vegetation of the Subregion.</p>	Subregion	Remnancy	Association	Remnancy	Murray Mallee	21%	Sutherlands	47%
Subregion	Remnancy	Association	Remnancy						
Murray Mallee	21%	Sutherlands	47%						
Principle 1(f) – it is growing in, or in association with, a wetland environment	<p><u>Relevant information</u> There are multiple streamlines that branch across the Project Area with both the northern and southern edge of the Project Area may be subject to flooding, however no evidence of flooding or water was noticed. These areas seem could be considered not important.</p> <p><u>Assessment against the principles</u> The clearance is not at variance or seriously at variance with Principle 1(f).</p> <p><u>Moderating factors that may be considered by the NVC.</u> Not applicable.</p>								
	<p><u>Relevant information</u></p>								

Principle of clearance	Considerations
Principle 1(g) – it contributes significantly to the amenity of the area in which it is growing or is situated	The Project Area is situated away along Bower Road, with the old plantation being alongside the road. Both the eastern and western fence line has a line of trees which may be utilised as habitat and a passageway for fauna
	<u>Assessment against the principles</u> The clearance is not at variance or seriously at variance with Principle 1(g).
	<u>Moderating factors that may be considered by the NVC.</u> Not applicable.

Principles of Clearance (h-m) will be considered by comments provided by the local NRM Board or relevant Minister. The Data Report should contain information on these principles where relevant and where sufficient information or expertise is available.

4.6. Risk assessment

The risk level of this clearance application is presented in Table 19. The table indicates that this is a Level 4 clearance, due to escalating matters.

Table 19. Summary of the level of risk associated with the application.

Total clearance	No. of trees	N/A
	Area (ha)	257.97
	Total biodiversity Score	9366.87
Seriously at variance with principle 1(b), 1(c) or 1 (d)		1(a), 1(b), 1(d)
Risk assessment outcome		Level 4

5. CLEARENCE SUMMARY

Clearance summary tables for the clearance application are shown in Table 20 on page 43. The summary tables indicate the SEB points and SEB payment obligations of the clearances.

The total SEB obligations of the clearance are summarised in Table 21 on page 44.

Table 20. Clearance summary and total Significant Environmental Benefit (SEB) obligations for vegetation associations impacted by the Project.

