



Native Vegetation Clearance

Genaspi Battery Energy Storage System and Solar Project Data Report

Clearance under the Native Vegetation Regulations 2017

4 October 2024

Prepared by E West and N Piscioneri – Umwelt (Australia) Pty Ltd



Native Vegetation Clearance Genaspi Battery Energy Storage System and Solar Project Data Report

Prepared by Umwelt (Australia) Pty Ltd for JBS&G Pty Ltd

Project Number: 31558-101

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Cover photograph: Drainage line though Mallee within the Project Area.

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Glossary and Abbreviations

%	Percent
BAM	Bushland Assessment Method
BDBSA	Biological database of South Australia
BESS	Battery Energy Storage System
CSS	Conservation Significance Score
CEMP	Construction Environmental Management Plan
COEMP	Construction and Operational Environmental Management Plan
CT	Certificate of title
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DEW	Department of Environment and Water
DoE	Department of the Environment
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EOI	Expression of Interest
Genaspi	Genaspi Energy Group Pty Ltd
GWh	Gigawatt hours
ha	hectare(s)
IBRA	Interim Biogeographic Regionalisation of Australia
Impact footprint	Current Project design whereby 1029.38 ha of vegetation that will be impacted.
JBS&G	JBS&G Australia Pty Ltd
km	kilometre(s)
KW	Kilowatt
kV	Kilovolt(s)
LCS	Landscape Condition Score
LGA	Local Government Areas
LMR	Landscape Management Regions
LSA Act	<i>Landscape South Australia Act 2019</i>
m	metre(s)
mm	millimetres
MBC	Mallee Bird Community
MDD	Murray Darling Depression Bioregion
MM	Murray Mallee Bioregion
MNES	Matters of National Environmental Significance
MW	Megawatt
MWh	Megawatt hour

Native vegetation	A plant or plants of a species indigenous to South Australia (including dead trees >600 mm diameter, and planted vegetation protected under the NV Act such as SEB or Heritage Agreements).
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.
NSW	New South Wales
NPW Act	<i>National Parks and Wildlife Act 1972</i>
NV Act	<i>Native Vegetation Act 1991</i>
NVC	Native Vegetation Council
NVIS	National Vegetation Information System
PDI Act	<i>Planning, Development and Infrastructure Act 2016</i>
PIRSA	Department of Primary Industries and Regions
PMST	Protected Matters Search Tool
Proponent	JBS&G Australia Pty Ltd
Project	The Genaspi Battery Energy Storage System and Solar Project
Project Area	1697.49 ha area where the Project will be located.
RFP	Request For Proposal
SA	South Australia(n)
STAM	Scattered Tree Assessment Method
Search Area	A 5 km buffer surrounding, and including, the Project Area
SEB	Significant Environmental Benefit
sp.	species
spp.	species plural
ssp.	Subspecies
TBS	Total Biodiversity Score
TEC	Threatened Ecological Community
TSSC	Threatened Species Scientific Committee
UBS	Unit Biodiversity Score
var.	variant
VA(s)	Vegetation Association(s)
VCS	Vegetation Condition Score
WEC	Wildlife Ethics Committee
WoNS	Weeds of National Significance

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Attachment 1 – Spatial data package (shapefiles)

Attachment 2 – Impact Bushland Assessment Scoresheets (excel format)

Attachment 3 – On-ground SEB offset Bushland Assessment Scoresheets (excel format)

1. APPLICATION INFORMATION

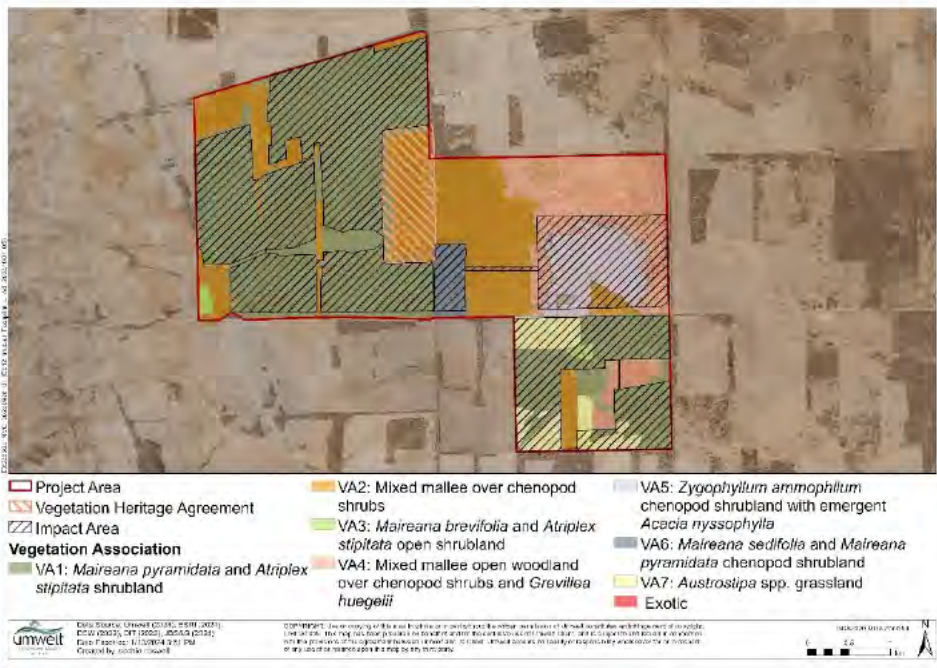
Details of the native vegetation clearance applicant are summarised in **Table 1.1** with a summary of the proposed clearance provided in Table 1.2.

Table 1.1 Application details

Applicant:	Genaspi Energy Group Pty Ltd		
Key contact:	<p>Jones Street, Ultimo NSW 2007</p> <p>M: (+61)</p> <p>Email:</p>		
Landowner:	. Genaspi has secured land under an option-to-purchase agreement.		
Site Address:	<p>641 Powerline Road, Bright, SA</p> <p>LOT1N Powerline Road, Bunday, SA</p> <p>LOT63 Powerline Road, Bunday, SA</p> <p>LOT34 Powerline Road, Bunday, SA</p>		
Local Government Area:	The Regional Council of Goyder	Hundred:	Bright and Bunday
Title ID:	<p>CT/6274/5</p> <p>CT/6274/6</p> <p>CT/6274/9</p> <p>CT/6274/9</p> <p>CT/6274/9</p> <p>CT/6274/9</p> <p>CT/6274/9</p> <p>CT/6274/9</p> <p>CT/6274/9</p>	Parcel ID	<p>H200300 S1F</p> <p>H200300 S1N</p> <p>H200400 S65</p> <p>H200400 S188</p> <p>H200400 S64</p> <p>H200400 S63</p> <p>H200400 S34</p> <p>H200400 S35</p>

Table 1.2 Summary of the proposed clearance

Purpose of clearance:	Clearance required for the construction of a Battery Energy Storage System (BESS) and Solar Project (approximately 1,700 hectares (ha)). The BESS is to comprise of three (3) 1,081 MWh battery banks and the solar component (including ground-mounted solar photovoltaic modules and support infrastructure) consists of approximately 984 ha.
Native Vegetation Regulation:	Regulation 12, Schedule 1; <i>clause 34, Infrastructure</i>
Description of the vegetation under application:	<p>A total of 16 scattered trees (<i>Eucalyptus leptophylla</i>) and seven Vegetation Associations (VAs) were assessed for the Project, the following VAs are present within the Project Area:</p> <p>VA1: <i>Maireana pyramidata</i> and <i>Atriplex stipitata</i> shrubland</p> <p>VA2: Mixed mallee over chenopod shrubs</p> <p>VA3: <i>Maireana brevifolia</i> and <i>Atriplex stipitata</i> open shrubland</p> <p>VA4: Mixed mallee open woodland over chenopod shrubs and <i>Grevillea huegelii</i></p> <p>VA5: <i>Zygophyllum ammophilum</i> chenopod shrubland with emergent <i>Acacia nyssophylla</i></p> <p>VA6: <i>Maireana sedifolia</i> and <i>Maireana pyramidata</i> chenopod shrubland</p> <p>VA7: <i>Austrostipa</i> spp. grassland</p>
Total proposed clearance – area (ha) and/or number of trees:	The total proposed area of clearance is 1029.38 hectares (ha) of native vegetation, which includes seven vegetation associations:

	<ul style="list-style-type: none"> • VA1 – 749.79 ha • VA2 – 19.33 ha • VA3 – 4.63 ha • VA4 – 67.87 ha • VA5 – 93.28 ha • VA6 – 29.49 ha • VA7 – 64.99 ha
Level of clearance:	Level 4
Overlay (Planning and Design Code):	Native Vegetation Overlay
Map of proposed clearance area:	 <p>Vegetation Association</p> <ul style="list-style-type: none"> VA1: <i>Maireana pyramidata</i> and <i>Atriplex stipitata</i> shrubland VA2: Mixed mallee over chenopod shrubs VA3: <i>Maireana brevifolia</i> and <i>Atriplex stipitata</i> open shrubland VA4: Mixed mallee open woodland over chenopod shrubs and <i>Grevillea huegelii</i> VA5: <i>Zygophyllum ammophilum</i> chenopod shrubland with emergent <i>Acacia nyssophylla</i> VA6: <i>Maireana sedifolia</i> and <i>Maireana pyramidata</i> chenopod shrubland VA7: <i>Austrostipa</i> spp. grassland Exotic <p><small>umwelt Data Source: Umwelt (2018), NSW (2017), ECW (2015), NT (2015), NSW (2015) Data Prepared: 8/12/2014 2:57 PM Created By: J. Smith - Umwelt</small></p>
Mitigation Hierarchy:	<p>Avoidance</p> <p>The project has been designed to avoid a significant amount of native vegetation. A total of 448.56 ha of the Project Area, comprising all vegetation associations mapped but particularly VA2: Mixed mallee over chenopods shrubs and VA4: Mixed mallee open woodland over chenopod shrubs and <i>Grevillea huegelii</i> is proposed to be avoided and protected as a part of an on-ground SEB offset.</p> <p>In addition, a patch of VA2: (115.63 ha and approximately 6.81% of the Project Area) will be avoided as well as patches of VA1 (51.74 ha and approximately 3.05% of the Project Area) and VA6 (0.84 ha and approximately 0.05% of the Project Area). These areas account for 168.21 ha (9.91%) of vegetation, which will be avoided out of 1697.49 ha of native vegetation mapped across the Project Area.</p> <p>Further avoidance of 16 scattered trees along the boundary of the site is proposed.</p> <p>Minimisation</p> <p>The project will work to minimise vegetation loss further, particularly where there is an opportunity to minimise canopy impacts on mallee vegetation at the infrastructure / protected mallee vegetation interface. Furthermore, access roads and construction</p>

	<p>footprints will be minimised to as small as practicable to minimise impacts to vegetation. A majority of the infrastructure will be placed in the previously cleared areas (VA1, VA3, VA5, VA6 and VA 7). The vegetation that is now being impacted in these areas are now denuded to chenopod shrublands.</p> <p>Rehabilitation or restoration</p> <p>Within the concept design, Genaspi recognise that there has been significant historical clearing and degradation associated the existing agricultural land-use. Historical clearing has generally been very linear that has left non-natural shapes of existing vegetation within the site which contributes to edge effects. In addition, the site has several waterways in the western parcel of land that has incised and eroded waterways.</p> <p>These landforms provide an opportunity to rehabilitate large areas of land with the objective of reducing edge effects (through strategic infill) and creating greater east-west vegetation connection which ultimately reduces vegetation loss (avoidance) and will benefit flora and fauna connection and movement within and beyond the site. It is proposed that a detailed SEB Management Plan (as a part of the proposed on-ground SEB offset) will be prepared for approval by the Native Vegetation Council, Landscape Board and other relevant bodies as part of the consent process.</p>
<p>SEB Offset proposal</p>	<p>Total SEB offset required for the clearance of 1029.38 ha of native vegetation is 34831.46 SEB points or payment of \$11,186,107.80 into the NV Fund, which includes an administration fee of \$584,966.87. The applicant will mitigate in the form of a payment to the Native Vegetation Fund and by establishing an on-ground SEB offset area within the Project Area, which will include an SEB Management Plan.</p> <p>A total of 3826.36 SEB points will be gained through an on-ground SEB offset (\$1,228,833.80). Therefore, a total of \$9,957,274.00 will be made up in way of payment into the Native Vegetation Fund.</p>

2. PURPOSE OF THE CLEARANCE

2.1. Description

Genaspi Energy Group plan to develop the Bunday Battery Energy Storage System (BESS) and a solar array as a component of their Solar Initiative Project, called the Genaspi Battery Energy Storage System (hereafter referred to as the Project). The Project is designed to provide dual functionality to the South Australian (SA) electricity grid. It is the intention that once complete, the BESS will offer base load support during peak consumption periods and will supply frequency regulation support as needed.

The proposed development area (hereafter referred to as the Project Area) is approximately 1,700 ha. The BESS is to comprise of three (3) 1,081 MWH battery banks and the Solar component (including ground-mounted solar photovoltaic modules and support infrastructure) consists of approximately 984 ha. The Project Area is directly adjacent to ElectraNet's Bunday 330/275 kiloVolt (kV) Substation (Bunday Substation) which is currently undergoing construction. Once completed, the Project will be situated adjacent to Bunday Substation with the intention to strategically leverage the ongoing construction of 330kV transmission lines and substations associated with Project Energy Connect, which is a larger project which will deliver an interconnector between the South Australian (SA) and New South Wales (NSW) energy grids (PEC 2024).

Umwelt (Australia) Pty Ltd (Umwelt) was engaged by JBS&G Australia Pty Ltd (JBS&G) to conduct a native vegetation assessment across the Project Area to assess potential ecological impacts associated with the Project. The native vegetation assessment was conducted in consideration of the impact footprint provided by JBS&G 11 June 2024.

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 Area is denoted as a combination of dryland agriculture, as well as conservation and natural environments. Portions of the Project Area have historically been used for cropping, evidenced by the crop rows that were observed during the field survey. At present, much of the Project Area is used for livestock

(sheep) grazing. There are artificial watering points established across the Project Area, including dams, tanks and troughs.

Bioregions

The Interim Biogeographical Regionalisation of Australia (IBRA) identifies geographically distinct bioregions based on common climate, geology, landform, native vegetation, and species information. The bioregions are further refined into subregions and environmental associations. The Project Area is located within the Murray Darling Depression Bioregion and the Murray Mallee IBRA Subregion, which has approximately 444,401 ha (21% of the subregion) mapped as remnant native vegetation of which 17% (76,180 ha) is formally conserved. The Project Area contains one association, being Sutherlands, and approximately 47% (32,682 ha) of the association is mapped as remnant native vegetation, of which 0% (159 ha) is formally conserved.

2.3. General location map

The Project Area is located within the Northern and Yorke Landscape Management bounded by Bunday, Geranium Plains and Bright and within the Regional Council of Goyder (**Figure 2.1**).

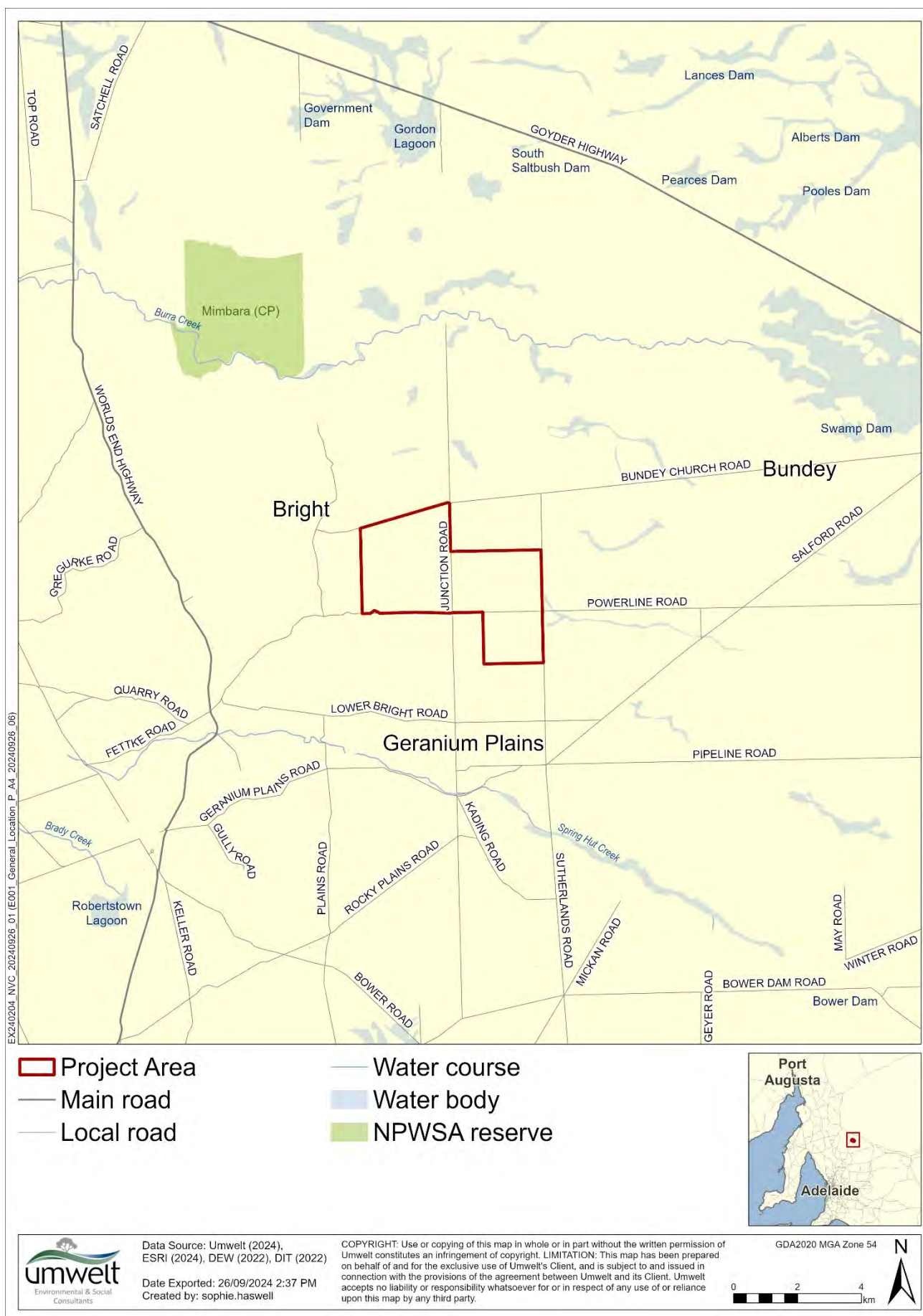


Figure 2.1 General location of Genaspi BESS and Solar Initiative Project (Project Area).

2.4. Details of the proposal

The proposed development will include the construction of 1,100 ha of ground-mounted solar photovoltaic modules, a BESS which encompasses three 1 gigawatt-hour (GWh) battery banks. It is anticipated that the development may involve or require:

- Three x 1 GWh Battery banks
- Lithium-ion batteries
- Battery rack enclosures
- Solar modules
- Inverter stations
- Underground cables
- Transmission line
- Fencing
- Access tracks
- Administrative infrastructure (e.g. carpark, offices and amenities)
- Lighting
- Drainage works

Areas excluded from vegetation loss includes the current construction of the transmission line (not a part of this Project). The site plan for the Project is shown in **Figure 2.2**.

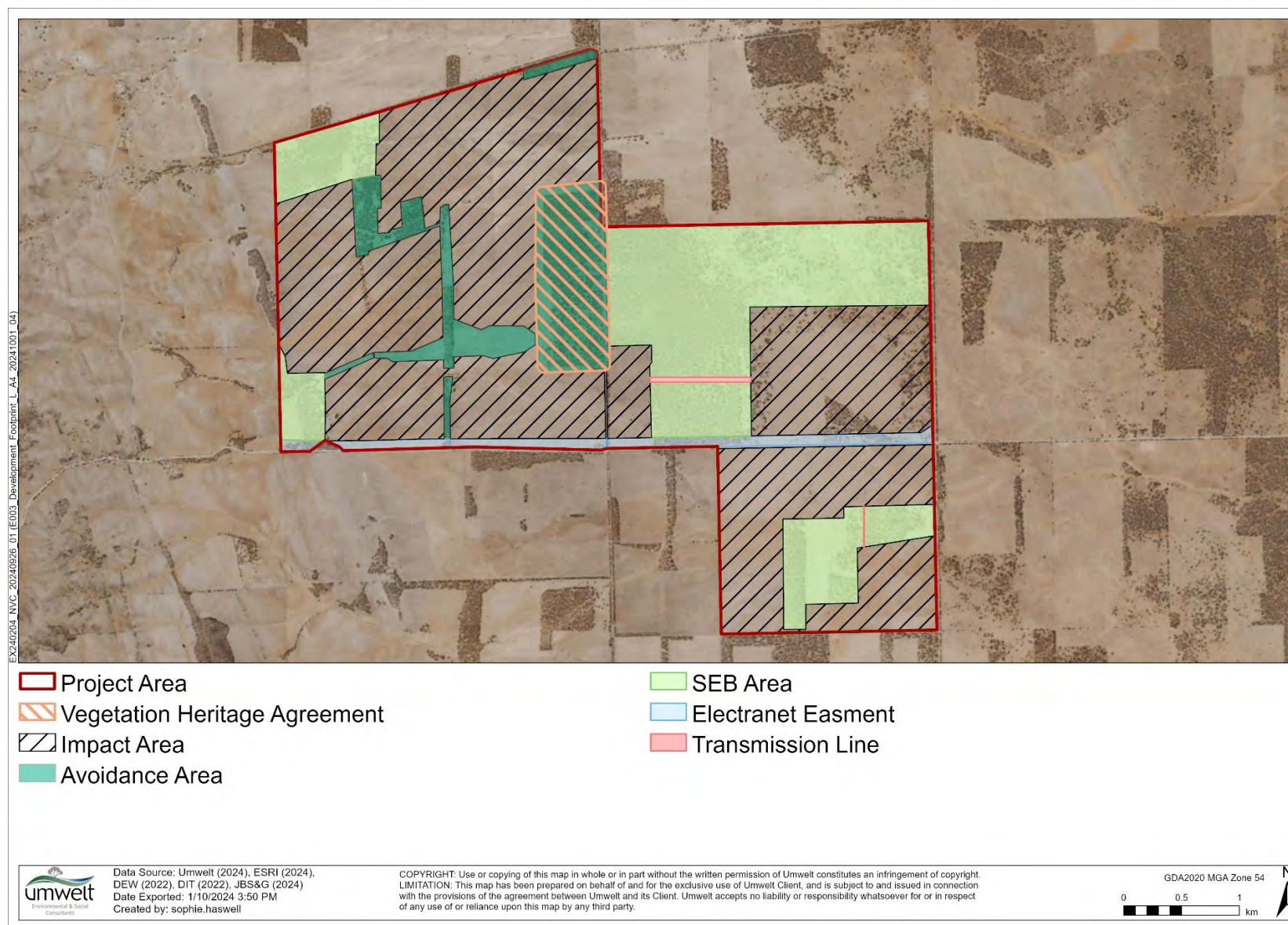


Figure 2.2 The Project Area with the Development Footprint provided by JBS&G (supplied to Umwelt on 1 October 2024).

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 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 by Umwelt.
- **National Parks and Wildlife Act 1972** – Umwelt 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 proposed clearance is suggested to be assessed under Schedule 1 Regulation 12 (34) Infrastructure.