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
A	A1a	10.00	1.4	0	0.1	63.91	4.65	297.19	1	-	-	312.05	\$103,019.40	\$5,666.07
A	A1b	10.00	1.4	0	0.1	62.18	4.65	289.12	1	-	-	303.57	\$100,855.79	\$5,547.07
A	A1c	14.00	1.4	0	0.1	67.29	4.65	312.88	1	-	-	328.52	\$109,145.30	\$6,002.99
A	A1d	18.00	1.4	0	0.1	69.19	4.65	321.73	1	-	-	337.81	\$110,820.29	\$6,095.12
A	A1e	25.00	1.4	0	0.1	99.62	4.65	463.23	1	-	-	486.39	\$158,544.18	\$8,719.93
A	A1 Mean	15.40				72.44	4.65	336.83			-	353.67	\$116,476.99	\$6,406.24
A	A2	12.00	1.0	0	0.1	31.77	2.37	75.30	1	-	-	79.06	\$26,597.48	\$1,462.86
A	A3a	20.00	1.0	0	0.1	26.74	218.37	5838.98	1	-	-	6130.93	\$2,036,882.23	\$112,028.52
A	A3b	24.00	1.0	0	0.1	25.33	218.37	5531.67	1	-	-	5808.25	\$1,960,018.75	\$107,801.03
A	A3c	14.00	1.0	0	0.1	26.88	218.37	5870.06	1	-	-	6136.56	\$2,041,283.73	\$112,270.61
A	A3d	18.00	1.0	0	0.1	29.04	218.37	6342.25	1	-	-	6659.37	\$2,219,401.74	\$122,067.10
A	A3e	24.00	1.0	0	0.1	33.52	218.37	7320.31	1	-	-	7686.32	\$2,569,691.75	\$141,333.05
A	A3f	24.00	1.0	0	0.1	46.31	218.37	10113.77	1	-	-	10619.45	\$3,483,727.78	\$191,605.03
A	A3g	24.00	1.0	0	0.1	42.19	218.37	9212.54	1	-	-	9673.17	\$3,163,190.55	\$173,975.48
A	A3 Mean	21.14				32.86	218.37	7175.65			-	7530.58	\$2,496,313.79	\$137,297.26
A	A4a	26.00	1.0	0	0.1	59.64	2.34	139.56	1	-	-	146.54	\$49,143.49	\$2,702.89
A	A4b	26.00	1.0	0	0.1	62.97	2.34	147.36	1	-	-	147.36	\$51,566.13	\$2,836.14
A	A4 Mean	26.00				61.31	2.34	143.46			-	146.95	\$50,354.81	\$2,769.52
A	A5	20.00	1.0	0	0.1	57.11	22.7	1296.50	1	-	-	1361.33	\$450,853.12	\$24,796.92
A	A6	26.00	1.4	0	0.1	75.47	0.52	39.24	1	-	-	41.21	\$13,732.92	\$755.31
A	A7	12.00	1.0	0	0.1	47.07	0.32	15.06	1	-	-	15.82	\$5,254.25	\$288.98
A	A8a	20.00	1.0	0	0.1	21.51	6.70	144.08	1	-	-	151.29	\$49,788.21	\$2,738.35
A	A8b	14.00	1.0	0	0.1	42.22	6.70	282.90	1	-	-	297.05	\$97,756.95	\$5,376.63
A	A8c	24.00	1.0	0	0.1	63.81	6.70	427.50	1	-	-	448.87	\$147,252.65	\$8,098.90
A	A8 Mean	19.30				42.51	6.70	284.83	1	-	-	299.07	\$98,265.94	\$5,404.63
Total							257.97	9366.87				9827.69	\$3,257,849.30	\$179,181.71

Table 21. Summary of the total SEB obligations of the clearance.

	Total Biodiversity score	Total SEB points required	SEB Payment	Admin Fee	Total Payment
Application	9366.87	9827.69	\$3,257,849.30	\$179,181.71	\$3,437,031.01
Economies of Scale Factor				0.35	
Rainfall (mm)				318	

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.
- ☐ Apply to have SEB Credit assigned from another person or body.
- ☐ Apply to have an SEB to be delivered by a Third Party.
- ☒ 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 total SEB payment for the clearance of 257.97 ha of native vegetation with a Total Biodiversity Score of 9,366.87 is \$3,437,031.01, which includes an administration fee of \$179,181.71.

7. REFERENCES

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8. APPENDICES

Appendix 1 - Flora species recorded by the field survey.

Introduced	Scientific Name	Common Name	Conservation Status	
			EPBC Act	NPW Act
	<i>Acacia myrtifolia</i>	Myrtle Wattle	-	-
	<i>Acacia nyssophylla</i>	Spine Bush	-	-
	<i>Acacia oswaldii</i>	Umbrella Wattle	-	-
*	<i>Alectryon oleifolius ssp. canescens</i>	Bullock Bush	-	-
*	<i>Asphodelus fistulosus</i>	Onion Weed	-	-
	<i>Atriplex acutibractea ssp.</i>	Pointed Saltbush	-	-
	<i>Atriplex lindleyi ssp.</i>	Baldoo	-	-
	<i>Atriplex nummularia ssp.</i>	Old-man Saltbush	-	-
	<i>Atriplex semibaccata</i>	Berry Saltbush	-	-
	<i>Atriplex stipitate</i>	Bitter Saltbush	-	-
	<i>Atriplex vesicaria</i>	Bladder Saltbush	-	-
	<i>Austrostipa acrociliata</i>	Graceful Spear-grass	-	-
	<i>Austrostipa elegantissima</i>	Feather Spear-grass	-	-
	<i>Austrostipa nitida</i>	Balcarra Spear-grass	-	-
	<i>Austrostipa sp.</i>	Spear-grass	-	-
	<i>Callitris gracilis</i>	Southern Cypress Pine	-	-
*	<i>Carrichtera annua</i>	Ward's Weed	-	-
*	<i>Carthamus lanatus</i>	Saffron Thistle	-	-
	<i>Convolvulus sp.</i>	Bindweed	-	-
	<i>Einadia nutans ssp.</i>	Climbing Saltbush	-	-
	<i>Enchylaena tomentosa var.</i>	Ruby Saltbush	-	-
	<i>Eremophila longifolia</i>	Weeping Emubush	-	-
	<i>Eriochiton sclerolaenoides</i>	Woolly-fruit Bluebush	-	-
	<i>Eucalyptus gracilis</i>	Yorrell	-	-
	<i>Eucalyptus oleosa ssp.</i>		-	-
	<i>Eucalyptus porosa</i>	Mallee Box	-	-
*	<i>Geijera linearifolia</i>	Sheep Bush	-	-
*	<i>Hordeum sp.</i>		-	-
	<i>Kippistia suaedifolia</i>	Fleshy Kippistia	-	-
	<i>Lycium austral</i>	Australian Boxthorn	-	-

Introduced	Scientific Name	Common Name	Conservation Status	
			EPBC Act	NPW Act
*	<i>Lycium ferocissimum</i>	African Boxthorn	-	-
	<i>Maireana brevifolia</i>	Short-leaf Bluebush	-	-
	<i>Maireana georgei</i>	Satiny Bluebush	-	-
	<i>Maireana scleroptera</i>	Hard-wing Bluebush	-	-
	<i>Maireana tomentosa ssp. urceolata</i>		-	-
	<i>Maireana trichoptera</i>	Hairy-fruit Bluebush	-	-
*	<i>Marrubium vulgare</i>	Horehound	-	-
*	<i>Medicago minima</i>	Little Medic	-	-
*	<i>Mesembryanthemum crystallinum</i>	Common Iceplant	-	-
*	<i>Mesembryanthemum sp.</i>	Iceplant	-	-
*	<i>Onopordum acaulon</i>	Horse Thistle	-	-
	<i>Oxalis pes-caprae</i>	Soursob	-	-
	<i>Rhagodia parabolica</i>	Mealy Saltbush	-	-
	<i>Roepera apiculata</i>	Pointed Twinleaf	-	-
	<i>Roepera aurantiaca ssp.</i>	Shrubby Twinleaf	-	-
	<i>Rytidosperma sp.</i>	Wallaby-grass	-	-
	<i>Salsola australis</i>	Buckbush	-	-
*	<i>Salvia sp.</i>	Sage	-	-
	<i>Scaevola spinescens</i>	Spiny Fanflower	-	-
	<i>Sclerolaena diacantha</i>	Grey Bindyi	-	-
	<i>Sclerolaena obliquicuspis</i>	Oblique-spined Bindyi	-	-
	<i>Senna artemisioides ssp. filifolia</i>	Fine-leaf Desert Senna	-	-
	<i>Sida corrugata var.</i>	Corrugated Sida	-	-
*	<i>Sisymbrium sp.</i>	Wild Mustard	-	-
	<i>Tetragonia sp.</i>	False Spinach	-	-
	<i>Teucrium racemosum</i>	Grey Germander	-	-
	<i>Vittadinia cuneata var.</i>	Fuzzy New Holland Daisy	-	-
	<i>Vittadinia sp.</i>	New Holland Daisy	-	-
	<i>Wahlenbergia sp.</i>	Native Bluebell	-	-
	<i>Westringia rigida</i>	Stiff Westringia	-	-

Conservation Status: EPBC Act (Environment Protection and Biodiversity Conservation Act 1999). NPW Act: South Australia (National Parks and Wildlife Act 1972). **Conservation codes:** CE: Critically Endangered. EN/E: Endangered. VU/V: Vulnerable. R: Rare.

Appendix 2 - Fauna species recorded by the field survey.