34 — Infrastructure

(1) Clearance of vegetation—

- (a) *incidental to the construction or expansion of a building or infrastructure where the Minister has, by instrument in writing, declared that the Minister is satisfied that the clearance is in the public interest; or*
- (b) *required in connection with the provision of infrastructure or services to a building or proposed building, or to any place, provided that any development authorisation required by or under the Development Act 1993* has been obtained.*

*Note that the Development Act 1993 has been superseded by the PDI Act.

2.7. Development Application information

DA information that is relevant to this native vegetation clearance application is listed in **Table 2.1**.

Table 2.1 Development Application information.

Local Government Area	The Regional Council of Goyder
Hundred	Bundey and Bright
Parcel	H200300 S1F, H200300 S1N, H200400 S65, H200400 S188, H200400 S64, H200400 S63, H200400 S34, and H200400 S35
Title	CT/6274/5, CT/6274/6, and CT/6274/9
Zone	Rural.
Overlay	Native Vegetation, State Significant Native Vegetation, Hazards (Bushfire – Regional), Hazards (Flooding – Evidence Required), Murray-Darling Basin and Water Resources.
DA Number	In preparation.

3. METHODOLOGY

3.1. Flora assessment

The flora assessment was undertaken by Senior Ecologist E. West and Ecologist B. Cox from 30 April to 2 May in 2024 in accordance with the Bushland Assessment Method (BAM) and Scattered Tree Assessment Method (STAM) (NVC 2020a, NVC 2020b). The location of BAM sites in the Project Area is provided in **Figure 3.1**.

3.1.1. *Bushland Assessment Method*

The BAM is derived from the Nature Conservation Society of South Australia'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 kilometre (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. *Scattered Tree Assessment Method*

The STAM is derived from the Scattered Tree Clearance Assessment in South Australia: Streamlining, Guidelines for Assessment and Rural Industry Extension report (Cutten and Hodder 2002). The STAM is suitable for assessing scattered trees in the following instances:

Individual scattered trees (i.e., canopy does not overlap). The spatial distribution of trees may vary from approaching what would be considered their original distribution (pre-European) through to single isolated trees in the middle of a paddock; or

- Dead trees (when a dead tree is considered native vegetation); or
- Clumps of trees (contiguous overlapping canopies) if the clump is small (approximately <0.1 ha); and
- For both scattered trees and clumps:
 - The ground layer comprises wholly or largely of introduced species;
 - Some scattered colonising native species may be present, but represent <5% of the ground cover; and
 - The area around the trees consists of introduced pasture or crops.
- Details of the scattered tree Point Scoring System are outlined in the Scattered Tree Assessment Manual (NVC 2020b).

The numbers of uncommon and threatened scattered tree using fauna species entered into the Scattered Tree Scoresheet were calculated by cross-referring the BDBSA data extract (see Section 3.2.2) and the lists of scattered trees using fauna in the Scattered Tree Assessment Manual (NVC 2020). The resource use of each species identified was considered when determining each tree's suitability for threatened fauna species (e.g., species that only use hollows in scattered trees were only assigned to scattered trees containing hollows).

3.1.3. *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 (TECs) 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 (DCCEEW) 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 19 March 2024 to identify flora, fauna and TECs listed under the EPBC Act as threatened or migratory (DCCEEW 2024a). Only species and TECs 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 the Native Vegetation Council (NVC) during the approvals process.

3.2.2. *Biological Database of South Australia data extract*

A data extract from the BDBSA was obtained from the Department for Environment and Water (DEW) to identify flora and fauna species that have been recorded within 5 km of the Project Area (data extracted 02/04/2024; DEW 2024b Recordset number: DEWNRBDBSA240328-1).

The BDBSA is comprised of an integrated collection of species records from the South Australian Museum, conservation organisations, private consultancies, Birds SA, Birdlife Australia and the Australasian Wader

Study Group, which meet the DEW 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 the NVC during the approvals process.

3.2.3. Field survey

Fauna surveys were conducted in conjunction with the vegetation assessment. 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.

Targeted bird surveys were conducted at five sites twice (am and pm), utilising methods consistent with Birdlife Australia Systematic Bird surveys (2-ha, 20 minute search) (Birdlife, 2022) recommended survey method (as per the Guidelines for Detecting Birds Listed as Threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (Magrath, Weston, Olsen, & Antos, 2010) and Department of Environment and Water (DEW) biological survey methods (Owens, 2000) (**Figure 3.1**).

Targeted bird surveys were conducted under the following research and ethics permits/licenses:

- Scientific Research Permit No. How_K25613-23 (Department for Environment and Water);
- Wildlife Ethics Committee (WEC) Approval How_27-2022_Statewide Fauna Surveys, (Wildlife Ethics Committee); and
- Scientific Licence no. 158 (Animal Welfare, National Parks and Wildlife SA).

In addition to the Bird Survey Sites, birds were opportunistically recorded as they were encountered in the Project Area.

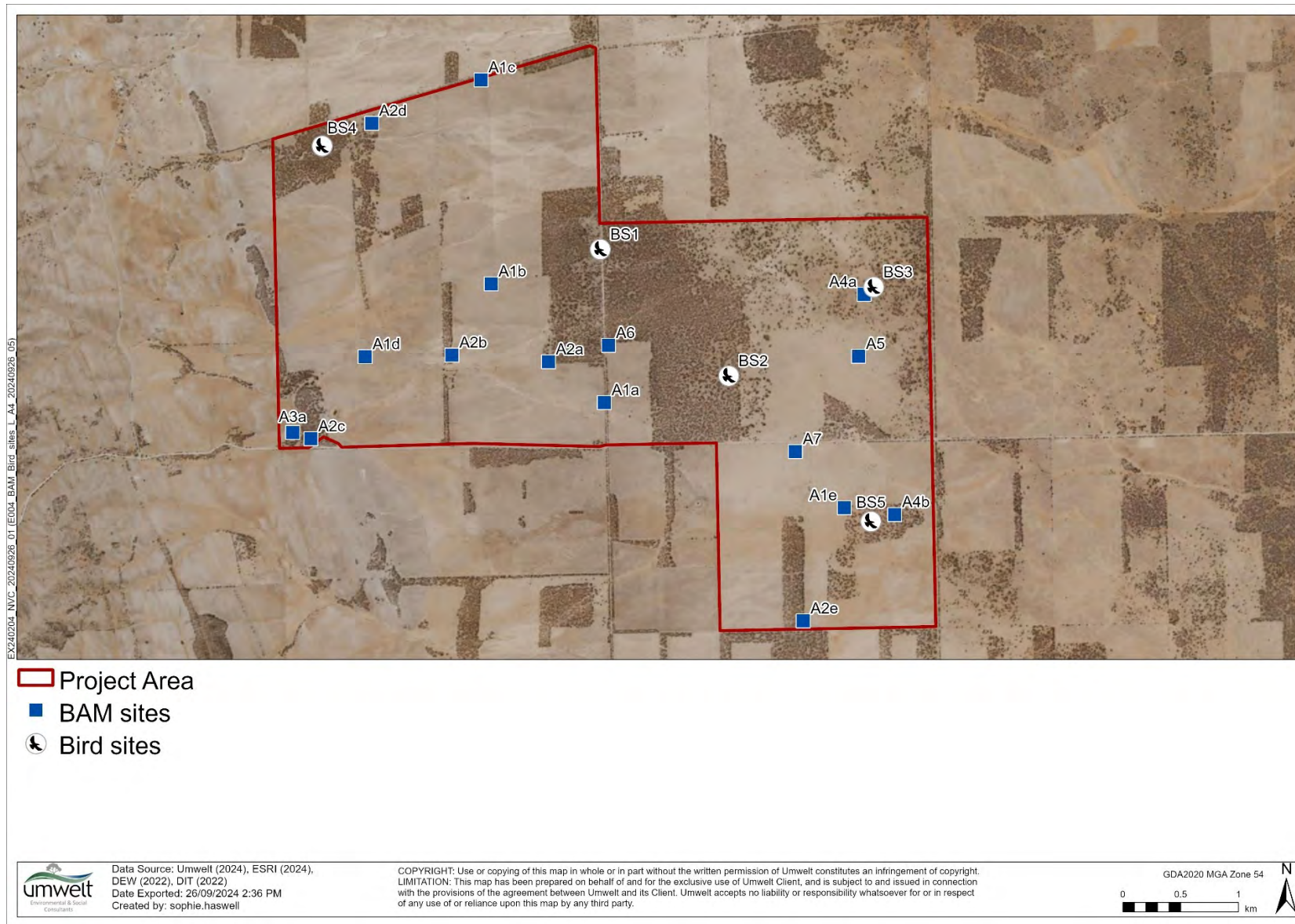


Figure 3.1 Location of all BAM and Bird survey sites across the Project Area.

3.2.4. 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 3.1**. Marine, wetland and aquatic species were not assessed, as the clearance does not impact these or associated habitats.

Table 3.1 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

3.3.1. Desktop assessment

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

Flora and fauna records were sourced from both the EPBC Act Protected Matters Database via the PMST, and the BDBSA via DEW. The BDBSA only includes verified flora and fauna records recorded by DEW or submitted to DEW by partner organisations. It is recognised that knowledge is poorly captured, and that the spatial reliability of the data varies. It is possible that significant species occur 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 give 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.

The EPBC Act protected matters report were limited to a 5 km buffer around the Project Area and the BDBSA flora and fauna records were limited to a 20 km buffer around the Project Area. Fauna species, in particular birds can traverse distances in excess of 20 km. It is also acknowledged that the presence of species may not be adequately represented by database records, a consequence of inadequate survey effort. Hence the EPBC

and BDBSA results may not highlight all potential threatened flora and fauna species that may occur in the area, within a 5-10 km radius. For instance, there have been no flora surveys within 10 km of the Project Area since 1991. A precautionary approach has therefore been adopted, with reference to existing EPBC and BDBSA records and native vegetation cover. The combination of database records and background research have provided a solid baseline foundation for determining the flora and fauna that are likely to, or are known to, occur within the Project Area.

Threatened species, ecological communities and key threatening processes that are protected under the EPBC Act undergo revisions. Furthermore, new species nominated by the public are added to Finalised Priorities Lists (FPAL) for assessment to determine if they are eligible for including on the list of threatened fauna, flora, or ecological communities, or on the list of key threatening processes under the EPBC Act. The Threatened Species Scientific Committee (TSSC) considers the nominations in June each year and prepares a proposed priority assessment list for the Minister to consider (DCCEEW 2024a). Threatened species listed in the report are based solely upon information in existence at the time of the assessment. Therefore, future assessment may be required.

3.3.2. Flora

At the time the survey was undertaken, not all plant species may have been visibly present. Some species such as native orchids and lilies are particularly hard to detect when not in flower. It is possible that some flora species were present but not detected. Some species such as native orchids and lilies are particularly hard to detect when not in flower. It is possible that some flora species were present but not detected. During the year preceding the survey the area received minimal rainfall and during 2023 the region experienced an early onset spring season. This significantly influenced species diversity and reduced the presence of key identifying features of flora species (e.g. grass seed heads) present in the Project Area.

3.3.3. 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

Eight VAs were identified and mapped across the Project Area (seven native, one exotic) (**Table 4.1**). Vegetation is mapped in **Figure 4.1**. Each association is further described **Table 4.2** to **Table 4.8** below. Chenopod shrubland in varying condition was widespread across the Project Area, comprising approximately 58.7% of native vegetation present (1001.18 ha), followed by mixed mallee (*Eucalyptus socialis*, *E. leptophylla* and *E. oleosa*), which totaled 630.18 ha.

The northern portion of the Project Area (north of Powerline Road) consisted of good quality native vegetation with intermittent occurrences of Declared Weeds. The northern portion of the Project Area contained few exotic species overall. Differing quality of vegetation within the southern portion (south of Powerline Road) was moderate to poor and showed signs of both heavy grazing and historical dry-land cropping. Where *Austrostipa* spp. grassland occurs, it appears that mid-storey vegetation has been lost. A likely consequence of grazing and trampling by livestock.

Vegetation is generally in moderate to good condition, with there being low to high weed cover across locations within the Project Area.

A total of Seven native Vegetation Associations (VAs) were identified in the Project Area, and form part of this clearance report:

- VA1: *Mairena pyramidata* and *Atriplex stipitata* shrubland;
- VA2: Mixed mallee over chenopod shrubs;
- VA3: *Maireana brevifolia* and *Atriplex stipitata* open shrubland;
- VA4: Mixed mallee open woodland over chenopod shrubs and *Grevillea huegelii*;
- VA5: *Zygophyllum ammophilum* and chenopod shrubland with emergent *Acacia nyssophylla*;
- VA6: *Maireana sedifolia* and *Maireana pyramidata* chenopod shrubland; and
- VA7: *Austrostipa* sp. Grassland.

A total of 16 scattered *Eucalyptus leptophylla* (Narrow-leaved Mallee) trees were assessed within the Project Area. All scattered trees were located in the southwestern corner of the Project Area (Figure 4). Photos of the 16 STAM are provided in **Appendix 1**. These trees will not be impacted.

A total of 56 native flora species were recorded by the field survey (**Appendix 2**), two of which are protected under the EPBC Act and NPW Act. This includes 11 introduced plants, or weeds. Three weed species that are Declared under the LSA Act were recorded, *Marrubium vulgare* (Horehound), *Lycium ferocissimum* (African Boxthorn) (which is also a Weed of National Significance (WoNS) and *Xanthium spinosum* (Bathurst Burr).

Specific Declared Weed and Weeds of National Significance information on the recommended manual and chemical control options, legal obligations for landholders, restrictions on their movement and sale, reporting requirements, as well as links to state policies is available on the Department of Primary Industries and Regions (PIRSA) website: <https://pir.sa.gov.au/biosecurity/weeds/controlling-weeds>

A total of 32 fauna species (27 birds and five mammals) were recorded during the field survey (**Appendix 3**).

4.1.2. Details of the vegetation associations proposed to be impacted

The impacted area of the VAs are shown in **Table 4.1** with the VAs described in **Table 4.2** to **Table 4.8**. The extent of each VA and the location of scattered trees are shown in **Figure 4.1**.

Table 4.1 Overall summary of vegetation associations and proposed impact.

VA no.	VA	Area (ha)	Area impacted (ha)	Condition
1	<i>Mairena pyramidata</i> and <i>Atriplex stipitata</i> shrubland	849.96	749.79	21.92
2	Mixed mallee woodland over chenopod shrubs	391.22	19.33	40.80
3	<i>Maireana brevifolia</i> and <i>Atriplex stipitata</i> open shrubland	10.23	4.63	12.24
4	Mixed mallee open woodland over chenopod shrubs and <i>Grevillea huegelii</i>	238.96	67.87	47.87
5	<i>Zygophyllum ammophilum</i> and chenopod shrubland with emergent <i>Acacia nyssophylla</i>	98.04	93.28	23.38
6	<i>Maireana sedifolia</i> and <i>Maireana pyramidata</i> chenopod shrubland	34.91	29.49	22.09
7	<i>Austrostipa</i> sp. Grassland	73.78	64.99	18.14
8	Exotic	0.37	0.37	NA
TOTAL		1697.49	1029.75	

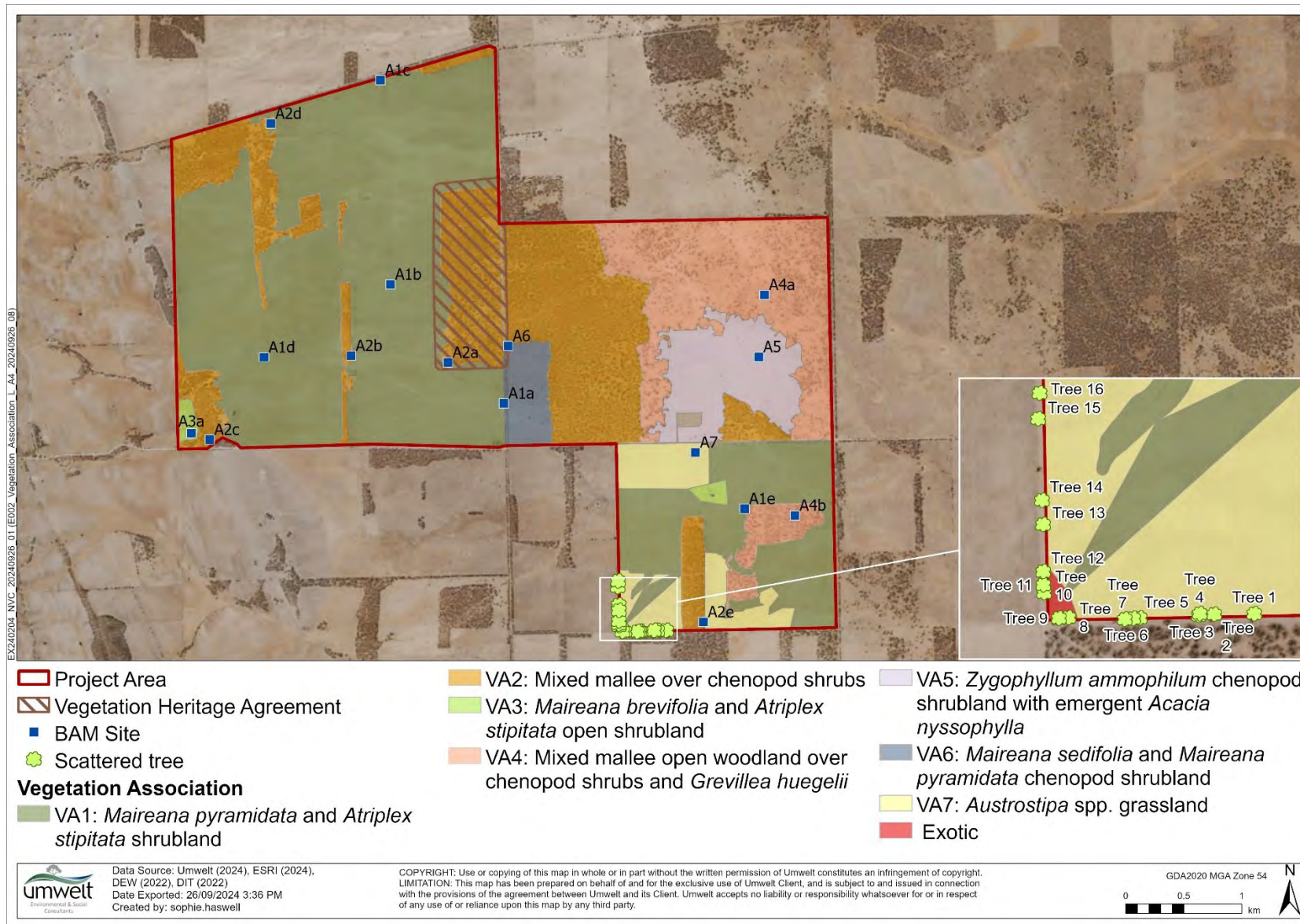


Figure 4.1 The Vegetation Associations and STAMs mapped during the field assessment.

Table 4.2 Summary of VA1: *Maireana pyramidata* and *Atriplex stipitata* shrubland.



Vegetation Association	VA1: Maireana pyramidata and Atriplex stipitata shrubland.				
Benchmark Community	NA 5 Mallee & Woodlands with Open Chenopod & Sclerophyll Shrub Understorey				
BAM Sites	A1a, A1b, A1c, A1d and A1e				
					
BAM Site: A1b, Photo direction: West, Waypoint: -33.925, 139.1863.		BAM Site: A1a (right), Photo direction: South, Waypoint: -33.91570, 139.17594.			
General Description	This VA was dominant across the Project Area and in varying condition, large areas of this vegetation have been impacted by grazing pressure. This chenopod shrubland is dominated by <i>Maireana pyramidata</i> (Black Bluebush) and <i>Atriplex stipitata</i> (Bitter Saltbush) with emergent <i>Eucalyptus oleosa</i> ssp. <i>oleosa</i> (Red Mallee). <i>Carrichtera annua</i> (Wards Weed) was the dominant weed species within this association, however, had a low cover. Two Declared weed species were observed within this association: <i>Xanthium spinosum</i> (Bathurst Burr) and <i>Lycium ferocissimum</i> (African Boxthorn).				
	This association is the most prevalent within the Project Area and occurs within each land parcel in varying condition.				
	Over storey	Mid storey	Under storey		
<i>Eucalyptus oleosa</i> ssp. <i>oleosa</i> (Red Mallee)	<i>Eremophila longifolia</i> (Weeping Emubush)	<i>Maireana pyramidata</i> (Black Bluebush) <i>Atriplex stipitata</i> (Bitter Saltbush) <i>Sclerolaena diacantha</i> (Grey Bindyi) <i>S. obliquicuspis</i> (Oblique-spined Bindyi) <i>Maireana rohrlachii</i> (Rohrlach's Bluebush) <i>M. appressa</i> (Pale-fruit Bluebush) * <i>Carrichtera annua</i> (Wards Weed)			
Threatened Species or Community	This vegetation association does not support or constitute a TEC. One EPBC listed fauna species: <ul style="list-style-type: none">Southern Whiteface (<i>Aphelocephala leucopsis leucopsis</i>) - EPBC Act: Vulnerable.Diamond Firetail (<i>Stagonopleura guttata</i>) – EPBC and NPW Act: Vulnerable. One NPW listed flora species: <i>Maireana rohrlachii</i> (Rohrlach's Bluebush) - NPW Act: Rare.				
Landscape Context Score	1.17	Vegetation Condition Score	21.92	Conservation Significance Score	1.11
Unit Biodiversity Score	28.42	Area (ha)	749.79	Total Biodiversity Score	21311.39

Table 4.3 Summary of VA2: Mixed mallee over chenopod shrubs.



Vegetation Association	VA2: Mixed mallee over chenopod shrubs.				
Benchmark Community	NA 5 Mallee & Woodlands with Open Chenopod & Sclerophyll Shrub Understorey				
BAM Sites	A2a, A2b, A2c, A2d and A2e				
					
BAM Site: A2a, Photo direction: North, Waypoint: - 33.9218, 139.1811.		BAM Site: A2b (right), Photo direction: South, Waypoint: - 33.92119, 139.17216.			
General Description	Mixed mallee open woodland comprised of <i>Eucalyptus oleosa</i> ssp. <i>oleosa</i> (Red Mallee) <i>E. socialis</i> (Beaked Red Mallee), <i>E. leptophylla</i> (Narrow-leaf Red Mallee) and <i>E. gracilis</i> (Yorrell). The association was second most prevalent across the Project Area. Dominant chenopod shrubs present in the understory were <i>Maireana pentatropis</i> (Erect Mallee Bluebush) and <i>Atriplex stipitata</i> (Bitter Saltbush). <i>Carrichtera annua</i> (Wards Weed) was the dominant weed species within this association, however, had a low cover with only two other weed species were recorded.				
	Over storey	Mid storey	Under storey		
	<i>Eucalyptus oleosa</i> ssp. <i>oleosa</i> (Red Mallee) <i>E. socialis</i> (Beaked Red Mallee) <i>E. leptophylla</i> (Narrow-leaf Red Mallee) <i>E. gracilis</i> (Yorrell)	<i>Eremophila scoparia</i> (Broom Emubush) <i>Santalum acuminatum</i> (Quandong) <i>Exocarpos aphyllus</i> (Leafless Cherry)	<i>Maireana pentatropis</i> (Erect Mallee Bluebush) <i>Atriplex stipitata</i> (Bitter Saltbush) <i>Sclerolaena diacantha</i> (Grey Bindyi) <i>*Carrichtera annua</i> (Wards Weed)		
Threatened Species or Community	This vegetation association meet the requirements of a TEC, being: <ul style="list-style-type: none">Mallee Bird Community of the Murray Darling Depression Bioregion – EPBC listed: Endangered (Category A). One EPBC listed fauna species and two NPW listed fauna species was observed within this vegetation association: <ul style="list-style-type: none">South-eastern Hooded Robin (<i>Melanodryas cucullata cucullata</i>) – EPBC Act: Endangered, NPW Act: Rare.White-winged Chough (<i>Corcorax melanorhamphos</i>) – NPW Act: Rare.Painted Button-quail (<i>Turnix varia</i>) – NPW Act. The vegetation may provide some limited habitat for the following threatened fauna species that were not recorded in the VA during the field survey: <ul style="list-style-type: none">Southern Whiteface (<i>Aphelocephala leucopsis leucopsis</i>) – EPBC Act: Vulnerable.Little Eagle (<i>Hieraaetus morphnoides</i>) – NPW Act: Vulnerable. Diamond Firetail (<i>Stagonopleura guttata</i>) – EPBC and NPW Act: Vulnerable.				
Landscape Context Score	1.17	Vegetation Condition Score	40.80	Conservation Significance Score	1.40
Unit Biodiversity Score	66.83	Area (ha)	19.33	Total Biodiversity Score	1292.24

Table 4.4 Summary of VA3: *Maireana brevifolia* and *Atriplex stipitata* open shrubland.