Year Recorded	Scientific Name	Common Name	Conservation Status	
			EPBC Act	NPW Act
2023	<i>Acanthiza chrysorrhoa leighi</i>	Yellow-rumped Thornbill (eastern SA)	-	-
2023, 2021	<i>Anthus australis australis</i>	Australian Pipit (most of SA)	-	-
2023	<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow (eastern SA)	-	-
2023, 2021	<i>Barnardius zonarius barnardi</i>	Mallee Ringneck	-	-
2023	<i>Cincloramphus cruralis</i>	Brown Songlark	-	-
2023	<i>Climacteris picumnus picumnus</i>	Brown Treecreeper	-	-
2023	<i>Corcorax melanorhamphos melanorhamphos</i>	White-winged Chough (MM, SE)	-	R
2023	<i>Corvus coronoides coronoides</i>	Australian Raven (YP, eastern SA, KI)	-	-
2021	<i>Corvus mellori</i>	Little Raven	-	-
2021	<i>Cracticus torquatus</i>	Grey Butcherbird	-	-
2023, 2021	<i>Eolophus roseicapilla</i>	Galah	-	-
2021	<i>Falco cenchroides</i>	Nankeen Kestrel	-	-
2023	<i>Falco berigora berigora</i>	Brown Falcon	-	-
2023	<i>Gavicalis virescens</i>	Singing Honeyeater	-	-
2023	<i>Gavicalis virescens sonorous</i>	Singing Honeyeater (EP, YP, FR, MN, AP, MM, coastal SE)	-	-
2023	<i>Grallina cyanoleuca cyanoleuca</i>	Magpielark	-	-
2023, 2021	<i>Gymnorhina tibicen</i>	Australian Magpie	-	-
2021	<i>Hirundo neoxena</i>	Welcome Swallow	-	-
2023	<i>Lalage tricolor</i>	White-winged Triller	-	-
2021	<i>Macropus fuliginosus</i>	Western grey kangaroo	-	-
2023	<i>Macropus (Osphranter) rufus</i>	Red Kangaroo	-	-
2023	<i>Malurus leucopterus leuconotus</i>	White-winged Fairywren	-	-
2023, 2021	<i>Manorina flavigula flavigula</i>	Yellow-throated Miner (central eastern, mid-North, YP, FR)	-	-
2023	<i>Melithreptus brevirostris brevirostris</i>	Brown-headed Honeyeater (lower SE)	-	-
2023	<i>Ocyphaps lophotes lophotes</i>	Crested Pigeon	-	-
2021	<i>Oryctolagus cuniculus*</i>	European Rabbit*		
2023	<i>Pachycephala rufiventris rufiventris</i>	Rufous Whistler	-	-
2023, 2021	<i>Pardalotus striatus</i>	Striated Pardalote	-	-

Year Recorded	Scientific Name	Common Name	Conservation Status	
			EPBC Act	NPW Act
2021	<i>Phaps chalcoptera</i>	Common Bronzewing	-	-
2023	<i>Psephotus haematonotus haematonotus</i>	Red-rumped Parrot (eastern SA except NE)	-	-
2023	<i>Ptilotula ornate</i>	Yellow-plumed Honeyeater	-	-
2023, 2021	<i>Smicrornis brevirostris brevirostris</i>	Weebill	-	-
2023, 2021	<i>Tachyglossus aculeatus</i>	Short-beaked Echidna	-	-
2023	<i>Todiramphus pyrrhopygius</i>	Red-backed Kingfisher	-	-
2021	<i>Vulpes vulpes</i> *	Red Fox*		

Conservation Status: EPBC Act (*Environment Protection and Biodiversity Conservation Act 1999*). **NPW Act:** South Australia (*National Parks and Wildlife Act 1972*). **Conservation codes:** R: Rare.

*Introduced species.

Appendix 3 – Likelihood of Occurrence Assessment

Species	Common name	Conservation status		Data Source	Date of last record / PMST	Species known habitat preferences	Likelihood of occurrence within Project Area - comments
		EPBC Act	NPW Act				
FLORA							
<i>Acacia glandulicarpa</i>	Hairy-pod Wattle	VU	E	1	May	Discontinuous, occurring in the Burra Gorge, Hanson and Bordertown areas, SA, and the Little Desert–Dimboola area, Vic. Grows in alkaline soil on rocky hills in open scrub (Burra), or in eucalypt open forest (DCCEEW 2023b).	Unlikely - No suitable habitat is present in the Project Area. No historical records in the search Area.
<i>Acacia menzeli</i>	Menzel's Wattle	VU	V	1	May	Endemic to SA, where it occurs discontinuously from Mt Hack (Northern Flinders Ranges) to Brachia, in the north, near Burra and to the Murray Bridge area in the south. Grows in calcareous loamy earths in open Eucalyptus scrub (DCCEEW 2023b).	Unlikely – There are no historical records in the Search Area, the species was not detected during the field survey and is only listed as 'May Occur' by the PMST.
<i>Caladenia tensa</i>	Greencomb Spider-orchid, Rigid Spider-orchid	EN		1	Likely	Found in the upper South-east in SA, growing in dry woodland and mallee on sandy loams (DCCEEW 2023b).	Unlikely - There are no historical records in the Search Area, the species was not detected during the field survey and is only listed as 'Likely Occur' by the PMST.
<i>Codonocarpus pyramidalis</i>	Slender Bell-fruit, Camel Poison	VU	E	1	May	Grows along the crests of hills and ridges, slopes and along creeks, where the soil is either a loamy sand or sandy clay loam. Throughout its range it is never common and only scattered trees are to be found (DCCEEW 2023b).	Unlikely – There are no historical records in the Search Area, the species was not detected during the field survey and is only listed as 'May Occur' by the PMST.
<i>Dodonaea subglandulifera</i>	Peep Hill Hop-bush	EN	E	1,2	Known, 2000	Endemic to SA and found on the east side of the Mount Lofty Ranges and on Yorke Peninsula, growing on low hills on loamy soils associated with rocky outcrops in open woodland, open shrubland and mallee (DCCEEW 2023b).	Unlikely – Although there are nearby historical records, suitable habitat in the impact area was surveyed and the species was not detected.
<i>Olearia pannosa</i> ssp. <i>pannosa</i>	Silver Daisy-bush, Silver-leaved Daisy, Velvet Daisy-bush	VU	V	1	Likely	The silver daisy-bush is endemic to SA where it is scattered throughout agricultural areas. The silver daisy-bush occurs in sandy, flat areas and in hilly, rocky areas in woodland or mallee. Hilly area soil types	Unlikely - There are no historical records in the Search Area, the species was not detected during the field survey

Species	Common name	Conservation status		Data Source	Date of last record / PMST	Species known habitat preferences	Likelihood of occurrence within Project Area - comments
		EPBC Act	NPW Act				
						include hard pedal mottled-yellow duplex and hard pedal red duplex (DCCEEW 2023b).	and is only listed as 'Likely Occur' by the PMST.
<i>Phlegmatospermum eremaeum</i>	Spreading Cress		R	2	2010	Scattered distributions on the Nullarbor and in the north-eastern and central parts of SA, growing in open mallee on calcareous clay or loam (Seeds of SA 2018).	Possible - Suitable habitat and recent (<20 years old) records. However the species was not detected during field surveys.
<i>Pterostylis xerophila</i>	Desert Greenhood	VU	V	1	May	Occurs in dry woodland on fertile red loamy soils, on or around granite or quartzite rock outcrops. Species commonly found in Broombush, Ridge-fruited Mallee, Beaked Red Mallee and/or Narrow-leaf Red Mallee (DCCEEW 2023b).	Unlikely - No suitable habitat is present in the Project Area.
<i>Senecio macrocarpus</i>	Large-fruit Fireweed, Large-fruit Groundsel	VU	V	1	May	Occurs most commonly in depressions in low lying closed sedgeland but may occur in sedgeland, herb land, low shrubland to low open woodland where competition from understorey plants is low. The soils range from clay to loamy sand (DCCEEW 2023b).	Unlikely – There are no historical records in the Search Area, the species was not detected during the field survey and is only listed as 'May Occur' by the PMST.
<i>Swainsona pyrophila</i>	Yellow Swainson-pea	VU	R	1	May	Grows in mallee scrub on sandy or loamy soil and is usually found to germinate only after fire and subsequent rain, although scraping of seed via soil disturbances such as grading can also stimulate germination (DCCEEW 2023b).	Unlikely – There are no historical records in the Search Area, the species was not detected during the field survey and is only listed as 'May Occur' by the PMST.
AMPHIBIANS							
<i>Litoria raniformis</i>	Southern Bell Frog	VU	V	1	May	This species is found mostly amongst emergent vegetation, including Typha sp., Phragmites sp. and Eleocharis sp., in or at the edges of still or slow-flowing water bodies such as lagoons, swamps, lakes, ponds and farm dams (DCCEEW 2023b).	Unlikely - There is no suitable habitat present in Project Area and no historical records in the Search Area.
AVES							
<i>Actitis hypoleucos</i>	Common Sandpiper	Mi(W)	R	1	May	Inhabit in Salt-water and fresh-water ecosystems along all coastlines of Aus and in many areas inland (DCCEEW 2023b).	Unlikely - There is no suitable habitat present in Project Area and no historical records in the Search Area.