Vegetation Association	VA3: <i>Maireana brevifolia</i> and <i>Atriplex stipitata</i> open shrubland.				
Benchmark Community	NA 5 Mallee & Woodlands with Open Chenopod & Sclerophyll Shrub Understorey				
BAM Sites	A3a				
					
	BAM Site: A3a, Photo direction: South Waypoint: -33.926993, 139.157149.				
General Description	Chenopod shrubland dominated by <i>Maireana brevifolia</i> (Small-leaf Bluebush) and <i>Atriplex stipitata</i> (Bitter Saltbush).				
	Weed diversity was high in this association, with most weeds were observed within or adjacent to the drainage line which had a high overall cover of <i>Asphodelus fistulosus</i> (Onion Weed). One Declared weed species was observed: <i>Lycium ferocissimum</i> (African Boxthorn).				
	Numerous Southern Hairy-nosed Wombat (<i>Lasiorninus latifrons</i>) warrens were observed in association with the drainage line in this association.				
	Over storey	Mid storey	Under storey		
	N/A	<i>Acacia spilleriana</i> (Spiller's Wattle) * <i>Agave americana</i> (Century Plant) * <i>Nicotiana glauca</i> (Tree Tobacco)	<i>Atriplex stipitata</i> (Bitter Saltbush) <i>Sclerolaena diacantha</i> (Grey Bindyi) <i>Austrostipa</i> sp. (Spear-grass) * <i>Asphodelus fistulosus</i> (Onion Weed)		
Threatened Species or Community	This vegetation association does not support or constitute a TEC. One EPBC listed flora species was observed within this VA: <ul style="list-style-type: none"><i>Acacia spilleriana</i> (Spiller's Wattle) – EPBC and NPW Act: Endangered The vegetation may provide some limited habitat for the following threatened fauna species that were not recorded in the VA during the field survey: Southern Whiteface (<i>Aphelocephala leucopsis leucopsis</i>) – EPBC Act: Vulnerable (PMST Known).				
Landscape Context Score	1.17	Vegetation Condition Score	12.24	Conservation Significance Score	1.30
Unit Biodiversity Score	18.61	Area (ha)	4.63	Total Biodiversity Score	86.15

Table 4.5 Mixed mallee open woodland over chenopod shrubs and *Grevillea huegelii*


Vegetation Association	VA4: Mixed mallee open woodland over chenopod shrubs and <i>Grevillea huegelii</i> .				
Benchmark Community	NA 5 Mallee & Woodlands with Open Chenopod & Sclerophyll Shrub Understorey				
BAM Sites	A4a, A4b				
					
BAM Site: A4a, Photo direction: West, Waypoint: -33.917031, 139.210782.					
General Description	Mixed mallee open woodland comprised of <i>Eucalyptus oleosa</i> ssp. <i>oleosa</i> (Red Mallee), <i>E. socialis</i> (Beaked Red Mallee), <i>E. leptophylla</i> (Narrow-leaf Red Mallee) and <i>E. gracilis</i> (Yorrell) with a mid-storey dominated by <i>Grevillea huegelii</i> (Comb Grevillea). Species composition is similar to VA2, but density of mallee is much lower in this association when compared to VA2. <i>Carrichtera annua</i> (Wards Weed) was the dominant weed species within this association.				
	Over storey	Mid storey	Under storey		
	<i>Eucalyptus oleosa</i> ssp. <i>oleosa</i> (Red Mallee) <i>E. socialis</i> (Beaked Red Mallee) <i>E. leptophylla</i> (Narrow-leaf Red Mallee) <i>E. gracilis</i> (Yorrell)	<i>Eremophila scoparia</i> (Broom Emubush) <i>Myoporum platycarpum</i> (False Sandalwood) <i>Grevillea huegelii</i> (Comb grevillea)	<i>Maireana pentatropis</i> (Erect Mallee Bluebush) <i>Atriplex stipitata</i> (Bitter Saltbush) <i>Sclerolaena diacantha</i> (Grey Bindyi) * <i>Carrichtera annua</i> (Wards Weed)		
Threatened Species or Community	<p>This vegetation association meet the requirements of a TEC, being:</p> <ul style="list-style-type: none">Mallee Bird Community of the Murray Darling Depression Bioregion – EPBC listed: Endangered (Category A). <p>One EPBC listed fauna species and one NPW listed fauna species was observed within this VA:</p> <ul style="list-style-type: none">South-eastern Hooded Robin (<i>Melanodryas cucullata cucullata</i>) – EPBC Act: Endangered, NPW Act: Rare.White-winged Chough (<i>Corcorax melanorhamphos</i>) – NPW Act: Rare. <p>The vegetation may provide some limited habitat for the following threatened fauna species which were not recorded in the VA:</p> <ul style="list-style-type: none">Southern Whiteface (<i>Aphelocephala leucopsis leucopsis</i>) – EPBC Act: Vulnerable.Little Eagle (<i>Hieraaetus morphnoides</i>) – NPW Act: Vulnerable.Diamond Firetail (<i>Stagonopleura guttata</i>) – EPBC and NPW Act: Vulnerable.				
Landscape Context Score	1.17	Vegetation Condition Score	47.87	Conservation Significance Score	1.40
Unit Biodiversity Score	78.41	Area (ha)	67.87	Total Biodiversity Score	5321.30

Table 4.6 **Summary of VA5: *Zygophyllum ammophilum* and chenopod shrubland with emergent *Acacia nyssophylla***


Vegetation Association	VA5: <i>Zygophyllum ammophilum</i> and chenopod shrubland with emergent <i>Acacia nyssophylla</i>				
Benchmark Community	NA 5 Mallee & Woodlands with Open Chenopod & Sclerophyll Shrub Understorey				
BAM Sites	A5				
					
BAM Site: A5a, Photo direction: West, Waypoint: -33.921846, 139.210154.					
General Description	Chenopod shrubland dominated by <i>Zygophyllum ammophilum</i> (Twinleaf) with emergent <i>Eucalyptus oleosa</i> ssp. <i>oleosa</i> (Red Mallee) and <i>Acacia nyssophylla</i> (Spine Bush).				
	<i>Carrichtera annua</i> (Wards Weed) was the dominant weed species within this association, had low cover.				
	Over storey	Mid storey	Under storey		
	<i>Eucalyptus oleosa</i> ssp. (Red Mallee)	<i>Acacia nyssophylla</i> (Spine Bush)	<i>Zygophyllum ammophilum</i> (Twinleaf) <i>Atriplex stipitata</i> (Bitter Saltbush) <i>Maireana sedifolia</i> (Bluebush) <i>Sclerolaena diacantha</i> (Grey Bindyi) <i>S. obliquicuspis</i> (Oblique-spined Bindyi) * <i>Carrichtera annua</i> (Wards Weed)		
Threatened Species or Community	This vegetation association does not support or constitute a TEC. No EPBC or NPW Act listed flora or fauna species was observed within this VA during the field survey. The vegetation may provide some limited habitat for the following threatened fauna species that were not recorded in the VA during the field survey: <ul style="list-style-type: none">Southern Whiteface (<i>Aphelocephala leucopsis leucopsis</i>) – EPBC Act: Vulnerable.Little Eagle (<i>Hieraaetus morphnoides</i>) – NPW Act: Vulnerable.Diamond Firetail (<i>Stagonopleura guttata</i>) – EPBC and NPW Act: Vulnerable.				
Landscape Context Score	1.17	Vegetation Condition Score	23.38	Conservation Significance Score	1.10
Unit Biodiversity Score	30.08	Area (ha)	93.28	Total Biodiversity Score	2806.32

Table 4.7 Summary of VA6: *Maireana sedifolia* and *Maireana pyramidata* chenopod shrubland



Vegetation Association	VA6: <i>Maireana sedifolia</i> and <i>Maireana pyramidata</i> chenopod shrubland.				
Benchmark Community	NA 5 Mallee & Woodlands with Open Chenopod & Sclerophyll Shrub Understorey				
BAM Sites	A6				
					
BAM Site: A6a, Photo direction: South, Waypoint: -33.920652, 139.186810					
General Description	Dominance from chenopods shrubs especially those in the <i>Maireana</i> genus, like <i>Maireana pyramidata</i> (Black Bluebush) and <i>Maireana sedifolia</i> (Bluebush). This VA varies from other chenopod shrublands as <i>Maireana sedifolia</i> was much more prevalent in the area.				
	This area has also been impacted from weeds like <i>Carrichtera annua</i> (Wards Weed), with the declared weed <i>Lycium ferocissimum</i> (African Boxthorn) being present.				
	Over storey	Mid storey	Under storey		
	<i>Eucalyptus oleosa</i> ssp. (Red Mallee)	<i>Eremophila scoparia</i> (Broom Emubush)	<i>Maireana pyramidata</i> (Black Bluebush) <i>Maireana sedifolia</i> (Bluebush) * <i>Lycium ferocissimum</i> (African Boxthorn) * <i>Carrichtera annua</i> (Wards Weed)		
Threatened Species or Community	This vegetation association does not support or constitute a TEC. No EPBC or NPW Act listed flora or fauna species was observed within this VA during the field survey. The vegetation may provide some limited habitat for the following threatened fauna species that were not recorded in the VA during the field survey: <ul style="list-style-type: none">Southern Whiteface (<i>Aphelocephala leucopsis leucopsis</i>) – EPBC Act: Vulnerable.Little Eagle (<i>Hieraaetus morphnoides</i>) – NPW Act: Vulnerable.Diamond Firetail (<i>Stagonopleura guttata</i>) – EPBC and NPW Act: Vulnerable.				
Landscape Context Score	1.17	Vegetation Condition Score	22.09	Conservation Significance Score	1.10
Unit Biodiversity Score	28.43	Area (ha)	29.49	Total Biodiversity Score	838.20

Table 4.8 Summary of VA7: *Austrostipa* sp. Grassland

Vegetation Association	VA7: <i>Austrostipa</i> sp. Grassland.				
Benchmark Community	NA 5 Mallee & Woodlands with Open Chenopod & Sclerophyll Shrub Understorey				
BAM Sites	A7				
					
	BAM Site: A7a, Photo direction: West, Waypoint -33.929176, 139.204100				
General Description	Grassland dominated by <i>Austrostipa</i> spp. with emergent chenopod shrubs. The association is the least diverse within the Project Area and is the most disturbed. It appears that the association is degraded as a result of heavy livestock grazing and historical cropping.				
	The association has a low condition score consequent to the low native species diversity and moderate weed cover. The weed <i>Medicago polymorpha</i> (Burr-medic) is widespread in the association.				
	Over storey	Mid storey	Under storey		
N/A	<i>Atriplex stipitata</i> (Bitter Saltbush)	<i>Austrostipa</i> sp. (Spear-grass) <i>Sclerolaena obliquicuspis</i> (Oblique-spined Bindyi) <i>Medicago polymorpha</i> (Burr-medic) <i>Eriochiton sclerolaenoides</i> (Wooly-fruit Bluebush) <i>*Medicago polymorpha</i> (Burr-medic)			
Threatened Species or Community	This vegetation association does not support or constitute a TEC. No EPBC or NPW Act listed flora or fauna species was observed within this VA during the field survey. The vegetation may provide some limited habitat for the following threatened fauna species that were not recorded in the VA during the field survey: <ul style="list-style-type: none">Southern Whiteface (<i>Aphelocephala leucopsis leucopsis</i>) – EPBC Act: Vulnerable.Little Eagle (<i>Hieraaetus morphnoides</i>) – NPW Act: Vulnerable.Diamond Firetail (<i>Stagonopleura guttata</i>) – EPBC and NPW Act: Vulnerable.				
Landscape Context Score	1.17	Vegetation Condition Score	18.14	Conservation Significance Score	1.10
Unit Biodiversity Score	23.35	Area (ha)	64.99	Total Biodiversity Score	1517.21

4.1.3. Site map showing areas of proposed impact

Native vegetation under application and the proposed impact of the Proposal/Project is provided in **Figure 4.2.**

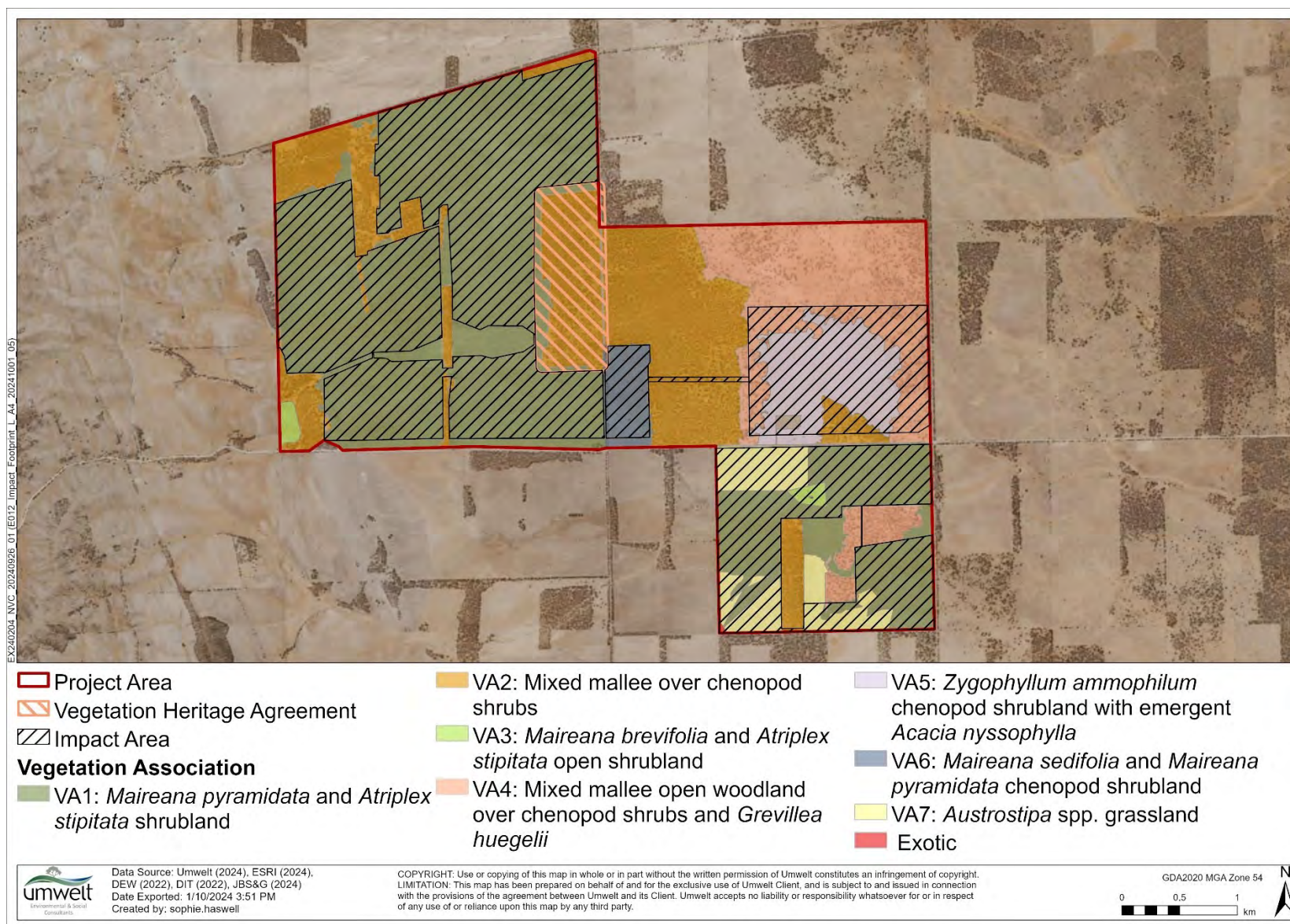


Figure 4.2 Revised impact footprint as provided to Umwelt by JBS&G on 1 October 2024

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 TECs occurring in the Project Area.

4.2.1. Threatened Ecological Communities

The database searches indicated that four TEC might occur:

- Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia – EPBC Act Listed: Critically Endangered.
- Iron-grass Natural Temperate Grassland of South Australia – EPBC Act Listed: Critically Endangered.
- Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions – EPBC Act Listed: Endangered.
- Mallee Bird Community of the Murray Darling Depression Bioregion – EPBC Act Listed: Endangered.

Vegetation in the Project Area has been assessed against the definitions of each TEC identified in **Table 4.9**. The assessment found that one TEC occurs in the Project Area, being Mallee Bird Community (MBC) of the Murray Darling Depression Bioregion.

Two VAs in the Project Area (VA2 and VA4) was identified as MBC. The MBC in the Project Area was identified as **Category A** as it contains a high number (six species) of MBC species (**Table 4.10**). The Project is planning on impacting 98.67 ha of this community across the Project Area.

Table 4.9 Assessment for the presence of Threatened Ecological Communities in the Project Area.

Threatened Ecological Community	Conservation Status	Definition	Assessment
Peppermint Box (<i>Eucalyptus odorata</i>) Grassy Woodland of South Australia	Critically Endangered	Restricted to SA and consists of an open to dense woodland dominated by <i>Eucalyptus odorata</i> and typically occurs with other tree species including <i>E. leucoxylon</i> , <i>E. microcarpa</i> or <i>E. porosa</i> . Canopy height comprises low trees, generally 5-10 metres tall with an understorey comprised of diverse grasses and herbs including <i>Austrostipa</i> sp., <i>Lomandra</i> sp. and <i>Acacia pycnantha</i> . (DEWHA 2008a; Turner 2012). This TEC can be categorised under three different condition Classes (A, B and C), based on remnant patch size and native species diversity and composition. Class C does not make up the TEC but is of sufficient biodiversity value to target for restoration (DEWR 2007; Turner 2012).	Not Present –No <i>Eucalyptus odorata</i> recorded in Project Area.
Iron-grass Natural Temperate Grassland of South Australia	Critically Endangered	Endemic to SA and consists of tussock-forming perennial grasses, Iron-grasses (<i>Lomandra effusa</i> and/or <i>L. multiflora</i> ssp. <i>dura</i>) and a low presence (<10%) of trees and tall shrubs (DEWR 2007; Turner 2012). This TEC can be categorised under three	Not Present – No <i>Lomandra</i> spp. recorded in Project Area.

Threatened Ecological Community	Conservation Status	Definition	Assessment
		different condition Classes (A, B and C), based on patch size, native species diversity and composition, and tussock density. Class A and Class B, make up this TEC, while Class C does not make up the TEC but is of sufficient biodiversity value to target for restoration (DEWR 2007; Turner 2012, DEWHA 2008b).	
Mallee Bird Community (MBC) of the Murray Darling Depression Bioregion	Endangered	A fauna community found in the Murray Darling Depression (MDD) bioregion comprising an assemblage of 20 bird species that are dependent on the mallee vegetation that characterises the bioregion. Criteria for listing includes being within the MDD, containing at least 5 ha dominated by mallee habitats and at least 3 MBC bird species recorded within 20 km in the last 10 years (DAWE 2021a).	Present in the Project Area – VA 2 and VA 4
Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions	Endangered	Woodland communities where Buloke (<i>Allocasuarina luehmannii</i>) is the dominant or co-dominant tree species. Co-dominant species include <i>Callitris gracilis</i> , <i>Callitris glaucophylla</i> , <i>Eucalyptus largiflorens</i> , <i>Eucalyptus leucoxylon</i> ssp. <i>pruinosa</i> and <i>Eucalyptus microcarpa</i> . In SA, the community is only known from the Bordertown district (Cheal, Lucas, & Macaulay 2011).	Not Present – No <i>Allocasuarina luehmannii</i> recorded in Project Area.

4.2.2. Mallee Bird Community of the Murray Darling Depression assessment

Table 4.10 highlights the key diagnostic features for the MBC and the relevance to the Project Area.

The location of the MBC in the Project Area is provided in Figure 4.3.

Table 4.10 Assessment against the Mallee Bird Community of the Murray Darling Depression TEC criteria (DAWE 2021).

Key diagnostic characteristic	Outcome
<p>The area of interest within, or partially within any of the following IBRA bioregions or subregions?</p> <ul style="list-style-type: none"> Murray Darling Depression (MDD): all seven subregions Riverina (RIV) subregions where the Murray River intrudes into the MDD: Murray Fans (RIV03, west of Swan Hill), Robinvale Plains (RIV05), and Murray Scroll Belt (RIV06); <p>Darling Riverine Plains (DRP) subregions where the Darling River anabranches intrude into the MDD: Great Darling Anabranch (DRP08); and Pooncarie-Darling (DRP09).</p>	Yes: The Project Area is located within the MDD.
Is the patch of vegetation of at least 10 hectares present (either wholly or partially within the site)?	Yes: total of 1690.84 ha has been assessed as native vegetation.

Key diagnostic characteristic	Outcome
<p>Does the patch of native vegetation contain an area or areas of at least 5 hectares dominated by mallee?</p> <ul style="list-style-type: none"> Vegetation structure is a native woodland to shrubland where a tree canopy is present that is at least sparse (5% crown cover) but not typically closed; and <p>Mallee eucalypt trees are the dominant tree canopy type present. Other non-mallee trees (i.e. non-mallee eucalypts or non-eucalypt native species) may be present in the tree canopy but do not represent the most common structural type averaged across the remnant or site.</p>	<p>Yes: a total of 630.18 ha has been assessed as a Mallee community (VA2 and VA4).</p>
<p>How many species of the MBC have been recorded from current bird surveys and/or from existing bird observation records within 20 km of the site and within the last ten years?</p>	<p>Yes: a total of six MBC species have been identified:</p> <p>Observed:</p> <ul style="list-style-type: none"> Yellow-plumed Honeyeater (<i>Ptilotula ornata</i>). <p>BDBSA Records:</p> <ul style="list-style-type: none"> Jacky Winter (<i>Microeca fascinans</i>) (2017); Splendid Fairywren (<i>Malurus splendens</i>) (2018); Spotted Pardalote (<i>Pardalotus punctatus</i>) (2017); White-eared Honeyeater (<i>Nesoptilotis leucotis</i>) (2023); and White-fronted Honeyeater (<i>Purnella albifrons</i>) (2023). <p>In addition, four mallee associated species were observed during the field survey (Brown Treecreeper; Red-capped Robin; Spiny-cheeked Honeyeater and Weebill).</p>
Condition category	Category A: High number of MBC Species



Figure 4.3 Location of the Mallee Bird Community TEC within the Project Area.