Species	Common name	Conservation status		Data Source	Date of last record / PMST	Species known habitat preferences	Likelihood of occurrence within Project Area - comments
		EPBC Act	NPW Act				
<i>Amytornis striatus howei</i>	Murray Mallee Striated Grasswren, Striated Grasswren (sandplain)	EN	R	1	May	Occur in open mallee over a sparse layer of shrubs and a ground layer dominated by spinifex (<i>Triodia</i>), though they are sometimes found in other vegetation types (DCCEEW 2023).	Unlikely – There is no suitable habitat present in Project Area and no historical records in the Search Area.
<i>Aphelocephala leucopsis leucopsis</i>	Southern Whiteface	VU		1	Known	Found in a wide range of open woodlands and shrublands where there is an understorey of grasses or shrubs, or both. These areas are usually in habitats dominated by acacias or eucalypts on ranges, foothills and lowlands, and plains (DCCEEW 2023c).	Highly likely - Despite no recent (<40 years) records, habitat is present within Project Area.
<i>Apus pacificus</i>	Fork-tailed Swift	Mi(M)		1	Likely	Widespread but almost exclusively aerial. Mostly occur over inland plains, over cliffs and beaches and sometimes well out to sea or in dry or open habitats (DCCEEW 2023b).	Unlikely - There is no suitable habitat present in Project Area and no historical records in the Search Area. Potential for fly-over only.
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	Mi(W)		1	May	Temporary or flooded wetlands and leaving them when they dry. On migration, they forage and roost on rocky and sandy beaches, freshwater habitats, and inland saltwater habitats (DCCEEW 2023b).	Unlikely - There is no suitable habitat present in Project Area and no historical records in the Search Area.
<i>Calidris ferruginea</i>	Curlew Sandpiper	CE, Mi(W)	E	1	May	Habitat mainly includes coastal waters but also recorded, though less often, inland in fresh and brackish waters (DCCEEW 2023b).	Unlikely - There is no suitable habitat present in Project Area and no historical records in the Search Area.
<i>Calidris melanotos</i>	Pectoral Sandpiper	Mi(W)	R	1	May	Prefers shallow fresh to saline wetlands ranging from coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains, and artificial wetlands (DCCEEW 2023b).	Unlikely - There is no suitable habitat present in Project Area and no historical records in the Search Area.
<i>Corcorax melanorhamphos</i>	White-winged Chough		R	2, 3	2020	Mostly a sedentary and colonial species that inhabits woodlands and taller mallee, where it feeds on the ground amongst the leaf-litter. Tend to prefer wetter areas with leaf-litter, for feeding, and available mud for nest building (Australian Museum, 2005).	Known - Species was observed during the field assessment.
<i>Falco hypoleucos</i>	Grey Falcon	VU	R	1	Likely	The species frequents timbered lowland plains, particularly acacia shrublands that	Unlikely – There is no suitable habitat present in Project Area