4.2.3. Threatened flora

The database searches identified 14 threatened flora species may occur in the Search Area, of which two were assessed as known to occur in the Project Area (**Table 4.11**). Two threatened species recorded during the field assessment; this includes:

- *Acacia spilleriana* (Spiller's Wattle): EPBC and NPW Act listed – Endangered (Photos in **Appendix 4**)
- *Maireana rohrlachii* (Rohrlach's Bluebush): NPW Act listed – Rare

The location of EPBC Act and NPW Act listed threatened flora records are provided in **Figure 4.4**.

Acacia spilleriana was found within a *Maireana brevifolia* and *Atriplex stipitata* open shrubland (VA3). There was only one individual *A. spilleriana* found which was growing amongst *Agave americana*. Whereas *Maireana rohrlachii* is NPW Act listed as Rare and was found in a *M. pyramidata* and *A. stipitata* shrubland (VA1). The locations where these plants were found during the survey are indicated on the map in **Figure 4.6**.

The full likelihood of occurrence assessment for all species is provided in **Appendix 5**.

Table 4.11 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	PMST Result, Last Sighting (year)	Likelihood of Occurrence in Project Area
		EPBC Act	NPW Act			
<i>Acacia glandulicarpa</i>	Hairy-pod Wattle	VU	E	1	May	Unlikely
<i>Acacia menzelii</i>	Menzel's Wattle	VU	V	1	May	Unlikely
<i>Acacia spilleriana</i>	Spiller's Wattle	EN	E	1, 3	Likely, 2024	Known
<i>Caladenia tensa</i>	Greencomb Spider-orchid	EN	E	1	Likely	Unlikely
<i>Codonocarpus pyramidalis</i>	Slender Bell-fruit	VU	E	1	Likely	Unlikely
<i>Dodonaea procumbens</i>	Trailing Hop-bush	VU	V	1	May	Unlikely
<i>Dodonaea subglandulifera</i>	Peep Hill Hop-bush	EN	E	1, 2	Known, 2007	Unlikely
<i>Maireana rohrlachii</i>	Rohrlach's Bluebush		R	3	2024	Known
<i>Myoporum parvifolium</i>	Creeping Boobialla		R	2	2008	Unlikely
<i>Olearia pannosa</i> ssp. <i>pannosa</i>	Silver Daisy-bush	VU	V	1	Likely	Unlikely
<i>Phebalium glandulosum</i> ssp. <i>macrocalyx</i>	Glandular Phebalium		E	2	2008	Possible
<i>Pterostylis xerophila</i>	Desert Greenhood	VU	V	1	May	Unlikely
<i>Senecio macrocarpus</i>	Large-fruit Fireweed	VU	V	1	May	Unlikely
<i>Swainsona pyrophila</i>	Yellow Swainson-pea	VU	R	1	May	Unlikely

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, R: Rare.

Source of Information

1. EPBC Act Protected Matters Report (DCCEE 2024a) - 5 km buffer applied to Project Area.
2. Biological Database of South Australia data extract (DEW 2024b) - 5 km buffer applied to Project Area.
3. Recorded during the field survey.

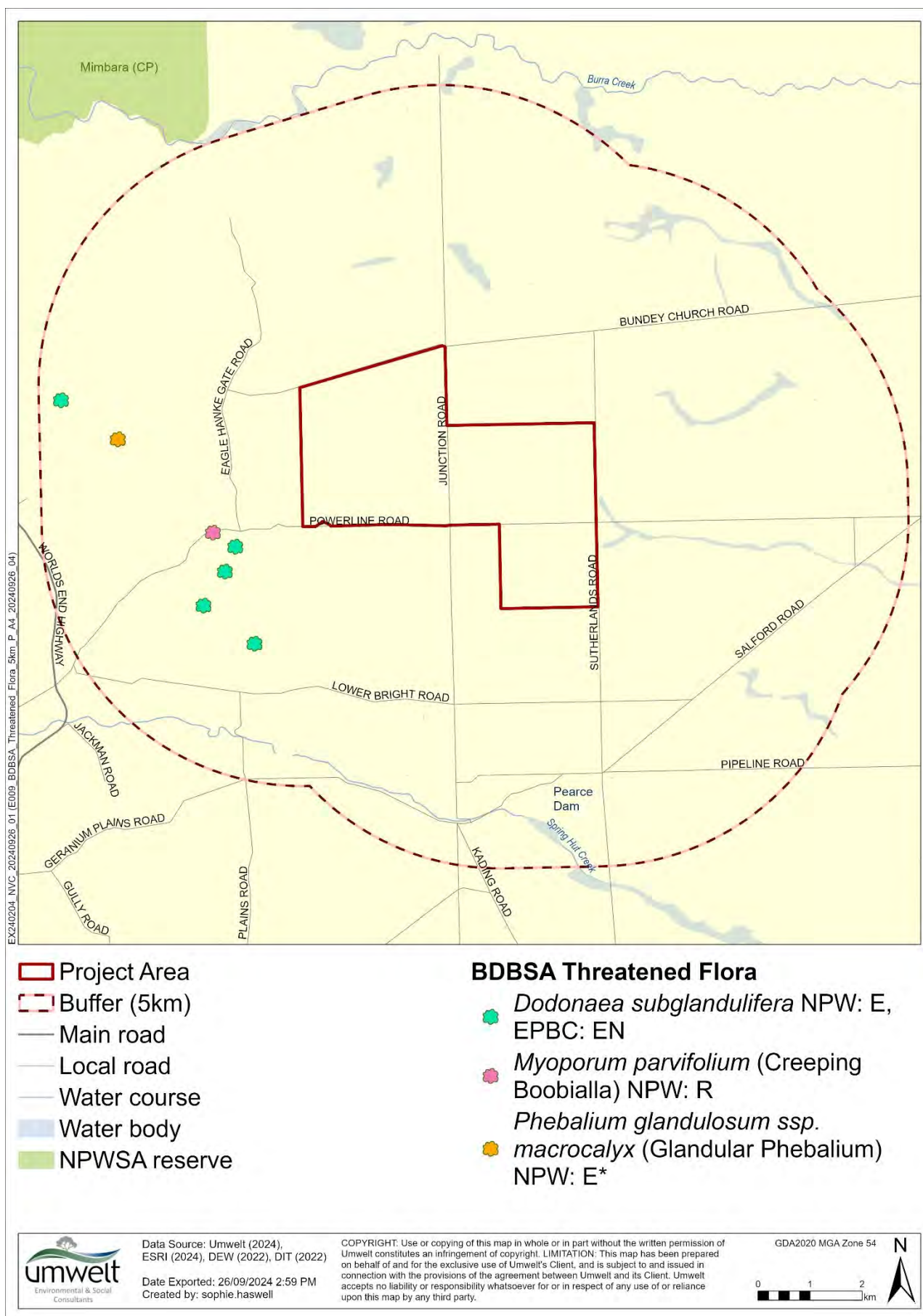


Figure 4.4 EPBC Act and NPW Act listed threatened flora records within 5 km of the Project Area since 1995 (<1 km reliability) (DEW 2024b).

4.2.4. Threatened fauna

The database searches identified 30 threatened or migratory fauna species may occur in the Search Area (Appendix 5). Eight were assessed as possible, likely or known to occur in the Project Area (Table 4.12).

The location of EPBC Act and NPW Act listed threatened fauna records are provided in Figure 4.5.

A total of four threatened species were identified during the field survey, this includes:

- South-eastern Hooded Robin (*Melanodryas cucullata cucullata*): EPBC Act Endangered, NPW Act Rare;
- Painted Buttonquail (*Turnix varius varius*): NPW Act: Rare;
- Southern Whiteface (*Aphelocephala leucopsis leucopsis*): EPBC Act Vulnerable; and
- White-winged Chough (*Corcorax melanorhamphos*): NPW Act Rare.

The Southern Whiteface was observed within the Project Area and just outside of the Project Area (Figure 4.6). One individual was identified within VA1 interacting with a group of Superb Fairywrens. A group of Southern Whiteface were heard advertising outside of the Project Area (Figure 4.6).

Eight White-winged Choughs were observed at bird site 4 (VA2) with another opportunistic recording in VA4.

South-eastern Hooded Robins were recorded at three different bird sites within mallee vegetation (VA2 and VA4); four birds were seen at Bird Site 1, six at Bird Site 2 and two individuals at Bird Site 3. One Painted Buttonquail was recorded during the afternoon bird survey at Bird Site 2 in VA2. The locations of threatened fauna that were found during the survey are indicated on the map in Figure 4.6.

The full likelihood of occurrence assessment for all species is provided in Appendix 5.

Table 4.12 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	PMST result, Last Sighting (year)	Likelihood of Occurrence in Project Area
		EPBC Act	NPW Act			
<i>Actitis hypoleucos</i>	Common Sandpiper	Mi (W)	R	1	May	Unlikely
<i>Amytornis striatus howei</i>	Murray Mallee Striated Grasswren	EN		1	May	Unlikely
<i>Aphelocephala leucopsis</i>	Southern Whiteface	VU		1, 2, 3	Known, 2010	Known
<i>Aprasia pseudopulchella</i>	Flinders Ranges Worm-lizard	VU		1	Likely	Unlikely
<i>Apus pacificus</i>	Fork-tailed Swift	Mi (Ma)		1	Likely	Unlikely
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	VU, Mi (W)		1	May	Unlikely
<i>Calidris ferruginea</i>	Curlew Sandpiper	CE, Mi (W)	E	1	May	Unlikely
<i>Calidris melanotos</i>	Pectoral Sandpiper	Mi (W)	R	1	May	Unlikely
<i>Corcorax melanorhamphos</i>	White-winged Chough		R	2, 3	2010	Known
<i>Falco hypoleucos</i>	Grey Falcon	VU	R	1	Likely	Unlikely
<i>Galaxias rostratus</i>	Flathead Galaxias	CE		1	May	Unlikely

Scientific Name	Common Name	Conservation status		Data Source	PMST result, Last Sighting (year)	Likelihood of Occurrence in Project Area
		EPBC Act	NPW Act			
<i>Gallinago hardwickii</i>	Latham's Snipe	VU, Mi (W)	R	1	May	Unlikely
<i>Grantiella picta</i>	Painted Honeyeater	VU	R	1	May	Unlikely
<i>Hieraaetus morphnoides</i>	Little Eagle		V	2	2010	Likely
<i>Leipoa ocellata</i>	Malleefowl	VU	V	1	Likely	Unlikely
<i>Litoria raniformis</i>	Southern Bell Frog	VU		1	May	Unlikely
<i>Lophochroa leadbeateri leadbeateri</i>	Major Mitchell's Cockatoo	EN		1	May	Unlikely
<i>Maccullochella peelii</i>	Murray Cod	VU		1	May	Unlikely
<i>Melanodryas cucullata cucullata</i>	South-eastern Hooded Robin	EN	R	1, 2, 3	Known, 1999	Known
<i>Motacilla cinerea</i>	Grey Wagtail	Mi (T)		1	May	Unlikely
<i>Motacilla flava</i>	Yellow Wagtail	Mi (T)		1	May	Unlikely
<i>Myiagra cyanoleuca</i>	Satin Flycatcher	Mi (T)	E	1	Known	Unlikely
<i>Neophema chrysostoma</i>	Blue-winged Parrot	VU	V	1	Likely	Possible
<i>Nyctophilus corbeni</i>	South-eastern Long-eared Bat	VU	V	1	May	Unlikely
<i>Pedionomus torquatus</i>	Plains-wanderer	CE	E	1	May	Unlikely
<i>Polytelis anthopeplus monarchoides</i>	Regent Parrot (Eastern)	VU	V	1	Likely	Possible
<i>Rostratula australis</i>	Australian Painted Snipe	EN	E	1	May	Unlikely
<i>Stagonopleura guttata</i>	Diamond Firetail	VU	V	1	Known	Possible
<i>Tiliqua adelaidensis</i>	Pygmy Blue-tongue Lizard	EN	E	1	Likely	Unlikely
<i>Turnix varius varius</i>	Painted Buttonquail		R	3	2024	Known

Conservation status

EPBC Act: (Environment Protection and Biodiversity Conservation Act 1999). **NPW Act** (National Parks and Wildlife Act 1972).
Conservation Codes: EN: Endangered. VU/V: Vulnerable. R: Rare.

Source of Information

- EPBC Act Protected Matters Report (DCCEE 2024a) - 5 km buffer applied to Project Area.
- Biological Database of South Australia data extract (DEW 2024b) - 5 km buffer applied to Project Area.
- Recorded during the field survey.

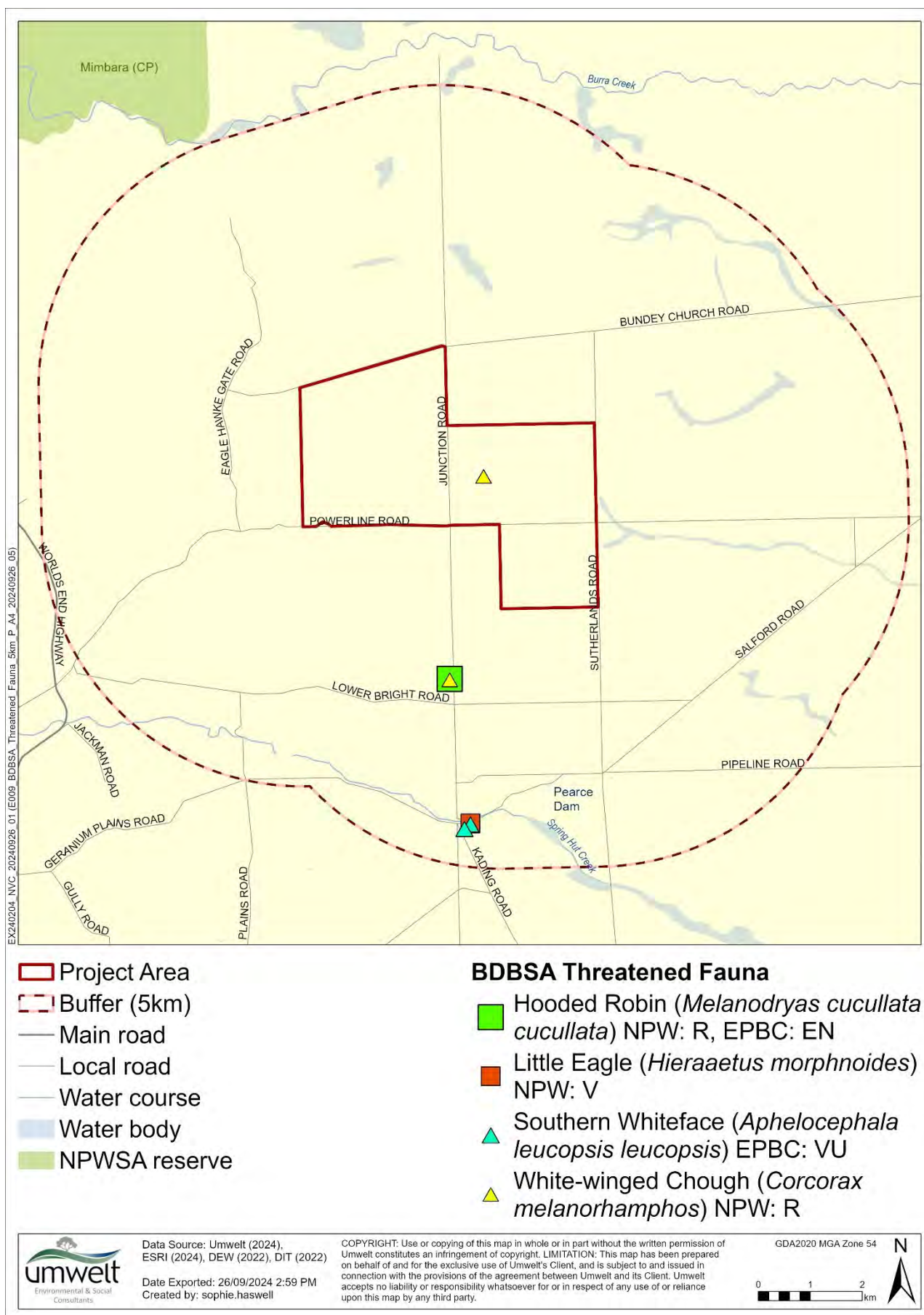


Figure 4.5 EPBC Act and NPW Act listed threatened fauna records within 5 km of the Project Area since 1995 (<1 km reliability) (DEW 2024b)

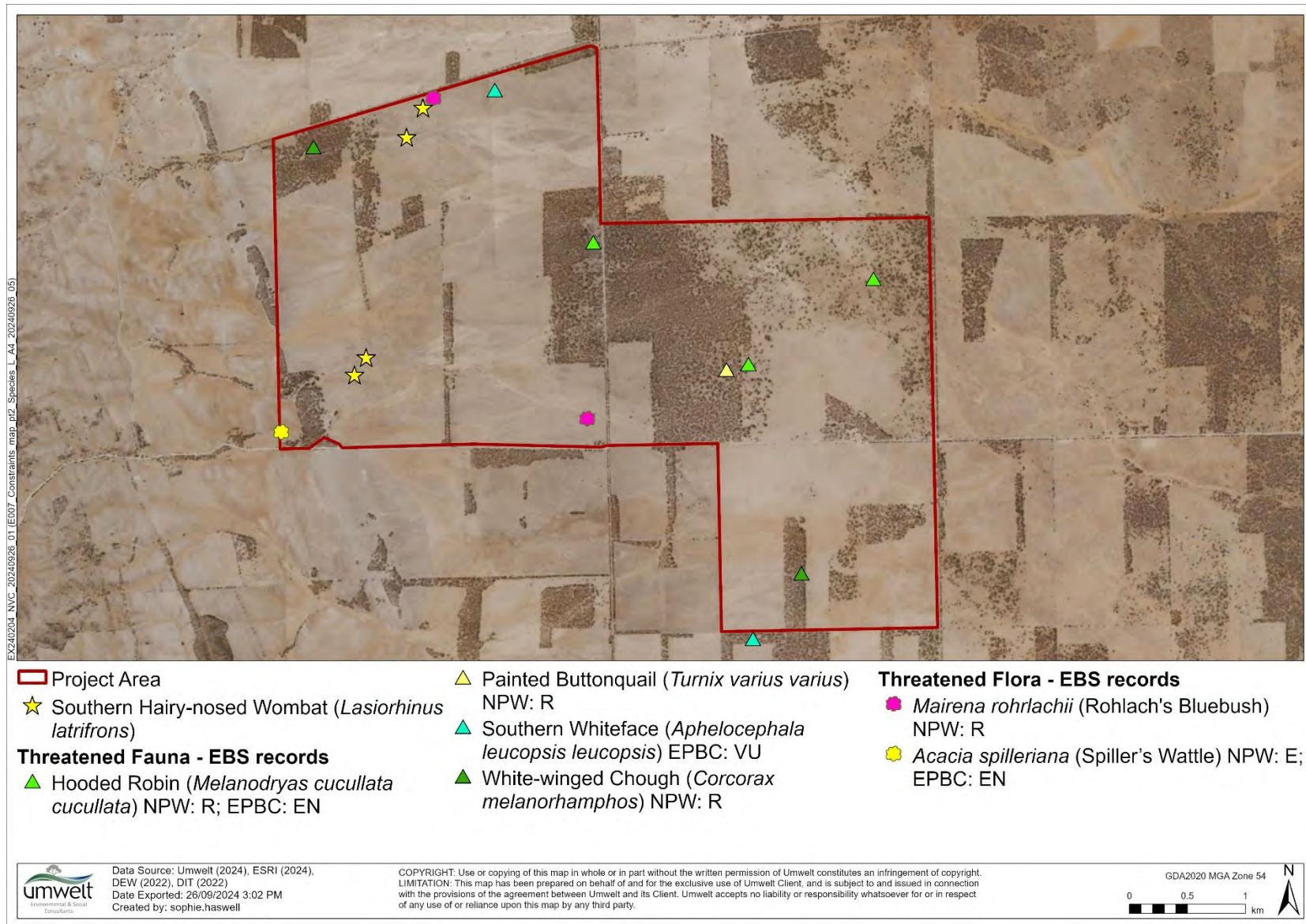


Figure 4.6 The locations of threatened flora and fauna species recorded during the field assessment.

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 for the solar panel arrays;
- Clearance required for construction access; and
- Clearance for cable trenching.

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

The project has been designed to avoid a significant amount of native vegetation. A total of 448.56 ha of the Project Area, comprising all vegetation associations mapped but particularly VA2: Mixed mallee over chenopods shrubs and VA4: Mixed mallee open woodland over chenopod shrubs and *Grevillea huegelii* is proposed to be avoided and protected as a part of an on-ground SEB offset.

In addition, a patch of VA2: (115.63 ha and approximately 6.81% of the Project Area) will be avoided as well as a patches of VA1 (51.74 ha and approximately 3.05% of the Project Area) and VA6 (0.84 ha and approximately 0.05% of the Project Area). These areas account for 168.21 ha (9.91%) of vegetation, which will be avoided out of 1697.49 ha of native vegetation mapped across the Project Area. The location of these areas in the Project Area are provided in Error! Reference source not found. on **page** Error! Bookmark not defined..

Further avoidance of 16 scattered trees along the boundary of the site is proposed.

- 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).**

The project will work to minimise vegetation loss further, particularly where there is an opportunity to minimise canopy impacts on mallee vegetation at the infrastructure / protected mallee vegetation interface. Furthermore, access roads and construction footprints will be minimised to as small as practicable to minimise impacts to vegetation. A majority of the infrastructure will be placed in the previously cleared areas (VA1, VA3, VA5, VA6 and VA 7). The vegetation that is now being impacted in these areas are now denuded to chenopod shrublands.

- 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.**

Within the concept design, Genaspi recognise that there has been significant historical clearing and degradation associated the existing agricultural land-use. Historical clearing has generally been very linear that has left non-natural shapes of existing vegetation within the site which contributes to edge effects. In addition, the site has several waterways in the western parcel of land that has incised and eroded waterways.

These landforms provide an opportunity to rehabilitate large areas of land with the objective of reducing edge effects (through strategic infill) and creating greater east-west vegetation connection which ultimately reduces vegetation loss (avoidance) and will benefit flora and fauna connection and movement within and beyond the site. It is proposed that a detailed SEB Management Plan (as a part of the proposed on-ground SEB offset) will be prepared for approval by the Native Vegetation Council, Landscape Board and other relevant bodies as part of the consent process. More information on the proposed on-ground SEB offset is provided in **Section 6**.

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

The NVC will only consider an offset once avoidance, minimization and restoration have been documented and fulfilled. The SEB Policy explains the biodiversity offsetting principles that must be met.

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 and by establishing a new on-ground SEB area within the Project Area, which will include an SEB Management Plan.