Species	Common name	Conservation status		Data Source	Date of last record / PMST	Species known habitat preferences	Likelihood of occurrence within Project Area - comments
		EPBC Act	NPW Act				
						are crossed by tree-lined water courses. Observed hunting in treeless areas and frequents tussock grassland and open woodland, especially in winter (DCCEEW 2023b).	and no historical records in the Search Area.
<i>Gallinago hardwickii</i>	Latham's Snipe, Japanese Snipe	Mi(W)	R	1	May	Usually inhabit open, freshwater wetlands with low, dense vegetation like swamps, flooded grasslands, or heathlands, around bogs and other water bodies (DCCEEW 2023b)	Unlikely - No suitable habitat occurs within the Project Area.
<i>Grantiella picta</i>	Painted Honeyeater	VU	R	1	May	Lives in dry, open forests and woodlands. The species usually occurs in areas with flowering and fruiting mistletoe and flowering eucalypts (DCCEEW 2023b).	Unlikely – No suitable habitat is present within the Project Area.
<i>Leipoa ocellata</i>	Malleefowl	VU	V	1	Likely	Found predominantly in mallee eucalypt shrublands, but also occur, or once occurred, in a range of other shrubland communities on sandy soils (DCCEEW 2023b).	Unlikely – No records in the Search Area and impacted vegetation is unsuitable habitat.
<i>Lophochroa leadbeateri leadbeateri</i>	Major Mitchell's Cockatoo (eastern), Eastern Major Mitchell's Cockatoo	EN		1	May	Lives in arid and semi-arid woodlands dominated by mulga (<i>Acacia aneura</i>), mallee and box eucalypts, slender cypress pine (<i>Callitris gracilis</i>) or belah (<i>Casuarina cristata</i>) (DCCEEW 2023d).	Unlikely – No records in the Search Area and impacted vegetation is unsuitable habitat.
<i>Melanodryas cucullata cucullata</i>	South-eastern Hooded Robin, Hooded Robin (south-eastern)	EN	R	1,2	Known, 2010	Found in Eucalypt woodland and mallee and Acacia shrubland with a remnant size of >50 ha is required (DEH 2014a).	Likely - Habitat in the Project Area is suitable and recent (<20 years old) records.
<i>Microeca fascians fascians</i>	Jacky Winter		R	2	2010	Prefer open woodland (Eucalypt and mallee) with an open shrub layer and bare ground. Often seen in farmland and parks (DEH 2014b).	Likely - Habitat in the Project Area is suitable and recent (<20 years old) records.
<i>Motacilla cinerea</i>	Grey Wagtail	Mi(T)		1	May	European and Asian species that migrates south in winter, rarely reaches Australia, but when it does it favours habitat near freshwater streams, also mown grass, ploughed land or near sewage ponds (Morcombe eGuide 2022).	Unlikely - No suitable habitat is present in Project Area, and species is vagrant to Aus.
<i>Motacilla flava</i>	Yellow Wagtail	Mi(T)		1	May	Open country near swamps, salt marshes, sewage ponds, grassed surrounds to airfields, bare ground. Occasionally on drier inland plains. Rare but regular visitor	Unlikely - No suitable habitat is present in Project Area, and species is vagrant to Aus.