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 4.13

Table 4.13 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></p> <p>The Project Area was comprised of 56 flora species consisting of 46 native species and 10 weed species.</p> <p>Patches;</p> <p>Bushland Plant Diversity Scores –</p> <p>A1: 14.4</p> <p>A2: 14.8</p> <p>A3: 12</p> <p>A4: 20</p> <p>A5: 18</p> <p>A6: 20</p> <p>A7: 8</p>
	<p><u>Assessment against the principles</u></p> <p>At Variance – VA1, VA2, VA3, VA4, VA5, and VA6</p> <p>Not at Variance – VA7</p>
	<p><u>Moderating factors that may be considered by the NVC</u></p> <p>The amount of native vegetation within a 5 km radius (based on DEW NatureMaps native vegetation layer), is approximately 8613.23 ha. The total clearance for the Project is 1029.38 ha which equates to 11.9%. Permanent clearance is associated.</p>
Principle 1(b) – significance as a habitat for wildlife	<p><u>Relevant information</u></p> <p>A total of 32 native fauna species (27 birds and five mammals) were recorded within the Project Area. Patches of remnant vegetation in the Project Area (VA 2 and VA 4) provide foraging and breeding habitat for a number of fauna species. The remnant mallee also provides a wildlife corridor to the remaining remnant patches outside of the Project Area. This vegetation provides habitat to a four of threatened species (two EPBC and two NPW Act), this includes:</p> <ul style="list-style-type: none"> • South-eastern Hooded Robin (<i>Melanodryas cucullata cucullata</i>): EPBC Act: Endangered, NPW Act: Rare. • Painted Buttonquail (<i>Turnix varius varius</i>): NPW Act: Rare. • Southern Whiteface (<i>Aphelocephala leucopsis leucopsis</i>): EPBC Act: Vulnerable. • 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 includes:</p> <p><u>Likely</u></p> <ul style="list-style-type: none"> • Little Eagle (<i>Hieraaetus morphnoides</i>) – NPW Act: Vulnerable. <p><u>Possible</u></p> <ul style="list-style-type: none"> • Diamond Firetail (<i>Stagonopleura guttata</i>) – EPBC Act and NPW Act: Vulnerable.

Principle of clearance	Considerations
	<p>All nationally listed species known to occur are discussed in Section 4.2, however, briefly:</p> <p><u>Southern Whiteface</u></p> <p>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. There are no BDBSA Historical records of Southern Whiteface occur within 5 km of the Project Area since 1995. However, this species was observed within the Project Area and utilising vegetation adjacent to the Project Area (Error! Reference source not found.). An EPBC self-assessment is likely to be required to determine the significance of impact for this species.</p> <p><u>South-eastern Hooded Robin</u></p> <p>The subspecies of Hooded Robin occurs in the south-eastern area of Australia, where they 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 South-eastern Hooded Robin within 5 km of the Project Area and this species was observed throughout the Project Area across a three bird sites. The number of Hooded Robins observed at each bird site are as followed:</p> <p>Bird Site 1 (PM): four individuals;</p> <p>Bird Site 2 (AM): six individuals;</p> <p>Bird Site 2 (PM): two individuals; and</p> <p>Bird Site 3 (PM): two individuals.</p> <p>An EPBC self-assessment will be required to determine the significance of impact for this species.</p> <p><u>Diamond Firetail</u></p> <p>Diamond firetails occur in eucalypt, acacia or casuarina woodlands, open forests and other lightly timbered habitats, including farmland and grassland with scattered trees. The species has recently been listed as nationally Vulnerable under the EPBC Act (effective 31st March 2023) due to a significant (30-50%) population decline over the last 10 years. Critical habitat for the species includes areas which contain their known preferred habitat especially Drooping she-oak (<i>Allocasuarina verticillata</i>) within the Mt Lofty Ranges. There are multiple records of Diamond Firetails within 20 km of the Project Area. An EPBC self-assessment may be required to determine the significance of impact for this species. 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>

Principle of clearance	Considerations																								
	<p><i>Other habitat in the Project Area</i></p> <p>Damp drainage depressions, 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. However, these areas currently provide habitat to a number of different Southern-hairy nosed Wombat (<i>Lasiorninus latifrons</i>) communities.</p> <table><tr><th>VA</th><th>Threatened Fauna Score</th><th>UBS</th></tr><tr><td>A1</td><td>0.1</td><td>28.42</td></tr><tr><td>A2</td><td>0.1</td><td>66.83</td></tr><tr><td>A3</td><td>0.1</td><td>18.61</td></tr><tr><td>A4</td><td>0.1</td><td>78.41</td></tr><tr><td>A5</td><td>0.1</td><td>30.08</td></tr><tr><td>A6</td><td>0.1</td><td>28.43</td></tr><tr><td>A7</td><td>0.1</td><td>23.35</td></tr></table> <p><u>Assessment against the principles</u></p> <p>Seriously at Variance – All VAs</p> <p><u>Moderating factors that may be considered by the NVC</u></p> <p><i>Impact Significance</i></p> <p>There is clearance of large suitable habitat, like Mallee, for the EPBC Act listed threatened species that are known or may occur in the Project Area. However, there is large patches of suitable habitat that may be more preferred by these species (due to having greater canopy cover) that is planned to be protected via an on-ground SEB offset or avoided. Clearance of other areas may be considered not significant to the species, 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>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.</p> <p><i>Common species</i></p> <p>For common species occurring within the Project Area, higher quality areas of vegetation, including those areas where structural diversity is higher, are planned to be protected via an on-ground SEB offset or clearance is avoided in these areas. The habitat under application</p>	VA	Threatened Fauna Score	UBS	A1	0.1	28.42	A2	0.1	66.83	A3	0.1	18.61	A4	0.1	78.41	A5	0.1	30.08	A6	0.1	28.43	A7	0.1	23.35
VA	Threatened Fauna Score	UBS																							
A1	0.1	28.42																							
A2	0.1	66.83																							
A3	0.1	18.61																							
A4	0.1	78.41																							
A5	0.1	30.08																							
A6	0.1	28.43																							
A7	0.1	23.35																							

Principle of clearance	Considerations
	may be essential habitat for local populations of common species such as the Southern-hairy nosed Wombat.
Principle 1(c) – plants of a rare, vulnerable or endangered species	<p><u>Relevant information</u></p> <p>One EPBC and one NPW Act listed threatened plant species were recorded at the site. This includes:</p> <ul style="list-style-type: none"> • <i>Acacia spilleriana</i> (Spiller's Wattle): EPBC and NPW Act listed - Endangered • <i>Maireana rohrlachii</i> (Rohrlach's Bluebush): NPW Act listed - Rare <p>However, no other threatened plant species were identified as possibly occurring in the Project Area.</p> <p><u>Maireana rohrlachii (Rohrlach's Bluebush)</u></p> <p><i>Maireana rohrlachii</i> is NPW Act listed as Rare and was found only detected within VA1 this species was scattered throughout this VA and individuals could not be counted.</p> <p><u>Acacia spilleriana (Spiller's Wattle)</u></p> <p>Spiller's Wattle was recorded in the southwestern corner of the patch of VA3 on the western edge of the Project Area which isn't planned to be impacted. This was the only location of the species that was recorded within the Project Area but may occur in other location where there is rocky hills or watercourses in the Project Area. Spiller's Wattle was listed as nationally Endangered under the EPBC Act (effective 24th December 2009) as it has a restricted geographic distribution which, due to severely fragmented populations and continuing threats, is precarious for the survival of the species. There are multiple records of Spiller's Wattle within 20 km of the Project Area especially within and south of Hopkins Creek Conservation Park. However, this recording may be on eastern extent of the species extent of occurrence. An EPBC self-assessment may be required to determine the significance of impact for this species.</p> <p>Threatened Flora Score(s)</p> <p>A1a - 0.04</p> <p>A3 - 0.2</p> <p>All other VAs - 0</p> <p><u>Assessment against the principles</u></p> <p>Seriously at Variance – VA3</p> <p>At Variance – VA1</p> <p>Not at Variance – VA2, VA4, VA5, VA6, and VA7</p> <p><u>Moderating factors that may be considered by the NVC</u></p> <p><i>Impact Significance</i></p> <p>There is no impact planned in the area that the Spiller's Wattle was recorded. Micro siting of Rohrlach's Bluebush will be undertaken to reduce the impact to this species.</p>
Principle 1(d) – the vegetation comprises the whole or	<p><u>Relevant information</u></p> <p>The MBC TEC (listed under the EPBC Act) was identified within the Project Area. 275.81ha of the TEC in the Project Area is planned on being impacted (VA2 and VA4).</p>

Principle of clearance	Considerations											
part of a plant community that is Rare, Vulnerable or endangered	Threatened Ecological Community	Conservation Status	Vegetation Association	TEC Score								
	Mallee Bird Community of the Murray Darling Depression Bioregion	Endangered	VA2 - Mixed mallee over chenopod shrubs VA4 - Mixed mallee open woodland over chenopod shrubs and <i>Grevillea huegelii</i>	1.4								
	<u>Assessment against the principles</u>											
	Seriously at Variance – VA2 and VA4											
	<u>Moderating factors that may be considered by the NVC</u>											
	<i>Impact Significance</i> If the NVC considers that the impact is not significant, the clearance may be reduced to At Variance.											
	<i>Area of Impact</i> 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'.											
	<i>Condition of the vegetation</i> 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'.											
Principle 1(e) – it is significant as a remnant of vegetation in an area which has been extensively cleared	<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.											
	<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>	Subregion	Remnancy	Association	Remnancy	Murray Mallee	21%	Sutherlands	47%			
	Subregion	Remnancy	Association	Remnancy								
Murray Mallee	21%	Sutherlands	47%									
Total Biodiversity Score – 33172.82												
	<u>Assessment against the principles</u>											
	Seriously at Variance											
	<u>Moderating factors that may be considered by the NVC</u>											
	The southern portion of the Project Area that will be impacted by construction has historically been utilized for agriculture.											

Principle of clearance	Considerations
Principle 1(f) – it is growing in, or in association with, a wetland environment	Relevant information There are no wetlands within the Project Area. There are multiple drainage lines that branch across the western half of the Project Area. Small dams can be found across the Project Area.
	Assessment against the principles N/A
	Moderating factors that may be considered by the NVC Not applicable
Principle 1(g) – it contributes significantly to the amenity of the area in which it is growing or is situated	Relevant information The block under application is situated away from the main highway on minor agricultural and access roads and is unlikely to contribute significantly to the local amenity.
	Assessment against the principles N/A
	Moderating factors that may be considered by the NVC N/A

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 *Guide for applications to clear native vegetation* (Native Vegetation Council, 2020b) sets out how the risk level of a clearance application is assessed. This is summarised in **Table 4.14**.

The risk level of this clearance application is presented in **Table 4.15**. The table indicates that this is a Level 4 clearance, due to the total biodiversity score which is greater than 250.

Table 4.14 Risk assessment for native vegetation clearance applications in the agricultural regions of South Australia

	Patches - clearance	Trees - clearance	Escalating matters Clearance assessment will be raised to the next level if;
Level 1	0.05ha or less	5 trees or less	The site contains a listed species or contains a threatened community under either the NP&W Act or EPBC Act Or Clearance of any trees of the specified circumference.
	And clearance does not involve any trees with a trunk circumference measured at 1m above the ground of (for multi stemmed trees, measure the largest trunk/stem): 50cm or more.		
Level 2	>0.05 ha to 0.5ha	6 - 20 trees	Clearance is seriously at variance with Principle of Clearance 1(b), 1(c) or 1(d).
Level 3	Total Biodiversity Score of less than or equal to 250		Clearance is seriously at variance with Principle of Clearance 1(b), 1(c) or 1(d).
Level 4	Total Biodiversity Score of greater than 250		

Table 4.15 Summary of the level of risk associated with the application

Total clearance	No. of trees	N/A
	Area (ha)	1029.38
	Total biodiversity Score	33172.82
Seriously at variance with principle 1(b), 1(c) or 1 (d)		1(b), 1(c), and 1(d)
Risk assessment outcome		Level 4

5. CLEARANCE SUMMARY

The clearance association with each infrastructure component is shown in **Table 5.1**. Clearance summary tables for the clearance application are shown in Table 5.2. 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 5.3**.

Table 5.1 Impacts to each VA within the Project Area according to the infrastructure component.

VA	Vegetation Association	Infrastructure Component	Impact Area (ha)	Total (ha)
VA1	<i>Maireana pyramidata</i> and <i>Atriplex stipitata</i> shrubland.	Proposed Site Disturbance Partial Clearance/Transmission Line	749.79 0.0019	749.79
VA2	Mixed mallee over chenopod shrubs.	Proposed Site Disturbance Partial Clearance/Transmission Line	16.05 3.28	19.33
VA3	<i>Maireana brevifolia</i> and <i>Atriplex stipitata</i> open shrubland.	Proposed Site Disturbance	4.63	4.63
VA4	Mixed mallee open woodland over chenopod shrubs and <i>Grevillea huegelii</i> .	Proposed Site Disturbance Partial Clearance/Transmission Line	67.41 0.46	67.87
VA5	<i>Zygophyllum ammophilum</i> and chenopod shrubland with emergent <i>Acacia nyssophylla</i> .	Proposed Site Disturbance	93.28	93.28
VA6	<i>Maireana sedifolia</i> and <i>Maireana pyramidata</i> chenopod shrubland.	Proposed Site Disturbance	29.49	29.49
VA7	<i>Austrostipa</i> sp. Grassland.	Proposed Site Disturbance	64.99	64.99
N/A	*Exotic (non-native) vegetation	Proposed Site Disturbance	0.37	0.37
TOTAL (ha)				1029.75
* this VA is not included in the overall calculations as it is not considered clearance of native vegetation				

Table 5.2 Clearance summary and total Significant Environmental Benefit (SEB) obligations for vegetation associations impacted by the Project.

Block	Site	Plant Diversity score	Threatened community score	Threatened flora score	Threatened fauna score	Area (ha)	LCS	VCS	CSS	UBS	TBS	SEB Payment (\$)	Admin Fee (\$)	SEB Points
A	A1a	16	1	0.04	0.1	749.79	1.17	23.44	1.14	31.26	23439.12	7,559,450.79	415,769.79	24611.07
	A1b	10	1	0	0.1		1.17	8.90	1.10	11.45	8588.31	2,835,802.39	155,969.13	9017.73
	A1c	16	1	0	0.1		1.17	23.19	1.10	29.84	22375.45	7,240,947.61	398,252.12	23494.22
	A1d	12	1	0	0.1		1.17	17.89	1.10	23.02	17261.06	5,869,901.36	322,844.57	18124.11
	A1e	18	1	0	0.1		1.17	36.16	1.10	46.54	34893.03	10,985,561.87	604,205.90	36637.68
	A1 Average	14.4	1	0.0008	0.1		1.17	21.92	1.11	28.42	21311.39	6,898,332.80	379,408.30	22376.96
	A2a	20	1.3	0	0.1	19.33	1.17	47.49	1.40	77.79	1504.14	480,156.07	26,408.58	1579.35
	A2b	8	1.3	0	0.1		1.17	27.73	1.40	45.42	878.26	291,920.80	16,055.64	922.17
	A2c	14	1.3	0	0.1		1.17	38.44	1.40	62.96	1217.32	419,312.44	23,062.18	1278.19
	A2d	14	1.3	0	0.1		1.17	39.17	1.40	64.15	1240.38	391,877.67	21,553.27	1302.40
	A2e	18	1.3	0	0.1		1.17	51.19	1.40	83.85	1621.12	513,942.73	28,266.85	1702.18
	A2 Average	14.8	1.3	0	0.1		1.17	40.80	1.40	66.83	1292.24	419,441.94	23,069.30	1356.86
	A3a	12	1	0.2	0.1	4.63	1.17	12.24	1.30	18.61	86.15	29,767.90	1,637.23	90.45
	A4a	20	1.3	0	0.1	67.87	1.17	47.04	1.40	77.05	5229.24	1,629,139.65	89,602.68	5490.70
	A4b	20	1.3	0	0.1		1.17	48.69	1.40	79.76	5413.36	1,698,380.51	93,410.93	5684.03
	A4 Average	20	1.3	0	0.1		1.17	47.87	1.40	78.41	5321.30	1,629,139.65	91,506.81	5587.37
	A5	18	1	0	0.1	93.28	1.17	23.38	1.10	30.08	2806.32	877,372.48	48,255.49	2946.64
	A6	20	1	0	0.1	29.49	1.17	22.09	1.10	28.43	838.20	269,413.47	14,817.74	880.11
	A7	8	1	0	0.1	64.99	1.17	18.14	1.10	23.35	1517.21	477,672.68	26,272.00	1593.07
GRAND TOTAL						1029.38		186.44		274.13	33172.82	\$10,601,140.93	\$584,966.87	34831.46

Table 5.3 Summary of the total SEB obligations of the clearance.

	Total Biodiversity score	Total SEB points required	SEB Payment	Admin Fee	Total Payment
Application	33172.82	34831.46	\$10,601,140.93	\$584,966.87	\$11,186,107.80
Economies of Scale Factor				0.35	
Rainfall (mm)				291	

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.

6.1. 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.

6.2. 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 **1029.38 ha** of native vegetation with a Total Biodiversity Score of **33172.82** is **\$11,186,107.80** (which includes the administration fee).

A total of **3826.36 SEB points** will be gained through an on-ground SEB offset (**\$1,228,833.80**). Therefore, a total of **\$9,957,274.00** will be made up in way of payment into the Native Vegetation Fund. More information on this is provided in **Section 6.3**.

6.3. On-ground SEB

Details of the on-ground SEB area are summarised in Table 6.1.

Table 6.1 Applicant details for the on-ground SEB area.

Ownership:	. Genaspi has secured land under an option-to-purchase agreement.		
Site Address:	641 Powerline Road, Bright, SA LOT1N Powerline Road, Bunday, SA LOT63 Powerline Road, Bunday, SA LOT34 Powerline Road, Bunday, SA		
Local Government Area:	The Regional Council of Goyder	Hundred:	Bright and Bunday
Title ID:	CT/6274/5 CT/6274/6 CT/6274/9 CT/6274/9 CT/6274/9 CT/6274/9 CT/6274/9 CT/6274/9	Parcel ID	H200300 S1F H200300 S1N H200400 S65 H200400 S188 H200400 S64 H200400 S63 H200400 S34 H200400 S35

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

Eight VAs were identified and mapped across the Project Area (seven native, one exotic) (Table 4.1, page 18). Vegetation is mapped in Figure 4.1 on page 19. Each association is further described Table 4.2 to Table 4.8 on page 20 to 26 inclusive. Chenopod shrubland in varying condition was widespread across the Project Area, comprising approximately 58.7% of native vegetation present (1001.18 ha), followed by mixed mallee (*Eucalyptus socialis*, *E. leptophylla* and *E. oleosa*), which totaled 630.18 ha.

The northern portion of the Project Area (north of Powerline Road) consisted of good quality native vegetation with intermittent occurrences of Declared Weeds. The northern portion of the Project Area contained few exotic species overall. Differing quality of vegetation within the southern portion (south of Powerline Road) was moderate to poor and showed signs of both heavy grazing and historical dry-land cropping. Where *Austrostipa* spp. grassland occurs, it appears that mid-storey vegetation has been lost. A likely consequence of grazing and trampling by livestock.

Vegetation is generally in moderate to good condition, with there being low to high weed cover across locations within the Project Area.

A total of Seven native Vegetation Associations (VAs) were identified in the Project Area, and form part of this clearance report:

- VA1: *Mairena pyramidata* and *Atriplex stipitata* shrubland;
- VA2: Mixed mallee over chenopod shrubs;
- VA3: *Maireana brevifolia* and *Atriplex stipitata* open shrubland;
- VA4: Mixed mallee open woodland over chenopod shrubs and *Grevillea huegelii*;
- VA5: *Zygophyllum ammophilum* and chenopod shrubland with emergent *Acacia nyssophylla*;

- VA6: *Maireana sedifolia* and *Maireana pyramidata* chenopod shrubland; and
- VA7: *Austrostipa* sp. Grassland.

A total of 16 scattered *Eucalyptus leptophylla* (Narrow-leaved Mallee) trees were assessed within the Project Area. All scattered trees were located in the southwestern corner of the Project Area (Figure 4). Photos of the 16 STAM are provided in **Appendix 1**. These trees will not be impacted.

A total of 56 native flora species were recorded by the field survey (**Appendix 2**), two of which are protected under the EPBC Act and NPW Act. This includes 10 introduced plants, or weeds. Two weed species that are Declared under the LSA Act were recorded, *Lycium ferocissimum* (African Boxthorn) (which is also a Weed of National Significance (WoNS)) and *Xanthium spinosum* (Bathurst Burr).

Specific Declared Weed and Weeds of National Significance information on the recommended manual and chemical control options, legal obligations for landholders, restrictions on their movement and sale, reporting requirements, as well as links to state policies is available on the Department of Primary Industries and Regions (PIRSA) website: <https://pir.sa.gov.au/biosecurity/weeds/controlling-weeds>

A total of 32 fauna species (27 birds and five mammals) were recorded during the field survey (**Appendix 3**).

6.5. Information relating to the relevant land

The Project Area is denoted as a combination of dryland agriculture, as well as conservation and natural environments. Portions of the Project Area have historically been used for cropping, evidenced by the crop rows that were observed during the field survey. At present, much of the Project Area is used for livestock (sheep) grazing. There are artificial watering points established across the Project Area, including dams, tanks and troughs.

One heritage agreement (HA 727 – a total of 79.16 ha) occurs in the Project Area as seen in Error! Reference source not found. on **page** Error! Bookmark not defined..

6.6. General location map

The on-ground SEB area is located within the Northern and Yorke Landscape Management bounded by Bunday, Geranium Plains and Bright and within the Regional Council of Goyder (**Figure 6.1**).

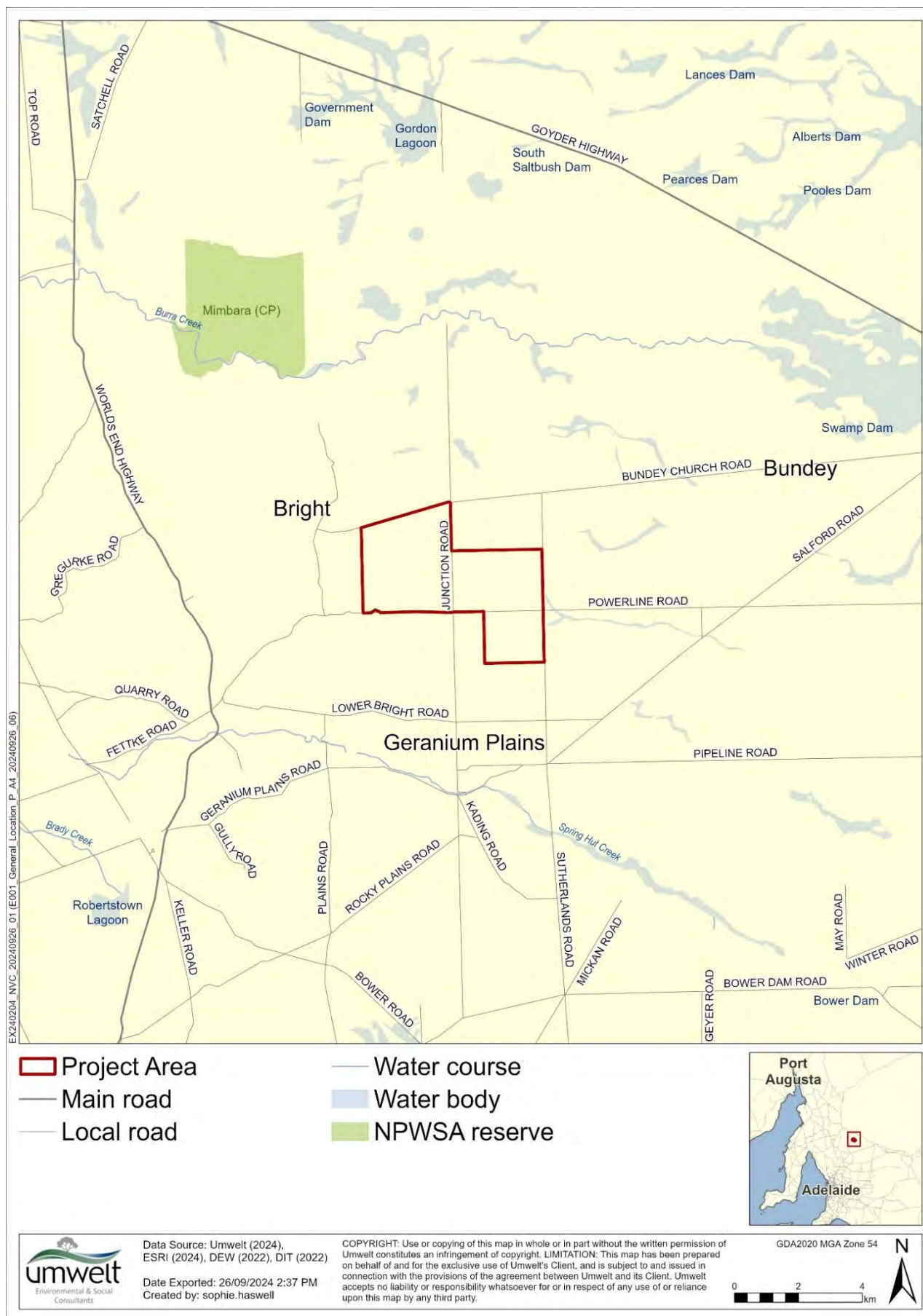


Figure 6.1 General location of Genaspi BESS and Solar Initiative Project (Project Area).

6.7. Description of the vegetation

The area of each VA that forms part of the on-ground SEB area is provided in Table 6.2 with the VAs described in Table 6.3 to Table 6.9 inclusive.

Table 6.2 Overall summary of vegetation associations including proposed on-ground SEB areas.

VA no.	VA	Area (ha)	Area impacted (ha)	On-ground SEB area (ha)
1	<i>Mairena pyramidata</i> and <i>Atriplex stipitata</i> shrubland	849.96	749.79	26.37
2	Mixed mallee woodland over chenopod shrubs	391.22	19.33	242.11
3	<i>Maireana brevifolia</i> and <i>Atriplex stipitata</i> open shrubland	10.23	4.63	5.15
4	Mixed mallee open woodland over chenopod shrubs and <i>Grevillea huegelii</i>	238.96	67.87	166.56
5	<i>Zygophyllum ammophilum</i> and chenopod shrubland with emergent <i>Acacia nyssophylla</i>	98.04	93.28	0.06
6	<i>Maireana sedifolia</i> and <i>Maireana pyramidata</i> chenopod shrubland	34.91	29.49	0.63
7	<i>Austrostipa</i> sp. Grassland	73.78	64.99	7.67
8	Exotic*	0.37	0.37	0.37
TOTAL		1697.49	1029.75	448.56[^]

* this VA is not included in the overall calculations as it is not considered clearance of native vegetation

[^] this figure does not include VA8.

Table 6.3 Summary of VA1: *Maireana pyramidata* and *Atriplex stipitata* shrubland.



Vegetation Association	VA1: Maireana pyramidata and Atriplex stipitata shrubland.				
Benchmark Community	NA 5 Mallee & Woodlands with Open Chenopod & Sclerophyll Shrub Understorey				
BAM Sites	A1a, A1b, A1c, A1d and A1e				
					
BAM Site: A1b, Photo direction: West, Waypoint: -33.925, 139.1863.		BAM Site: A1a (right), Photo direction: South, Waypoint: -33.91570, 139.17594.			
General Description	This VA was dominant across the Project Area and in varying condition, large areas of this vegetation have been impacted by grazing pressure. This chenopod shrubland is dominated by <i>Maireana pyramidata</i> (Black Bluebush) and <i>Atriplex stipitata</i> (Bitter Saltbush) with emergent <i>Eucalyptus oleosa</i> ssp. <i>oleosa</i> (Red Mallee). <i>Carrichtera annua</i> (Wards Weed) was the dominant weed species within this association, however, had a low cover. Two Declared weed species were observed within this association: <i>Xanthium spinosum</i> (Bathurst Burr) and <i>Lycium ferocissimum</i> (African Boxthorn).				
	This association is the most prevalent within the Project Area and occurs within each land parcel in varying condition.				
	Over storey	Mid storey	Under storey		
<i>Eucalyptus oleosa</i> ssp. <i>oleosa</i> (Red Mallee)	<i>Eremophila longifolia</i> (Weeping Emubush)	<i>Maireana pyramidata</i> (Black Bluebush) <i>Atriplex stipitata</i> (Bitter Saltbush) <i>Sclerolaena diacantha</i> (Grey Bindyi) <i>S. obliquicuspis</i> (Oblique-spined Bindyi) <i>Maireana rohrlachii</i> (Rohrlach's Bluebush) <i>M. appressa</i> (Pale-fruit Bluebush) <i>*Carrichtera annua</i> (Wards Weed)			
Threatened Species or Community	This vegetation association does not support or constitute a TEC.				
	One EPBC listed fauna species: <ul style="list-style-type: none">Southern Whiteface (<i>Aphelocephala leucopsis leucopsis</i>) - EPBC Act: Vulnerable.Diamond Firetail (<i>Stagonopleura guttata</i>) – EPBC and NPW Act: Vulnerable. One NPW listed flora species: <i>Maireana rohrlachii</i> (Rohrlach's Bluebush) - NPW Act: Rare.				
Landscape Context Score	1.17	Vegetation Condition Score	21.92	Conservation Significance Score	1.11
Gain Score	6.10	Area (ha)	26.37	SEB Points of Gain	160.91

Table 6.4 Summary of VA2: Mixed mallee over chenopod shrubs.



Vegetation Association	VA2: Mixed mallee over chenopod shrubs.				
Benchmark Community	NA 5 Mallee & Woodlands with Open Chenopod & Sclerophyll Shrub Understorey				
BAM Sites	A2a, A2b, A2c, A2d and A2e				
					
BAM Site: A2a, Photo direction: North, Waypoint: - 33.9218, 139.1811.		BAM Site: A2b (right), Photo direction: South, Waypoint: - 33.92119, 139.17216.			
General Description	Mixed mallee open woodland comprised of <i>Eucalyptus oleosa</i> ssp. <i>oleosa</i> (Red Mallee) <i>E. socialis</i> (Beaked Red Mallee), <i>E. leptophylla</i> (Narrow-leaf Red Mallee) and <i>E. gracilis</i> (Yorrell). The association was second most prevalent across the Project Area. Dominant chenopod shrubs present in the understory were <i>Maireana pentatropis</i> (Erect Mallee Bluebush) and <i>Atriplex stipitata</i> (Bitter Saltbush). <i>Carrichtera annua</i> (Wards Weed) was the dominant weed species within this association, however, had a low cover with only two other weed species were recorded.				
	Over storey	Mid storey	Under storey		
	<i>Eucalyptus oleosa</i> ssp. <i>oleosa</i> (Red Mallee) <i>E. socialis</i> (Beaked Red Mallee) <i>E. leptophylla</i> (Narrow-leaf Red Mallee) <i>E. gracilis</i> (Yorrell)	<i>Eremophila scoparia</i> (Broom Emubush) <i>Santalum acuminatum</i> (Quandong) <i>Exocarpos aphyllus</i> (Leafless Cherry)	<i>Maireana pentatropis</i> (Erect Mallee Bluebush) <i>Atriplex stipitata</i> (Bitter Saltbush) <i>Sclerolaena diacantha</i> (Grey Bindyi) <i>*Carrichtera annua</i> (Wards Weed)		
Threatened Species or Community	<p>This vegetation association meet the requirements of a TEC, being:</p> <ul style="list-style-type: none">Mallee Bird Community of the Murray Darling Depression Bioregion – EPBC listed: Endangered (Category A). <p>One EPBC listed fauna species and two NPW listed fauna species was observed within this vegetation association:</p> <ul style="list-style-type: none">South-eastern Hooded Robin (<i>Melanodryas cucullata cucullata</i>) – EPBC Act: Endangered, NPW Act: Rare.White-winged Chough (<i>Corcorax melanorhamphos</i>) – NPW Act: Rare.Painted Button-quail (<i>Turnix varia</i>) – NPW Act. <p>The vegetation may provide some limited habitat for the following threatened fauna species that wasn't recorded in the VA during the field survey:</p> <ul style="list-style-type: none">Southern Whiteface (<i>Aphelocephala leucopsis leucopsis</i>) – EPBC Act: Vulnerable.Little Eagle (<i>Hieraaetus morphnoides</i>) – NPW Act: Vulnerable.Diamond Firetail (<i>Stagonopleura guttata</i>) – EPBC and NPW Act: Vulnerable.				
Landscape Context Score	1.17	Vegetation Condition Score	40.80	Conservation Significance Score	1.40
Gain Score	8.84	Area (ha)	242.11	SEB Points of Gain	2139.66

Table 6.5 Summary of VA3: *Maireana brevifolia* and *Atriplex stipitata* open shrubland.


Vegetation Association	VA3: <i>Maireana brevifolia</i> and <i>Atriplex stipitata</i> open shrubland.				
Benchmark Community	NA 5 Mallee & Woodlands with Open Chenopod & Sclerophyll Shrub Understorey				
BAM Sites	A3a				
					
	BAM Site: A3a, Photo direction: South Waypoint: -33.926993, 139.157149.				
General Description	Chenopod shrubland dominated by <i>Maireana brevifolia</i> (Small-leaf Bluebush) and <i>Atriplex stipitata</i> (Bitter Saltbush).				
	Weed diversity was high in this association, with most weeds were observed within or adjacent to the drainage line which had a high overall cover of <i>Asphodelus fistulosus</i> (Onion Weed). One Declared weed species was observed: <i>Lycium ferocissimum</i> (African Boxthorn).				
	Numerous Southern Hairy-nosed Wombat (<i>Lasiorninus latifrons</i>) warrens were observed in association with the drainage line in this association.				
	Over storey	Mid storey	Under storey		
	N/A	<i>Acacia spilleriana</i> (Spiller's Wattle) * <i>Agave americana</i> (Century Plant) * <i>Nicotiana glauca</i> (Tree Tobacco)	<i>Atriplex stipitata</i> (Bitter Saltbush) <i>Sclerolaena diacantha</i> (Grey Bindyi) <i>Austrostipa</i> sp. (Spear-grass) * <i>Asphodelus fistulosus</i> (Onion Weed)		
Threatened Species or Community	This vegetation association does not support or constitute a TEC.				
	One EPBC listed flora species was observed within this VA: <ul style="list-style-type: none"><i>Acacia spilleriana</i> (Spiller's Wattle) – EPBC and NPW Act: Endangered				
	The vegetation may provide some limited habitat for the following threatened fauna species that wasn't recorded in the VA during the field survey: Southern Whiteface (<i>Aphelocephala leucopsis leucopsis</i>) – EPBC Act: Vulnerable (PMST Known).				
Landscape Context Score	1.17	Vegetation Condition Score	12.24	Conservation Significance Score	1.30
Gain Score	5.15	Area (ha)	5.15	SEB Points of Gain	29.78

Table 6.6 Mixed mallee open woodland over chenopod shrubs and *Grevillea huegelii*


Vegetation Association	VA4: Mixed mallee open woodland over chenopod shrubs and <i>Grevillea huegelii</i> .				
Benchmark Community	NA 5 Mallee & Woodlands with Open Chenopod & Sclerophyll Shrub Understorey				
BAM Sites	A4a, A4b				
					
	BAM Site: A4a, Photo direction: West, Waypoint: -33.917031, 139.210782.				
General Description	Mixed mallee open woodland comprised of <i>Eucalyptus oleosa</i> ssp. <i>oleosa</i> (Red Mallee), <i>E. socialis</i> (Beaked Red Mallee), <i>E. leptophylla</i> (Narrow-leaf Red Mallee) and <i>E. gracilis</i> (Yorrell) with a mid-storey dominated by <i>Grevillea huegelii</i> (Comb Grevillea). Species composition is similar to VA2, but density of mallee is much lower in this association when compared to VA2. <i>Carrichtera annua</i> (Wards Weed) was the dominant weed species within this association.				
	Over storey	Mid storey	Under storey		
	<i>Eucalyptus oleosa</i> ssp. <i>oleosa</i> (Red Mallee) <i>E. socialis</i> (Beaked Red Mallee) <i>E. leptophylla</i> (Narrow-leaf Red Mallee) <i>E. gracilis</i> (Yorrell)	<i>Eremophila scoparia</i> (Broom Emubush) <i>Myoporum platycarpum</i> (False Sandalwood) <i>Grevillea huegelii</i> (Comb grevillea)	<i>Maireana pentatropis</i> (Erect Mallee Bluebush) <i>Atriplex stipitata</i> (Bitter Saltbush) <i>Sclerolaena diacantha</i> (Grey Bindyi) <i>*Carrichtera annua</i> (Wards Weed)		
Threatened Species or Community	<p>This vegetation association meet the requirements of a TEC, being:</p> <ul style="list-style-type: none">Mallee Bird Community of the Murray Darling Depression Bioregion – EPBC listed: Endangered (Category A). <p>One EPBC listed fauna species and one NPW listed fauna species was observed within this VA:</p> <ul style="list-style-type: none">South-eastern Hooded Robin (<i>Melanodryas cucullata cucullata</i>) – EPBC Act: Endangered, NPW Act: Rare.White-winged Chough (<i>Corcorax melanorhamphos</i>) – NPW Act: Rare. <p>The vegetation may provide some limited habitat for the following threatened fauna species which were not recorded in the VA:</p> <ul style="list-style-type: none">Southern Whiteface (<i>Aphelocephala leucopsis leucopsis</i>) – EPBC Act: Vulnerable.Little Eagle (<i>Hieraaetus morphnoides</i>) – NPW Act: Vulnerable.Diamond Firetail (<i>Stagonopleura guttata</i>) – EPBC and NPW Act: Vulnerable.				
Landscape Context Score	1.17	Vegetation Condition Score	47.87	Conservation Significance Score	1.40
Gain Score	8.69	Area (ha)	166.56	SEB Points of Gain	1446.60

Table 6.7 **Summary of VA5: *Zygophyllum ammophilum* and chenopod shrubland with emergent *Acacia nyssophylla***


Vegetation Association	VA5: <i>Zygophyllum ammophilum</i> and chenopod shrubland with emergent <i>Acacia nyssophylla</i>				
Benchmark Community	NA 5 Mallee & Woodlands with Open Chenopod & Sclerophyll Shrub Understorey				
BAM Sites	A5				
					
BAM Site: A5a, Photo direction: West, Waypoint: -33.921846, 139.210154.					
General Description	Chenopod shrubland dominated by <i>Zygophyllum ammophilum</i> (Twinleaf) with emergent <i>Eucalyptus oleosa</i> ssp. <i>oleosa</i> (Red Mallee) and <i>Acacia nyssophylla</i> (Spine Bush).				
	<i>Carrichtera annua</i> (Wards Weed) was the dominant weed species within this association, had low cover.				
	Over storey	Mid storey	Under storey		
	<i>Eucalyptus oleosa</i> ssp. (Red Mallee)	<i>Acacia nyssophylla</i> (Spine Bush)	<i>Zygophyllum ammophilum</i> (Twinleaf) <i>Atriplex stipitata</i> (Bitter Saltbush) <i>Maireana sedifolia</i> (Bluebush) <i>Sclerolaena diacantha</i> (Grey Bindyi) <i>S. obliquicuspis</i> (Oblique-spined Bindyi) <i>*Carrichtera annua</i> (Wards Weed)		
Threatened Species or Community	This vegetation association does not support or constitute a TEC. No EPBC or NPW Act listed flora or fauna species was observed within this VA during the field survey. The vegetation may provide some limited habitat for the following threatened fauna species that wasn't recorded in the VA during the field survey: <ul style="list-style-type: none">Southern Whiteface (<i>Aphelocephala leucopsis leucopsis</i>) – EPBC Act: Vulnerable.Little Eagle (<i>Hieraaetus morphnoides</i>) – NPW Act: Vulnerable.Diamond Firetail (<i>Stagonopleura guttata</i>) – EPBC and NPW Act: Vulnerable.				
Landscape Context Score	1.17	Vegetation Condition Score	23.38	Conservation Significance Score	1.10
Gain Score	6.51	Area (ha)	0.06	SEB Points of Gain	0.42

Table 6.8 Summary of VA6: *Maireana sedifolia* and *Maireana pyramidata* chenopod shrubland



Vegetation Association	VA6: <i>Maireana sedifolia</i> and <i>Maireana pyramidata</i> chenopod shrubland.				
Benchmark Community	NA 5 Mallee & Woodlands with Open Chenopod & Sclerophyll Shrub Understorey				
BAM Sites	A6				
					
BAM Site: A6a, Photo direction: South, Waypoint: -33.920652, 139.186810					
General Description	Dominance from chenopods shrubs especially those in the <i>Maireana</i> genus, like <i>Maireana pyramidata</i> (Black Bluebush) and <i>Maireana sedifolia</i> (Bluebush). This VA varies from other chenopod shrublands as <i>Maireana sedifolia</i> was much more prevalent in the area.				
	This area has also been impacted from weeds like <i>Carrichtera annua</i> (Wards Weed), with the declared weed <i>Lycium ferocissimum</i> (African Boxthorn) being present.				
	Over storey	Mid storey	Under storey		
	<i>Eucalyptus oleosa</i> ssp. (Red Mallee)	<i>Eremophila scoparia</i> (Broom Emubush)	<i>Maireana pyramidata</i> (Black Bluebush) <i>Maireana sedifolia</i> (Bluebush) * <i>Lycium ferocissimum</i> (African Boxthorn) * <i>Carrichtera annua</i> (Wards Weed)		
Threatened Species or Community	This vegetation association does not support or constitute a TEC. No EPBC or NPW Act listed flora or fauna species was observed within this VA during the field survey. The vegetation may provide some limited habitat for the following threatened fauna species that wasn't recorded in the VA during the field survey: <ul style="list-style-type: none">Southern Whiteface (<i>Aphelocephala leucopsis leucopsis</i>) – EPBC Act: Vulnerable.Little Eagle (<i>Hieraaetus morphnoides</i>) – NPW Act: Vulnerable.Diamond Firetail (<i>Stagonopleura guttata</i>) – EPBC and NPW Act: Vulnerable.				
Landscape Context Score	1.17	Vegetation Condition Score	22.09	Conservation Significance Score	1.10
Gain Score	6.37	Area (ha)	0.63	SEB Points of Gain	4.01

Table 6.9 Summary of VA7: *Austrostipa* sp. Grassland

Vegetation Association	VA7: <i>Austrostipa</i> sp. Grassland.				
Benchmark Community	NA 5 Mallee & Woodlands with Open Chenopod & Sclerophyll Shrub Understorey				
BAM Sites	A7				
					
	BAM Site: A7a, Photo direction: West, Waypoint -33.929176, 139.204100				
General Description	Grassland dominated by <i>Austrostipa</i> spp. with emergent chenopod shrubs. The association is the least diverse within the Project Area and is the most disturbed. It appears that the association is degraded as a result of heavy livestock grazing and historical cropping.				
	The association has a low condition score consequent to the low native species diversity and moderate weed cover. The weed <i>Medicago polymorpha</i> (Burr-medical) is widespread in the association.				
	Over storey	Mid storey	Under storey		
N/A	<i>Atriplex stipitata</i> (Bitter Saltbush)	<i>Austrostipa</i> sp. (Spear-grass) <i>Sclerolaena obliquicuspis</i> (Oblique-spined Bindyi) <i>Medicago polymorpha</i> (Burr-medical) <i>Eriochiton sclerolaenoides</i> (Woolly-fruit Bluebush) <i>*Medicago polymorpha</i> (Burr-medical)			
Threatened Species or Community	This vegetation association does not support or constitute a TEC. No EPBC or NPW Act listed flora or fauna species was observed within this VA during the field survey. The vegetation may provide some limited habitat for the following threatened fauna species that wasn't recorded in the VA during the field survey: <ul style="list-style-type: none">Southern Whiteface (<i>Aphelocephala leucopsis leucopsis</i>) – EPBC Act: Vulnerable.Little Eagle (<i>Hieraaetus morphnoides</i>) – NPW Act: Vulnerable.Diamond Firetail (<i>Stagonopleura guttata</i>) – EPBC and NPW Act: Vulnerable.				
Landscape Context Score	1.17	Vegetation Condition Score	18.14	Conservation Significance Score	1.10
Gain Score	5.86	Area (ha)	7.67	SEB Points of Gain	44.98

6.8. Site map showing areas of proposed SEB

Maps of the proposed on-ground SEB areas in the Project Area are provided in Figure 6.2 and Figure 6.3

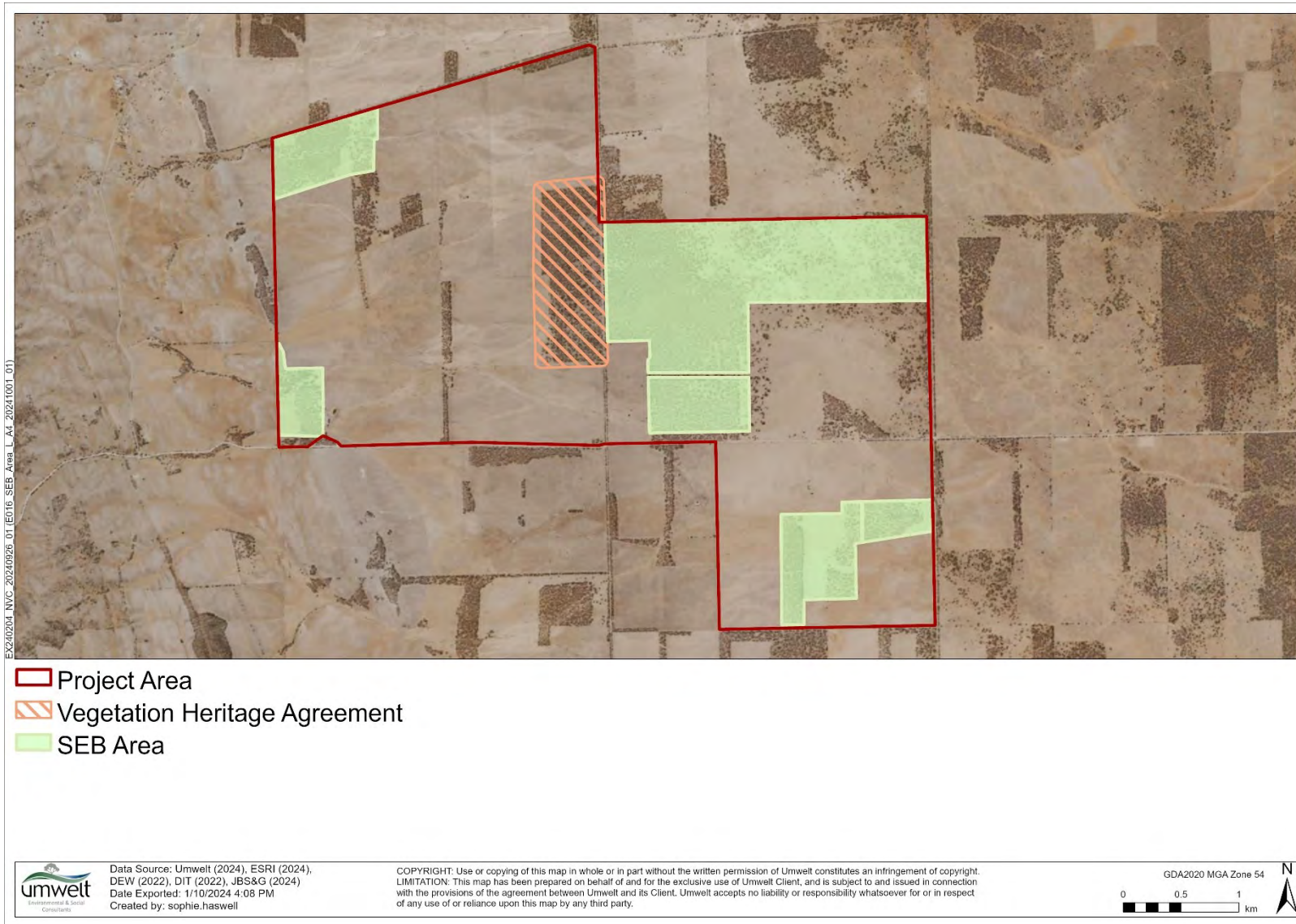


Figure 6.2 The proposed on-ground SEB offset areas and existing heritage agreement in the Project Area.