Species	Common name	Conservation status		Data Source	Date of last record / PMST	Species known habitat preferences	Likelihood of occurrence within Project Area - comments
		EPBC Act	NPW Act				
						around Aus coast especially the NW coast Broome to Darwin (Morcombe eGuide 2022).	
<i>Myiagra cyanoleuca</i>	Satin Flycatcher	Mi(T)		1	May	Inhabit heavily vegetated gullies in eucalypt-dominated forests and taller woodlands, and on migration, occur in coastal forests, woodlands, mangroves and drier woodlands and open forests (DCCEEW 2023b).	Unlikely - No suitable habitat is present in Project Area.
<i>Neophema chrysostoma</i>	Blue-winged Parrot	VU	V	1	Likely	Inhabit a range of habitats from coastal, sub-coastal and inland areas, through to semi-arid zones. They tend to favour grasslands and grassy woodlands and are often found near wetlands both near the coast and in semi-arid zones. The species can also be seen in altered environments such as airfields, golf-courses, and paddocks (DCCEEW 2023e).	Possible - Suitable habitat is present in Project Area, however no recent records.
<i>Pedionomus torquatus</i>	Plains-wanderer	CE	E	1	May	Inhabit sparse, treeless, lowland native grasslands which usually occur on hard red-brown clay soils (DCCEEW 2023b).	Unlikely - No suitable habitat is present in Project Area.
<i>Pezoporus occidentalis</i>	Night Parrot	EN	E	1	May	Primarily found in arid and semi-arid regions of Aus, particularly in areas with spinifex grasslands, shrublands, and tussock grasslands. These habitats are often characterized by low vegetation, open woodlands, and sparse vegetation cover (DCCEEW 2023b).	Unlikely - No suitable habitat is present in Project Area.
<i>Polytelis anthopeplus monarchoides</i>	Regent Parrot (eastern)	VU	V	1	Likely	Primarily inhabits riparian or littoral River Red Gum forests or woodlands and adjacent Black Box woodlands. Nearby open mallee woodland or shrubland, usually with a ground cover of spinifex or other grasses, supporting various eucalypts, especially Christmas Mallee and Yellow Mallee, as well as Belah, Buloke or Slender Cypress Pine also provide important habitat for this subspecies. They often occur in farmland, especially if the farmland supports remnant patches of woodland along roadsides or in paddocks. The subspecies seldom occurs in more	Unlikely - No suitable habitat is present in Project Area.

Species	Common name	Conservation status		Data Source	Date of last record / PMST	Species known habitat preferences	Likelihood of occurrence within Project Area - comments
		EPBC Act	NPW Act				
						extensively cleared areas (DCCEEW 2023b).	
<i>Rostratula australis</i>	Australian Painted Snipe	EN	E	1	May	Prefers shallow freshwater wetlands, including swamps, marshes, and shallow lakes with dense vegetation, reeds, and mudflats. Found in suitable wetland habitats across SA. Specific locations may include wetlands along the Murray-Darling Basin and other river systems, coastal lagoons, and freshwater marshes (DCCEEW 2023b).	Unlikely - No suitable habitat is present in Project Area.
<i>Stagonopleura guttata</i>	Diamond Firetail	VU	V	1	Known	Reside in a wide range of Eucalypt dominated vegetation communities that have a grassy understorey, including woodland, forest, and mallee (DCCEEW 2023f).	Unlikely – No records in the Search Area and habitat is unsuitable.
MAMMALS							
<i>Nyctophilus corbeni</i>	Corben's Long-eared Bat, South-eastern Long-eared Bat	VU	V	1	May	In SA, the species distribution is patchy and distributed, with most of its range in the Murray Darling Basin but with some records outside of this area. It is more common in box, ironbark and cypress pine woodland on the western slopes and plains but also found in other inland woodland vegetation types including mallee (DCCEEW 2023b).	Unlikely - No suitable habitat is present in the Project Area. No historical records in the search Area.
REPTILES							
<i>Aprasia pseudopulchella</i>	Flinders Ranges Worm-lizard	VU		1	Likely	The species burrows freely in loose sand and soil, under rocks and litter. The species occurs in open woodland, native tussock grassland, riparian habitats, and rocky isolates (DCCEEW 2023b).	Unlikely - Suitable habitat is limited in the Project Area. No historical records in the search Area.
<i>Tiliqua adelaidensis</i>	Pygmy Blue-tongue Lizard, Adelaide Blue-tongue Lizard	EN	E	1	May	Found in a variety of habitats, ranging from highly degraded grasslands (dominated by exotic grasses) to grasslands with high native biodiversity (DCCEEW 2023b).	Unlikely - No suitable habitat is present in Project Area.

Source; 1- BDBSA, 2 – Protected matters search tool 3 – Observed/recorded in the field, NPW Act; E= Endangered, V = Vulnerable, R= Rare

EPBC Act; Ex = Extinct, CR = Critically endangered, EN = Endangered; VU = Vulnerable, Mi = Migratory, T = Terrestrial, M = Marine, W = Wetland;

The BDBSA data has been sourced from the South Australian Department for Environment and Water Biological Database of SA, Record set number DEWNRBDBSA230911-1



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