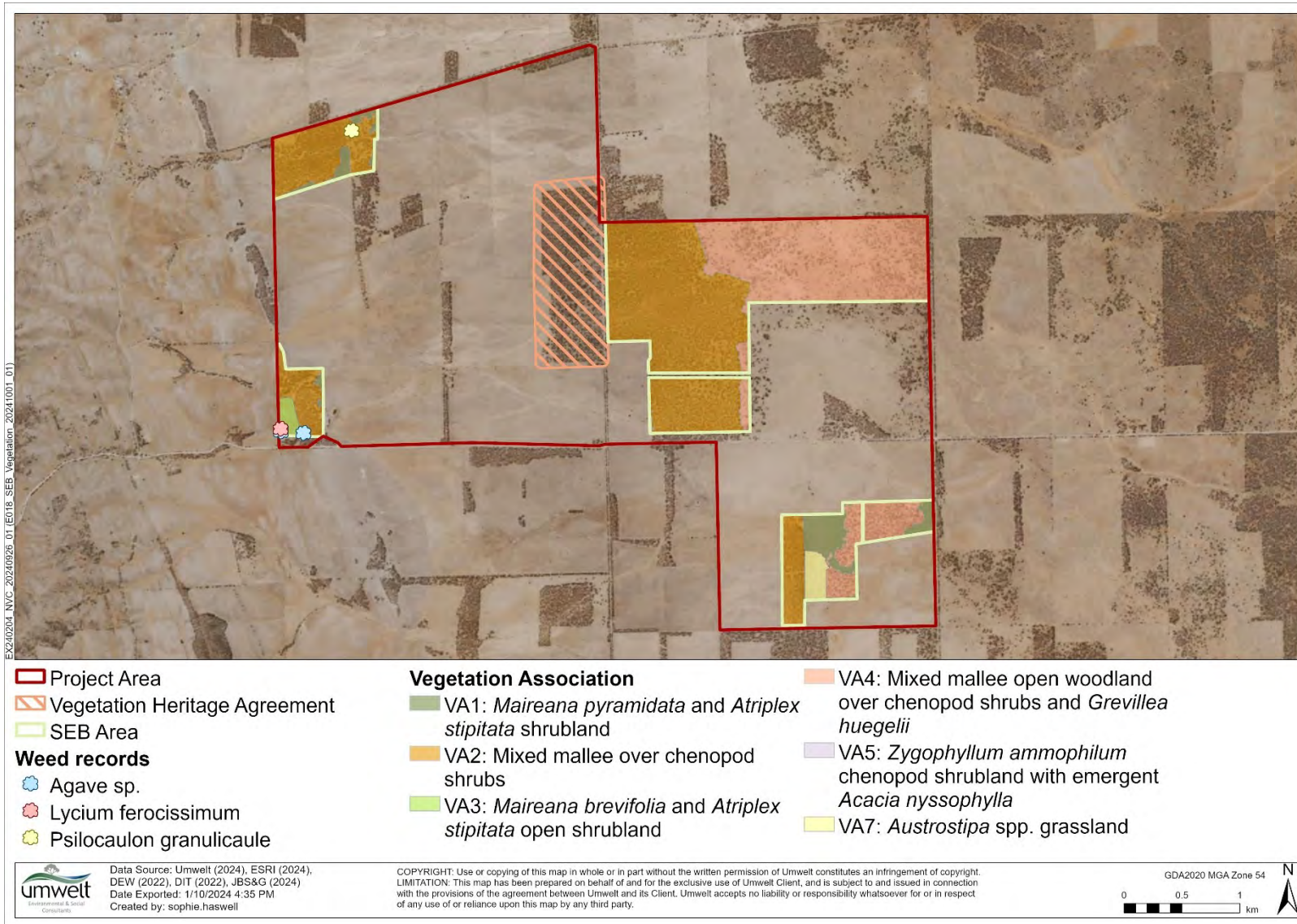


Figure 6.3 The vegetation mapping and weed records in the proposed on-ground SEB offset areas in the Project Area.

6.9. Fauna and Flora 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 TECs occurring in the Project Area. The flora and fauna assessment associated with the clearance area, detailed in **Section 4.2** is directly relevant to the proposed SEB Area. Methodology including the criteria used to assess the likelihood of occurrence of species is described in **Section 3**.

In particular matters of significance relevant to the SEB area include:

- Mallee Bird Community (MBC) of the Murray Darling Depression Bioregion (EPBC Act: Endangered) (VA2 and VA4).
- Two threatened flora species were recorded during the field survey:
 - *Acacia spilleriana* (Spiller's Wattle): EPBC and NPW Act listed – Endangered (Photos in **Appendix 4**)
 - *Maireana rohrlachii* (Rohrlach's Bluebush): NPW Act listed – Rare.
- One additional threatened flora species: *Phebalium glandulosum* ssp. *Macrocalyx* (Glandular Phebalium) was assessed as possible to occur.
- Four threatened fauna species were recorded during the field survey:
 - Painted Buttonquail (*Turnix varius varius*): NPW Act: Rare;
 - South-eastern Hooded Robin (*Melanodryas cucullata cucullata*): EPBC Act Endangered, NPW Act Rare;
 - Southern Whiteface (*Aphelocephala leucopsis leucopsis*): EPBC Act Vulnerable; and
 - White-winged Chough (*Corcorax melanorhamphos*): NPW Act Rare.
- One additional threatened fauna species: Little Eagle (*Hieraaetus morphnoides*) was assessed as likely to occur.
- Three additional threatened fauna species were assessed as possible to occur:
 - Blue-winged Parrot (*Neophema chrysostoma*): EPBC and NPW Act listed – Vulnerable
 - Diamond Firetail (*Stagonopleura guttata*): EPBC and NPW Act listed – Vulnerable
 - Regent Parrot (Eastern) (*Polytelis anthopeplus monarchoides*): EPBC and NPW Act listed – Vulnerable.

The location of the MBC, threatened flora and threatened fauna that were found during the survey located inside the proposed on-ground SEB areas are indicated on the map in **Figure 6.4**.

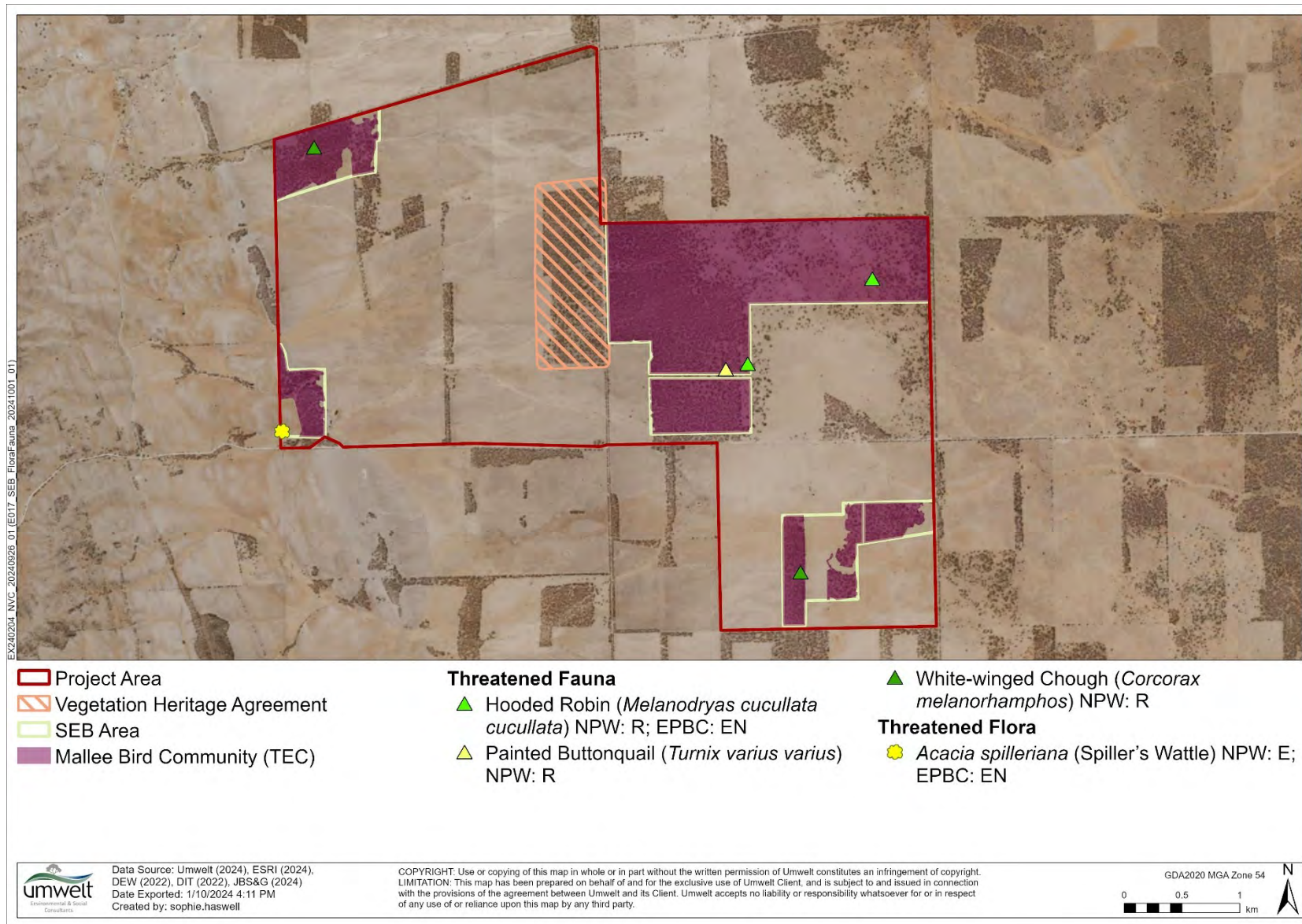


Figure 6.4 The locations of threatened flora and fauna species recorded during the field assessment in the proposed on-ground SEB offset areas.

6.10. Environment Benefits

Key outcomes from the Project include the continued improvement of grassland, shrubland and woodland including:

One area identified as a nationally threatened ecological community, through implementation of key management actions listed below:

- Exclude stock from grazing: livestock are currently being grazed within the Project Area. Fencing of the Project Area will ensure permanent stock exclusion from the Project Area, in particular the SEB Area.
- Fencing: will be maintained in a stock proof condition and monitored for stock access. If stock are found to be able to access the area at any time, the fence will need to be constructed or upgraded. A rural fence around the perimeter of the Project Area, with a chain mesh security fence around the substation and BESS is currently proposed.
- Weed management: a total of 11 weed species were identified during the field survey including three species listed as Declared under the LSA Act. A SEB management plan will detail management actions required to reduce weed spread and abundance across the site.
- Revegetation: of upperstorey in areas which have been historically cleared, including *Eucalyptus oleosa* ssp. *oleosa* and other *Eucalyptus* sp. with the intention of increasing the coverage of this TEC across the site.

Additional recommended actions include:

- Ongoing monitoring to assess the condition of protected vegetation within the SEB Area which can be used to inform the success (or otherwise) of the SEB Management Plan. Results of this monitoring can be used as part of an adaptive management plan regarding grazing, weed encroachment and / or necessity to implement control actions for native herbivores if required.

Other essential commitments which will be complied with at all times include:

- No unnecessary vehicle access (beyond that which is required to manage the biodiversity value of the SEB Area), using formed tracks where possible.
- No soil disturbance (beyond that which is necessary for agreed management actions)
- No dumping of rubbish, unwanted machinery or plant material.
- No new dams or drainage alterations.
- No rock or dead-wood removal.

Environmental benefits associated with improvement of grassland, shrubland and woodland improvement includes:

- Protection and enhancement of habitat for several national and State threatened fauna species considered known or likely to occur in the proposed SEB Area including:
 - Little Eagle (*Hieraaetus morphnoides*): NPW Act: Vulnerable;
 - Painted Buttonquail (*Turnix varius varius*): NPW Act: Rare;
 - South-eastern Hooded Robin (*Melanodryas cucullata cucullata*): EPBC Act Endangered, NPW Act Rare;
 - Southern Whiteface (*Aphelocephala leucopsis leucopsis*): EPBC Act Vulnerable; and
 - White-winged Chough (*Corcorax melanorhamphos*): NPW Act Rare.

- Anticipated improvements to habitat include:
 - Regeneration of native species which had previously been grazed
 - Seedling recruitment of emergent Mallee eucalypts, including *E. oleosa* ssp. *oleosa*
 - Increased cover and abundance of shrub and grass understorey species
 - Increased diversity of herbaceous understorey species
 - Reduction in cover of weed species across the site.

6.11. Summary table

Based on the quality and condition of each vegetation association and the area available to be utilised as an SEB Area, a total of 3826.36 SEB points are provided by the proposed on-ground SEB Area. This results in a total of \$1,228,833.80 via the on-ground SEB offset area. The balance of points should be made up in way of payment into the Native Vegetation Fund of \$9,957,274.00 (includes administration fee).

A summary table of the proposed on-ground SEB area is provided in **Table 6.10**.

A summary table of how impacts to 1029.38 ha of vegetation in the Project Area are proposed to be offset (which includes both payment to the Native Vegetation Fund and via an on-ground SEB offset are provided in **Table 6.11**.

Table 6.10 On-ground SEB area summary table

Block	Site	Vegetation Association	UBS	Gain Score	Area (ha)	SEB Points of Gain
A	A1a	<i>Maireana pyramidata</i> and <i>Atriplex stipitata</i> shrubland	31.26	6.75	26.37	177.94
	A1b		11.45	4.23		111.50
	A1c		29.84	6.49		171.01
	A1d		23.02	5.82		153.58
	A1e		46.54	7.23		190.54
	A1 Average		28.42	6.10		160.91
	A2a	Mixed mallee woodland over chenopod shrubs	77.79	8.72	242.11	2112.21
	A2b		45.42	8.77		2122.18
	A2c		62.96	9.20		2227.33
	A2d		64.15	9.19		2224.99
	A2e		83.85	8.31		2011.57
	A2 Average	Mixed mallee woodland over chenopod shrubs	66.83	8.84		2139.66
	A3a	<i>Maireana brevifolia</i> and <i>Atriplex stipitata</i> open shrubland	18.61	5.15	5.15	29.78
	A4a	Mixed mallee open woodland over chenopod shrubs and <i>Grevillea huegelii</i>	77.05	8.77	166.56	1460.21
	A4b		79.76	8.60		1432.99
	A4 Average		78.41	8.69		1446.60
	A5	<i>Zygophyllum ammophilum</i> and chenopod shrubland with emergent <i>Acacia nyssophylla</i>	30.08	6.51	0.06	0.42
	A6	<i>Maireana sedifolia</i> and <i>Maireana pyramidata</i> chenopod shrubland	28.43	6.37	0.63	4.01
	A7	<i>Austrostipa</i> sp. Grassland	23.35	5.86	7.67	44.98
Total					448.56	3826.36

Table 6.11 A summary of the proposed offset via an on-ground **SEB** offset and payment into the Native Vegetation Fund.

Total Biodiversity score	Total SEB points required	Total Payment required (including admin fee)	Total SEB Points of Gain	Total SEB Points of Gain financially	Remaining payment into the Native Vegetation Fund
33172.82	34831.46	\$11,186,107.80	3826.36	\$1,228,833.80	\$9,957,274.00

6.12. SEB Management Plan

The Management Plan for the proposed SEB area is intended to be developed. A framework document is provided in its place.

A Native Vegetation Management Plan is required as part of the Conditions of Consent for clearance. The Management Plan should be provided at the time of submitting the application to clear vegetation, however it can be lodged during the assessment process if required, but must be received before a decision can be made by the Native Vegetation Council in relation to the associated clearance. The Management Plan template is found under [Tools for Accredited Consultants](#).

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8. APPENDICES

Appendix 1 – Photos of the scattered trees recorded during the field survey.



Tree 1 - Photo facing Southwest
Waypoint: -33.940926, 139.196686



Tree 2 - Photo facing Southeast
Waypoint: -33.939506, 139.196634



Tree 3 - Photo facing West
Waypoint: -33.93906, 139.196673



Tree 4 - Photo facing Southwest
Waypoint: -33.942965, 139.201074



Tree 5 - Photo facing Southwest
Waypoint: -33.942961, 139.200237



Tree 6 - Photo facing Southwest
Waypoint: -33.942979, 139.199916



Tree 7 - Photo facing Southwest
Waypoint: -33.942947, 139.199937



Tree 8 - Photo facing Southwest
Waypoint: -33.943004, 139.19868



Tree 9 - Photo facing Southeast
Waypoint: -33.943009, 139.198546



Tree 10 - Photo facing Southwest
Waypoint: -33.94302, 139.19837



Tree 11 - Photo facing West
Waypoint: -33.942974, 139.197193



Tree 12 - Photo facing Northwest
Waypoint: -33.942982, 139.196994



Tree 13 - Photo facing West
Waypoint: -33.942535, 139.196694



Tree 14 - Photo facing Northwest
Waypoint: -33.942398, 139.196682



Tree 15 - Photo facing West
Waypoint: -33.942166, 139.196684



Tree 16 - Photo facing Southwest
Waypoint: -33.941347, 139.196698

Appendix 2 – Flora species recorded by the field survey presented per Vegetation Association (VA1 to VA7)

Scientific Name	Common name	Introduced	Conservation Status		VA1	VA2	VA3	VA4	VA5	VA6	VA7
			EPBC Act	NPW Act							
<i>Acacia nyssophylla</i>	Spine Bush				Y			Y	Y		
<i>Acacia oswaldii</i>	Umbrella Wattle				Y						
<i>Acacia spilleriana</i>	Spiller's Wattle		EN	E			Y				
<i>Agave americana</i>	Century Plant	*					Y				
<i>Asphodelus fistulosus</i>	Onion Weed	*			Y		Y				
<i>Atriplex stipitata</i>	Bitter Saltbush				Y	Y	Y	Y	Y	Y	Y
<i>Austrostipa nodosa</i>	Tall Spear-grass				Y				Y		
<i>Austrostipa sp.</i>	Spear-grass				Y		Y	Y	Y	Y	Y
<i>Carrichtera annua</i>	Ward's Weed	*			Y	Y		Y	Y	Y	
<i>Centaurea calcitrapa</i>	Star Thistle	*			Y						
<i>Cratystylis conocephala</i>	Bluebush Daisy					Y					
<i>Dissocarpus paradoxus</i>	Ball Bindyi				Y	Y		Y		Y	
<i>Enchylaena tomentosa var.</i>	Ruby Saltbush				Y	Y	Y	Y	Y	Y	Y
<i>Eremophila longifolia</i>	Weeping Emubush				Y						
<i>Eremophila scoparia</i>	Broom Emubush				Y	Y		Y		Y	

Scientific Name	Common name	Introduced	Conservation Status		VA1	VA2	VA3	VA4	VA5	VA6	VA7
			EPBC Act	NPW Act							
<i>Eriochiton sclerolaenoides</i>	Woolly-fruit Bluebush				Y	Y		Y	Y	Y	Y
<i>Eucalyptus gracilis</i>	Yorrell					Y		Y			
<i>Eucalyptus leptophylla</i>	Narrow-leaf Red Mallee				Y	Y		Y			
<i>Eucalyptus oleosa</i> ssp.						Y		Y	Y	Y	
<i>Eucalyptus oleosa</i> ssp. <i>oleosa</i>	Red Mallee				Y	Y					
<i>Eucalyptus socialis</i> ssp.	Beaked Red Mallee					Y		Y			
<i>Euphorbia drummondii</i> group					Y	Y					Y
<i>Exocarpos aphyllus</i>	Leafless Cherry					Y					
<i>Geijera linearifolia</i>	Sheep Bush							Y			
<i>Grevillea huegelii</i>	Comb Grevillea				Y			Y		Y	
<i>Heliotropium europaeum</i>	Common Heliotrope	*			Y	Y	Y			Y	
<i>Lycium ferocissimum</i>	African Boxthorn	*			Y		Y			Y	
<i>Lysiana exocarpi</i> ssp. <i>exocarpi</i>	Harlequin Mistletoe				Y						
<i>Maireana aphylla</i>	Cotton-bush				Y	Y		Y			
<i>Maireana appressa</i>	Pale-fruit Bluebush				Y	Y	Y	Y		Y	
<i>Maireana brevifolia</i>	Short-leaf Bluebush				Y	Y	Y	Y	Y	Y	

Scientific Name	Common name	Introduced	Conservation Status		VA1	VA2	VA3	VA4	VA5	VA6	VA7
			EPBC Act	NPW Act							
<i>Maireana pentatropis</i>	Erect Mallee Bluebush					Y		Y		Y	
<i>Maireana pyramidata</i>	Black Bluebush				Y	Y		Y	Y	Y	
<i>Maireana rohrlachii</i>	Rohrlach's Bluebush			R	Y						
<i>Maireana sedifolia</i>	Bluebush				Y	Y		Y	Y	Y	
<i>Maireana sp.</i>	Bluebush/Fissure-plant								Y		
<i>Marrubium vulgare</i>	Horehound	*			Y						
<i>Medicago polymorpha</i>	Burr-medic	*			Y			Y	Y	Y	Y
<i>Medicago sp.</i>	Medic	*			Y	Y					
<i>Myoporum platycarpum ssp.</i>	False Sandalwood				Y			Y			
<i>Nicotiana glauca</i>	Tree Tobacco	*			Y		Y				
<i>Nitraria billardierei</i>	Nitre-bush				Y	Y		Y		Y	
<i>Olearia pimeleoides</i>	Pimelea Daisy-bush				Y						
<i>Rhagodia parabolica</i>	Mealy Saltbush					Y			Y		
<i>Rhagodia sp.</i>	Saltbush									Y	
<i>Rhagodia spinescens</i>	Spiny Saltbush				Y	Y		Y		Y	
<i>Roepera aurantiaca ssp.</i>	Shrubby Twinleaf				Y	Y					

Scientific Name	Common name	Introduced	Conservation Status		VA1	VA2	VA3	VA4	VA5	VA6	VA7
			EPBC Act	NPW Act							
<i>Rytidosperma</i> sp.	Wallaby-grass								Y		
<i>Salsola australis</i>	Buckbush					Y	Y	Y			
<i>Santalum acuminatum</i>	Quandong					Y					
<i>Sclerolaena diacantha</i>	Grey Bindyi				Y	Y	Y	Y	Y		
<i>Sclerolaena obliquicuspis</i>	Oblique-spined Bindyi				Y		Y	Y	Y	Y	Y
<i>Vittadinia</i> sp.	New Holland Daisy				Y						
<i>Xanthium spinosum</i>	Bathurst Burr	*			Y						
<i>Zygophyllum ammophilum</i> complex						Y		Y			
<i>Zygophyllum aurantiacum/eremauem</i>	Shrubby Twinleaf							Y	Y	Y	

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 3 – Fauna species recorded by the field survey

Scientific Name	Common Name	Introduced	Conservation Status	
			EPBC Act	NPW Act
AVES				
<i>Anthochaera carunculata</i>	Red Wattlebird			
<i>Aphelocephala leucopsis leucopsis</i>	Southern Whiteface		VU	
<i>Aquila audax audax</i>	Wedge-tailed Eagle			
<i>Barnardius zonarius</i>	Mallee Ringneck			
<i>Climacteris picumnus picumnus</i>	Brown Treecreeper			
<i>Colluricincla harmonica</i>	Grey Shrikethrush			
<i>Coracina novaehollandiae</i>	Black-faced Cuckooshrike			
<i>Corcorax melanorhamphos</i>	White-winged Chough			R
<i>Corvus coronoides</i>	Australian Raven			
<i>Cracticus torquatus</i>	Pied Butcherbird			
<i>Dromaius novaehollandiae novaehollandiae</i>	Emu			
<i>Eolophus roseicapilla</i>	Galah			
<i>Gymnorhina tibicen</i>	Australian Magpie			
<i>Malurus cyaneus</i>	Superb Fairywren			
<i>Malurus leucopterus leuconotus</i>	White-winged Fairywren			
<i>Manorina flavigula flavigula</i>	Yellow-throated Miner			
<i>Melanodryas cucullata cucullata</i>	Hooded Robin		EN	R
<i>Ocyphaps lophotes lophotes</i>	Crested Pigeon			
<i>Pardalotus striatus striatus</i>	Striated Pardalote			
<i>Platycercus elegans</i>	Crimson Rosella			
<i>Ptilotula ornata</i>	Yellow-plumed Honeyeater			
<i>Rhipidura albiscapa</i>	Grey Fantail			
<i>Rhipidura leucophrys leucophrys</i>	Willie Wagtail			
<i>Smicrornis brevirostris</i>	Weebill			
<i>Strepera versicolor</i>	Grey Currawong			
<i>Taeniopygia castanotis</i>	Zebra Finch			
<i>Turnix varius varius</i>	Painted Buttonquail			R
MAMMALIA				
<i>Lasiorninus latifrons</i>	Southern Hairy-nosed Wombat			
<i>Macropus fuliginosus</i>	Grey Kangaroo			
<i>Macropus rufus</i>	Red Kangaroo			
<i>Ovis aries</i>	Sheep	*		
<i>Vulpes vulpes</i>	European Fox	*		

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

Appendix 4 – Photos of the *Acacia spilleriana* recorded within the Project Area



-33.926890 South, 139.156028 East

Appendix 5 – Likelihood of Occurrence Assessment

Scientific name	Common name	Conservation status		Source of information	PMST Result, Last sighting (year)	Habitat Preferences	Likelihood of occurrence within project area
		Aus	SA				
Threatened Ecological Communities							
Peppermint Box (<i>Eucalyptus odorata</i>) Grassy Woodland of South Australia		CE		1	May	N/A	Not Present in Project Area.
Iron-grass Natural Temperate Grassland of South Australia		CE		1	Likely	N/A	Not Present in Project Area.
Mallee Bird Community of the Murray Darling Depression Bioregion		EN		1	Likely	N/A	Present in Project Area.
Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions		EN		1	May	N/A	Not Present in Project Area.
Flora							
<i>Acacia glandulicarpa</i>	Hairy-pod Wattle	VU	E	1	May	The Hairy-pod Wattle occurs in a range of woodland, shrubland and open mallee vegetation communities, on sandy clay to clay-loam soils, with some stands on ironstone gravel, rarely on heavy clays. Many subpopulations coincide with gentle slopes at the transition zone between heavy clay/gravel soils on the flats and sandy soils on the rises (DAWE 2021b).	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>Acacia menzelii</i>	Menzel's Wattle	VU	V	1	May	Menzel's Wattle grows on gentle slopes and undulating plains in calcareous loamy earths, where the average annual rainfall is 350–400 mm. It occurs as scattered shrubs in low open shrubby woodland on more rocky sites which have only been partly cleared or along roadsides (DEWHA 2008d).	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>Acacia spilleriana</i>	Spiller's Wattle	EN	E	1, 3	Likely, 2024	Spiller's Wattle is endemic to South Australia and is currently only known from the northern Mount Lofty Ranges and the ranges around Burra and Auburn. The species grows on rocky hills, commonly along watercourses and roadsides (DEWHA 2009).	Known – Species was recorded during field assessment.

Scientific name	Common name	Conservation status		Source of information	PMST Result, Last sighting (year)	Habitat Preferences	Likelihood of occurrence within project area
		Aus	SA				
<i>Caladenia tensa</i>	Greencomb Spider-orchid	EN	E	1	Likely	The Greencomb Spider-orchid occurs in aeolian sand deposits in Native Pine, Blue Gum Woodland and Broombush mallee in Murray-Darling Depression bioregion. Winter active geophyte, with long narrow leaf emerging, followed by 1-2 flowers (TSSC 2016a).	Unlikely - There are no historical records in the Search Area and preferred habitat is not present in Project Area. However, it is inadequate flowering time for this species.
<i>Codonocarpus pyramidalis</i>	Slender Bell-fruit	VU	E	1	Likely	Slender Bell-fruit grows on the crests and slopes of low ridges, hills and along creeks in loamy sand or sandy clay loam of pH 8.5–9. It occurs within the Murray Darling Basin, Northern and Yorke, Adelaide and Mount Lofty Ranges, and Eyre Peninsula in SA (DEWHA 2008e).	Unlikely - There are no historical records in the Search Area, the species was not detected during the field survey and preferred habitat is not present in Project Area.
<i>Dodonaea procumbens</i>	Trailing Hop-bush	VU	V	1	May	The Trailing Hop-bush grows in low-lying, often winter-wet areas in woodland, low open forests, heathland and grasslands, on sands and clays. SA populations have been recorded in open Eucalyptus species woodlands in low-lying areas, and in native grasslands (Carter 2010).	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, 2007	The Peep Hill Hop-bush occurs primarily on low hills on loamy soils associated with rocky outcrops. These low hills occur to the east of the range country, just before the vegetation changes to mallee flats. The species has also been recorded from plains country in sandy soils over limestone (Moritz and Bickerton 2010).	Unlikely – There are recent (<20 years old) historical records, however the preferred habitat is not present in the Project Area, however species was not recorded during the field survey.
<i>Maireana rohrlachii</i>	Rohrlach's Bluebush		R	3		Rohrlach's Bluebush is found from northern Eyre Peninsula, SA to western Victoria. Usually growing in loamy soils (ABRS 2024).	Known - Species was recorded during field assessment.

Scientific name	Common name	Conservation status		Source of information	PMST Result, Last sighting (year)	Habitat Preferences	Likelihood of occurrence within project area
		Aus	SA				
<i>Myoporum parvifolium</i>	Creeping Boobialla		R	2	2008	The Creeping Boobialla is widespread along the Murray River where it grows on the limestone cliffs or along the river flats in open River Red Gum Woodlands on sandy silty loams. Elsewhere it grows on calcareous or volcanic soils, often in shallow depressions in Eucalyptus Woodlands, open grasslands or disturbed sites (Chinnock 2007).	Unlikely – There are recent (<20 years old) historical records, but the preferred habitat is not present in the Project Area and species was not recorded during the field survey.
<i>Olearia pannosa</i> subsp. <i>pannosa</i>	Silver Daisy-bush	VU	V	1	Likely	The silver daisy-bush occurs in sandy, flat areas and in hilly, rocky areas in woodland or mallee. Hilly area soil types include hard pedal mottled-yellow duplex and hard pedal red duplex (DotE 2013).	Unlikely - There are no historical records in the Search Area, the species was not detected during the field survey and preferred habitat is not present in Project Area.
<i>Phebalium glandulosum</i> ssp. <i>macrocalyx</i>	Glandular Phebalium		E	2	2008	The Glandular Phebalium is found in inland areas of New South Wales, northwestern Victoria, and the southern Eyre and Yorke Peninsulas of SA with the species occurring in sandy soils of heathland and mallee (ABRS 2024).	Possible – There are recent (<20 years old) historical records and preferred habitat (mallee) is present in the Project Area. However, this species was not recorded during the field survey.
<i>Pterostylis xerophila</i>	Desert Greenhood	VU	V	1	May	Little is known of the precise habitat requirements of the Desert Greenhood. In SA, the species occurs in dry woodland on fertile red loamy soils, on or around granite or quartzite rock outcrops. Species commonly found in areas on the Eyre Peninsula with Broombush, Ridge-fruited Mallee, Beaked Red Mallee and/or Narrow-leaf Red Mallee (Duncan 2010).	Unlikely - Suitable habitat does exist in the Project Area, however, there are no historical records in the Search Area and only known records in South Australia occur within the Eyre Peninsula. Climate has not been suitable conditions for flowering of this

Scientific name	Common name	Conservation status		Source of information	PMST Result, Last sighting (year)	Habitat Preferences	Likelihood of occurrence within project area
		Aus	SA				
							species. therefore, it would have been undetectable during the time of the field survey.
<i>Senecio macrocarpus</i>	Large-fruit Fireweed	VU	V	1	May	The Large-fruit Fireweed 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. (DCCEW 2024b).	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	The Yellow Swainson-pea is found in mallee vegetation communities on a variety of soil types including well-drained sands, sandy loams and heavier clay loams. It is usually found after fire growing in association with Eucalyptus species mid mallee woodland over Broombush tall shrubland (Tonkin and Robertson 2010).	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.
Fauna							
<i>Actitis hypoleucos</i>	Common Sandpiper	Mi (W)	R	1	May	The Common Sandpiper can be found in varied coastal and interior wetlands like narrow muddy edges of billabongs, river pools, mangroves, among rocks reefs and rocky beaches (Morcombe 2021). The habitat of the species includes is banks, rocks and sandy beaches near water. Found in coastal or inland wetlands, both saline or fresh (Birdlife 2024b).	Unlikely - There are no historical records in the Search Area, the preferred habitat is not present and is only listed as 'May Occur' by the PMST.
<i>Amytornis striatus howei</i>	Murray Mallee Striated Grasswren	EN		1	May	The habitat of Murray Mallee Striated Grasswren is sandplains dominated by mature spinifex, typically with an overstorey of mallee eucalypts (TSSC 2023).	Unlikely - There are no historical records in the Search Area, the preferred habitat is not present and is only listed as 'May Occur' by the PMST.

Scientific name	Common name	Conservation status		Source of information	PMST Result, Last sighting (year)	Habitat Preferences	Likelihood of occurrence within project area
		Aus	SA				
<i>Aphelocephala leucopsis</i>	Southern Whiteface	VU		1, 2, 3	Known, 2010	Southern whitefaces live 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 2023a).	Known - Species was recorded during field assessment with Mairena shrubland (VA 1) and heard calling outside the Project Area in VA 2.
<i>Aprasia pseudopulchella</i>	Flinders Ranges Worm-lizard	VU		1	Likely	The Flinders Ranges Worm-lizard inhabits open woodland, native tussock grassland, riparian habitats, and rocky isolates, preferring stony or clay soils with a stony / rocky surface, but has also been found sheltering in soil beneath stones and rotting stumps (DEWHA 2008c).	Unlikely - There are no historical records in the Search Area and the preferred habitat is not present in the Project Area.
<i>Apus pacificus</i>	Fork-tailed Swift	Mi (Ma)		1	Likely	The Fork-tailed Swift is 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 2024b).	Unlikely - There are no historical records in the Search Area and the preferred habitat is not present.
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	VU, Mi (W)		1	May	Sharp-tailed sandpipers occur within all states of Australia. They are found mostly in the south-east and are widespread in both inland and coastal locations. The species also occurs in both freshwater and saline habitats. The species is widely but sparsely scattered inland. Sharp-tailed sandpipers are considered widespread in the eastern half of SA and may be found as far north as Lake Eyre (DCCEEW 2024c).	Unlikely - There are no historical records in the Search Area, the preferred habitat is not present and is only listed as 'May Occur' by the PMST.
<i>Calidris ferruginea</i>	Curlew Sandpiper	CE, Mi (W)	E	1	May	The Curlew Sandpiper mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. They occur in both fresh and brackish waters. Occasionally they are recorded around floodwaters (DCCEEW 2023b).	Unlikely - There are no historical records in the Search Area, the preferred habitat is not present and is only listed as 'May Occur' by the PMST.
<i>Calidris melanotos</i>	Pectoral Sandpiper	Mi (W)	R	1	May	The Pectoral Sandpiper shallow fresh to saline wetlands ranging from coastal lagoons, estuaries,	Unlikely - There are no historical records in the

Scientific name	Common name	Conservation status		Source of information	PMST Result, Last sighting (year)	Habitat Preferences	Likelihood of occurrence within project area
		Aus	SA				
						bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains, and artificial wetlands (DCCEEW 2024b).	Search Area, the preferred habitat is not present and is only listed as 'May Occur' by the PMST.
<i>Corcorax melanorhamphos</i>	White-winged Cough		R	2, 3	2010	White-winged Choughs are found in open forests and woodlands. They tend to prefer the wetter areas, with lots of leaf-litter, for feeding, and available mud for nest building (Birdlife Australia 2024a).	Known - Species was recorded during field assessment.
<i>Falco hypoleucos</i>	Grey Falcon	VU	R	1	Likely	The Grey Falcon frequents timbered lowland plains, particularly acacia shrublands that are crossed by tree-lined water courses. The species has been observed hunting in treeless areas and frequents tussock grassland and open woodland, especially in winter (TSSC 2020).	Unlikely - There are no historical records in the Search Area and the preferred habitat is not present in the Project Area.
<i>Galaxias rostratus</i>	Flathead Galaxias	CE		1	May	The flathead galaxias inhabits a variety of habitats including billabongs, lakes, swamps and rivers, with a preference for still or slow flowing waters. The species has a preference for schooling in midwater (TSSC 2016b).	Unlikely - There are no historical records in the Search Area. No suitable habitat located within the Project Area.
<i>Gallinago hardwickii</i>	Latham's Snipe	VU, Mi (W)	R	1	May	The Latham's Snipe usually inhabit open, freshwater wetlands with low, dense vegetation. Smaller numbers inhabit drier habitat, including open woodlands and high-altitude grasslands or herb lands, usually those being in proximity to surface water (DCCEEW 2024d).	Unlikely - There are no historical records in the Search Area, the preferred habitat is not present and is only listed as 'May Occur' by the PMST.
<i>Grantiella picta</i>	Painted Honeyeater	VU	R	1	May	The Painted Honeyeater is dependent on mistletoe berries (Morecombe 2021) and is found in dry open forests and woodlands and is strongly associated with mistletoe. It may also be found along rivers, on plains with scattered trees and on farmland with remnant vegetation. It has been seen in urban parks and gardens where large eucalypts are available (Birdlife Australia 2024a)	Unlikely - There are no historical records in the Search Area, the preferred habitat is not present and is only listed as 'May Occur' by the PMST.

Scientific name	Common name	Conservation status		Source of information	PMST Result, Last sighting (year)	Habitat Preferences	Likelihood of occurrence within project area
		Aus	SA				
<i>Hieraaetus morphnoides</i>	Little Eagle		V	2	2010	The Little Eagle is seen over woodland and forested lands and open country, extending into the arid zone. It tends to avoid rainforest and heavy forest (Birdlife Australia 2024b).	Likely – There are recent historical records (<20 years old) and the preferred habitat is present in the Project Area.
<i>Leipoa ocellata</i>	Malleefowl	VU	V	1	Likely	The Malleefowl is found in semi-arid to arid shrublands and low woodlands, especially those dominated by mallee and/or acacias. A sandy substrate and abundance of leaf litter are required for breeding. Densities of the birds are generally greatest in areas of higher rainfall and on more fertile soils where habitats tend to be thicker and there is an abundance of food plants (Benshemesh 2007)	Unlikely - There are no historical records in the Search Area, no evidence of the species (mounds) were recorded, and the preferred habitat is not present in the Project Area.
<i>Litoria raniformis</i>	Southern Bell Frog	VU		1	May	The Southern Bell Frog is usually found among vegetation within or at the edges of permanent water such as slow flowing streams, swamps, lagoons and lakes. In disturbed areas it also commonly occurs in artificial waterbodies such as farm dams, irrigation channels, irrigated rice crops and disused quarries, particularly where natural habitat is no longer available (Clemann and Gillespie 2012)	Unlikely - There are no historical records in the Search Area, the preferred habitat is not present and is only listed as 'May Occur' by the PMST.
<i>Lophochroa leadbeateri leadbeateri</i>	Major Mitchell's Cockatoo	EN		1	May	The Major Mitchell's cockatoo lives in arid and semi-arid woodlands dominated by mulga, mallee and box eucalypts, slender cypress pine or belah. Within these vegetation types, the subspecies main requirements are fresh surface water, and trees with suitable nesting hollows (DCCEEW 2023c).	Unlikely - There are no historical records in the Search Area, the preferred habitat is not present and is only listed as 'May Occur' by the PMST.
<i>Maccullochella peellii</i>	Murray Cod	VU		1	May	The Murray Cod occurs in a range of flowing and standing waters, from small, clear, rocky streams on the inland slopes and uplands of the Great Diving Range, to the large, turbid, meandering slow-flowing rivers, creeks, anabranches, and lakes and larger billabongs, of the inland plains of	Unlikely - There are no historical records in the Search Area, the preferred habitat is not present and is only listed as 'May Occur' by the PMST.

Scientific name	Common name	Conservation status		Source of information	PMST Result, Last sighting (year)	Habitat Preferences	Likelihood of occurrence within project area
		Aus	SA				
						the Murray-Darling Basin (National Murray Cod Recovery Team 2010).	
<i>Melanodryas cucullata cucullata</i>	South-eastern Hooded Robin	EN	R	1, 2, 3	Known, 1999	The South-eastern Hooded Robin (south-eastern) prefers dry eucalypt and acacia woodlands and shrublands with an open understorey, some grassy areas and a complex ground layer. They avoid woodlands with tall trees or dense tree cover but sometimes occur in tall, dense heaths with scattered open areas. While they can occur in patches as small as 2.9 ha, in agricultural landscapes they prefer larger patches greater than 10 ha with moderately deep to deep soils (DCCEEW 2023d).	Known - Species was recorded during field assessment.
<i>Motacilla cinerea</i>	Grey Wagtail	Mi (T)		1	May	The Grey Wagtail is a European and Asian species that migrates south in winter, usually to Indonesia and NG. Rarely reaches Australia, but when it does, favours habitat near freshwater streams, also mown grass, ploughed land or near sewage ponds (Morcombe 2021).	Unlikely - There are no historical records in the Search Area, the preferred habitat is not present, vagrant to Australia and is only listed as 'May Occur' by the PMST.
<i>Motacilla flava</i>	Yellow Wagtail	Mi (T)		1	May	The Yellow Wagtail prefers open country near swamps, salt marshes, sewage ponds, grassed surrounds to airfields, bare ground. Occasionally on drier inland plains (Morcombe 2021).	Unlikely - There are no historical records in the Search Area, the preferred habitat is not present, vagrant to Australia and is only listed as 'May Occur' by the PMST.
<i>Myiagra cyanoleuca</i>	Satin Flycatcher	Mi (T)	E	1	Known	The Satin Flycatcher is known to inhabit forest, woodland, mangroves and coastal heath scrub. Prefers dense, wet gullies of heavy eucalypt forest in breeding season (Morcombe 2021). 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 2024b).	Unlikely – Despite being listed as “Known to occur” by PMST, there are no historical records in the Search Area and the preferred habitat is not present

Scientific name	Common name	Conservation status		Source of information	PMST Result, Last sighting (year)	Habitat Preferences	Likelihood of occurrence within project area
		Aus	SA				
<i>Neophema chrysostoma</i>	Blue-winged Parrot	VU	V	1	Likely	The Blue-winged Parrot inhabits 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 (DCCEE 2023e).	Possible - There are no historical records in the Search Area and suitable habitat is present in the Project Area.
<i>Nyctophilus corbeni</i>	South-eastern Long-eared Bat	VU	V	1	May	The south-eastern long-eared bat is found in a wide range of inland woodland vegetation types. These include box / ironbark / cypress pine woodlands, Buloke woodlands, Brigalow woodland, Belah woodland, smooth-barked apple woodland, river red gum forest, black box woodland, and various types of tree mallee (TSSC 2015).	Unlikely - There are no historical records in the Search Area, the preferred habitat is not present and is only listed as 'May Occur' by the PMST.
<i>Pedionomus torquatus</i>	Plains-wanderer	CE	E	1	May	Inhabits sparse, treeless, lowland native grasslands with approximately 50% bare ground, most vegetation less than 5 cm in height, with some widely-spaced plants up to 30 cm high. Present in very small numbers in SE South Australia occurring in sparse, treeless native grasslands and/or low shrubland (DotE 2015)	Unlikely - There are no historical records in the Search Area, the preferred habitat is not present and is only listed as 'May Occur' by the PMST.
<i>Polytelis anthopeplus monarchoides</i>	Regent Parrot (eastern)	VU	V	1	Likely	The Regent Parrot (eastern) 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. They often occur in farmland, especially if the farmland supports remnant patches of woodland along roadsides or in paddocks (DCCEE 2024b).	Possible - There are no historical records in the Search Area. No suitable breeding habitat within the Project Area. However, this species may forage within the Project Area.
<i>Rostratula australis</i>	Australian Painted Snipe	EN	E	1	May	The Australian Painted Snipe occurs in shallow freshwater (occasionally brackish) wetlands, both ephemeral and permanent, such as lakes, swamps, claypans, inundated or waterlogged saltmarsh, dams, rice crops, sewage farms and	Unlikely - There are no historical records in the Search Area, the preferred habitat is not present and is only

Scientific name	Common name	Conservation status		Source of information	PMST Result, Last sighting (year)	Habitat Preferences	Likelihood of occurrence within project area
		Aus	SA				
						bore drains, rushes and reeds, low scrub, open timber or samphire (DCCEEW 2024b).	listed as 'May Occur' by the PMST.
<i>Stagonopleura guttata</i>	Diamond Firetail	VU	V	1	Known	Diamond firetails occur in eucalypt, acacia or casuarina woodlands, open forests and other lightly timbered habitats, including farmland and grassland with scattered trees. They prefer areas with relatively low tree density, few large logs, and little litter cover but high grass cover (DCCEEW 2023f).	Possible – Despite no recent historical records, there is preferred habitat is present in the Project Area and listed as "Known to occur" by PMST.
<i>Tiliqua adelaidensis</i>	Pygmy Blue-tongue Lizard	EN	E	1	Likely	Pygmy blue-tongues do not appear to be confined to a particular floristic community of native grassland and co-occur with various native grassland species including tussock grasses and perennial herbs (DCCEEW 2023g).	Unlikely - There are no historical records in the Search Area and the Project Area is on the edge of the species distribution.
<i>Turnix varius varius</i>	Painted Buttonquail		R	3		The Painted Buttonquail can be found in temperate and eastern tropical forests and woodlands form the habitats of this species. They appear to prefer closed canopies with some understory and deep leaf litter on the ground (Birdlife Australia 2024b).	Known - Species was recorded during field assessment with VA 2.

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 (DCCEEW 2024a) - 5 km buffer applied to Project Area.
2. Biological Database of South Australia data extract (DEW 2024b) - 5 km buffer applied to Project Area.
3. Observed during the field survey.